THE SENSORY HEALING-SCAPE



GRADUATION REPORT

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P5 - June 21 / 2023

Paul Kuitenbrouwer - Project Design
Florian Eckardt - Technical Building Design
Stefano Corbo - Theory & Delineation (Research)

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GRADUATION PLAN

ABSTRACT

Beneath, you can find the abstract submitted for P1:

Health promoting Architecture

Problem statement
Based on participating research (observation and interaction), there can be stated that there is a need to improve the health conditions of the city and the well-being of the individual in Berlin. On the well-being scale of the Organisation for Economic Co-operation and Development (OECD), Berlin scores 4.8/10 points on the scale of life satisfaction, 6.7/10 on health, 6.9/10 on civic engagement and 4.8/10 on environment. (OECD, n.d.). There is a low amount of social interaction between residents and there is not that much communal activities. Within the site area (Andreasviertel - Weberwiese - Wriezener Bahnhof) we cannot see any specific designed places or buildings based on improving the health conditions of the people in the city. People generally are not being stimulated to social interaction, physical activities or being exposed to nature, except from small green parks.

Relevance & main question
An architect should not only design spaces and functions, but he or she can bring architecture to another level whereby the architecture itself can influence the environment and their people, such as health conditions, (safety) feelings, behaviour and productivity. Within the contemporary architecture, buildings are mostly designed for our visuals. “We have allowed two of our sensory domains— sight and sound—to dominate our design imagination. In fact, when it comes to the culture of architecture and design, we create and produce almost exclusively for one sense—the visual.” (Mau, 2018, p. 20). Our experience of space, as of anything else, is much more multisensory than most people realize. (Spence, 2020). Designing in a way that all senses will be touched gives the opportunity to influence human well-being and health-conditions, and create a community out of all the individuals. “Environmental multisensory stimulation can potentially affect us at the social, emotional, and cognitive levels.” (Spence, 2020).

A public condenser, a place for all people, no matter which culture, age, gender and interests, is a perfect place to improve people’s well-being and the health of the city. Stimulating people to improve their well-being by creating certain ‘Atmospheres’ - places that you can read, becoming involved with and that manages to move people. (Zumthor, 2006). – using multisensory design techniques. “The quality of a space or place is not merely a visual perceptual quality as is usually assumed. The judgement of environmental character is a complex multi-sensory fusion of countless factors, which are immediately and synthetically grasped as an overall atmosphere, feeling, mood or ambiance.” (Pallasmaa, 2014).

The main question within this research is: ‘How to create atmospheres based on multisensory design, that stimulate people to improve their well-being, physically and mentally?

Methodology
This research will be based on different methods to get answer on the main question. Literature studies should give insight in how multisensory design should be accomplished, how to stimulate people and how to create an interactive experience. The ‘research by design’ approach will also help answering these questions. The research by design approach consists of different techniques, like collages/ montages, diagramming, superimposing, mapping and modelling. Interviews and observation will give insight in how people experience the existing space and to investigate what is missing in the site area.

Accomplishment
The goal of this research is to investigate and experience how Atmospheres – that stimulates people to improve their well-being (physically and mentally) with interactive experiences - should be designed, based on touching all human senses in a sustainable, hybrid and resilient way.

This design of a public condenser could be a prototype. The concepts of how to create atmospheres that stimulate people improving their well-being using multisensory design can contribute to the larger architectural disciple. The techniques and arguments of this project can be used in other designs as well.

References
Mau, B. (2018). Designing LIVE. In E. Lupton, & A. Lipps (Eds.), The senses: Design
beyond vision, (p. 20–23). Hudson: Princeton Architectural Press.
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Pallasmaa, J. (2014). Space, place and atmosphere. Emotion and peripherical perception in architectural experience. Lebenswelt: Aesthetics and Philosophy of Experience, 4(4). https://doi.org/10.13130/2240-9599/4202

Spence, C. (2020). Senses of place: architectural design for the multisensory mind. Cognitive Research: Principles and Implications, 5(1). https://doi.org/10.1186/s41235-020-00243-4

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GRADUATION PLAN

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Studio

Name / Theme	Public Building
Main mentor	Paul Kuitenbrouwer (Project Design)
Second mentor	Florian Eckhardt (Technical Building Design)
Third mentor	Stefano Corbo (Theory & Delineation / Research)

Argumentation of the studio

This studio was chosen because of multiple reasons. What is interesting about this studio is that all the knowledge gained in the last few years (bachelor + master) is needed to make a complete final design. Thereby, this studio connects real life problems/circumstances with your own interests. In this case; the way architecture can have influence on the health/well-being of the people that use the buil ding.

Public buildings are the kind of buildings that can have a big impact on the society. It is a kind of building that can be attractive for all kind of people, connecting users and neighborhoods. It can change peoples thoughts, behavior and in case of this graduation project, the well-being and health conditions.
Todays public architecture should be based on multiplicity and hybridity. The architecture should be (easily) accessible for the whole society and should include multiple functions with its own milieu. The building should be resilient, focusing on sustainability and the future.

Graduation Project

Title: The sensory healing-scape

Goal

Location: Berlin, Friedrichshain, Andreasviertel

The posed problem

An architect should not only design spaces and functions, but he or she does have the ability to design architecture in a way whereby the architecture itself can influence the environment and their people, such as health conditions, (safety) feelings, behaviour and produc tivity. Architecture can trigger your senses, which can have direct influence on the way people feel and behave and it can have an impact on the health conditions of the users.

Within the Berlin site area, there is a need to improve the health conditions of the city and the well-being of the individual. On the well-being scale of the Organisation for Economic Co-operation and Development (OECD), Berlin scores 4.8/10 points on the scale of life sa tisfaction, 6.7/10 on health, 6.9/10 on civic engagement and 4.8/10 on environment. (OECD, n.d.). There is a low amount of social interaction between residents and there is not that much communal activities. Within the site area (Andreasviertel - Weberwiese - Wrie zener Bahnhof) we cannot see any specific designed places or buildings based on improving the health conditions of the people in the city. People generally are not being stimulated to social interaction, physical activities or being exposed to nature, except from small green parks.

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Research questions

A public condenser, a place for all people, no matter which culture, age, gender and interests, is a perfect place to improve people's well-being and the health of the city. Stimulating people to improve their well-being by creating certain 'Atmospheres' - places that you can read, becoming involved with and that manages to move people. (Zumthor, 2006). – using multisensory design techniques. "The quality of a space or place is not merely a visual perceptual quality as is usually assumed. The judgement of environmental character is a complex multi-sensory fusion of countless factors, which are immediately and synthetically grasped as an overall atmosphere, feeling, mood or ambiance." (Pallasmaa, 2014).

The research question is as following; How to create an interactive atmosphere based on multisensory design, that stimulate people to improve their well-being, physically and mentally?

This main question should be answered based on these sub-questions:
- How can space communicate emotions and behavior?
- How can multisensory experience increase the publicness of an architectural design?
- What kind of forms, materials and functions relate to an interactive and stimulative atmosphere?

The design assignment

The design of this community centre is based on several Theory & Delineation assignments. In the last semester, several techniques are used to gain knowledge and discover what is needed in the design of the building. The last semester was focused on the ideas behind the design; what do you want to achieve with your design and how should the building be used/experienced. The schematic design is developed on the basis of these assignments and exercises.

The design will consist of a main route which invites people to enter the 'design area'. Along this route, you can find several buildings that can have direct influence on peoples health conditions, such as a sport hall, a swimming pool, a gym, a doctor/physiotherapy and a building to gain knowledge about health. Next to the buildings, the park route consist of several spaces to practice your daily exercises, enjoy resting or have social interaction with others.
After P2, the building will be developed in more detail, focusing on materiality, structure and detailing.

Process

Method description

This research will be based on the 'Research by design' method. The research by design approach consists of different techniques, like collages/montages, diagramming, superimposing, mapping and modelling. These techniques give new insights and ideas on how to tackle the overall assignment.

Literature studies should give extra 'evidence based' information that can be used to formulate the building. Literature is used to gain knowledge in how multisensory design should be accomplished, how to stimulate people and how to create an interactive experience. The 'research by design' approach will also help answering these questions. Interviews and observation during the excursion gave insight in how people experience the existing space and to investigate what is missing in the site area.

During the excursion to Berlin in week 1.4, several interviews with residents were done. The questions were based on how people feel about living in the area, what they do on daily basis and which kind of functions are missing for them. Based on these interviews, there can be concluded that, in general, people are feeling quite good. There are many young adults and children living in the area. The mis sing functions are mainly based on sports, like a fitness, a pool for education and a doctor in the near area.
Based on observation, there can be concluded that the area is not designed in a way to improve people's health condition.
In comparison with other areas in the city, there is a low amount of green and public spaces for social interaction. The well-being in the area should be improved.

GRADUATION PLAN

Liturature and practical preference

Used literature

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Zumthor, P. (2006). Atmospheres: Architectural Environments. Surrounding Objects. Birkhauser - Publishers for Architecture. http://ci.nii.ac.jp/ncid/BA77504088

Used case-studies

- Domestic Astronomy (Phillipe Rahm)
- Gallery of Culture house, Arnhem (Neutelings Riedijk Architects)
- Groot klimmendaal, Arnhem (Koen van Velsen)
- Jade Eco park (Philippe Rahm)
- Naturalis Biodiversity Centre, Leiden (Neutelings Riedijk Architects)
- Olympic Sculpture Park, Seattle (Weiss Manfredi)
- Opera house, Oslo (Snøhetta)
- Ørestad College, Kopenhagen (3XN)
- Park ‘n’ play, Copenhagen (JAJA Architects)
- Zighizaghi, Favara (OFL Architecture)

REFLECTION & DETAILED PLANNING

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

Architectural design should bring something extra rather than only designing for a specific function. This project is designing a community centre which stimulates people to improve their health conditions or well-being. This architectural project delivers a design that includes the studio assignment (community centre) AND own interests and research (health promoting architecture).

This studio is in relation with some other interesting courses followed in MSC 1 and 2. In MSC1, the course 'Extreme Architecture' was introducing the assignment of designing a community centre, which was an interesting combination of schematic design and detailing. In MSc2, a thesis is written about how architecture can influence the health conditions of elderly people. This topic is translated into the design of a new living concept of elderly housing in combination with young families and students in the course 'Designing for an inclusive living environment'. The MSC3/4 studio of Public Building is a combination of other courses during MSC1 and 2.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework?

This project shows how an architectural design can accomplish more than only designing for a specific function. It shows how space and functions can have influence on other aspects, in this case the health conditions of people. These aspects could be used in lots of other projects, which could influence the world and her population, which is more and more important these days. This graduation project is showing that public buildings are not only places where people come together to do specific activities, but that it can be a place that influences peoples feelings, behavior and conditions, next to the function itself. In this case this is about stimulating the well-being of people.

Planning

The P2 presentation is based on conceptual and sketch design. It explains how the assignments of Theory & Delineation formed the topics and the concept of the graduation assignment and how this have influenced the Project Design choices. The design is showed based on conceptual floorplans, sections and 3D views. It shows the concept and the goal of the project.
In the first few weeks after the P2 presentation, there will be worked on the feedback of the presentation. After this, the design will be further developed from concept design into preliminary design (P3). This means that there will be more attention paid to technical and structural subjects and materiality. After P3, the design will be further developed into the final design (P4).

<u>P2 (week 3.1) till P3 (week 3.7):</u>
The sketch design will be further developed into detailed floorplans, sections and details and the building will be developed in terms of materiality, sustainability and circularity.

<u>P3 (week 3.7) till P4 (week 4.4-4.6):</u>
The final design will be presented. This design should contain the work of P2 plus development in Technical Building Design, materialization, and representative construction details. The Graduation Report should demonstrate the understanding of and adherence to professional responsibility, ethical awareness, scientific analysis, creativity, sensible decision-making, and argumentation skills necessary as an architect and for the profession at large. The individual graduation report should not only elaborate on the Graduation Project's societal and disciplinary relevance, but also address design ethos and how the graduation project addresses the multiplicity of imperatives inherent in any architectural work.

<u>P4 (week 4.4-4.6) till P5 (4.9-5.1):</u>
The design of P4 can be further developed, based on the feedback of the P4 presentation. The whole design process and finalized materials will be presented during the P5 presentations. This is the final presentation before graduating.

THEORY & DELINEATION RESEARCH PHASE

COLLAGE

A collage is made in the first week of the semester. The assignment: create a collage and montage that represents how a contemporary public building should look like according to your own thoughts. It should be foccusing on three layers; qualifications of the site, structure & materiality and functions/activities. Beneath you can see the result.

The collage shows several things:
- The busy city where many people are living in these days, where time, work and full agenda's are the main factors in daily life. This causes a lot of stress and sometimes depression.
- An open place, the public building or place. where people can spend their free time, clear the mind, develop new thoughts and knowledge and interact with others. A healthy place for your head and body.
- Materials: using natural materials and glass that invites people to take a closer look, with an open structure.



MONTAGE

The montage shows kind of the same elements as the collage, whereby the tree is the public building that covers the city and connects different neighborhoods.
It makes the community healthier and is made for all kind of people, no matter the age, gender, culture or nationality.

The branches represents all different functions inside the building, the connection between neighborhoods and residents and the use of natural materials and greenery to create an healthy environment. The tree represents an open structure and the building itself should be open to invite people. That is also the reason of using the glass as main material.



DIAGRAMS & SUPERIMPOSITION

From the collage, five different diagrams are created. They show different aspects of how the public building should work.
The collage is mainly foccused on the city, people, structure, and materiality. The diagrams show the essence of each topic.

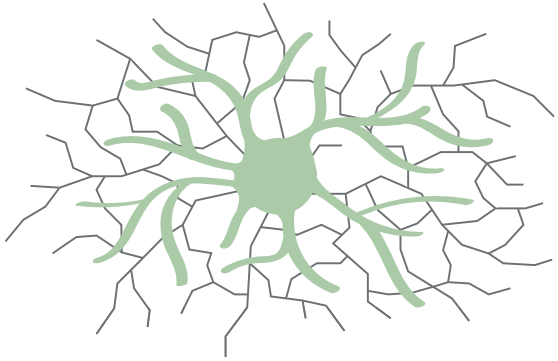
- City: the public building should work as the connecting factor between neighborshoods and the people. It is a green and healthy place where people feel invited and interact with each other.
- Structure: The building should have an open structure with the core in the middle of the building. Using an non-load bearing facade will help to open up the building so that people feel attracted and invited.
- People: The building should have elements (like functions and activities) that can clear the stressed mind of people. Creating a building that interacts with people, where people can do what they like to do.
- Materiality: Using natural/green and open materials, like glass facades, people can see a bit what is happening inside the building and feel attracted to join or enter the building.

The superimposition shows how the building should work based on the topics above.

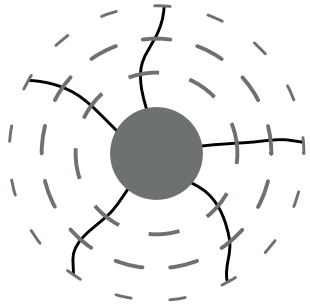
COLLAGE



CITY



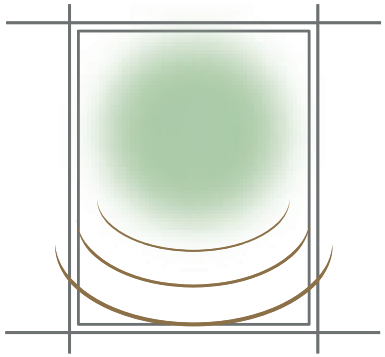
STRUCTURE



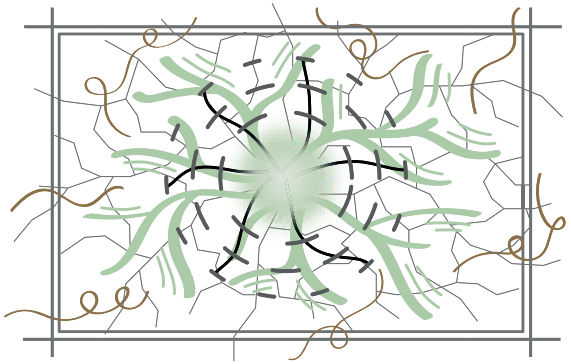
PEOPLE



MATERIALITY



SUPERIMPOSITION



PSYCHOGEOGRAPHY

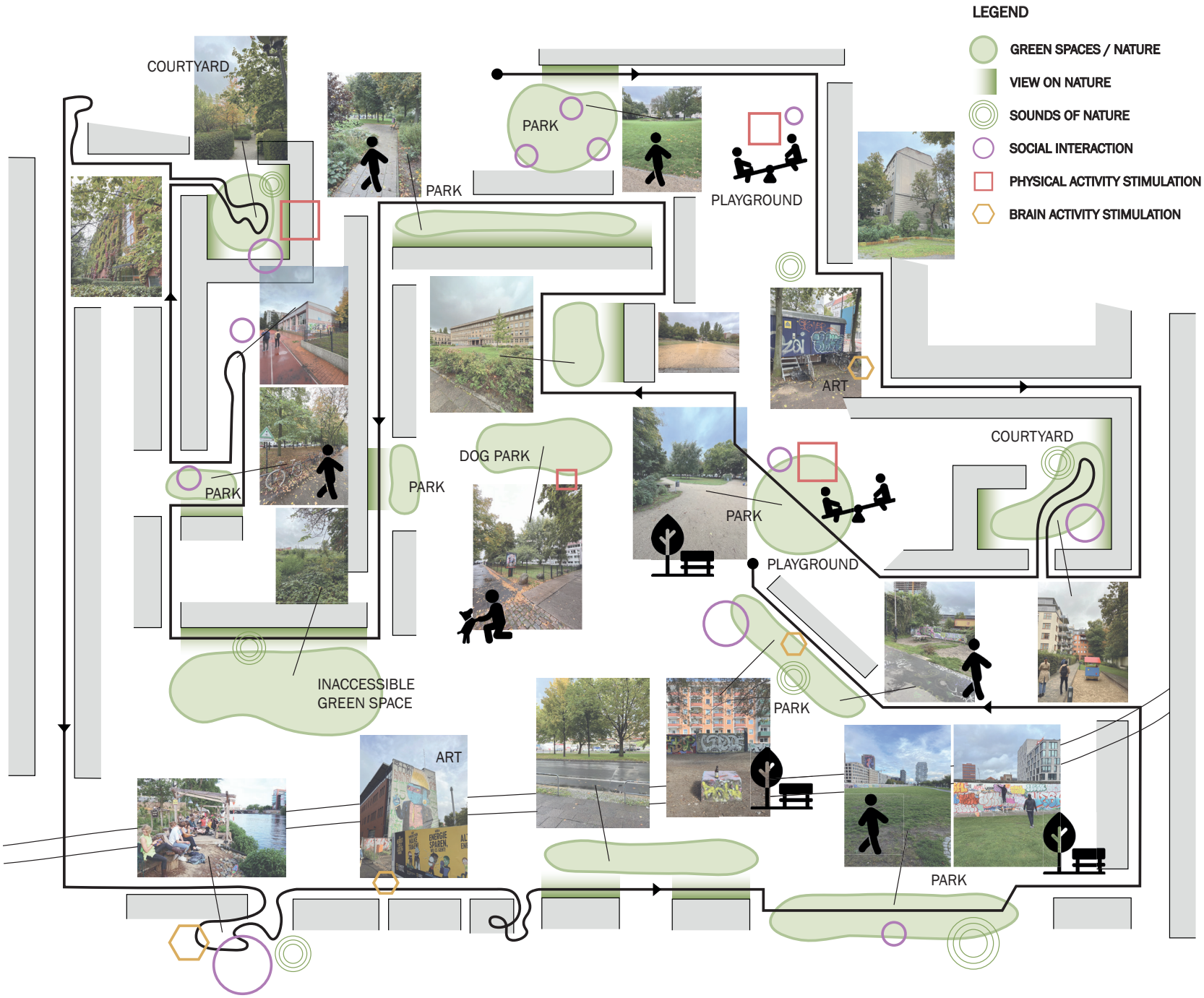
Based on the excursion in Berlin, a phychogeographic map is made out of my own expierence of the site (ego-centric map).

Based on a walk, the experience was that the city is mainly focused on the individual. There were not so much social interactions on the street and no communal activities were seen.

The map shows the perception on how the site can have influence on the well-being of residents or passers-by. The health improving conditions noted in the map are all based on scientific research. These factors can have an impact on the well-being of people.

Concluded can be that there is not designed or thought in a way to improve the well-being of the residents / users of space in the site area.

Social interaction, view and sound of nature, or stimulating physical activities can for example be used within the design to improve human health conditions or well-being.



ASSEMBLAGE

An assemblage is an interpretative tool, a homogeneous object made out of heterogeneous elements. Based on the psychogeographical map, this assemblage is created mainly out of natural materials (see collage & diagrams). It represents several things:

- Physical activity: The stairs **stimulate** people to improve their **physcial health** conditions.
- Social interations: The people using the infinity stair will have **social interaction** with people sitting on the bench every lap.
- Typical Friedrichshain green spaces: The assemblage represents the typical Friedrichshain green spaces with a path and some benches on the outside area.
- Natural materials: The assemblage is made out of natural materials, because greenery and natural elements can have positive influence on the **mental and physical health** conditions.

Out of this assemblage, the idea of using **multisensory design** arise. Stimulating people to improve their well-being / health conditions by touching all senses is the main goal. The well-being of people is based on your experiences, and experiences are created with all human senses. It is easier to improve the well-being of people using all senses within the design than only designing for the visuals.

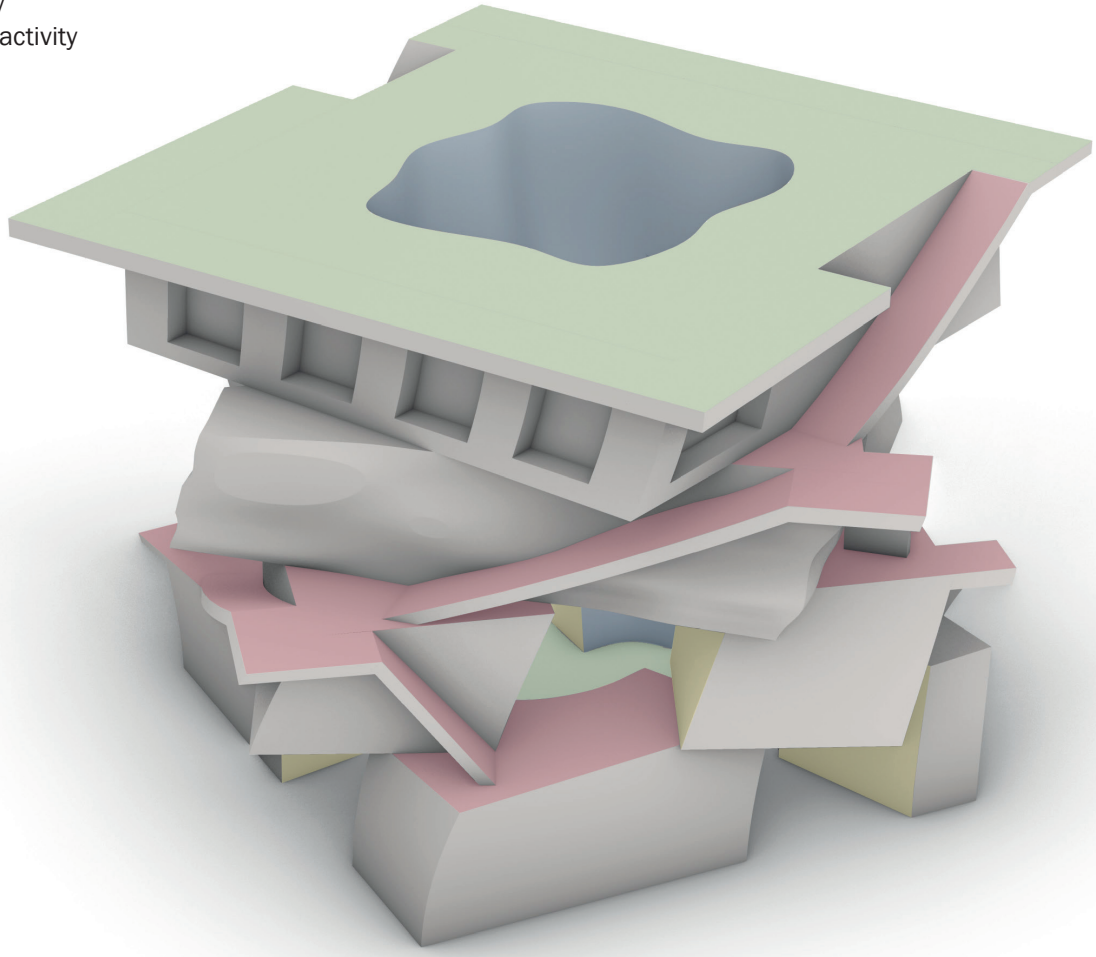


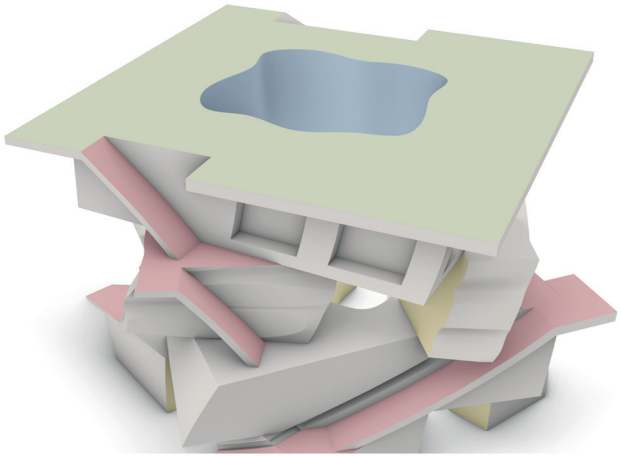


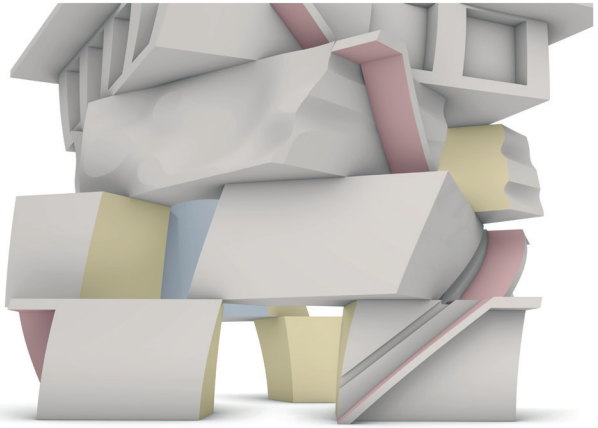
AFFECTATION & DIGITAL MODEL

Out of the assemblage assignment, a digital model is created. Starting with a box and transforming it step by step. These steps are based on tools/instruments that can have influence on the well-being of people and this model shows how these tools/instruments influence the spatial conditions of the building. The goal is to create **Interactive Atmospheres** with **multisensory design** to **stimulate** people to improve their well-being, focussing on the **mental** and the **physical health** conditions.

Multisensory design by using the following different tools/instruments: (On the next page you can see how these tools influence the spatial elements of the building)
- Visuals
- Sound
- Touch
- Smell
- Materials
- Light
- Color
- Greenery
- Physical activity
- Climate







AFFECTATION & DIGITAL MODEL

Climate
The optimum level of indoor room temperature (21°C) and illumination (1000lux) have improved the work performance, health and productivity of office workers. (Vimalanathan & Babu, 2014). Sunshine and natural light improves the psychological restoration potential. (Beute et al., 2013).
- Creating a building with daylight in every space by vertical **stacking** or **extruding** for natural ventilation (**Intersect, overlap, rotate**), use a canopy to use sunlight in the winter, an shading in the summer. (**Extrude**)

Light
Light has the potential of stress-reducing effects, improves heart rate variability, lower pain experiences, and people feel more fit. (Malenbaum, et al., 2008, Rechlin, Weis, Schneider, Zimmermann, & Kaschka, 1995)
- It is easier to have natural light in all spaces when creating a **high** building instead of a low building and to make use of a courtyard/inner garden. (**Extrude & extract**). Seperated low buildings can also have lots of daylight.

Touch
We constantly make contact with flooring and furniture. This materiality and feeling influence the perception of a space. (Tonetto, Klanovicz, & Spence, 2014).
- Use **soft** materials that **invites** people to touch it. People need to feel invited to touch everything in the building, which creates a certain feeling of savety and people feel invited. (**Inflate & bend**)

Green
Greenery has lots of positive influences on human health, like faster recovery after surgery, reduction of pain, stress reduction, improvement of air quality and better performance of concentration. (Ulrich et al., 1991, Malenbaum, 2008, Bringslimark et al., 2009).
- Use green on the **roof** (for reducing energy use), and **biophilic design inside and outside** the building. (**Intersact & extract**)

Sound
Sound can influence behavior; a certain sound can make people decide. (Spence, 2020). Also, sounds can influence people's perception of safety feelings for example. The sound of nature helps with pain control and recovery. (Diette et al., 2003).
- Sound can fully **change people's perception**, **attract** people and let people **move or stay**. (**Twist & reshape**).

Color
Color of ambient light in an indoor environment can influence the perceived temperature and thermal comfort of an environment. (e.g., Candas & Dufour, 2005; Tsushima, et al., 2020; Winzen, Albers, & Marggraf-Micheel, 2014). Color can physically attract people towards a certain place and colors have perceptual qualities that affect the people's perception of space. (Bellizzi et al., 1983).
- Colors in the building can **attract** people to a certain place, influence feelings, stimulate people and make people creative. It is stongly related to materiallity. (ArchDaily, n.d.).

Blue: Transmits the feeling of positivity, confidence, and security. It is often used in commercial and business spaces, such as banking agencies, offices and companies.
Yellow: Portrays optimism, curiosity, joviality and a bright atmosphere. It is frequently used in commercial spaces or restaurants to gain the attention of pedestrians.
Red: This color shows energy, excitement, impulse. Therefore, it is regularly used in commercial spaces, such as stores or fast food outlets, as it portrays a certain compulsivity and consumer desire.
Green: Evokes calm, tranquility, serenity and well-being. It is regularly used in spaces associated with health and well-being, such as hospitals and relaxation centers.

Smell
The strongest memory of a space is often its odor. (Pallasmaa, 1994). Scents can influence peoples behaviour based on associations. (De Lange, Debets, Ruitenburg, & Holland, 2012; Holland, Hendriks, & Aarts, 2005).
- Scents can be used to let people **move**, or let people **stay** in certain places. It can also influence people to do certain things, so helps stimulating people. (**Bend, extrude, Interlock**)

Physical activity
Physical activity reduces life time morbidity, anxiety and depression and keeps people physically healthy. (Fries, 2008, Da Silva et al., 2018).
- Design in a way people are forced to take stairs and **be active** inside the building, for example using a route or stimulate people to do sports. (**Extrude, rotate**).

Materials
Materials can increase the perception of other senses, like the scent of a material, the echo of a sound, the way a building feels, the perception of temperature and the amount of light a material adapts.
- It **expands** the perception of senses. (**Expand/offset**).

Shape/Visual
We typically rate curvilinear forms as being more approachable than rectilinear ones. Angular forms, especially when pointing downward/toward us, may well be perceived as threatening, and hence are somewhat more likely to trigger an avoidance response (Salgado-Montejo, Salgado, Alvarado, & Spence, 2017). As Ingrid Lee, former design director at IDEO New York put it in her book, Joyful: The surprising power of ordinary things to create extraordinary happiness: "Angular objects, even if they're not directly in your path as you move through your home, have an unconscious effect on your emotions. They may look chic and sophisticated, but they inhibit our playful impulses. Round shapes do just the opposite. A circular or elliptical coffee table changes a living room from a space for sedate, restrained interaction to a lively center for conversation and impromptu games" (Lee, 2018, p. 142).

POST PRODUCTION

Post production is creating something new out of existing parts. The goal is to create a new meaning, purpose or life.
In this case, the post production assignment is made by two existing assignments; collage and digital model. Parts of these assignments are mixed to create new ideas.

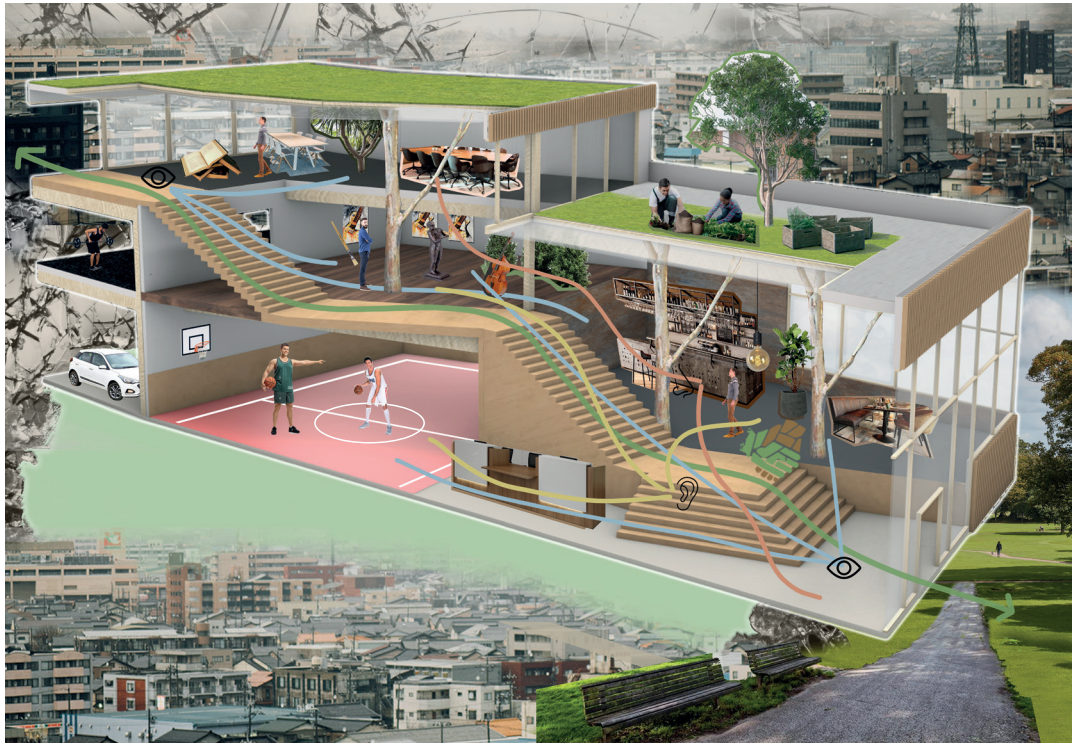
The following two ideas are mixed in this post production:
1. Collage: This explains how a contemporary public building should look like.
2. Digital model: The model explains how the building should look like based on spatial qualities. These spatial operations are based on creating a multisensory experience.

Combining these two ideas gave insight in how the building should work in case of movements, experience, atmosphere, functions and use of senses. The building or design should have a central route where people are being stimulated to explore things and improve their well-being. People will be stimulated because of the right way of designing for multiple senses.

The assignment is made in two steps. The first step is made out of existing elements from the collage and digital model assignments. The second step is created with existing, as well as new elements, to make the ideas out of the first step more clear.

The remix shows the principles of how the building should work:
- Central route: a central route which is visible from the entry. This route connects all the functions.
- Open structure: All the functions are visible from all floor levels. This means that your senses can be touched from all levels based on view, odor or sound.
- Floor heights: The model shows how the floor heights will be different per function. For example, the sport hall and the entry will be a high space, while the office can be a low space.
- Facade: The facade should be made of natural materials and should be transparant on the north and south side to make sure people feel invited.
- Interiors: The interior is different based on the function. It shows what kind of at mosphere should be created to invite people and to stimulate them to improve their well-being.





DESIGN BRIEF

P2

BUILDING PROGRAM

Cluster 1 - Activity hall

Total surface: 1160 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Sport hall	1	616 (22x28)	8	Yes	9 - 22u	School & associations
Chaning room	4	16	3	No	9 - 22u	
Tribune	1	125	8	Yes	9 - 22u	
Storage	1	85	4	No	9 - 22u	
Entry	1	230	4	Yes	9 - 22u	Everyone
Toilets	1	20	4	No	9 - 22u	Everyone
Mechanical & utilities	1	20	4	No	-	Employees

Cluster 2 - Fitness & sport rooms

Total surface: 690 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Fitness	1	400	4	Yes	7 - 22u	Subscription
Sport room	2	70	4	Yes	7 - 22u	Subscription
Changing room	2	25	4	No	7 - 22u	
Entry & reception	1	100	4	Yes	7 - 22u	Everyone
Mechanical & utilities	1	25	4	No	-	Employees

Cluster 3 - Recovery centre

Total surface: 160 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Entry	1	20	4	Yes	8 - 18u	Everyone
Waiting room	1	20	4	Yes	8 - 18u	Everyone
Treatment room	4	20-25	4	No	8 - 18u	With appointment
Toilets	1	10	4	No	8 - 18u	Everyone
Mechanical & utilities	1	10	4	No	-	Employees

BUILDING PROGRAM

Cluster 4 - Pool

Total surface: 361 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Swimming pool	1	220	6	Yes	8 - 18u	Lessons & recovery
Chaning room	2	16	4	No	8 - 18u	
Entry	1	50	4	Yes	8 - 18u	Everyone
Toilets	1	20	4	No	8 - 18u	Everyone
Employee room	1	15	4	No	8 - 18u	Employees
Mechanical & utilities	1	40	4	No	-	Employees

Cluster 5 - Knowledge & community

Total surface: 736 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Entry / café	1	250	6	Yes	8 - 18u	Everyone
Auditorium	1	120	6	Yes	8 - 18u	Everyone
Private meeting room	3	42	4	Yes	8 - 18u	With appointment
Workshop / activity room	2	45	4	Yes	8 - 18u	With appointment
Mechanical & utilities	1	25	4	No	-	Employees

Cluster 6 - Office

Total surface: 153 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Office	1	100	4	Yes	8 - 18u	Employees
Lunch room	1	35	4	Yes	8 - 18u	Employees
Toilets	2	3	4	No	8 - 18u	Employees
Mechanical & utilities	1	12	4	No	-	Employees

P4

BUILDING PROGRAM

WELLNESS

Total surface: 970 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Swimming pool area	1	612	4-8	Yes	8 - 22u	Everyone
Chaning room	2	28	4	No	8 - 22u	
Entry & waiting area	1	118	4	Yes	8 - 22u	Everyone
Toilets	2	16	4	No	8 - 22u	Everyone
Employee room	1	28	4	Yes	8 - 18u	Employees
Workspace	1	30	4	No	8 - 18u	Employees
Massage room	2	16	4	No	8 - 22u	Everyone
Sauna	2	16	4	No	8 - 22u	Everyone
Technical room	1	30	4	No	-	Employees

RESTAURANT

Total surface: 482 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Restaurant	1	365	4-8	Yes	8 - 22u	Everyone
Entry	1	15	4	Yes	8 - 22u	Everyone
Kitchen	1	40	4	Yes	8 - 22u	Employees
Storage	1	32	4	No	8 - 22u	Employees
Toilets	1	20	4	No	8 - 22u	Everyone
Technical room	1	10	4	No	-	Employees

BUILDING PROGRAM

SPORT CENTRE

Total surface: 926 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Sport hall / area	1	456	4-8	Yes	8 - 22u	Everyone (subscription)
Sport room	1	50	4	No	8 - 22u	Everyone (subscription)
Changing room	2	36	4	No	8 - 22u	Everyone
Toilets	1	36	4	No	8 - 22u	Everyone
Employee room	1	38	4	No	8 - 22u	Employees
Entry + pannafield	1	230	4	Yes	8 - 22u	Everyone
Storage & technical room	1	44	4	No	8 - 22u	Employees

ART CENTRE

Total surface: 1000 m²

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Exhibition space	1	515	4-6	Yes	8 - 20u	Everyone
Workshop space	1	225	4	Yes	8 - 20u	Everyone
Storage	1	48	4	No	8 - 20u	Employees
Toilets	1	32	4	No	8 - 20u	Everyone
Employee room	1	36	4	Yes	8 - 20u	Employees
Entry + garderobe	1	28	4	Yes	8 - 20u	Everyone
Gathering space	1	100	4	Yes	8 - 20u	Everyone
Technical room	1	15	4	No	-	Employees

BUILDING PROGRAM

SOUND CENTRE **Total surface: 511 m²**

Function	Amount	Surface (m²)	Height (m)	Daylight	Opening hours	Accessibility
Exhibition space	1	205	4-8	Yes	8 - 22u	Everyone
Music room (therapy)	5	32	4	No	8 - 22u	Everyone (appointment)
ASMR room	3	5	4	No	8 - 22u	Everyone
Anechoic room	1	18	4	No	8 - 22u	Everyone
Toilets	1	32	4	No	8 - 22u	Everyone
Employee room	1	28	4	Yes	8 - 22u	Employees
Entry	1	32	4	Yes	8 - 22u	Everyone
Technical room	1	21	4	No	-	Employees

PROCESS DOCUMENTATION

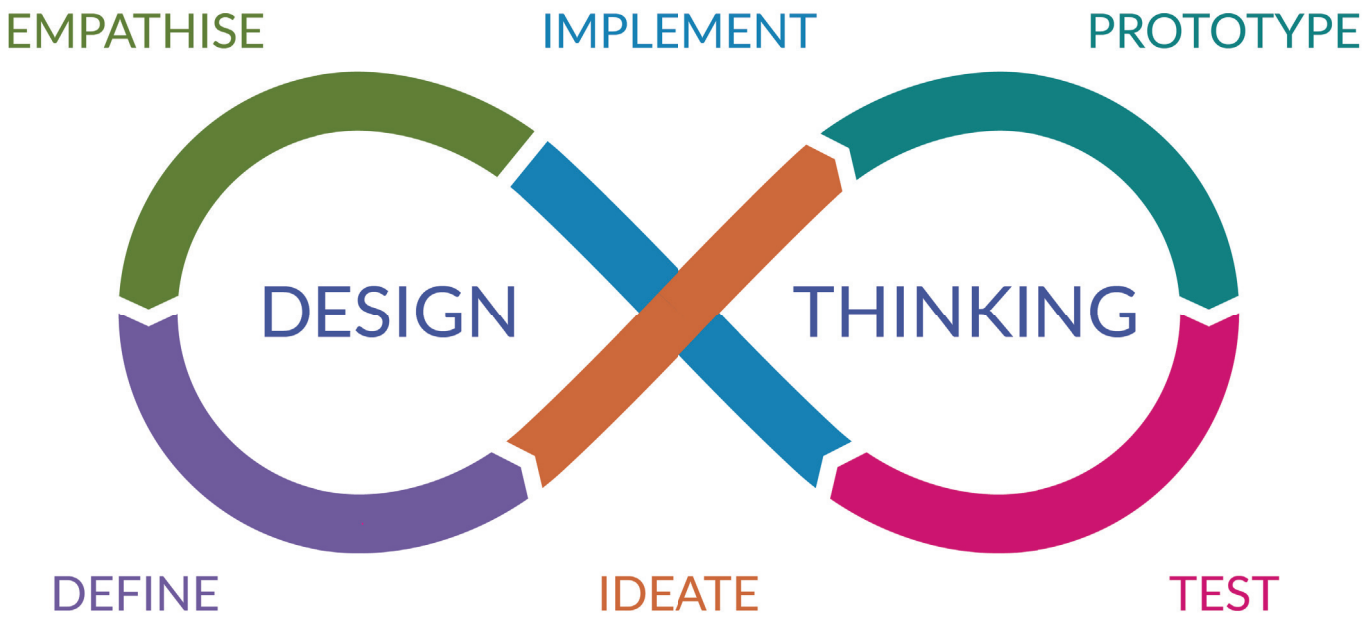
PART I

PROCESS DOCUMENTATION

This chapter shows the most relevant material produced since the beginning of the PD and TD assignments. It shows the relationship between these two and explains how the TD assignments and results have influenced the design process.

The documentation of the process is a critical selection. This means that not all the work is documented in this chapter, but only the work that delivered new ideas and key phases of the process. It shows the journey with all the important moments and choices made.

This documentation shows the work in a lineair way. It shows the work from week 1.5 (the design process started in week 1.5 after the excursion to Berlin) till week 2.10 (P2 presentation). Keep in mind that the process was not lineair at all, like all design processes. The document tells you in which week it is made, but sometimes the process was to go back to earlier weeks, because ideas or plans were not working as it should be.

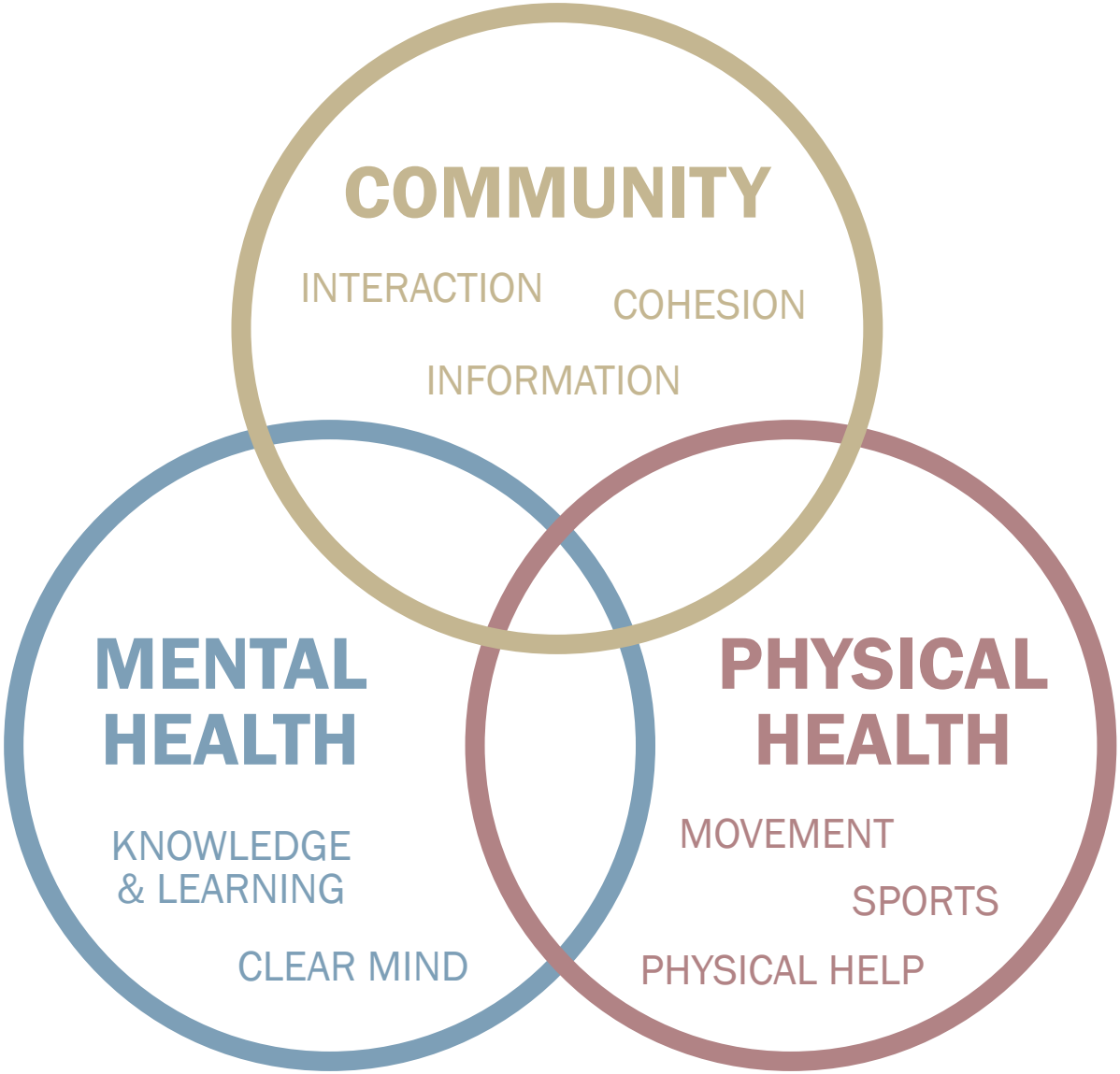


Design thinking concept (System Concepts, n.d.)

PROGRAM CONCEPT

Based on the psychogeographic map made for Theory and Delineation, the main topic of creating a building that improves the well-being or health conditions of people in the neighborhood was born.

The process started with creating the main concept of the program of the building. This program is based on functions that can have influence on the health conditions of people and on the missing functions in the neighborhood according the residents itself (interviews). The program is devided into community, mental health and physical health.



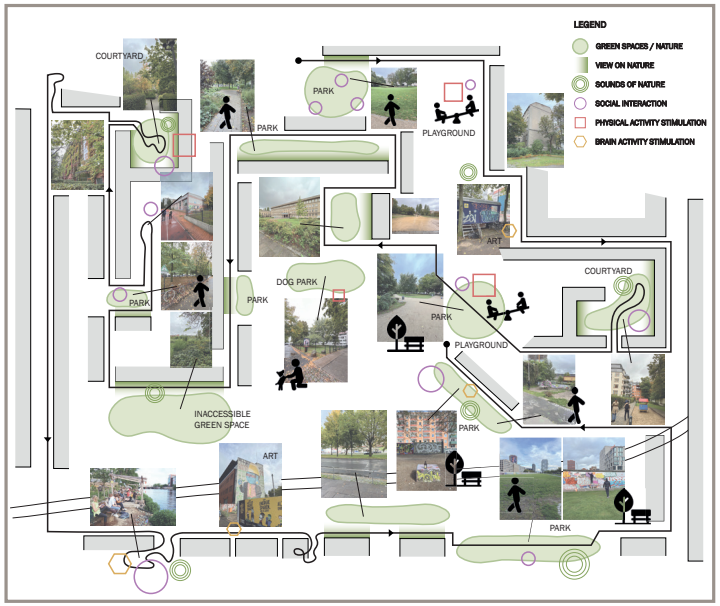
NECCESSARY PROGRAM

ENTRY
CAFE/RESTAURANT
OFFICE
LUNCH ROOM EMPLOYEES
MECHANICAL & UTILITIES
STORAGE
SHARED WORKSPACE
WORKSHOP & ACTIVITY ROOM
PRIVATE MEETING ROOMS
FITNESS
SPORT HALL
SPORT ROOMS
SWIMMING POOL
CHANGING ROOMS
DOCTOR & PHYSIOTHERAPY

OPTIONAL PROGRAM

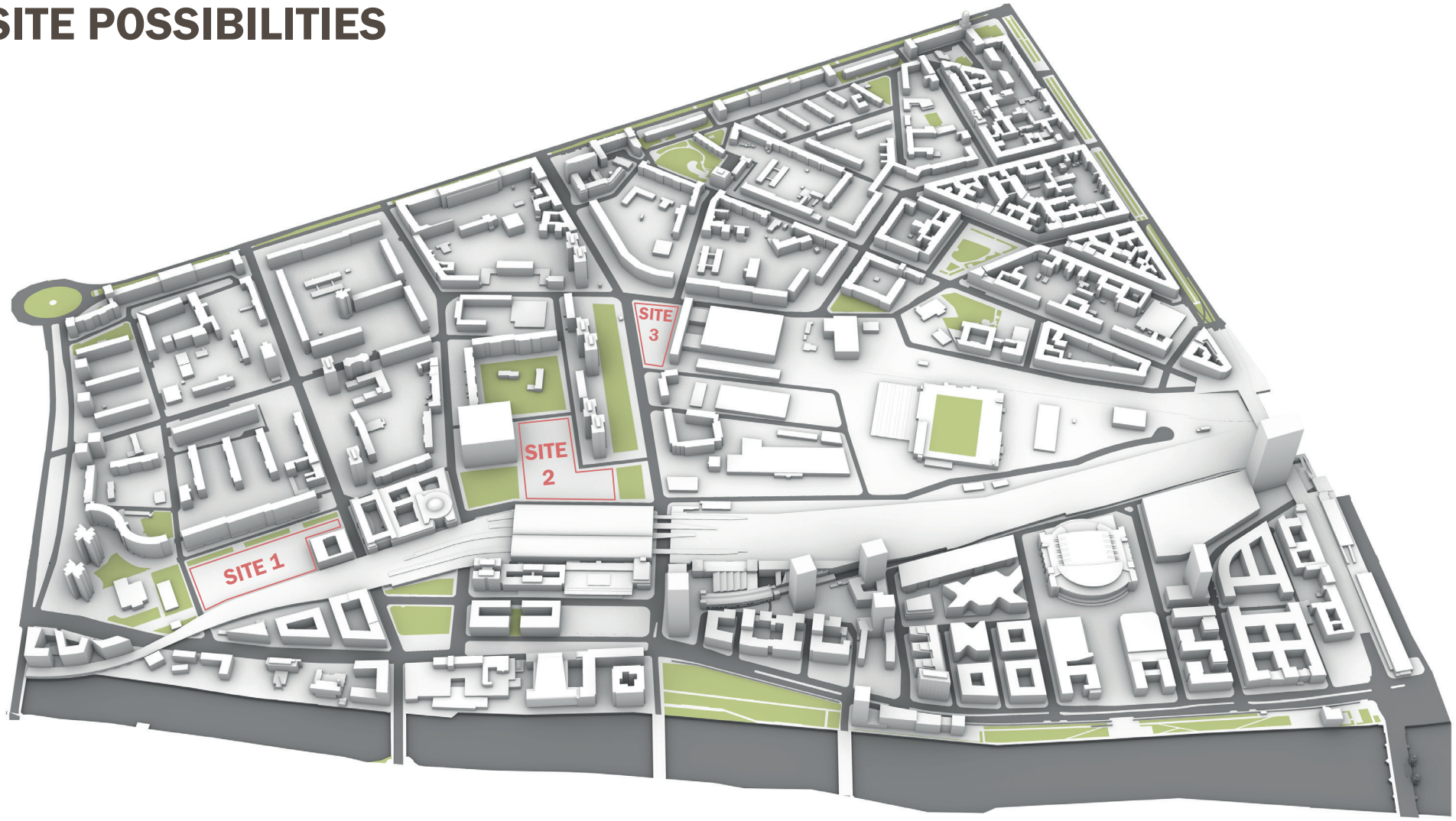
AUDITORIUM
HOUSING
HOMELESS SHELTER
PSYCHIATRIST

*All functions are related with each other and can have influence on each other. For example: Sports and social interaction with others can also have a huge impact on the mental health aspects of people and increasing your knowledge can have a possitive impact on the community when creating new ideas.



