destress

-a place to prevent and treat stress



a project by Agnes Leo

Chalmers School of Architecture Department of Architecture and Civil Engineering Supervisor: Lin Tan Examiner: Cristiana Caira

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Agnes Leo Destress Chalmers School of Architecture Department of Architecture and Civil Engineering MPARC Spring 2020

Studio: Healthcare Architecture Tutors: Lin Tan & Christin Hammarling Examiner: Cristiana Caira



UNIVERSITY OF TECHNOLOGY

abstract.

Stress is a growing problem in our society and most severe amongst young people. Almost 30% of young swedes describe that they feel stressed. Many people experience stress that affects their daily life in a negative way.

The project's aim is to design a center for destress. I want to investigate if it is possible to reduce and treat high stress levels by creating a space dedicated to the senses and creativity.

The building will be used both in order to prevent stress but also to treat stress related illnesses once they have occurred. The spaces are simple in design, yet impact wellbeing and mood.

The center will be using a combination of different treatment methods, such as therapy, meditation and stimulus of different senses, for a broader treatment. The surroundings is inspired by the already existing "green rehab" where the nature and so called biophilic design is used for its healing power.

This master's thesis project is based on the method of research for- and by design. I will use literature studies as my method but also investigate examples of so called "best practice" where I look at existing architecture project that deals with the same questions. I will try to investigate how materials, daylight, atmospheres and nature can help to reduce stress. At the same time as I'm doing the research I will develop my design proposal through sketches and models.

Research questions:

How can design elements, in the shape of a building, be used in order to reduce and treat stress?

How can architecture, through a stimulation of the senses, affect the mental and physical state of its users?

Keywords:

Architecture, Stress, Senses, Nature, EBD, Treatment, Meditation, Medicine

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REFERENCES

author's background.

education.

BACHELOR 2013-2016 Chalmers university of technology, Gothenburg

INTERNSHIP (SPRING/SUMMER 2018) BSV Arkitekter, Värnamo

MASTER 2018-2020 Chalmers university of technology, Gothenburg

studios.

AT-2018 Sustainable development and the design professions, 7,5 credits Healthcare architecture - Psychiatry facility, 22,5 credits

ST-2019

Managing design projects, 4,5 credits Norm-critical perspectives in architecture and urban design, 3,0 credits Housing inventions, 22,5 credits

AT-2019

Master's thesis preparation course 1 & 2, 7,5 credits Residential healthcare - housing for seniors, 22,5 credits

purpose.

personal connection.

Even though this project will not only My project is aimed for people suffering focusing on students, I got the idea for this from stress. People come here with a master's thesis during last summer when referral from the health center. I also want I saw Uppdrag Gransknings's series "Sjukt to connect and add something new to the stressad" (translation: "Sick stressed"). site so a part of my project is for everyone One of the participants in the series was interested in art. My project is set in a an architect student and I could relate to Swedish context using Swedish statistics. her story since I have experienced stress during my own studies.

aim.

The aim of this thesis is to investigate if and How can design elements, in the shape of how we could use architecture to affect a building, be used in order to reduce and users mental and physical state in a more treat stress? positive way. In my design I wanted to try to create an harmonious environment with How can architecture, through a stimulation the help of stimulation of our senses. In of the senses, affect the mental and physical the design I use the nature for inspiration state of its users? through use of typical natural colors and different textures of concrete combined with wood. I want the project to be an example of how a small number of elements and interventions can create a space rich in sensory experiences.

limitations.

research questions.

BACKGROUND

stress.

facts.

For me, it has been important to understand and learn more about what stress actually is.

Social and economic circumstances, our genetic set and/or the environment we live in are all factors that influence how we, from person to person, are affected by and experiencing stress in our daily life differently. Experiencing something unexpected or new, feeling that you lose control over a situation, or something that threatens your self-feeling are common factors that can make us feel stress (Centre for Studies on Human Stress, 2019).



Although stress is regarded as something negative, there are situations where the feeling of "pressure" can be appropriate, or even a beneficial reaction. Situations where this pressure helps us push through to our goals, for example running a marathon or giving a speech to a large crowd. In fact, if what is stressing us is short lived, we can quickly return to a resting state of mind. Many people can also deal with a certain level of stress without any lasting effects (AmericanPsychological Association, 2019).

