BEYOND WHITE WALLS The healing environment of a patient hotel

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CAROLINE JOKINIEMI & CHRISTINE TAM

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WHAT

MASTER'S DESIGN THESIS at:

Chalmers University of Technology
Department of Architecture
SE-412 96 Göteborg
Sweden

WHEN

Spring Semester, 2012

EXAMINATION DATE:
2012-05-24

WHERE

PROJECT SITE
SUS (University Hospital in Skåne)
Malmö, Sweden

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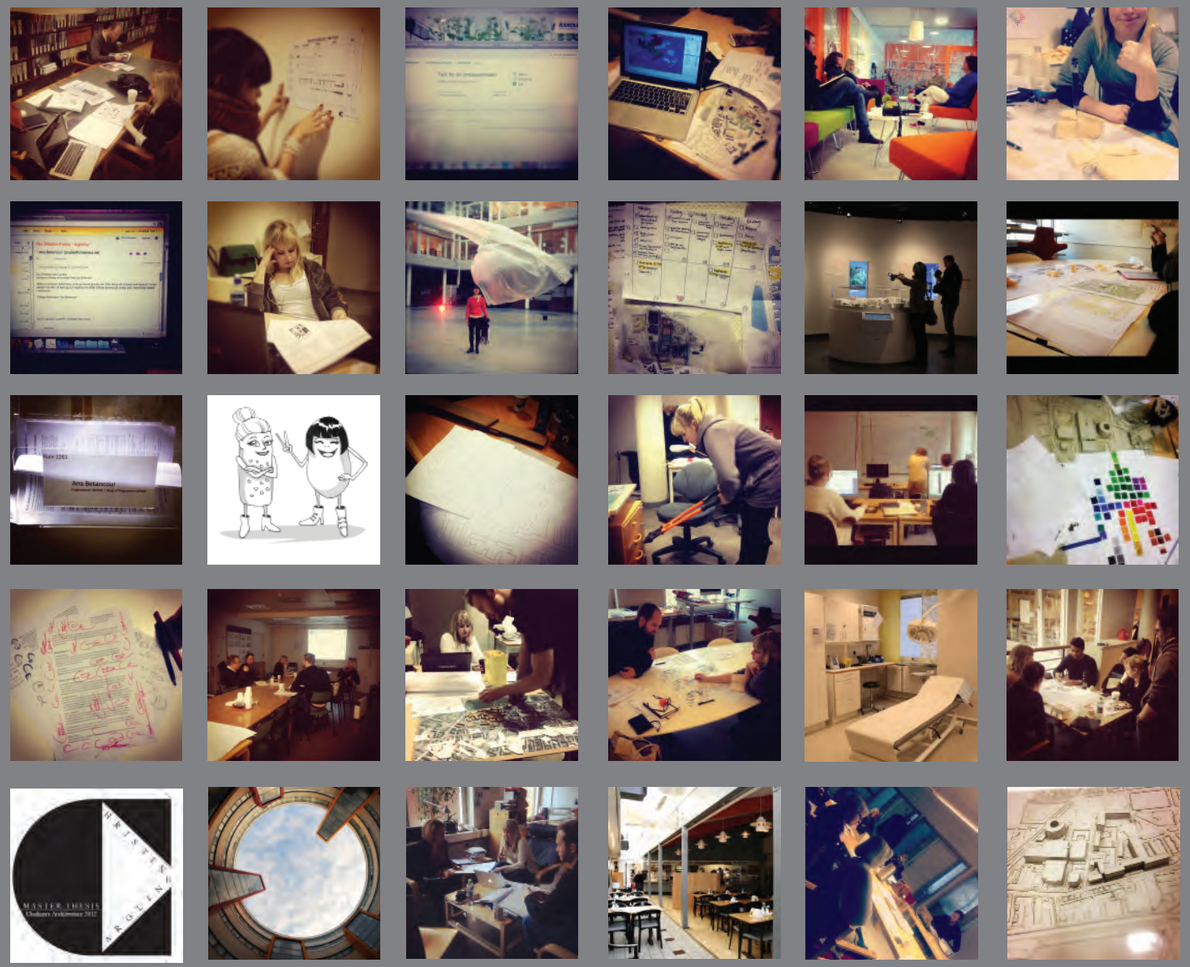
WEEK 1 WEEK 2 WEEK 3 WEEK 4 WEEK 5 WEEK 6



PICTURE OF THE DAY. Documentation of thesis process, week 1-6 on blog:
http://beyondwhitewalls.tumblr.com

Acknowledgement

Peter Fröst, Björn Gross, Peter Lindblom, Tabita Nilsson, Karl-Gunnar Olsson, Marie Strid, Roger Ulrich,
& Chalmers Tekniska Högskolan, Göteborg

Ingela Lyberg Andersson, Christina Edlund, Alice Lindström, Mats Olsson
& Region Skåne

Monica Linder-Hassler
& Mörby Patienthotell, Danderyds sjukhus, Stockholm

Carina Nilbrink
& Karolinska Universitetssjukhus, Huddinge

Christine Hammarling
& Tengbom arkitekter, Stockholm

Annika Henningsson, Lena Hagelqvist
& Sahlgrenska Universitetssjukhus, Göteborg

Anna-Karin Norrman
& Ronald McDonal's Hus, Göteborg

Robert Grahnat
& Clarion Hotel Post, Göteborg

Maria Lipinska Svensson
& Patienthotellet, Lund

OUR HUMBLE THANKS FOR ALL YOUR SUPPORT DURING THE JOURNEY OF BEYOND WHITE WALLS.
SINCERELY,

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WEEK 7 WEEK 8 WEEK 9 WEEK 10 WEEK 11 WEEK 12

PICTURE OF THE DAY. Documentation of thesis process, week 7-12 on blog:
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Abstract

Developmental tendencies within healthcare point out a growing polarization between the in-and outpatient wards, resulting in an extended phase of transition where patients are neither ill enough to be accepted for longer hospital stays or well enough to go back home.

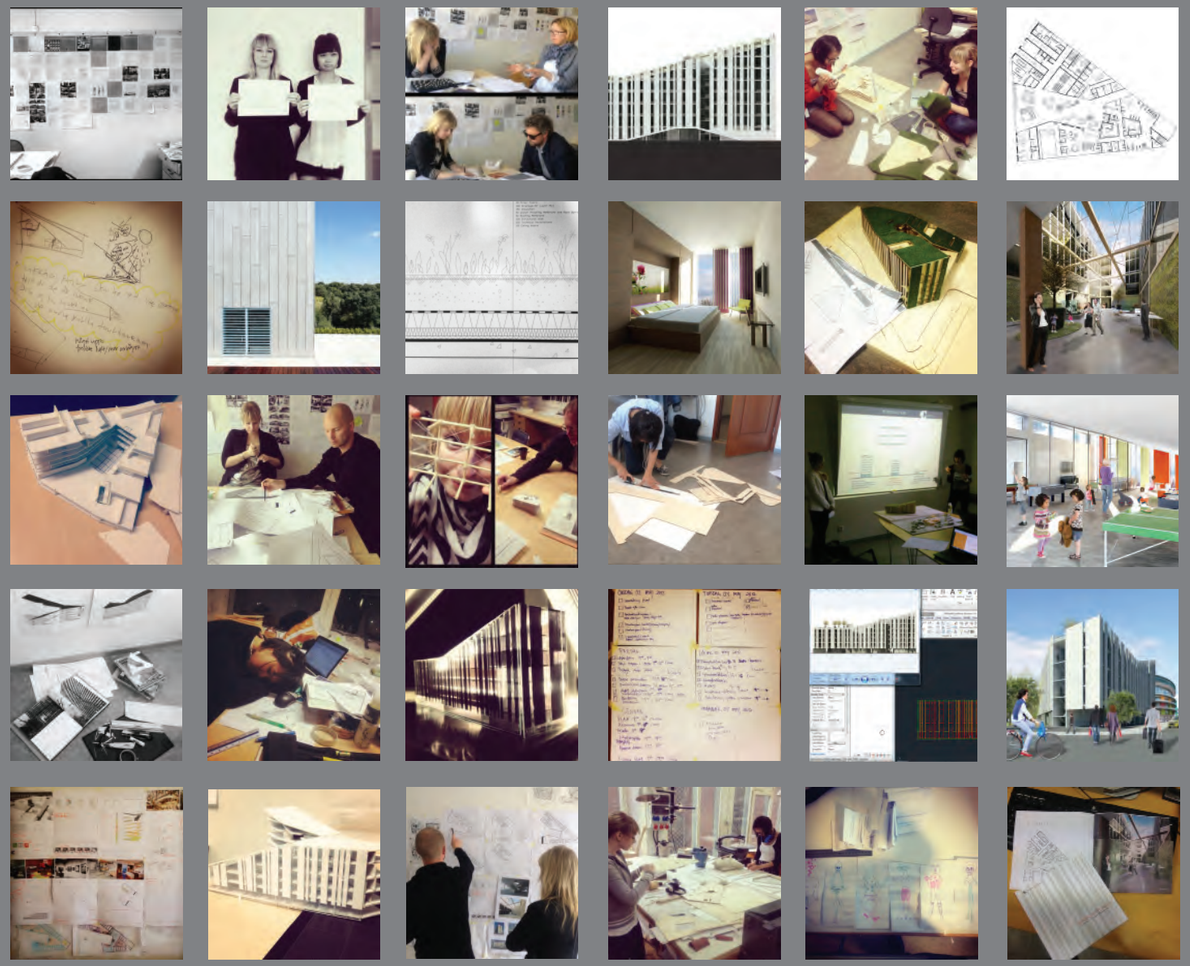
Beyond White Walls aims to address this question by investigating how a healing environment can be configured in the brief of a patient hotel; a hybrid building that provides temporary accommodation for patients, for their families, but also for external guests as one healing aspect to enhance a normalized environment as opposed to the hospital.

Other healing aspects stated in the thesis include closeness to natural elements, possibilities for social support and being surrounded by positive distractions, which are developed through research and studies of Evidence Based Design theories, combined with study visits of healthcare institutions, hotels and existing patient hotels.

The outcome of the thesis is a 50/50 division of a theoretic written text and a design proposal that demonstrates how the conclusions from the research process can be implemented into architectural aspects, stressing on the importance to take the mentioned standpoints beyond the white walls of hospital environments.

KEYWORDS: healing environment, patient, hotel, fusion, hybrid, evidence based-design

WEEK 13 WEEK 14 WEEK 15 WEEK 16 WEEK 17 WEEK 18



PICTURE OF THE DAY. Documentation of thesis process, week 13-18 on blog:
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Content

PREFACE

Introduction

Patient hotel. When coming across this term for the first time, you would probably stop for a split second, just as many others including ourselves, and reflect upon whether or not you have understood the meaning correctly. Because it does not necessarily give you an instant association or a specific reference to something familiar, as opposed to how a church, a school, a restaurant or a hospital would do. Instead, it leads you to think about the two words separately and how they can be connected together into one object; the patient and a hotel. And this indeed, is what triggered our interest into investigating the subject further on our Master's thesis.

Patient hotels, although seemingly new in our history, have existed longer and in a broader extension than we are aware of. Why they have not yet gained a wider knowledge by the general public is due to the small amount of new projects that are purpose-built patient hotels. In many cases today, patient hotels are housed in abandoned premises near the hospital area and are gradually adapted, but not optimal for such a function.

Patient hotels exist primarily because of the need of temporary accommodation for people in the transition phase between the hospital and their home, and occasionally, for families of hospitalized patients. But along with the development of higher efficiency and shorter hospital stays in modern healthcare environments, this need of in-between wards is growing.

With our Master's thesis, we therefore want to highlight this subject and bring forth the discussion to the public and the architecture world. We see patient hotels not only as opportunities to unburden the hospital capacity, but as well as a platform to discuss and demonstrate our visions of future healthcare. It challenges our independent thinking as graduating students in the way that we have to create our own building brief, justifying what we believe a hybrid building of this kind would look like in a future scenario, 20 years ahead of our own time. Moreover, It also allows us to explore alternative ways to design a healing environment that goes beyond regulated standards of hospital institutions. Something beyond massive building blocks, never-ending corridors, fluroescent lamps and clean white walls.

Background

DEVELOPMENTAL TENDENCIES OF THE HEALTHCARE SECTOR

First thing to understand about healthcare institutions is the challenge to plan and predict what the organization will look, even for 5 years-time, due to the rapid speed of development and the constant changes that occur within the sector. Hospitals are in frequent need of adapting small and non-general structures to catch up with modern needs of flexibility, logistics and technical installations, as well as being a step ahead for the future. Developmental tendencies point out that in-patient care is growing heavier technically, requiring more resources and a higher level of hygiene. An increase of the intensive care will also occur. Diagnostics and treatments will be able to take place in the patient rooms, leading to higher supply of single-patient rooms and fewer amounts of patient beds.

Meanwhile, minor operations and day treatments are becoming more common, resulting in that out-patient care increases in capacity. The amount of patients that get discharged from the hospital on the same day after a treatment will increase and home-based care will eventually be offered in everyday life situations. Not only will the nurses assist with easier procedures such as injections, taking urine and blood samples, but they will also be able to give pain reliefs and drip to cancer patients in the home environment.

Having staff traveling out from the hospital borders is one of the new structures of work that will emerge. Other questions of importance include how to improve safety and efficiency, focusing on patient centre care, as well as maintaining a strong coherent connection between the different stages of diagnostic, treatment and rehabilitation. Developed IT-support not only enables better ways of cooperation and communication, but also provides patients opportunities to easier access information about their sickness and so, having more open dialogues with their doctors.

The traditional borders between different clinics will gradually dissolve and the hospital in the future will mainly be dealing with operative procedures that require highly technical equipment. In this scenario where a growing polarization occurs between the in and out-patient wards, the phase of transition also extends with a growing amount of patients that are neither ill enough to be accepted for longer hospital stays or well enough to go back home.

PROJECT AREA

In 2010, the county of Skåne formed collaboration between the hospitals of Malmö and Lund, merging the two individual institutions into one establishment, presently known as the University Hospital of Skåne, or SUS (Skånes Universitetssjukhus). University hospitals contain a combination of care, research and education; striving to spread knowledge, offering meeting places and creative working environments, as well as being in continuous development of competence. Shorter distances and better connections are therefore required in the hospital areas, which lead to a great challenge for both Malmö and Lund. Aside from being in severe need of new premises and adaptions of existing structures, they are also under system and organization developments due to the merge that may require greater relocations and additions of programs.

MALMÖ

The project area of this thesis will be focused in Malmö, which is the third largest city of Sweden with a population of more than 300 000.

Malmö is interesting besides being a multicultural and a vital city. For the past 10-20 years, it has as well undergone a fast expansion, not only demographically and economically, but also urbanely. Quarters and neighbourhoods have been transformed and added to the cityscape. The street life has changed and become rich with varieties. New residential areas have been built and education facilities have been formed, such as Malmö University. [1]

Thanks to its location in the south, Malmö also has a direct connection with Denmark by a rail-and-road bridge. This has strenghtened the region as a whole and facilitated the commuter service, allowing 20 000 people travelling across the channel of Öresund everyday for work, mainly from and to the capital of the neighbour country, Copenhagen.

The completion of City Tunnel in 2010 has reinforced the network between the region and the county of Skåne even more. The tunnel is an extension of the railway link, built under the city centre of Malmö that connects the county to the bridge.[2]

1. http://www.malmobusiness.com/sv/artiklar/fakta-om-malmo (2012-03-06)
2. http://se.oresundsbron.com/page/3363 (2012-03-06)

Malmö

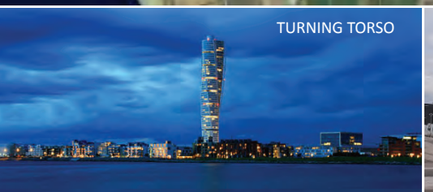
TURNING TORSO

CENTRAL RAIL STATION

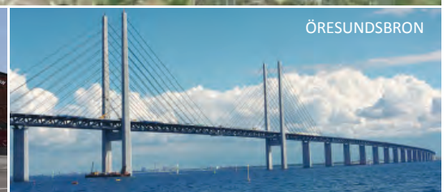
PILDAMMSPARKEN

MALMÖ HOSPITAL

ÖRESUNDSBRON
(TO DENMARK)


TURNING TORSO


EXTENSION OF CENTRAL STATION


ÖRESUNDSBRON

Approach

The purpose of this master's thesis is to investigate future healthcare in the aspect of the transition phase between the hospital and home, using the brief of a patient hotel to explore alternative ways to design healing environments beyond institutional standards.

EVIDENCE-BASED DESIGN THEORIES

Evidence-based design (EBD) is a field of study that emphasizes the importance of using credible data in order to influence the design process.[3] The approach has so far reached popularity mainly in healthcare architecture as an effort to improve patient and staff well-being, patient healing process, stress reduction and safety. Although EBD is a rather new topic of research, it has similarities with environmental psychology, architectural theory and behavioural science which are all relevantly connected to the subject of a healing environment. Hence, it is also the main point of departure in our research.