Psychogeographic map of the Berlin site area (TD assignment)

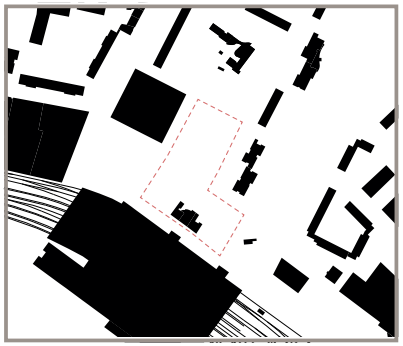
SITE POSSIBILITIES



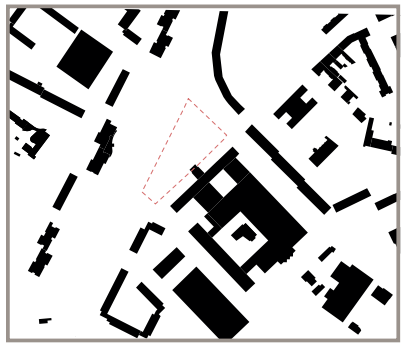
SITE 1



SITE 2



SITE 3



During the excursion in Berlin, the assignment for PD was to select three sites that could be interesting to you for the design of the community centre.

The three chosen sites are based on space, location and ideas of improvement. On this point, the idea of Health promoting design/architecture was not there yet.

SITE ANALYSES

In week 1.6, the assemblage model of Theory & Delineation was made. It showed how to **stimulate** people to improve their health conditions without realizing that they do so. Out of this, the idea of creating certain '**Atmospheres**' - places that you can read, becoming involved with and that manages to move people. (Zumthor, 2006). - was born. Multisensory design will be used to create these Atmospheres.

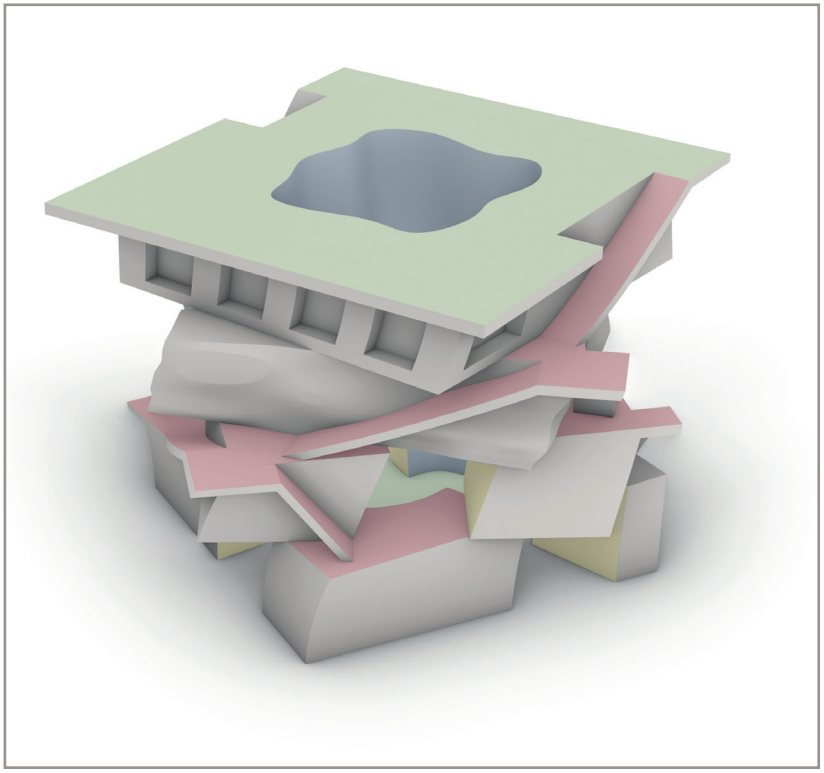
"The quality of a space or place is not merely a visual perceptual quality as is usually assumed. The judgement of environmental character is a complex multi-sensory fusion of countless factors, which are immediately and synthetically grasped as an overall atmosphere, feeling, mood or ambiance." (Pallasmaa, 2014).

The Theory & Delineation assignment of week 1.7 is showing how the idea of **multisensory** design influence the spatial qualities of the design. The model is based on different instruments that will have influence on the senses of the users and how to implement these in spatial qualities. The instruments used are: Climate, light, touch, sound, color, smell/odor, physical activity, greenery and materials. The model shows what kind of actions the design should have, like the use of green roofs, a route for physical activity, a big facade surface for lots of daylight, the use of colors to attrackt people and influence them, the use of canopies and curvilinear shapes. The design should be an interactive experience. For the whole explaination of the model and the used sources, see page ...?

During these weeks, analyeses of the sites where made to see which site fits the best in this topic. The analyses are base on the surrounding elements, the users, the atmosphere and the health conditions of the site. The program is changed per site based on what the site is asking for. At the end, these elements are compared with the digital model of TD, to conclude which site fits the best in what the building needs. In the next pages, you can find the analyses and the conclusion made.



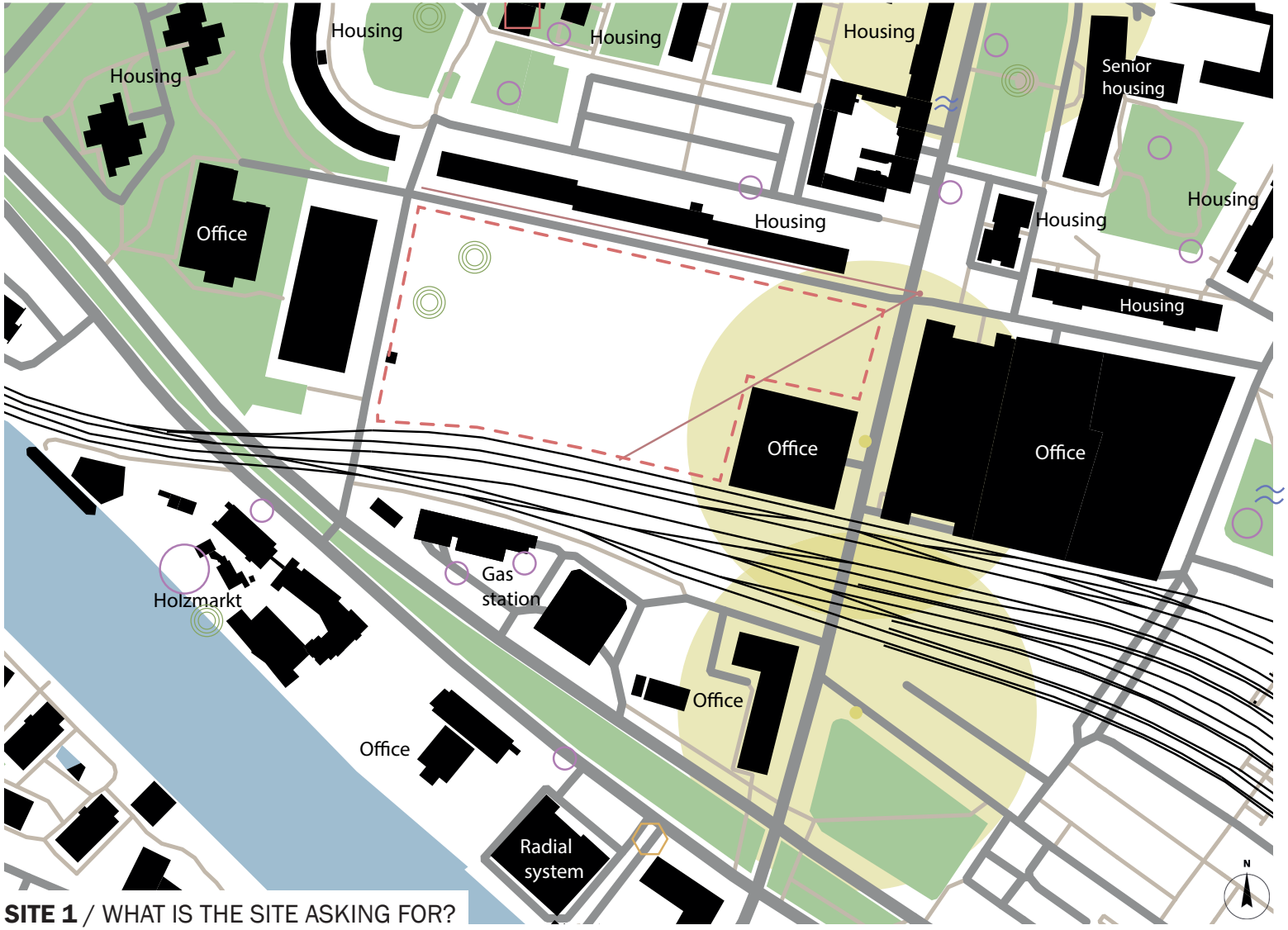
Assemblage model



Digital model based on multisensory experience

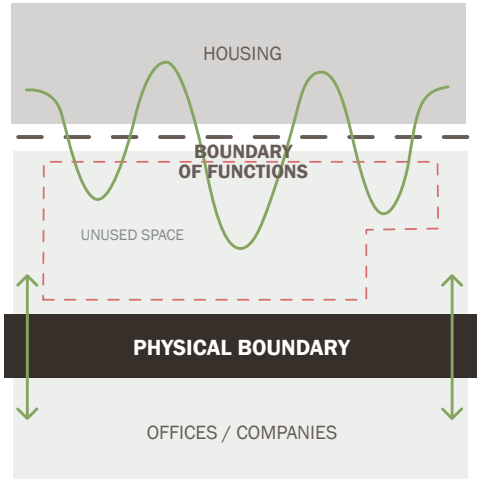
SITE 1 - ANALYSES

1:2000 - scaled



LEGEND

- Site area
- Bus/tram stop 1 min walk (90m / 1,5m/s)
- Train stop 2 min walk (180m / 1,5m/s)
- Important sightlines
- Sound of nature
- Smell - attraction
- Social interaction
- Physical activity stimulation
- Brain activity stimulation



SITE 1 / WHAT IS THE SITE ASKING FOR?

BUILDING HEIGHT
~ 12m

USERS
Residents & officeworkers

MOVE/STAY
Both

INTERVIEWS
- Empty site, office area
- Good spot for sports and work, not in the middle of the community
- Not that much tourism and traffic/ passers-by

BUILDING SHAPE
Rectangular

FUNCTION
Transition living - working

ATMOSPHERE
Rest, green, move, connect

SITE 1 - ANALYSES



Map site 1 (Maps, 2022)



Health map

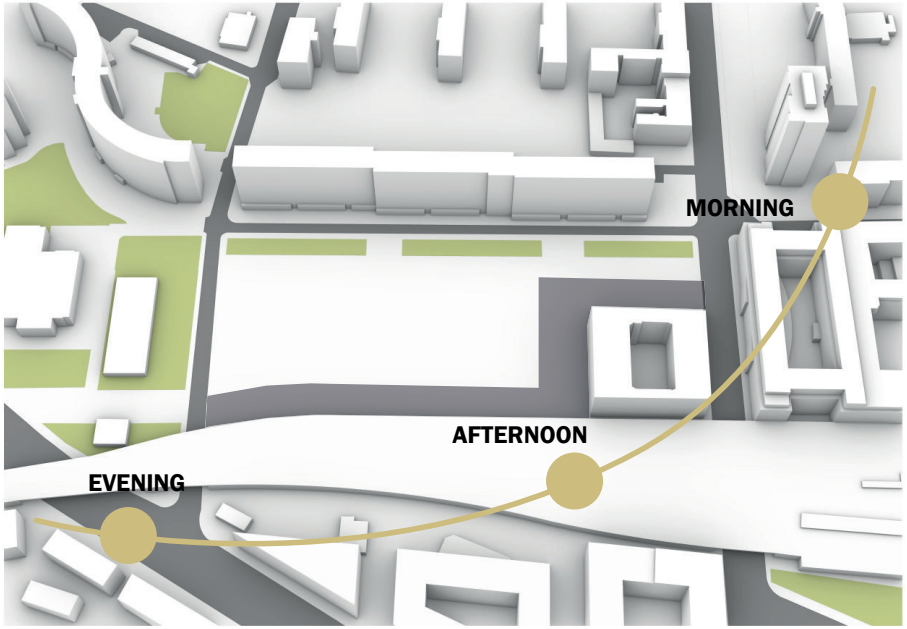
Air pollution

Noise

Air improvement

People gathering (social interaction)

Smell



Sun analyses

Site 1 is an empty plot which is between the residential area and the office/company area. This means that it can have the function of a transition between work and living. Functions like sports, health care and work spaces are perfectly fitting within this site. The site is asking for a rectangular shape, comparing to the other buildings in the surrounding area. Unfortunately, in this area, there are not that many passers-by or tourists that can be part of the project.

On site 1, you can see that the road on the east of the site is causing some pollution because of the high amount of trafic. The railway is causing some noise, which you can hear on the site. The area around the site is quiet, a residential area with a lot of greenery, which improves the air quality. The site itself is also quite green with grass and trees.

The site does have direct sunlight the whole day long. The existing office building on the site and the railway will give some shadows, but that is only a small stroke (see sun analyses).

Shadow

SITE 1 - ANALYSES

COMMUNITY

ENTRY
Entrance
Reception/
Information counter
Toilets
~75 m²

OFFICE
For staff members
Toilets
~100 m²

CAFE/ RESTAURANT
Public area
Kitchen
Terrace
~150 m²

LUNCH ROOM
~50 m²

STORAGE
~50 m²

MECHANICAL & UTILITIES
~50 m²

HOUSES
Starter / student
~? m²

MENTAL HEALTH

PRIVATE MEETING ROOMS
Based on reservation
~200 m²

CIRCULATION
25-30%
~1000 m²

SHARED WORKSPACE
Accessible for everyone
~200 m²

WORKSHOP & ACTIVITY ROOM
~150 m²

PHYSICAL HEALTH

FITNESS
Accessibile when having a subscription
~400 m²

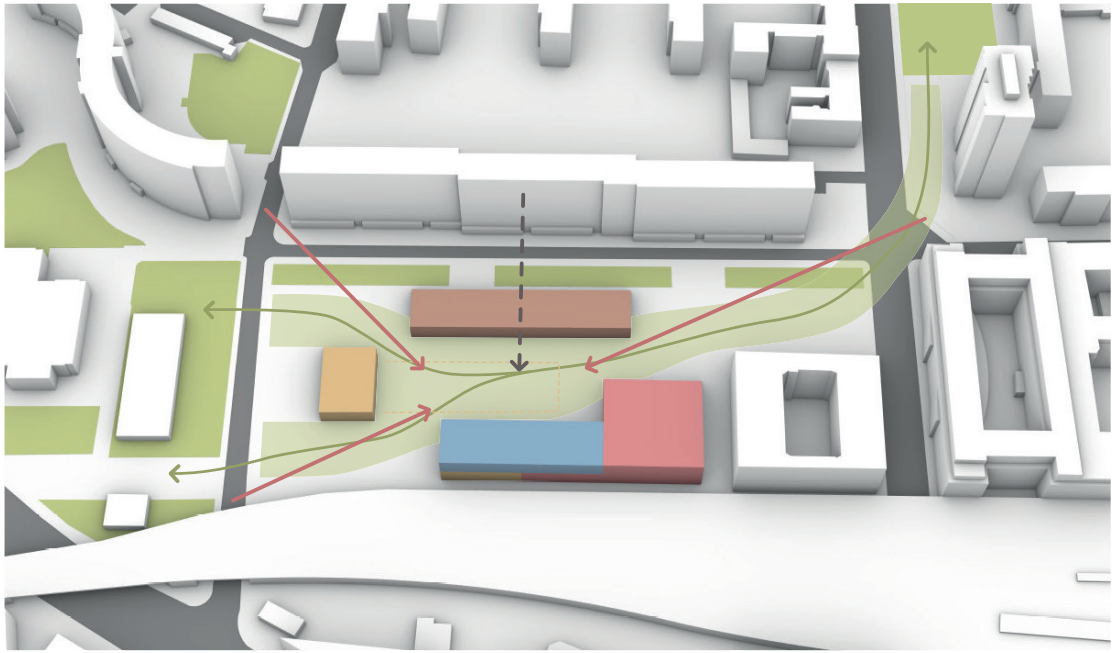
SPORT HALL
22 x 28 meter
~650 m²

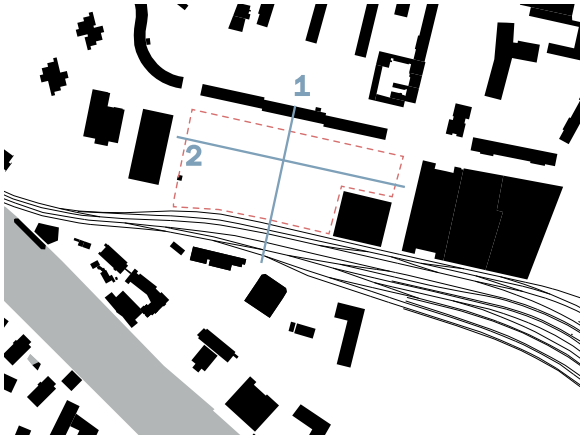
DOCTOR & PHYSIOTHERAPY
Waiting room
Treatment rooms
~150/200 m²

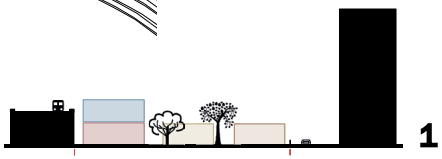
CHANGING ROOMS
~75 m²

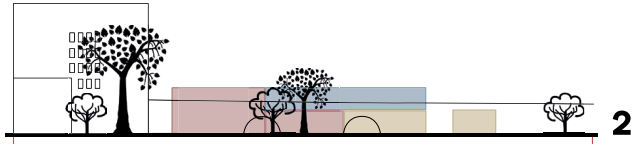
SPORT ROOMS
~200 m²

SWIMMING POOL
To learn swimming
~200 m²









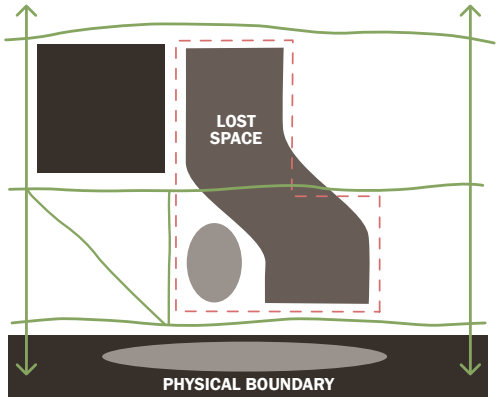
SITE 2 - ANALYSES

1:2000 - scaled



LEGEND

- Site area
- Bus/tram stop
  1 min walk
  (90m / 1,5m/s)
- Train stop
  2 min walk
  (180m / 1,5m/s)
- Important sightlines
- Sound of nature
- Smell - attraction
- Social interaction
- Physical activity stimulation
- Brain activity stimulation



SITE 2 / WHAT IS THE SITE ASKING FOR?

BUILDING HEIGHT
All heights are possible <45m

BUILDING SHAPE
Free

USERS
Residents, officeworkers, tourists, passers-by

FUNCTION
Leisure & interaction

MOVE/STAY
Both

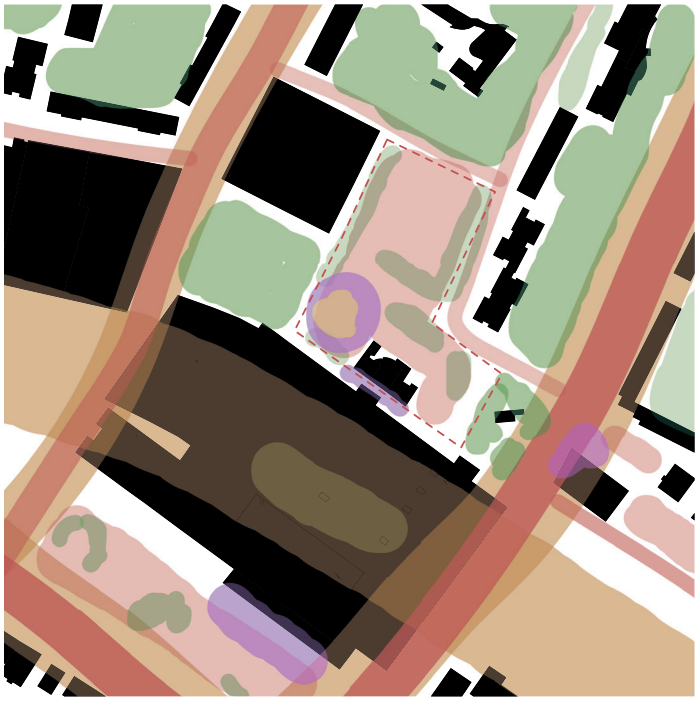
ATMOSPHERE
Green, interaction, food, relax

INTERVIEWS
- Missing sports for children
- Missing workspace
- Lots of passers-by, tourists and mix of different people
- Missing connection east - west

SITE 2 - ANALYSES



Map site 1 (Maps, 2022)



Health map

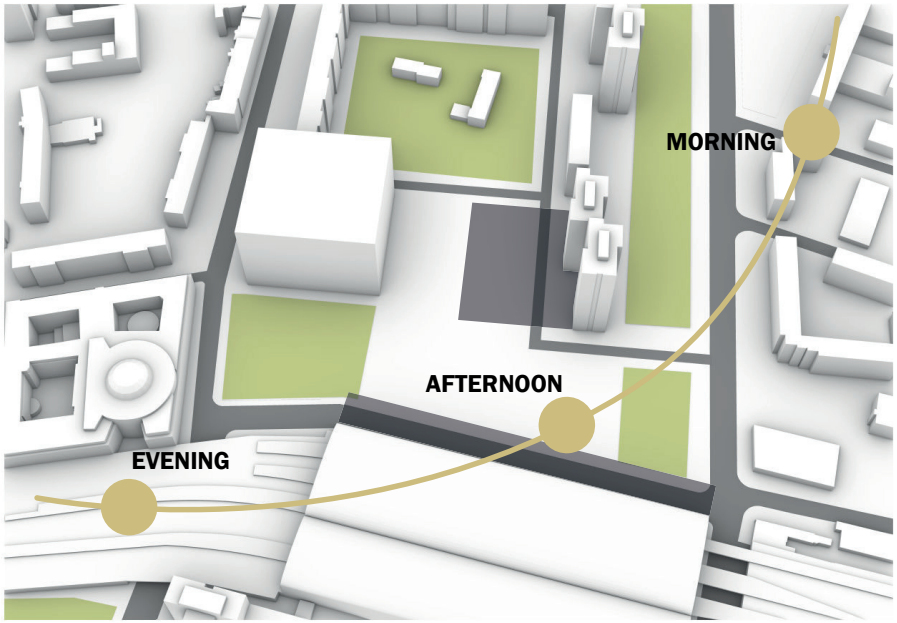
Air pollution

Noise

Air improvement

People gathering (social interaction)

Smell



Sun analyses

Site 2 is a place where many different kind of people pass, because of the railway station Ostbahnhof. The site is not asking for a specific shape or height of the building and is perfectly for interactions, attractiveness and improving human health conditions.

The site is oriented between two busy roads. These roads causes air pollution and noise. The Ostbahnhof will also cause quite some noise.
On the site itself, you can find a big parking plot, which means that lots of cars are driving there. This is also decreasing the air quality in the site area.
On the north of the site you can find green places with a lot of trees, which is improving the air quality.
In the southwest corner of the site, you can find a place where people stay, because of the food trucks/stands that you can find there. This causes some inviting smells.

According the sun analyses, you can see that the big residential building next to the site causes a lot of shadow during the morning. In the afternoon, Ostbahnhof causes a little stroke of shadow, but this is not affecting the site conditions.
The existing building on the south side of the site will also create some shadows, but I have deleted this building in the analyses, because I want to demolish the building and recreate it into the new building.

Shadow

SITE 2 - ANALYSES

COMMUNITY

ENTRY
Entrance
Reception/
Information counter
Toilets
~75 m²

FOOD
Public area
Kitchen
Terrace
~200 m²

OFFICE
For staff members
Toilets
~100 m²

AUDITORIUM
~150/200 m²

LUNCH ROOM
~50 m²

STORAGE
~50 m²

MECHANICAL & UTILITIES
~50 m²

HOMELESS SHELTER
~250 m²

MENTAL HEALTH

PRIVATE MEETING ROOMS
Based on reservation
~150 m²

CIRCULATION
25-30%
~1000 m²

WORKSHOP & ACTIVITY ROOM
~125 m²

SHARED WORKSPACE
Accessible for everyone
~150 m²

PHYSICAL HEALTH

FITNESS
Accessibile when having a subscription
~400 m²

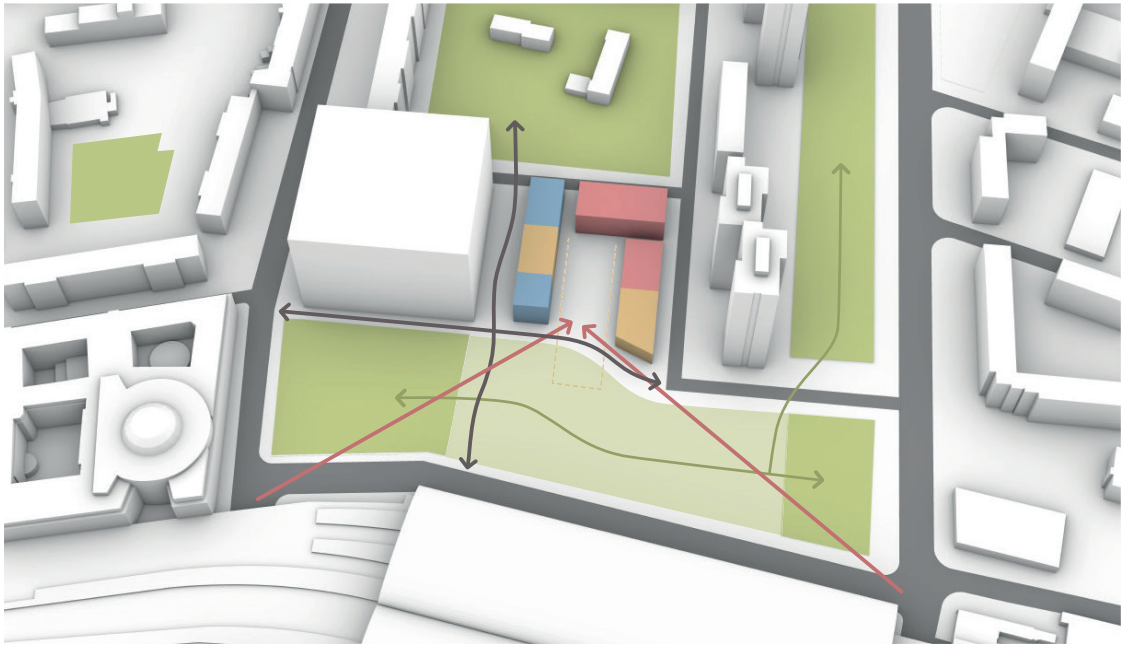
SPORT HALL
22 x 28 meter
~650 m²

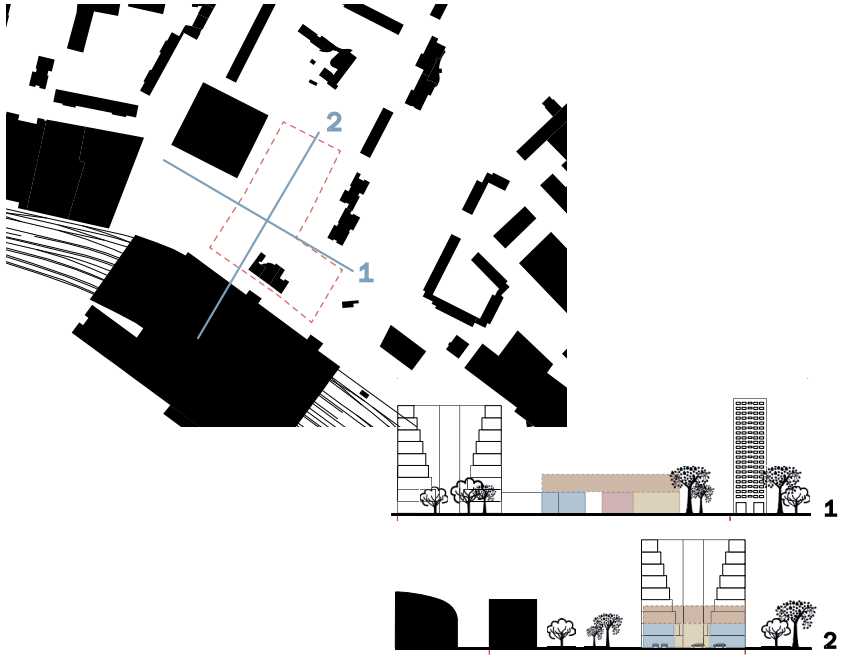
DOCTOR & PHYSIOTHERAPY
Waiting room
Treatment rooms
~150/200 m²

CHANGING ROOMS
~75 m²

SPORT ROOMS
~200 m²

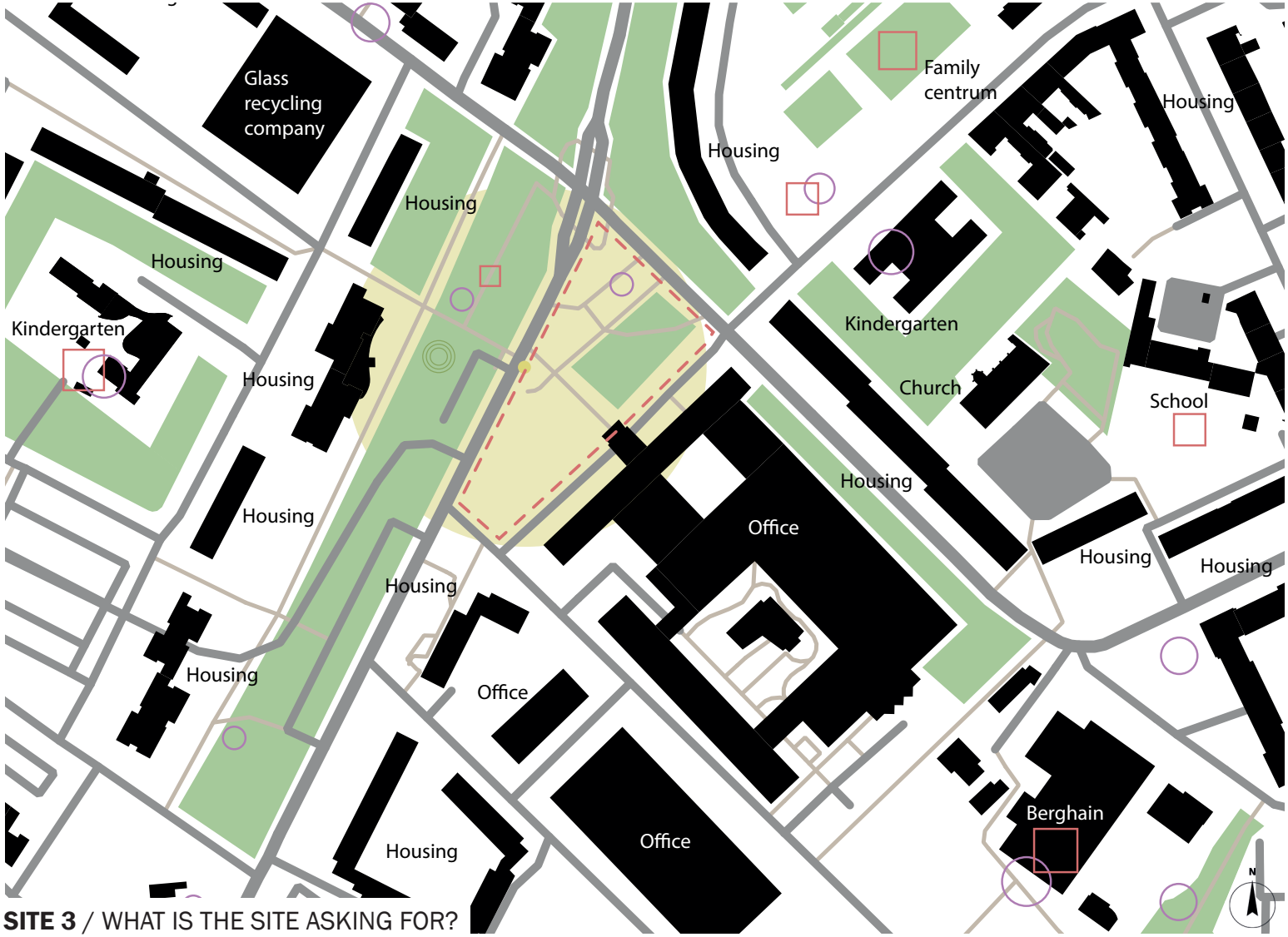
SWIMMING POOL
To learn swimming
~200 m²





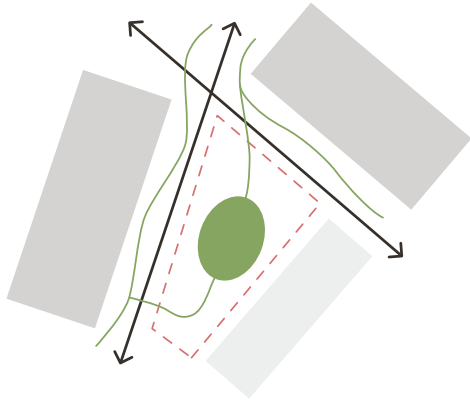
SITE 3 - ANALYSES

1:2000 - scaled



LEGEND

- Site area
- Bus/tram stop 1 min walk (90m / 1,5m/s)
- Train stop 2 min walk (180m / 1,5m/s)
- Important sightlines
- Sound of nature
- Smell - attraction
- Social interaction
- Physical activity stimulation
- Brain activity stimulation



SITE 3 / WHAT IS THE SITE ASKING FOR?

BUILDING HEIGHT
<25m, stay below office building

BUILDING SHAPE
Following site boundaries, keep existing building visible

USERS
Residents, officeworkers, passers-by

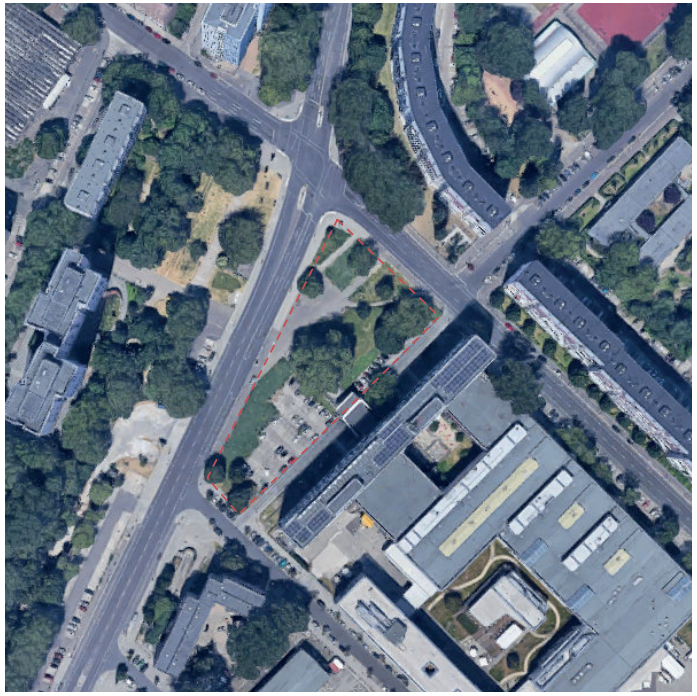
FUNCTION
Leisure

MOVE/STAY
Stay

ATMOSPHERE
Green/park, relax, open place

INTERVIEWS
- No functions are missing
- Keep existing entry of the office building visible
- Open building, keep the existing space

SITE 3 - ANALYSES



Map site 1 (Maps, 2022)



Health map

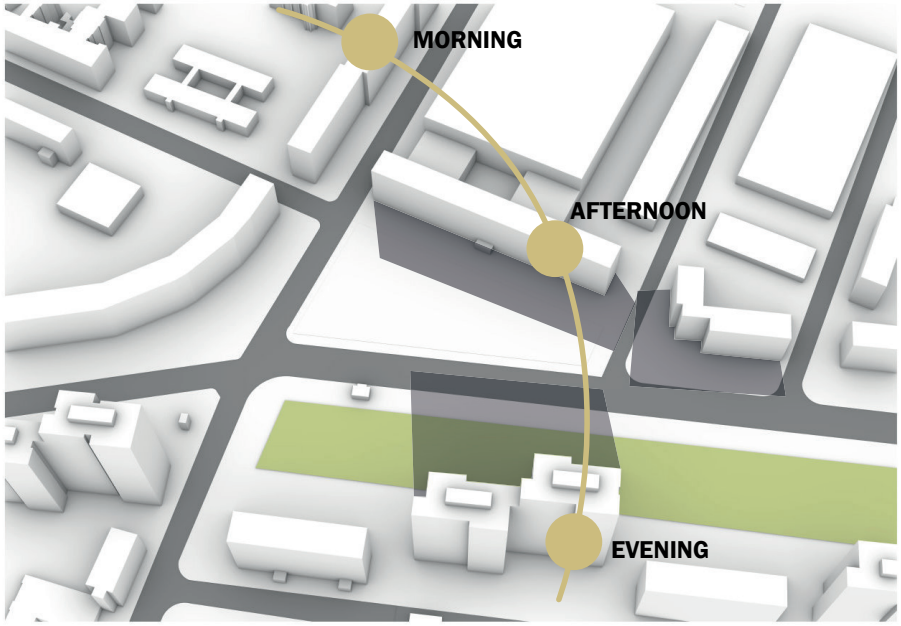
Air pollution

Noise

Air improvement

People gathering (social interaction)

Smell



Site 3 is asking for a green place, a place for relaxing and interactions. When making a building on this spot, make sure that the existing office building will still be visible and that the entry is easy to find/enter. Because of the busy roads, there are a lot of passers-by which is good for a community centre. It can also connect different neighborhoods.

The site is next to a busy intersection of roads. Because of the high amount of cars that cross these roads, the air pollution with CO2 is quite high. These cars also make some noise. On the site itself, you can find a small parking plot, which is also not that good for the air quality. On the west side of the site you can find a small, but long park with a lot of trees. These improve the air quality on the site.

Overall, the area is healthy. The intersection of the two roads is the only ‘problem’.

The existing office building will have influence on the direct sunlight during the day, mostly in the morning hours (see sun analyses).

Shadow

SITE 3 - ANALYSES

COMMUNITY

ENTRY
Entrance
Reception/
Information counter
Toilets
~75 m²

OFFICE
For staff members
Toilets
~100 m²

CAFE/ RESTAURANT
Public area
Kitchen
Terrace
~150 m²

LUNCH ROOM
~50 m²

STORAGE
~50 m²

MECHANICAL & UTILITIES
~50 m²

AUDITORIUM
~250m²

MENTAL HEALTH

PRIVATE MEETING ROOMS
Based on reservation
~200 m²

CIRCULATION
25-30%
~1000 m²

WORKSHOP & ACTIVITY ROOM
~150 m²

SHARED WORKSPACE
Accessible for everyone
~200 m²

PHYSICAL HEALTH

FITNESS
Accessibile when having a subscription
~400 m²

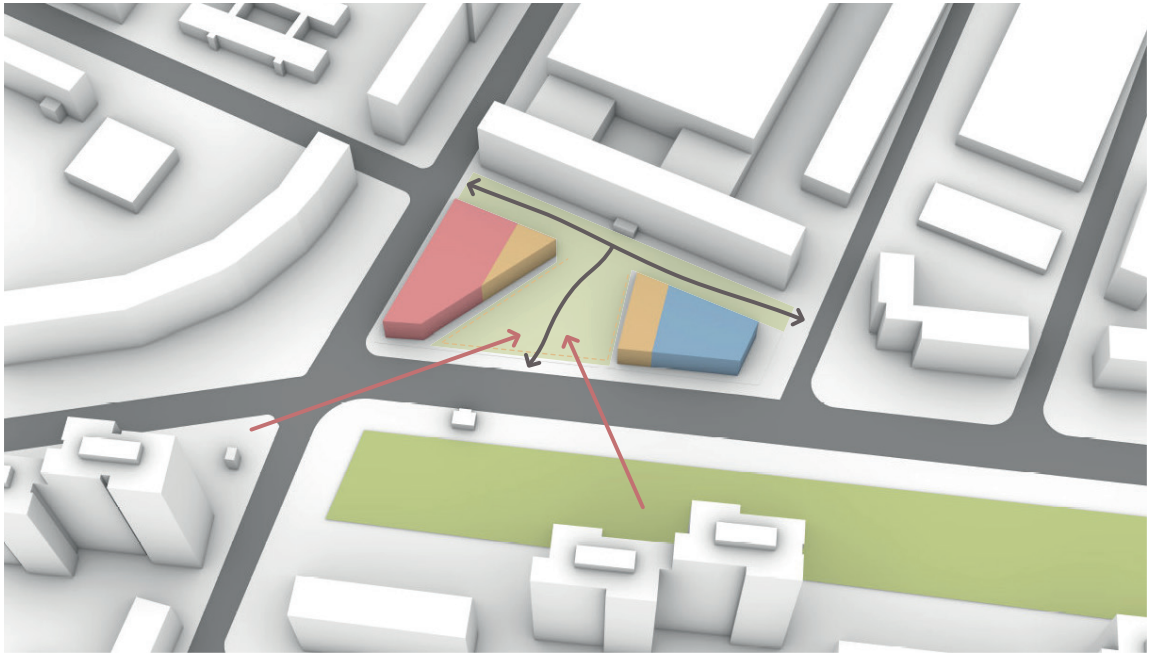
SPORT HALL
22 x 28 meter
~650 m²

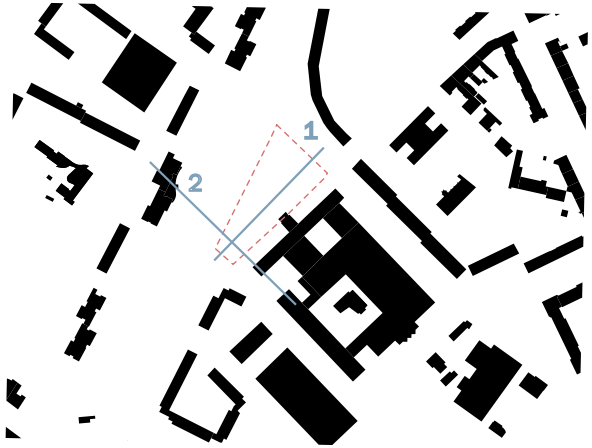
DOCTOR & PHYSIOTHERAPY
Waiting room
Treatment rooms
~150/200 m²

CHANGING ROOMS
~75 m²

SPORT ROOMS
~200 m²

SWIMMING POOL
To learn swimming
~200 m²







CONCLUSION SITE ANALYSES

SITE 1 / WHAT IS THE SITE ASKING FOR?

BUILDING HEIGHT
~ 12m

BUILDING SHAPE
Rectangular

USERS
Residents & officeworkers

FUNCTION
Transition living - working

MOVE/STAY
Both

ATMOSPHERE
Rest, green, move, connect

INTERVIEWS
- Empty site, office area
- Good spot for sports and work, not in the middle of the community
- Not that much tourism and traffic/ passers-by

SITE 2 / WHAT IS THE SITE ASKING FOR?

BUILDING HEIGHT
All heights are possible <45m

BUILDING SHAPE
Free

USERS
Residents, officeworkers, tourists, passers-by

FUNCTION
Leisure & interaction

MOVE/STAY
Both

ATMOSPHERE
Green, interaction, food, relax

INTERVIEWS
- Missing sports for children
- Missing workspace
- Lots of passers-by, tourists and mix of different people
- Missing connection east - west

SITE 3 / WHAT IS THE SITE ASKING FOR?

BUILDING HEIGHT
<25m, stay below office building

BUILDING SHAPE
Following site boundaries, keep existing building visible

USERS
Residents, officeworkers, passers-by

FUNCTION
Leisure

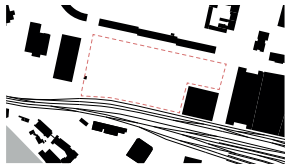
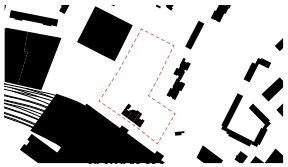
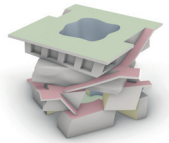
MOVE/STAY
Stay

ATMOSPHERE
Green/park, relax, open place

INTERVIEWS
- No functions are missing
- Keep existing entry of the office building visible
- Open building, keep the existing space

*These conclusions will be compared with the work of Theory & Delineation to conclude which site fits best in the question: 'What is the building asking for?'

CONCLUSION SITE ANALYSES

	SITE 1	SITE 2	SITE 3	BUILDING NEEDS
				
HEIGHT	Around 12m Can be lower when designing with landscape **4**	<45m All heights below 45m is afforded in this area **5**	<25m Keep under the height of the existing office building **5**	- Vertical or small building masses - Height does not matter except from the need of light
SHAPE	Rectangular is prefered, because of the rectangular blocks on the north **3**	Free in shape In this area their is lots of veriety in building shapes and materials **5**	Free in shape, but existing entry of office building needs to stay visible: hard to connect both sides **2**	- Curvilinear shapes inside the building - Vertical or small building masses for light - (Green) Inner space that attracs people with view, sound & smell - Space for movement & interactions
USERS	Mainly residents from the north of the site and (office)workers from the area **3**	Residents, (office)workers, tourists and passers-by. Connecting east & west **4**	Residents, workers and passers-by. Site is between neighborhoods **4**	All kind of people, a mix between residents, tourists and passers-by, and a mix between old, young and different cultures
FUNCTION	Area is asking for a transition between living & working: Leisure & sports **3,5**	Mix of food, work and leisure. Sports for kids and workspace for residents **4**	Place for relaxation like a park or open space **2**	- Community centre that stimulates people to improve their health conditions / well-being - Functions: - Sports - Knowledge - Community
ATMOSPHERE	- A place to rest - Green space - Movements - Connection **3**	- Green space - Interaction - Food - Relaxation - Attractive **4**	- Green/park - Relaxation - Open space **2**	- Interactive experience by multisensory design - Interaction between users - Interaction between user & building - Green spaces - Attraction
AVERAGE SCORE	**3,9**	**4,4**	**3,2**	

1 = Very bad
2 = Bad
3 = Ok
4 = Good
5 = Perfect

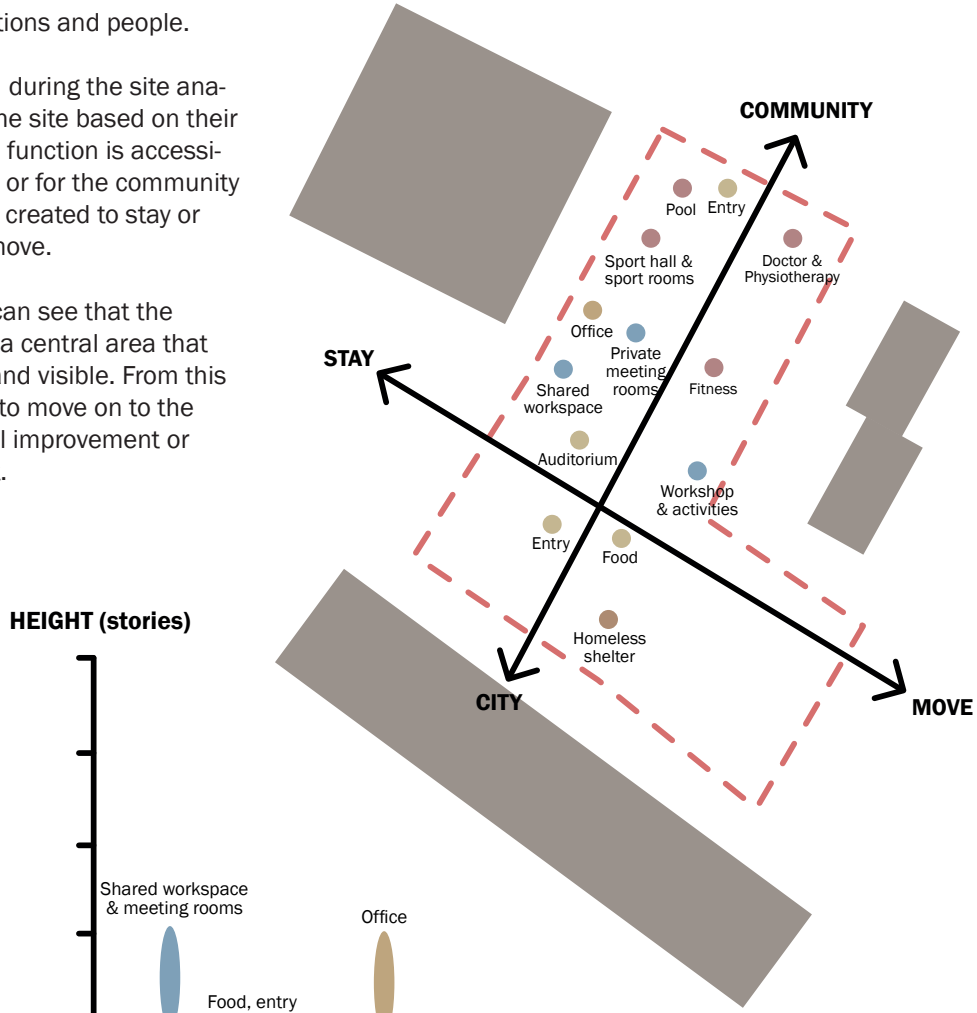
Comparing the gained knowledge from the Theory & Delineation assignments with the site needs, there can be concluded that the best site for the design of a health promoting public building is site 2.

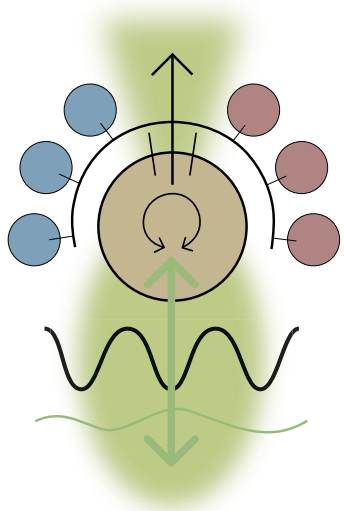
FUNCTION STUDY

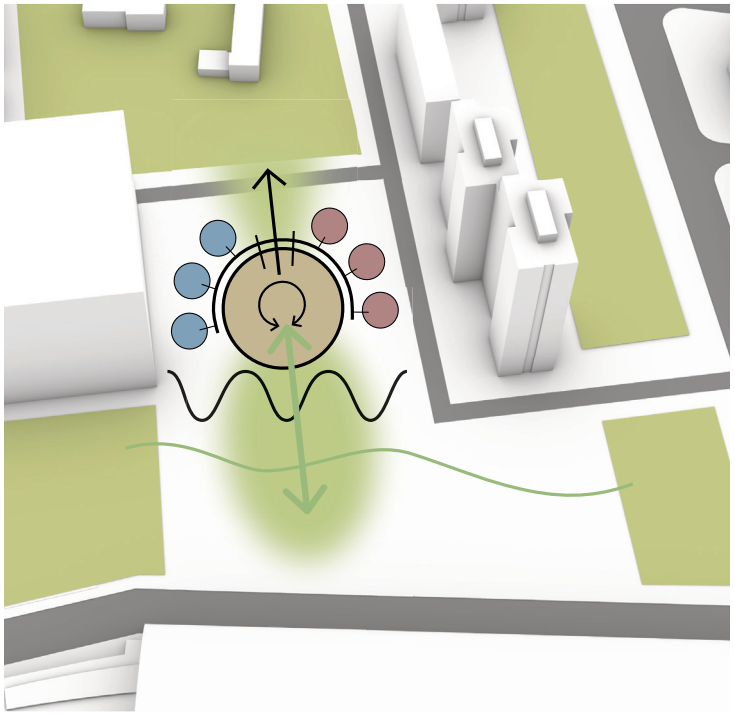
From this moment, there will be fully focussed on the chosen site, which is the area on the north side of Ostbahnhof, a place between two residential areas with lots of different functions and people.