However, stress can become too excessive and too much to deal with. If this persists over time one would feel that you are in a permanent state of "fight or flight" rather than helping us push through. The result is often the feeling of being overwhelmed or unable to cope.

Long-time stress is known as chronic, or long-term stress, and it's impact on both physical and mental health can be severe (Adamo, 2014). In my project I have focused on the concept long-term stress.

Sweden.

In 2018, 16% of the population in Sweden aged 16–84 said they felt stressed. The proportion was higher among women (19%), than among men (12%). Young people reported stress more often than older people.

The highest proportion was among women aged 16–29, with 35% indicating stress. This was an increase of 6% since the previous survey in 2016. Among men of the same age, the percentage of stressed was 18%. More people with post-secondary education reported stress compared to people with shorter education (Folkhälsomyndigheten, 2019).



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long-term stress symptoms.

Physical symptoms: Headache, chest pain, insomnia and palpitation.

Psychological symptoms: Panic attacks, depression, hopelessness and increased anxiety.

Cognitive symptoms: Impaired ability to plan, remember, concentrate and think rationally

(Institutionen för stressmedicin, p.5, 2017).

stress in numbers.

4-13%

of all people in Sweden are affected by a fatigue syndrome (Hjärnfonden, 2017).

74 200

swedes were on sick leave for stressrelated mental illness in 2016. 76% of these were women (Hjärnfonden, 2017).

80%

is the number of increased long-term sick leave since 2010. Nearly 60% of this increase is due to mental illness (Hjärnfonden, 2017).

1500

swedes have in 2015, reported about work related illnesses caused by stress and high workloads. This has more than doubled (from 700 reports) since 2012 (Hjärnfonden, 2017).

wellbeing.

definition.

The World Health Organisation defines health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity".

Physical health could be found within the ability to improve the functioning of your body through healthy eating and good exercise habits.







Social health implies the ability to communicate, develop meaningful relationships with others, and maintain a support network that helps you overcome loneliness.

Mental health relates to ones' psychological state and range from aspects such as your self-esteem to how well you cope with different situations.

(WHO, 200I)

references.

the eyes of the skin.

The Finnish architect Juhani Pallasmaa argues in his book "The Eyes of the Skin" for a holistic architecture that considers not only the way spaces look, but the way they feel. He reflects over how spaces impact all five senses of the human body.

Pallasmaa argues about the importance of including all five senses in the art of shaping buildings. According to Pallasmaa our focus on the visual impression can dampen the spatial experience. Architecture is presented as more than the exterior – instead he talks about a more holistic experience.

Pallasmaa stresses that experiencing the world only through our eyes we become distant observers rather than participants. Instead he argues that using other senses, such as touch, makes us more of a participator (Pallasmaa, 2012).

conclusion:

We can close our eyes from what we do not want to look at but it is more difficult to distancing ourselves from an unpleasant sound or smell.

Scents, acoustics, tactile materials, forms, light, shadow, the weight and proportion of things, as well as the overall spirit of the space are aspects of design that normally don't get as much attention as the aesthetics.



atmospheres.

In the book "Atmospheres" Peter Zumthor writes about the exchange between a building and its environment.

Like Pallasmaa, Zumthor underline the sensory aspect of architecture. But where Pallasmaa focused on the underlaying experience of architecture, focus Zumthor instead on the relation between the building and its surroundings. He describes the tension between interior and exterior - where interior is private and exterior is more public and has a relation to what surrounds the building. He talks about the movement from inside to outside or private to public as a transition from closeness to openness.

Light and the affect it has on how a space is experienced – for example depending on how it falls and the materials it is projected on is another theme in the book (Zumthor, 2006).

conclusion:

The way people experience the architecture and how the building interacts with other features are important aspects in the design phase that should be taken into consideration.

Besides this, Zumthor also argues that architecture should be like a free space, a space for people to live in and create own memories.



the senses.

wellbeing and the senses.

Senses are an information-seeking system that interacts with the surroundings, and in turn sends signals to the brain. The use of our senses is how we experience the world (Sprouse, 2019).

Architectural design is mainly based upon stimulation of the eye while our feelings and memories are neglected. However, when a building is finished we notice how it affects our mental state and wellbeing. This idea should help guide us in future design priorities instead of just being a hindsight discovery (Osei, 2014). "Can architecture support the healing process from stress through the senses?"