SENSES IN ARCHITECTURE

From the big picture of EBD, we have aimed to narrow down and focus on the points of view that specifically concern how architecture is perceived by the human senses. Throughout the process, we have attempted to connect the knowledge on the human senses with the design-recommendations of Evidence-based design in order to deepen the understanding of both subjects, such as the choice of colour and materials, the shape of rooms and how they are perceived by patients.

3. http://en.wikipedia.org/wiki/Evidence-based_design (2012-03-06)

Methods

THESES AND LITERATURE

Theses from previous years have been the first step taking us closer to the picture of what we want our own thesis report to look like; this includes everything from layout and format to organization and usage of headlines. Studying older theses, especially those that deal with the same subject, have also helped us finding relevant references in terms of books, dissertations and internet links. Moreover, they have enabled us to pick up discussions and further analyses on matters that we can use to create a framework for our own work.

STUDY VISITS AND INTERVIEWS

Apart from literature studies, we have also looked for references by interviewing different stakeholders and going on study visits - a great source for inspiration.

BLOG AND SOCIAL MEDIA

One way to document our process and to keep track on our time-plan is to create a blog. This has not only been helpful to keep our stakeholders in Skåne updated about our progress, but also the general public and anyone that may be interested in our project along the way. An updated blog serves as a good motivator to accomplish and deliver material, and has eventually become a tool that creates small deadlines for us on a weekly basis.

HALF DAY THEORY, HALF DAY PRACTISE

Instead of separating a research and a design phase that spans over weeks, we have combined both of them on a daily basis. The morning when the energy is still high, we read literature and write texts, while the afternoon is spent on the practical part of sketching and modeling. This way of working has given a variety to the process every day, and a good balance in the project of theory and practise.

DEFINING OBSTRUCTIONS

In order to limit the project and not losing focus, obstructions have been defined. By obstruction, we mean to set up rules in forms of design criteria early in the process, which has helped to strengthen the concept of our project.

CREATING A TOOLBOX

Pen: The pen can be used to make quick sketches and notes. This makes it easy to explain ideas in a quick and efficient way.

Model: The use of physical sketch models creates a feeling of the building at an early stage. But it is also a great way to discover problems and possibilities.

Text: When formulating a problem or an idea in words, the strategies for completing the goals become clearer. Using text can be a way of explaining things that can't be explained by pictures. But the text is also a tool of art itself and can create mental pictures.

List: Listing is an easy way to help structuring and organizing the work load, but also a quick way to remember what has been done. Making list for every presentation, every tutor session and for every day has been an effective way for us to state what results we anticipate from them.

Editor's wall: At the offices of many famous magazines the concept of an editor's wall is being used. This means that a layout dummy of every single page of the magazine is being pin up on a wall to create an overview of the final product. This is a way to estimate the workload and to see what the finished parts are and what needs to further develop.

Computer: The computer can be seen as machine hosting many of the tools described above. The possibilities of modern 3D-modeling program, illustrational programs, digital photography, and access to the internet has made the computer essential.

Time plan: By making a detailed time plan that is being up-dated on a weekly basis, the amount of work can be compared to the amount of time there is to accomplish the thesis. Not only does it create an overview but it also helps us to keep track on all the boxes that need to be ticked off for the final presentation.

SWOT-analysis: (strengths, weaknesses, opportunities and threats) is a basic and common tool that can be used in most cases, both when it concerns the site only or even the master thesis itself. This clarifies the qualities and the problems with the site or thesis.

PREPARATORY RESEARCH

Patient hotel

WHAT IS IT AND WHY IS IT IMPORTANT?

A patient hotel is a place that first and foremost provides accommodation for people that are in need of healthcare within reach, yet not severe enough to stay in hospitals. It can be the place for patients and their families to stay over after travelling long distances to the hospital, and also perhaps, because of the fact that a specific kind of treatment only exists in that hospital.

TYPES OF GUEST?

Types of guests vary from women that stay after a complicated delivery to physiotherapy patients who require daily treatment, or perhaps patients staying before or after an a surgery. One common factor for them all is the guests of the patient hotels are all able to cope fairly well on their own. It is somewhere for them to find comfort knowing that medical professionals are around, yet not there to take care of them as patients.

The patient hotel should have an inner connection to the hospital and to various departments, being in stand by position in case the condition of a patient should deteriorate. But a patient hotel can as well be for external guests without connections to the hospital that come as tourists and businessmen to attend conferences.

IN-PATIENT WARD:
Patients in need of treatment that require heavy equipment; trans-plantations, operative procedures.

IN-BETWEEN WARD:
Complicated deliveries, before/ after operations, rehabilitation, after-care

OUT-PATIENT WARD:
Patients going home on same day after treatment; day-care, home-based care.

Hospital versus Hotel

DIFFERENCES FROM A COMMON HOTEL

The presence of staff with medical background

Alarm system and an emergency button in every room

Higher accessibility in rooms and bathrooms

Lighter medical equipment in some cases, such as drip.

Inner culvert connection to the hospital

SIMILARITIES WITH THE HOSPITAL

Single - and double rooms

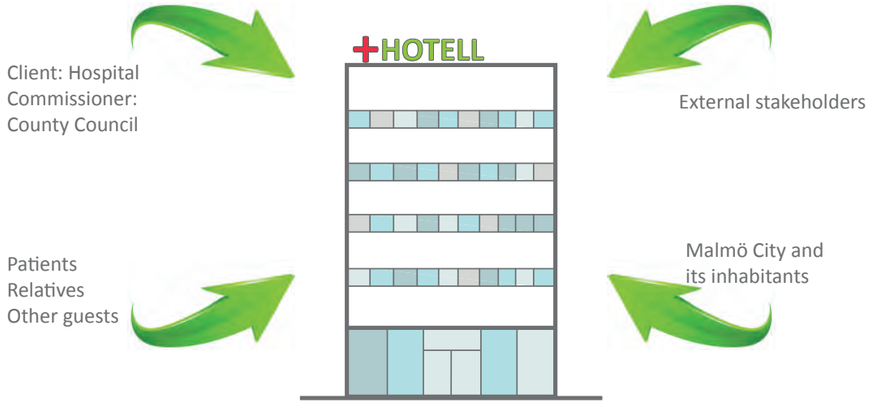
Public spaces; reception, lobby, waiting area, restaurant

Vertical and horizontal communications

Sepated flow between staff and visitors

High demand of storage spaces

Flexible/module construction



Evidence-Based Design

"Evidence-based design is a process used by health care professionals in the planning, design, and construction of healthcare facilities. An evidence-based designer, along with an informed client, makes decisions based on the best information available from research, from projects evaluations, and from evidence gathered from the operations of the client" [4]

THE IMPORTANCE OF EVIDENCE-BASED DESIGN

The design of physical environments has a strong impact on human, especially on the patients that are in healthcare institutions. It has appeared to be more important than researchers first believed, not only from an experiencing point of view but also for the recovery of the patient. The way the physical environment is designed can affect us both positively and negatively when it comes to stress, how comfortable we are feeling, how we are treated, and in our communication with others. In addition, research has also shown economical benefits in terms of lower use of medication, less stress and shorter hospital stays when it comes to a more pleasant hospital design with good daylight conditions and the close connection to green areas and views.

Going to the hospital is not what people choose to do. Being in such a situation, the patient and their family are already in a stressed and anxious state of mind. Noisy waiting areas and corridors, rooms with no views, inappropriate lighting, no possibilities of having private conversations without the risk of being overheard, and uncomfortable furniture create even more stress and frustration. Therefore it is crucial to provide an environment that reduces stress so that the patient and their family can feel safe and in the hand of the professionals. To summarize, the patient should be spending energy fighting the disease and not the environment.

By this said, there is more than 1000 research studies, which suggest that healthcare design can improve patient care and medical outcomes and can decrease medical errors and waste.[5] Although this thesis is not based in a hospital setting, several design theories have been studied and listed as key references to the configuration of a healing environment, which will later be reflected in the design proposal.

4. Sigma Theta Tau International. (2010). Evidence-based design in healthcare facilities. Edited by Mc Cullough, C. Page 2.
5. Evidence-based design in healthcare facilities. Page 3.

The rest of this chapter will be divided into four parts. Key factor 1: Family-centered care and social support, points out the importance of involving the family in the care process. Key factor 2: Division of room and spaces stresses the importance of a clear and understandable room disposition. Key factor 3: Sensory stimulation, emphasize how design can be adapted after the different senses, and Key factor 4: Sustainable healthcare environments, discusses the sustainability and future trends of healthcare.

KEY FACTOR 1: FAMILY-CENTERED CARE AND SOCIAL SUPPORT

"Social support has been described as emotional, informational, and tangible support and is normally received from people in a social network and the family." [6]

The possibilities for the patient to be in contact with their social support network is important during the hospitalization, however, limited at common hospital settings today. It is even harder to imagine that only 50 years ago, parents were not even allowed to stay at the hospital over the night when their small children were hospitalized. Instead, they were restricted to specific visiting hours and were considered a nuisance for the hospital staff rather than a resource. Since the late 1970s and onwards, models of care such as *Planetree*, *patient-focused care*, and *cooperative care* have been developed to address the social needs of patients who require involvement of family during their care time.

Planetree

The Planetree model was founded in 1978 by Angelica Thieriot in San Francisco, California, after having experienced an unpleasant hospital stay that was cold, frightening and inhumane. Being from Argentina, she felt isolated from the support of her family and friends, but also uninformed about her condition.

A citation from Angelina about her experience follows:

"During the two weeks I was there, I never saw the same nurse twice. Other than my doctor who came early in the morning to shake his head and talk about me as if I weren't there (once saying to my husband "I'm afraid we're losing her)

6. R. S. Ulrich + others. (2008) A review of the research literature on evidence-based healthcare design. Paper. HERD Vol. 1, No. 3. Page 138

,anonymous people came and went, giving me pills, drawing blood, and answering my fearful questions with "I don't know, you'll have to ask your doctor." My mother-in-law sent me an orchid, which became the center of my attention. It was the only refuge from the bleak and sterile ugliness that surrounded me. I stared at it as if to save my life." [7]

Angelica Thieriot

Angelica believed that healthcare should be delivered with an approach that addressed the body, mind and spirit. In order to create a truly healing environment she describes the ideal hospital as a combination of the best of hotels, hospitals and spas.

One popular function in Planetree hospitals is the Health Resource Library. These small libraries, usually located in close connection to the main lobby, have a function as educational resource centers and provide a range of information that focus on specific needs of the unit, such as information on cancer or cardiology. Depending on the capacity of the space, they often include books, pamphlets, computers and other informative multimedia. There is as well evidence that shows that high levels of social interaction and beneficial social support can be increased by providing lounges, day rooms, and waiting rooms with comfortable, movable furniture arranged in small, flexible groupings.

Planetree works in this manner by providing kitchens. By having a kitchen and a lounge that attract people together, interactions and conversations can naturally emerge. The social support of other patients and families who share similar experiences about coping with illness should not be underestimated.

Cooperative Care

Cooperative care is another developed model that aims to educate family and friends in how to care for the patient in a homelike environment. By doing this while the patient is still in the hospital, medical errors are reduced once the patient has left the hospital. This model is often used in the care of transplant, cancer and rehabilitation patients. For the Neonatal intensive Care Unit, it is used more frequently since parents need to learn how to care for a child.

7. S. B. Framton., P. Charmel. (2009). Putting patients first- Best practices in patient-centered care, second edition. Page XXIII

KEY FACTOR 2: DIVISION OF ROOM AND SPACES

In the proposal of a patient hotel, it is also essential to consider the factors of room sizes and distribution in order to understand what type of guests that will be utilising them. Since the main target group of the patient hotel is people that undergo some sort of treatment, one part of the building will be specifically closed to a group of infection sensitive patients.

Single patient-rooms
Lack of space has long been a limiting factor for the involvement of families. Multi-bed rooms and overload of patients have resulted in difficulties to create space for visitors. Modern development is however heading toward standardization of single-patient rooms including the advantages of minimizing infection transmissions, improving the quality of sleep, lessen the amount of stress, and making private conversations possible without being overheard.

Infections - how and why?
"Generally speaking, infection transmissions occur via three routes: contact, air and water. Contact is widely considered the principal or most frequent transmission route. In reality these three routes may intertwine with each other in the spread of nosocomial infections"[8]

Contact-contamination is generally recognized as the main transmission route of nosocomial infections. Environmental routes of contact-spread infections include direct person-to-person contact and indirect transmission via environmental surfaces. Well-functioning hand hygiene is the most important single measure for preventing the spread of pathogens in healthcare settings.

Airborne infection outbreaks can be identified due to the malfunction or contamination of ventilation systems and lack of cleaning and maintenance. Measures to control and prevent airborne infections include using single-bed rooms instead of multi-bed rooms which increases the isolation capacity, and installing effective ventilation systems with appropriate filters and air changing rates.

Compared with airborne and contact transmission of infection, there are fewer studies on waterborne transmission. Evidently, the water needs to be handled in a correct way and kept in appropriate temperatures.

8 A review of the research literature on evidence-based healthcare design. Paper. HERD Vol. 1, No. 3. Page 105

Using decorative fountains in healthcare facilities is popular, but also questioned for generating infectious aerosols. However Rogers' review (2006) found no empirical study linking a waterborne infectious disease or nosocomial outbreak to the indoor placement of a water fountain or water feature in hospitals. The best way to prevent infections is to maintain a good hand hygiene by providing accessible alcohol-based hand rub dispensers, sinks that are clearly visible inside the patient room, choosing easy-to-clean furniture and wall finishes, and providing single-rooms rather than multi-bed rooms.

Sleep and communication
Patients in single-bed rooms benefit from increased privacy and reduction of noise from roommates, visitors and healthcare staff. These factors improve sleep and facilitate the healing process as well as allowing communication among patients, families and their care providers in private conversations.

Single-patient rooms also encourage family visits and social interaction, and are more likely to provide space to accommodate visiting relatives and friends. It is important to make sure that single-patient rooms include appropriate family zones and comfortable furniture to encourage family members to stay longer and provide with support to the patients.

On-Stage, Off-Stage
Every room in a healthcare setting is used in different ways and for different needs. The patient room, the waiting room, and the physician's office have all a specific purpose where the design and the usage must be complementary and durable. Healthcare spaces should therefore be categorized into two areas: on-stage and off-stage, having a clear division between the public and private zones so that the patient can orientate themselves easier as well as having a calmer and more silent environment to be in.

On-stage spaces include all areas that a patient or family member is present. These spaces include patient rooms, waiting rooms, lobbies, gardens, cafeterias, rest rooms, elevators, and so on. Although the patient rooms are not visible for the general public, it is still considered the category of on-stage space.

Off-stage spaces are areas for the employees. These are the spaces that are not visible for patients and family members normally. Off-stage spaces include employee lounge areas, technical employee-only spaces, and department offices, internal corridors and so on.

Wayfinding
Wayfinding problems in hospitals are costly and stressful and have a particular impact on patients and visitors, who are often unfamiliar with the hospital. Spatial organization is considered to be the most important element of wayfinding design because it makes the space easier to understand. Identifying zones in a building, creating on-stage and off-stage areas, and clear sight lines can promote and improve wayfinding. In addition to this, a variety of cues including sign-age, landmarks, interactive maps of the building and campus, information desk, audio chimes or voice overlay at entrance portals and directories can be used. Depending on the scale of the building, each floor can also be developed with a specific visual story or theme that is layered and integrated with interior finishes, through the use of shape, colour, furniture and artwork. The combination and coordination of these elements serves to knit the entire visual story together.

KEY FACTOR 3: SENSORY STIMULATION

Without our senses, we cannot exist. The senses are the connection between our bodies and the environment we live. They help us to orientate ourselves, as well as to analyse the surrounding. But above all, they are essential for our communication with other humans.
How the senses can be stimulated by the physical surrounding is a main focal point of the research process in this thesis. Since EBD theories cover a broad field of study, it is important to find the relevant subjects that can be connected with the core of this thesis; the architectural and healing aspects.

Healing architecture
The concept of a healing environment is however more than only cosmetic renovations, new flooring and change of the colour palette. Factors that form a healing environment is more about the values in care and what feeling the building communicates such as:

- Being a place to heal the mind, body and soul.
- Being a place where respect and dignity are woven onto everything.
- Being a place where life, death, illness, and healing define the moment and the building supports those events or situations.

Basic components of a healing environment are stated as follow:

- Air quality
- Thermal comfort
- Noise control
- Privacy
- Light
- Views of nature
- Visual serenity for those who are very ill
- Visual stimulation for those who are recuperating
- Access to nature
- Positive diversion
- Access to social support
- Options and choice (control)
- Elimination of environmental stressors such as noise, glare and poor air quality.
- Positive distractions

Positive distractions
Positive distraction can be anything that helps divert attention, even for a short time, and causes a positive emotional response. Due to the fact that hospitals are not typical places for people to go because of choice, many of them feel a sense of anxiety for being there. By integrating “wow” features to help distracting people from their negative feelings can change a dull experience into a tolerable, sometimes even relaxing and enjoyable feeling.

Most positive distractions are based on some form of nature (water, gardens and views of the nature). They can as well be artificial items, such as statues, interesting patterns in the interior walls of brick or stone, mosaic tile scenes on walls or floors, fireplaces and aquariums. Even an aesthetic pleasing reception desk made of wood can divert attention.