The program created during the site analyses is devided on the site based on their needed height, if the function is accessible for the whole city or for the community and if the function is created to stay or that people should move.

In the diagram, you can see that the building shoud have a central area that is easily accessible and visible. From this point you can chose to move on to the functions for physical improvement or mental improvement.

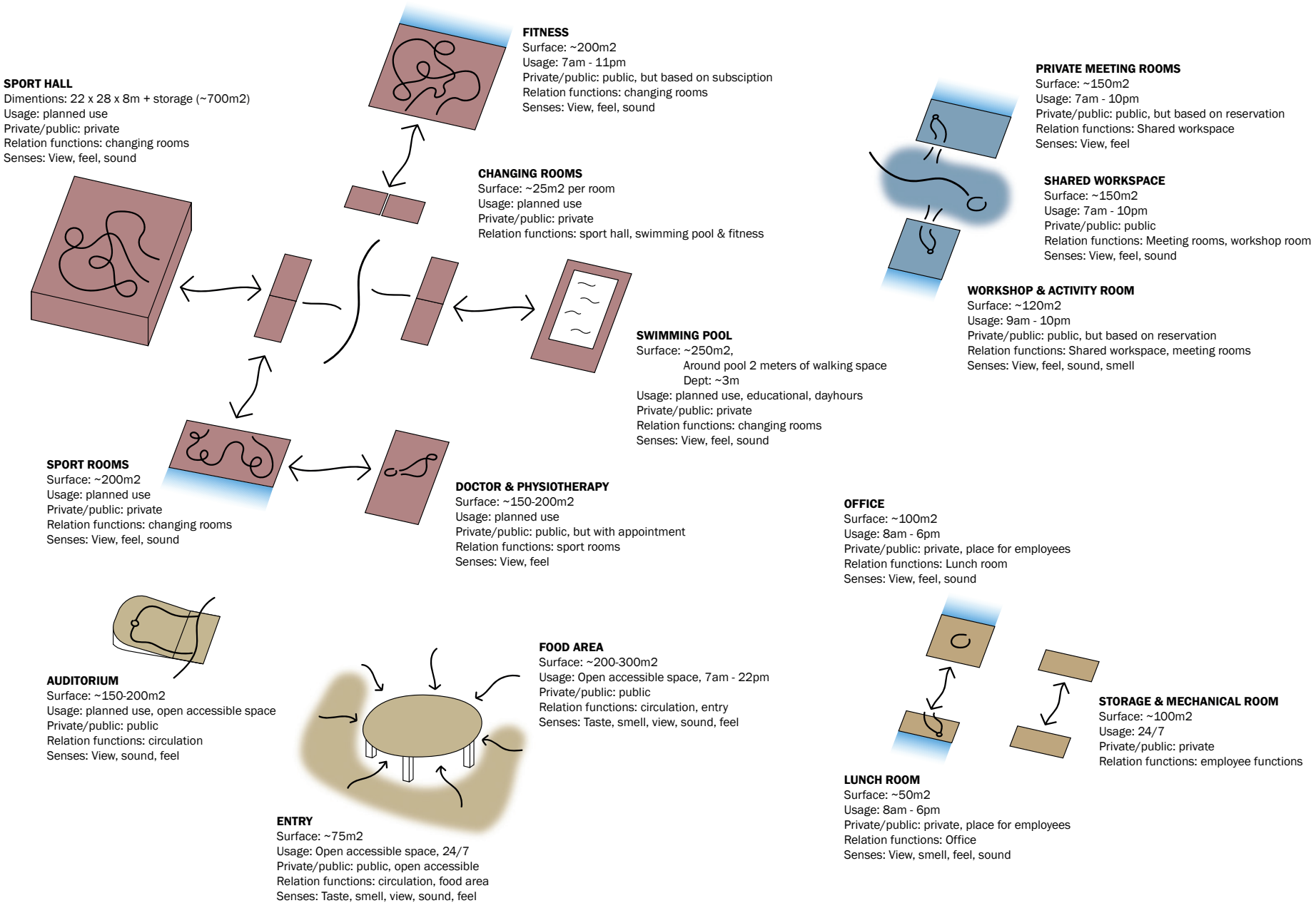






FUNCTION STUDY

To have some better grip on the functions, this 3D function study is made. It shows how big a certain function should be, when it will be used, if the function is private or public, to which functions it should relate and which senses should be triggered to gain the best results of improvement in health conditions.



SPORT HALL
Dimentions: 22 x 28 x 8m + storage (~700m2)
Usage: planned use
Private/public: private
Relation functions: changing rooms
Senses: View, feel, sound

FITNESS
Surface: ~200m2
Usage: 7am - 11pm
Private/public: public, but based on subsciption
Relation functions: changing rooms
Senses: View, feel, sound

CHANGING ROOMS
Surface: ~25m2 per room
Usage: planned use
Private/public: private
Relation functions: sport hall, swimming pool & fitness

PRIVATE MEETING ROOMS
Surface: ~150m2
Usage: 7am - 10pm
Private/public: public, but based on reservation
Relation functions: Shared workspace
Senses: View, feel

SHARED WORKSPACE
Surface: ~150m2
Usage: 7am - 10pm
Private/public: public
Relation functions: Meeting rooms, workshop room
Senses: View, feel, sound

WORKSHOP & ACTIVITY ROOM
Surface: ~120m2
Usage: 9am - 10pm
Private/public: public, but based on reservation
Relation functions: Shared workspace, meeting rooms
Senses: View, feel, sound, smell

SWIMMING POOL
Surface: ~250m2,
Around pool 2 meters of walking space
Dept: ~3m
Usage: planned use, educational, dayhours
Private/public: private
Relation functions: changing rooms
Senses: View, feel, sound

SPORT ROOMS
Surface: ~200m2
Usage: planned use
Private/public: private
Relation functions: changing rooms
Senses: View, feel, sound

DOCTOR & PHYSIOTHERAPY
Surface: ~150-200m2
Usage: planned use
Private/public: public, but with appointment
Relation functions: sport rooms
Senses: View, feel

OFFICE
Surface: ~100m2
Usage: 8am - 6pm
Private/public: private, place for employees
Relation functions: Lunch room
Senses: View, feel, sound

AUDITORIUM
Surface: ~150-200m2
Usage: planned use, open accessible space
Private/public: public
Relation functions: circulation
Senses: View, sound, feel

FOOD AREA
Surface: ~200-300m2
Usage: Open accessible space, 7am - 22pm
Private/public: public
Relation functions: circulation, entry
Senses: Taste, smell, view, sound, feel

ENTRY
Surface: ~75m2
Usage: Open accessible space, 24/7
Private/public: public, open accessible
Relation functions: circulation, food area
Senses: Taste, smell, view, sound, feel

STORAGE & MECHANICAL ROOM
Surface: ~100m2
Usage: 24/7
Private/public: private
Relation functions: employee functions

LUNCH ROOM
Surface: ~50m2
Usage: 8am - 6pm
Private/public: private, place for employees
Relation functions: Office
Senses: View, smell, feel, sound

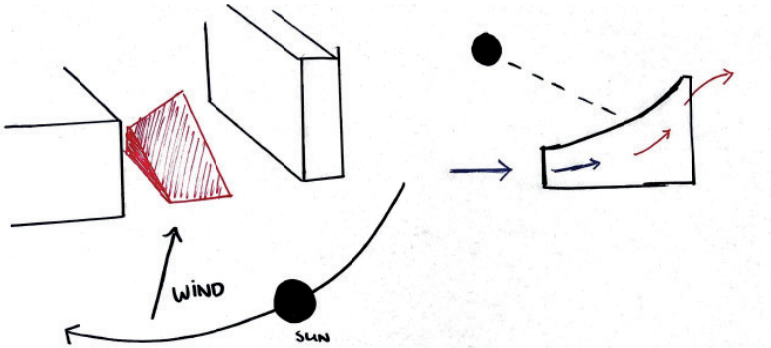
FORM CONCEPT

The concept of the form of the building is based on multiple factors:
- sun and wind analyses: which shape has the most direct daylight during the day and is easy to ventilate with only natural ventilation.
- Perception of functions with the senses
- The functions should be visible and easy to reach from the entry
- A central space is needed for vertical movement, light and accessibility



Sun analyses

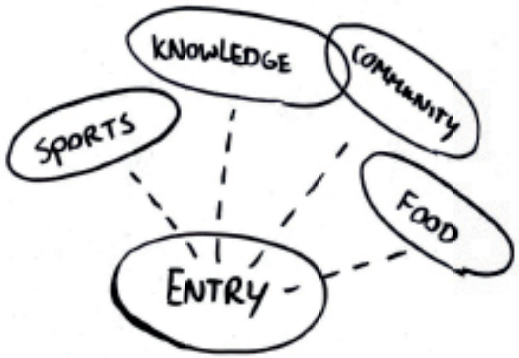
SUN + WIND ANALYSES:
Building highest on the northeast side,
lowest on the southwest side



1. PERCEPTION OF FUNCTIONS WITH SENSES



2. ALL FUNCTIONS TANGABLE/IN RANGE



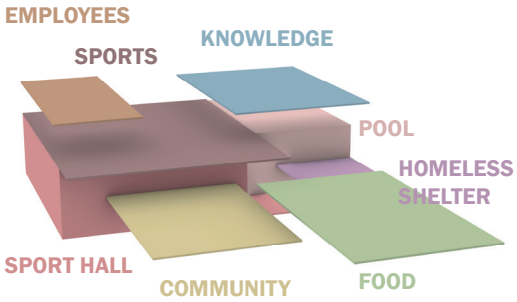
3. CREATING A CENTRAL SPACE WITH VERTICAL MOVEMENT AND LIGHT, ALL FUNCTIONS EASILY ACCESSIBLE



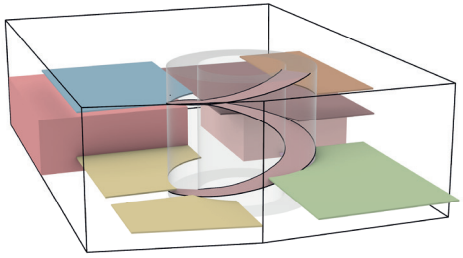
MASS & FUNCTION STUDY

Out of these ideas, lots of mass and function studies are made in two weeks time. The first batch of studies, like the ones you can see on the right side, were based on the following principles (based on TD digital model, literature and site conditions):

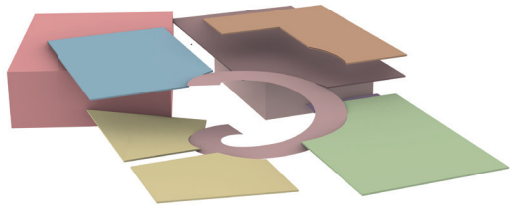
- Central vertical movement with daylight
- All functions visible from the entry
- higher on the northeast side for most direct daylight and natural ventilation
- Acces from the city as well as the community side

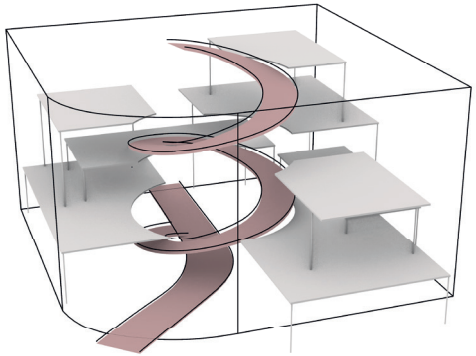


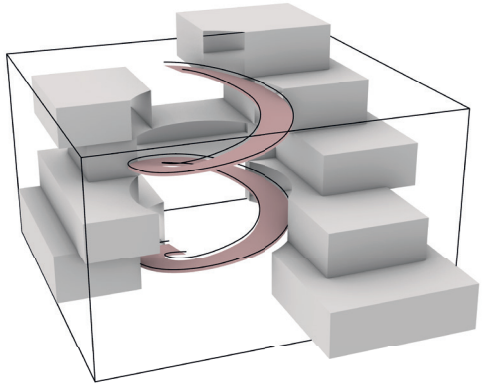
USE OF CENTRAL STAIR WHICH CONNECTS ALL FUNCTIONS

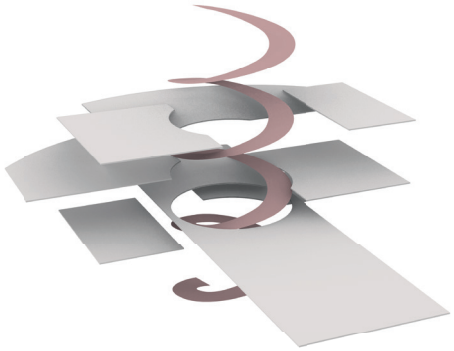


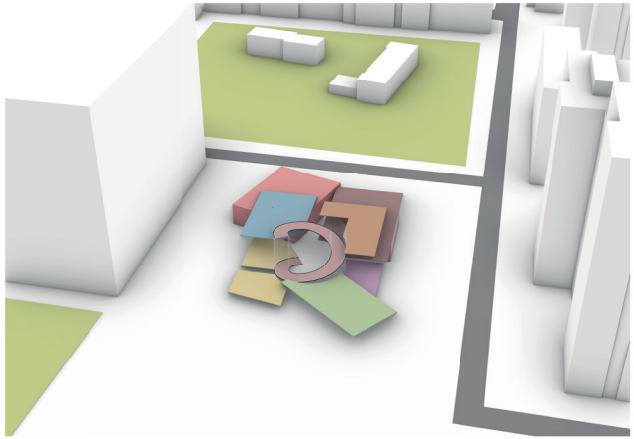
PLACING FUNCTIONS IN A WAY SO THAT YOU CAN SEE EACH FUNCTION FROM THE MAIN ENTRY AND VIEW ON MULTIPLE ENTRIES







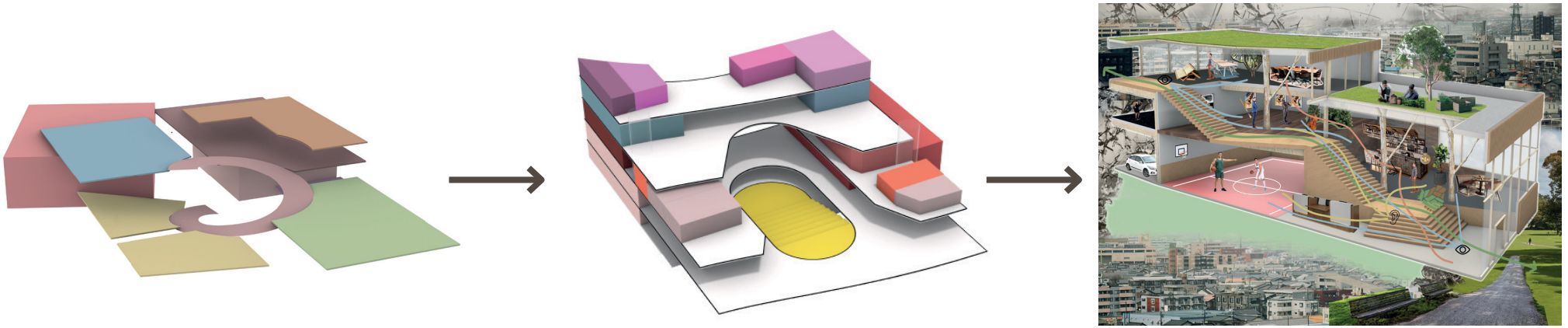


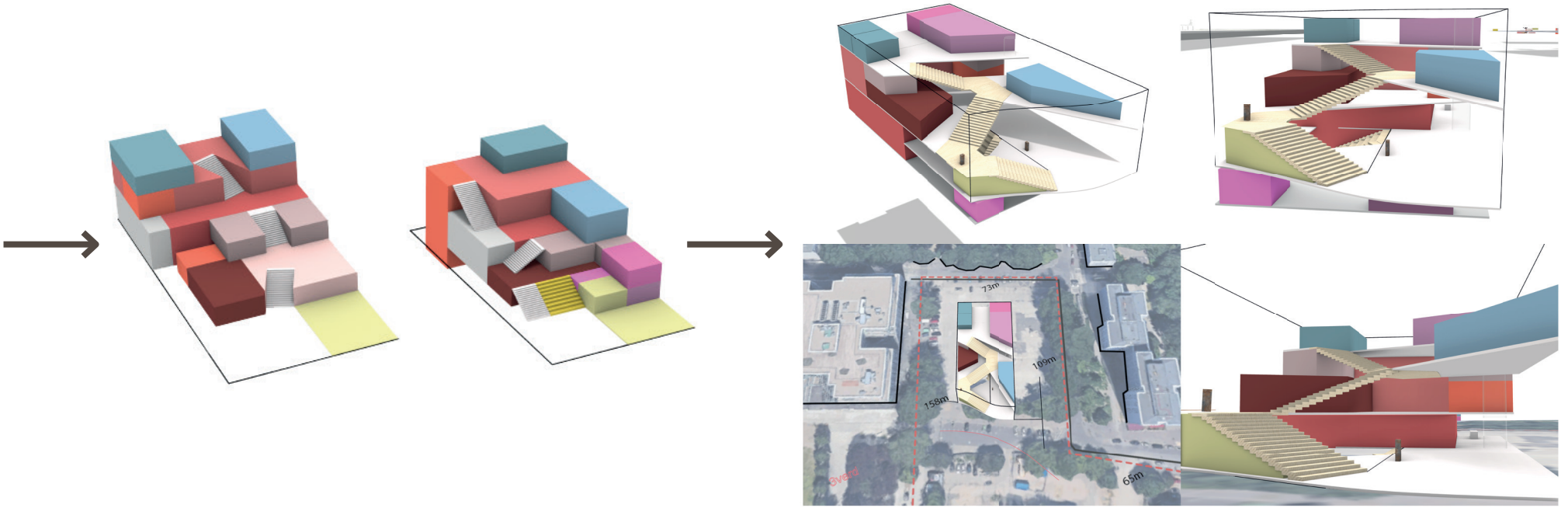




MASS & FUNCTION STUDY

On this page, you can see the process of the mass and function studies. The Theory & Delineation assignment (Post production) shows the main principles of the building. A central route that connects all functions. From all levels, you can experience all functions with some of the senses. The building uses green roofs, natural materials and lots of daylight + natural ventilation. The model shows information about the facade (materiality, transparency), the heights of the floors, the interiors (atmospheres and multi-senosory experience) and the use of the building.



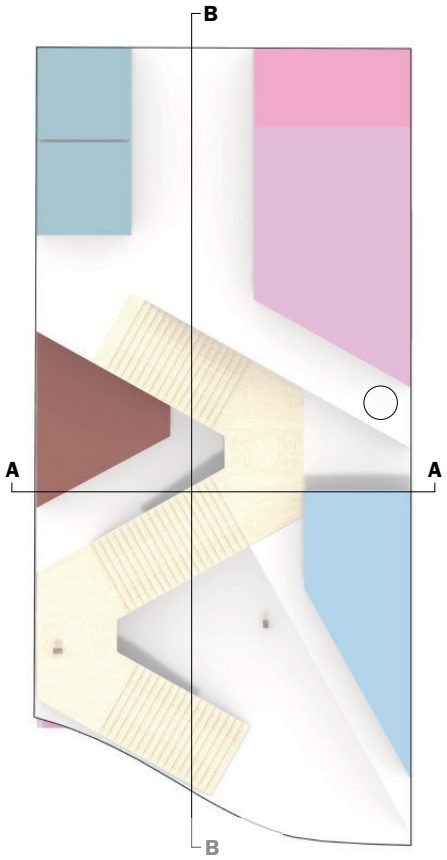


MASS & FUNCTION STUDY

In week 2.5, this was the final mass study composition. Playing with different levels, all connected with one central stair. Using daylight through the whole building, which is good for your health and concentration.

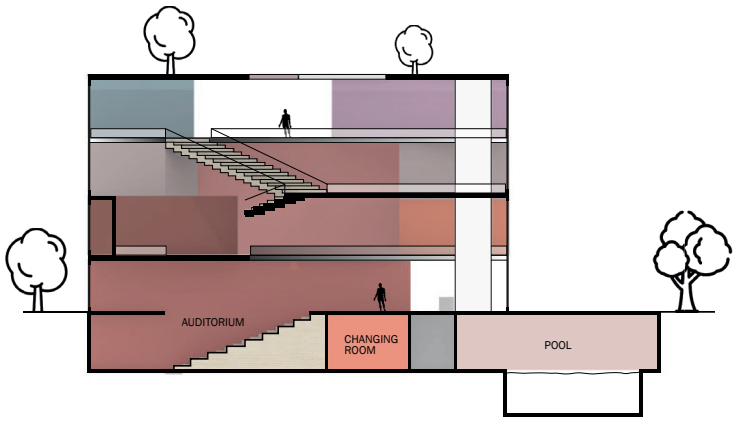
The mass study is interesting. It is using ideas that came out of the Theory & delineation assignments and makes use of the environmental circumstances. But it is a pitty that it a relatively small building between two huge builings and it also does not make any use of the surroundings. On this spot, it is hard to design the park in front of the building and so it is difficult to expierence the building in the right way.

It is hard to experience the intended atmosphere and easy to skip the building.

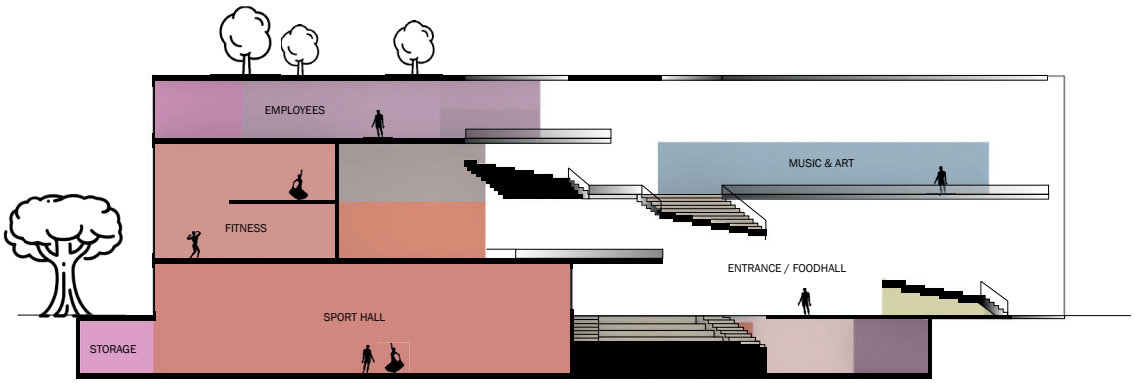




SECTION AA



SECTION BB



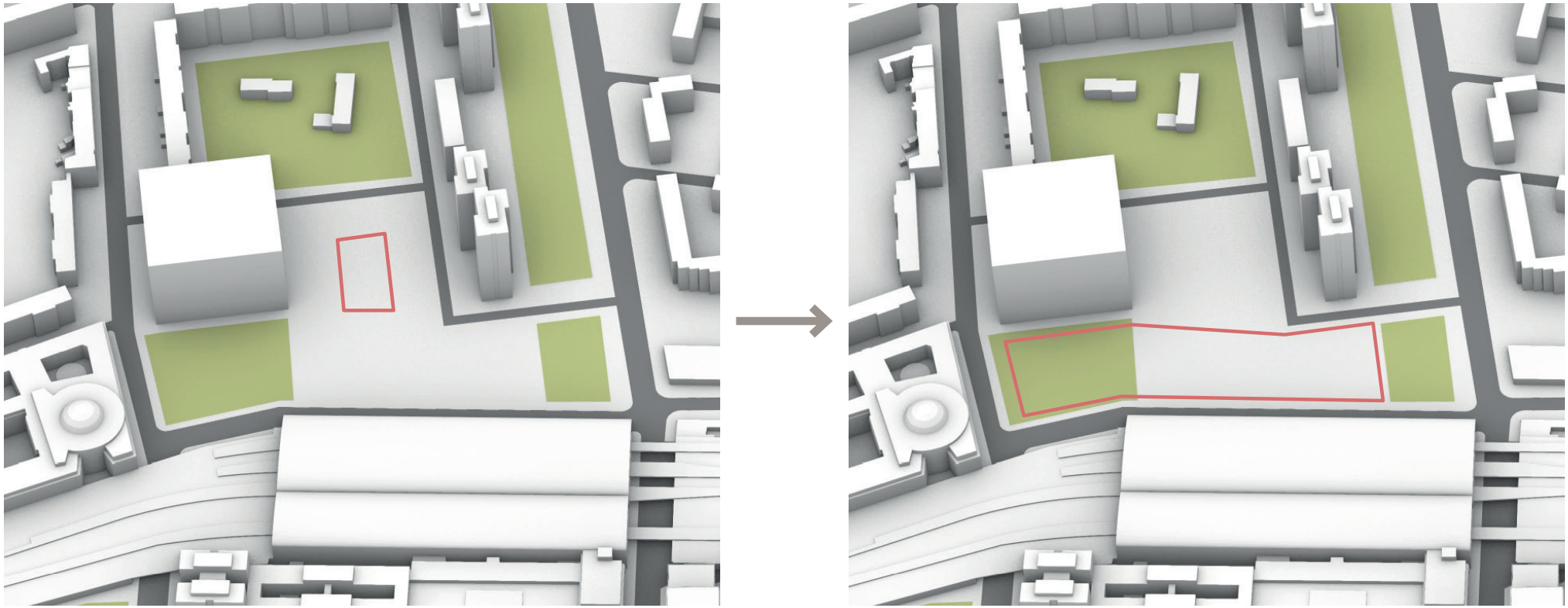
DRASTIC CHANGE

The mentioned problems on the last page are the cause of a change in the design. People need to veel invited to use the space and should be stimulated to do physical activities, have social interaction, or just experience a green and healthy environment. The results from the Theory & delineation assignments will still be used, and can be used even better in this new idea. Changing the site of the building between the Zalando office building and the big residential builing into a park design with a central route, will invite passers-by, children, residents and workers to use the space, even if they do not enter the building. People will be stimulated to improve their well-being, even when they do not enter the building. In this way, it is easier to target a big group and make the whole site area healthier.

The design will change from a single building into a park design with several small buildings. The buildings will be focussed more on improvement of health conditions. This means that the program is changed for a bit, focussing more and more on the Theory & delineation topic: stimulation of health and well-being.
In the 3D view beneath, you can see how the site for the project will change.

Instead of a vertical building of stacked functions, this desing is horiontal streched. Using the surrounding by designing a park will invite more people to use the space. The building with park will be more attractive to enter than just a single building and will also be used by people that are not interested in using the functions in the buildings. Their well-being will still be influenced by the physical activities and green spaces / social interactions of the park.

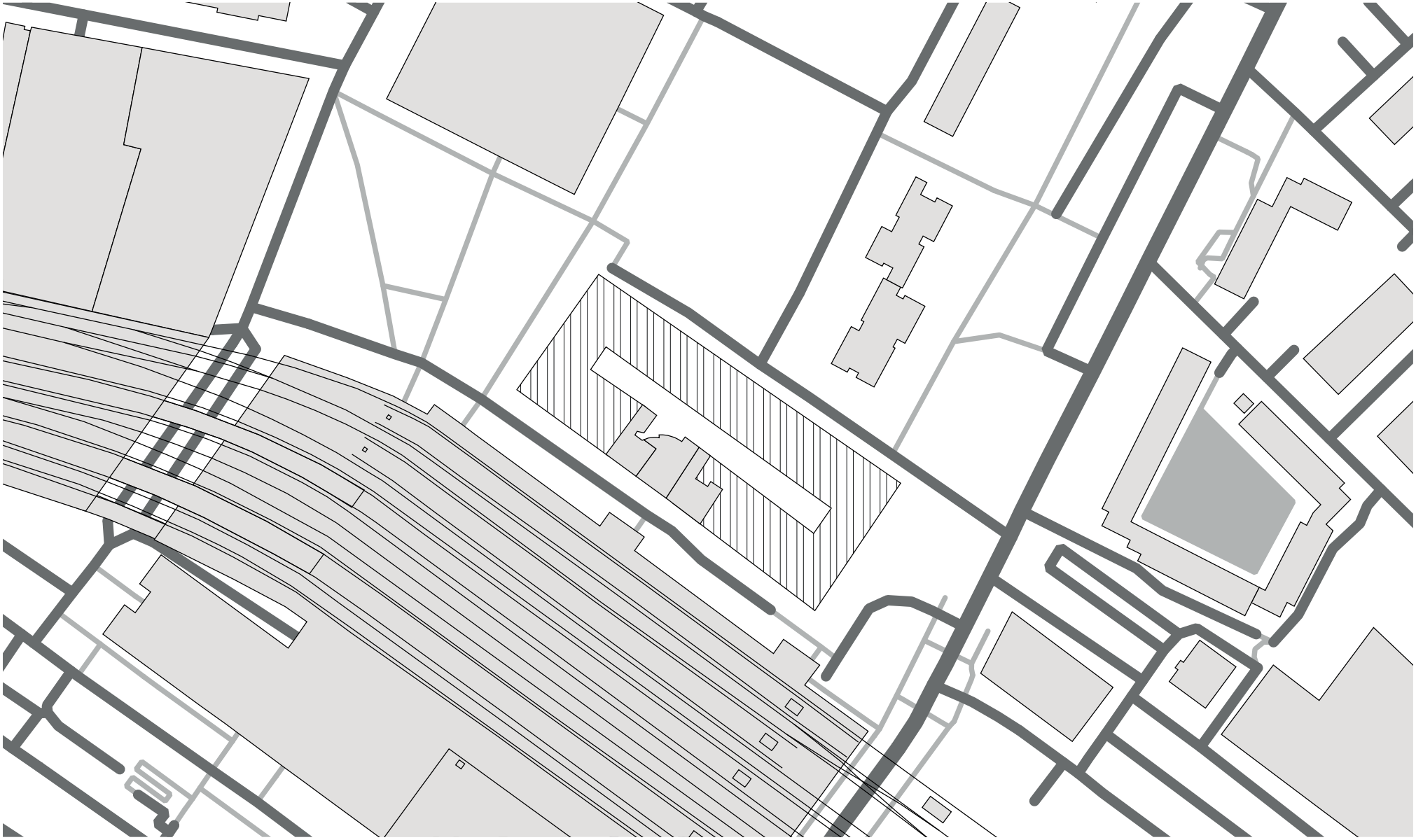
'Our environment is full of different stimuli. When one goes out for a walk in nature, they not only see the pretty landscape but also hear the birds chirping, smell the surroundings and feel the blissful air. All of these sensory stimulations enrich the experience in an unbuilt environment. Inculcating this perception of space in the 'built form' can be defined as multisensory architecture.' (Marquez, n.d.)



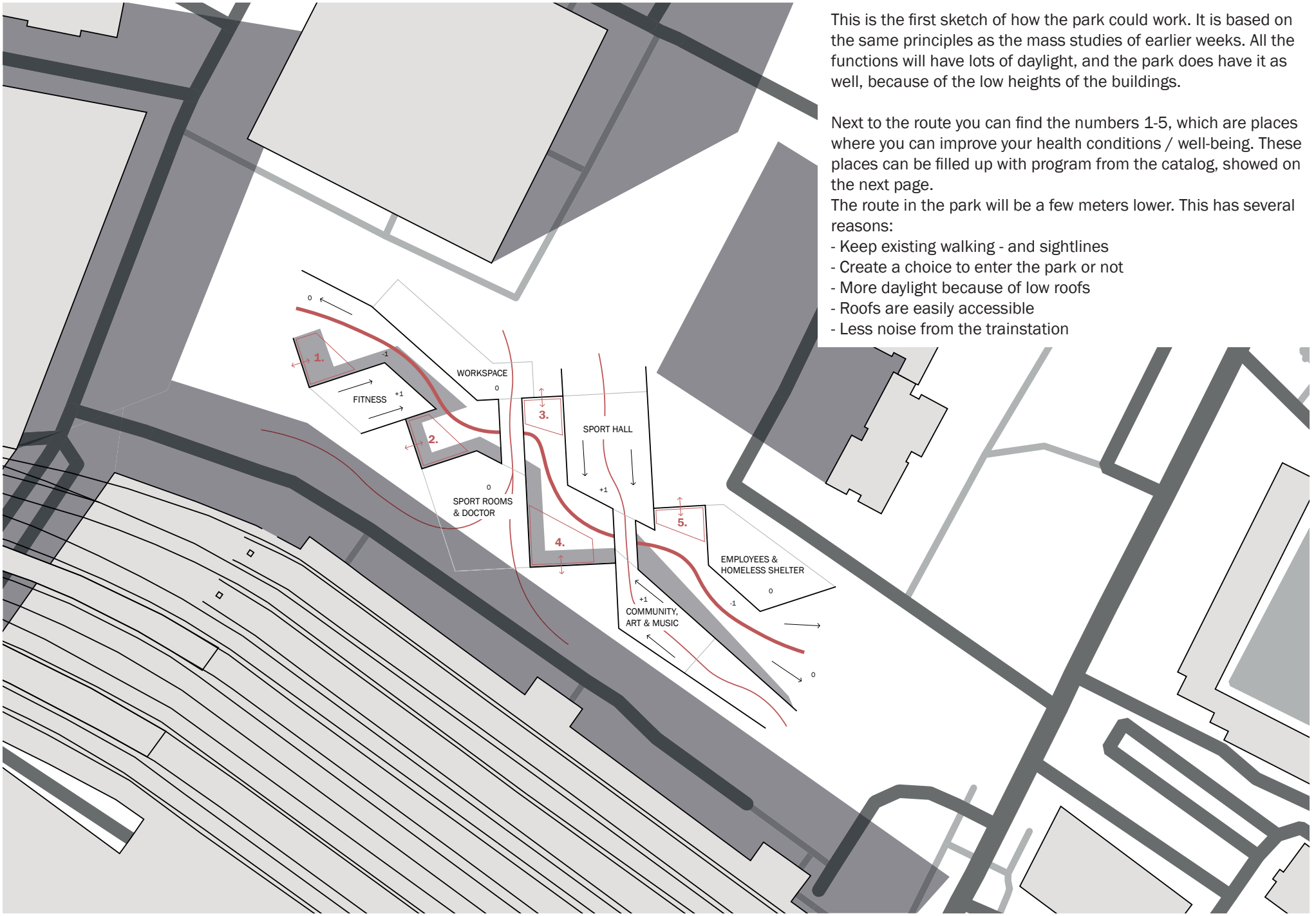
EXISTING BUILDING DEMOLISHMENT

In the existing situation, there is still one part of an historical residential housing block. This building is mainly used by food companies and some offices. The other blocks are demolished during the World War II. To accomplisch the goal of the horizontal streched park, this building should be demolished. The existing functions in the building will get a space in the new design. The concrete and bricks of the existing building can be used for the new foundation of the design.

The hatched surface in the image beneath shows how the building block used to be. This part is demolished by the War.



SITUATION SKETCH

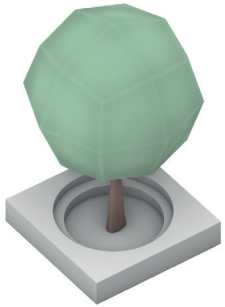


This is the first sketch of how the park could work. It is based on the same principles as the mass studies of earlier weeks. All the functions will have lots of daylight, and the park does have it as well, because of the low heights of the buildings.

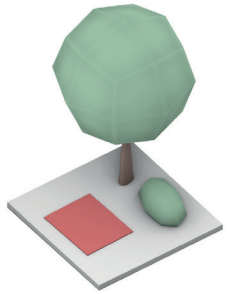
Next to the route you can find the numbers 1-5, which are places where you can improve your health conditions / well-being. These places can be filled up with program from the catalog, showed on the next page.
The route in the park will be a few meters lower. This has several reasons:
- Keep existing walking - and sightlines
- Create a choice to enter the park or not
- More daylight because of low roofs
- Roofs are easily accessible
- Less noise from the trainstation

CATALOG

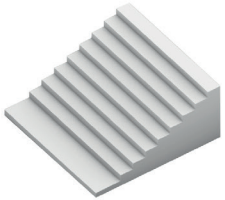
This catalog shows several options which can be used in the park design. They will stimulate physical activity, social interaction, knowledge or resting, which can have influence on the well-being of users.



CONVERSATION PIT
Social interaction



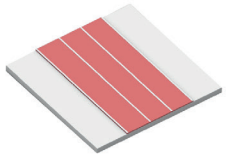
PICNIC
Social interaction



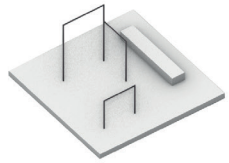
STAIRS
Physical activity



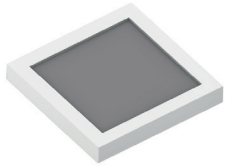
CLIMBING WAVE
Physical activity



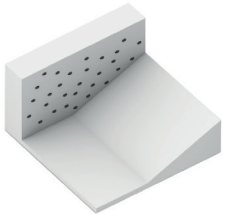
RUNNING TRACK
Physical activity



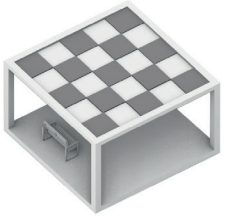
CALISTHENICS
Physical activity + social interaction



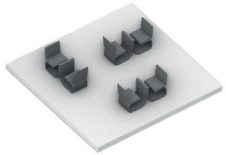
JUMPING NET
Physical activity



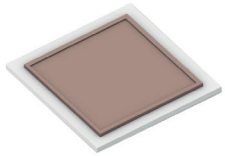
CLIMBING WALL
Physical activity



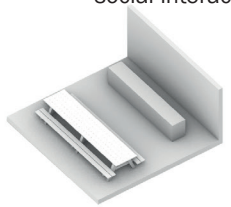
SHADED LOUNGE
Social interaction



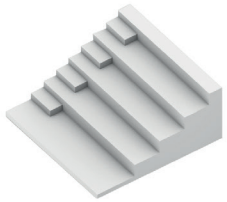
BOARD GAMES TABLE
Social interaction



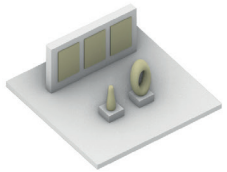
COMMUNAL GARDENING
Physical activity + social interaction



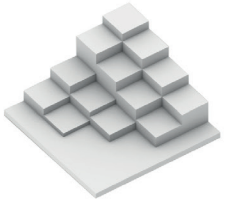
FOOD CORNER
Resting / well-being + social interaction



AMPHITHEATER
Learning



ART INTALLATION
Learning



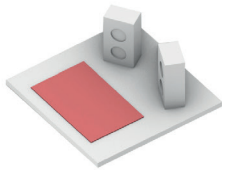
STONE STEPS
Physical activity + Resting



WATER FOUNTAIN
Resting / well-being



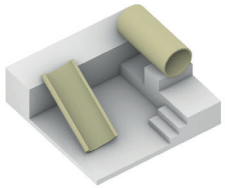
VIEW POINT
Resting / well-being



DANCE FLOOR
Physical activity + social interaciton



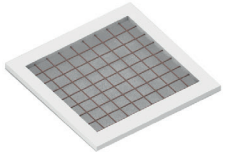
SKATING
Physical activity + social interaction



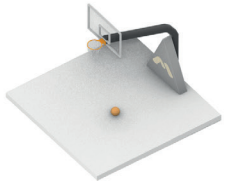
PLAYGROUND
Physical activity + social interaction



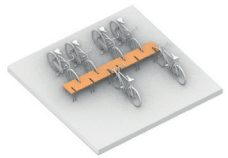
WALKING PATH
Physical activity



CLIMBING NET
Physical activity



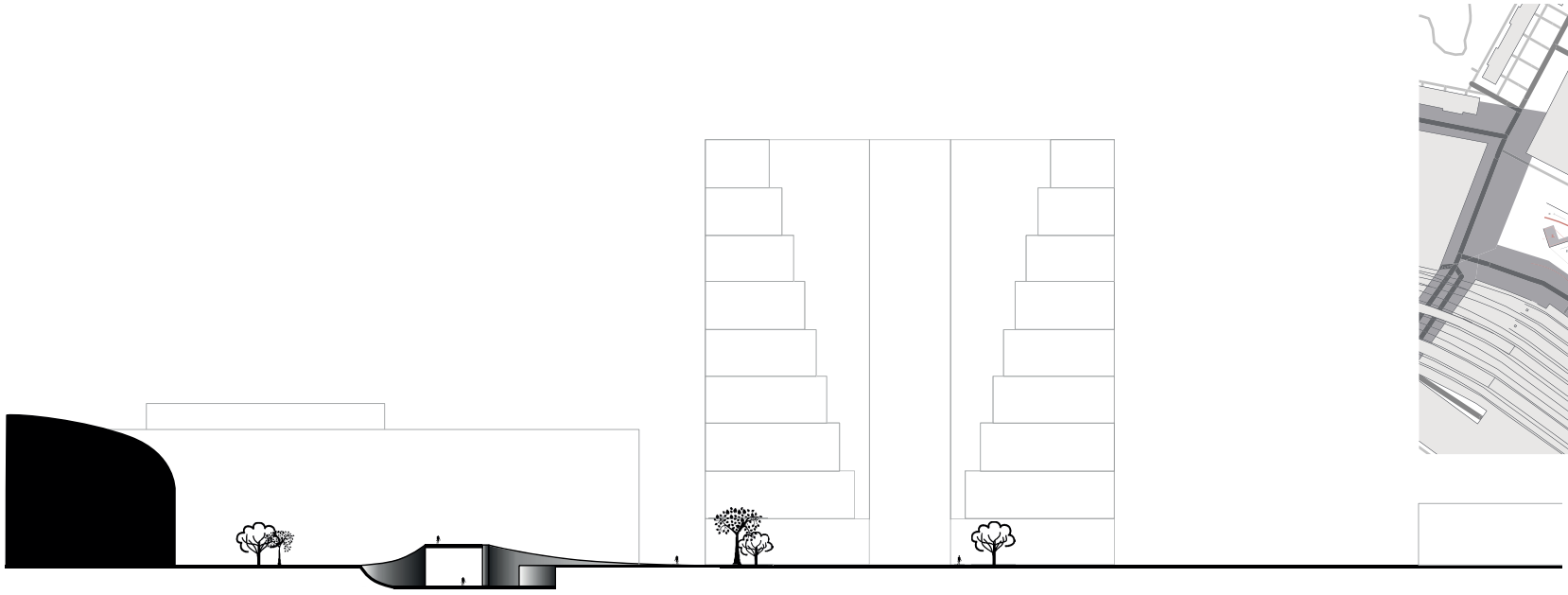
SPORT COURT
Physical activity + social interaction

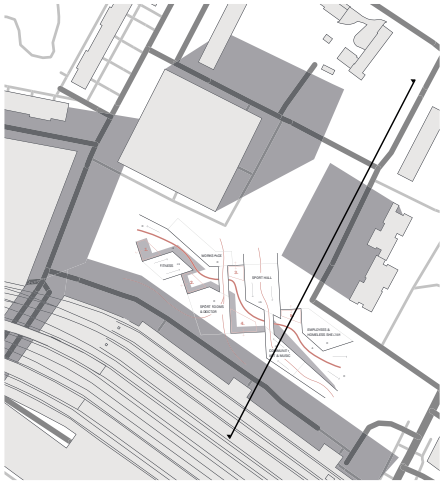


PARK + BIKE
Physical activity

SITE SECTIONS 1:1000 (scaled)





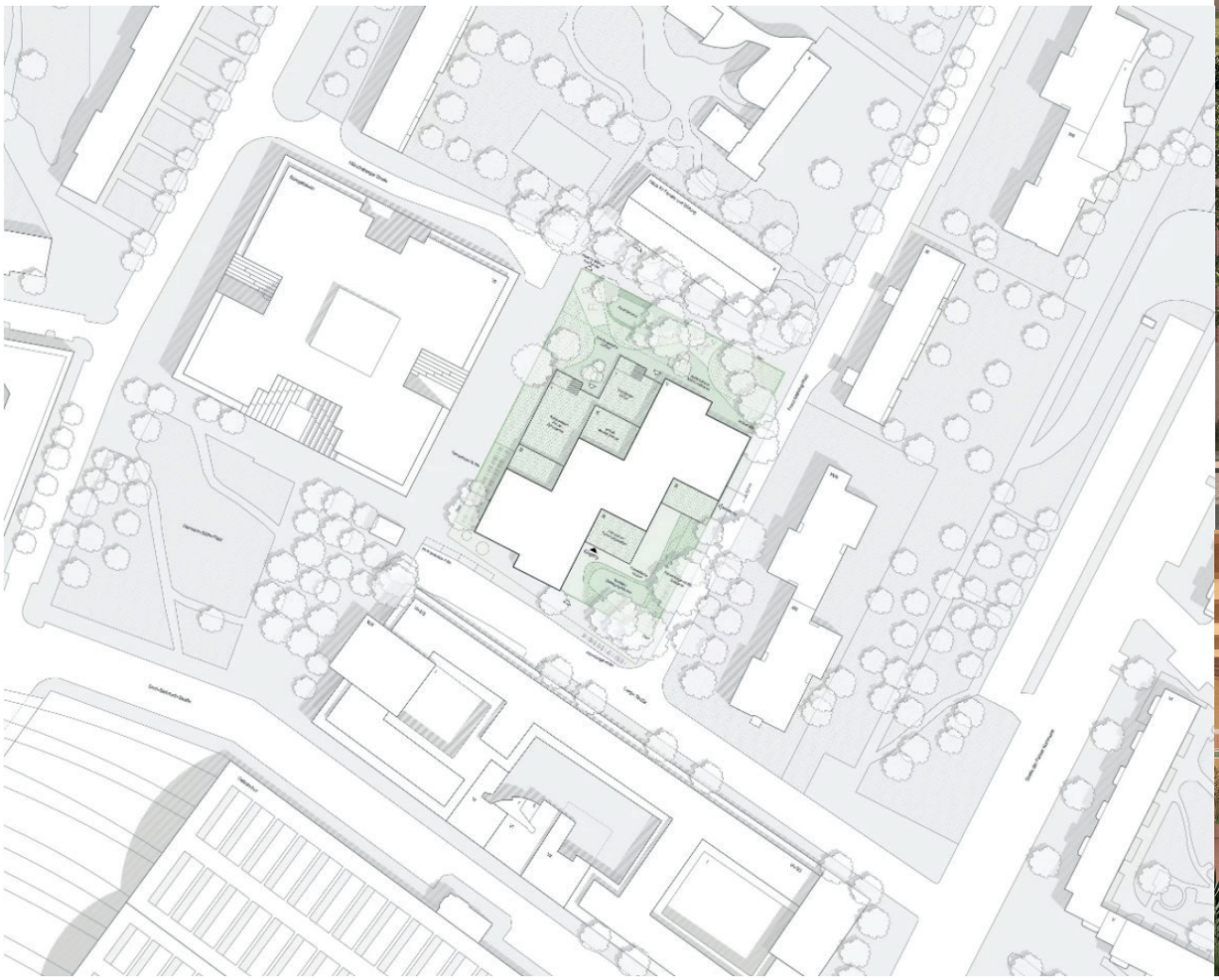


HEINRICH-HERTZ GYMNASIUM

There are plans to build a school on the specific site where the design of the community centre used to be (between the Zalando office building and the high residential building). The load bearing structure of the building is made of timber and in the landscape design, there is lots of greenery.
The school is designed by AFF Architekten.

From now on, this building will be taken into account for the design of the community centre. On all drawings, you will find this school building.

Source images: AFF Architekten









PARK ROUTE DESIGN

Based on the existing buildings and the new school design, there can be determined where the new buildings exactly should be build. These exact places are based on important sightlines and walking routes, keeping in mind that in the middle of the design, there should be a main route. Keeping the new buildings low will ensure that the view on the existing buildings will not be blocked.