Successful design has been shown to have distinct psychological and physiological influence on us. The function of our neurological systems play a significant role in what we perceive to be successful design. By taking advantage of all senses in design processes I think it is possible to create a healing environment. A space that is experienced through all the senses and not just through the eyes (Osei, 2014).



Visual stimulation has shaped the built environment for a long time. Our sight is the main contributor to how we experience everything around us. What we see the other senses acknowledge.

smell.

The sense of smell is very delicate. Scents evoke individual emotions and memories. By the knowledge of how certain scents affects our wellbeing, it can be worth taking into consideration while designing.

sound.

Every project has its own vision for acoustics. Within spatial design the choice of materials can help with modification of sound. Therefore different atmospheres can be created within the building to fulfil the vision.



touch.

Physical properties like temperature, texture and weight is best experienced through touch. This explains why we experience concrete as a harsh material, unlike wood, which evokes feelings of warmth and comfort. E.g. Pallasmaa writes that "all of the senses are extensions of touch, and that all of our sensory experiences are related to tactility. By touching materials and surfaces, we experience more than by just staring at it." (Pallasmaa, 2012).

(Osei, 2014). (Rushika, 2018).

CONCEPT

design strategies.

healthy architecture.

The concept of healthy architecture has changed. What used to be mostly about hygiene is now more about psychological wellbeing. Apart from the studies about the health benefits of being able to see a tree instead of a brick wall from your window (outdoor views in architecture has a strong calming effect through our basic biological connection to nature (Ulrich, R. S, 1984)), there aren't many studies about what makes a home healthy. Therefore we have to use the little research that exists, in combination with our intuition and creativity as architects. Some people may prefer certain colors or materials, but some elements universally affect how people feel in a space. Acoustics, air quality and daylight are things that can affect us without even noticing (Channon, 2018).





Nature has a strong calming effect, where stress hormones decrease, and recovery is effective. Only by the presence of nature we experience calm. It is the natural habitat of humans, and it makes us experience a sense of peace where the sound of nature and the fresh air increases energy levels (Frisk i naturen, 2013).

Depending on our mental state, we benefit from different types of connection to nature (Ulrich et al., 1991). In a stable state of mental health, we have the energy to interact more both with and within it, while in a lower state it is more optimal with a serene, wild environment which manages itself (Bengtsson & Grahn, 2014).

art.

According to research mental health and wellness is affected positively by creative practices. Creative practices decrease anxiety, depression, stress levels and improve coping skills while at the same time enhancing quality of life. What's good about creativity, is that anyone can exercise it.

 $(\mathbf{T})(\mathbf{U})$

When we are being creative, our brains release dopamine, which is a natural anti-depressant. Participating in creative activities may even help to relieve depression (Huffington post, 2017).

All-Party Parliamentary Group on Arts, Health and Wellbeing (APPGAHW, 2017) found in their two-year inquiry that art can help with aid recovery and support longer lives. The arts also help meet challenges in health and social care associated with ageing, loneliness, long-term conditions and mental health. Crucially they can also help save the care sector money.



atmosphere. (2) (3) (4)

A good atmosphere of a space is extremely subjective. It's about different individuals, but also where in the world you are.

To achieve the right atmosphere, for a certain space, is different every time. The right feeling can be achieved with different types of lighting, colors, texture and furnitures. The senses touch, sound, smell and sight all plays an important role and should always be considered (Channon, 2018).

process.

material.

The human experience of an architectural space is affected by the materials used. Materials that remind us of nature is making us feel comfortable hence the increase by use of biophilic design in recent years.

According to a study, touching a wooden surface provides a feeling of safety and being close to nature. This can be compared with touching aluminium at room temperature, cool plastic or stainless steel, which all caused a rise in blood pressure (PUUInfo, 2014).

wood.

Based on the study it appears that wood has a positive effects on the emotional state of people. Environments with wooden facades and structures cause a drop in blood pressure and have a calming effect. The use of wood promotes the health and well-being of mind and body. Marjut Wallenius, a Doctor of Psychology at the University of Tampere, says that: "wood has psychological effects on people and a similar stress-reducing effect to nature".