Various types of activities have also shown to be particular good for relatives that want to focus their mind on something else other than worrying for their loved one for a a brief second. These activities include exercise, board games and creative activities such as painting.

VISION AND ARCHITECTURE

Vision, or the eyesight, is the sense that often gives us the first impression of the surrounding. We use it to orientate ourselves, to estimate distances and sizes, and to understand shape as well as movement. Eyesight is closely connected to the light. Without light, there is no reflection, and without reflections, there are no colours. When it comes to design, eyesight is the primary sense. Matters to consider in the design of the patient hotel are size, shape, light, materials and colours.

Aesthetics

Aesthetics are one of the strongest non-quantifiable components of EBD. The right aesthetic can set the tone, provide a natural distraction, and reinforce the quality of the care received. The right combination of pattern, colour, lighting, texture, and positive distraction can set the stage for an encouraging experience.

Hospitals are functional institutions with many standardizations in order to deal with the complexity, hence often also perceived as boring, cold, sterile and impersonal. As a consequence, the patient rather feels more uncomfortable and stressed, leading to a slower healing process and an extended hospital stay instead of the opposite. The function of a patient room is therefore to provide a healing space and should be equally important as the aesthetics in the room.

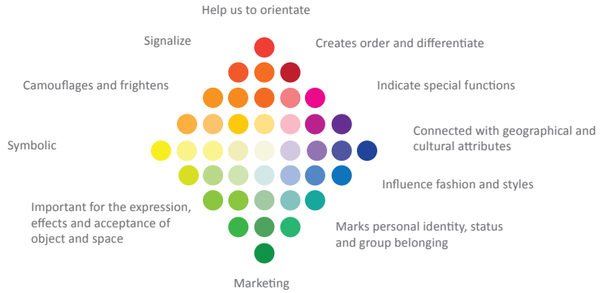
Furniture, textile and materials

Details such as furniture, various types of material and textile can work as enriching elements to an interior space, fostering the collaboration among caregivers and promoting interaction. Furniture has a varied range of materials including wood, metal, laminate, and composite materials. Moveable chairs and sound-absorbing room dividers, for instance, can help families to form groups as they please and encourage people to have direct face-to-face dialogue instead of sitting on standardized fixed furniture.

The key to long-lasting aesthetic is using the most durable and pleasing products available, such as those that have a long life-cycle for an affordable price. Designers often look for the most permanent materials (hard surface flooring, door finishes, stone, etc.) to be anchors of the palette. As accents, upholstery, wall coverings and paint, textiles or other materials that are easily replaceable can be utilised.

Colour and its significance

Colour is the most subjective element of aesthetics. The experience of colour differs between genders, generational preferences, location and cultures. For example, red symbolizes luck in China, whereas in western cultures, usage of red symbolizes danger. Many healthcare designers agree upon natural warm and cool colours are most the most suitable ones in healthcare environments. However, no clear evidence has proven that specific colours are more superior to other, nor do they make differences in terms of patient health, staff effectiveness healthcare facility efficiency.



Artwork

Art in architecture is perhaps the most evident positive distraction a designer can provide. When choosing a suitable piece of art for the hospital environment, whether it is a painting, a sculpture or a photograph, one must consider if this piece of art inspires and support healing. Apparently, research has shown that the process is more complicated than expected.

Abstract art, for instance, should be avoided in the patient perspective because it can lead to frustrations when trying to understand the meaning behind it. Roger Ulrich believes that the reason behind the frustrations is due to the free interpretation that comes with abstract art. If a patient is in a negative state of mind, the interpretation is more likely to be frightening. Types of art that has appeared to work best in healthcare facilities are those that feature natural motives. This can be illustrated by a study that was performed where researchers showed a collection of 17 paintings to patients in their hospital rooms, and asked them to rate each painting with the following questions:

"(1) How does the picture make you feel, and (2) Would you like to hang this picture in your hospital room? Findings indicated that patients were significantly more positive about nature paintings (landscapes with verdant foliage, flowers, and water) than they were about best selling pictures or even works by masters such as Chagall and Van Gogh. The most positively rated painting depicted a gentle waterfall with vegetation. In the same research, representational nature paintings containing human figures and harmless animals such as deer were preferred over counterparts that were some what abstract." [9]

Nature

People have in all ages been aware of the calming and empowering effects that nature have on us. Monasteries and historical hospitals were often placed on sites with close connection to the open green, forests and spectacular views. Today, we often choose to place spas and holiday houses in areas with nature features for the exact same reasons.

"Investigators have reported consistently that stress-reducing or restorative benefits viewing nature are manifested as a constellation of positive emotional, psychological and physiological changes. Positive feeling such as pleasantness and calm increase, while anxiety, anger, or other negative emotions diminish. Also many nature scenes sustain positive interest and thus function as pleasant distractions that may block worrisome, stressful thoughts."[10]

This is highly important for patients and maybe even more important for the relatives that carry worry. If the relative can experience a beautiful courtyard garden, linger on a comfortable bench, and even smell the roses or lavender, the senses are heightened, and stress often subsides, at least for a while. The restoration from the stressed state is manifested within 3 minutes, and sometimes as fast as several seconds when a nature-based element is being introduced.

A scientific study that measured recovery from anxiety in patients waiting to undergo dental surgery has shown that by placing an active aquarium in the waiting room, anxiety was lower compared to when it was not present. Another study indicated that patients looking at a colour picture with a well-lighted view of trees were in need of fewer doses of strong pain drugs than those who looked at abstract images or a wall with no art.

9. A review of the research literature on evidence-based healthcare design. Paper. HERD Vol. 1, No. 3. Page 129
10. A review of the research literature on evidence-based healthcare design. Paper. HERD Vol. 1, No. 3. Page 128

Viewing nature can reduce the perception of pain and thereby lower the use of pain medications. In combination with classical music, viewing nature has proved to have even greater pain reducing effects. Researchers believe that this is possible because of the positive emotions that are awake when patients are exposed to nature. According to distraction theory, pain requires considerable conscious attention. However, if patients become diverted by or engrossed in a pleasant distraction such as a nature view, they have less attention to direct to their pain, and the experienced pain therefore will diminish. Patients rooms should be designed with large windows so that bedridden persons suffering from pain can look out onto sunny nature spaces. Also, attention should be given to affording nature window views in procedure spaces, treatment rooms, and waiting areas where pain is a problem.

Natural light

Humans receive 90% of Vitamin D from sunlight. Vitamin D is an important component in the function of our immune system, so it is no surprise that when we are spending the majority of our awaken time indoors our immune systems become weakened due to the lack of sunlight exposure. The possibility for patients to have direct access to daylight is therefore crucial.

Although sunlight is positive, it can sometimes be hard to control and can cause uncomfortable glare and heat. Window orientation, size, and location, as well as proper shading solutions like overhangs, vertical fins, or mature trees or nearby buildings need to be considered.

Exposure to light- daylight or bright artificial light- is effective in reducing depression and improving mood, which makes it a potential valuable treatment component. Proper daylight conditions also increase daytime alertness, and fostering better sleep quality. Research on patients suffering from depression found that patients in rooms with more morning daylight had shorter lengths of stay than patients in rooms without morning sunlight. Patients with rooms facing east usually have higher levels of serotonin, that lowers pain, than patients having windows with no, or little, direct sunlight. The patients that are exposed longer to daylight tend to need fewer pain-reducing drugs and have shorter hospital stays than their neighbours in shadowed rooms.

"The presumed pain reduction mechanism for daylight is different than for nature. Sunlight exposure increases levels of serotonin, a neurotransmitter known to inhibit pain pathways."[11]

11. A review of the research literature on evidence-based healthcare design. Paper. HERD Vol. 1, No. 3. Page 122

HEARING AND ARCHITECTURE

Hearing is what helps us estimating distance, direction and size, such as the echo-sound, which is important for our communication with others. The human voice has a calming effect on us while background noises make us tired and can give us a hard time to focus. To cope with this in a building, the choice of construction, placement of installations as well as the choice of materials is therefore important elements to consider.

Minimizing noise

Hospital environments can be noisy. Sounds of beeping equipment, load conversations, unwanted television chatter, people running down the corridors can cause a variety of problems, such as anxiety, raised blood pressure, increased need for pain medications, and impaired sleep.

Getting a good night's sleep is essential for the patient's healing process. Studies have found that the noise level in many hospitals is higher than acceptable even at night and that noise is a major cause of awakenings and poor sleep. Noise can be reduced by creating a clear division between staff areas and patient areas, such as using the on-stage and off-stage concept. When it comes to materials, proper insulation and doors that blocks sound efficiently is the most important measures. Carpet in the corridors which soften the sounds of walking people, and sound-absorbing ceiling tiles are other also other elements worth considering.

Water features as a pleasant sound

Water is the only natural feature that stimulates all the senses at once. The cold water stimulates the tactile sense, the sound of pouring water stimulates the hearing, the fresh scent stimulates the smell and the movement combined with the reflections stimulate the vision, and by drinking, it stimulates the taste. Together all these qualities create a calming and stress reducing effect.

Music as well can is a useful tool to stimulate hearing and can be used as a therapeutic tool in order to enhance well-being, reducing stress, and distracting patients from unpleasant symptoms.

SMELL AND ARCHITECTURE

The sense of smell gives us information on different substances in the air and can immediately recall events that occurred years ago, good and bad, triggering similar psychological reactions. The smell is closely connected to the sense of taste. Some smells can bring back various types of memories, positive as home-baked bread, or unpleasant as detergents from the hospitals. Heavy cleaning substances such as disinfectants and wax often generate headaches and interfere with the healing process of the patient. Hospitals are therefore going more over to green cleaning methods, strictly excluding chemicals and toxins of any kind in the products. Advanced air filtration systems may be used in order to keep the air clean and fresh.

TOUCH AND ARCHITECTURE

Touch is a tactile sense, meaning transmittance of information or feeling when touching. The sense of touch helps us to orientate ourselves and to feel the limits between our own bodies and the environment. Through touch, we feel warmth or cold, pain or pleasure. In architecture, this is closely connected to materials with different textures, being warm or cold, hard or soft.

Massage is a great healer and has been identified as a therapy in most cultures around the world throughout history. Research has shown that touching and being touched is an important part of our well-being. Touch relieves stress, and lower the blood pressure at the same time as the body produces serotonin and dopamine.

TASTE

Taste is mainly used to analyse food. In an ideal healing environment, patients need to be able to eat whenever they are hungry rather than being depending on the staff's schedule. If food is not able to be provided 24/7, kitchenettes in the hospital departments should be available as an alternative for patients to store and prepare their own food. Hospitals should be using meals as an opportunity to educate people about the essential connection between healthy food and healthy lives, because it is a well-known fact that there is a strong relationship between what we eat and how our bodies respond.

KEY FACTOR 4: SUSTAINABLE HEALTHCARE ENVIRONMENTS

Healthcare facilities are among the largest consumers of energy and are one of the biggest producers of waste, some of which is toxic. Healthcare stakeholders are daily exposed to a variety of different chemicals through touching their work equipment, such as building materials, finishes that cover floors, walls, ceilings, and even the computer.

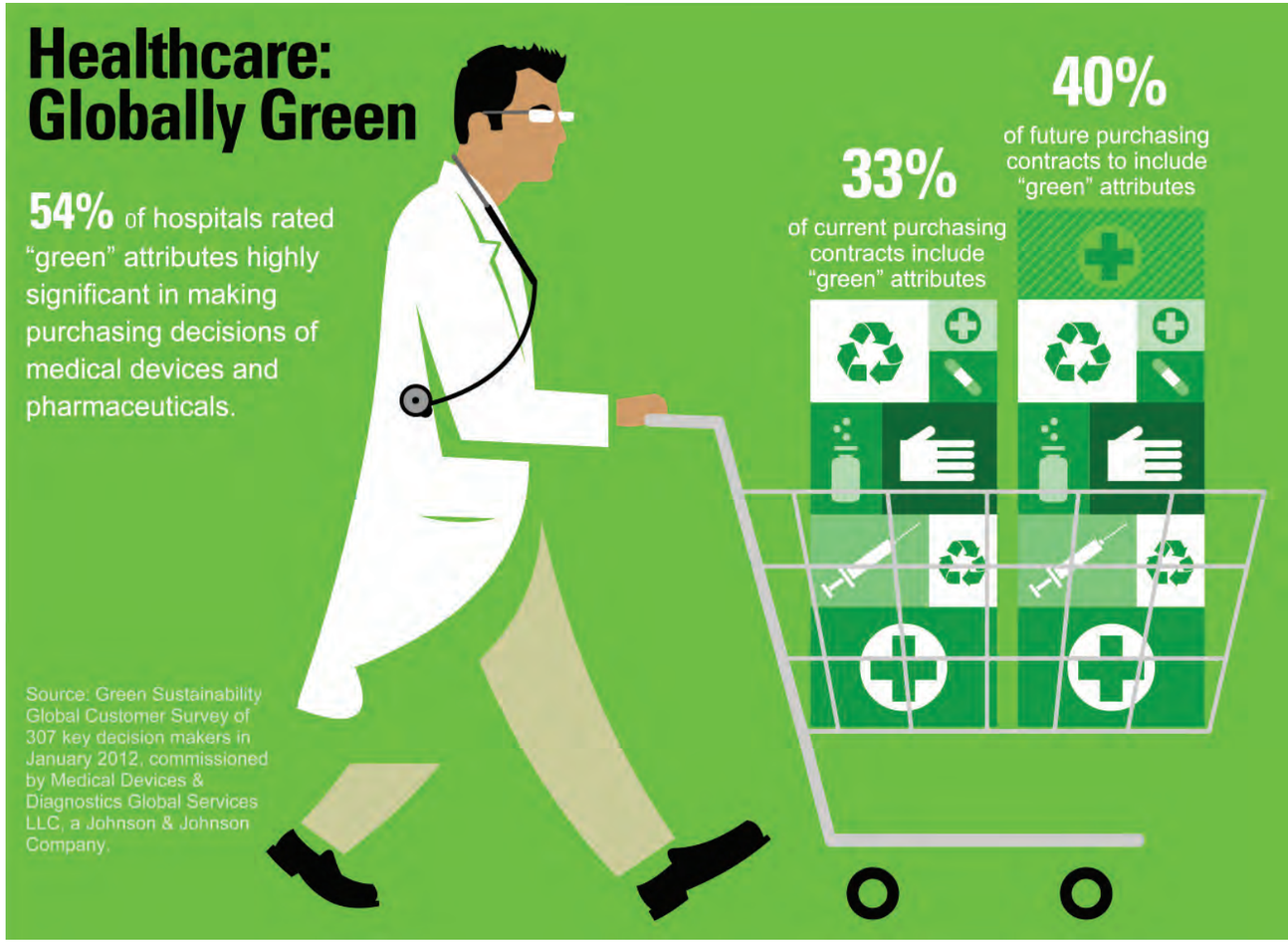
The long term perspective

Sustainable design requires thinking for the long term, so that the cost of life cycles becomes as important as the cost of first investment. Buildings that are designed for flexibility, long-term use and high-performance are ultimately less costly to operate over the long term. Energy efficient equipment in advanced systems such as ventilation, lighting, electricity makes a big difference in saving energy compared to choosing more conventional solutions. By installing solar panels on roof surfaces of the hospital, purchasing electricity from sustainable sources, building thicker insulation in walls and roof or choosing recyclable materials that can benefit the overall picture of sustainability.

The future trends

As mentioned in the introduction, the greatest challenge within healthcare that faces healthcare managers and architects is to envision how work can be performed in the future without replicating the present routines. The hospital of the future is likely to become more of a high-technology centre for mostly traumatic injuries, emergencies, contagious diseases and epidemics. Surgeries will become more sophisticated using resources such as robotics and inter operative imaging. The in-patient bedrooms, treatment and diagnostic spaces of the future will require greater flexibility to accommodate changes in care delivery or to adapt to new medical technologies. Spaces will require more “plug and play” capability to easily convert from one function to another. In addition to this, home care and out-patient clinics will increase.

Medical tourism will continue to grow, having patients that are willing to travel long distances in order to receive the demanded quality of care. This will probably lead to that hospitals become more specialized on certain types of diseases. Privacy and family-focused care will become important features for patients when selecting a care provider. Patients will as well turn to web-based services that enable possibilities to schedule hospital and physician appointments, preregister for care, communication with their care coordinators, receiving diagnostics results, managing their personal health record, refilling prescriptions, and purchasing health products and services.



Study visits

In order to fulfill the concept of a hybrid building, it is essential to build a broad knowledge base about various disciplines and to understand how they operate today. Study visits have therefore been a key element in our research process to gain inspiration as well as important aspects to include in our design project. A summary of five selected case studies follow below.

1. FERTILITY CLINIC - KAROLINSKA UNIVERSITY HOSPITAL, HUDDINGE

As the main topic of this thesis is to investigate healing environments, hospital design became a natural point of departure for us to focus our research on. Not long after we started, we came across a relevant article on the local newspaper featuring a colourful picture of a waiting area in a clinic. It expressed a floor in bright orange as well as furniture in various bold colours and it communicated a sense of playfulness and warmth. Intrigued by these colour combination in a hospital environment, we contacted the newly renovated fertility clinic at Huddinge hospital and booked a study visit to Stockholm.