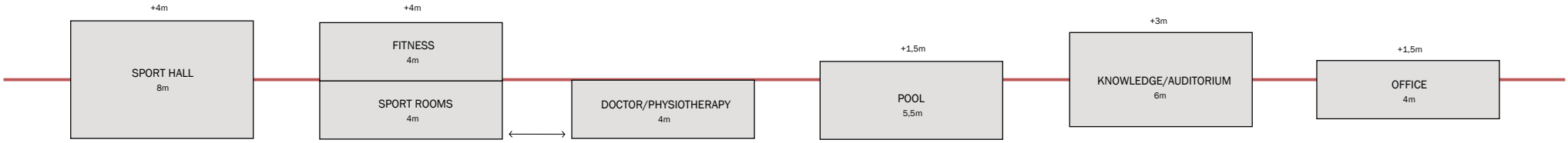
Walking- and sightlines 1:1000 (scaled)



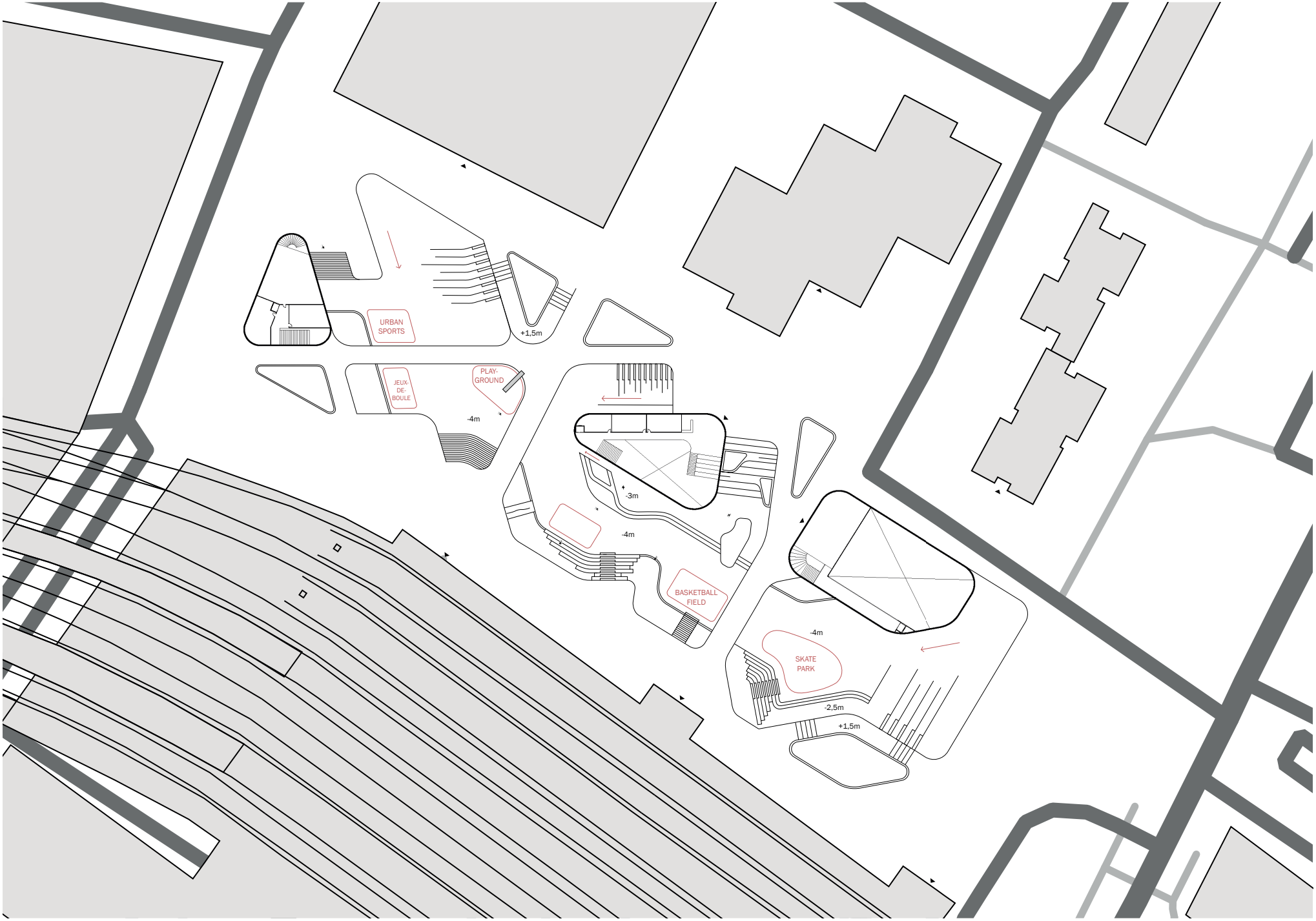
Building masses 1:1000 (scaled)



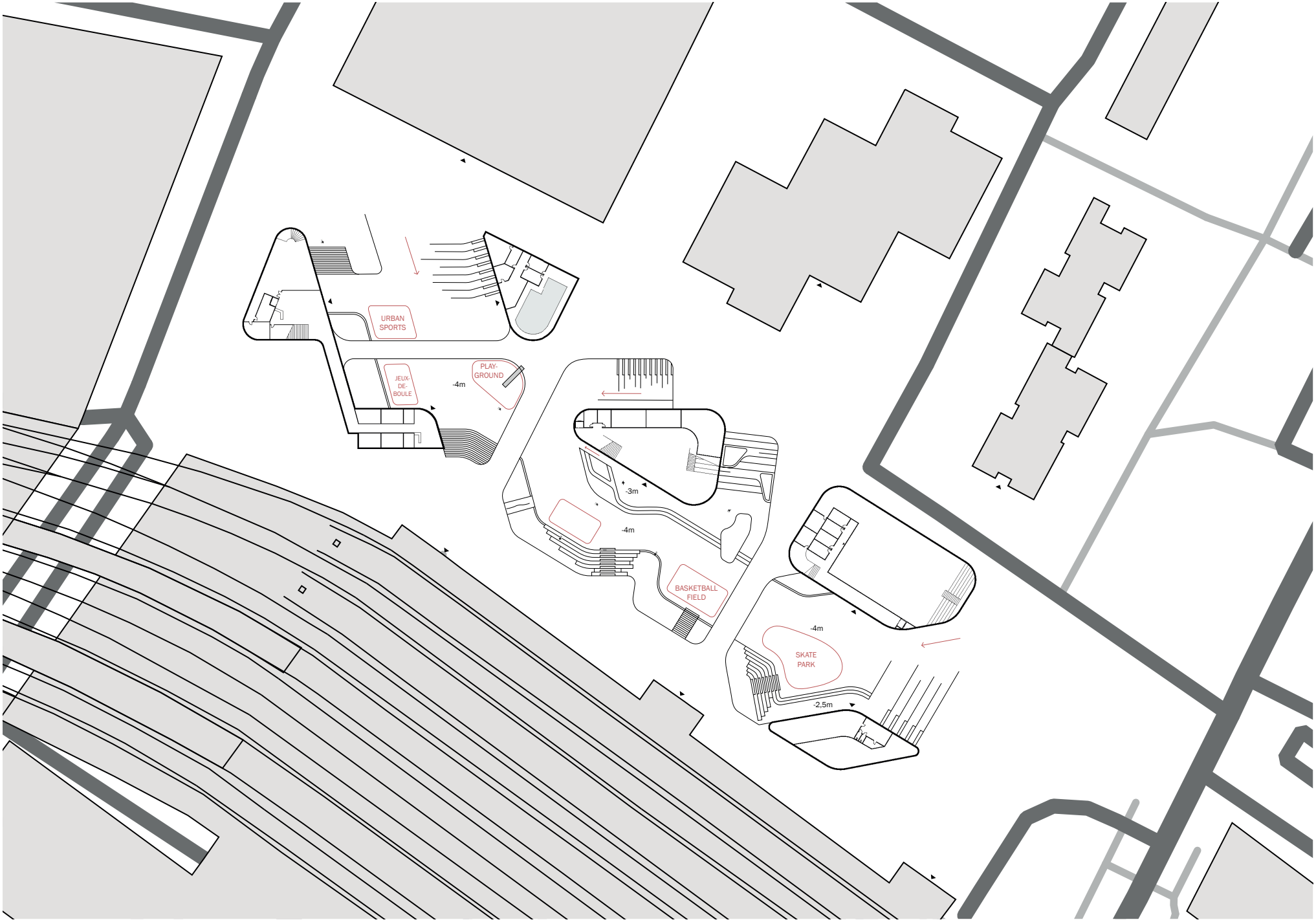
Functions: needed heights



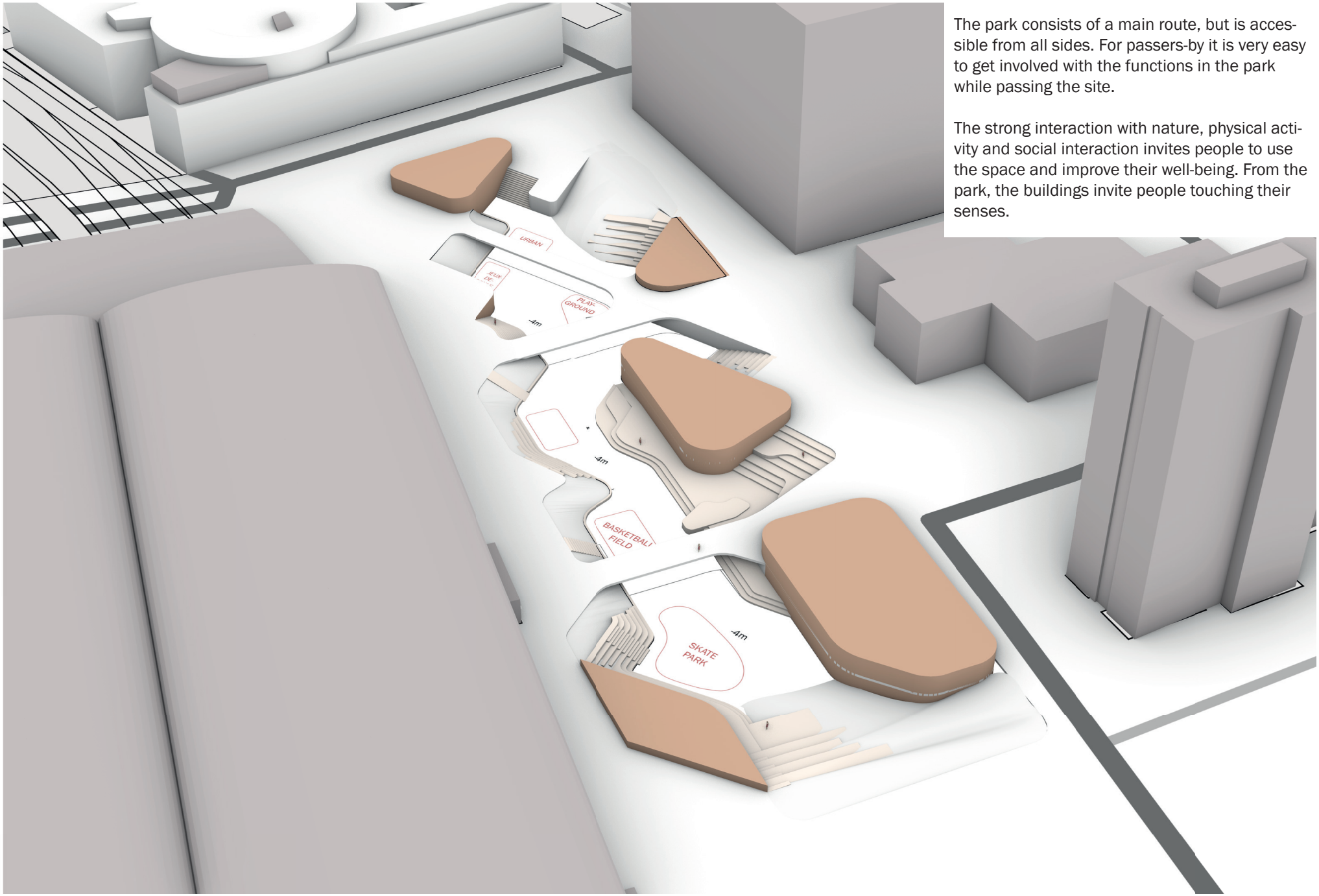
SITUATION - CITYLEVEL (0)



SITUATION - PARKLEVEL (-1)



3D OVERVIEW

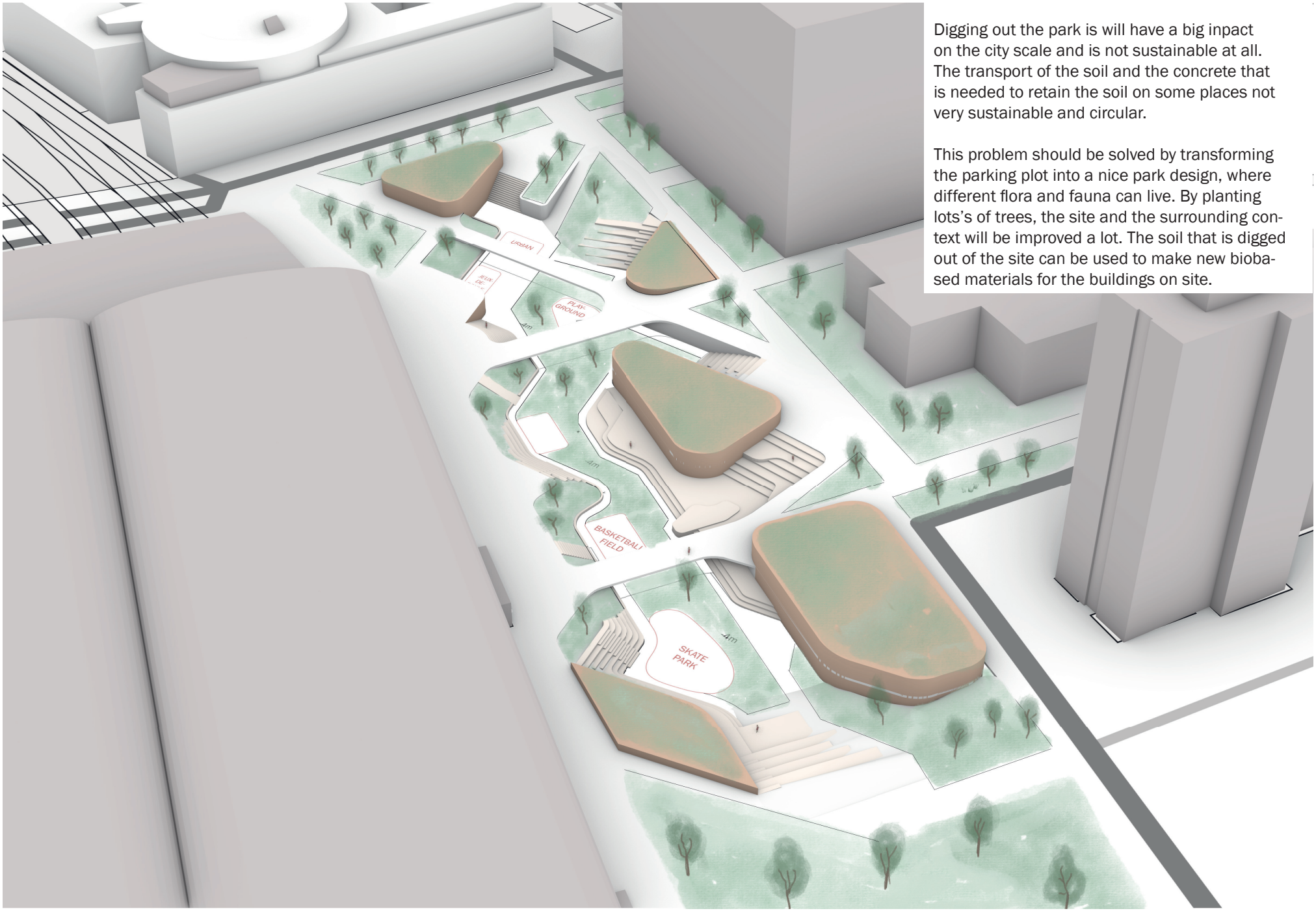


PARK DESIGN

The park consists of a main route, but is accessible from all sides. For passers-by it is very easy to get involved with the functions in the park while passing the site.

The strong interaction with nature, physical activity and social interaction invites people to use the space and improve their well-being. From the park, the buildings invite people touching their senses.

3D OVERVIEW



SUSTAINABILITY / CIRCULARITY

Digging out the park is will have a big inpact on the city scale and is not sustainable at all. The transport of the soil and the concrete that is needed to retain the soil on some places not very sustainable and circular.

This problem should be solved by transforming the parking plot into a nice park design, where different flora and fauna can live. By planting lots's of trees, the site and the surrounding context will be improved a lot. The soil that is digged out of the site can be used to make new biobased materials for the buildings on site.

FINAL SKETCH DESIGN

Week 2.8 and 2.9 are fully focussed on creating final products for the P2 presentation. The work of these weeks are visible in the next chapter: Schematic Design. The chapter shows the final concept of the design, the final floorplans, sections, circulation and spatial system. Also, an important part of the schematic design is the experience of the user. The schematic design shows how the user experience the space based on the senses, materiality and functions.

SCHEMATIC DESIGN

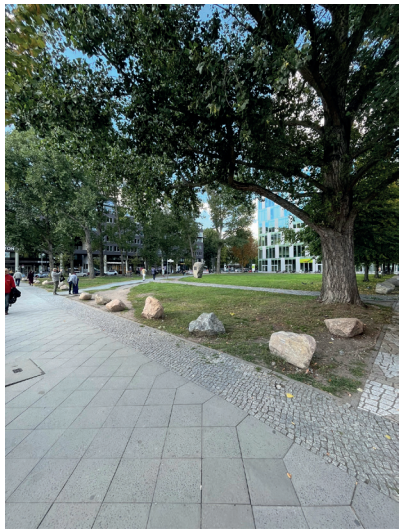
DESIGN LOCATION

In the chapter ‘Process documentation’ you can see how this specific site is chosen and why this site suits the best for the design of a community centre based on improving people’s well-being and health conditions. The site deals with some context and surrounding buildings.

Nowadays, the site itself is mainly used as a big parking plot. There are four buildings in the near surrounding area that need attention with the design: UP! Office building, Commerzbank building, Ostbahnhof station and a highrise residential building. On this page you can find some photo’s of the site taken while visiting Berlin in week 1.4.

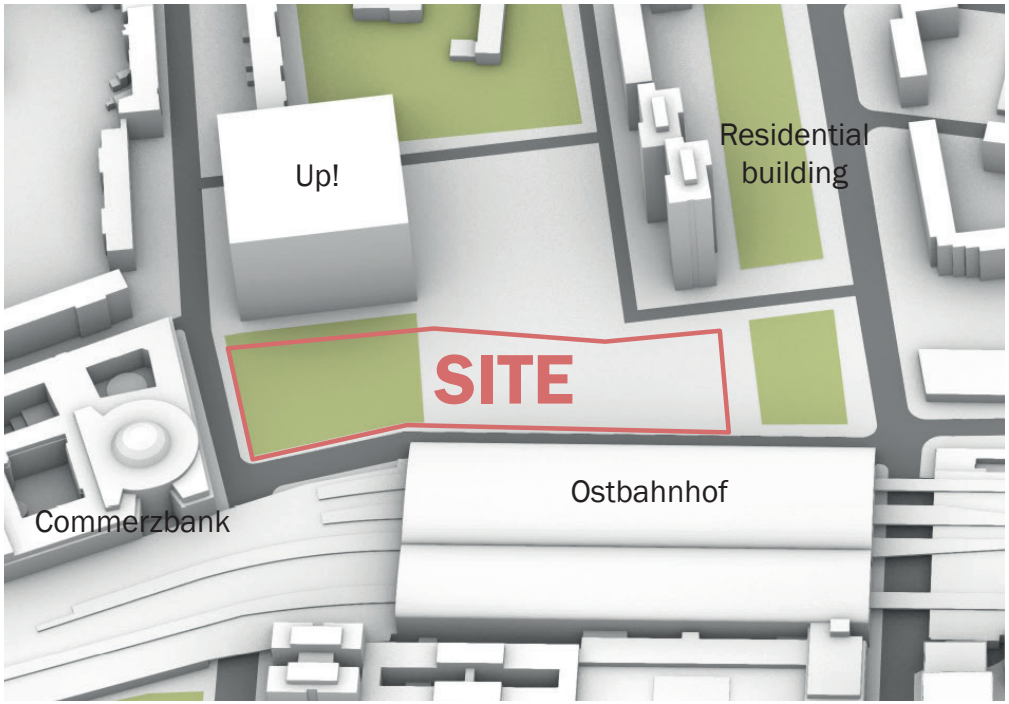


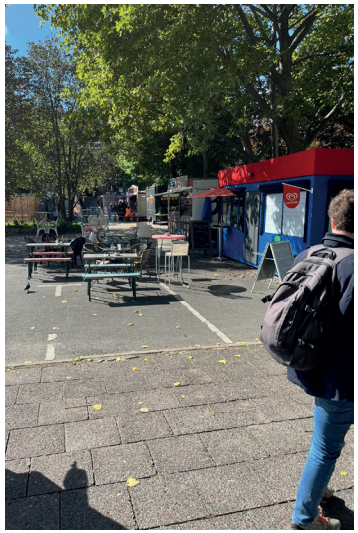


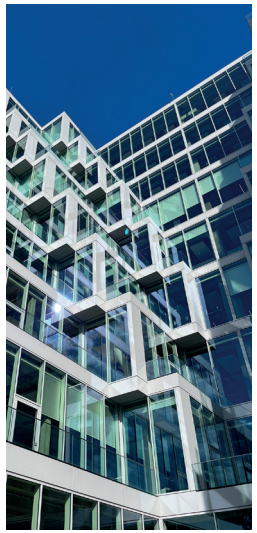


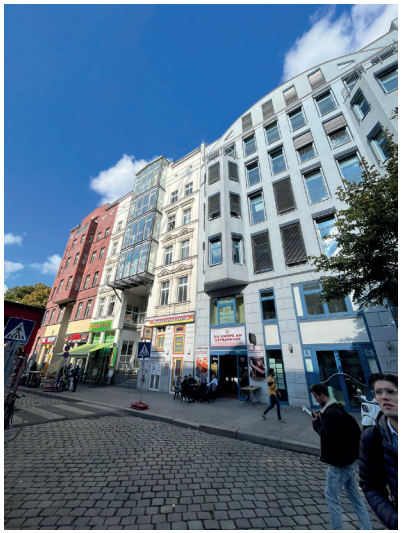








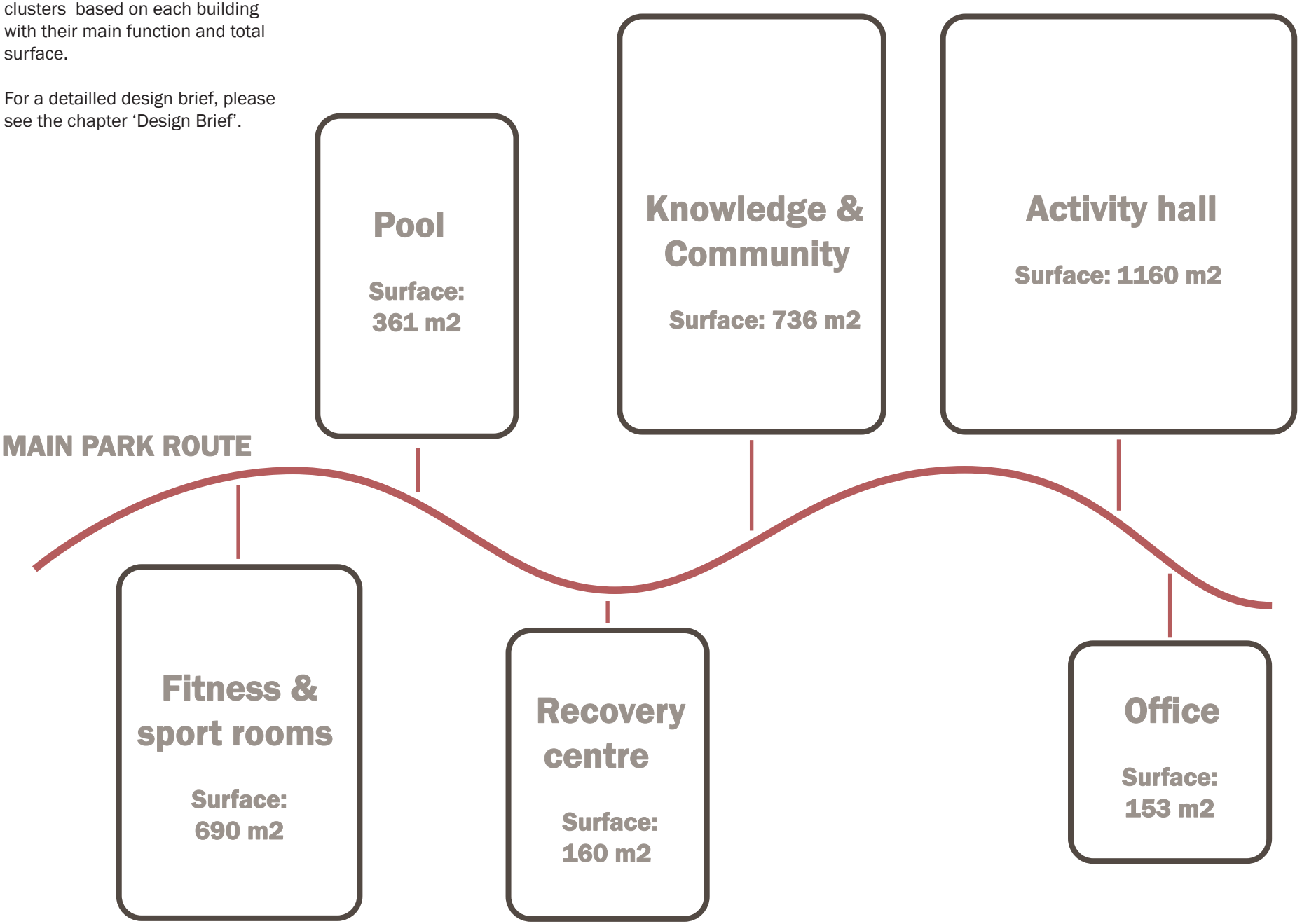




DESIGN BRIEF

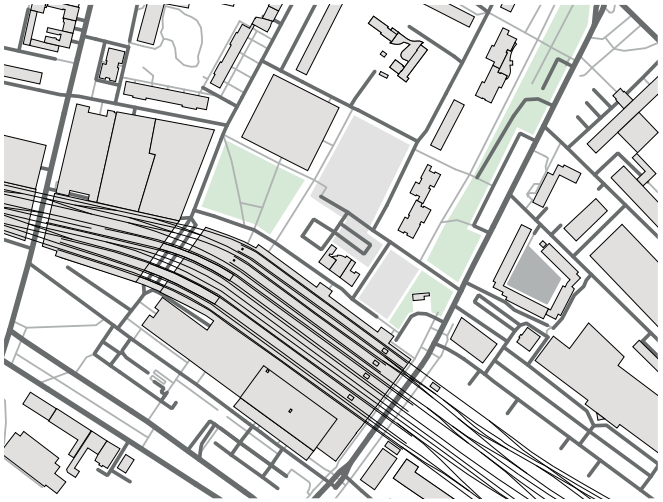
The design brief is showed in clusters based on each building with their main function and total surface.

For a detailled design brief, please see the chapter ‘Design Brief’.



URBAN STRATEGY

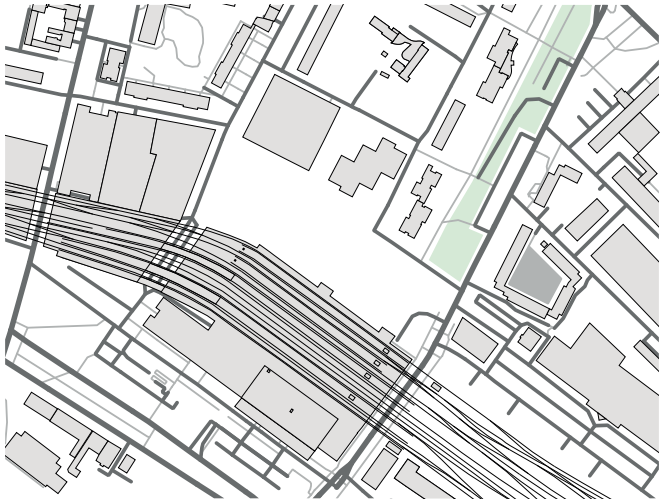
1. EXISTING SITUATION



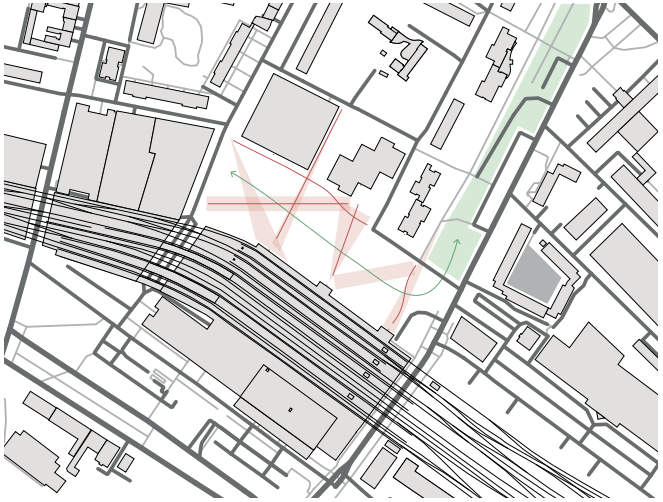
2. BUILDING DEMOLISHMENT & SCHOOL



3. EMPTY PLOT



4. ROUTES/SIGHTLINES/GREEN



5. NEW BUILDING & PARK DESIGN



For the design of 'The sensory healing-scape', several steps have been made creating the urban strategy of the design:

1. In the existing situation, you can find a big parking plot. In front of the Up! office building there is a small park and there is still a building block left that is not destroyed during the World War II.

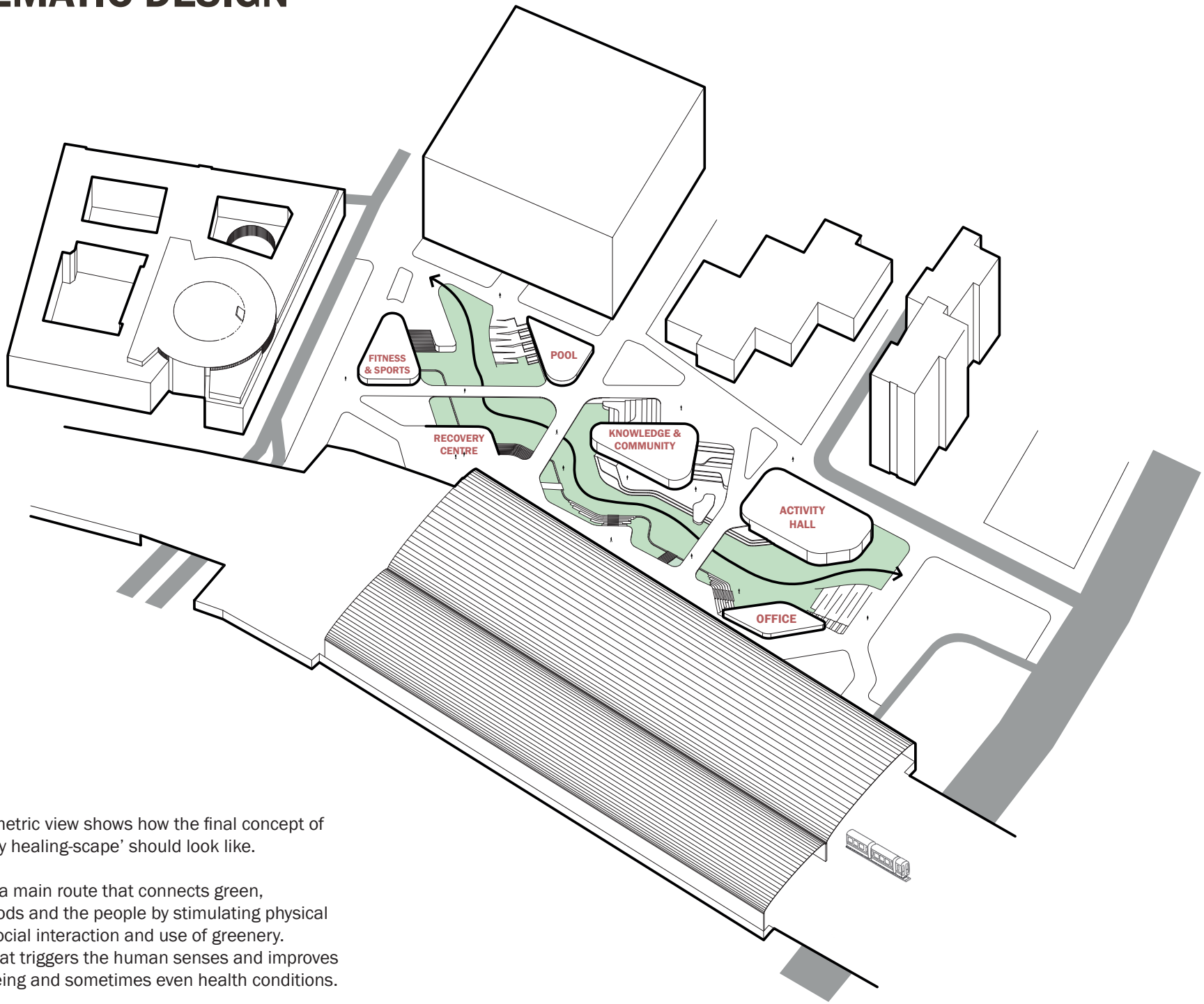
2. This building will be demolished. The building is old and the other blocks that used to be there are already destroyed in history. The existing functions of the building will get a new place in the design.

3. The plot will be empty. Between the Up! office building and the residential building, there will be a new school. Explaination can be found in the chapter 'Process documentation'.

4. The new park design is based on connecting the green, connecting the two neighborhoods and keeping the existing routes and sightlines to the station and surrounded buildings.

5. The buidlings will be between these lines connected to the main park route.

SCHEMATIC DESIGN

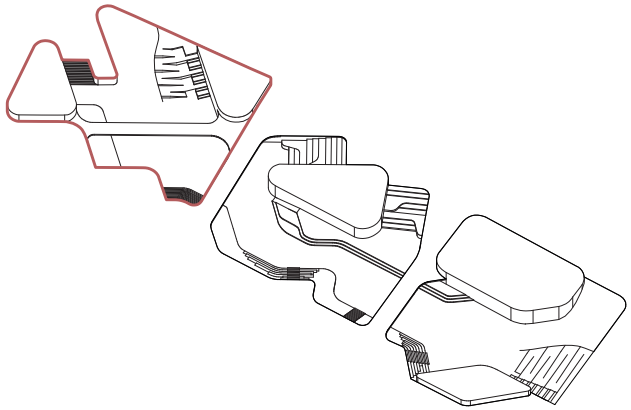


This axonometric view shows how the final concept of ‘The sensory healing-scape’ should look like.

A park with a main route that connects green, neighborhoods and the people by stimulating physical activities, social interaction and use of greenery. Buildings that triggers the human senses and improves their well-being and sometimes even health conditions.

SCHEMATIC DESIGN

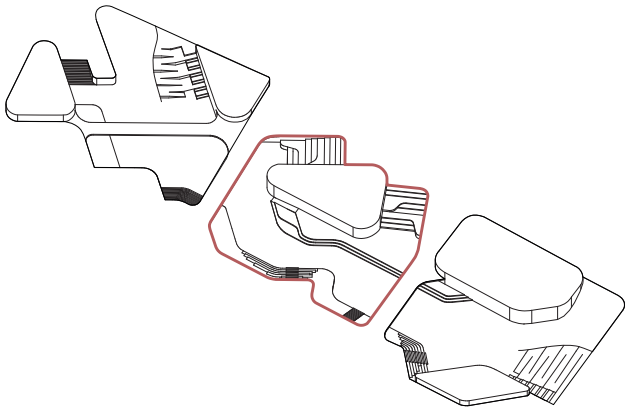
FUNCTION GROUPING



TRAINING & RECOVERY

The west-part of the design is based on training and recovery. It contains functions as fitness, sport rooms (for sports like dancing, yoga, spinning etc.) and a small swimming pool for recovery and children to learn how to swim. Connected to these functions, you can find a recovery centre, which contains a doctor and physiotherapy.

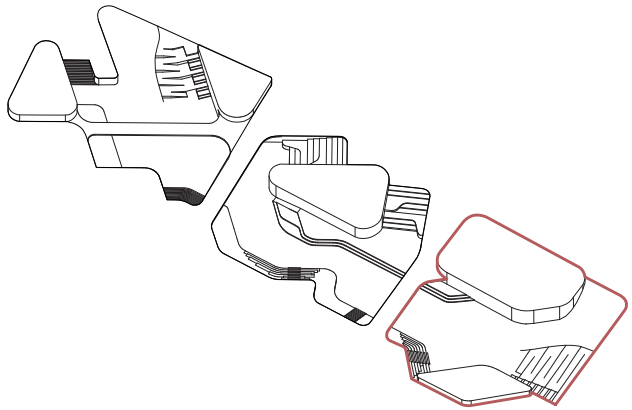
The park contains space for individual sports, like training on calisthenics, balance and strength. You can also find a climbing wall.



KNOWLEDGE & COMMUNITY

The middle part of the design is based on the community and knowledge about a healthy lifestyle, sports, recovery and nature. This part is focussing on social interaction, nature (flora + fauna) and the functions are focussing on knowledge, with functions like classrooms and workshop rooms.

The park design is based on social interaction, using a conversation pit, seated stairs and a terrace. The park contains different kind of flora and fauna, a playground for children and the facade is based on greenery and birds.



PERFORMANCE

The east-part of the design is based on performance. The most important function is the activity hall. This hall contains different kind of activities, focussing on the community and sports. In this building, you can find concerts, events and (professional) sport games.

The second building is for the employees of the other five buildings. It contains mainly office space.

The park focusses on the connection between interaction and physical activity. You can find a basketball field, skate park and jeux the boule court.

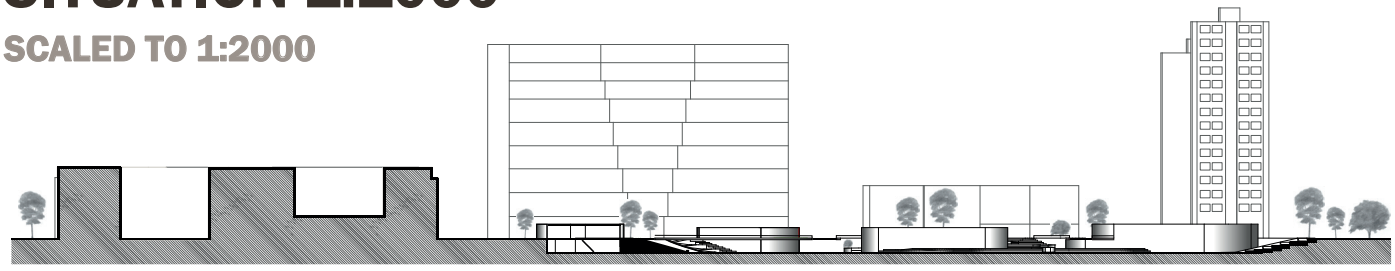
SITUATION 1:1000 SCALED TO 1:2000



SITUATION 1:1000

SCALED TO 1:2000

1.



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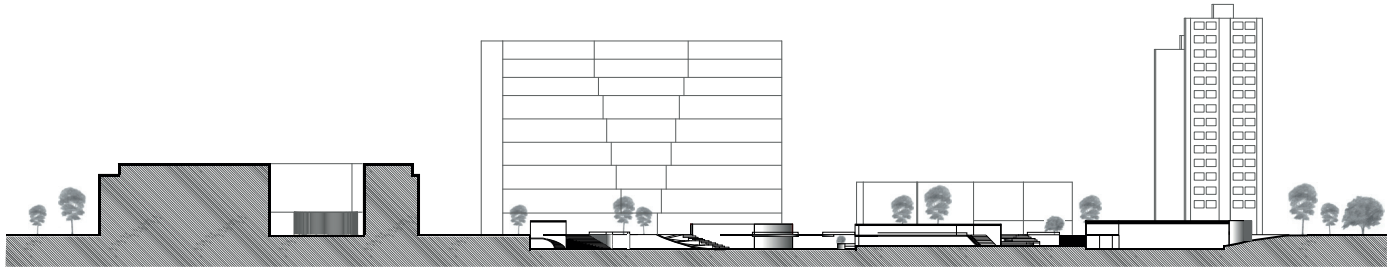

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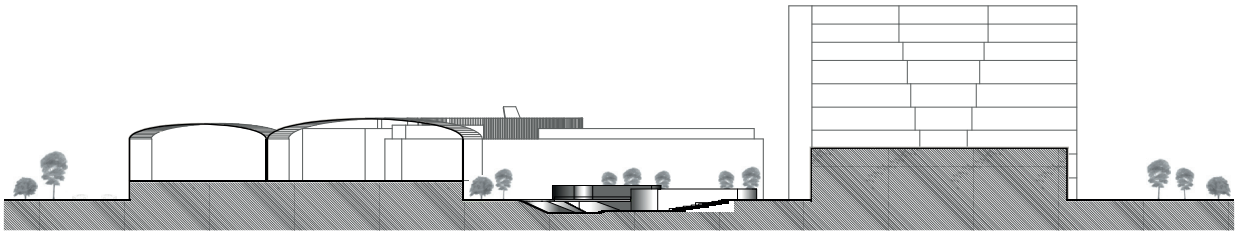
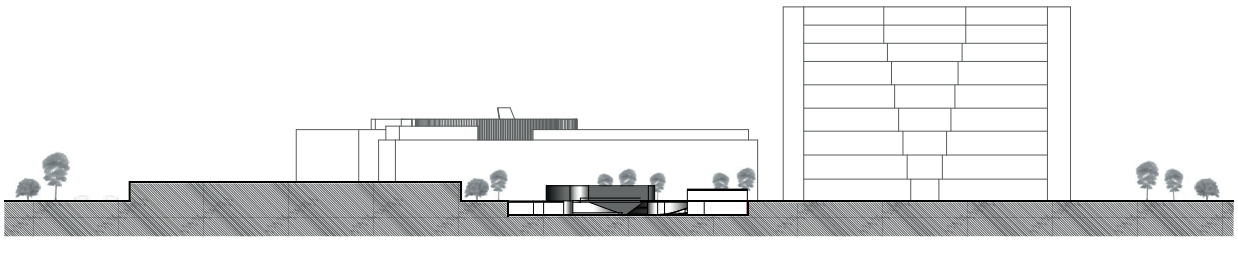


4.



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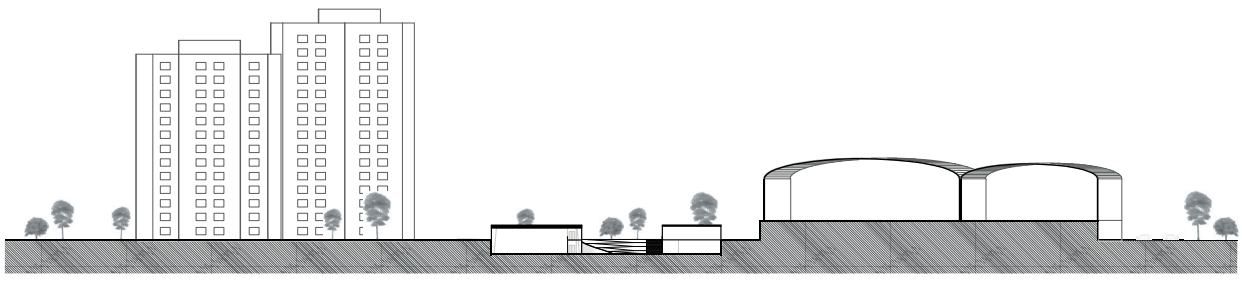
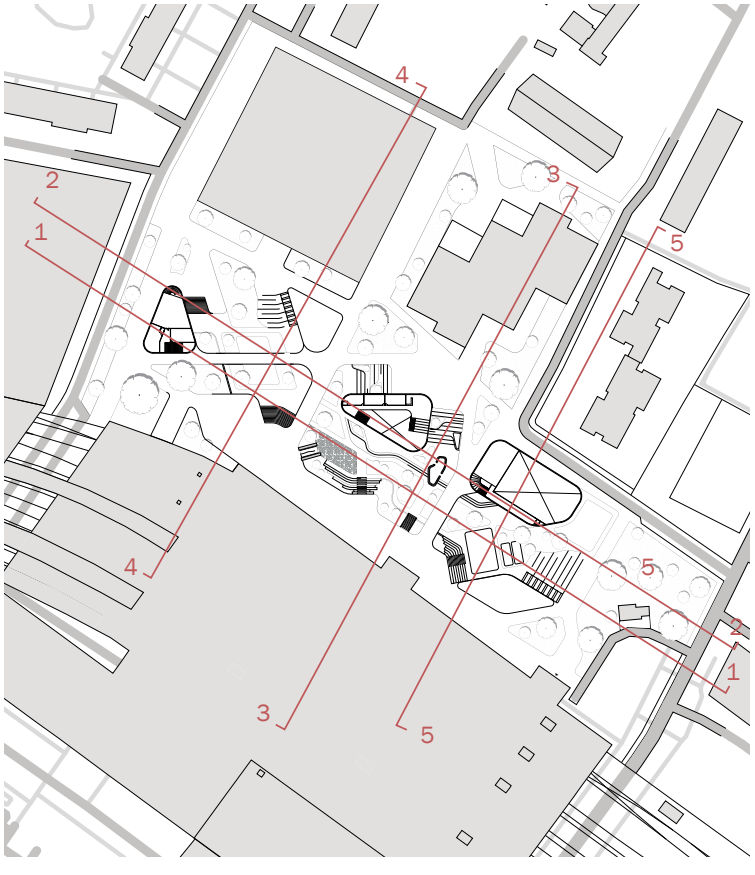
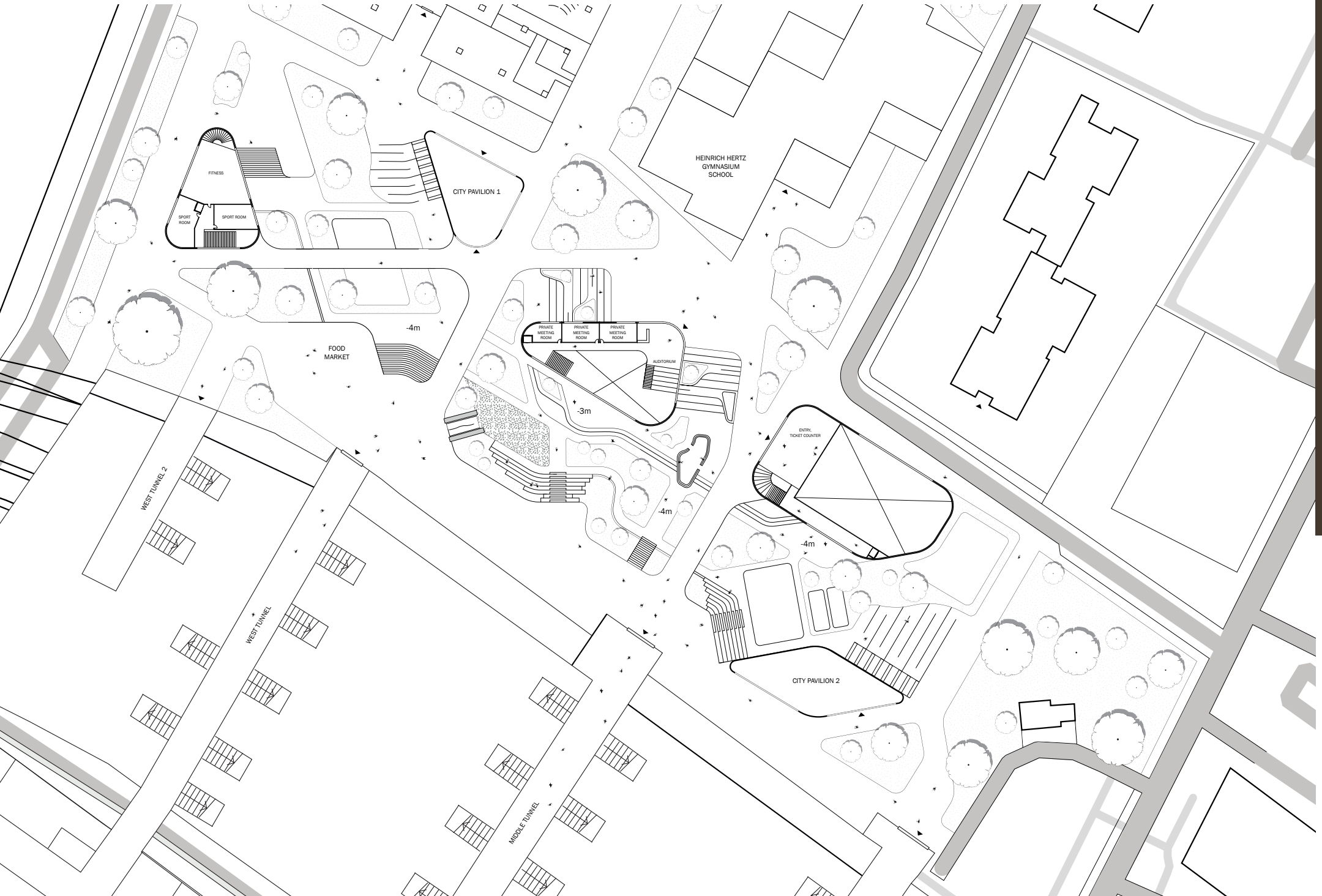


These sections show the relationship between the surrounded context and the design. The new buildings are kept low to keep the existing sightlines and the feeling of an open space.