Regarding Wallenius, wooden surfaces make a room feel warmer and cosier and have also a calming effect (PUUInfo, 2014).



wood

concrete

concrete.

Concrete as a building material, offers strength, durability, and a high level of weather resistance. At the same time it provides good weather protection it also gives a sense of durability (Capper, 2016).

The atmospheric qualities of concrete architecture is mostly about the rough feeling it gives. And how the material can create such difference in lights and shadows. Concrete can turn buildings in to mysteries.

inspiration mood pictures.







dark room.







light openings.











floorplan.



l started of with a rectangular shape.



By duplicating the grid I created more possible room variations.



Next step was movement and being more specific in room sizes.



A grid 4.5m x 4.5m was created.



I started to relate the grid to the program and the context.



Final solution.

CONTEXT

qualities.

Qualities I considered important in my search for a project site were closeness to greenery and water, but also the city. I did not look for a place in the middle of the woods, but neither in the middle of the city, I wanted something in between. A place I had in mind that could be suitable for this specific project was Röda Sten. I have been visiting Röda Sten a few times before, and knew that besides the beautiful connection to nature, it also has a strong cultural connection. By using art and nature as a therapy form, I thought the place matched my criteria.











site analysis.

Röda Sten.

Röda sten is an area in the Sandarna district in Gothenburg harbor. It is located under the southern bracket of Älvsborg Bridge on Södra Älvstranden in direct connection to the Klippan area.

It's a former industrial area, which up to the creation of Älvsborgsbron in 1966, included a stone industry and facilities for Svenska Sockerfabriks AB. Today there is one building remaining on the site; the boiler house that was built in 1940 and which now is the Röda Sten Konsthall.

Röda Sten Konsthall is an art hall primarily focused on contemporary art. The exhibition business started around 1996. The art hall is run by the non-profit association Röda Sten Kulturförening. During 1980s and 1990s creative persons have left their mark on the area. This have made Röda Sten to a meeting place for local entrepreneurs and others with a creative focus. The area is often associated with "hipster culture". The fact that the artist collective KKV Gothenburg has its premises in the area and that Gothenburg's only legal graffiti wall, the Dragon, is found here also contributes to the area's cultural reputation (Röda sten, 2019).

The area around Röda Sten Konsthall is a well-visited recreation area for both Gothenburg residents and visitors with its unique urban character with closeness to nature. In the area, fishermen, tourists, graffiti painters, skaters, tango dancers, yoga practitioners, sunbathers, seniors and families with children gather. The site is located 5 km from the city center of Gothenburg (Röda sten, 2019).

















flow analysis.

The map is showing the most common paths to use when arriving at or leaving the site. The main flow is along the river, either from the west or underneath the bridge from the east just next to Röda Sten konsthall. The car parking lot is located in the east, just outside the map so most people will come from this direction. There is also a path along the hill to the south, but this is less used compared to the others.

placement.



Placement I: Close to the art hall. A bit too close to the main flow and too easy access. I want more privacy.



Placement 3: In the water, next to the small bridge. Good connection with water but a bit close to the main flow.





Placement 2: Close to the hill. Good connection with nature but bad sightline to the water. Not so private.



SELECTED SITE

sun/wind study.

It is good to place the rooms I want least direct sunlight in towards the north.



view of the site.





situation plan

scale 1:5000 🚫

transportation.

The site can be reached by several different travel options. Either you take tram 3 or 9 to stop Vagnhallen Majorna or bus 90 to the stop Klippan. The walk from both stops takes about 10 minutes. It's also possible to take the ferry Älvsnabben 285 to Klippans Färjeläge. This walk takes about 5 minutes.

From the city center there is a nice cycle path along the harbor. There are also parking lots in the area but it's not allowed to park on the gravel just outside the art hall (Röda sten, 2019).





concept.

implement design strategies.

As mentioned earlier, listed strategies have a positive effect on our wellbeing. They have shown to act as diversion of the mind away from stressful thoughts.



NATURE

The presence of nature and the ability to feel, smell and observe it

ART

The presence of art activities for creativeness and focus

ATMOSPHERE

The presence of different atmospheres created by different materials and their tactilities.

users.

The target group within this project is people in all ages suffering from stress related illnesses. Since the project site is located in the Majorna district, it becomes natural that the building will be able to collaborate with nearby health centers.