It appeared that the fertility clinic of 1500 m^2 is designed with the ambitions to eliminate the sterile and impersonal feeling that common hospitals often have. Given the fact that the visitors of the fertility clinic are not ill in the sense as many patients in other departments, a more explicit solution with colour explorations can be implemented. In addition, the clinic also manages research and education, which highlight the importance of having an enjoyable working environment.

Having the staff participating in the design process has been of great importance to create an environment that is both beautiful to look at, as well as practical that fulfills all needs and hospital regulations. The bright colours are mostly found on lighter interior elements, such as mobile furniture, stickers on transparent room dividers, doors and door-frames, and are easily replaceable should there be a need for it. The choice of environmental friendly material has also been crucial because of the demand to have a non-toxic indoor environment.

The response from the patients at the fertility clinic has been positive. Even the staff has expressed that they feel more cheerful and happier at work. By being here, we learnt that the smallest means, such as only adding colour to the surroundings can enrich the whole experience of a hospital environment.

THE WAITING AREA

COMMON AREA FOR STAFF

THE CORRIDOR

2. PATIENT HOTEL MÖRBY, DANDERYD

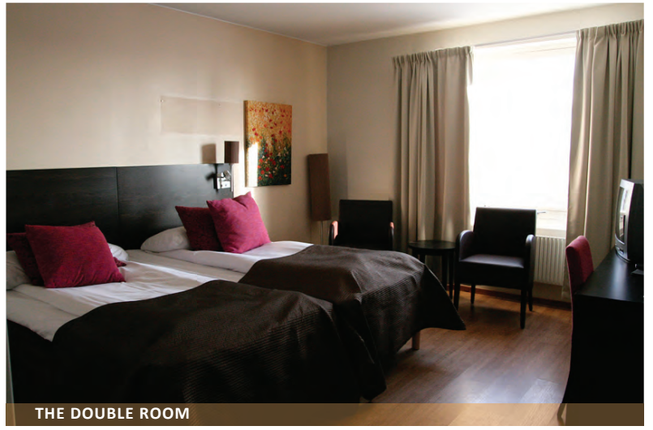
Hotel Mörby in Danderyd was introduced to us as a reference when we discussed patient hotels for the first time with our tutor. The hotel is housed in a 8-storey building that initially was built as staff dwelling closely located to the hospital, resulting in solutions that are not always optimal for the current function. It contains of 74 rooms in total, both single and double, where some of them have mobile walls to allow direct access to the room next door, suitable for guests with personal assistants.

The hotel does not provide any patient beds, nor does it have medicine storage and it can only accept guests that are well enough to take care of themselves. There is however an alarm button in every room that is connected to the medical staff in the lobby in case of emergency. Some rooms are fully accessible, the toilets are accessible, and there are baby-dressing tables. But except for this, it is just like a common hotel with a building structure that is highly fire-resistant and it is more sound-insulated.

On the entrance level, there is a lobby, a restaurant, a private room for doctors to come and visit patients instead of having patients travelling back and forth to meet with their doctors. There is a conference room and some smaller group rooms on the second floor for external use, while the top floor is available for newly fledged-parents to stay with their babies. Common public spaces, such as the restaurant are therefore crucial because they provide opportunities for the guests to meet, talk and sharing experiences, minimizing the feeling of loneliness and isolation. Many people have for instance liked the sound of having children and babies in the same environment.

Hotel Mörby is run by the company of Sodexo but owned by a private developer abroad and has the county council as the outsourcer. Types of guests primarily include patients that are sent from other hospitals, staying 1-2 days up to several weeks. There are also external guests, such as patients' family members, businessmen and tourists, given the circumstances that it is a 3-star hotel with affordable prices, located only 15 minutes away from the city centre of Stockholm. Another attraction point is that the hotel is facing a rather calm and large nature area, which is highly appreciated by patients that want to get away from stressful hospital environments.

An important principle of the hotel is to ensure that it is never fully booked. Patients are the main target group and should always have the priority to rooms although external guests are the customers that pay full charge. What profile a patient hotel has depends however on who it is owned and run by.



THE DOUBLE ROOM

THE CONFERENCE ROOM

LOUNGE AREA OUTSIDE OF SMALLER MEETING ROOMS

THE RESTAURANT

3. PATIENT HOTEL OF SKÅNES UNIVERSITETSSJUKHUS, LUND

In comparison with the previous example, the patient hotel in Lund has somewhat a different profile since it is both run and owned by a healthcare institution (SUS). Economic profit is not of importance and types of external guests are strictly limited to patients' family members, doctors, scientists or people that have connection to the hospital and the university. Patients are charged 80 SEK per night for their room including three meals, which corresponds about 10% of the full price that other guests would pay.

Lund's patient hotel has a history that is dated back to more than 20 years and did not start off as a purpose-built patient hotel either. In the old administration building that it is housed now, there is also a pharmacy and other activities sharing capacity on the entrance level where the culvert is connected. There is a common staff area for the patient hotel, restaurant and the maternity ward in the basement as well as a laundry room that is used by the cleaning staff during certain hours of the day. After those hours, it is available for guest booking just like the sauna and the activity room that are located next door with a ping-pong table and some working cycles - all rooms with limited or no direct sunlight.

On the other three floors, the building structure has resulted in various room types and sizes up to eight different kinds. Some of them have doors that open inwards while some open outwards, and the door widths are not either uniformed. The ventilation is poor and special curtains have to be installed in every room to allow a comfortable indoor climate without air-condition. Moreover, there are only 3-5 rooms out of 108 that are large enough to be concerned accessible in this part of the hotel, while there are additional 50 rooms in an external building for family members, mostly large enough to be single rooms.

Just like Danderyd, the patient hotel can never be fully booked and only independent patients who are well enough are accepted, since there is no access to patient journals in the hotel and no special equipment are installed in the rooms. Nurses are however present all hours of the day in the reception and can provide assistance in the rooms with lighter treatments such as injections and medications. These patients are often placed on the first floor where the restaurant and reception are located for easier supervision. The restaurant plays an important role in the hotel as well for providing nutritious meals and for understanding the patients' condition by observing their eating habits.

But the main purpose of a patient hotel is after all not to inspect or control, but assisting patients to feel at ease during their stay. Aside from being a support and security, the hotel is designed according to special colour themes that are proven to have a soothing effect on patients.

ONE TYPE OF THE SINGLE ROOM

ONE OF THE TWO CONFERENCE ROOMS

COMMON KITCHENETTE FOR THE GUESTS

THE RESTAURANT

4. RONALD McDONALD HOUSE, GOTHENBURG

Family centered care is one of the most important concepts of the Evidence-Based Design theory. Being able to have relatives close to the patient during the hospitalization is crucial for their recovery, especially for ill children. At Queen Silvia's Children's hospital, situated at the Östra hospital area in Gothenburg, the parents have the possibility to stay and sleep in the same room as their child.

Built in 1999, Ronald McDonald House (RMD) is a response to the need of family accommodation close to the hospital. Due to the fact that the largest children's hospital of the country is located at SU Östra, many patients have to travel long distances in order to receive special provided treatments. No medical treatment is allowed to take place at RMD however. The purpose of RMD is mainly to support and be a place for parents to stay and rest when they are not at the hospital with their children that undergo complicated treatments. For some parents that have other children to take care of in the family, it is comforting to have them close as well in the same house.

Ronald McDonald House is owned and run by a non-profit foundation. It has 29 rooms in total with accessible toilets and are large enough to fit in 3-5 people. The building shape consists of two wings, each having their own colour code to facilitate the orientation. In the blue corridor, all rooms are named after sea creatures while the green one features the animals from the forest, and the red one using bugs as symbols. The overall concept of the house is to be a "home away from home", emphasizing that it is the staff who works in the patient's home, not the patient living where the staff works.

Having an ill family member is a stressful crisis both for the parents and the siblings. To cope with this, RMD often provides play therapy. There are as well many common areas for parents to meet other parents in similar situations, which can be of mutual benefit in the aspect of social support. Apart from having three kitchens for guests to buy and cook their own food during a longer stay, there are also several living areas and play rooms that are closely connected. There is as well a laundry, a small sauna unit, an activity room and a conference room. For older children, there is a computer and media room and a calm reading area.

The hospital is responsible for all bookings, payments and time periods that a family can stay. Usually, there is a high demand of these accommodation and the only exceptional case for longer stays is if death should occur.

COMMON READING AREA

COMMON COOKING AND DINING AREA

STANDARD ROOM WITH THREE BEDS

LAUNDRY ROOM

CONFERENCE ROOM WITH COOKING AREA AND TOILETS

ACTIVITY ROOM

5. CLARION HOTEL POST, GOTHENBURG

In order to understand how a common hotel is run and gathering inspiration on what services are provided, a study visit was arranged to a newly opened 4-star hotel located just next to the central station of Gothenburg. Clarion Hotel Post consists of 500 rooms in total, distributed between a historical building of six storeys that used to be a post office and a new addition of 11-storey high. Based on this fact, some parts of the hotel are met by a height difference, which are solved by ramps. When leaving the old part and entering the new, the carpet changes from one pattern to another. The carpet also has an acoustic function to minimize the sound level of walking guests in the corridors.

There are four different types of rooms in total. Standard rooms, which is the smallest variant with one double-bed for two people covers an amount of 408. There are 74 of the larger double rooms called the superior, 16 of the types of deluxe that have two double beds, and three of the largest suites. They are located on the top of the building, allowing the possibilities for big groups of company or guests that require remoteness to book the whole floor for themselves.

The hotel design and the overall concept are developed by three parties of architects and designers. The main vision for the hotel is to be a meeting place and an arena for the new creative Gothenburg. In order to achieve this, big conference halls of Drottningporten and Brevsorterarsalen are planned and placed in the centre of the hotel, possible to be divided in to smaller units. Together with 17 meeting rooms on the second floor, the hotel can host events for up to 2000 guests, varying from exhibitions and fashions shows to lectures and parties.

Clarion Hotel Post manages almost all public areas on the entry floor, except for Skönhetsfabriken that has an external actor, which provides gym, spa and make-up services. Facing the busy square of Drottningtorget where passengers daily walk through between the tram stops and the train station lies the main entrance of the hotel. Right next to the entrance is a public café- and reading area, connected to a bar and a part of the hotel restaurant that serves breakfast. In the summer time, there are possibilities to extend the restaurant to the square outdoors and so, also activating it to a meeting place rather than being an in-between space for commuters to transverse.

The staff entrance is situated on the backside of the hotel with changing rooms on the floor above. The administration sits on the second floor. No separate staff elevator exists which means that laundry, cleaning and maintenance goods are transported via the five guest elevators.

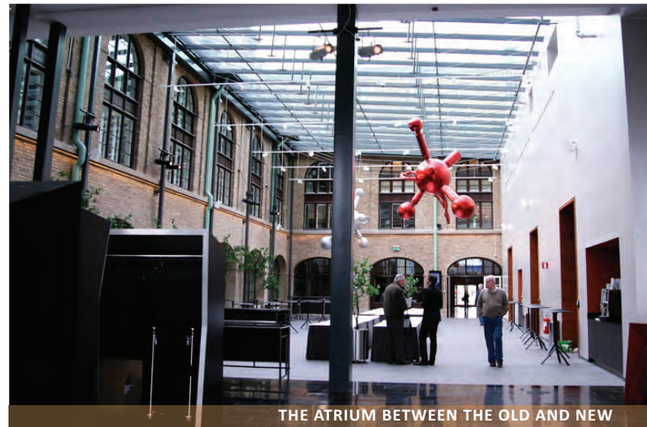

ROOM TYPE DELUXE WITH TWO DOUBLE BEDS


THE LIVING ROOM INSIDE OF THE SUITE


PUBLIC CAFÉ AND LIBRARY


CONFERENCE ROOM FOR 1000 PEOPLE


SWIMMING POOL ON THE ROOFTOP


THE ATRIUM BETWEEN THE OLD AND NEW

Research evaluation

To summarize the learning outcome of our research that consists of both literature and study visits, we have identified specific standpoints from each sector that are essential to include in our design approach of a hybrid building.

Firstly, from the point of view of a hotel, we have been inspired by the configuration and the choice of material of various public areas, such as the conference halls, the event atrium and the public café. It has been rewarding to see the different types of rooms that were provided, and so, learnt about the capacity requirement and distribution of spaces, as well as having a reference to compare when developing our own room modules. One fundamental aspect that we have learnt about hotels is the criteria of having at least 200 rooms in order for it to be economically supportable, which has been a framework to relate our building volume.

Concerning the aspects of a hospital, many of our study visits have shown the importance to have a flexible building structure with divisible dimensions to allow future transformations. Practical requirements that we have implemented in our project include spaces for technical installations, ventilation system and a culvert connection to the emergency ward. Aside from the evident criteria of full accessibility in all bathrooms and spaces in the building, we have also taken into consideration of natural light, greenery, water features and other supporting elements of Evidence Based Design. This in turn has inspired us to further develop ideas for healing and rehabilitation purposes to incorporate in the brief.

Finally, through study visits of existing patient hotels, we have gained worthwhile experiences as well as understanding on how the activity operates. Organizational matters in terms of costs and revenue, manning and work shifts, owners and runners, visions and goals have been explained in detail, which have helped us to see what possibilities there are to involve private stakeholders in the project.

Based on these mentioned standpoints as our design criteria, we have developed a proposal of a new patient hotel in the hospital area of Malmö 2030, which will be presented later in the report. In our proposal, we want to address the question on how a healing environment can be designed according to three categories:

1. NATURAL ELEMENTS

As mentioned earlier, greenery, daylight and water features have been proven with great effects to reduce stress, pain and depression. This in turn will help people to recover faster from diseases and illnesses, as well as a reduced usage of medications and a reduced need for healthcare. From our study visits, closeness to green spaces has been repeatedly emphasized as a significant part of the built environment.

2. SOCIAL SUPPORT

People that undergo the phase of medical treatments often feel more secure to be around family members. Ronald McDonald's house has especially demonstrated the benefits of family centered care by providing meeting places for social interactions. In the common kitchens, living areas and playrooms, family members have the possibilities to meet people in similar situations to share experiences and having the sense of belonging in a community. A third aspect to include in this category is the presence of healthcare professionals around, such as doctors, nurses and therapists for consultations, and by so, reducing anxiety.

3. POSITIVE DICTRACTIONS

Positive distractions are important methods in order to break away from the negative state of mind that often occurs when facing an illness. On the notice board of the patient hotel in Lund, there are various supporting groups that offer meditation, physical exercises, spiritual gatherings and play therapies for the hotel guests to have something to focus on, even only for a short time.

CURRENT SITUATION

The hospital area

Skånes Universitetssjukhus (SUS) is nationally the third largest university hospital with 12 500 employees and receives about 400 people at the two emergency wards daily. Before the merge with Lund, Malmö had its own university healthcare institution with a history that is dated back to the Middle Ages. Records from the 1300's have been found to mention a hospital, which during the medieval period was a combination of healthcare, hostel for travellers, geriatric nursing and group homes in a monastery.

The healthcare services were eventually taken over by the city, resulting in the first hospital that was opened to the general public in Sweden 1896 where everyone who sought care was welcome, regardless of background and social class. On the same grounds, the hospital of Malmö has been standing ever since and has gradually grown from a few patients beds to a pavilion hospital with the current figure of 60 buildings, all reflecting a specific time-epoch.

The hospital area lies centrally in the city between Södervärn; an important bus terminal and commuter point on one side, and Pildammsparken on the other; which is the largest park of Malmö. In addition, the new underground system, Citytunneln, that was built to reinforce the region of Öresund is located just around the corner to the north direction, making the hospital an easily accessible node in the urban environment.

SOURCE: SKÅNES UNIVERSITETSSJUKHUS

MALMÖ'S CHALLENGE

The existing plans for the hospital area in Malmö points out the need of a more condensed building layout. Due to the development of the pavilion structure in the past, many green areas are generously left between the buildings, making communications difficult and inefficient.

Apart from having an inadequate delivery- and technological culvert, there also lacks a common loading bay for the hospital, resulting in goods being transported to the departments separately. Awkward entrance situations and broken strokes of communications also exist in the area that complicate the orientation.

The vision of Malmö is to obtain a city layout and an urban integration with good connections to the surroundings. New buildings will be mainly planned toward the northern parts of the area because of the importance to have a well-functioning connection to the infection clinic and emergency ward. Public areas such as café, library, pharmacy, conference hall and education can generate street life and should be easily accessible on the entrance levels of the new flexible buildings.

As the country council of Malmö currently is under right-wing leadership, there is also an interest to involve private stakeholders to run external businesses in order to attract people to the hospital area.