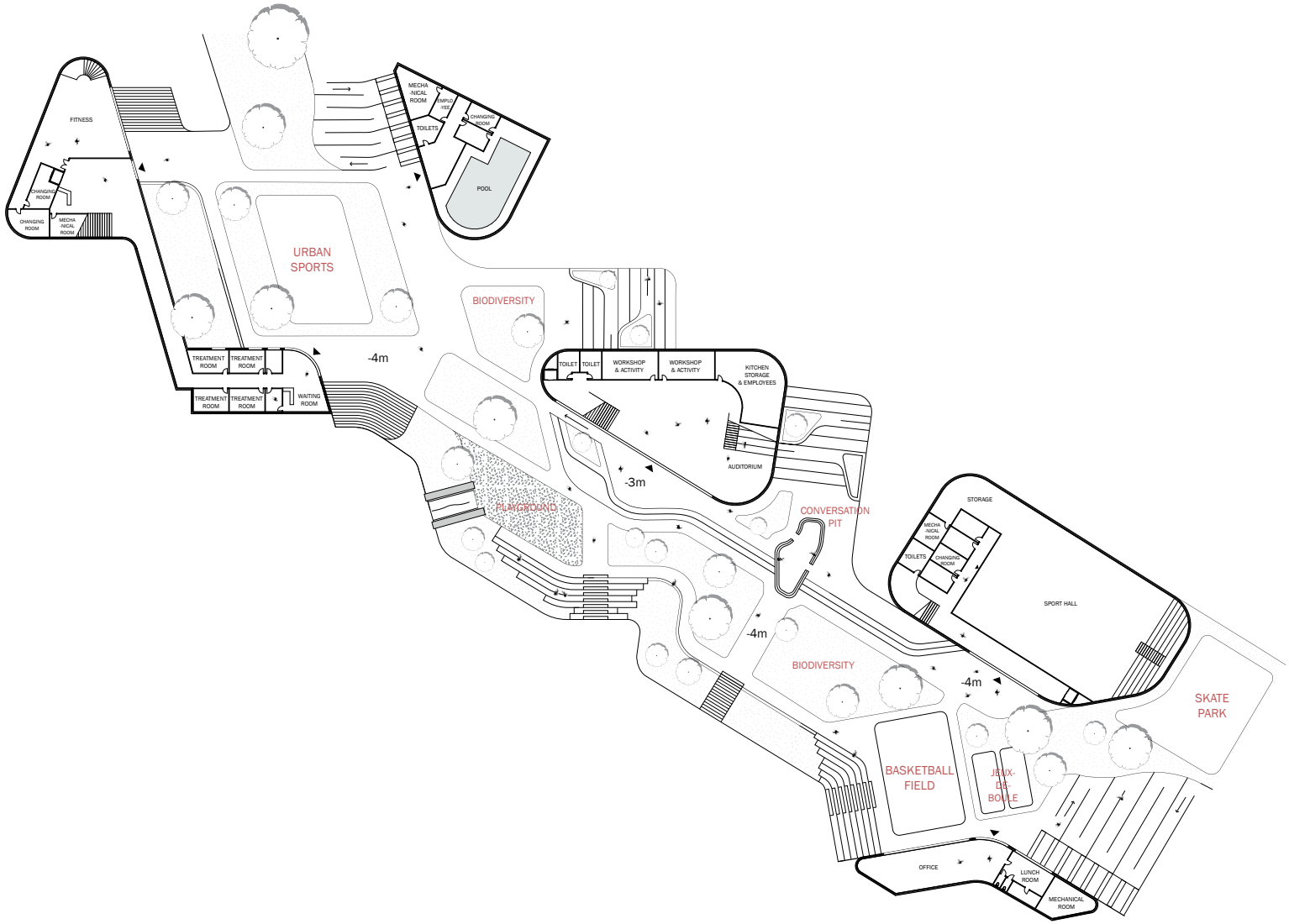


PLAN 1:500 CITYLEVEL (0) SCALED TO 1:1000



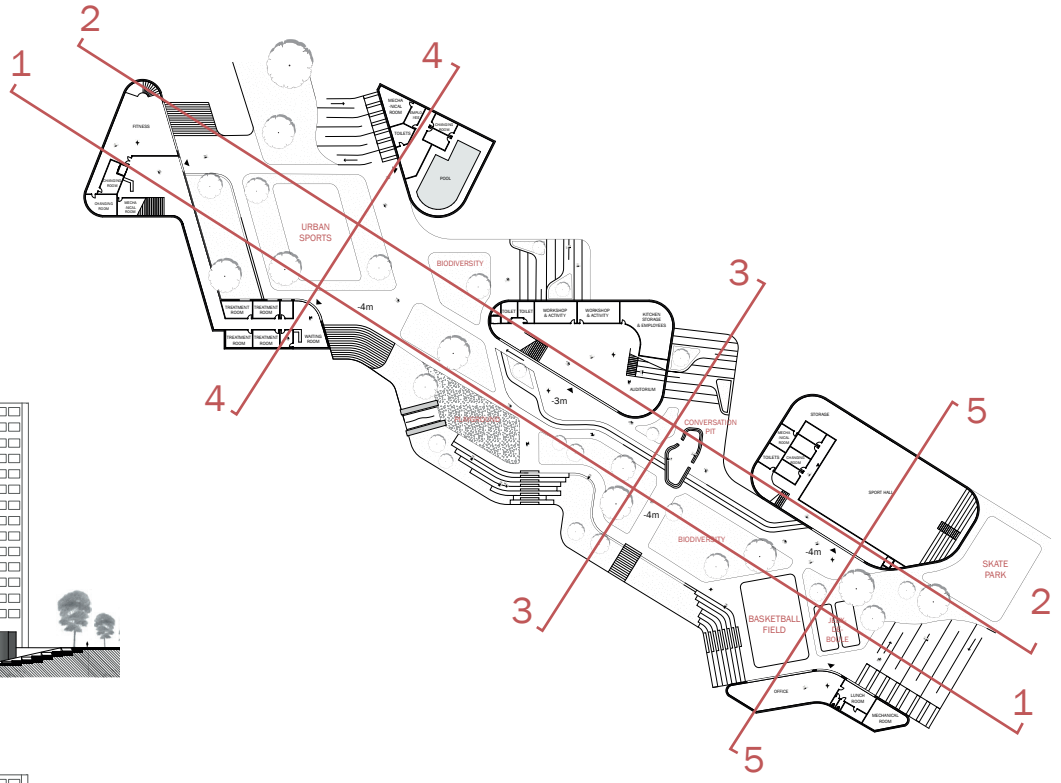
SCHEMATIC DESIGN

PLAN 1:500 PARKLEVEL (-1) SCALED TO 1:1000



SECTIONS 1:500

SCALED TO 1:1000



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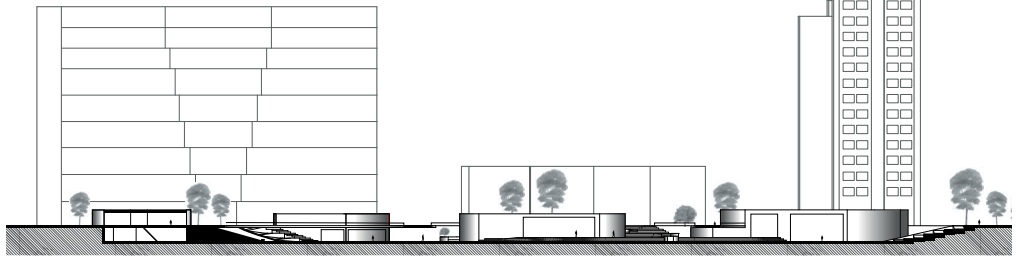

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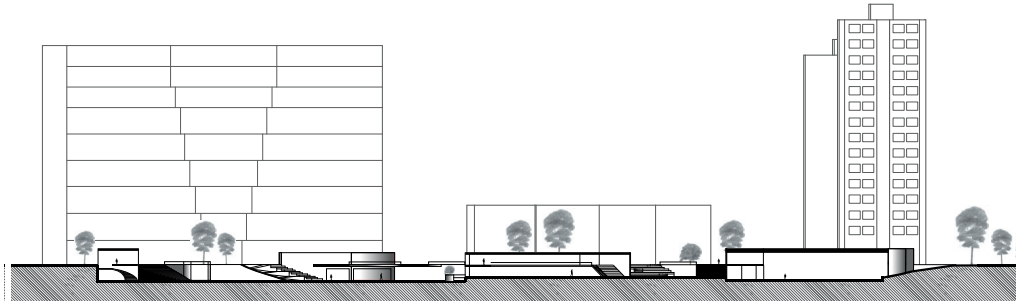

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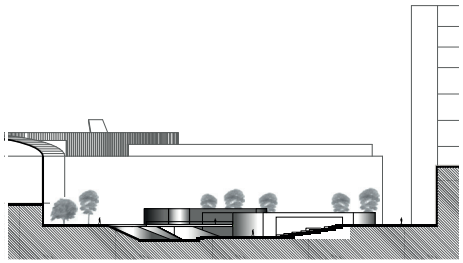

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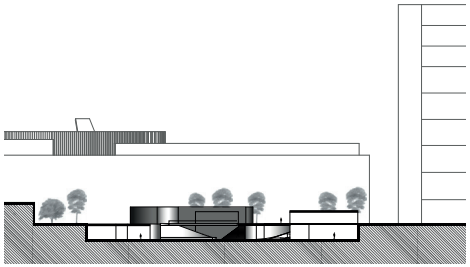

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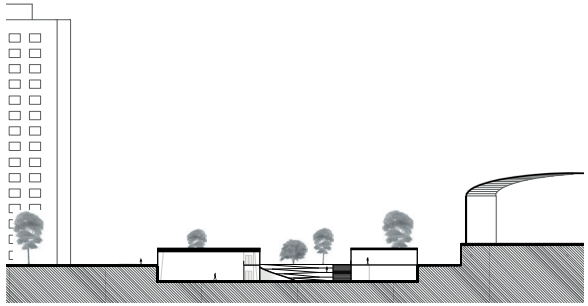
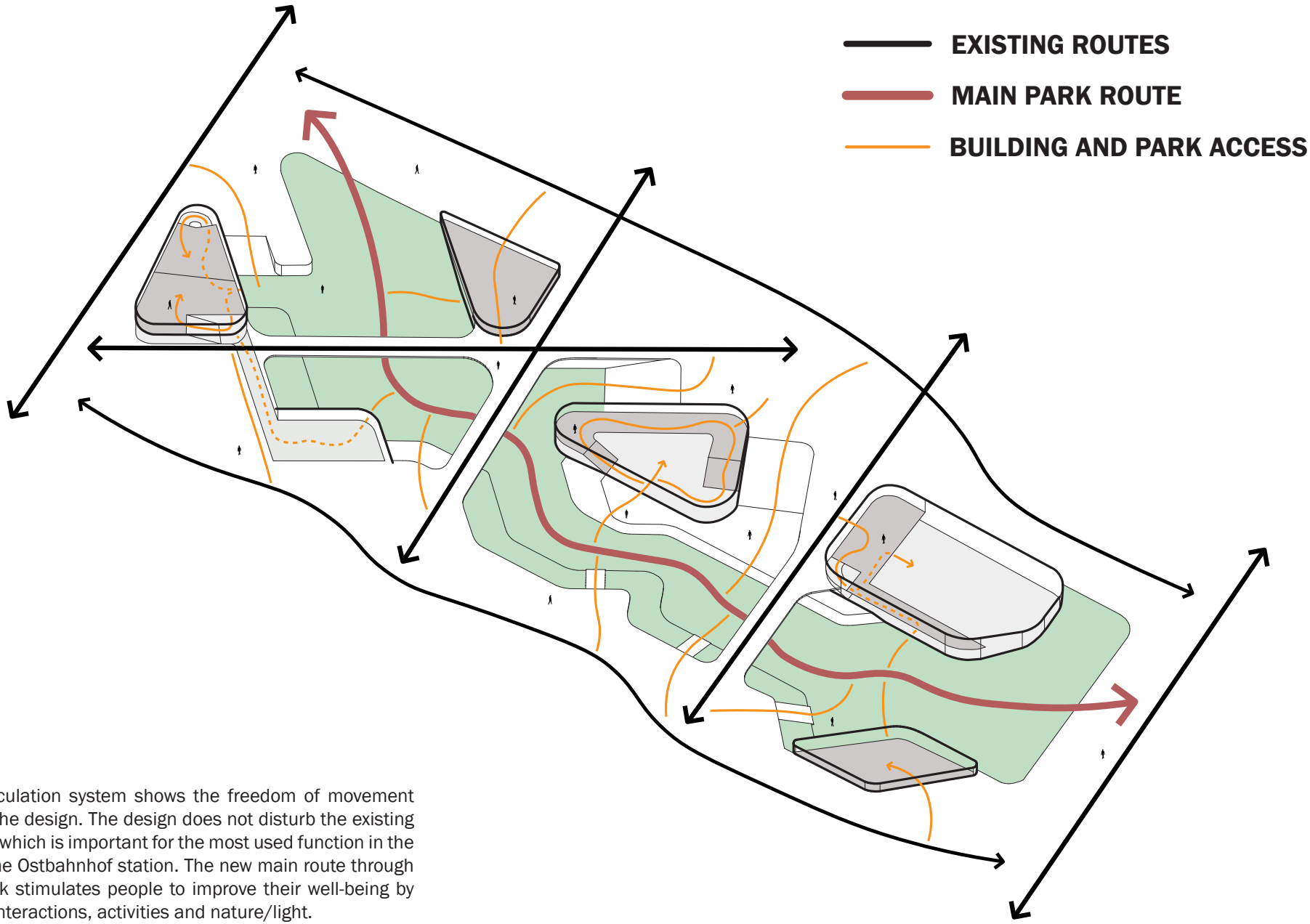


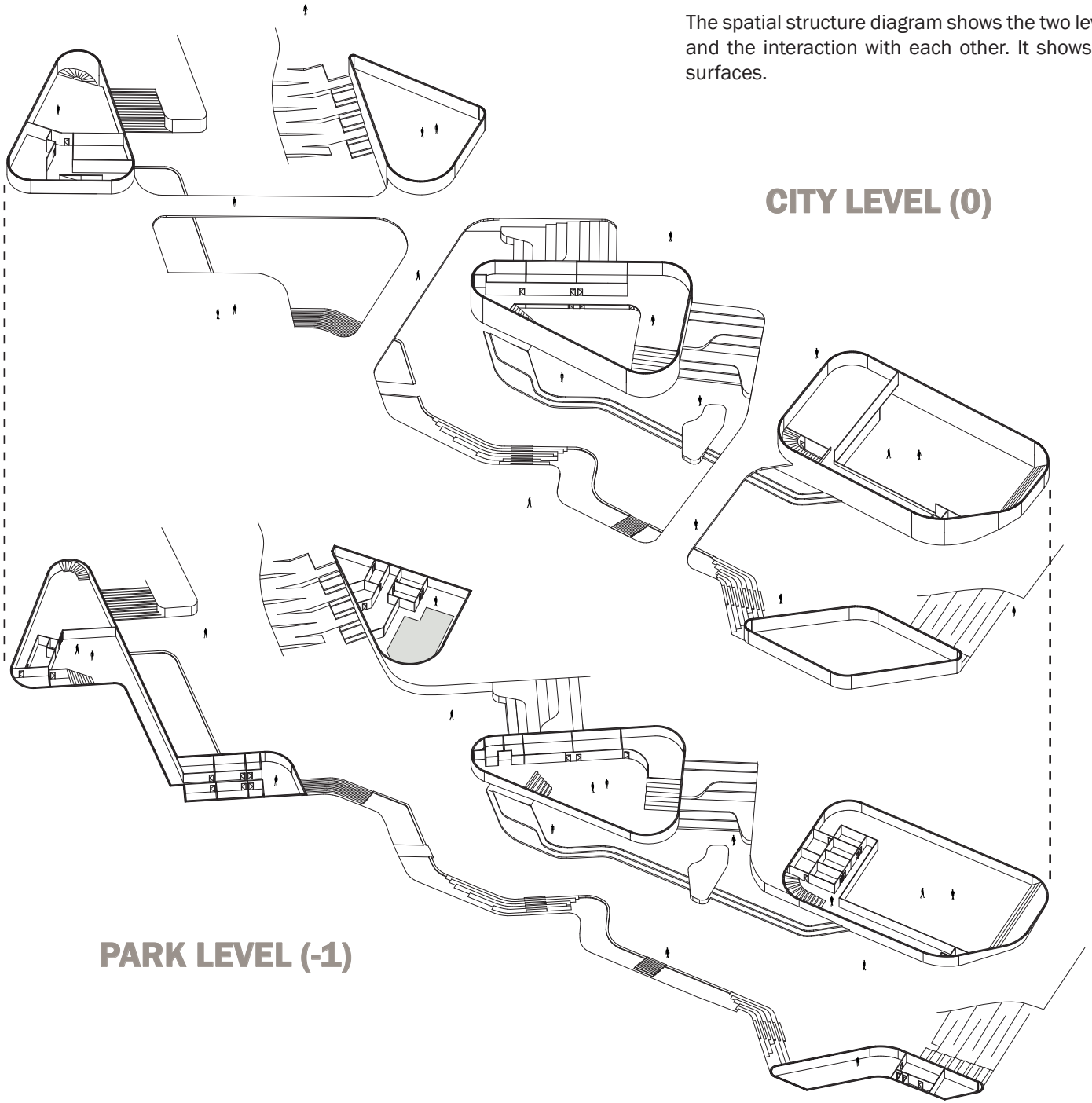
DIAGRAM CIRCULATION SYSTEM



The circulation system shows the freedom of movement within the design. The design does not disturb the existing routes, which is important for the most used function in the area; the Ostbahnhof station. The new main route through the park stimulates people to improve their well-being by social interactions, activities and nature/light.
The buildings are accessible from all heights.

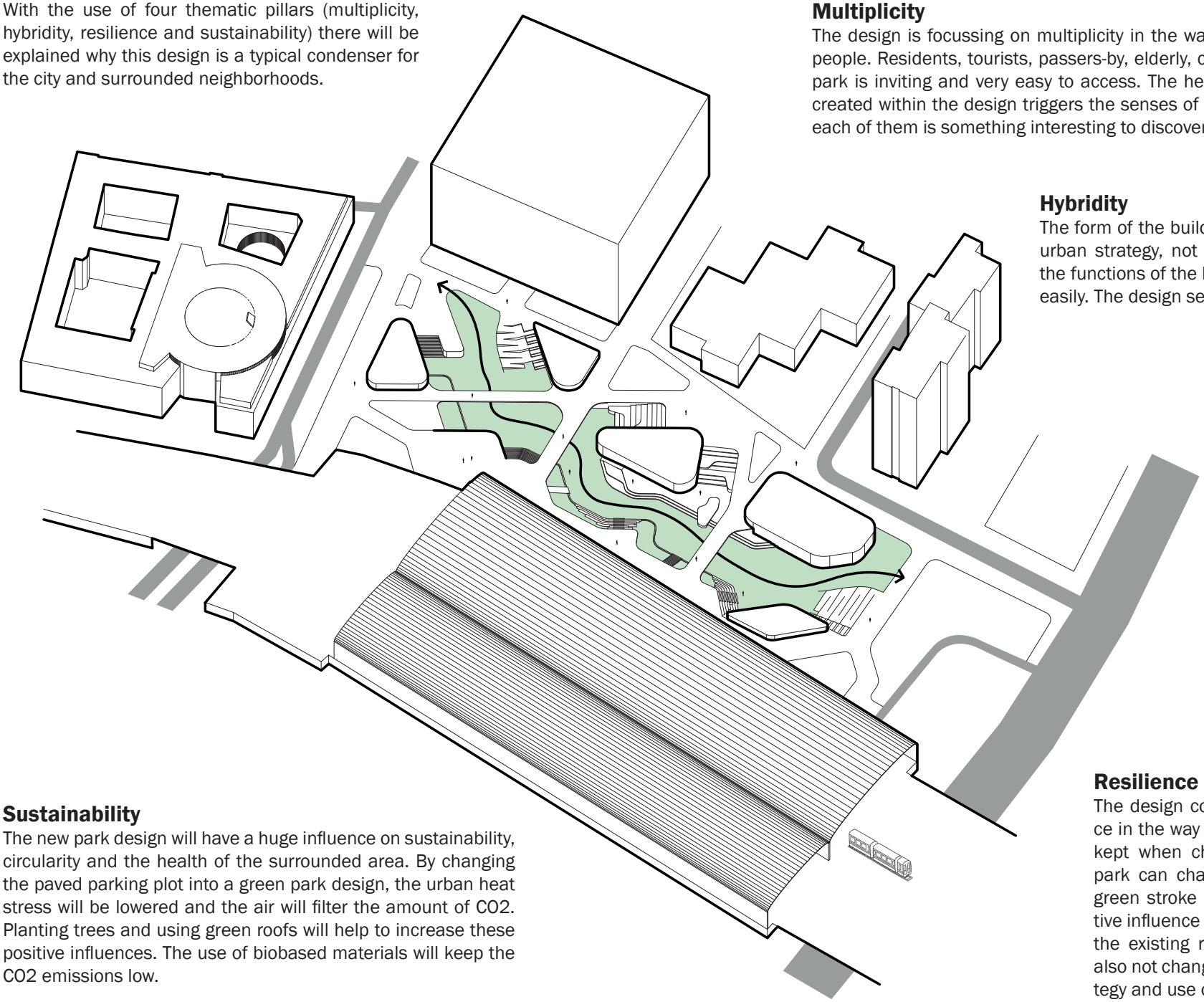
DIAGRAM SPATIAL STRUCTURE

The spatial structure diagram shows the two levels (citylevel and parklevel) and the interaction with each other. It shows the functions, spaces and surfaces.



PUBLIC CONDENSER

With the use of four thematic pillars (multiplicity, hybridity, resilience and sustainability) there will be explained why this design is a typical condenser for the city and surrounded neighborhoods.



Multiplicity

The design is focussing on multiplicity in the way of attracting all kind of people. Residents, tourists, passers-by, elderly, children and families. The park is inviting and very easy to access. The healthy environment that is created within the design triggers the senses of all kind of people and for each of them is something interesting to discover.

Hybridity

The form of the buildings is defined based on urban strategy, not on function. In this way, the functions of the buildings can be changed easily. The design serves its own milieu.

Sustainability

The new park design will have a huge influence on sustainability, circularity and the health of the surrounded area. By changing the paved parking plot into a green park design, the urban heat stress will be lowered and the air will filter the amount of CO2. Planting trees and using green roofs will help to increase these positive influences. The use of biobased materials will keep the CO2 emissions low.

Resilience

The design contains a part of resilience in the way that the buildings can be kept when changing in function. The park can change in function, but the green stroke will always have a possitive influence on the city scale. Keeping the existing routes and sightlines will also not change the existing urban strategy and use of functions.

FACADE SPECULATIONS



BIOBASED MATERIALS

Using biobased materials from the surrounding area for a reduction of CO2 emissions with manufacturing and transport



OPEN MATERIALS

Open materials will be used to make people feel invited to enter the buildings. People will be attrackted by touching their senses.



GREEN ROOF / FACADE

The amount of greenery will be increased by using green roofs and on some parts green facades. This will also reduse the energy loss and will keep the buildings warmer during winter and cooler during summer.



BIRD NESTLING

On some parts, the facade could work as a bird nestling area. Birds can enter the facades through holes to nestle. It is important to keep as much birds in the city as possible to increase well-being under humans.



INSECT HOUSING

Other parts of the facade could work as housing for insects. Insects are important to keep all the green areas in the city healthy.

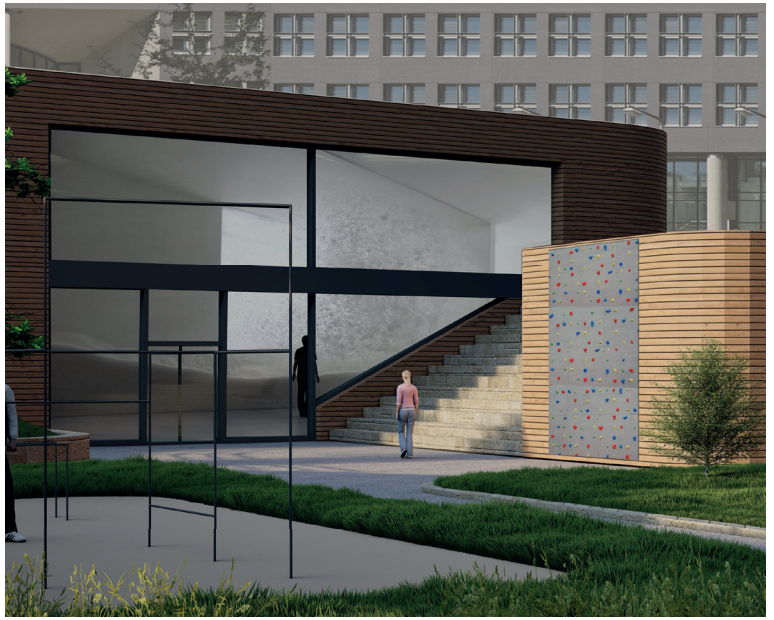


PHYSICAL INTERACTION

The facade can work as stimulative factor of physical activities.
A climbing wall for example invites people to do physical activity.



Insect housing into the facade



Climbing wall on the facade

USER EXPERIENCE



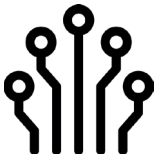
Phisical activity



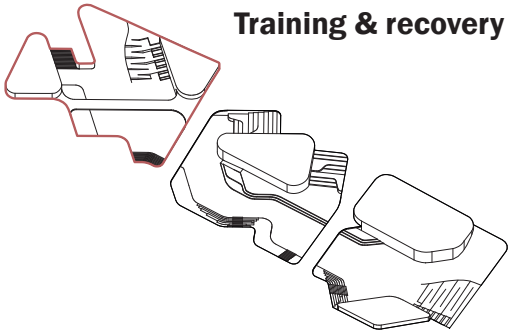
Recovery



Use of greenery



Senses



USER EXPERIENCE



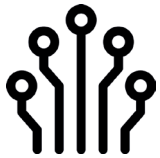
Phisical activity



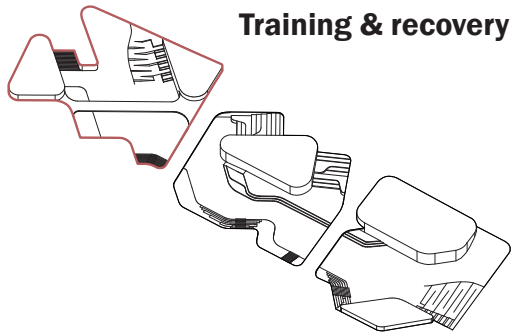
Recovery



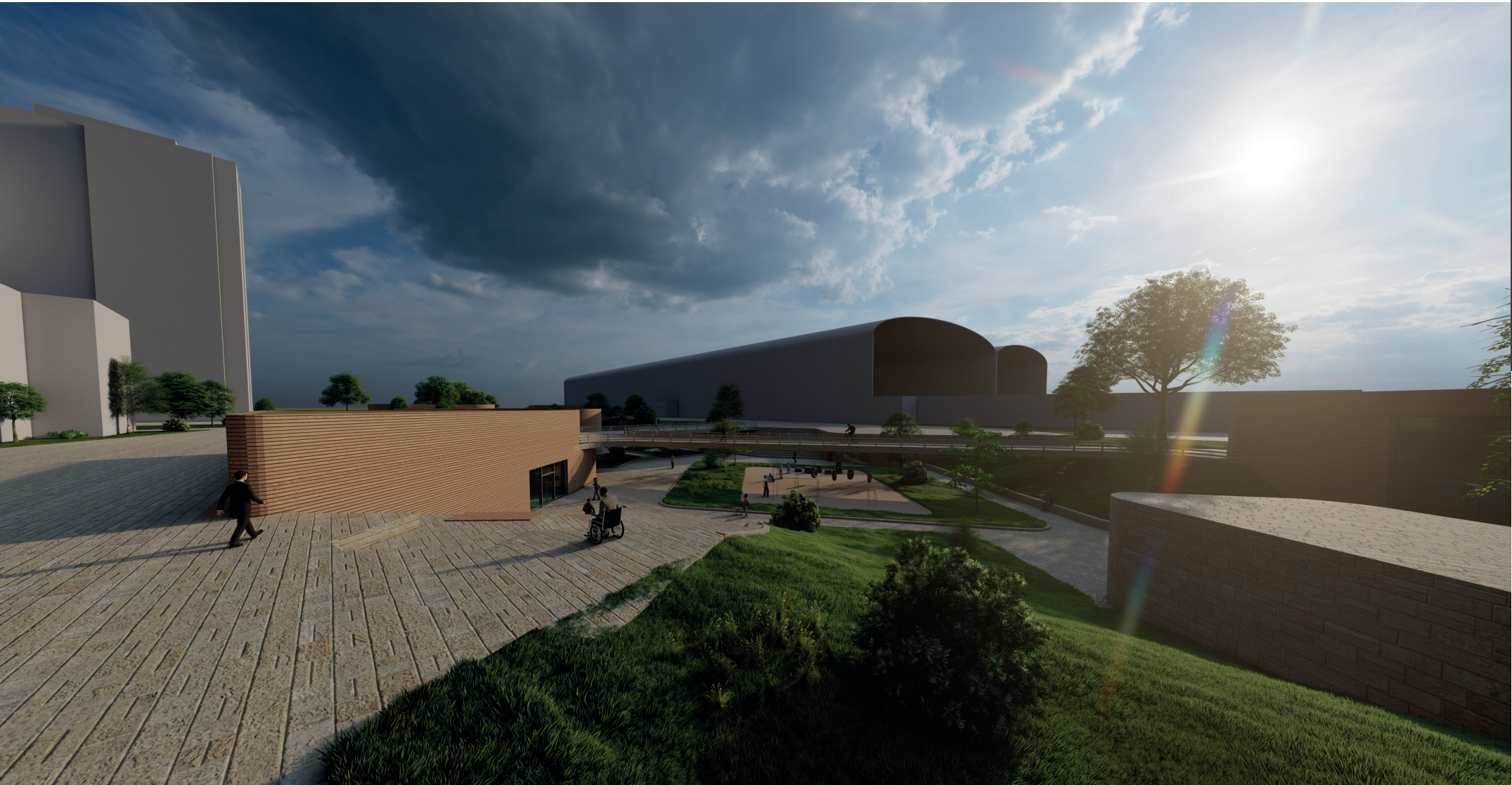
Use of greenery



Senses



Training & recovery



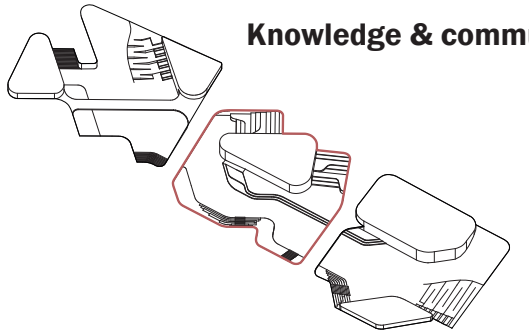
USER EXPERIENCE

Social interaction

Knowledge

Use of greenery

Senses



Knowledge & community



USER EXPERIENCE



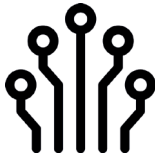
Social interaction



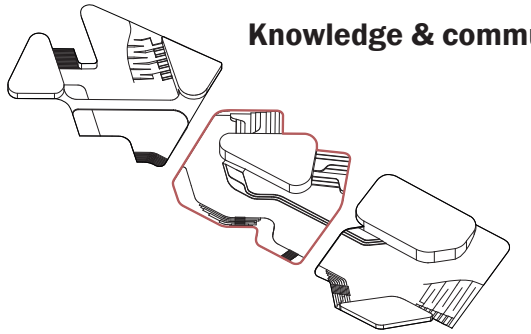
Knowledge



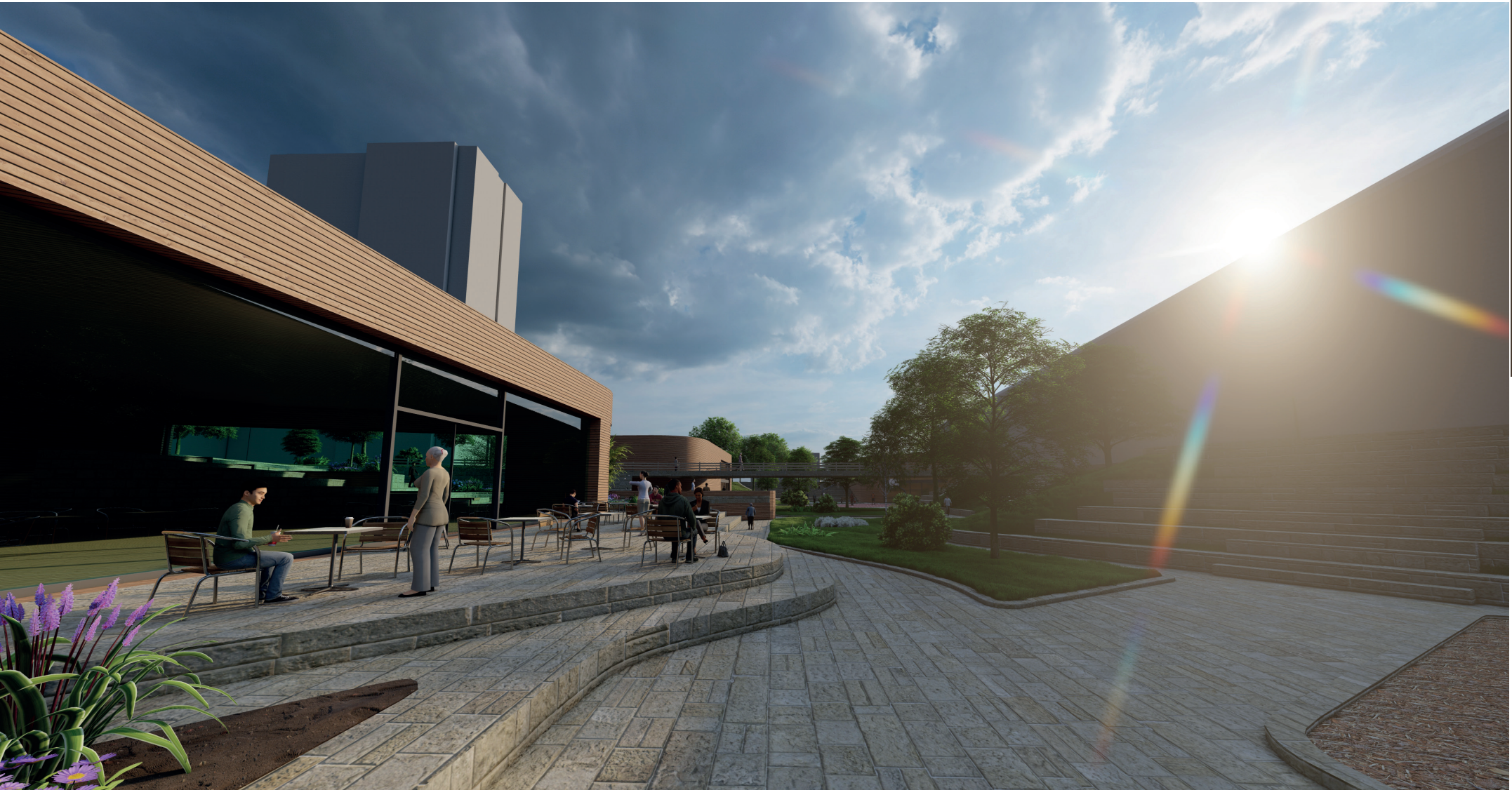
Use of greenery



Senses



Knowledge & community



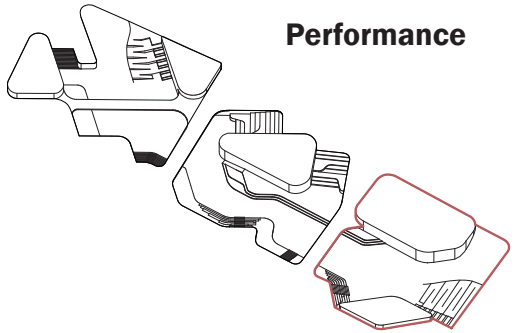
USER EXPERIENCE

Interactive sports

Events

Use of greenery

Senses



Performance



USER EXPERIENCE



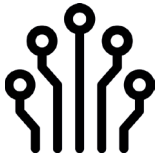
Interactive sports



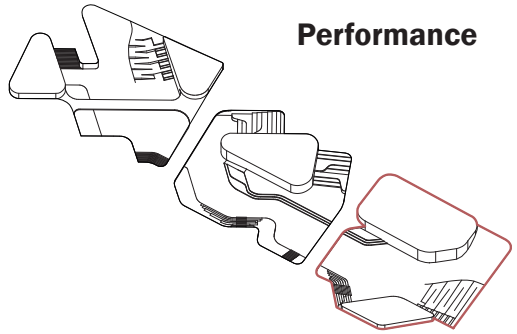
Events



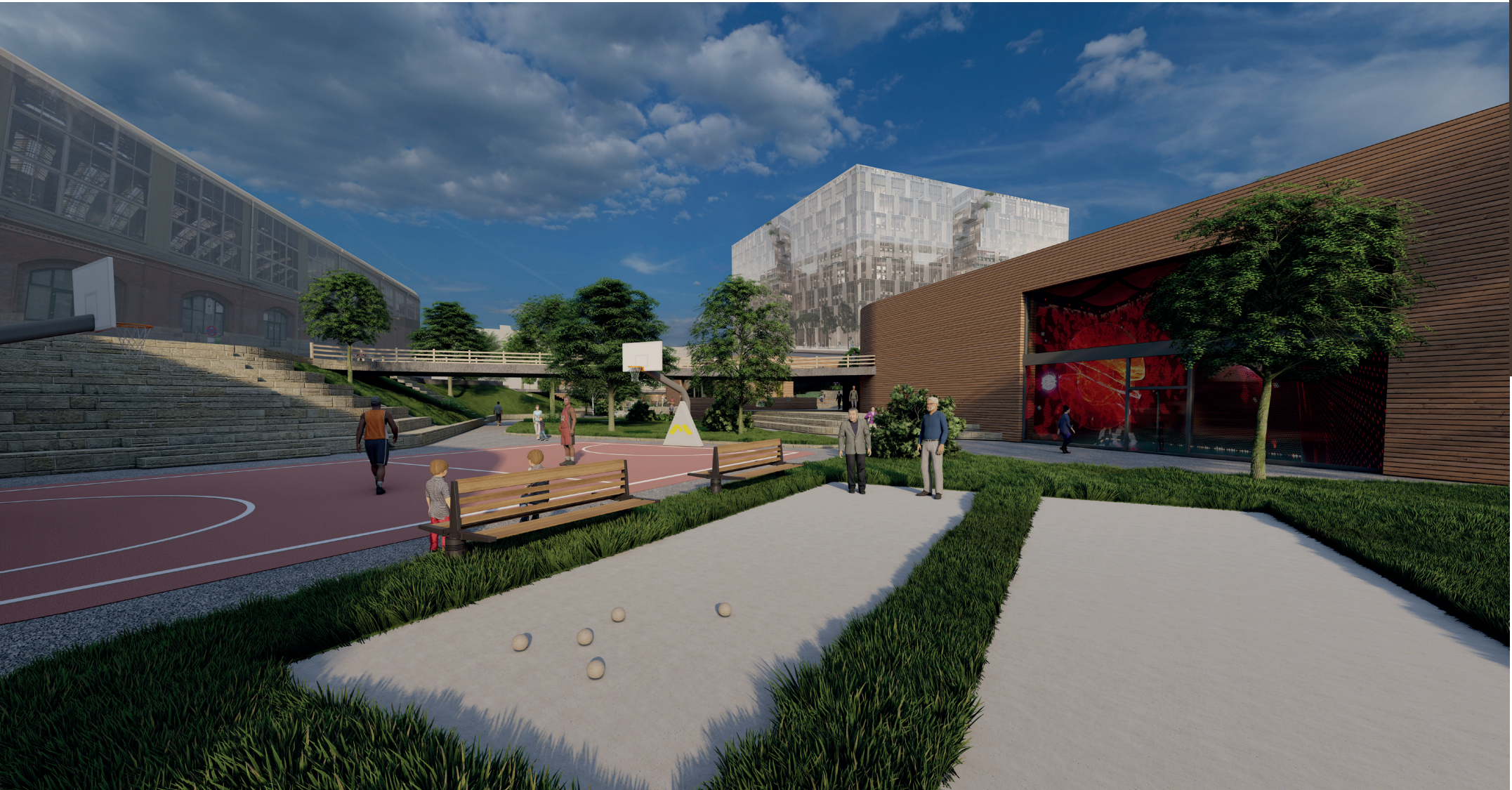
Use of greenery



Senses



Performance



PROCESS DOCUMENTATION

PART II

EXISTING BUILDING ON SITE

After the P2 presentations, it was clear that the existing building on site should stay in her current condition. Based on circularity, sustainability and the history of the place, the decision is made to keep the building into the site. This means that the new design should either use the buidling, because almost all the building parts are empty, or build next to the building and leave it as it is.





Source: Google Maps (2023)

NEW BUILDING DESIGN - SPATIAL NEEDS

To create an experience in the designed buildings, the atmosphere per building should be designed. An important part of that is the spatial needs of the buildings.

For the Knowledge centre, a closed part in the middle is needed for closed functions, like the kitchen, toilets and the class rooms. The facade can be open, with the idea of using insect housing and bird nestling in the facade.

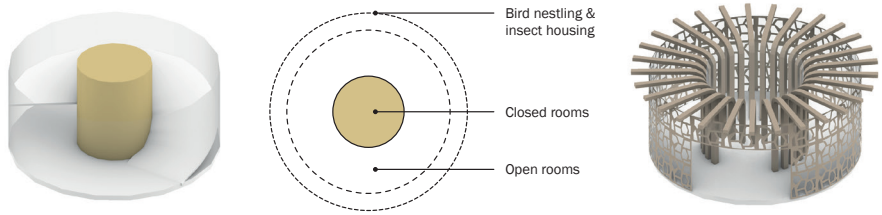
The Fitness/Gym should be an open space with greenery inside. When using natural ventilation, the air quality will be improved. The closed functions (that does not need daylight) can be placed beneath the sport 'hall'.

The Activity hall should be a place where people can do sports, markets and communal activities. It is a mixture of a sport hall, a concert hall and a exhibition hall. The building should work like a landscape, where there is room to watch the sports/activities, to have vegetation and to have natural ventilation through the building. The changing rooms and storage space can be placed beneath this landscape tribune.

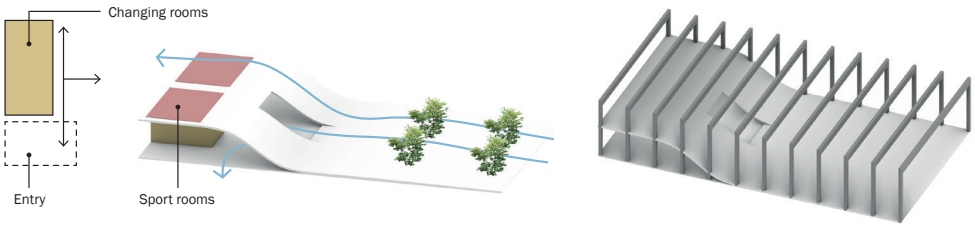
The recovery centre consists of multiple rounded spaces where you can have rest or treatment for physical and mental recovery. The area around these spaces should be should be designed with 'biophilic design', using vegetation and natural materials.

The pool should be a place where you can clear you head. By creating an environment which looks like a cave, you can only hear the running water. Rooflight will be used to create this cave feeling.

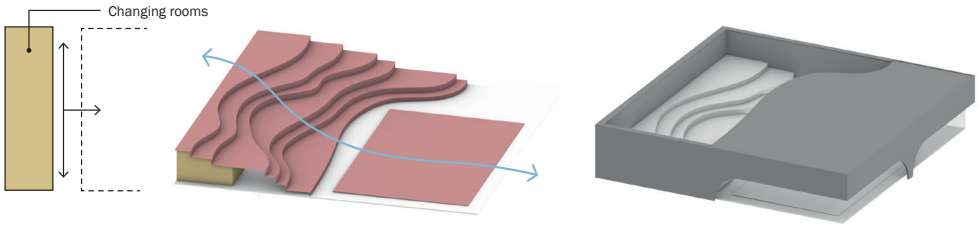
KNOWLEDGE & COMMUNITY



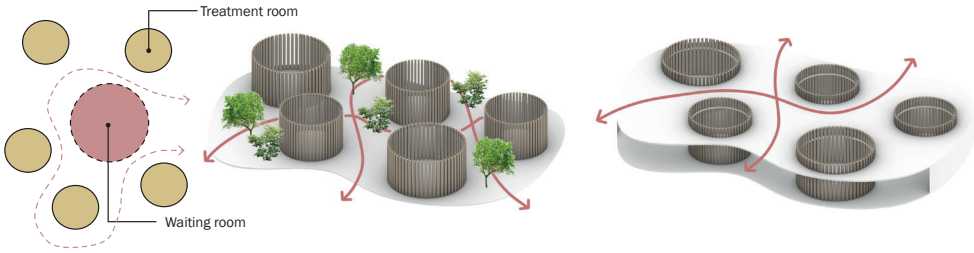
FITNESS / GYM



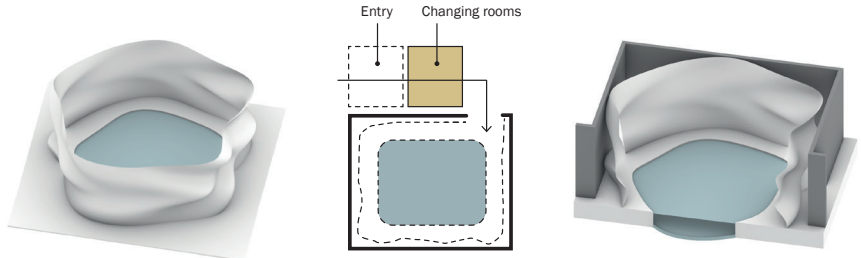
ACTIVITY HALL



RECOVERY CENTRE



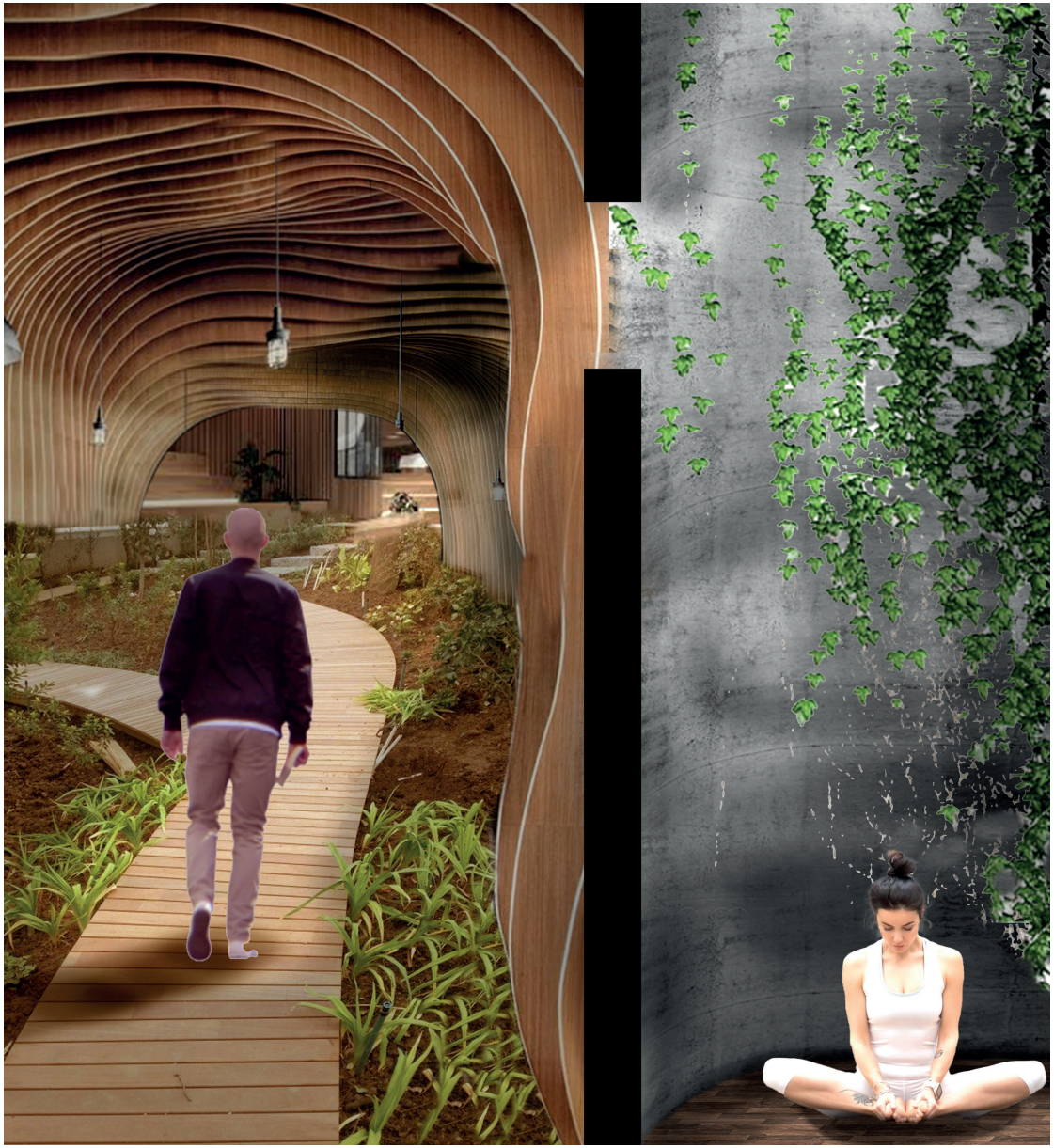
POOL



ATMOSPHERES

The created images beneath show how the atmosphere of the interior in the building should be.
On the left hand the pool, on the right hand the recovery centre.



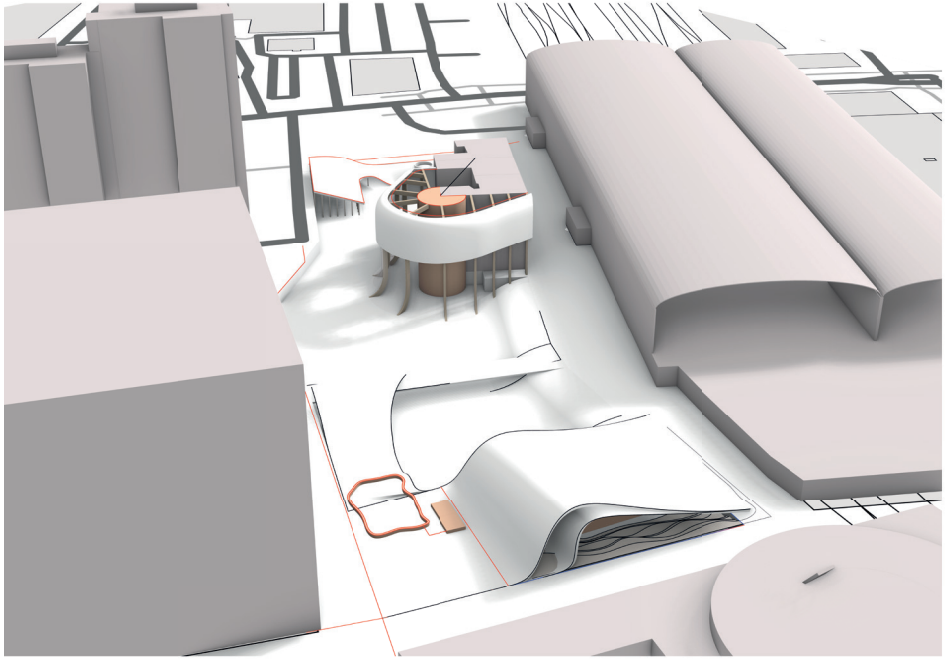


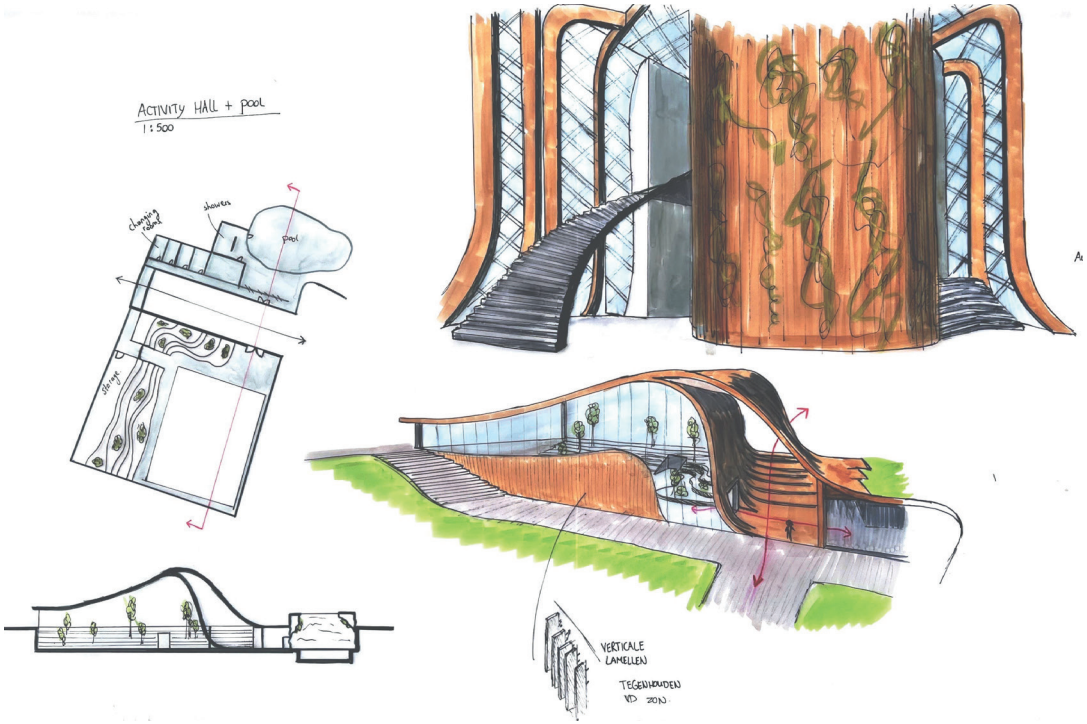
BUILDING CONCEPT TO LANDSCAPE

When designing the new buildings on site based on the spatial concept drawing, you can see how the buildings could work. It shows massive buildings with great lighting in the interior, using greenery and natural materials.

The problem was that the differences in building shapes, masses and scales are too different. The existing building on site will barely be visible, because of the huge new knowledge centre which is covering the building for a big part. Because of this big building design, there is not that much space left for designing the landscape around the building.

The ideas should be compromised into one horizontal architectural language. Which is the next step in the process.

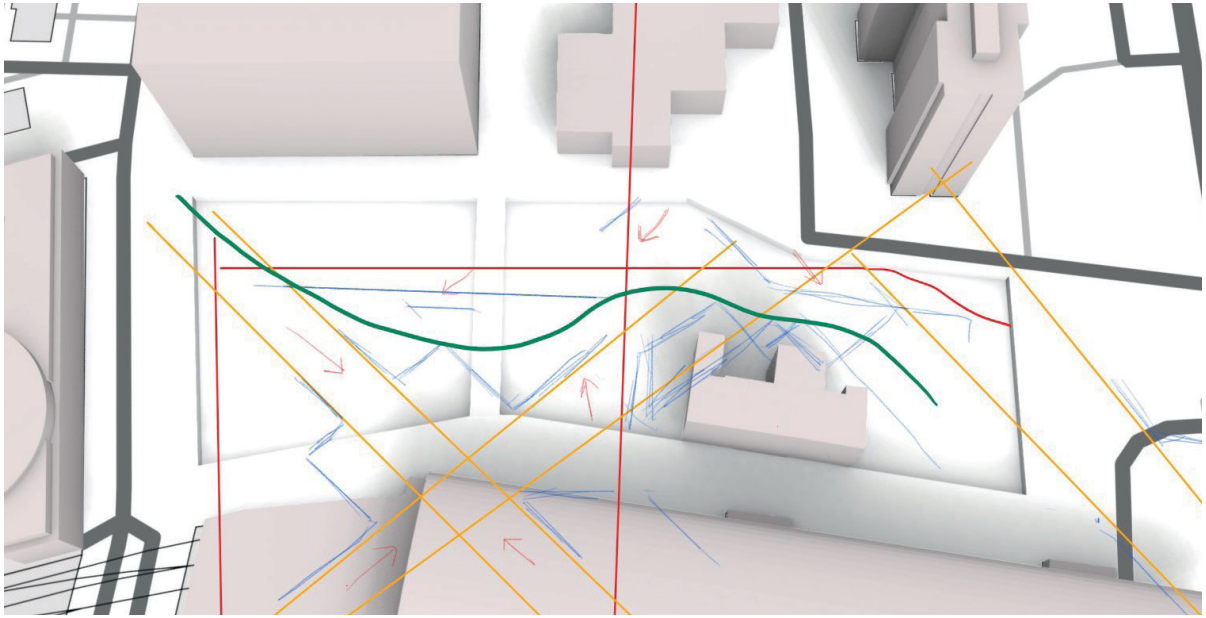


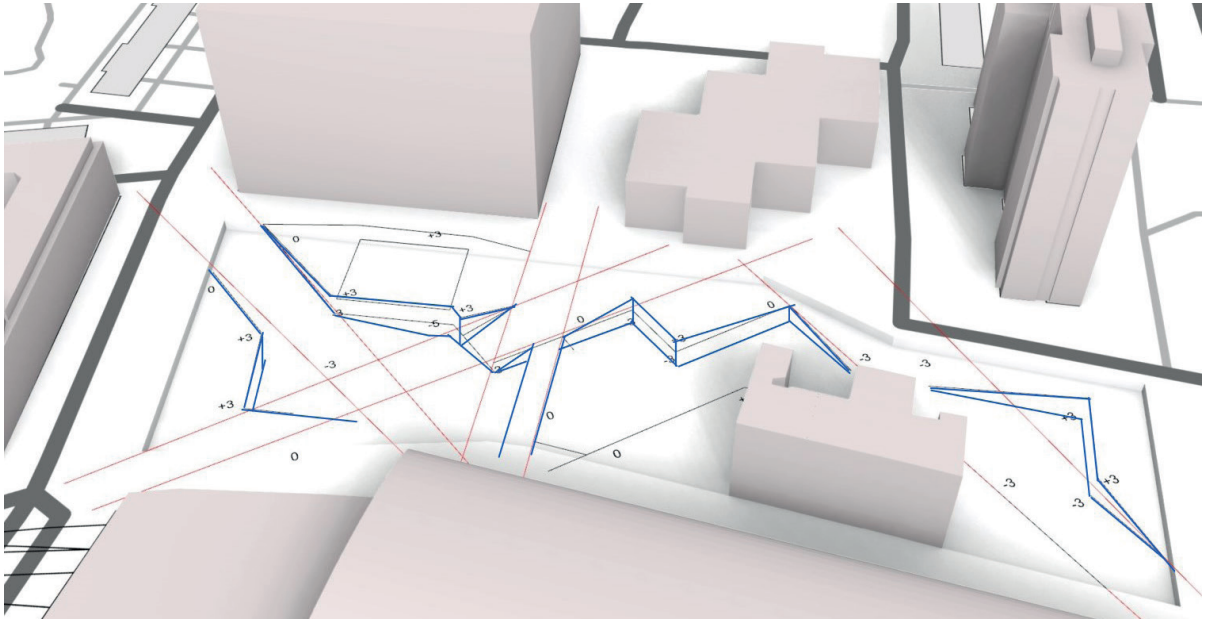




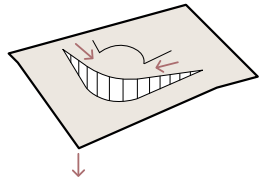
BUILDING CONCEPT TO LANDSCAPE

To create one architectural language in the whole project, the buildings will be formed by the landscape itself. To create space for the buildings, the landscape will be ‘cutted’ and stretched up and down. In this way, the roof can be used as landscape (green roof). The concept per building will still be used to create their own atmosphere and spatial qualities.