To get access to the center the user meets a doctor at a healthcare center and gets a referral.

The center works as a compliment to todays counselling and medication. With inspiration from green-rehab the healing process is more about experiencing things through the senses.

The building will also be a part-time workplace for professions like therapists and psychologists. The center will be used during both daytime and afternoon/ evenings.

The art hall and the neighbouring outdoor exhibition that is connected to Röda Sten is open for everyone to visit.

keywords.



transition.

The building opens up with big windows towards the water in north. By limiting the light sources from other sides it's giving the building a direction. By having enclosed facades towards the public, it will help with the protection of privacy. The sequence of movement and orientation plays an important role in how pleasant the place is. It is important to find a balance between the beautiful and practical.



movement.



zoning.

Personal adaptation is important to our mental well being. It is therefore good to create spaces with different atmospheres and zones which can give users direct control over the type of environment in which they want to stay in.

placement.







Void



Made two floor to fit the program



The existing void with a stone wall I considered a good placement for the project. The selected site is located close to the main flow, but still a bit hidden since it's sinked in the ground. The buildings exhibition part can be located in the buildings western section to connect more to the already existing context and art hall.



Created a grid 4.8 m x 4.8 m



Filling up the rectangular hole



Expand the building to fit an art hall



Dividing and expanding the grid to fit the program

function.

As mentioned the project is located next to an art hall. My idea is to connect and add to the already existing exhibition hall, and thus make the building a part of the area. Also strengthen the project by designing its surroundings between the two.

The center consists of various functions and it is split up in to two parts. The destress center with a small reception, staff area and different types of meditation/treatment rooms (such as counselling, dark-room, rooms that are connected to nature, both outside and inside) and the other part that consists of an exhibition hall and a work shop.

The main focus through the whole building is on the visitors different versions of wellbeing.

destress center:

level 0		
entrance + lounge	53 m^2	
staff	30 m^2	
- incl. toilets/dressingroom		
consulting room l	17 m ²	
- incl. office.		
consulting room 2	20 m^2	
consulting room 3	10 m^2	
nature room	20 m^2	
toilet area	22 m^2	
-1WC + 1HWC		
- incl. wardrobe		

level -l

dark room	20 m^2
nature room	20 m^2
rain room	32 m^2
relaxation	10 m ²
technique/storage	29 m^2

art hall:

entrance	26 m^2
-incl. toilets/wardrobe	9
exhibition hall	55 m^2
workshop	42 m^2
total area:	500 m2





plans.



entry
lounge
office
consulting
toilets
nature room
consulting
consulting
consulting
staff
staff
staff kitchen
entry art hall
wardrobe
exhibition
workshop

plan O.

On the first floor, you enter the building. From the reception you are guided through the building.

From this level you also have access to the art hall, both from the destress center, but also from the outside.

plan -l.

scale 1:150 \bigcirc



plan –l. One level down you find rooms connected to different senses. Here you also find the technical spaces.

15. hallway16. fire room17. rain room18. relax room19. terrace20. nature room21. dark room22. technique23. storage

plan 0 with surroundings. $_{\text{scale I:}300} \bigcirc$



section. scale 1:300⊕



keywords.

transition.









movement. (2)











zoning.





dark dull light

design and the senses.

the building.

view from reception.

In the building it is important to not choose what feels strenuous – for example there should preferably be no ordinary moldings and linings, push buttons and electronics, etc. Instead, the surfaces are presented in their origin. The transformation begins in the small details closest to the hand and continues into our hearing and visual impressions. Ultimately, it is about giving calmness to the visitor. Calmness leads to presence and it is done in the sum of all these details.

The foundation of the building is in concrete. Concrete is the representation of the ground and the bearing. Light wood complement the concrete as a supporting element in the building and contrast with the cold stone and concrete. Solid furnishings are also made of wood. The large glass windows exists as a thin membrane between inside and outside. It gives reflections that enhance lighting and sight lines.

The art garden serves as the foyer of the building and advertises itself against the site and its visitors. In the garden you can be inspired by the art, spend time in the cultivation area or just sit down and rest.

The house's technical installations are assembled on the lower floor.



the senses.

vision.

Visual impressions are often what one focuses on in architectural design. But everything is not light and colours. In order to direct the right mood, dark environments are also required. Different gradients of gray, natural wood and carefully placed ceiling lights are important.

hearing.