SOURCE: REGION SKÅNE AND SUS

Site analysis

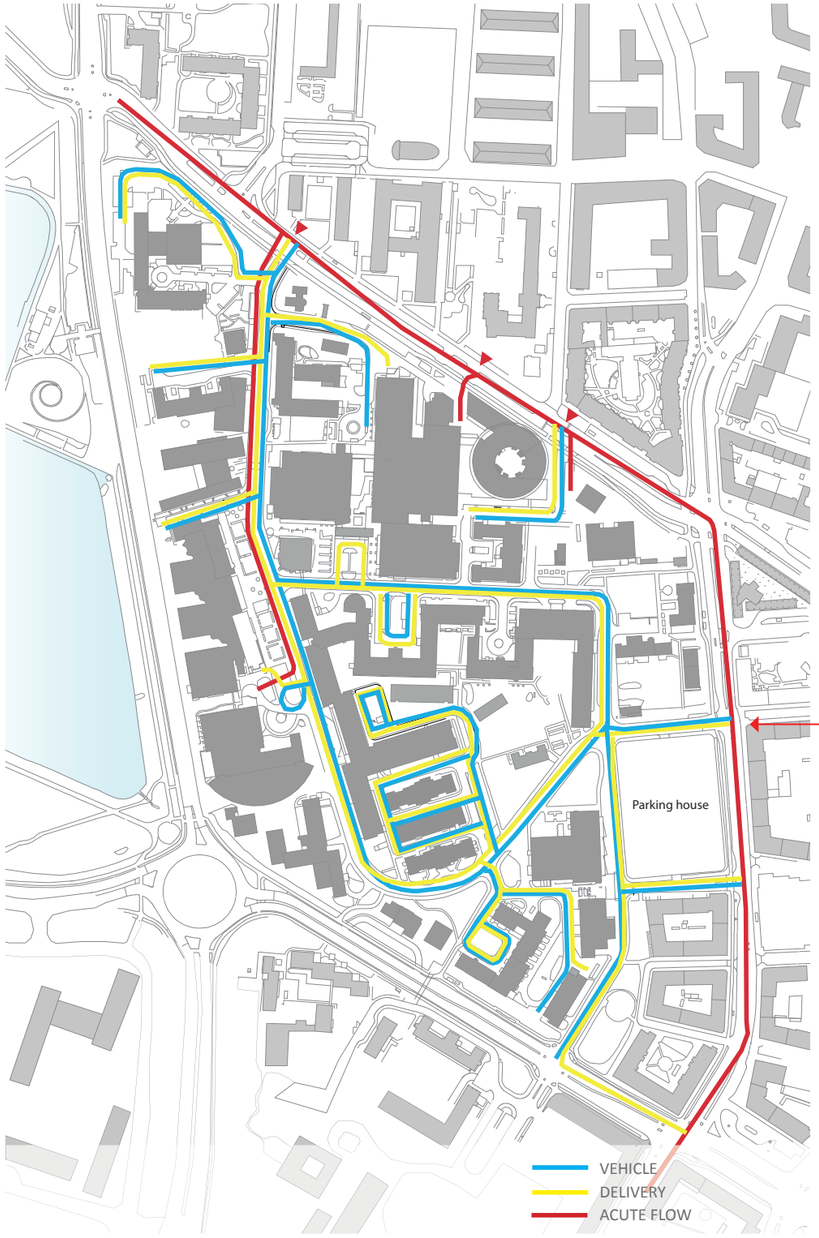


FIG. 1. EXISTING OBSTRUCTIONS

As illustrated in the diagram, the hospital has different entrances and exits for different flows.

The current main entrance is however situated anonymously next to a parking house. The entrance situation for the iconic emergency ward on the other hand is awkward and underdeveloped.

When orientating inside of the hospital area, there are noticeably amount of broken and misleading communication links. Lack of axiality, as a result from the past pavilion structure

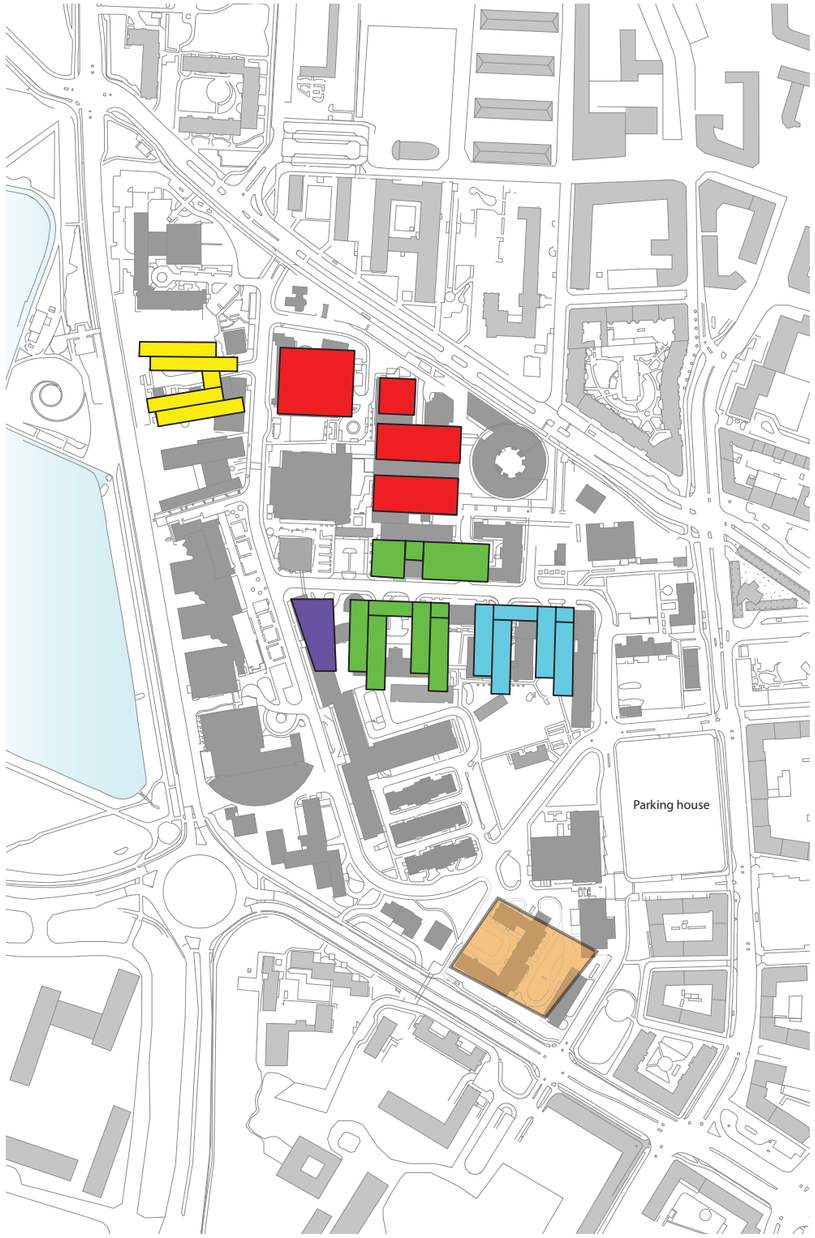


FIG. 2. PLANNED MEASURES

Diagram is based on existing development plan for the area, provided by the hospital and extern researches.

According to the planning, a new culvert will be built along with the construction of new building blocks.

The colour schemes illustrate different scenarios of the development phase, and what kind of departments that will be suitable for the identified locations. A new loading bay area will be placed in the south eastern part.

LOADING BAY

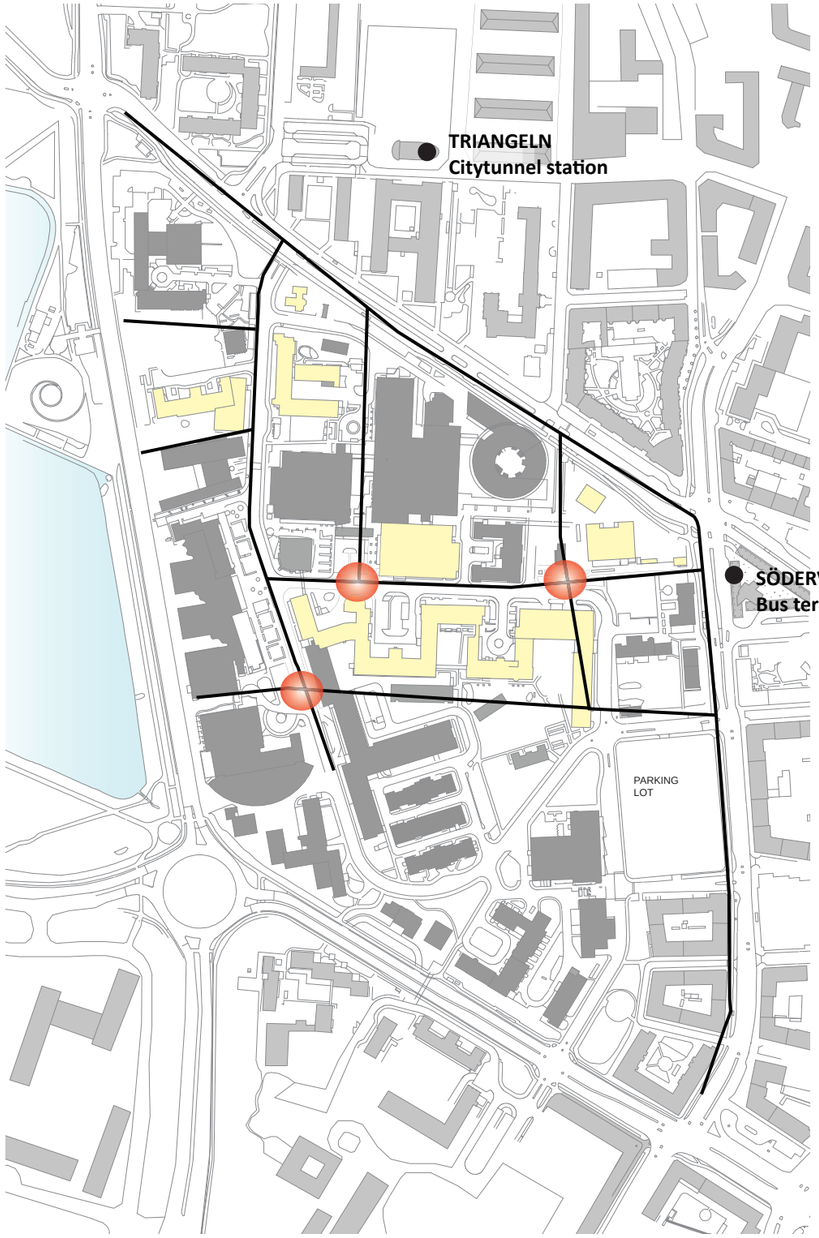


FIG. 3. DEMOLITION

Based on previous studies of the other diagrams, this figure illustrates the identified buildings for demolition and how the existing strokes can be extended to facilitate the orientation and creating important nodes for the area.

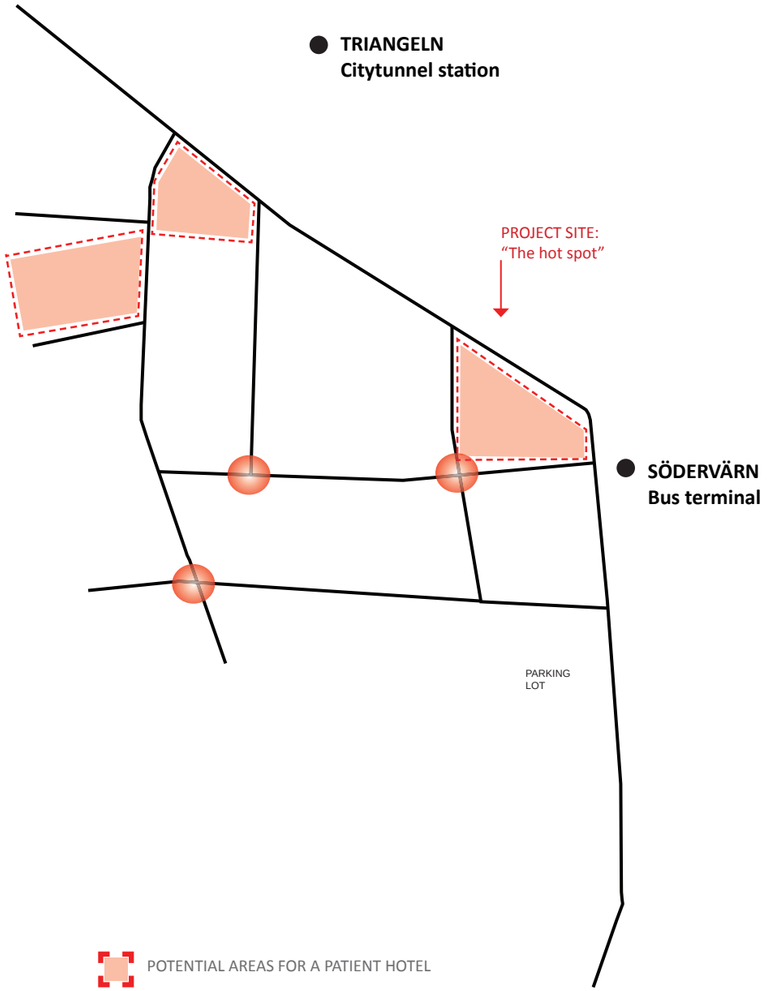
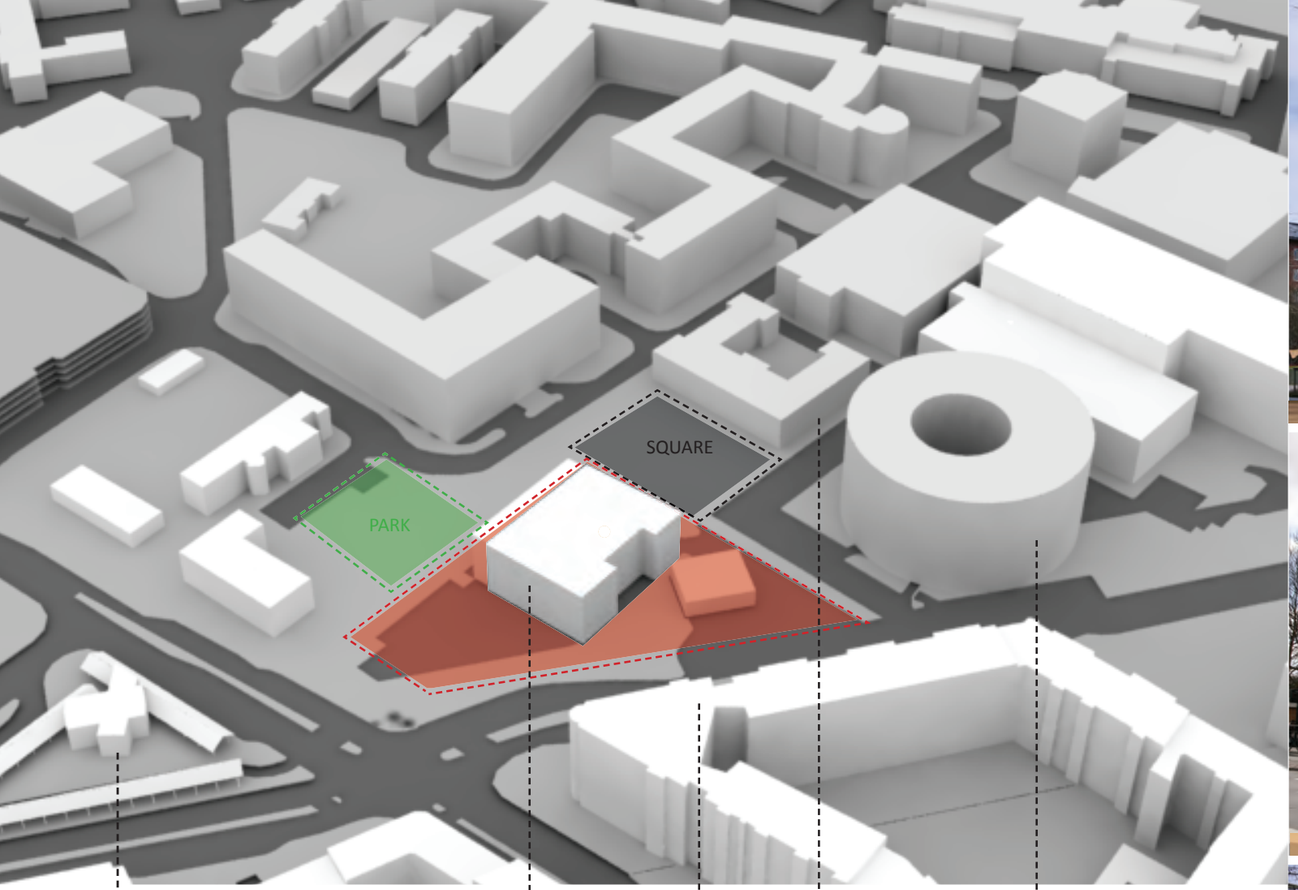


FIG. 4. POTENTIAL PROJECT SITES

The identified site for this project is located next to the emergency ward with an urban character and liveliness.

In the developed strategy for the area, the main focus has been put on extending the existing strokes, creating longer sight lines and more distinct directions to orientate after. The crossing between the strokes will activate the nodes as important meeting places, having one of them situated on the corner of the project site.

Analyses have also been made on two other potential sites. It appears however that a patient hotel would rather become an obstruction for the hospital quarters and the future planning, rather than benefitting the area as a whole.