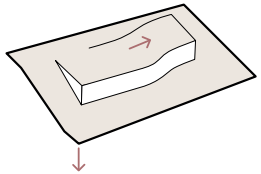




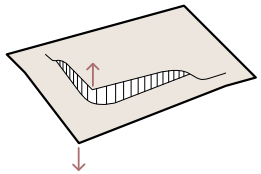
KNOWLEDGE CENTRE & RESTAURANT



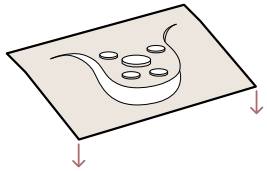
FITNESS



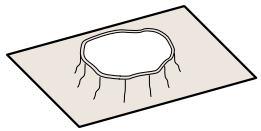
ACTIVITY HALL



RECOVERY CENTRE

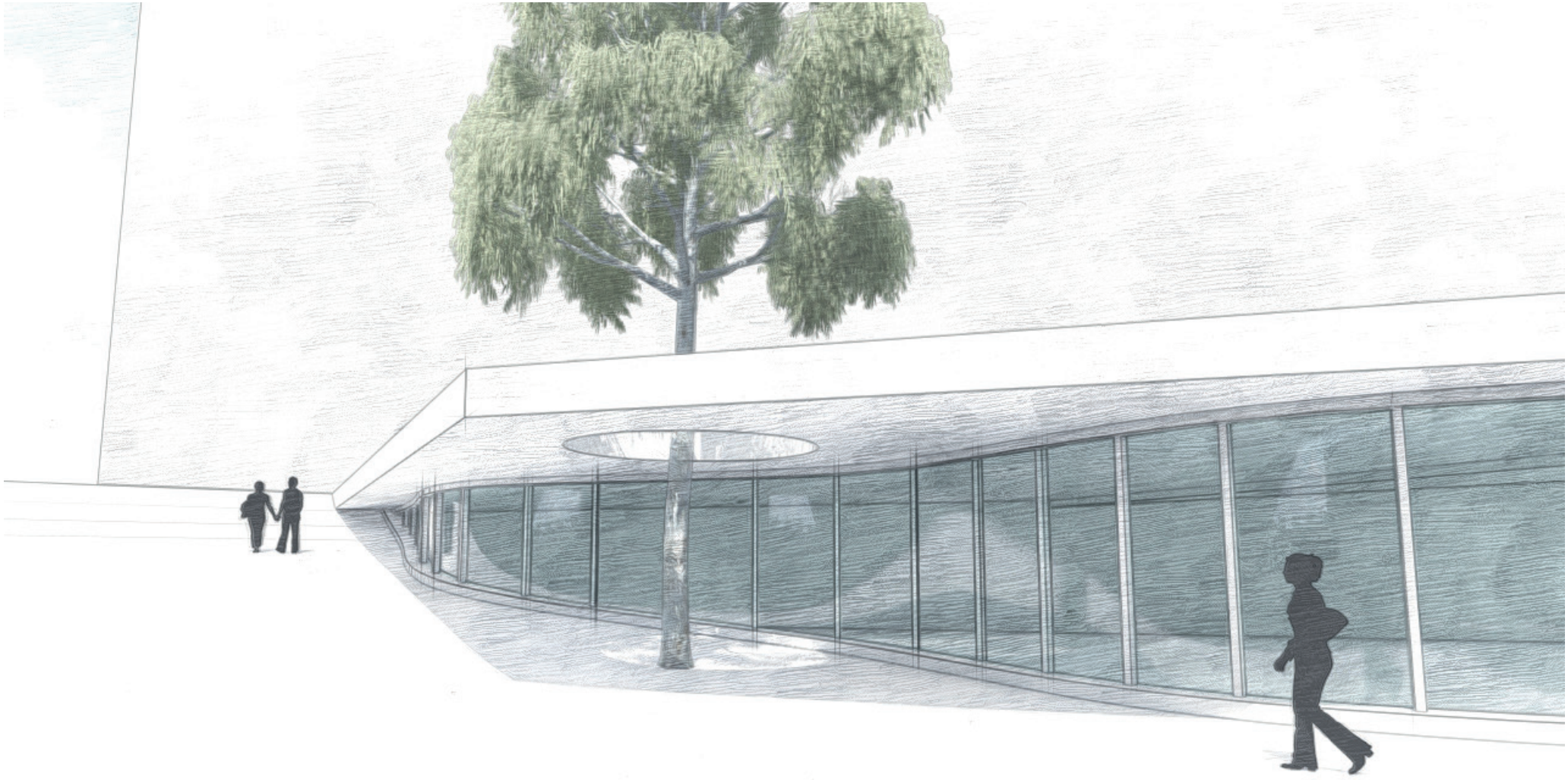


POOL

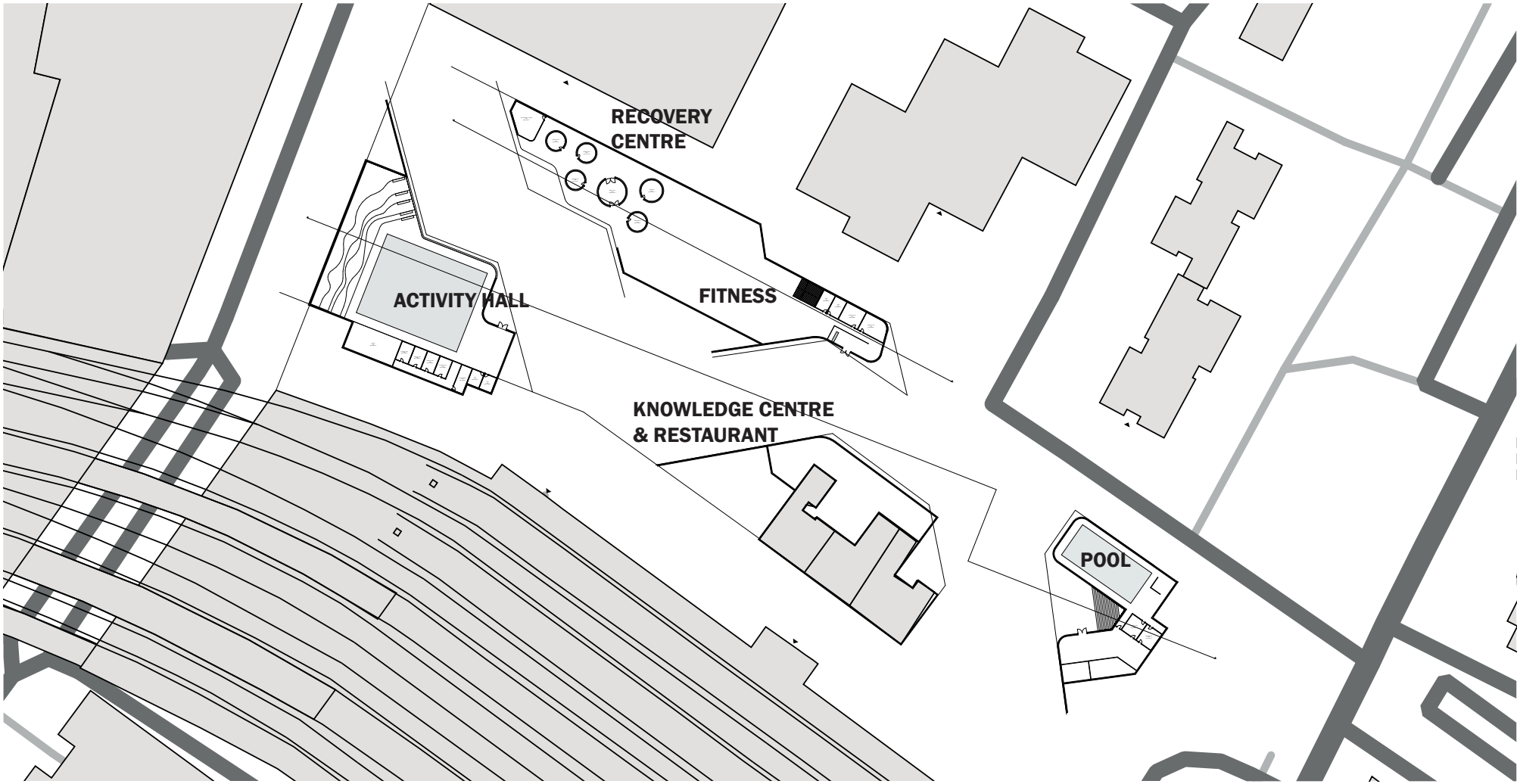


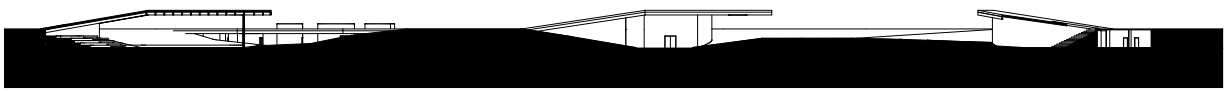
HORIZONTAL ARCHITECTURAL LANGUAGE

This drawing shows the horizontal architectural language that will be used for all buildings in the project. Visitors will immidiately understand that the seperated buildings are within the same project and are related to each other. the interior of the buildings will be based on their own atmosphere and sensory experience.

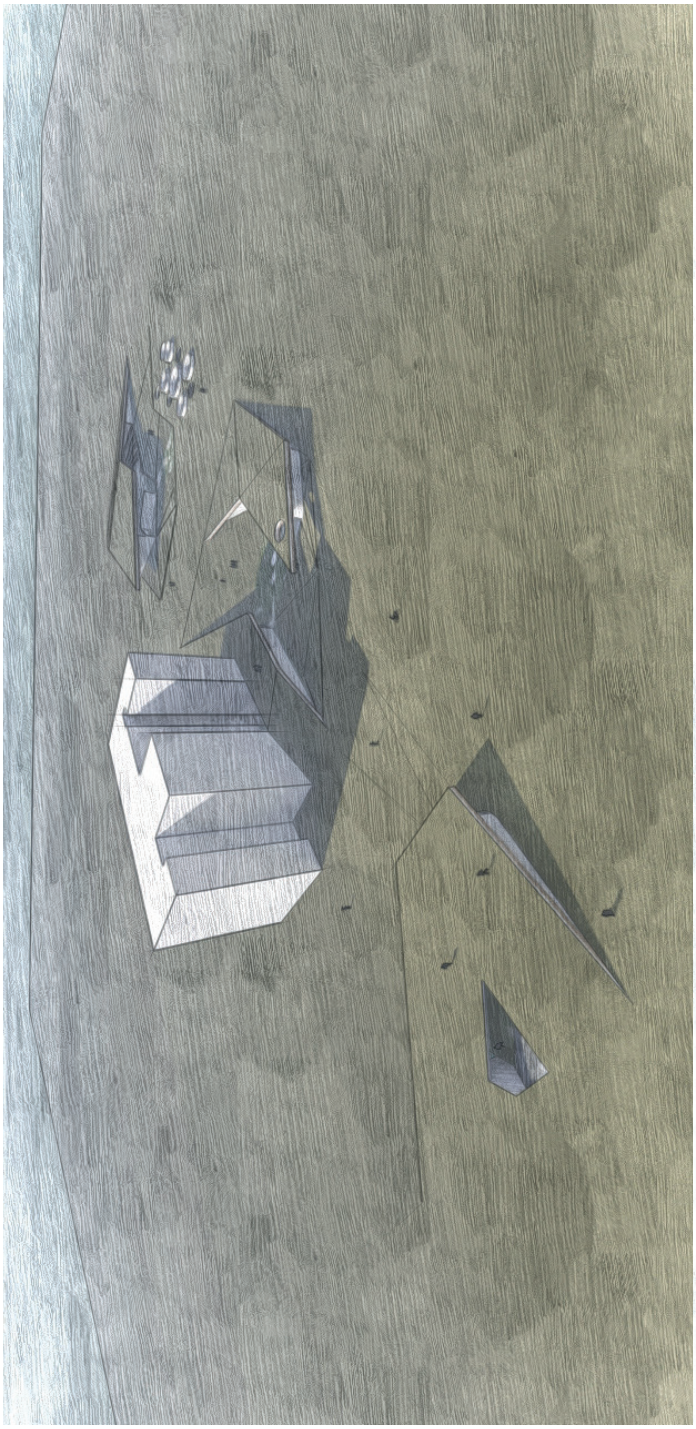


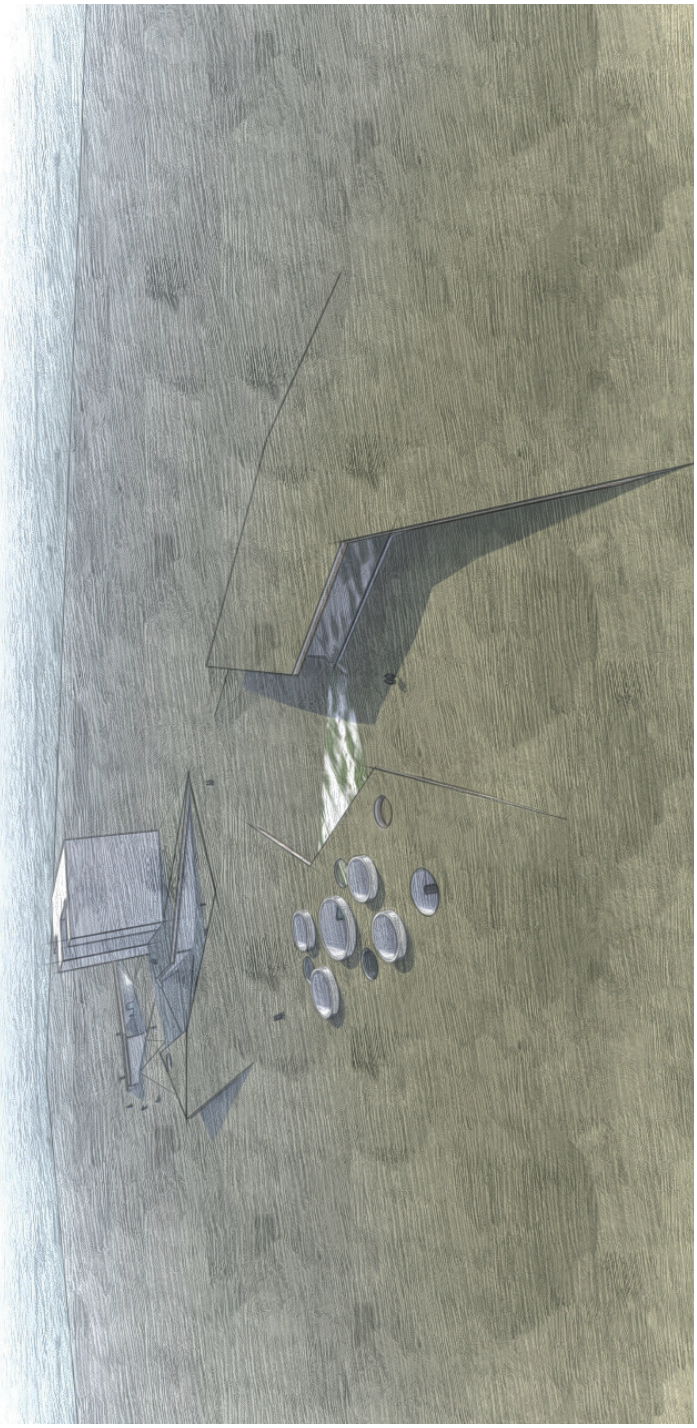
SKETCH PLAN


RECOVERY
CENTRE
ACTIVITY HALL
FITNESS
KNOWLEDGE CENTRE
& RESTAURANT
POOL



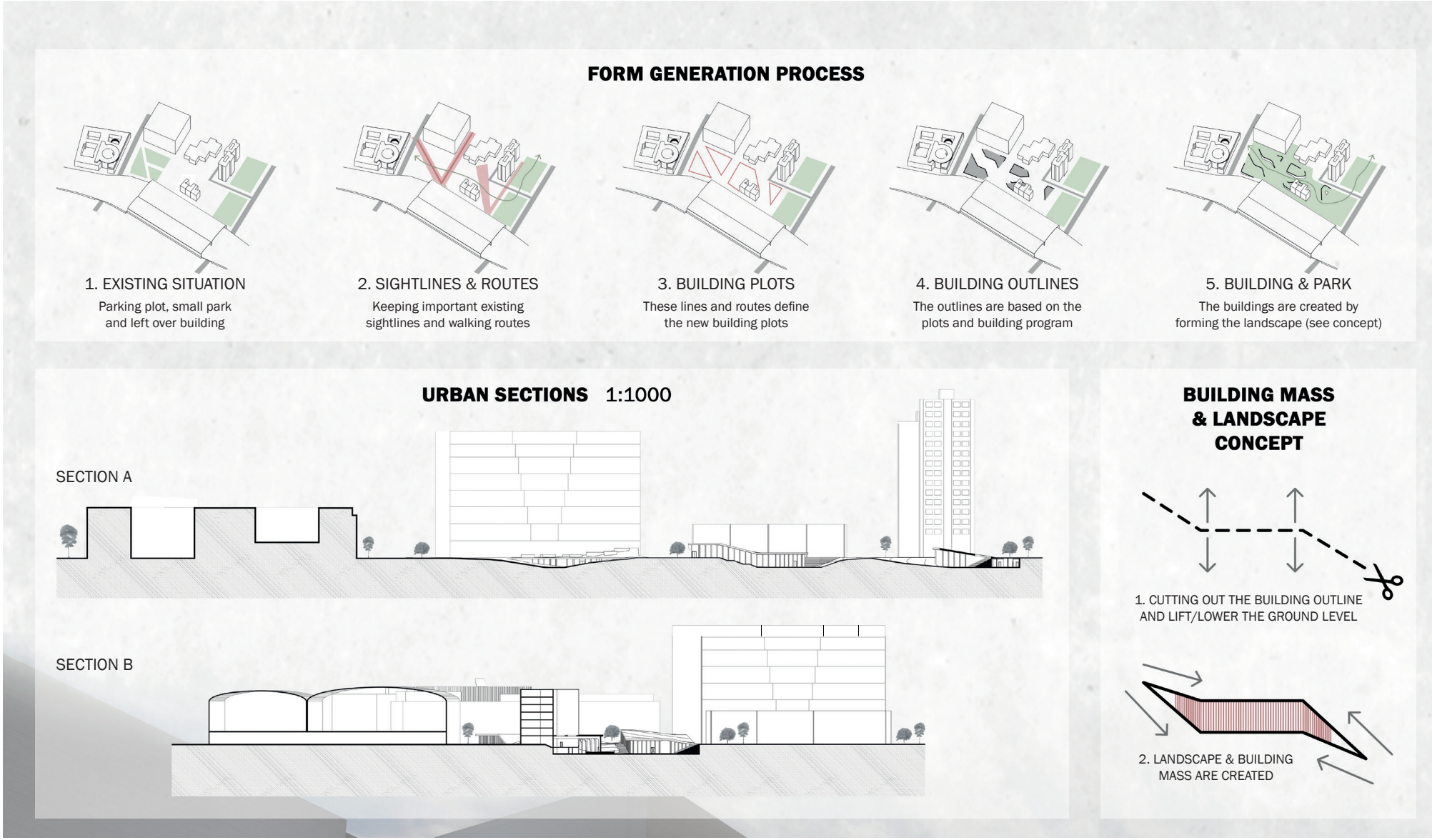




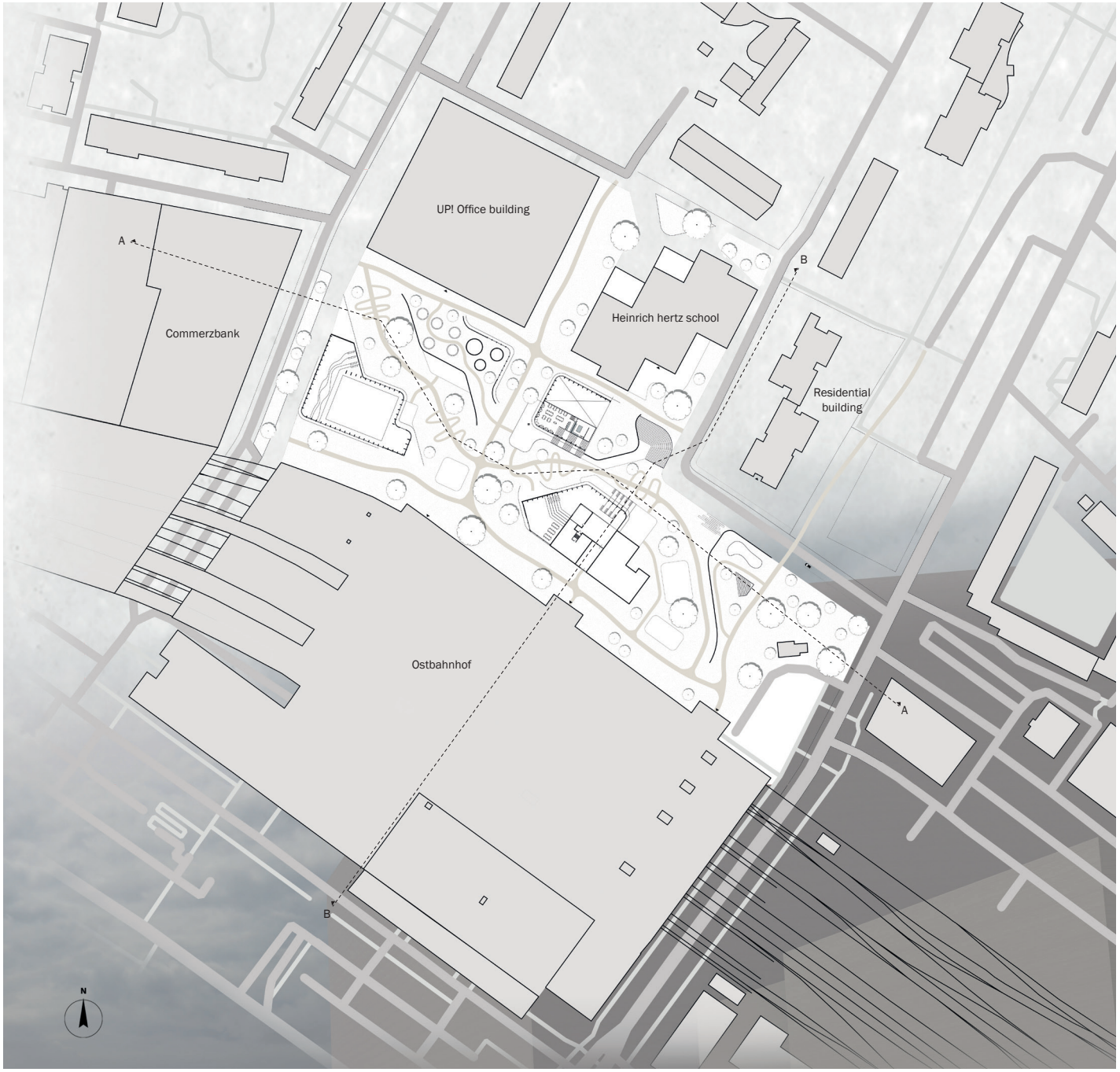


P3 PRODUCTS

The products below where presented during the P3 presentation.



P3 PRODUCTS

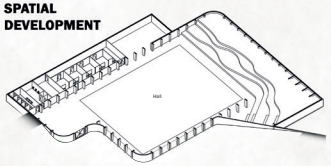

UP! Office building
A
Commerzbank
Heinrich hertz school
B
Residential building
Ostbahnhof
A
B
N

P3 FINAL PRODUCTS

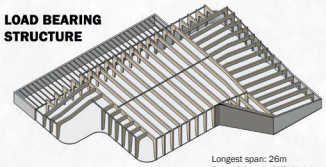
ACTIVITY HALL



SPATIAL DEVELOPMENT



LOAD BEARING STRUCTURE



Longest span: 26m
Rule of thumb (CLT): Height = 20 to 1, so 26/20 = 1,3m

SECTIONS



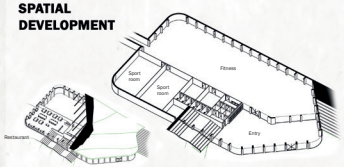




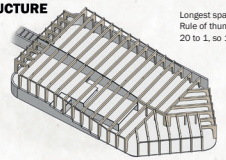
FITNESS & RESTAURANT



SPATIAL DEVELOPMENT



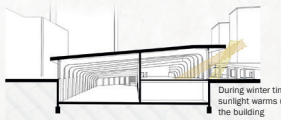
LOAD BEARING STRUCTURE



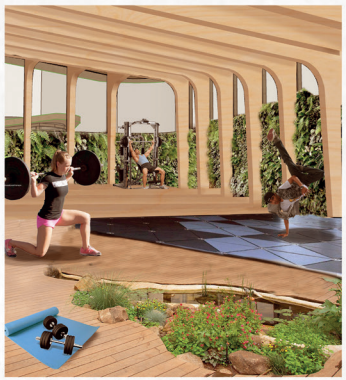
Longest span: 12,6m
Rule of thumb (CLT): Height = 20 to 1, so 12,6/20 = 0,65m

SECTIONS

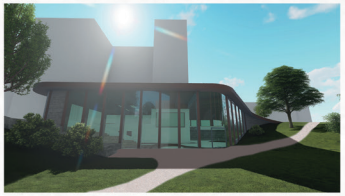




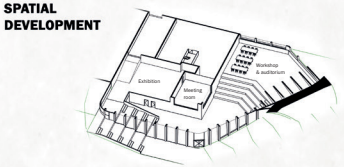
During winter time: sunlight warms up the building



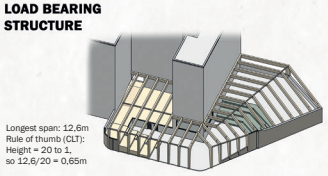
KNOWLEDGE



SPATIAL DEVELOPMENT

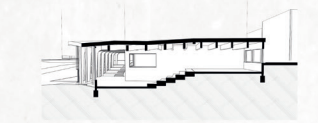


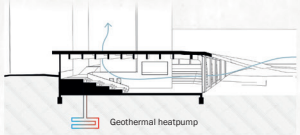
LOAD BEARING STRUCTURE



Longest span: 12,6m
Rule of thumb (CLT): Height = 20 to 1, so 12,6/20 = 0,65m

SECTIONS





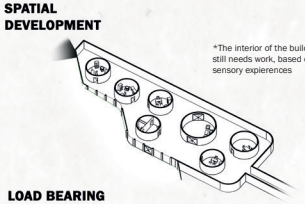
Geothermal heatpump



RECORVERY CENTRE

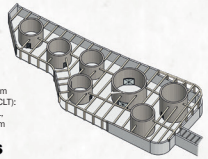


SPATIAL DEVELOPMENT



*The interior of the buildings still needs work, based on sensory expierences

LOAD BEARING STRUCTURE



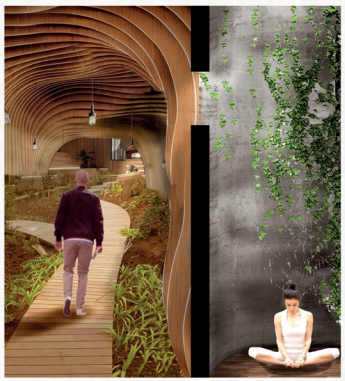
Longest span: 7m
Rule of thumb (CLT): Height = 20 to 1, so 7/20 = 0,35m

SECTIONS

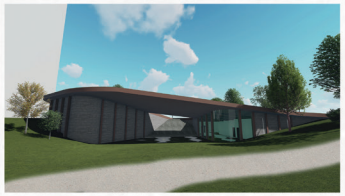
Buildings are using less energy for heating, because of constant temperature soil and green roof



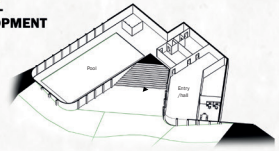




POOL



SPATIAL DEVELOPMENT



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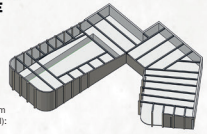
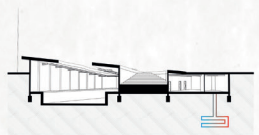


Longest span: 13,2m
Rule of thumb (steel): Height = 25 to 1, so 13,2/25 = 0,53m

SECTIONS

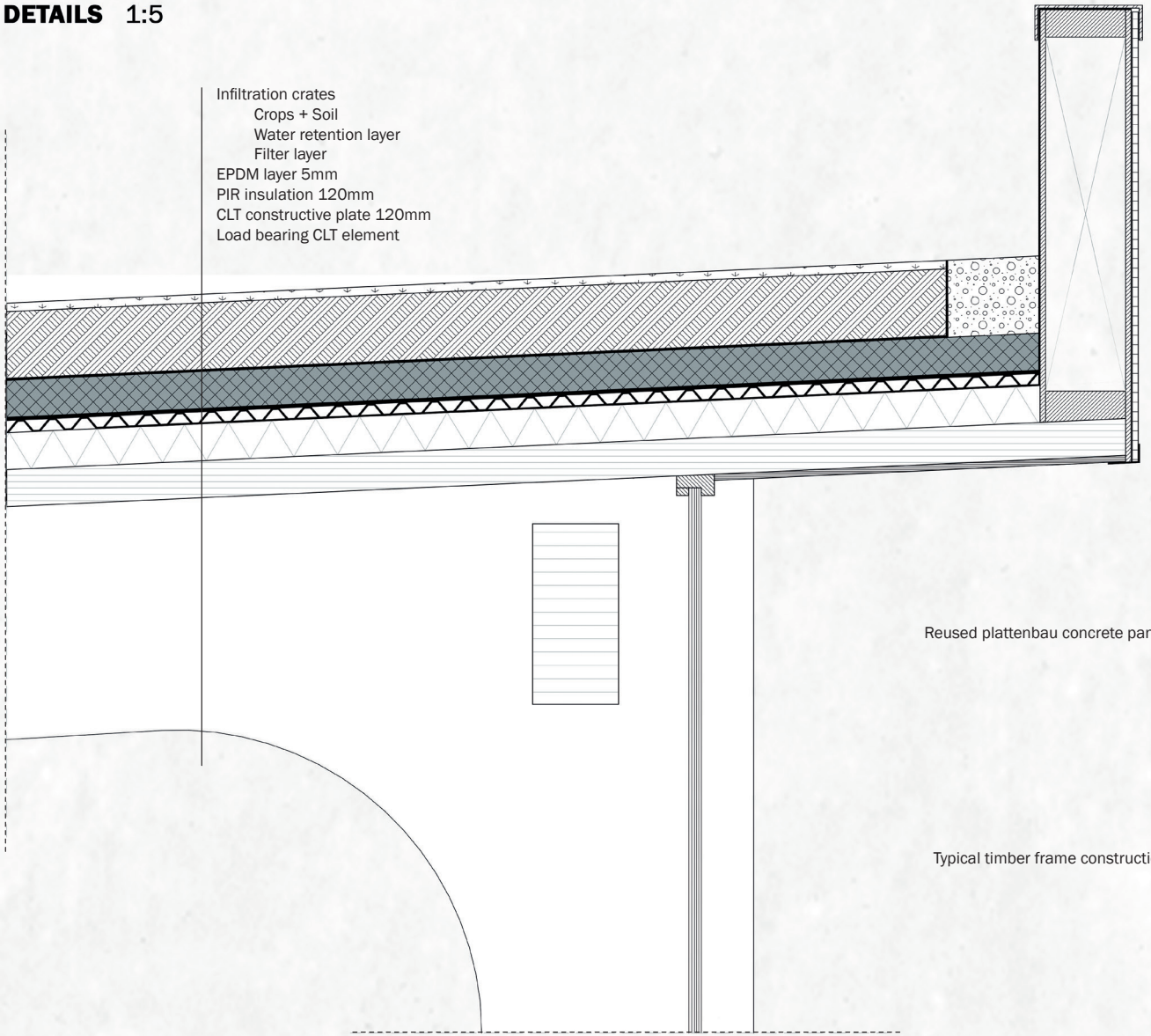




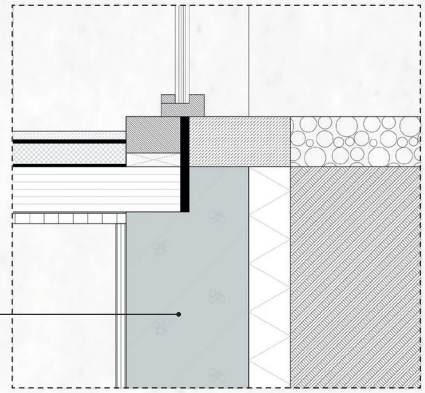


P3 FINAL PRODUCTS

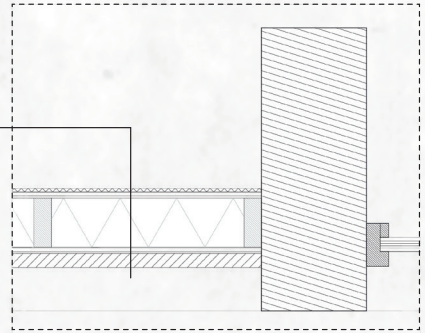
DETAILS 1:5



DETAIL VERTICAL



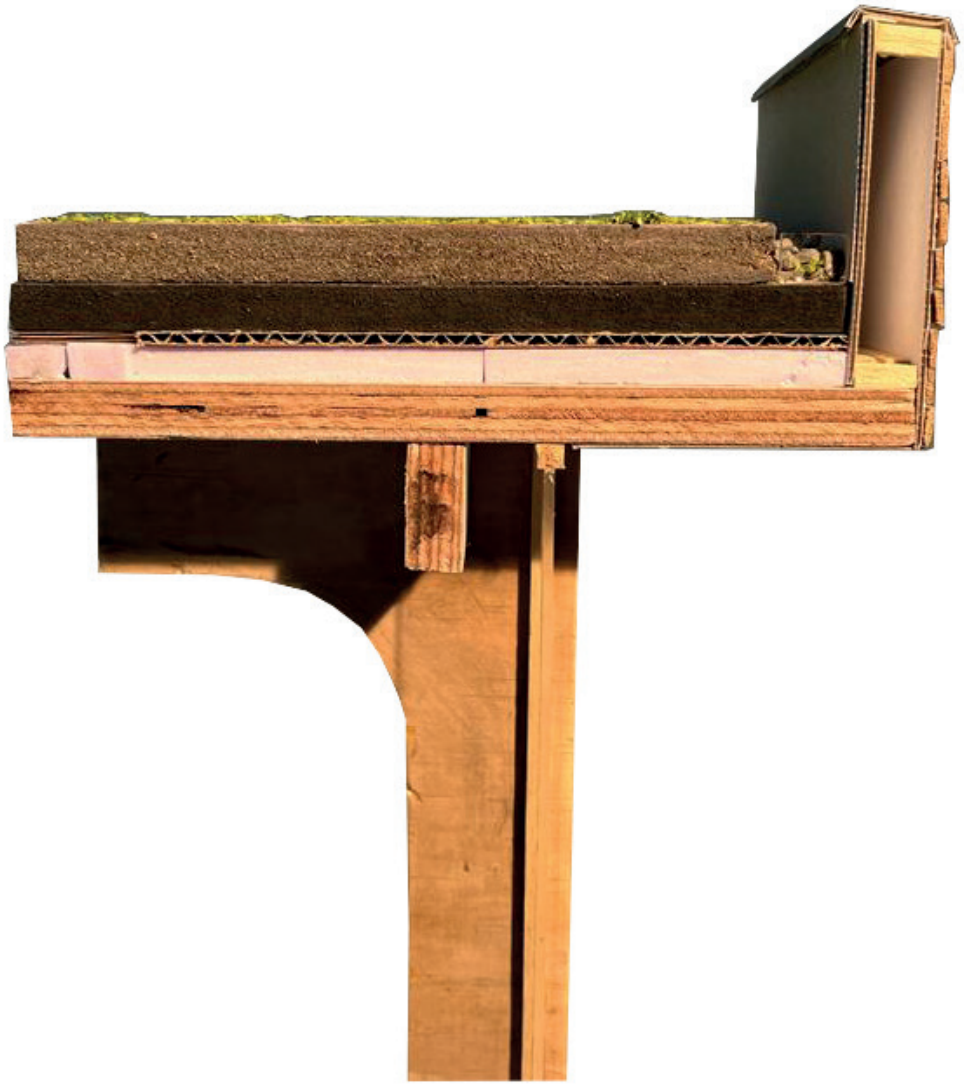
DETAIL HORIZONTAL



P3 FINAL PRODUCTS







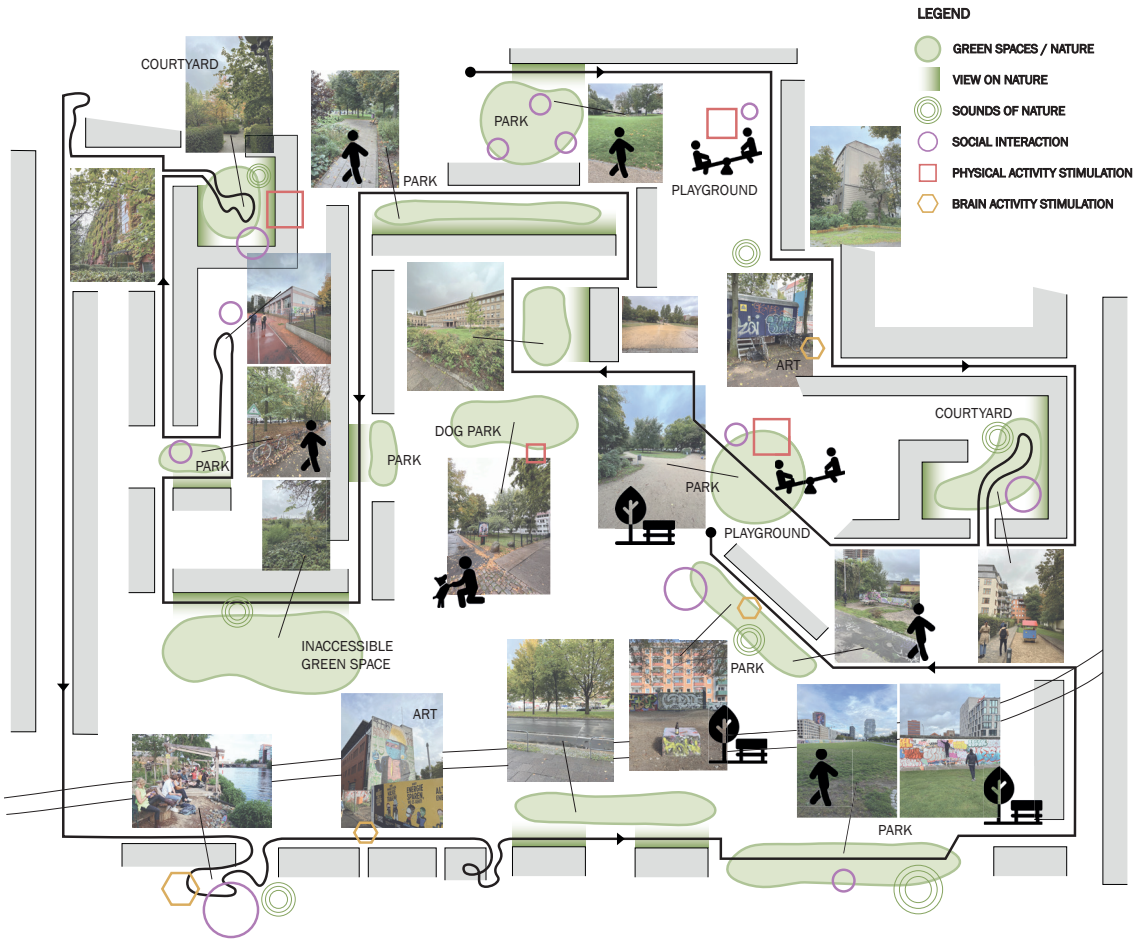
BERLIN AND THEIR NEEDS

Friedrichshain (Andreasviertel - Weberwiese - Wriezener Bahnhof)
The observation and interaction in Friedrichshain was quite meaningful. The way people use the public space, interact with each other and the way people live became clear. A lot of young families (also with young children) are living in small houses and also in Berlin, the amount of people searching for a proper and affordable house is too high.

The map on the right shows the observational perception of the area. The area is not specificly designed for social interactions and healing environment. In comparison to the rest of Berlin, this area does not have that much green. Most of the green spots are small green strokes where you can walk with the dog. In the public spaces, there is not designed for social interaction and improvement of health conditions. The only places designed for physical activity stimulation are playgrounds for children. On these spots, you can find some benches where elderly can sit on, watching their children play.
Within the area, social cohesion is missing. Most people we spoke told us that they do not even know their neighbours. They only say hi when seeing each other.

Missing functions according to residents
According to interviews with residents, people in general are quite happy to live in the area, but the houses are way too small, expensive and old. Everyone is living for their own and does not know who is living in the same housing block.

In general, people living in the area are missing some functions and activities like communal activities where you get to know more people, places where you can do sports (fitness & sports hall), a place where you can work during the day and a pool where their children can learn how to swim.



Phychogeographic map (own work, 2022)

Problem statement
Based on the participating research (observation and interaction), there can be stated that there is a need to improve the health conditions of the city and the well-being of the individual in Berlin. On the well-being scale of the Organisation for Economic Co-operation and Development (OECD), Berlin scores 4.8/10 points on the scale of life satisfaction, 6.7/10 on health, 6.9/10 on civic engagement and 4.8/10 on environment. (OECD, n.d.). There is a low amount of social interaction between residents and there is not that much communal activities. Within the site area (Andreasviertel - Weberwiese - Wriezener Bahnhof) we cannot see any specific designed places or buildings based on improving the health conditions of the people in the city. People generally are not being stimulated to social interaction, physical activities or being exposed to nature, except from small green parks.

HEALING ENVIRONMENT BY CREATING SENSORY ATMOSPHERES

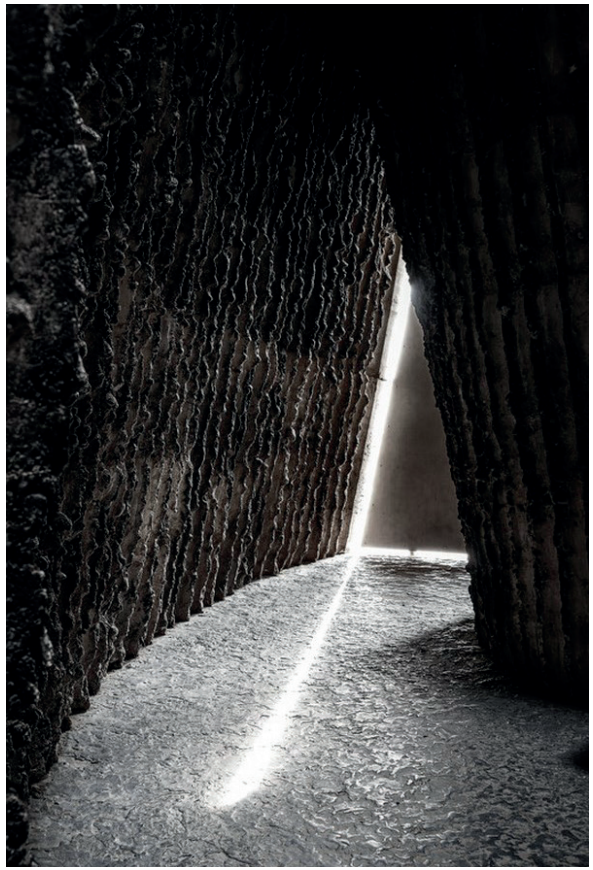
An architect should not only design spaces and functions, but he or she can bring architecture to another level whereby the architecture itself can influence the environment and their people, such as health conditions, (safety) feelings, behaviour and productivity. Within the contemporary architecture, buildings are mostly designed for our visuals. “We have allowed two of our sensory domains— sight and sound—to dominate our design imagination. In fact, when it comes to the culture of architecture and design, we create and produce almost exclusively for one sense—the visual.” (Mau, 2018, p. 20). Our experience of space, as of anything else, is much more multisensory than most people realize. (Spence, 2020). Designing in a way that all senses will be touched gives the opportunity to influence human well-being and health-conditions, and create a community out of all the individuals. “Environmental multisensory stimulation can potentially affect us at the social, emotional, and cognitive levels.” (Spence, 2020).

A public condenser, a place for all people, no matter which culture, age, gender and interests, is a perfect place to improve people’s well-being and the health of the city. Stimulating people to improve their well-being by creating certain ‘Atmospheres’ - places that you can read, becoming involved with and that manages to move people. (Zumthor, 2006). – using multisensory design techniques. “The quality of a space or place is not merely a visual perceptual quality as is usually assumed. The judgement of environmental character is a complex multi-sensory fusion of countless factors, which are immediately and synthetically grasped as an overall atmosphere, feeling, mood or ambiance.” (Pallasmaa, 2014).

“I enter a building, see a room, and - in the fraction of a second - have this feeling about it.” - Peter Zumthor

According to Zumthor (2006), these Atmospheres can be created by the design of the following subjects:

1. The body of Architecture: The material presence of things in a piece of architecture.
2. Material compatibility: materials react to each other in color, mass, texture, reflections and warmth.
3. Sound of a space: can bring memories or affect behaviours.
4. Temperature of spaces.
5. Surrounding objects.
6. Between composure and seduction: the way architecture involves movement.
7. Tension between interior and exterior.
8. Levels of intimacy: proximity and distance (scaling). Thinking of size, mass and gravity.
9. The light on things.

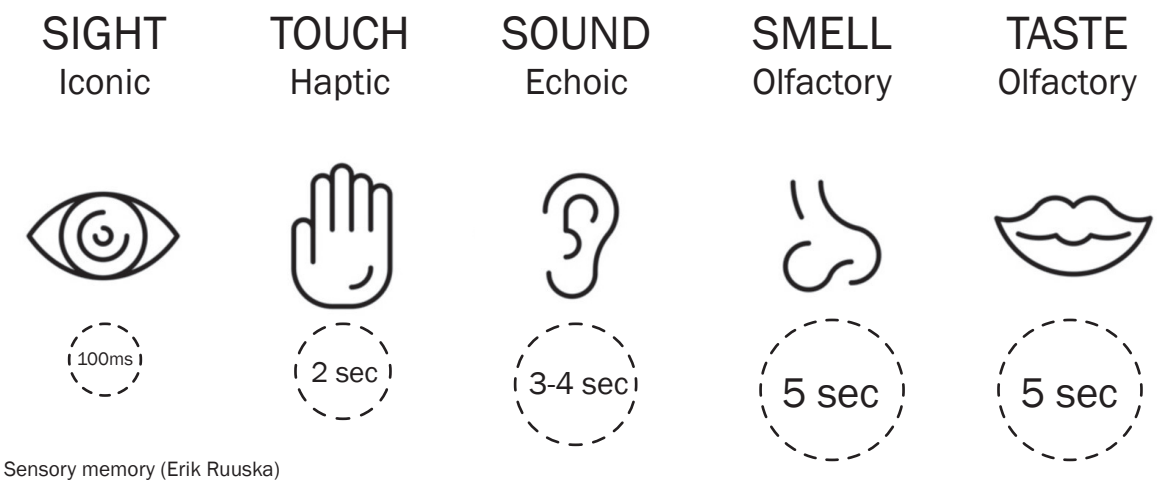


Atmosphere (Zumthor, 2006)

EXPERIENCING SPACES WITH MULTIPLE SENSES

To create a meaningful experience of spaces and to have the best positive influence on human well-being, it is essential to design spaces based on sensory experience. ‘Design a SPACE, that becomes a Memorable PLACE’ (Matheny, 2016).

There are three types of memory; long term, short term and sensory memory. (Matheny, 2016). The sensory memory is very important for experiencing places, like buildings and urban designs.



Sensory memory (Erik Ruuska)

As you can see above, the memory of your sight is only 100ms, while the memory of your smeel and taste is 5 seconds. And we still design our buildings mainly for our sight. You can create nice looking buildings, but to create a building that offers a sensory experience and a healing atmosphere, you have to design for all senses.

The choice of materials in your design is very important. It shows the story that you want to tell the building users.

PAVILIONS WITH SENSORY EXPERIENCES

Art centre

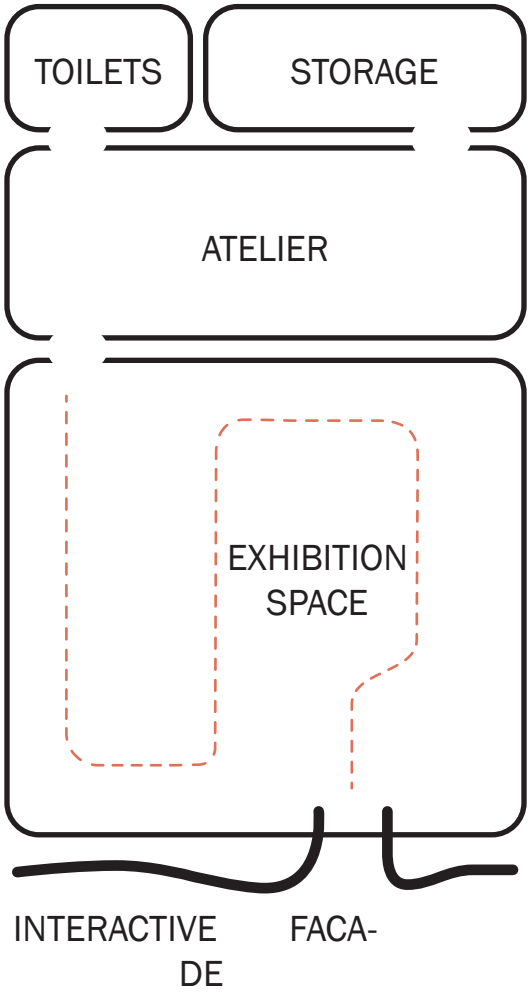
A pavilion that is focussing on the sense of **view**, and a bit on **touch**. The Art centre should have an exhibition space where people can see different kind of art. Here, the building should use different kind of light, materials and textures to let the visitor understand the role of lighting and colors.

"Participation in an artistic activity encourages personal well-being because it permits a direct and sincere connection with the individual emotions. Such a process implies a three-dimentional strengthening: social, emotional and cognitive." (Mundet-Bolos et al., 2017).

Also, places like workshop rooms or an atelier where people can make their own art should be designed in the building. Making art can make a powerful contribution to our mental health conditions. (MHF, n.d.). Participating in the arts can enable people to deal with a wide range of mental ill-health conditions and psychological distress. With art, people can express themselves, without having to use words. It helps people to stenghten their creativity, confidence and working with others improves the amount of social interactions and conversations, which creates a feeling of community.

"As we've noted, engaging in the arts, social activities and interaction within our communities can help with major challenges, such as ageing and loneliness. It can help to boost confidence and make us feel more engaged and resilient. Besides these benefits, art engagement also alleviates anxiety, depression and stress." (MHF, n.d.).

To invite people into the building and to have a interaction with the user, the facade can be an interactive facade, where visitors can make art on. This invites people to really **use** the building and this creates an experience and memories.

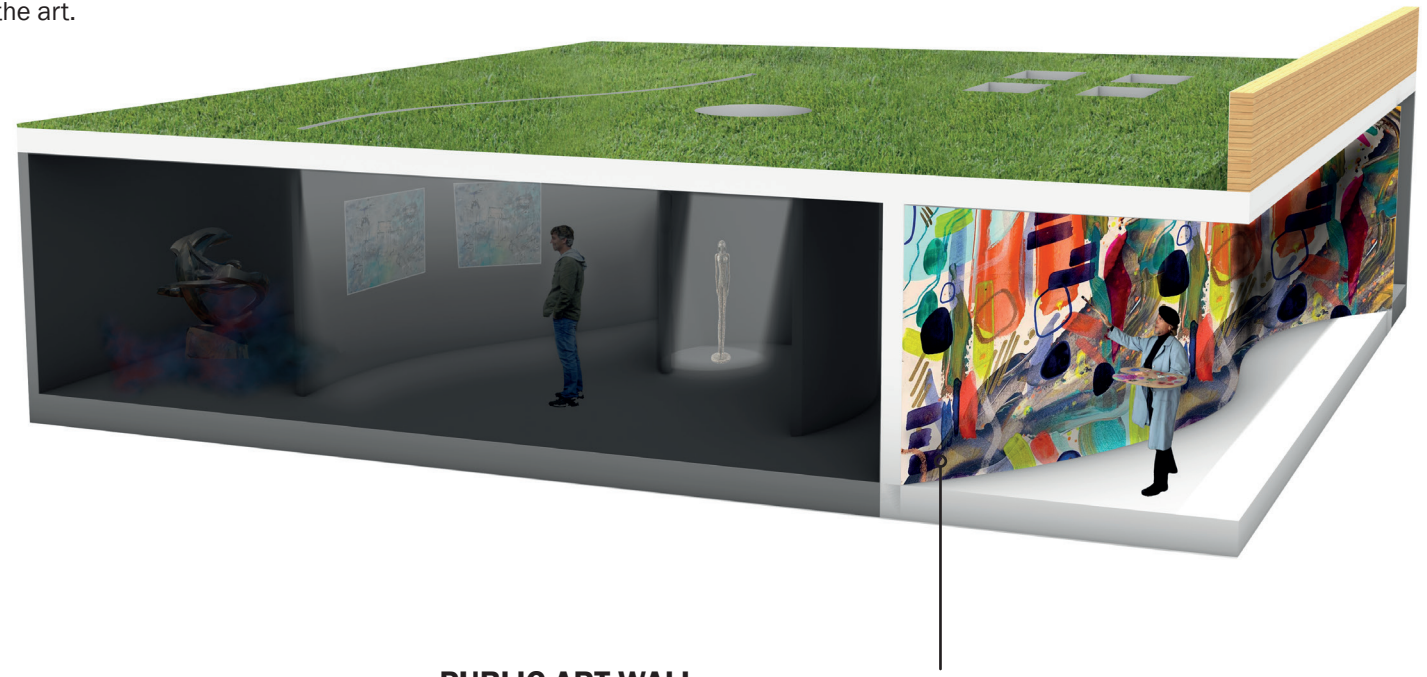


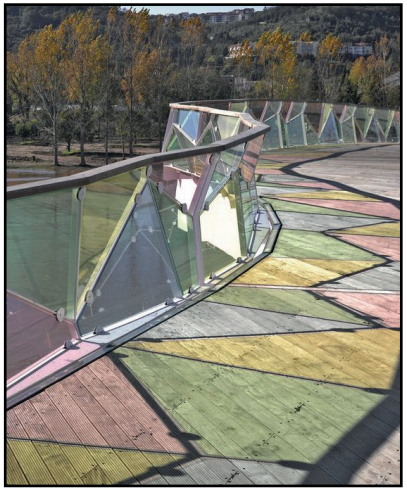
Instruments that have influence on the experience of sight and touch

The specific elements that are important in this pavilion to create its own atmosphere:
- Light
- Colors
- Textures
- Materials
- Space and shape

ONE STORY HIGH EXHIBITION CENTRE

The exhibition centre should be kept low, to make easily use of the rooflight on the walls and the art itself. By keeping the room low, the room itself will be dark by it's own (using greyish materials on the walls) to have more attention for the art.