The experience of architecture is very much about acoustics. In the counselling rooms, the materials are soft and warm. There are carpets on the floors, soft fabric on the seatings and leather handles that muffle the sound.

As you walk down one floor, the impressions change. There are only stone walls and very low melt. Here you can hear the water from the rain room that's rippling.

smell.

 (\odot)

(?)

The scents in the building should be characterised by stone, wood, water but also some herbs in the dark- and rest room.

 (\mathbf{J})

(৬)

touch.

The feeling of touch is of great importance in the building. There is an advantage if there is a tension in the surfaces of the materials. Such as raw concrete and stone, against a door of oiled oak and a handle of brass that has been patinated by touch. From details of leather and untreated wood to seat surfaces of soft fabric.

view from nature room.



view in dark room.

view in art hall.





facades.

scale I:150 🔿

scale 1:150 \ominus



scale I:150 🛈

scale 1:150 $\,\ominus\,$



sections.

scale 1:150 🔿

scale 1:150 🖯





water

the journey.

The journey begins already outside the building. Here you enter a place with raw materials in contrast to the new park and the nature that already exists in the area. It is an open place, which is exposed to all weather. Therefore, the material choices are carefully selected. The wind blows and the tree tops sway back and forth. But the sound of the cars crossing the bridge reminds you of reality. You step in to the art garden, here there are walls made of corten with different heights. Behind some of these there are benches where you can sit in shelter and take in all the impressions of the place. You walk on and take the step into the destress center. It is quite dark, but the wood in selected places makes it feel both warmer and lighter. You glance away at the window and glimpse the river behind. After the therapy session you had, in a room without distractions, but still homely because of the fluffy rug and comfortable chair you sat in, you continue the journey through the building. You have chosen to explore it by yourself and the first stop will be the nature room. Here is a large tree planted, and with a view out over the water you settle down on the bench. It smells of some flowers standing in the corner and the sound of birdsong mixed with waves is played at low volume from the speakers.

You relax.

After a while you continue down. The building becomes even darker. You hear rain dripping and steer the steps towards the rain room. Here it is oozing with steam and you stretching out your hand to touch the water. You exit again, and open the door to the dark room. Here it smells mildly of herbs and it steams from a warm water bath. You lie down on your back on the raw concrete bench and close your eyes. You get time to just be, to take in the scent, feel the hard surface against your body, look up at the lights that resemble a starry sky. Tears start flowing.

You relax.

When you exit the building it has become dark. But the place is well lighted and you start walking towards the car to go home. You think about the fact that it was a long time ago since you did something just for yourself. Or just did nothing. And you think it is amazing that you actually got that on prescription.



view from art garden.



CONCLUSION

reflection

Within healthcare architecture it is common that the focus is on the technical environment and the rational way the building will be used rather than architectural qualities and design. In this project it was of high importance for me that the aspects of treatment and care was included in the architecture and that materials, design and context was chosen in order to contribute to the treatment process but in the same time without compromise on the architectural qualities.

Designing for stress relief, in this specific project, meant designing in such a way so that the building accumulates the stimulation from art, nature and atmospheres, all together to improve our sense of wellbeing. For example a big seating close to a window where the sun creates a warm and calm place, a dark room filled with scents that reminds you of a late summer night, a glimpse of nature from a small window and materials that are both soft and tactile.

For my project I chose to work with a centrally located site that in it self has a very strong identity. It is hard to claim this kind of central space with an already strong context and make it to something else. But instead of just claiming Röda Sten, I have tried to give something back and make the location even more attractive to visit, even for those who are not sick. A new facility also gives the place a bigger flow and more people in movement. My research shows that the number of people diagnosed with stress-related illnesses is rising every year. A rise that needs to be prioritised in future healthrelated architectural projects. Today there is no building typology that addresses those issues and with this project I wanted to highlight that deficiency and create a building that can work as a supplement to existing treatment methods.

I have learned that we can reduce stress by following simple design strategies that can act to refocus the mind away from daily struggles.

The next step in this research would be to investigate in how a building typology like this could be designed and used in preventive care rather than – as in my project – when the issues has already occurred. The aim would then be to reduce the amount of people affected by longterm stress rather then treat the ones who already are ill.

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