SÖDERVÄRN

ADMINISTRATION

RESIDENTIAL BLOCK

FIRST BUILDING OF THE HOSPITAL

INFECTION CLINIC/ EMERGENCY WARD

JOHANNESSKOLAN, ELEMENTARY SCHOOL 1-9

2. RESIDENTIAL BLOCK

3. ADMINISTRATION BUILDING

4. FIRST BUILDING OF THE HOSPITAL FROM 1896

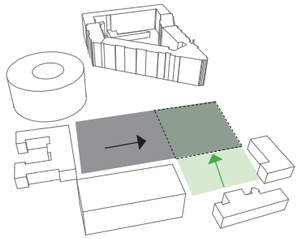
5. CURRENT BUILDING ON SITE

6. NEW INFECTION CLINIC AND EMERGENCY WARD, 2010

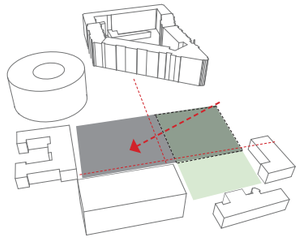
The triangular-shaped site is located next to the crossing of two main roads, facing a park environment on the south and a public square on the west. The positive aspect about being a hot-spot that is sandwiched between the bus terminal and the emergency ward is the frequent movements that give the site a vivid character, as well as possibilities to develop a new main entrance. On the other hand, by being next to an iconic building, there are also limited possibilities to develop the building shape as it risks competing with the architectural expression, causing a “Dubai-effect”. The frequent movements from the vehicles can also result in noise problems, especially having ambulance sirens often passing by in and out from the emergency ward.

DESIGN PROPOSAL FOR 2030

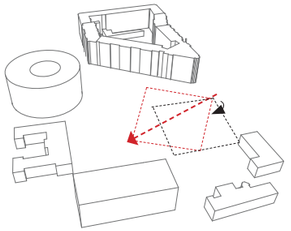
Building concept



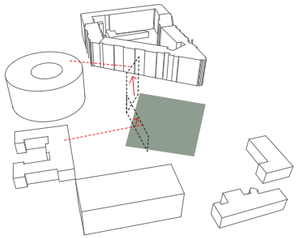
Extending the greenery and the public square to the site to create a private courtyard with a mix of both characters.



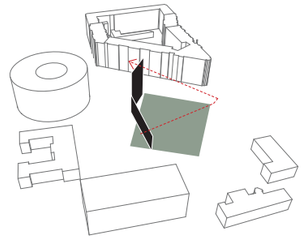
Creating a third transversal link to lead the flow from the city centre to the public square and main entrance.



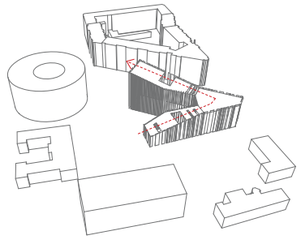
Rotate to enhance the direction.



Taking consideration to the existing building heights.



Connecting to the triangular shape of the site.



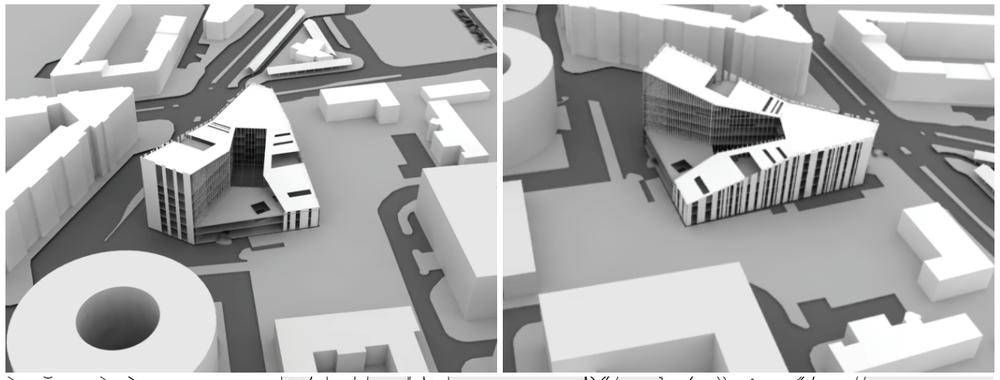
Inclination on the roof to maximize daylight intake from the south. Lowest part facing the public square while highest point towards the infection clinic.

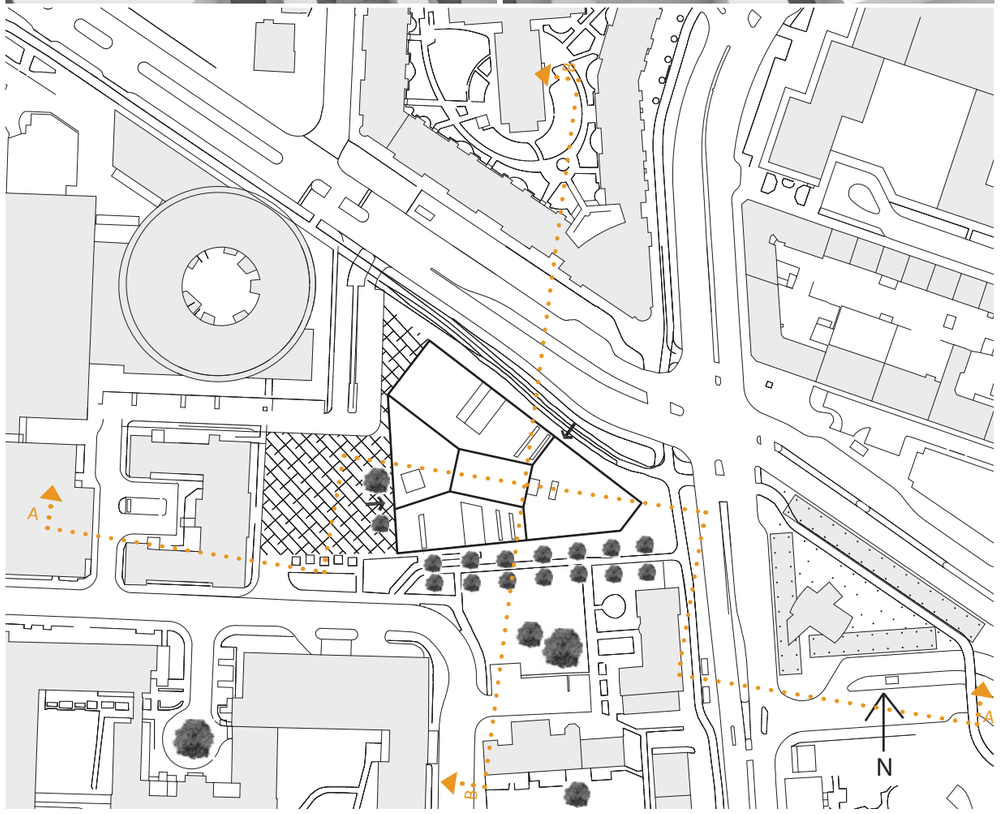
AERIAL VIEW

Site plan

The ambition of the site strategy is to create a new main entrance for the hospital. The patient hotel attracts external guests and can so, activate the square right next to the infection clinic and emergency ward, which is today a natural landmark for orientation in the area.

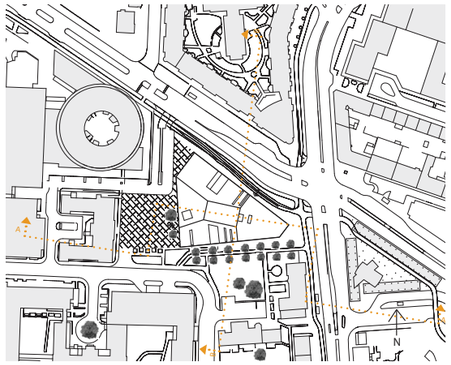
When entering the site, the visitors will arrive to a public space that meets the patient hotel facing the oldest building of the hospital on the west, and an extended park area on the south. The square becomes a new central node, supporting the existing developmental plan of the hospital, and integrating urbanity to the area.

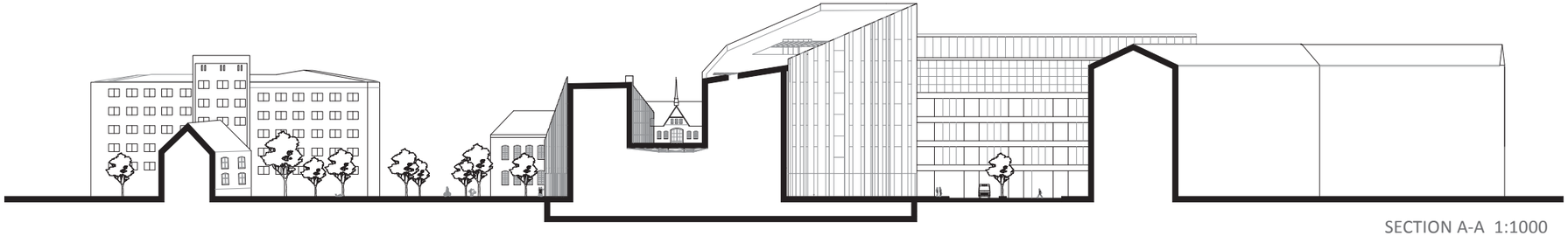




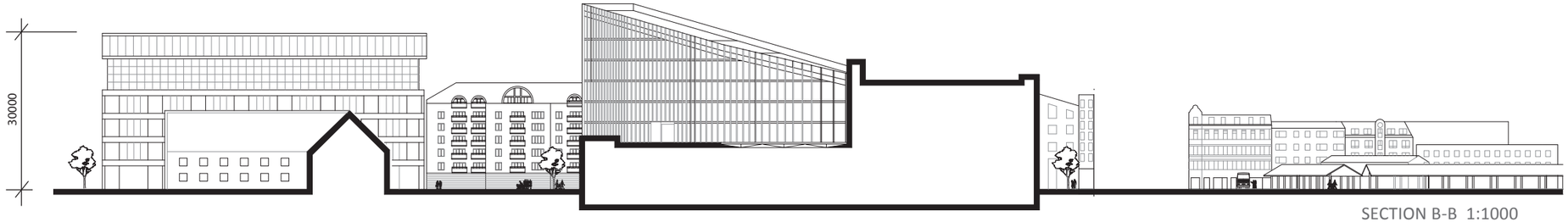
SITE PLAN SCALE 1:2000

Building Heights





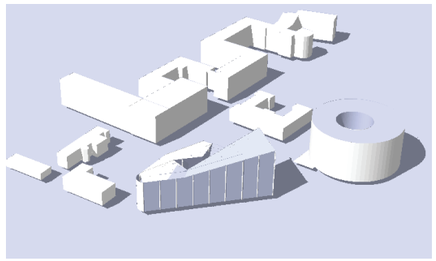
SECTION A-A 1:1000



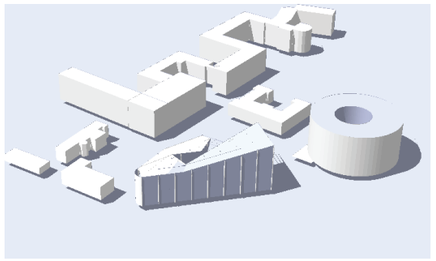
SECTION B-B 1:1000

Sun study

Sun study diagram illustrating that the buildings do not shadow each other in the area.



10 AM



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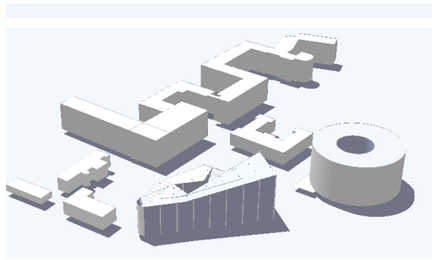

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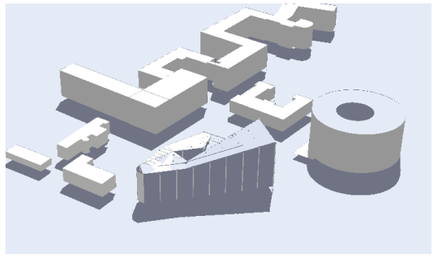

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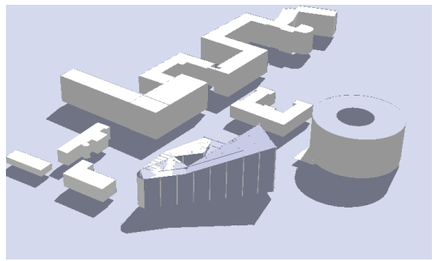

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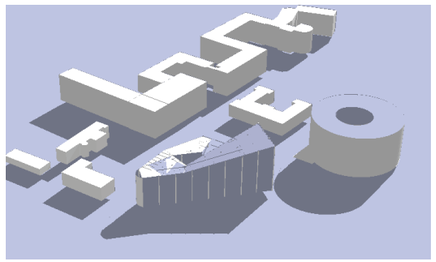


3 PM

PERSPECTIVE FROM EAST
The view that greets the visitors when arriving from Södervärn bus terminal.

Exterior view

The outer facade has a vertical pattern that is developed from the distribution of different room modules and window settings, generating a rhythm in the street scene and breaking down the horizontality of the building toward the infection clinic.

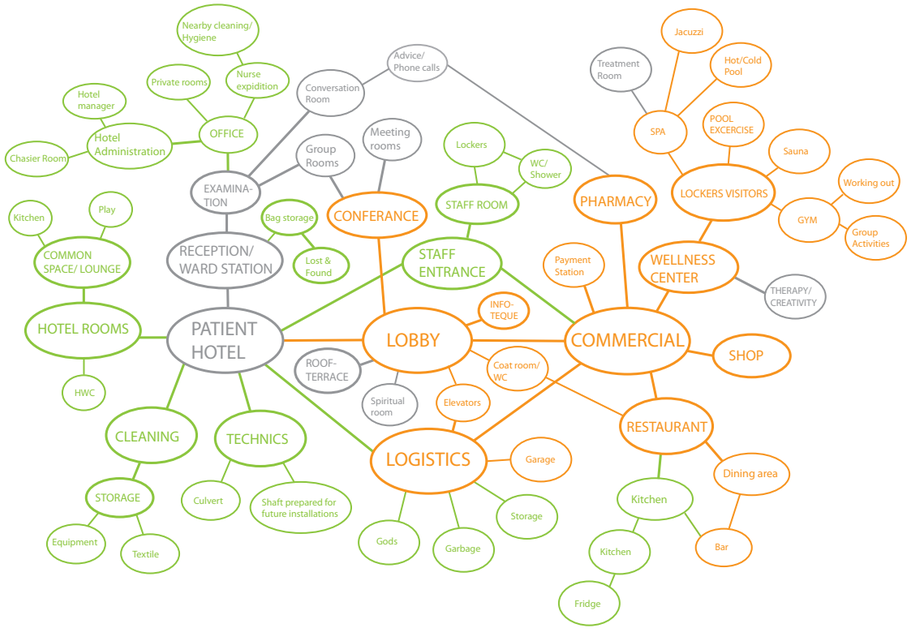
The inner facade on the other hand differs from the outer in the sense that thinner ribs are being placed to give more transparency.

PERSPECTIVE FROM WEST

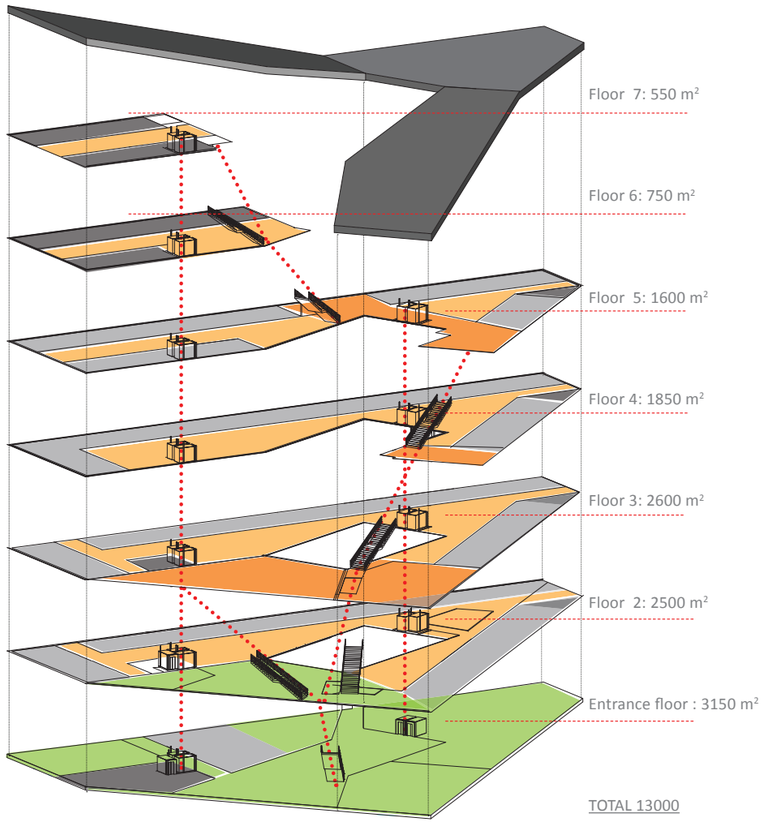
The view shows the public square that marks the spot of a new main entrance, surrounded by the oldest building of the hospital area, the patient hotel and the infection clinic and emergency ward.

Creating a brief

The patient hotel has a hybrid brief and is divided into two parts where one is more hotel-orientated and the other is more commercial based. These two are connected via the lobby and the atrium.