Pedro e Inês Footbridge



Own work, 2023

PUBLIC ART WALL

An interactive wall, where visitors and passers-by can draw on will be designed as the facade along the main route of the park. This way, the step to make art is very small as a 'normal' citizen or tourist. It is like the Berlin wall, but then accessible to for everyone to make their own art.

"Participation in an artistic activity encourages personal well-being because it permits a direct and sincere connection with the individual emotions. Such a process implies a three-dimentional strengthening: social, emotional and cognitive." (Mundet-Bolos et al., 2017).

VARIOUS LIGHTS, MATERIALS AND TEXTURES

Within the building, various kinds of light, materials and textures should be used on the wall, floor and on the art itself. In this way, you can see how different lights and materials change the way something looks. For example if a material reflects light or if it blocks light makes a huge difference in how an object is perceived.

PAVILIONS WITH SENSORY EXPERIENCES

Sports centre

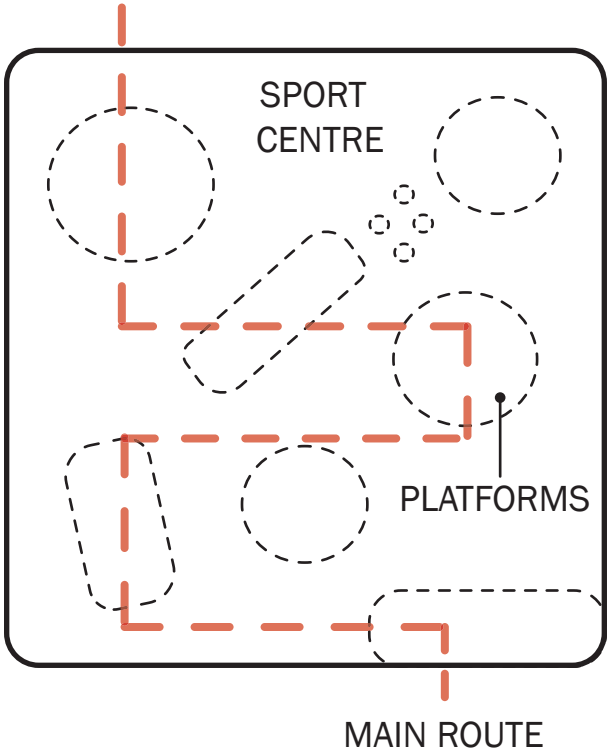
The pavilion that is focussing on the sense of **touch** is the Sports centre. This building should invite all kind of people to do some physical activity. By designing attractive elements like a net where people can climb on and a view when people reach the top of the climbing wall, These elements will be used by lots of different people.

Creating interactive walls, where people can do a ton of different exercises, the building is made specificly for the tactile sense. Physical activities are only possible when touching an element (floor, wall or machine) and activate you muscles.

There is a lot of evidence and scientific research about the improvement of health conditions and well-being when doing physical activities. It is proven to help prevent and manage non-communicable diseases such as heart disease, stroke, diabetes and several cancers. It also helps prevent hypertension, maintain body weight and can improve mental health, quality of life and well-being. (World Health Organisation, 2022).

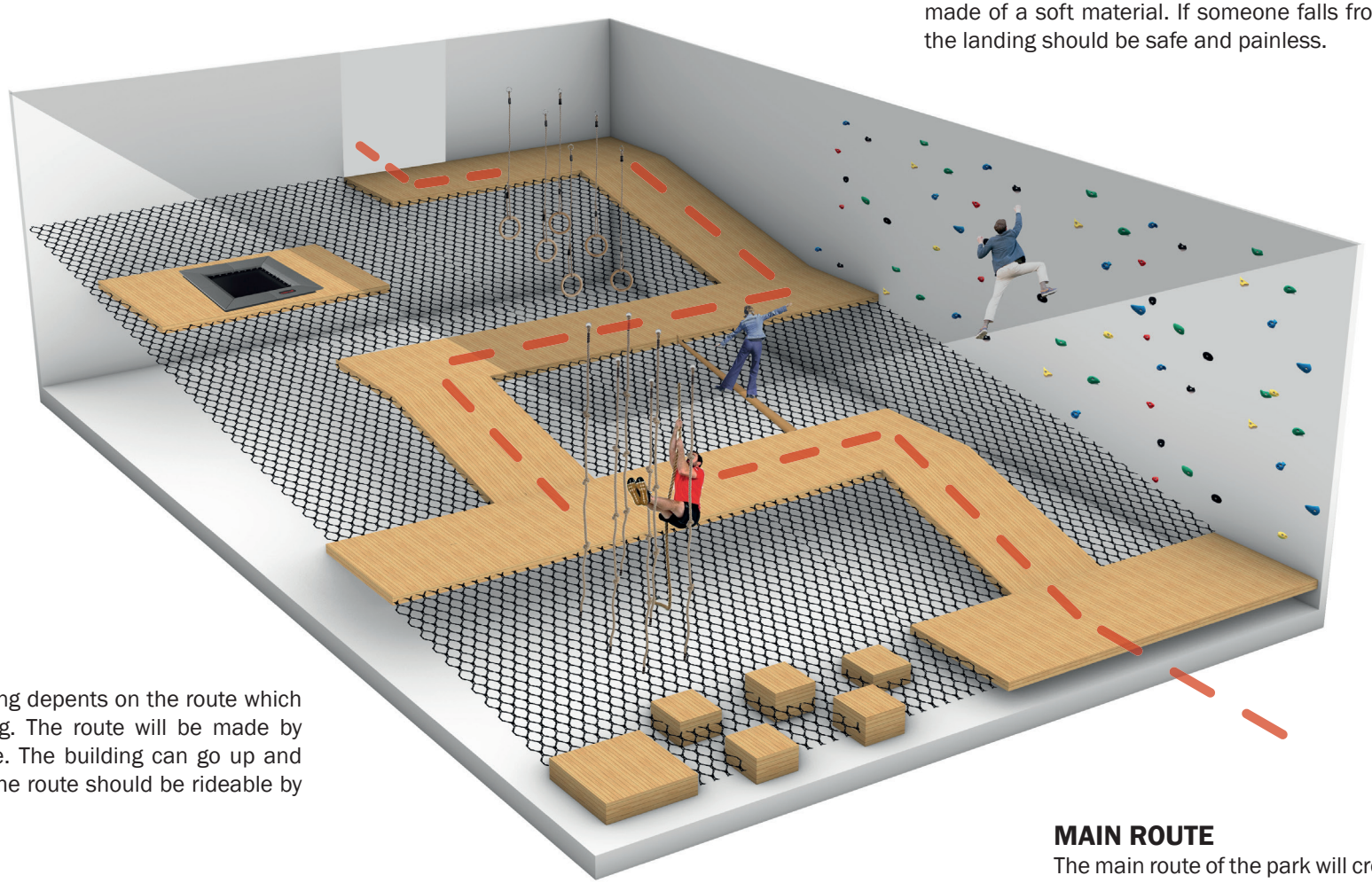
Instruments that have influence on the experience of sight and touch

The specific elements that are important in this pavilion to create its own atmosphere:
- Interactive walls/floors
- Interactive route through the building
- Shape and height of the building
- Daylight
- Sound absorbing elements



MATERIALITY

The materials used for the path and the obstacles should be made of a soft material. If someone falls from an obstacle, the landing should be safe and painless.



BUILDING HEIGHT

The height of the building depents on the route which the building is following. The route will be made by following the landscape. The building can go up and down different times. The route should be rideable by wheelchairs.

The roof/facades can be used for creating a skate-park. The space beneath the net can be used for the design of the park

MAIN ROUTE

The main route of the park will cross the pavilion to really invite people to do physical activities. Creating a path where people can walk on and different kind of ‘obstacles’ between the paths of the route attract people to use it. Without realizing it, users are keeping themselves physically healthy.

The building should be integrated into the park, so that people will use the main route through the pavilion.

PAVILIONS WITH SENSORY EXPERIENCES

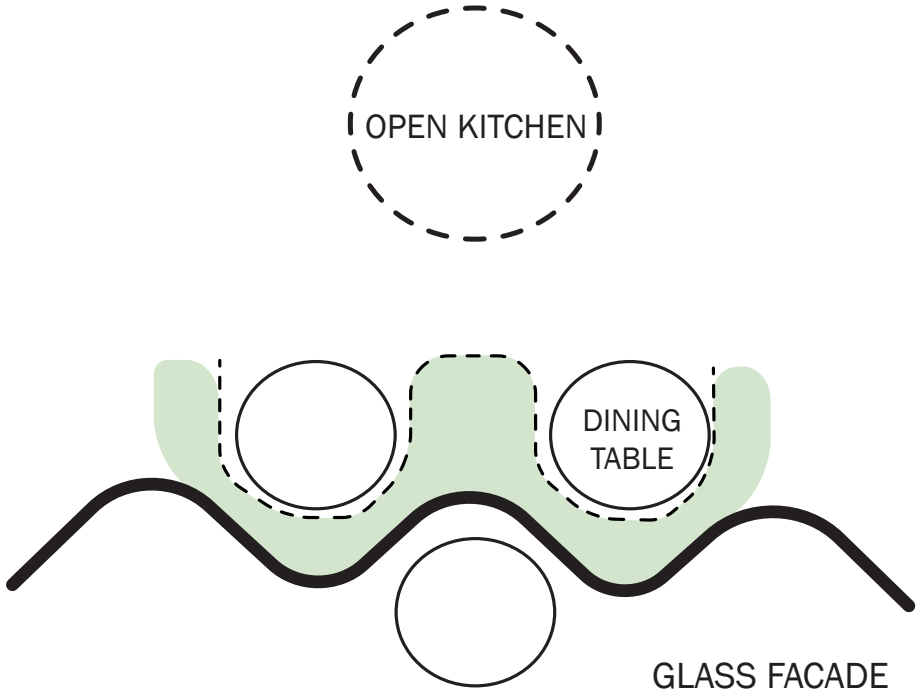
RESTAURANT

The restaurant is focussing on the sense of **taste** and **smell**. This building is using sunlight and natural ventilation to not only invite people for a meal, but also grows plants, vegetables and herbs inside the building next to the visitors seat, which creates a biophilic environment, whereby the smell of the herbs and plants influence the visitors well-being. This growing food can be used in the food of the restaurant itself.

"Biophilic design encourages the use of natural elements and processes as design inspiration in the built environment, which has a positive influence on human health and well-being." (Gillis & Gatersleben, 2015). Bringslimark et al. (2009) concluded that plants have a beneficial effect on stress reduction and pain tolerance. The air quality will be improved and also the brain will connect the visible plants to positive effects. The research indicates that small, green, lightly scented plants were most optimal for health and wellbeing.

"Biophilic Design reduces stress, stimulates creativity and clear thinking, improves physical and psychological well-being and accelerates healing" (Bolten & Barbiero, 2019).

To design a space whereby the plants and herbs grown on the height of the visitors head, the smell of the greenery will be picked up by the brain. According to several studies, the scents of plants can have influence on the mental well-being of people. It can reduce stress and anxiety, makes you more productive and concentrated or leads to better sleep. Plants also improve the indoor air quality.



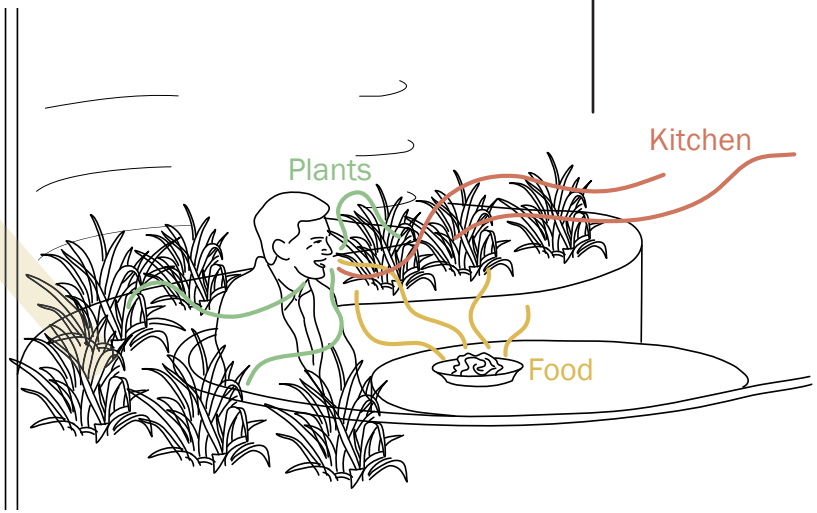
Instruments that have influence on the experience of smell and taste

The specific elements that are important in this pavilion to create its own atmosphere:
- Growing food that will be used in the restaurant
- Use of sunlight/daylight
- Use of natural materials
- Design of an open kitchen to create a memorable atmosphere (you can see and smell the prepared food)



OPEN KITCHEN

Using an open kitchen and bar, the total experience of having dinner or lunch will be improved. You can smell what is happening in the kitchen and you can see how your food is being prepared. A memorable place!



GROWING HERBS AND VEGETABLES

By using the direct sunlight on the glass, diffent kind of herbs and vegetables can be grown inside the restaurant. This creates a biophilic environment. Growing the plants on the height of the restaurant users will improve the amount of scents they smell (which influences their overall well-being).

To create a better biophilic environment, natural materials will be used in the building, like timber and bamboo.

Natural light will be used, also for the tables in the middle of the room, by using roodlight. In this way, some types of plants are also able to grow on these spots.

PAVILIONS WITH SENSORY EXPERIENCES

SOUND CENTRE

The relaxation centre is focussing on the sense of **sound**. This building contains several functions where people can have mental recovery and relaxation. Within the pavilion, functions like music therapy, an ASMR (Autonomous sensory meridian response) room and the use of natural sounds will help improving the users mental well-being.

Music therapy is an evidence based treatment that helps with variety of disorders including cardiac conditions, depression, autism, substance abuse and Altzheimer's disease. (Cleveland Clinic, n.d.). It can also help with memory, lower blood pressure, improve coping, reduce stress and improve self-esteem.

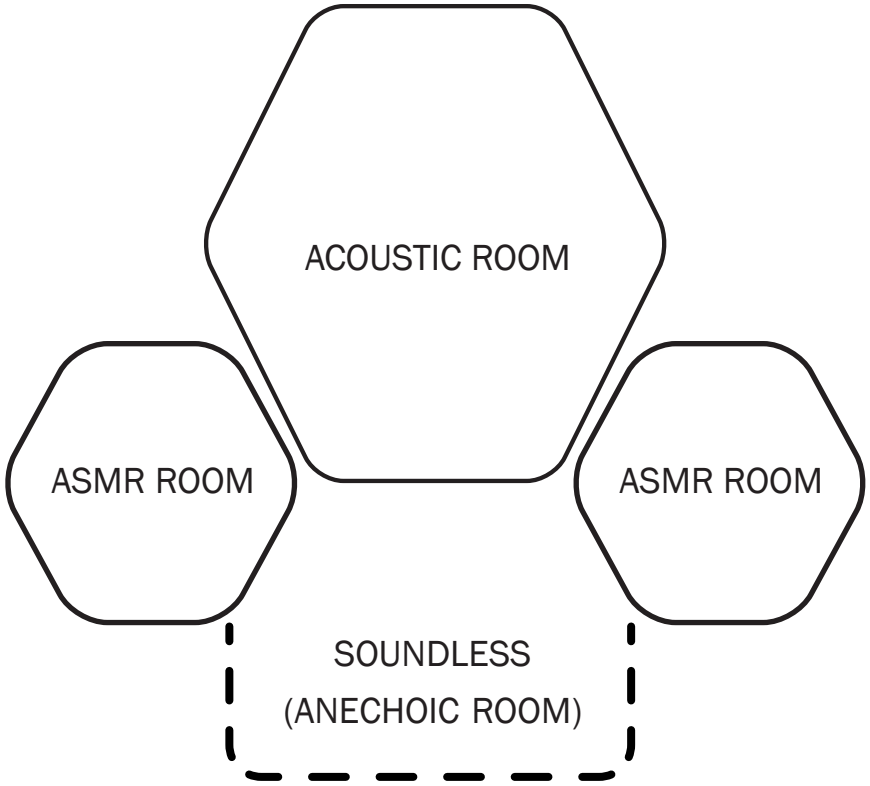
ASMR promotes health and mental well-being. ASMR is a calming feeling that is based on **sounds** and **tactile** elements. Studies show a reduction in heart rate and blood pressure when watching or experiencing ASMR. (Woods & Turner-Cobb, 2023). *"Similarly, the effect of ASMR induced specifically using sound has been found to both increase relaxation and enable mental recovery from challenging cognitive tasks performed in the laboratory."*

According to Woods & Turner-Cobb (2023), ASMR helps with getting people feel relaxed, help people to have better sleep, reduce stress and anxiety and has a positive effect on their mood.

For rooms with good acoustics, the best shape is an irregular shape. This helps to diffuse reflections and create a more live sound. All parallel surfaces are not ideal for acoustic performance. (Soundassured, n.d.)

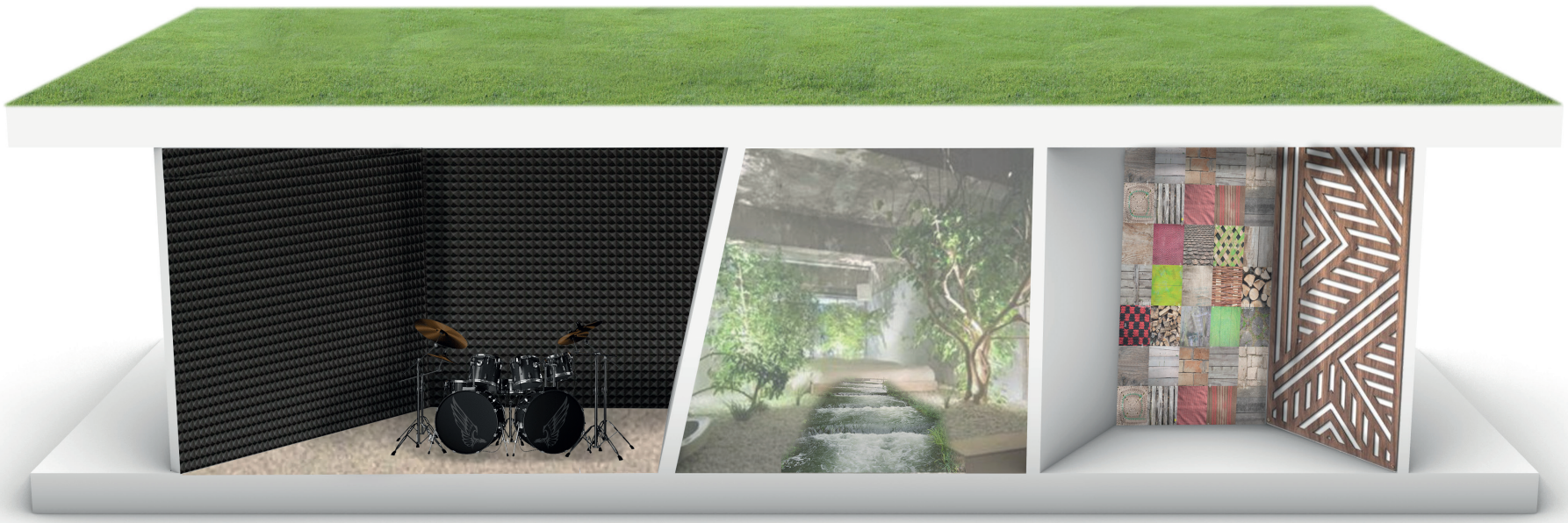
Creating an anechoic room helps people relieve stress and reset the brain. "Spending time in the chamber can help treat stress, anxiety, and autism, and can simply reset the brain" (Orfield, 2004). It also helps people reminding that the use of our senses is important for good perceptions in daily life.

How people react on an anechoic chamber is different. Some people want to go out in a few seconds, others want to stay a bit longer. But staying too long in the room drive you crazy.



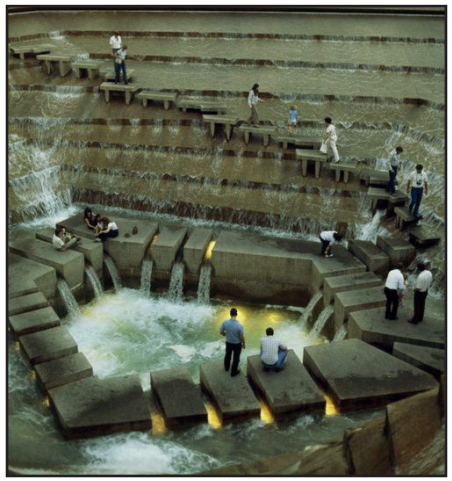
Instruments that have influence on the experience of sound

The specific elements that are important in this pavilion to create its own atmosphere:
- Differences in materials on the walls (ASMR)
- Sound improving materials, like foam and acoustic boards (music therapy)
- Nature sounds, like using running water in the building and tilted roof window for rainsounds
- Irregular shaped rooms

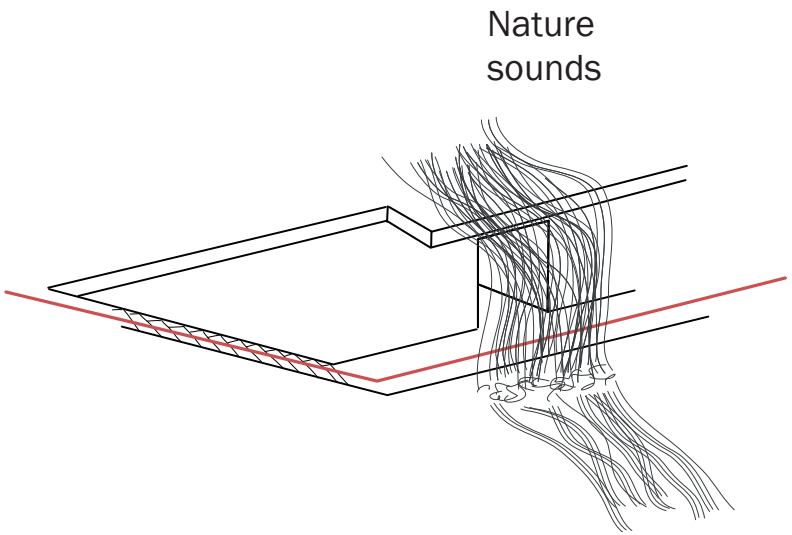


MUSIC THERAPY ROOM
An irregular room shape with sound improving materials

ASMR ROOM
A small room for one person with lots of materials on the walls. Touching these materials will create a sound and a feeling which has influence on the well-being of the user,



Sound of running water (Fort Worth Water Gardens)



The main route will pass behind a waterfall, creating a hard sound of running water. Behin the waterfall is the entry of the building. This entry is only visible when following the route.

PAVILIONS WITH SENSORY EXPERIENCES

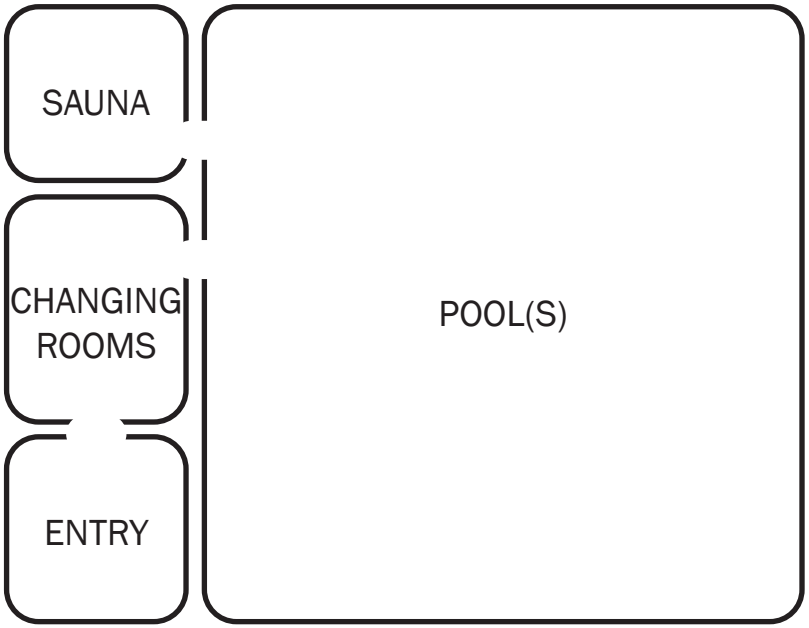
WELLNESS CENTRE

A wellness centre does have great influence on the physical and mental well-being of users. In the centre, **touch** is the central sense.Swimming as a physical movement, the water itself and the differences in temperatures all can have big influences in how people feel.

There is ton of evidence that swimming is good for human health conditions. Some research outcomes:

- It is clear from the evidence that being able to swim, swimming regularly, and swimming as a part of daily community life can have considerable health and wellbeing benefits. For instance, research has identified that any amount of swimming participation compared to those who engaged in none, was associated with a 28% and 41% reduction in all cause and cardiovascular disease cause mortality respectively. The striking evidence of where swimming has afforded significantly improved health, quality of life and a sense of community are additional examples of best practice that need to be promoted across the nation. (Hendrickx et al., 2016).
- Exercise in an aquatic environment confers many benefits – minimised weight-bearing stress, a
humid environment and a decreased heat load. (Yuan et al., 2016).

Also, there is lots of research about how the use of salt water can have a possitive influence on the skin conditions. Salt water extracts dead skin cells of you body and helps with reducing the amount of skin bacteria. (Nani et al., 2016).

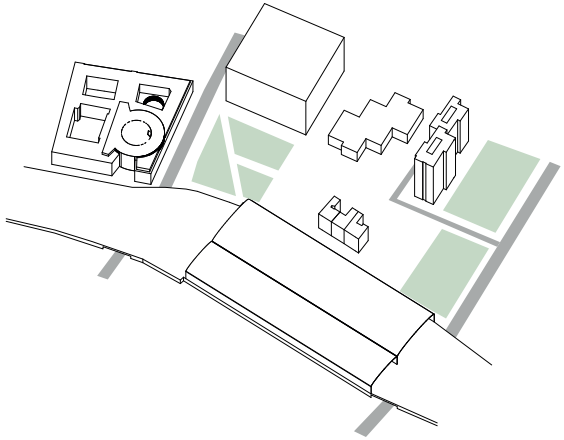


Instruments that have influence on the experience of touch

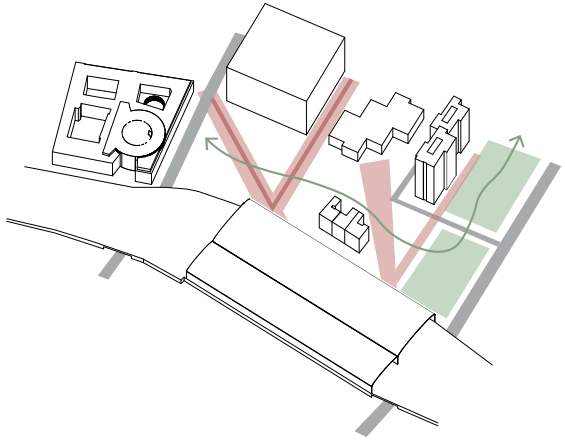
- Salt water
- Temperature differences



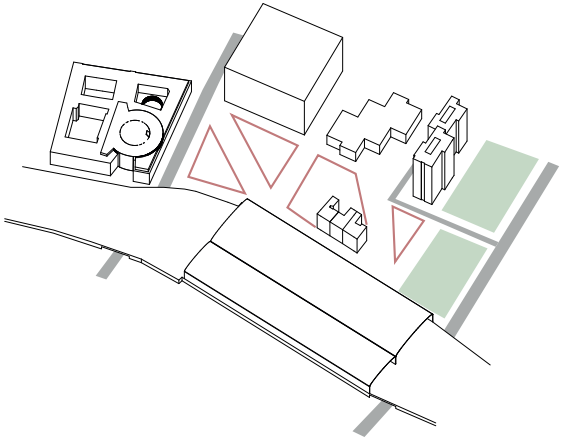
BACK TO BERLIN: URBAN STRATEGY OF P3



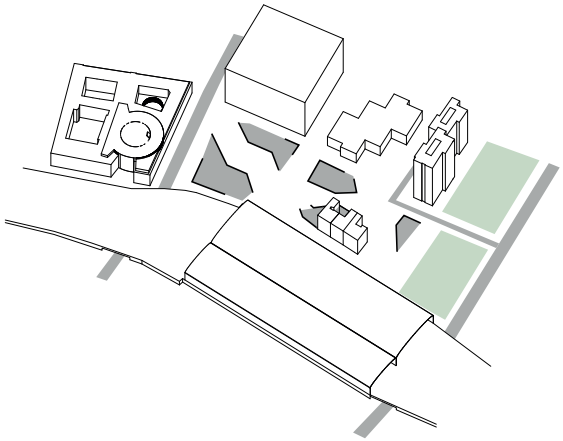
1. EXISTING SITUATION
Parking plot, small park and left over building



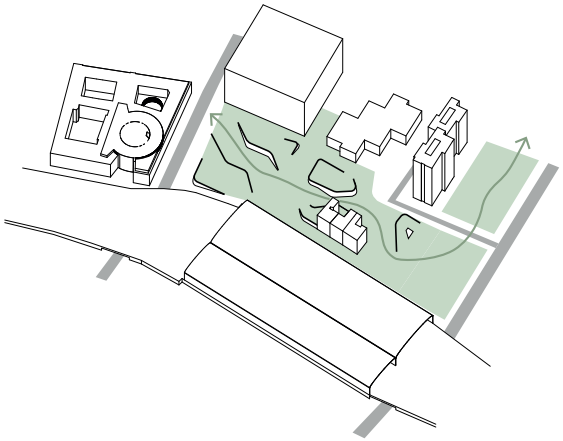
2. SIGHTLINES & ROUTES
Keeping important existing sightlines and walking routes



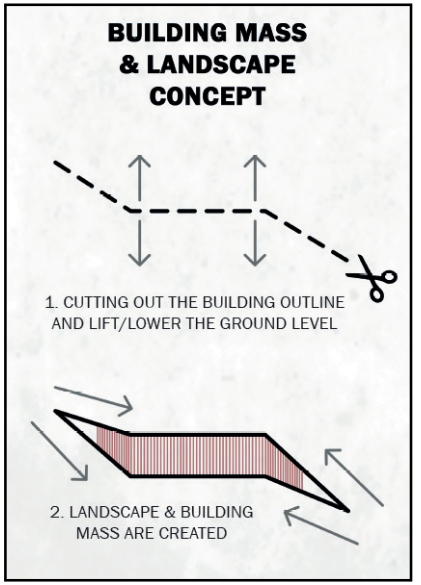
3. BUILDING PLOTS
These lines and routes define the new building plots



4. BUILDING OUTLINES
The outlines are based on the plots and building program

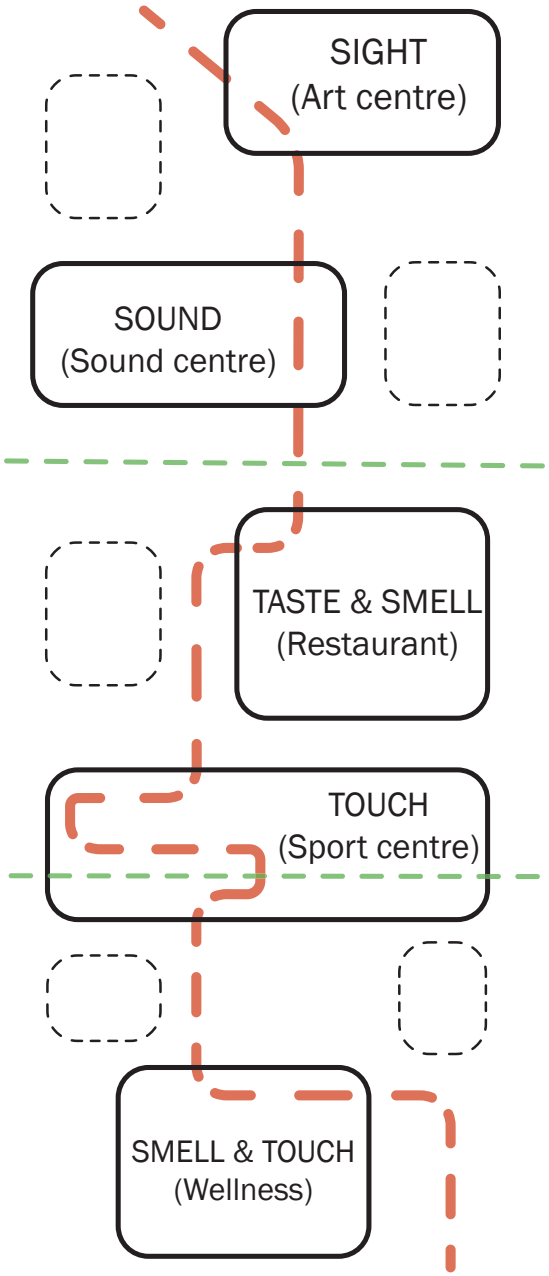


5. BUILDING & PARK
The buildings are created by forming the landscape (see concept)



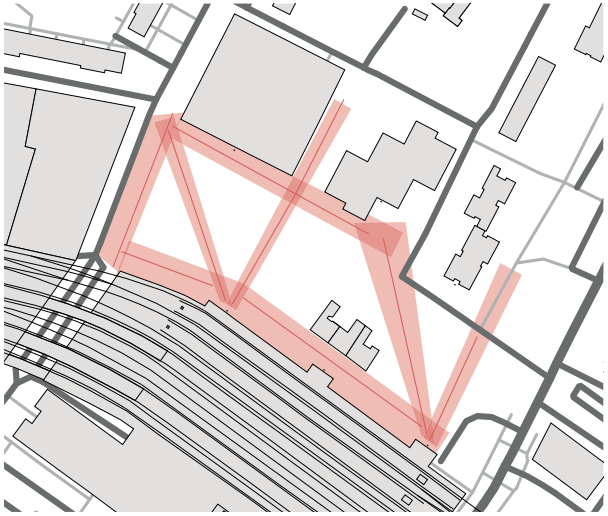
MULTI-SENSORY ROUTE





The urban strategy of P3 will be kept, but to create a more sensory experience in the designed area, a main route will be designed that gets in touch with the pavilions. People that follow the main route will experience a multi-sensory experience, but the user can also enter one pavilion.

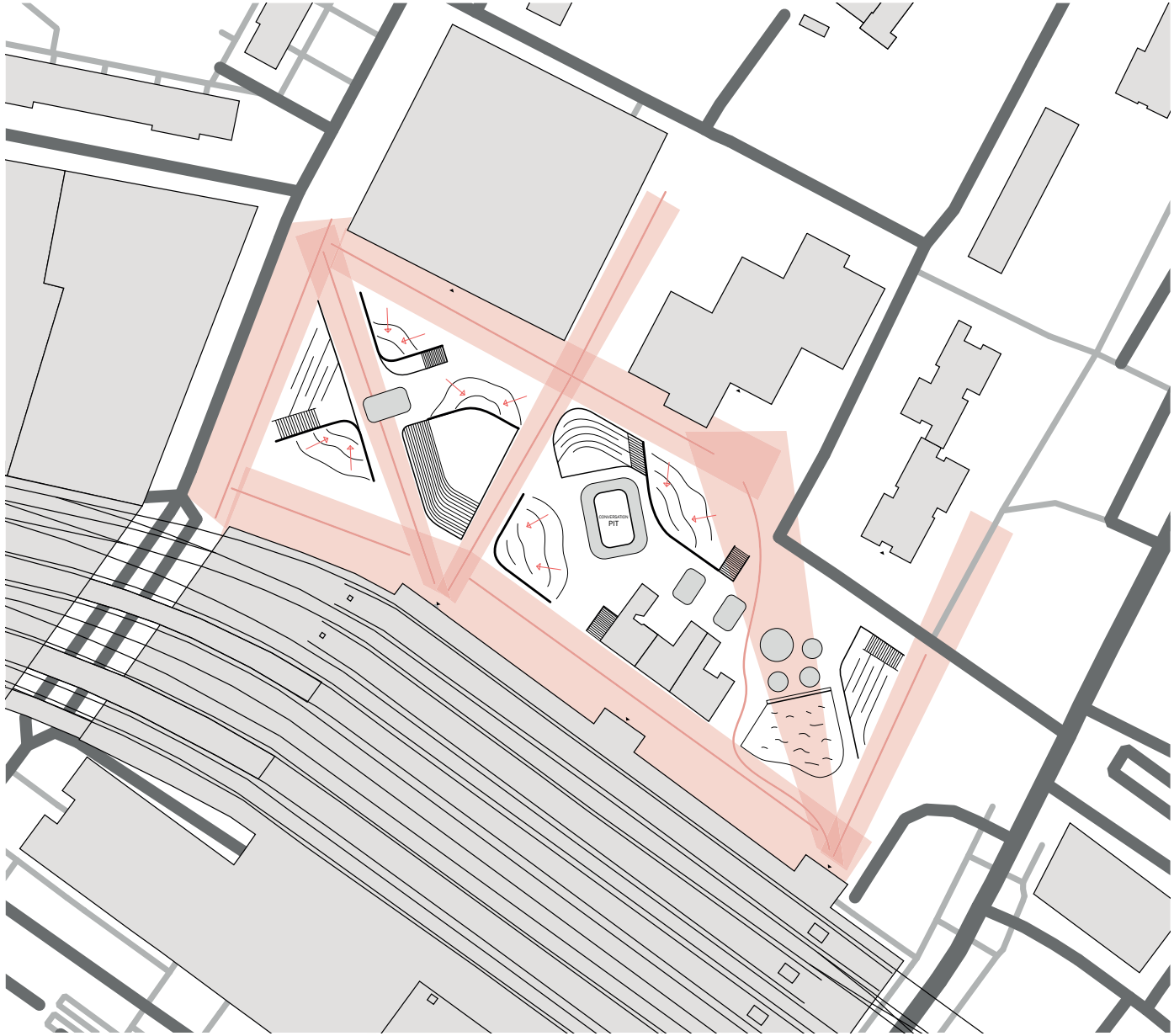
URBAN STRATEGY: SURROUNDING ENVIRONMENT



1. Keeping the existing routes and sightlines in the area; creating a park that only improves the site conditions.



2. Sketch of how the underground route should pass all the buildings and how the buildings can be placed without influencing the existing situation.

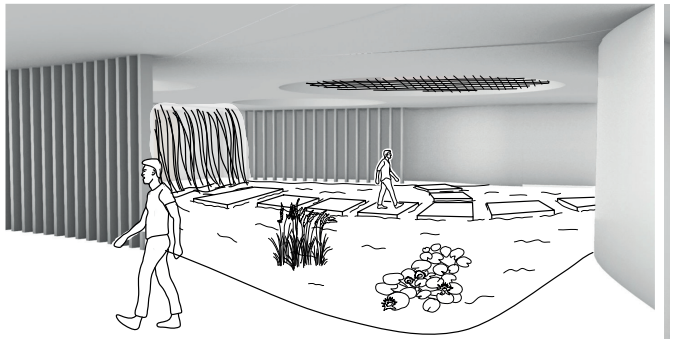


3. Final sketch of how the park should work. It still has the same concept of creating landscape by lifting or lowering the existing level. To create light where needed on the route level, holes with nets will be used. This design strategy, enables lots of natural light and creates places where people start to do physical activities and enjoy the nature.

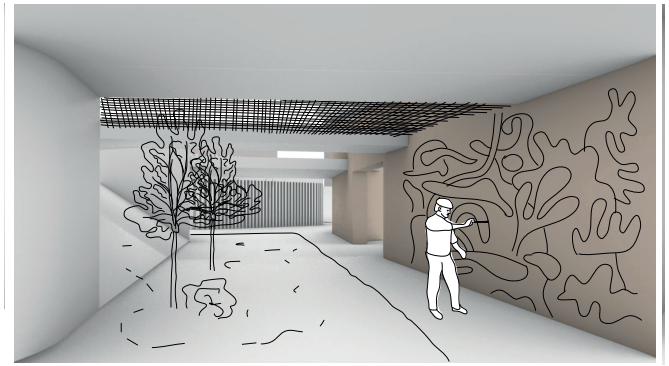
URBAN STRATEGY: MULTI-SENSORY ROUTE



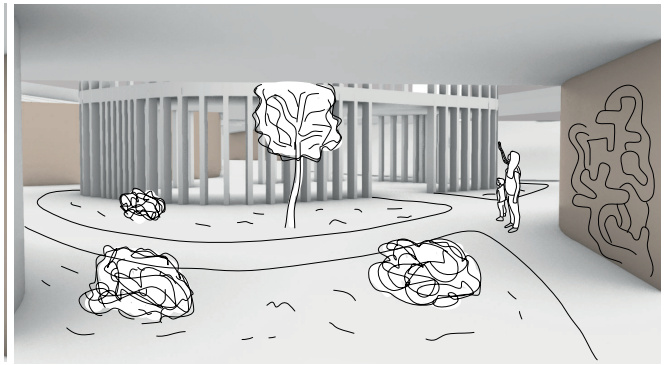
On the route level (around -4 meters), you can find all the entries of the buildings and the main route which is passing these entries. This route passes all pavilions, where the user at the end has a memorable multi-sensory experience. Along all buildings, you can find stairs to enter the buildings easily, so you don't have to follow the main route when you only want to visit one specific building.



1. On this spot, you can **see** and **hear** running water. The design of a transparent wall let you move along the entry of the sound centre. From there, you can follow the route over the water. At the point of the sketch, you can see the art wall for a small bit (2.).



2. Along the route, you face the art wall, where everyone can make art on (see research about art for benefits). Using the same nets , there will be enough sunlight to see the art and grow vegetation.



3. A central space is created where you can find a sport cage. Around the cage, nets will increase the amound of daylight (same principle as above).

URBAN STRATEGY: LANDSCAPE ROOF DIRECTION

To create space for the park, the highest side of the roofs will be situated in the direction of the surrounding city. This creates space for the park itself, whereby the entry of the buildings will be in the direction of the main route, which is in the middle of the park.

When crossing the park on the surrounded streets, you can see what is happening inside the buildings. When entering the park, the roofs will be integrated and accessible for a walk and greenery.



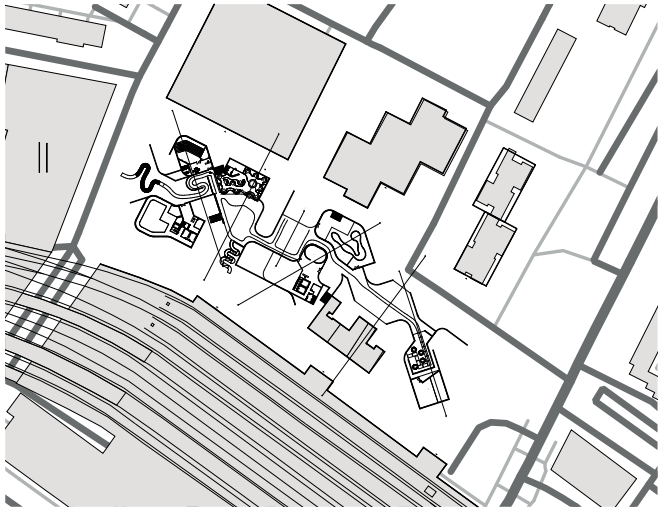
BUILDING PROGRAM & EXPERIENCE

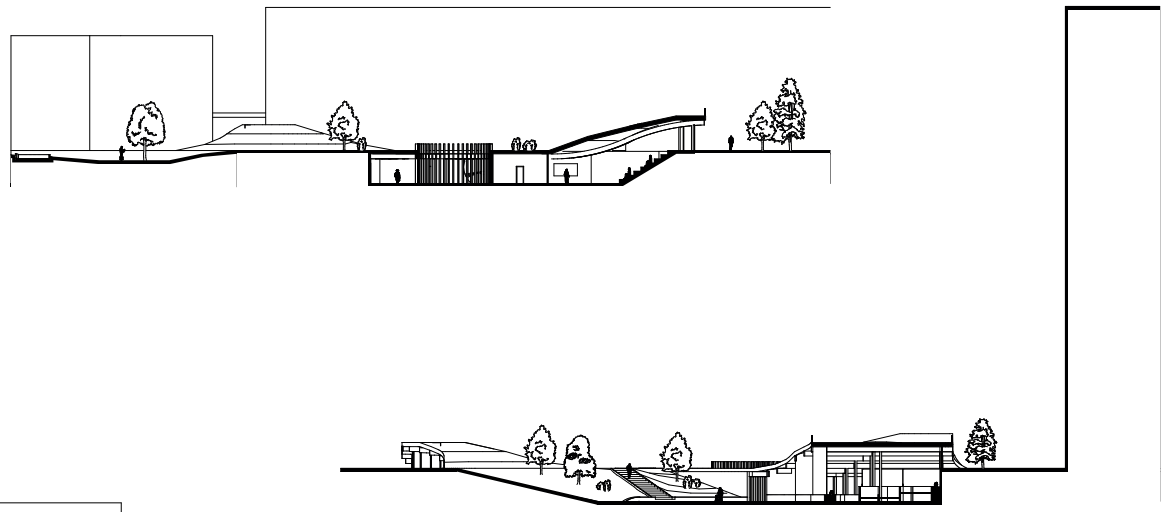
The table beneath shows the needed program, experience and facade/materials for each building to create the needed sensory experience.

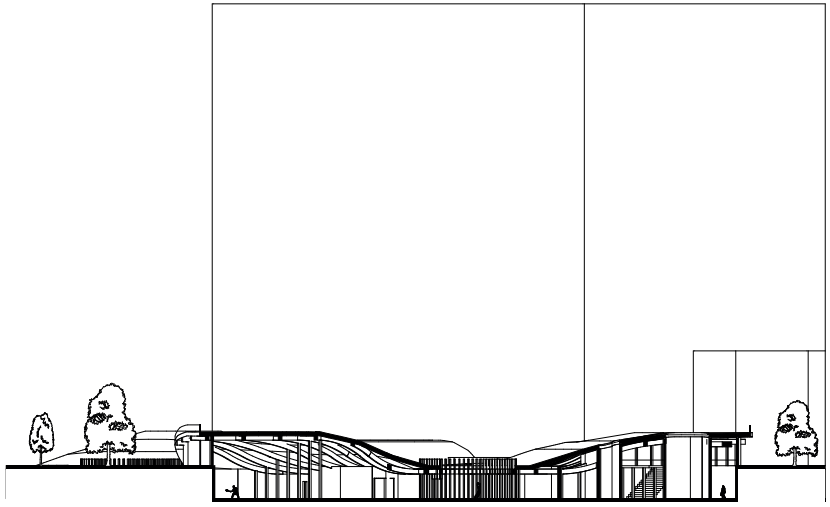
	Restaurant	Sound Centre	Wellness	Sport Centre	Art centre
Program	- Entry (against heavy climate) - Diner space - Toilets with hall (2x) - Open kitchen - Storage - Bar - Technical room	- Entry - Music therapy room (2x) - Music room (4x) - ASMR room (3x) - Anechoic hall (rounded shape) - Toilets (2x) - Technical room - Employee room	- Entry - Changing room (2x) - Toilets (2x) - Shower space - Massage room (2x) - Sauna - Steam room - Normal Pool - Cold water pool - Whirlpool - Technical room - Employee room	- Entry (with panna field) - Changing room (2x) - Toilets (2x) - Sport area - Technical room - Employee room	- Entry - Garderobe space - Toilets with hall (2x) - Workshop space - Storage - Exhibition space - Technical room - Employee room
Daylight & experience	- Use of sunlight to grow plants/herbs/vegetables - Open space with lots of daylight - Diner space visible from outside	- Interesting building to walk in, also without appointment - Rounded walls for good acoustics - Harp wall - Daylight only needed in central hall	- Daylight in the central space where you find the pools - Daylight in the entry space, from here you can see the pools - Relaxing atmosphere with concrete like materials, timber and vegetation	- Use of daylight and sight from outside to the interior sport area - Glass wall between entry and sport area - Sport area acts as physical activity landscape. To reach another place you have to do certain movements	- Use of a route through the building - Play with light: sliding elements - Adjustable grid / elements
Façade design (materials, open/closed)	- Open glass façade - Use of slats (Corten steel)	- View into central hall and string façade that actually makes sound	- Open glass façade with mixture of greenery, creating a	- Open glass façade with panna field	- Chalkboard wall: Art will be erased by the rain

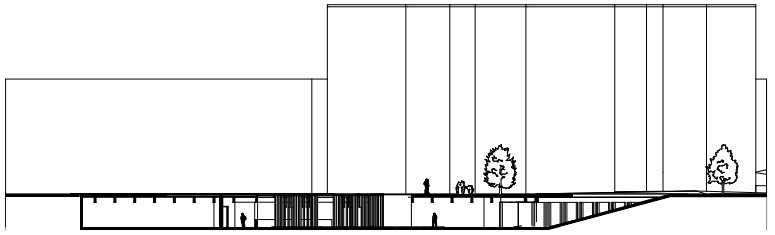
SKETCH DESIGN

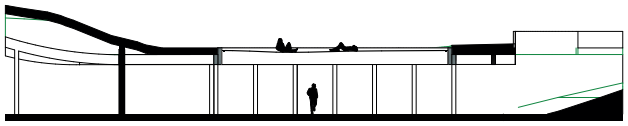
The needs and program for each building is translated into a sketch design, creating the floorplans and sections 1:200 (scaled). This design is adjusted and updated during weeks 4.2 and 4.3.