Exploded axonometric



PRIVATE

SEMI - PRIVATE

SEMI - PUBLIC

PUBLIC

TECHNIQUE

RESTRICTED TO INFECTION-VULNERABLE

GUEST ROOM

STAFF

PLAYROOM

KITCHEN

LOUNGE

READING AREA

CARE CENTRE

ATELIER & GALLERY

MEDITATION

MEDIA & ACTIVITY

TERRACE

CONFERENCE

WELLNESS-CENTRE

PHARMACY

BOUTIQUE

RESTAURANT

INFOTEQUE

Meet the users

THE STAFF

Some parts of the patient hotel is envisioned to be runned by external stakeholders, such as the wellness-center to be managed by an external physiotherapist and the restaurant by a dietist. It is however important that the hospital is the commisioner and the head responsible for overviewing the quality of the service given to the patients and relatives.

ULRIKA, 48

Hotel Manager

ERIK, 50

Owner of the wellness-center

RICKARD, 39

Restaurant manager

ANITA, 35

Nurse, employed by the hospital

EMMA, 25

Part-Time Receptionist, Studying Last Year To Become A Nurse

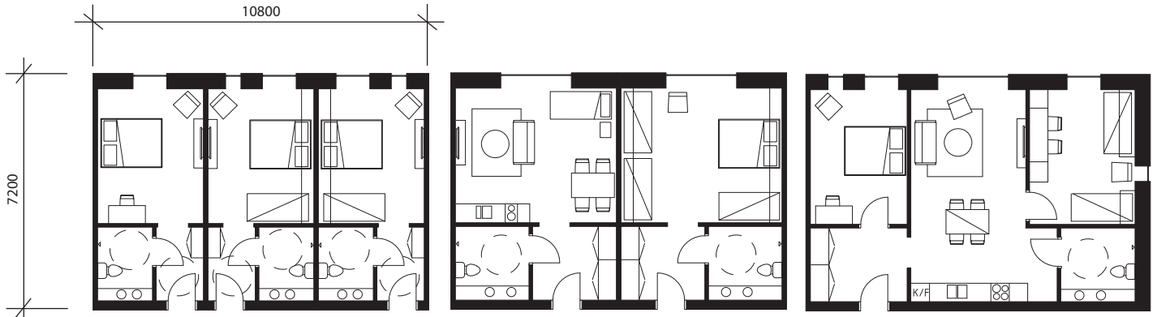
LISA, 28

Dietist and responsible for the delievery of the restaurant

ROOM MODULES AND POTENTIAL GUEST TYPES

During the investigation of different room types and sizes, a flexible module with the dimensions of 10.8m x 7.2m was founded. The module is based on a structural grid system, fitting in either three standard rooms or two double rooms, as well as two single appartments or one big flat.

In order to demonstrate how various room types and plan solutions can be utlised, six different profiles of potential guests are created below.



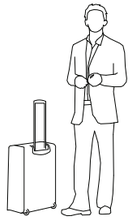
THREE TYPES OF MODULES, SCALE 1:200

THE STANDARD ROOM

The standard room is suitable for one, and up to three guests to sleep. A fixed furniture unit is attached along one of the walls that contains a hidden bed combined with shelves and storage space.

MONICA 47

Last year, Monica was given the diagnosis of breast cancer. As she lives further out on the country-side, she chooses to stay in the patient hotel for one or two days each time she has appointments for radiation treatment.



DANIEL 39

Daniel is an account manager who travels frequently as a sales-person to meet existing and new clients. He has choosen to stay in the patient hotel because of its convenient loaction in Malmö.

With a close connection to the City Tunnel, Daniel is able to fastly commute to Lund and Copenhagen when needed, and still has the possibility to sleep in one place while he works on the southern part of the country.

THE STANDARD ROOM
SCALE 1:100

THE FAMILY ROOM

The double room allows a group of five people to sleep. It has the same prinicple as the standard room with a fixed furniture unit, which makes it possible to adjust the room according to the needs of a family.

THE ANDERSSONS

MARTIN 42, ANNA 37,
OSCAR 5, LIV 3, BABY JON

Anna has had a hard time during the delivery of baby Jon. Neither Martin or Anna have parents that can look after their older children during their stay in the patient hotel. So they decieded to bring them along.

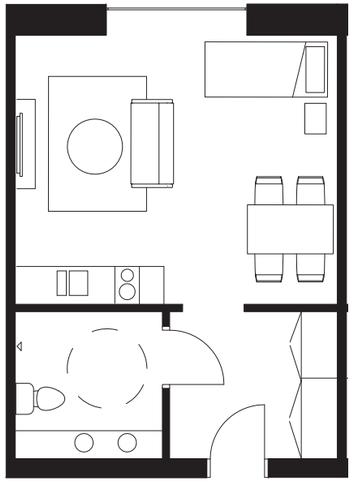
THE FAMILY ROOM
SCALE 1:100

THE SINGLE APARTMENT

Except for rooms, there are as well two different types of apartments provided in the patient hotel; the single size, and the family size. These are used by guests that plan a longer visit than average, and that prefer more privacy than having to share common spaces with others. Hence, the appartment types are as well equiped with a kitchen and a living area.

JENS 37

Jens is a doctor from Denmark. He is newly employed at the hospital and is staying in the patient hotel during his trial employment while looking for a proper apartment in the central parts of Malmö.



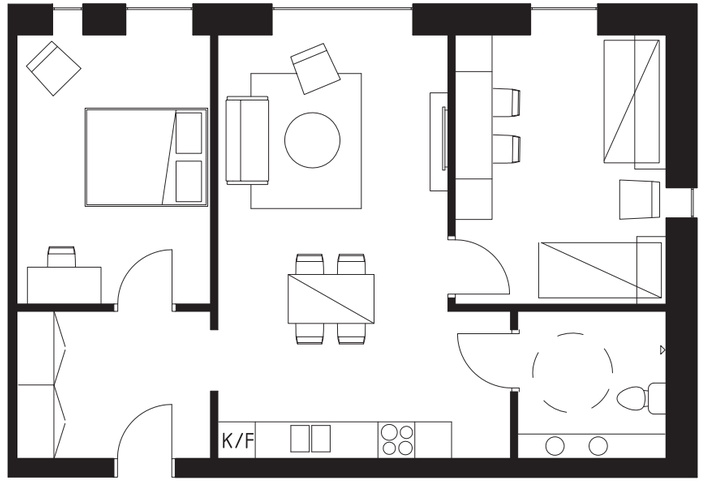
THE SINGLE APARTMENT
SCALE 1:100

THE FAMILY APARTMENT

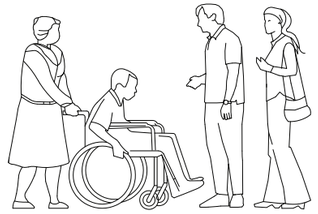
THE JOHNSSONS

STEVEN 51, MARTHA 45,
NATALIE 13, CLAIRE 10

Steven is a scientist from England that has accepted the job offer at the University as a guest professor. Because of his temporary contract, the hospital has arranged a bigger apartment for him and his family to stay during his one year employment in Malmö.



THE FAMILY APARTMENT
SCALE 1:100



THE HEDLUNDS

ARNE 83, BIRGIT 78, JAN 54, LENA 49

Arne is suffering from a deadly disease. Unfortunately, he lost the battle against cancer and does not have many more days left in life. During his last days, he stays in one of the bigger apartments at the patient hotel. His children Jan and Lena have come to stay with him and to give support to mother Birgit. Arne prefers sit in the living room as often as possible because of the homelike feeling.

Entrance floor

SCALE 1:500

The first floor is fully public, which differs from the rest of the building. Focus has been put to create a diagonal axis that cuts through the core of the building. On each end of the axis, there is an entrance to the building - one main entrance from the square and the other one from the city centre.

1. Reception & Café
2. Infotheque
3. Wellness center
4. Gym
5. Group training
6. Spa
7. Excercise pool
8. Saunas, dry, wet, steam
9. Bubble pool
10. Ice bucket
11. Spa shower
12. Bar
13. Physiotherapist
14. Massage
15. Body care
16. Gym physiotherapy
17. Spa shower
18. Lockers men
19. Pharmacy
20. Ward unit
21. Waitning area
22. Examination
23. Counseling room
24. Equipment storage
25. Disinfection
26. Nearby cleaning
27. Staff room
28. Auditorium
29. Conference rooms
30. Reception office
31. Cleaning storage
32. Lost & found
33. Goods
34. Staff lockers women
35. Staff lockers men
36. Staff entrance

THE INFOTHEQUE

Next to the reception in a glazed atrium lies the infotheque, a meeting place with a touch of he greenery from the park and the same stone flooring as the square. Given that daycare and home-based care are getting more common in the future, the infotheque serves the purpose to provide quick information about different diseases and possible treatments for any passer-by. There are also opportunities to have dialogues with professionals that can educate how to support and care for ill family members.

THE WELLNESS CENTER

The wellness center is divided into two parts with a gym on one side and a spa-area on the other, both created to support the healing process and prevent further illness. The guests can book a consultation with a physiotherapist and have a rehabilitation session in the gym or in the exercise pool inside the spa. The spa is also an efficient positive distraction that offers various types of saunas, a bubble pool, massage sessions and other body treatments.

Floor plan 2

When moving from the first to the second floor, the visitors experience the layout of the stairs. The first stair is integrated in the reception and stretches all the way up to the third floor with an outdoor terrace. The second set of stairs forms a extends the public floor through the building, taking the guests to one semi-public function per floor in a spiral movement around the glazed atrium.

The main feature of the second floor is the restaurant. From the restaurant, the guests can overview both the square and the infotheque. A smaller library can be found on the same floor.

SCALE 1:500

1. Restaurant
2. Kitchen
3. Cooler
4. Fridge
5. Dry storage
6. Dairy
7. Freezer
8. Auditorium
9. Library
10. Guest kitchen & play room
11. Guest kitchen
12. Storage

Floor plan 3

The stairs connecting the reception takes the visitors to the outdoor terrace on the third floor, designed to have an urban feeling with wooden flooring and a bar.

Aside from the outdoor terrace, there is as well an activity room as the second public function to be found on the third floor. The activity room is divided into two areas, where one is more for physical games such as ping pong, air hockey, playing with toys, while the second part is a media zone for kids and their families to watch movies, sing karaoke or play video games.

SCALE 1:500

1. Outdoor terrace
2. Bar
3. Activity room
4. Guest kitchen & play area
5. Guest kitchen
6. Lounge & TV-area
7. Storage

THE ACTIVITY ROOM

It can be stressful for relatives, parents and especially for children to have an ill family member who is undergoing a complicated treatment and experiencing long hospital stays. The activity room is designed to provide positive distractions, such as game playing and social interactions with people in similar situations.

The bright colours on the facade panels are inspired by one of the study visits to the fertility clinic, stressing on the fact that adding small details can lit up the atmosphere of the environment.

Floor plan 4

On the fourth floor, the stairs take the visitors to a meditation balcony with the possibilities to look down to the activity room. Meditation has proved to have positive effects in reducing stress and anxiety.

In connection to the hotel rooms on each floor, there are kitchen units for the guests to cook their own meal and lounge areas for them to relax. The kitchen serves as important meeting places for patients and relatives to meet with others and receive social support while sharing their experiences with one another, inspired by the concept of Ronald McDonald's house.

1. Meditation balcony
2. Guest kitchen & play area
3. Guest kitchen
4. Lounge & TV-area
5. Storage

SCALE 1:500

THE STANDARD ROOM

The guest rooms are the place that offers privacy, where one can quietly read a book or have a conversation with friends and family. The standard room is for 1-3 persons and comes in two versions. One with a double bed only and one with a double bed plus an extra bed hidden inside the fixed furniture along the wall. As mentioned in the analysis, the emergency ward that is closely located can contribute with frequent noise and siren signals. Sound absorbing panels, in the shape of curtains and art boards are therefore being used in order to create a calmer private zone.

Floor plan 5

The fifth floor is the last one that features public functions. The rest of the floors are closed off due to the placement of infection sensitive patients on floor 6-8.

As the final public level, the fifth floor provides different art related functions such as an art studio for sculpture and pottery, and an art gallery that exposes natural art. In the art studio, the guests can have different art sessions together with a therapist.

1. Art studio
2. Gallery
3. Guest kitchen & play area
4. Guest kitchen
5. Lounge & TV-area
6. Storage

ART GALLERY

On the fifth floor, spaces for art activities are placed to benefit from the breaking points of the sloping roof allowing skylights to cut through the building. Depending on the sun position during the day, the gallery and art studio receive various light features that change and reflect upon the wall.

Art is scientifically proven to be a strong positive distraction. Research suggests however that realistic art is more preferable than abstract art. Nature views, especially those featuring water, have the best effects when it comes to reducing stress and anxiety.

Floor plan 6

From the fifth floor the second terrace in the building can be found. In comparison with the one on the third floor with more a more urban character, the terrace on the sixth floor is designed to be a healing garden. Inside the garden, there are several of light spheres, used for light therapy to reduce depression.

Beside the healing garden, floor 6-8, which are reserved for infection sensitive guests have a small outdoor terrace of their own that can be accessed from the seventh floor.

1. Healing garden
2. Light therapy sphere
3. Guest kitchen
4. Lounge & TV-area

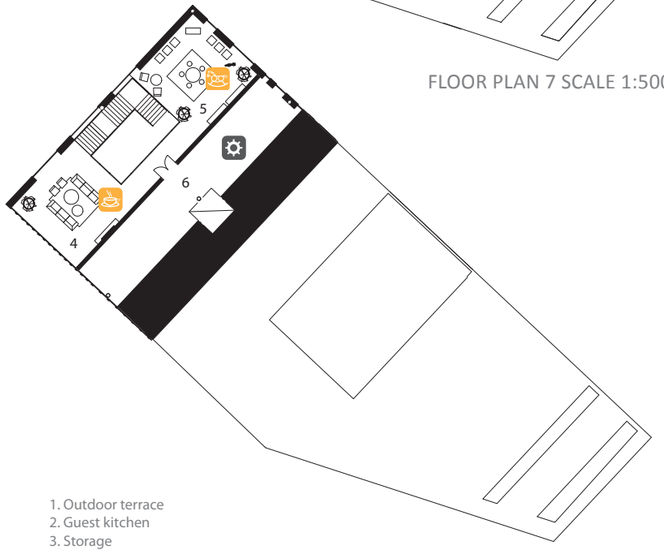
SCALE 1:500

THE FAMILY ROOM
The family room is suitable for 3-5 persons and has beside the double bed three extra beds hidden inside the fixed furniture along the walls of the room. The window is going all the way down to the floor which makes it possible for guests to watch the view while lying in bed.

Floor plan 7-8

Aside from the outdoor terrace, the guests who stay on the 6-8th floor also have a larger TV-room and play area on the top of the building, allowing views over the hospital area.

FLOOR PLAN 7 SCALE 1:500



FLOOR PLAN 8 SCALE 1:500

1. Outdoor terrace
2. Guest kitchen
3. Storage
4. Lounge & TV-area
5. Play area
6. Air intake ventilation

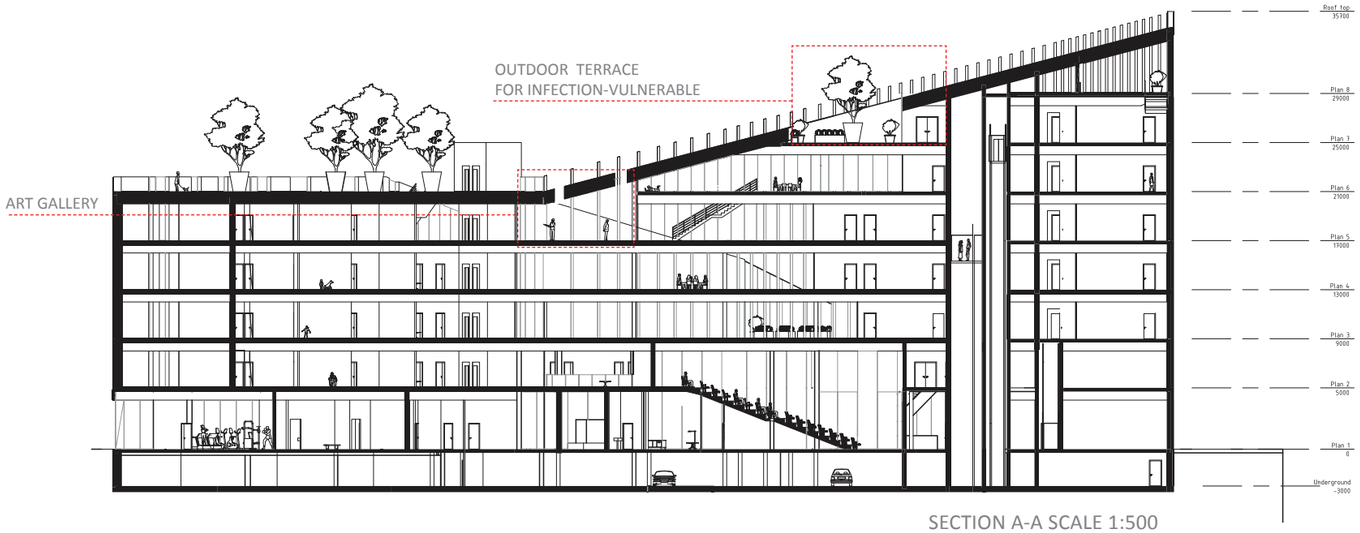
Basement

Delivery and good transport are gathered with the entrance to the underground parking of 49 units. In the basement there is also a culvert connecting to the emergency ward and the rest of the hospital.

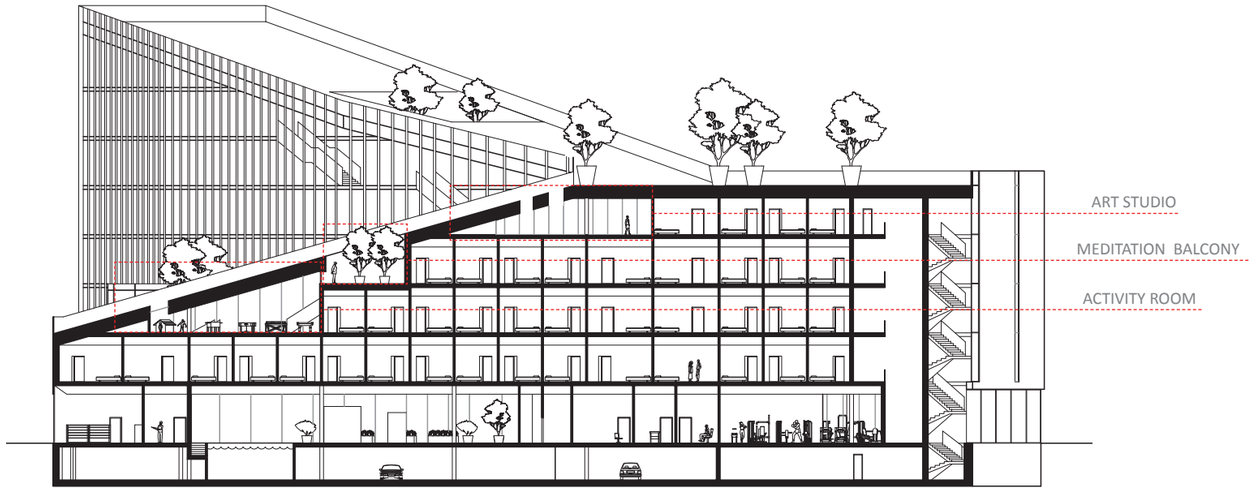
SCALE 1:500

1. Entrance to parking garage
2. Exit to parking garage
3. Ventilation
4. Culvert connection
5. Pool
6. Technics

Sections



SECTION A-A SCALE 1:500



SECTION B-B SCALE 1:500

Facade material

The facade material is kept discreet and simple, as opposed to the building shape. The panels are a long lasting, maintenance-free material called viroc boards and are made from a mix of wood and cement.

As the patient hotel is next to the existing infection clinic where many of the patient rooms can overview the hotel, the north-west facade is covered in green. The presence of greenery can reduce stress and act as a positive distraction for the patients in the infection clinic, that sometimes can be hospitalized and completely isolated up to months.

Sedum as roofing material has many qualities including maintenance-free, having the ability to cope with large amount of rainwater, cleaning the air and providing a nice view for the guests at the hotel, and the patients in the infection clinic.

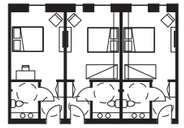
VIROC BOARDS
Panels made from a mix of wood and cement.

GREEN FACADE
Module system for planting on the facade

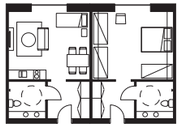
SEDUM ROOF
The roof is covered with sedum of different species and colours.

Facades

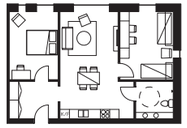
FACADE FACING EAST SCALE 1:500



MODULE 1 & 2

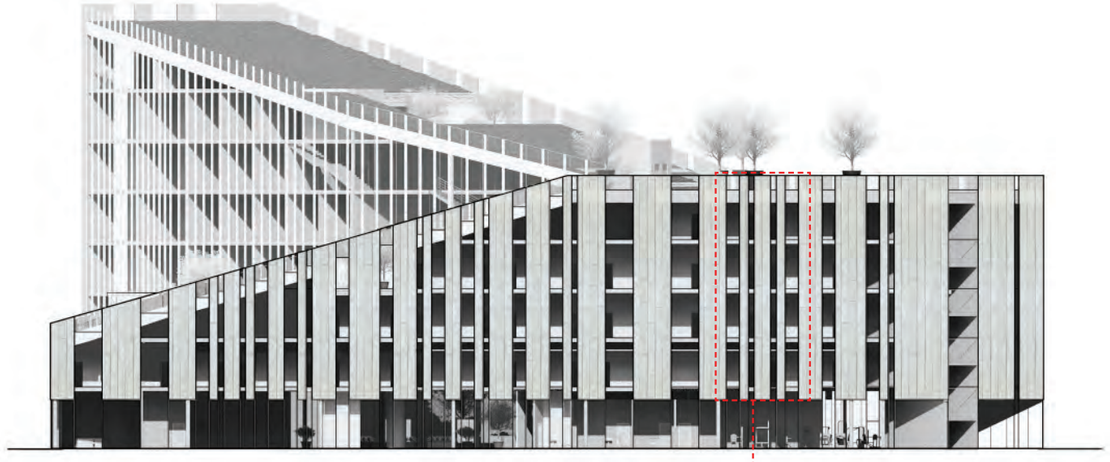


MODULE 3



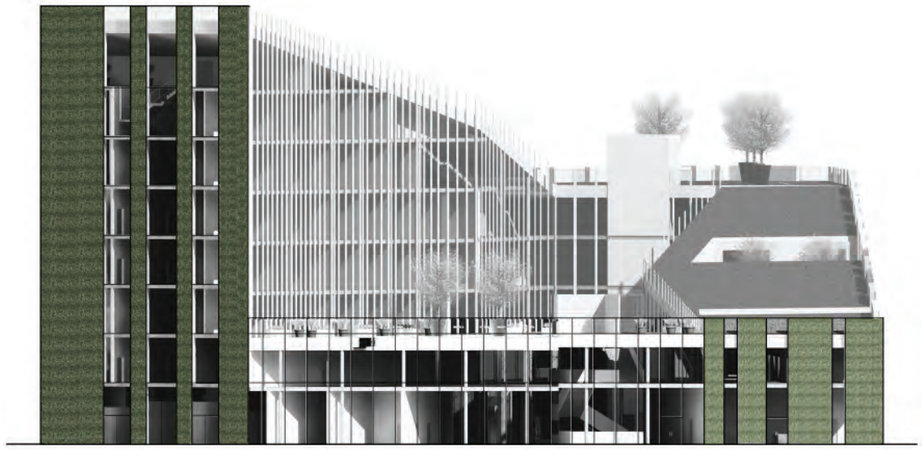
MODULE 4

As mentioned earlier, the different room types have all different window settings. These are reflected on the facade pattern, which has received its vertical expression by the room distribution on each floor and by the stacking of room modules above each other.



FACADE FACING SOUTH SCALE 1:500

MODULE 1 & 2



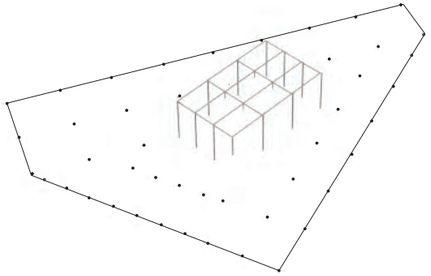
FACADE FACING WEST SCALE 1:500

MODULE 4

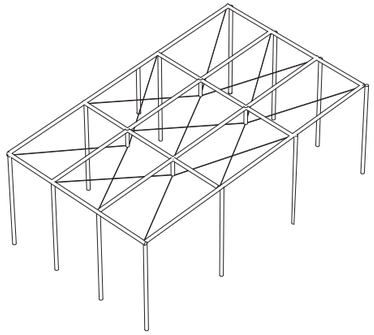
MODULE 3

FACADE FACING NORTH SCALE 1:500

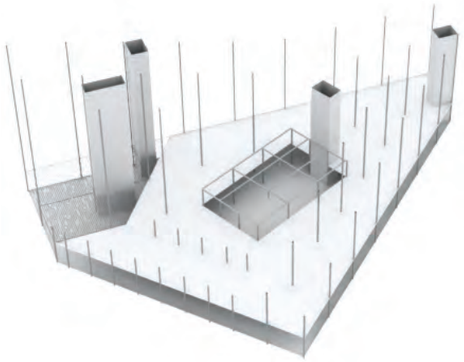
Construction principles



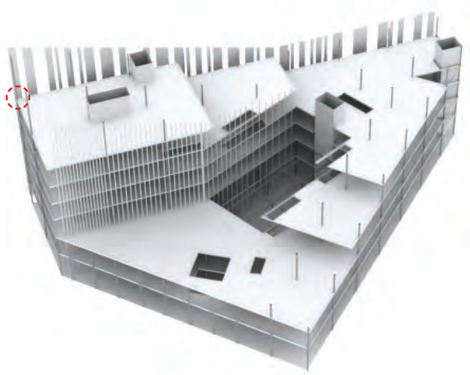
Regular pillar structure distance betwen module: 10,8 m



Exception for the glass roof in the atrium



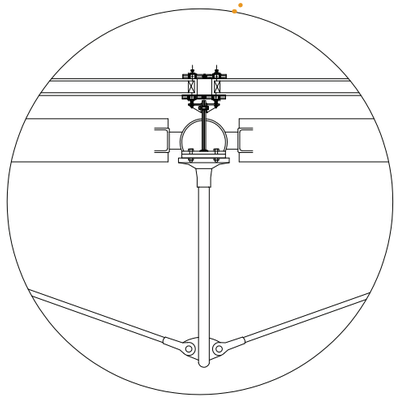
Stabilized by slabs and vertical shafts

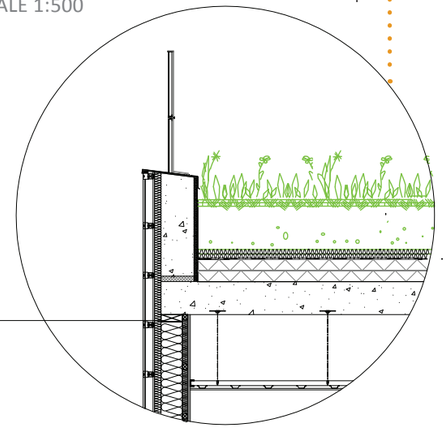


Facade hung on walls

Detail

SECTION C-C SCALE 1:500





15 Facade material
90 Air Layer
9 Board
60 Insulation
300 Structure
Breather Membrane
Insulation
Breather Membrane
200 Planting Substrate

FINAL MODEL SCALE 1:200

Conclusion

Before starting with our thesis, none of us have even heard about the term patient hotel. Looking back at our project plan, we have noticed how our thesis has taken another direction from what we initially believed was the design of a hospital ward. The main question of investigation has however remained the same as day one when we first stated the title of our project – Beyond White Walls, indicating that we have wanted to investigate alternative ways to design care facilities. Our ambition with the thesis has always been to learn about how the surroundings can affect the healing process of a patient and what a healing environment in such case can look like. Although it eventually did not take form as a hospital ward, our design project developed into something with even more possibilities for us to extend our explorative and experimental thinking.

With the freedom came also several difficulties that have challenged our independent thinking in terms of developing a brief for a hybrid building of this kind. The hardest question throughout the design process to overcome has constantly been to find the right balance between the hotel and healthcare ward, such as comparing the surface efficiency of rooms and public functions that traditionally do not exist in hotels.

We believe that patient hotel is one answer of many to the occurring polarization of the healthcare sector. As mentioned in the report, there is already a developmental change of a growing transition phase between the in- and outpatient wards. Though patient hotels exist today, they are not found in a large extent and are often not built for its purpose. With our thesis, we therefore hope to take this subject further into discussion, raise the public interest for the function of a patient hotel and highlight the importance of having a complement to the hospital in relation to the current changes in society.

We also hope that Malmö city can be inspired by our analysis of the chosen site and how its potentials can be utilized in the future should there be developmental plans for a patient hotel in the area.

Lastly, we hope to spread the understanding of Evidence Based Design theories outside of healthcare architecture. In our belief, the positive aspects that we have highlighted in our thesis are not only to create a healing environment for people that have become patients, but also to stimulate proactive everyday life settings to improve the general health conditions. Imagine if the working environments in the central business districts of metropolises were configured more according to the key elements of Beyond White Walls, would it not be likely that stress, depression and anxiety diminished, and so, resulting in fewer hospital visits?

FINAL MODEL SCALE 1:200

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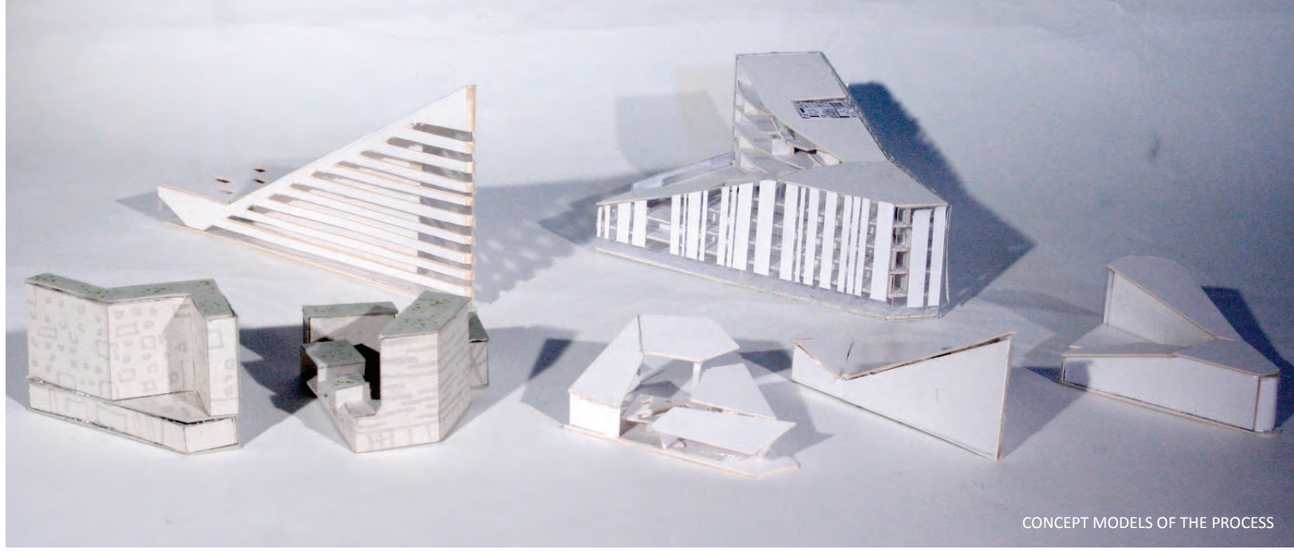
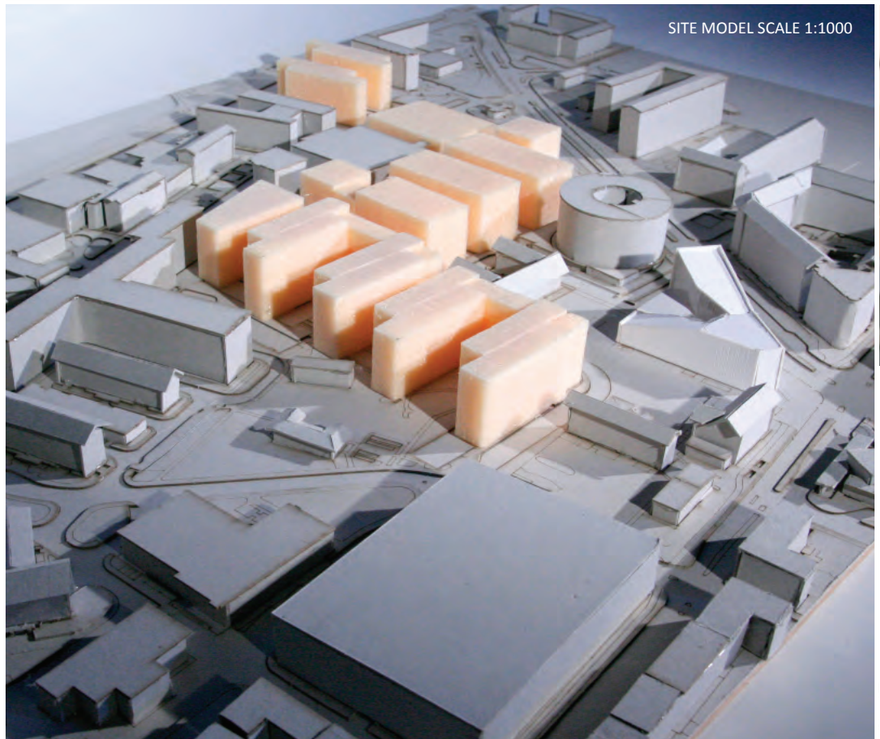


CONCEPT MODELS OF THE PROCESS



SITE MODEL SCALE 1:1000

SITE MODEL SCALE 1:1000

CONSTRUCTION STUDIES 1:250