LANDSCAPE DESIGN

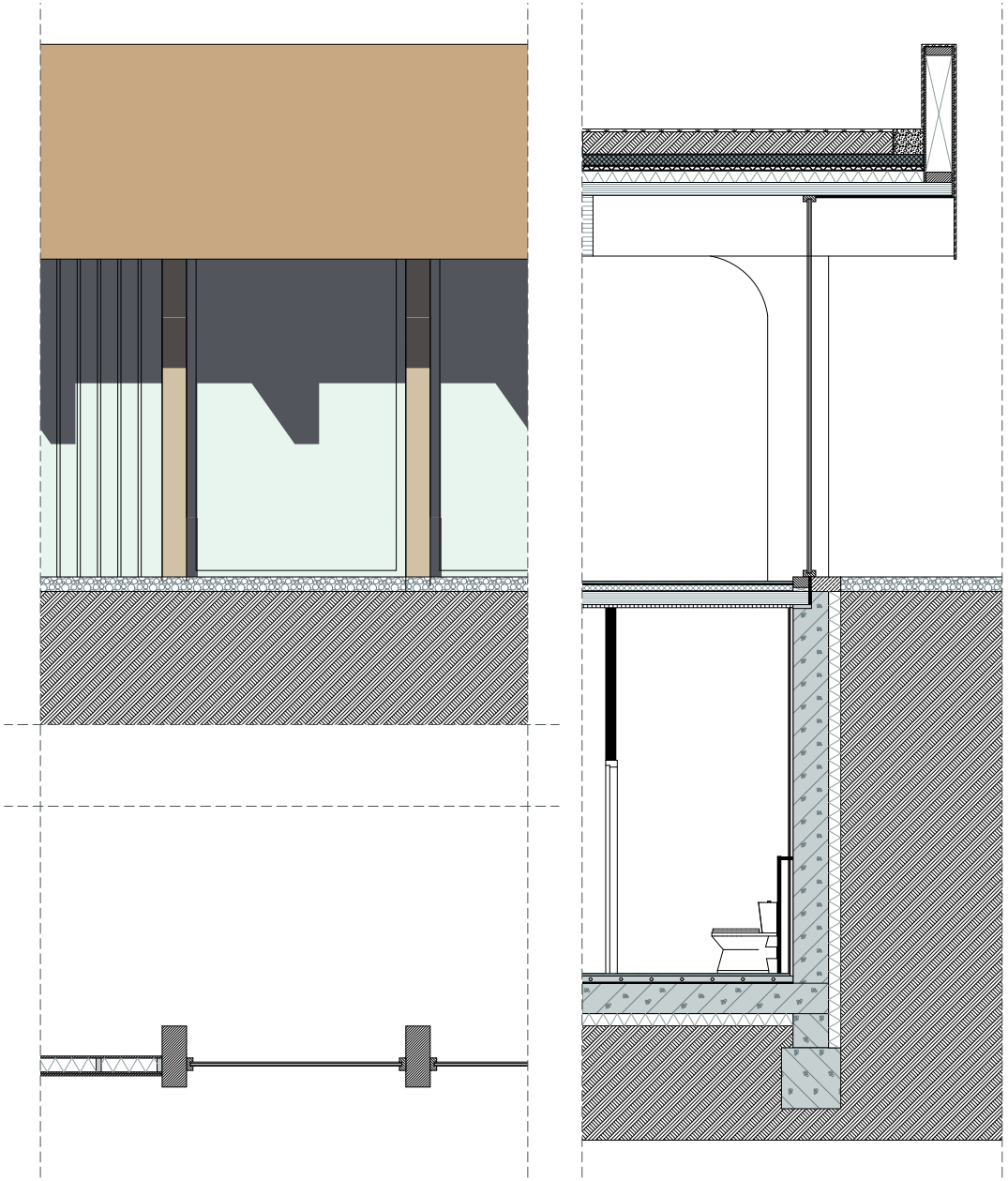
Except from working on the 3D ArchiCad model, a start is made with the landscape design. The landscape should be a green park, which contains lots of greenery and places to walk, bike and rest. There are no activities happening on this level. To do certain activities or created experiences, you have to enter the -1 level (multisensory route)



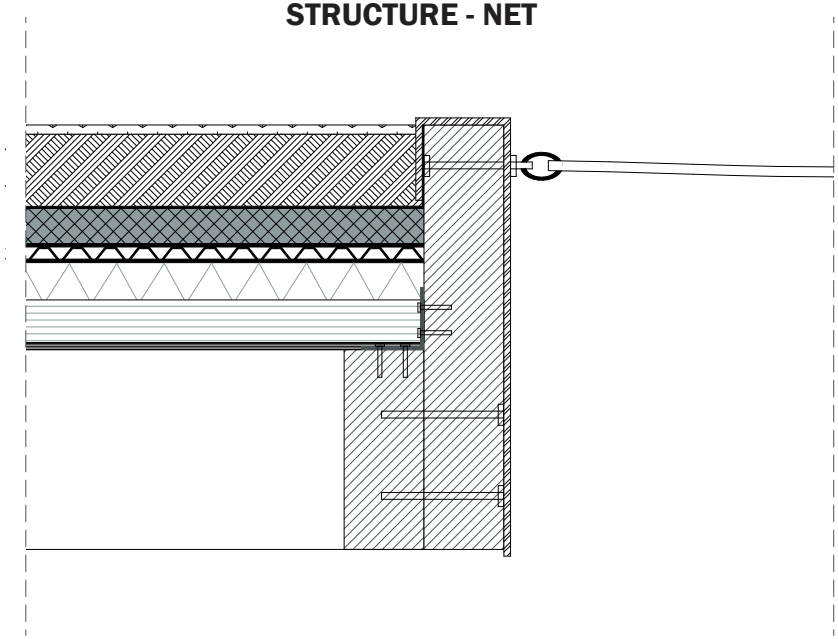
DETAIL DESIGN

On detail level, attention is made to the connection of the load bearing structure with the nets, using a wood - steel - rope connection. The 1:20 detail is updated with the newest details, using a corten steel finish on the roof level.

1:20 FRAGMENT



1:5 CONNECTION STRUCTURE - NET



During week 4.3, the products for week 4.4 (P4) is made. This work is visible in the chapter: Final design.
The Posters of the final design are visible in the attachments.

LOAD BEARING ELEMENTS - CALCULATIONS

BEAMS

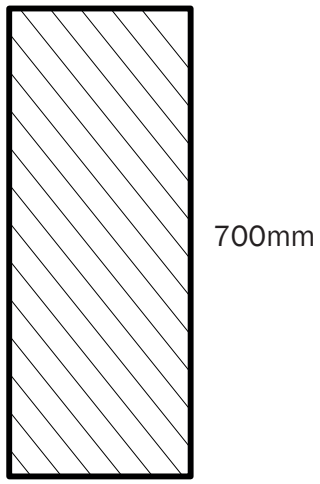
GENERAL INFORMATION

Material	Laminated timber GL28h
Flexural strenght	16 N/mm^2
Compressive strenght	15 N/mm^2
Tensile strength	11 N/mm^2
Elasticity	12600
Mass	410 kg/m^3

RULES OF THUMB

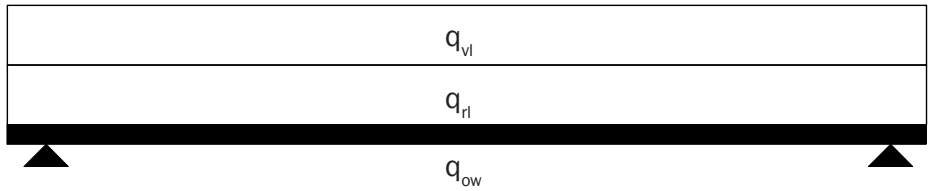
Beam height = 1/20 x length (max span)
= 1/20 x 14000 = 700mm = 0,7m
Beam width = 1/6 x height
= 1/6 x 700 = 120mm = 0,12m

A width of 160mm is maintained to retain strenght in case of fire.
This extra layer should work as a fire protective layer.



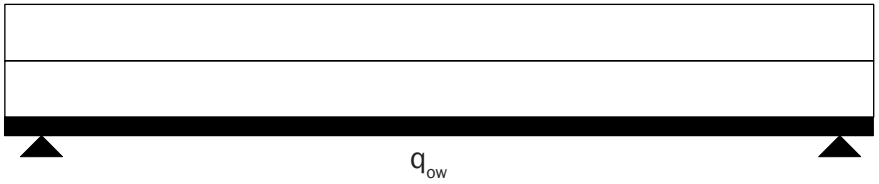
LOADS ON A BEAM

On a beam, there are three kind of loads:
- Own weight of the beam (q_{ow})
- Resting load; roof load (q_{rl})
- Variable load (q_{vl})



LOAD BEARING ELEMENTS - CALCULATIONS

OWN WEIGHT PER METER

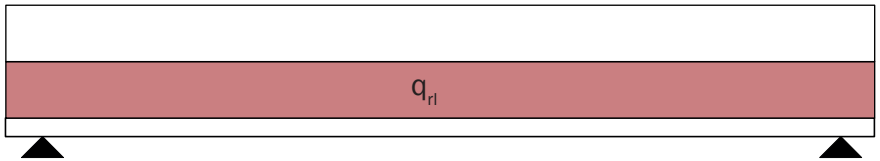


Weight = h x b x ρ x 10/1000
= 0,7 x 0,16 x 410 x 10/1000 = 0,46 kN/m

$I = 1/12 \times b \times h^3 = 1/12 \times 160 \times 700^3 = 4,6 \times 10^9\ mm^4$

$W = 1/6 \times b \times h^2 = 1/6 \times 160 \times 700^2 = 13 \times 10^6\ mm^3$

RESTING LOAD



Green roof = ca. 170 kg/m² = 1,7 kN/m²

CLT Plate 120mm thick = 470 kg/m³ = 470 x (120 / 1000) = 56,4 kg/m² = 0,56 kN/m²

PIR + EPDM + Filter layers = ca. 2,5 kN/m²

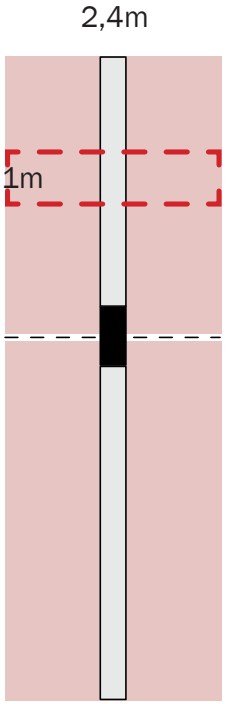
Ceiling + Climate installations = ca. 0,6 kN/m²

Total q_{rl} = 1,7 + 0,56 + 2,5 + 0,6 = 5,36 kN/m²

The load on one meter beam will be:
2,4 x 5,36 = 12,9 kN/m

VARIABLE LOAD

$q_{vl} = 5\ kN/m^2 = 5 \times 2,4 = 12\ kN/m$

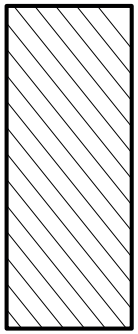


LOAD BEARING ELEMENTS - CALCULATIONS

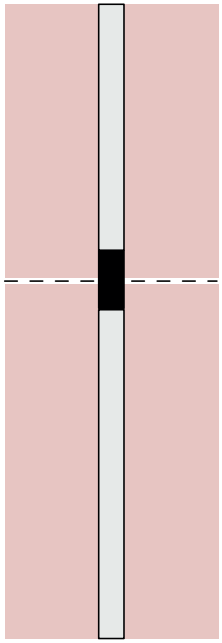
COLOMNS

RULES OF THUMB
Width column = l (height column) / 20 = 300 / 20 = 150mm

Keeping the 160 width of the beams will esthetically look better:



LOAD ON THE COLUMN



Own weight: 11,9m x 0,46 = 5,5 kN
Resting load: A x q_{rl} = 28,6 x 5,36 = 153,3 kN
Variable load: A x q_{vl} = 28,5 x x 5 = 143 kN, will become 100 kN because of partial factor 0,7.

Total load on column = ((5,5 + 153,3) x 1,1) + (100 x 1,35) = 309,7 kN

BEND
F_{cr} = (Pi^2 x E x I(weak)) / l^2 = ($3,14^2$ x 10200 x (1/12 x 700 x 160^3)) / 3000^2 = 2,67 x 10^6 N

F_{cd} = 15 N/mm^2 = 15 x 112000 = 1680000 N

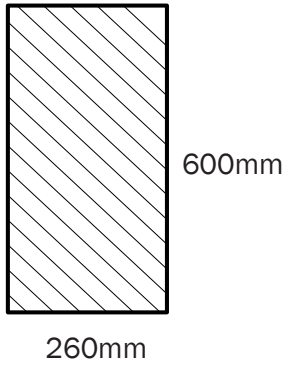
n = F_{cr} / F_{cd} > 5
n = 2,67 x 10^6 N / 1680000 N = 1,6, which is not enough.

F_{cr} Needed = n x F_{cd} = 5 x 1680000 N = 8,4 x 10^6 N

8, 4 x 10^6 N = ($3,14^2$ x 10200 x I) / 3000^2 gives I_{needed} = 7,5x10^8 N

Turning the column of 700 x 160mm into 600 x 260mm gives:
I = 1/12 x 600 x 260^3 = 8,8 x 10^8 N, which is enough.

So concluded can be that the column should be thicker than the beam.
Other sizes possible: 320 x 320mm, 280 x 420mm



CLIMATE DESIGN

VENTILATION

GENERAL INFORMATION

Amount of people	75
Fresh air needed per person	25 m^3/h
Total fresh air needed	1875 m^3/h
Volume building	5000 m^3

Ventilation rate = 1875 / 5000 = 0,375

VENTILATION PIPES

Needed ventilation pipe: 1 cm^2 per 1 m^3/h (Bouwbesluit, 2012).
This means that the pipes should be 1875 cm^2 in section surface.
When using a height of 240mm, the width should be 1875/24 = 78 cm = 780mm long. The span between two beams is 2400mm, so this should not give any problems.

CLIMATE DESIGN

INDOOR TEMPERATURE CALCULATIONS

The indoor temperature is calculated for the summer, winter and mid-season periods. Based on the facades, amount of glass and volume of the building, there is calculated how much energy you will get from the sunlight and how much energy and warmth the building will lose because of ventilation, transmission and intern energy production. You can see that the indoor temperatures will be fine.

Berekening stationaire warmtebalans

Algemene warmtebalans

$$Q_{behoefte} = Q_{Transmissie} + Q_{ventilatie} + Q_{Infiltratie} + Q_{Zon} + Q_{Intern}$$

Naam ontwerp of vertrek:						Naam:		The sensory healing	
Locatie ontwerp:						Breedtegraad:		52	°
Netto vloeroppervlak:						Vloeroppervlakte:		1015	m^2
						Volume:		5000	m^3
Ontwerp binnen -en buitentemperatuur				Seizoen:	Zomer	T_{binnen}		23	°C
						T_{buiten}		25	°C
					Tussen	T_{binnen}		20	°C
						T_{buiten}		10	°C
					Winter	T_{binnen}		18	°C
						T_{buiten}		-10	°C

		Orientatie	Oppervlakte m^2	R_c-waarde m^2K/W	%Raam	g-waarde (-)	g-waarde zonwering (-)	Oppervlakte raam m^2	
Gebouwschil:	Vloer	boven grond	0	0					
	Gevel 1	NNO	133,2	6,5	88%	0,57	0,15	117,216	m^2
	Gevel 2	OZO	75,6	6,5	0%	0,57	0,15	0	m^2
	Gevel 3	ZZW	54,7	6,5	82%	0,57	0,15	44,854	m^2
	Gevel 4	WNW	95,4	6,5	64%	0,57	0,15	61,056	m^2
	Dak	Horizontaal	0	4,5	0%	0	0	0	m^2

Stationaire warmtebalans

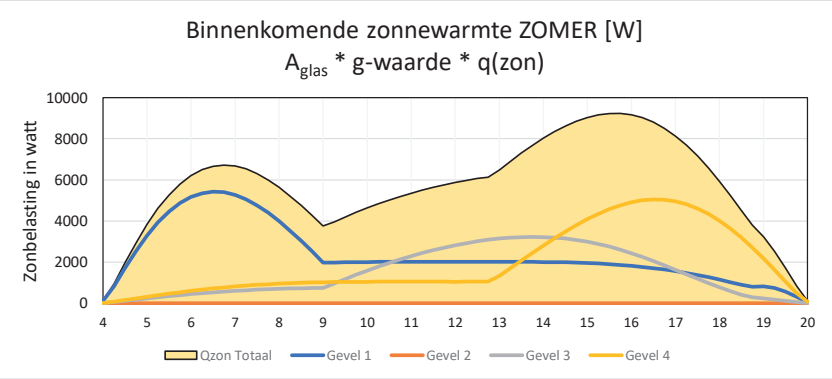
Deze Excelsheet berekent de stationaire warmtebalans van een ruimte of gebouw.

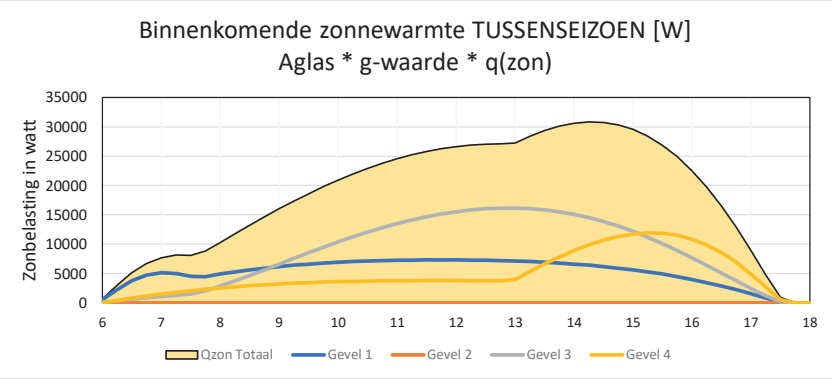
De gele vakjes zijn variabelen, deze zijn specifiek voor het ontwerp en de wensen voor de ruimte.

Uitgangspunt:
Kozijn percentage = 10% raam

						Zomer	Tussen	Winter	
$Q_{transmissie}$	U-waarde			Gemiddelde U-waarde raam:	0,8	W/m^2K			
				Gemiddelde U-waarde schil:	0,55	W/m2K			
				ΣU.A	198,9	W/K	0,4	-2,0	-5,5	W/m²
$Q_{ventilatie}$ $Q_{infiltratie}$	Bereken ventilatie		Zomer	Tussen	Winter					
		Ventilatievoud:	5	5	5	(-)	25000	25000	25000	m^3/h
		Warmteterugwinpercentage wtw:	0%	60%	90%					
		Infiltratievoud:	0,20	0,20	0,20	(-)	1000	1000	1000	m^3/h
							17	-36	-32	W/m²
Q_{Zon}	Zon belasting: A_{glas} * g-waarde * $q_{(zon)}$		Zomer	Tussen	Winter					
		Zonwering:	Ja	Nee	Nee					
		Zonbelasting:	9231,8	30839	30000	W	9	30	30	W/m²
Q_{intern}	Interne warmtelast:									
		Aantal personen:			80	(-)				
		Vermogen verlichting:			5	W/m^2				
		Vermogen apparatuur:			1000	W	13,867	13,867	13,867	W/m²
					Totaal:		40,3	5,9	6,4	W/m^2
Berekende binnentemperatuur	*Weet je het verwarmings- en koelvermogen, dan kun je ook de binnentemperatuur uitrekenen.*		Zomer	Tussen	Winter					
		Q-koeling:	4500	2500	0	W	-4	-2		
		Q-verwarming:	0	0	0	W		0	0	W/m²
					Binnentemperatuur:		27,1	21,0	22,3	°C

Resultaten van de berekening





T_{buiten} = 25	T_{binnen} = 23 °C
Resultaten zomer	
	W/m²
Q ventilatie & Q infiltratie	17
Q Transmissie	0
Q intern	14
Q Zonbelasting	9
Koudebehoefte	**40**

T_{buiten} = 10	T_{binnen} = 20 °C
Resultaten tussenseizoen	
	W/m²
Q ventilatie & Q infiltratie	-36
Q Transmissie	-2
Q intern	14
Q Zonbelasting	30
Warmte- of koudebehoefte	**6**

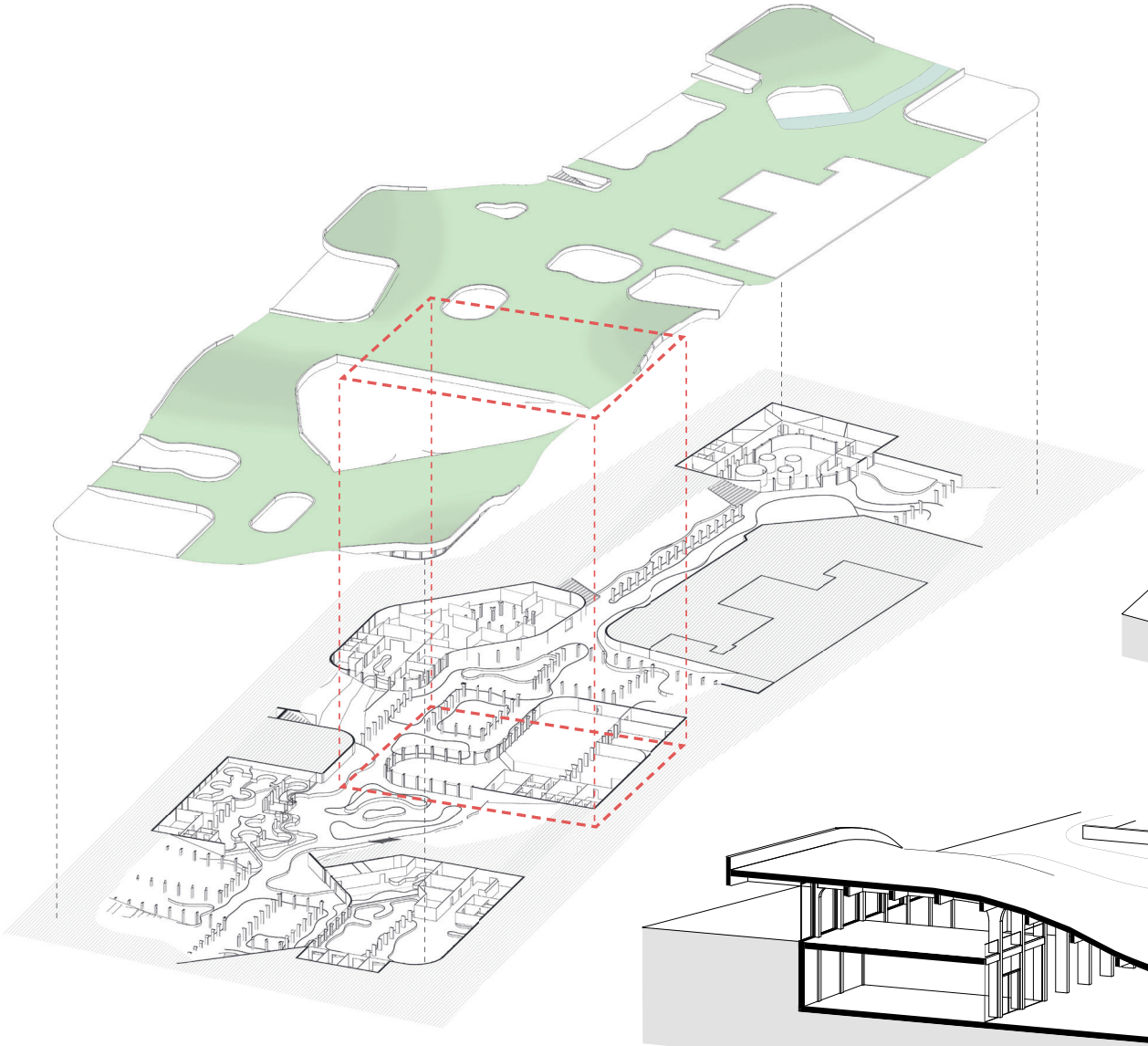
T_{buiten} = -10	T_{binnen} = 18 °C
Resultaten winter	
	W/m²
Q ventilatie & Q infiltratie	-32
Q Transmissie	-5
Q intern	14
Q Zonbelasting	30
Warmtebehoefte	**7**

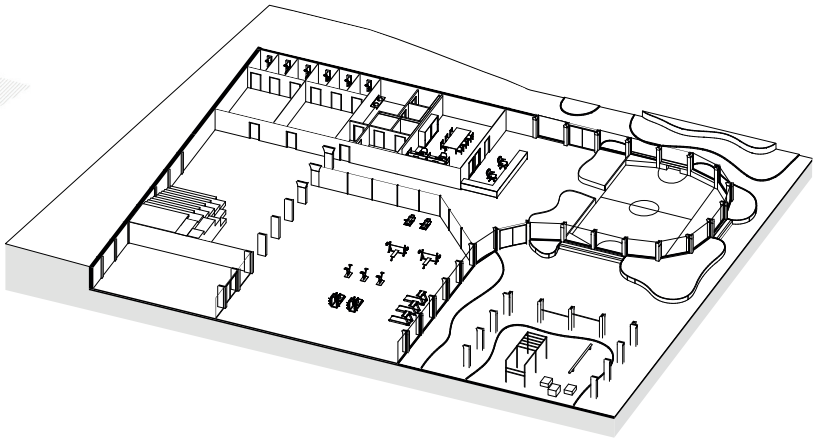
negatief getal = warmte stroom uit de ruimte
positief getal = warmtetoevoer aan de ruimte

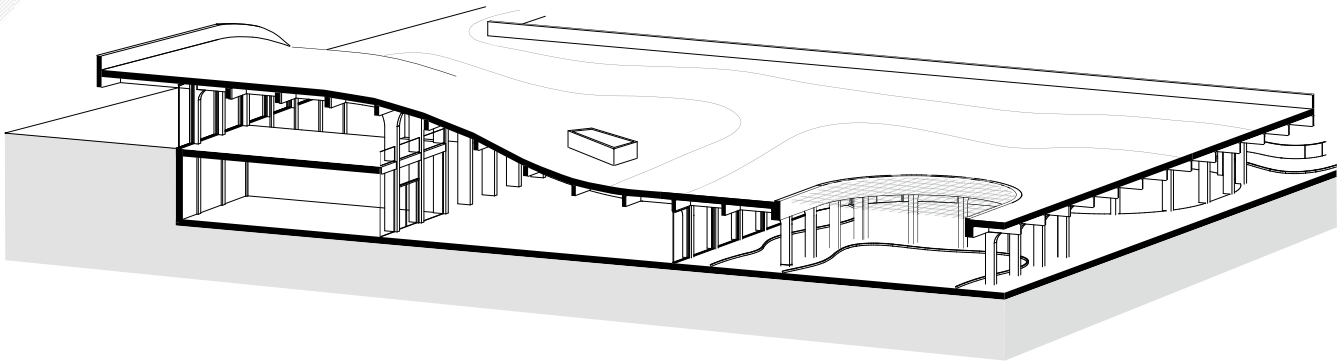
	Zomer	Tussen	Winter	
Berekende binnentemperatuur	**27,1**	**21,0**	**22,3**	°C

MAQUETTE

During the period between P4 and P5, a sectional maquette is made of the sports centre. This part shows all the principles used in the whole design.
A ‘part that presents the whole’.

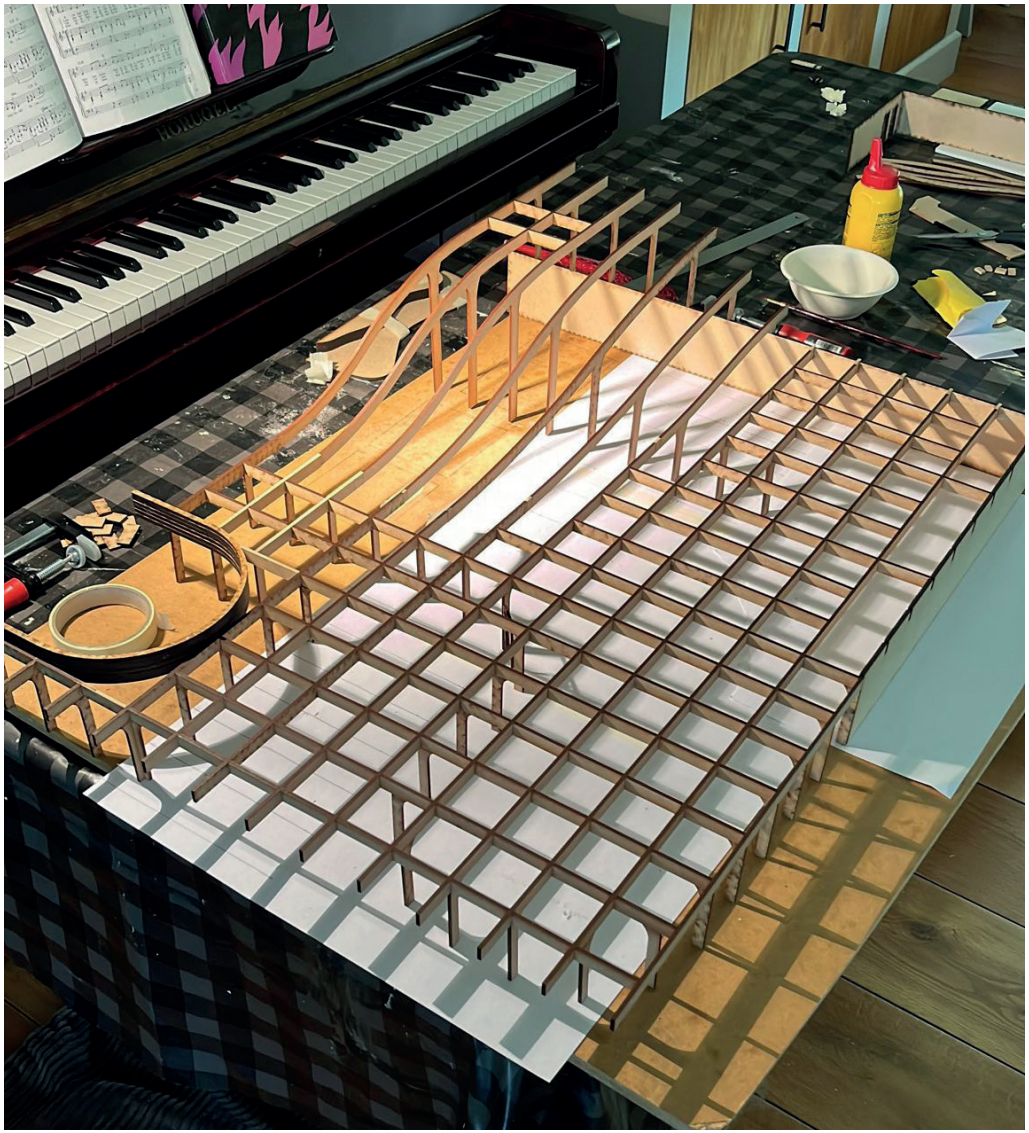


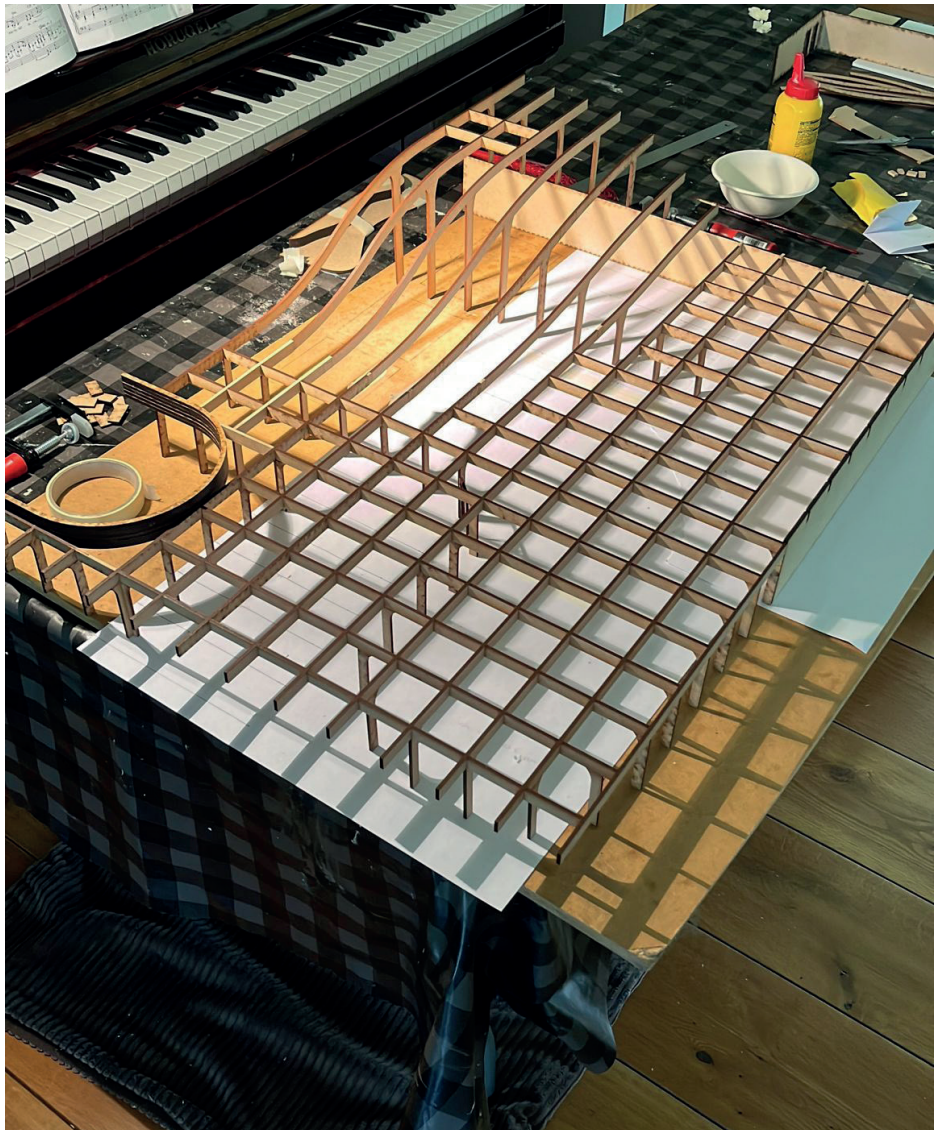




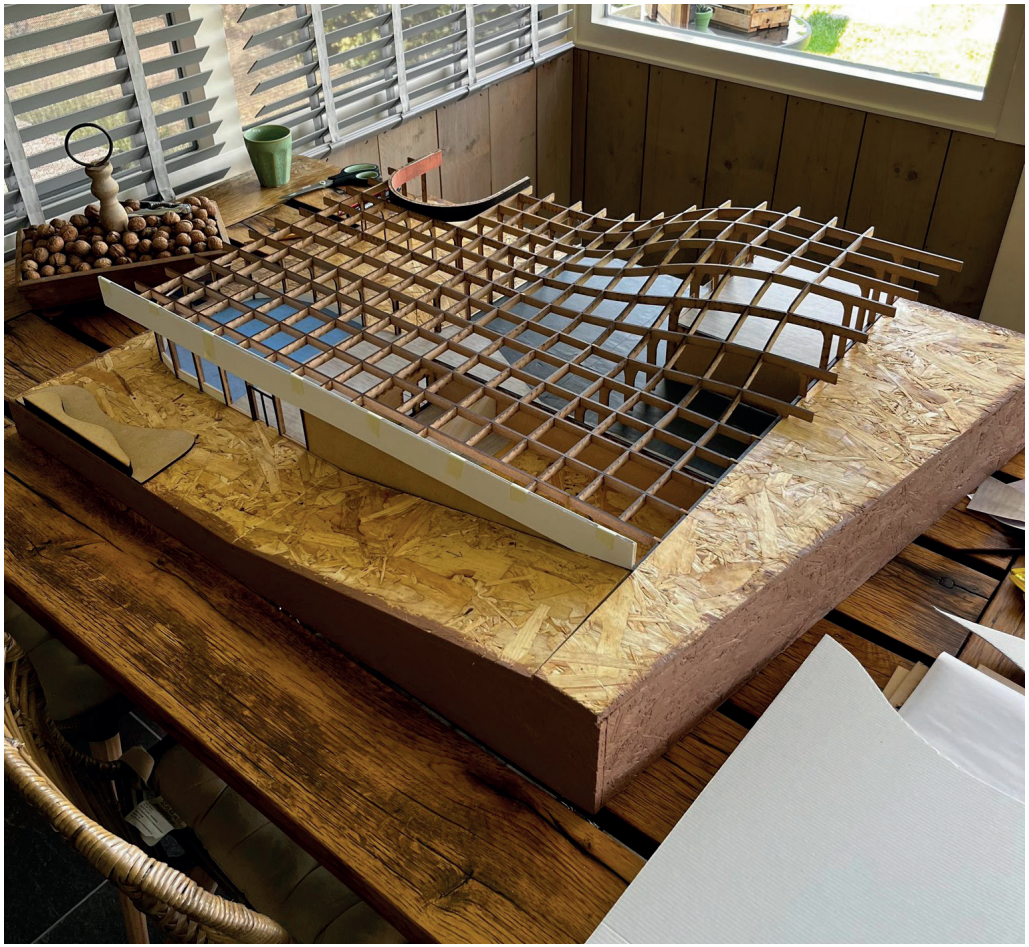
MAQUETTE

A maquette is made of the sport centre. This building is chosen because of the principles showed in this part of the design. These principles, like the net, roofshape, lighting and materials presents the whole. You will find these elements through the whole designed area.





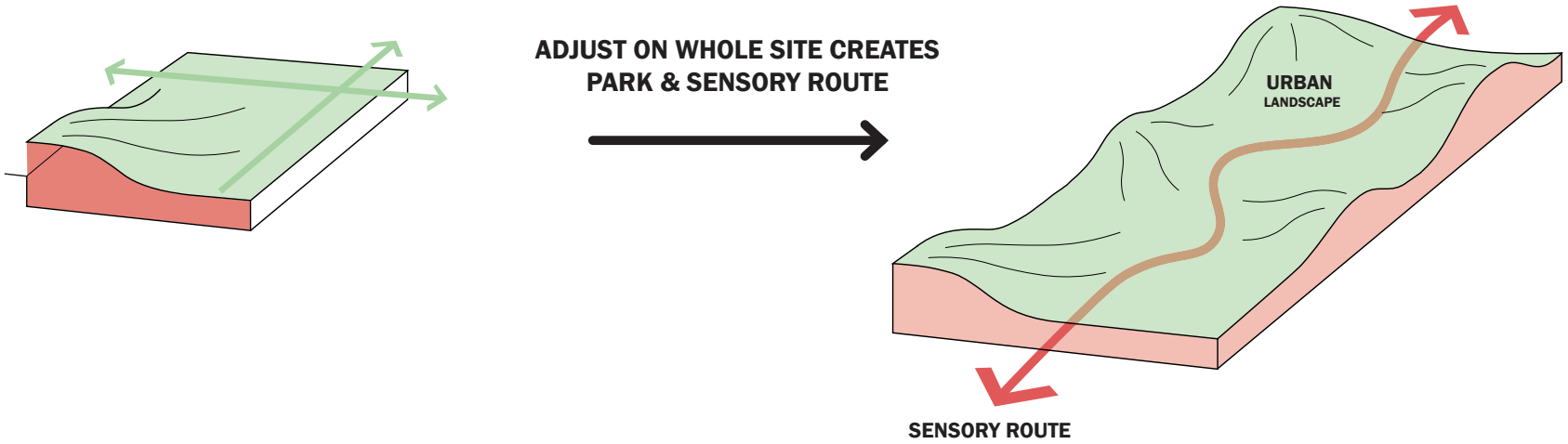
MAQUETTE

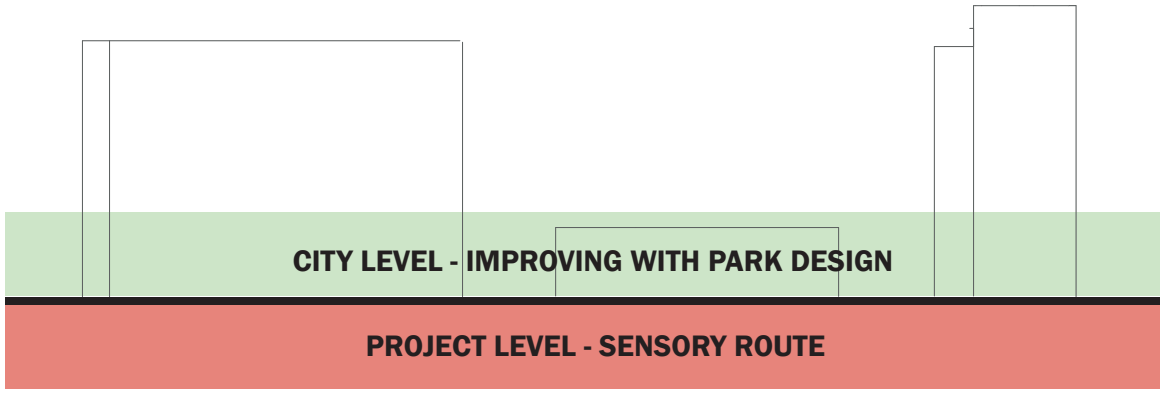




FINAL DESIGN

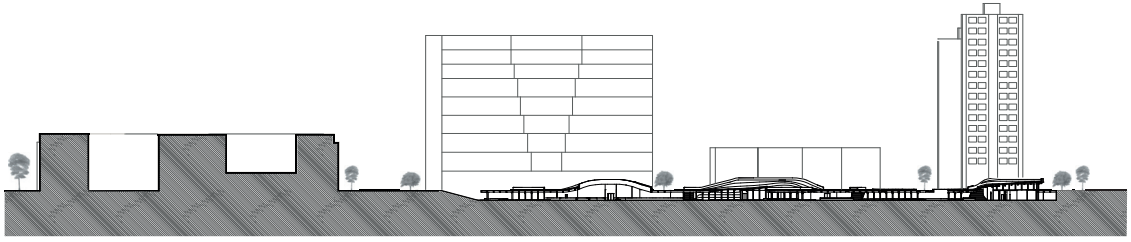
2 LEVELS

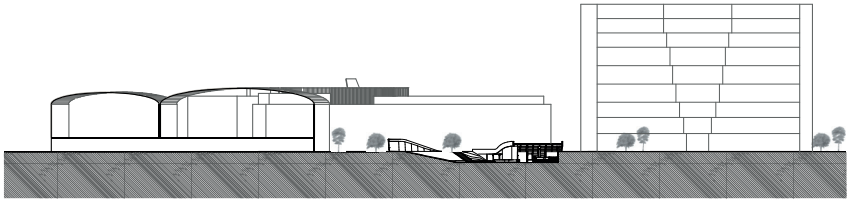

ADJUST ON WHOLE SITE CREATES
PARK & SENSORY ROUTE
URBAN
LANDSCAPE
SENSORY ROUTE


CITY LEVEL - IMPROVING WITH PARK DESIGN
PROJECT LEVEL - SENSORY ROUTE

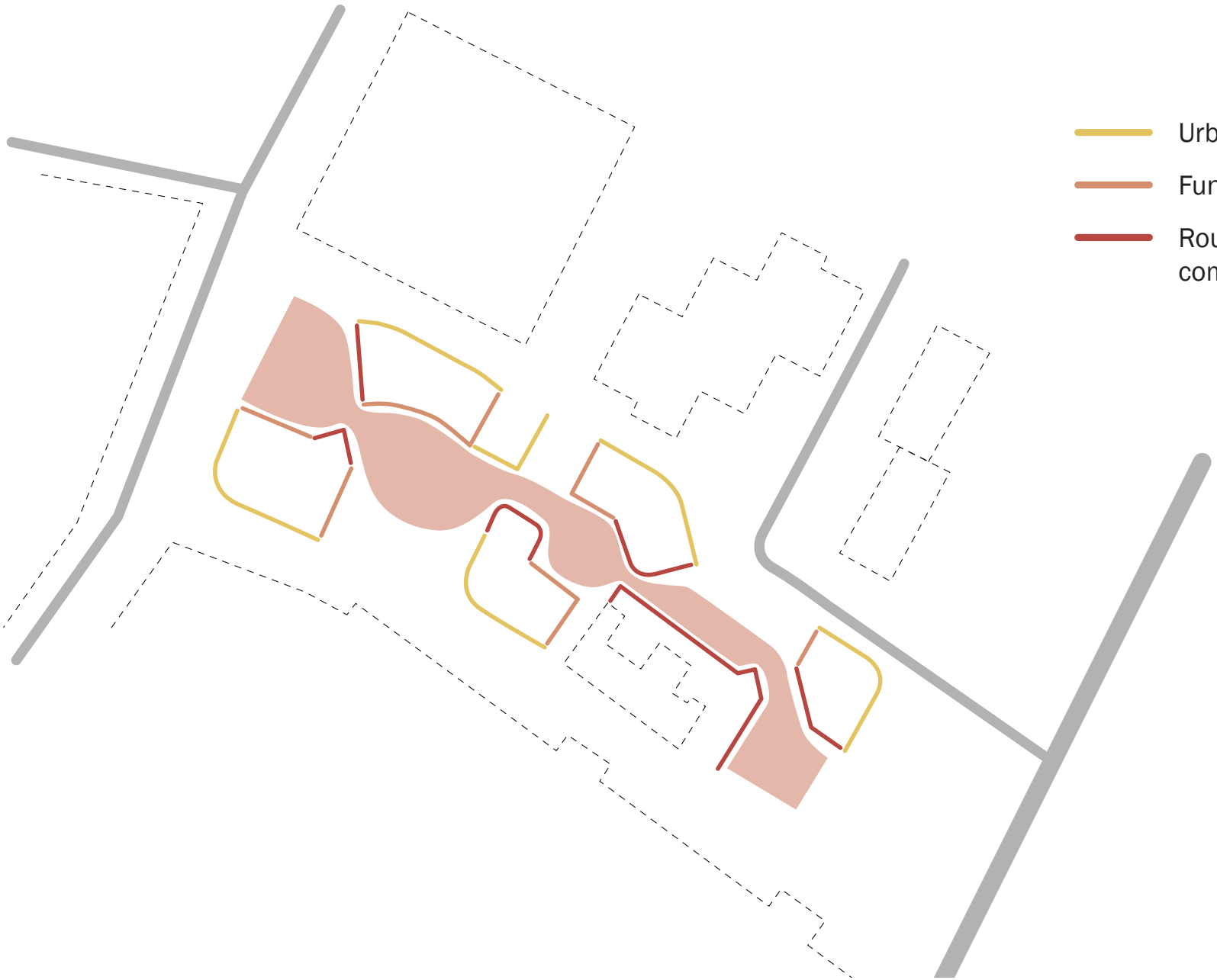
URBAN SITUATION







SENSORY ROUTE DIAGRAM

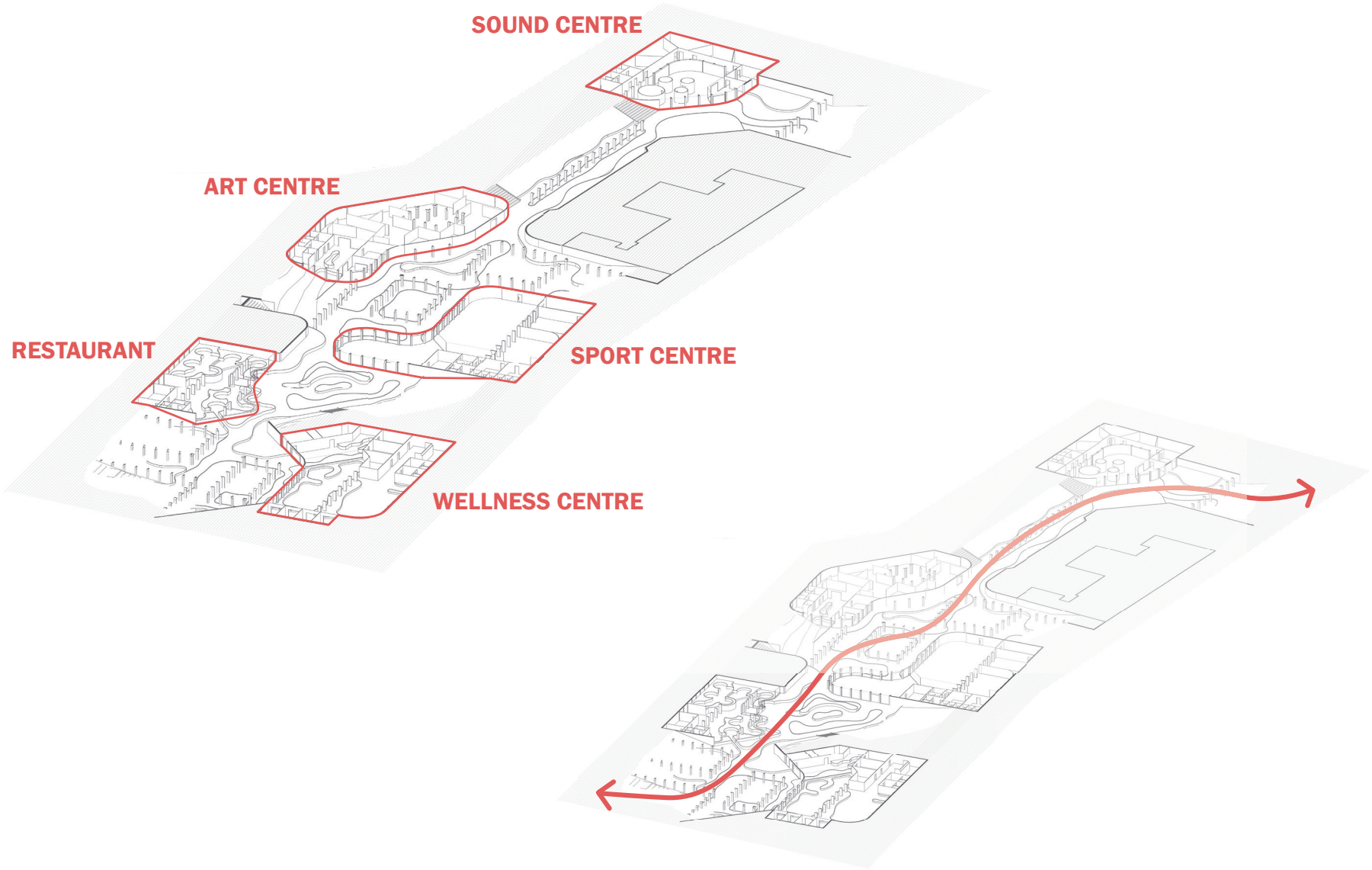


Urban strategy

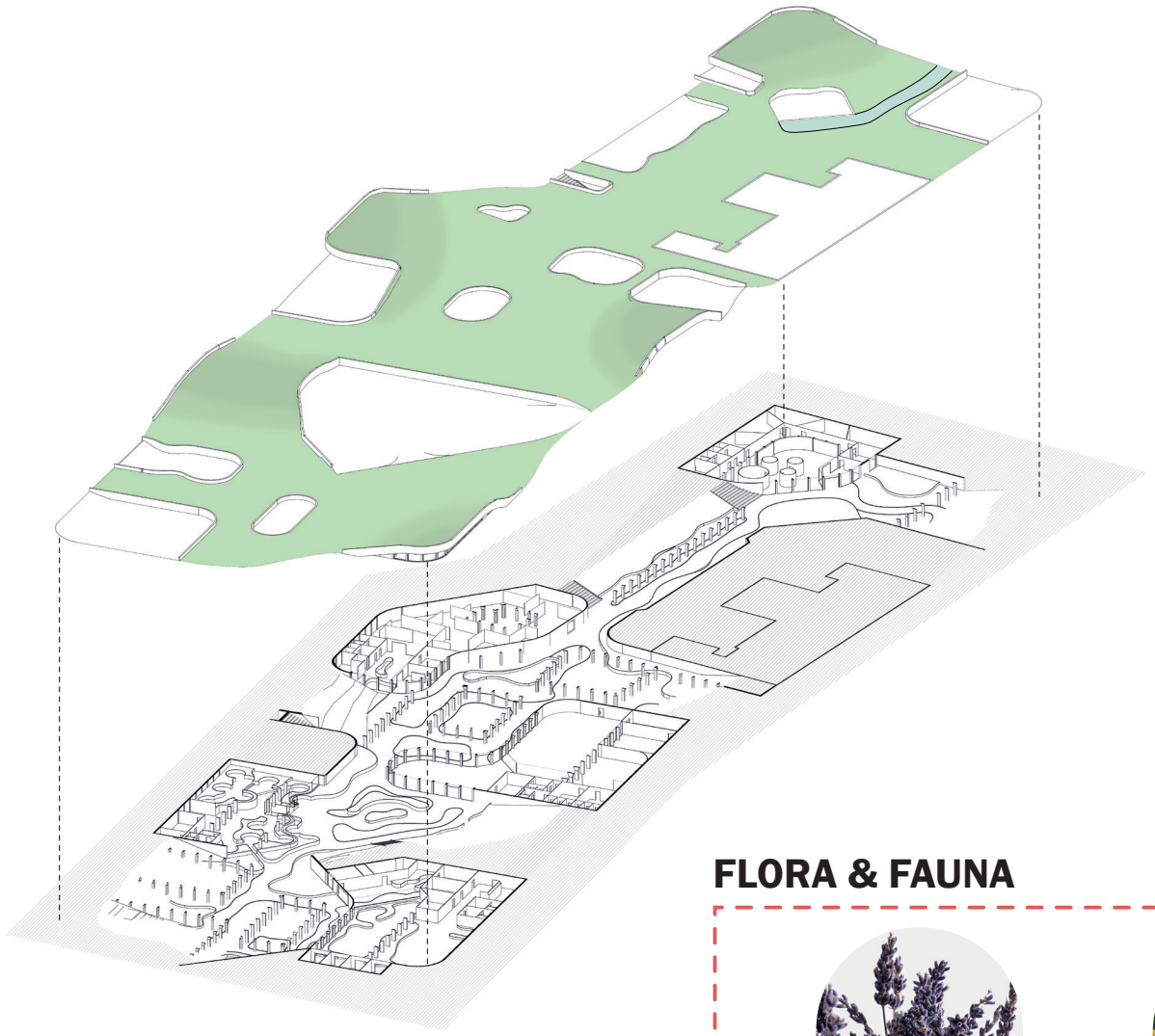
Function / atmosphere

Route:
compressing & decompressing

AXO SENSORY ROUTE LEVEL



AXO SENSORY ROUTE LEVEL



URBAN HEAT STRESS

- REDUCTION OF 30-40 DEGREES OF ROOF TEMPERATURE

- UP TO 5 DEGREES OF SURROUNDED AMBIENT CITY TEMPERATURE DECREASE

(WUR, 2015)

REDUCTION OF ENERGY

- SMALL ENERGY USE REDUCTION (SUMMER CONDITIONS)

FLORA & FAUNA

LAVENDER
- Stress-relieving benefits
- Reduction in anxiety,

depression & sleeplessness



CHAMOMILE
- Reduction in anxiety and stress
- Soothing effects on skin
- Mental health improving aroma

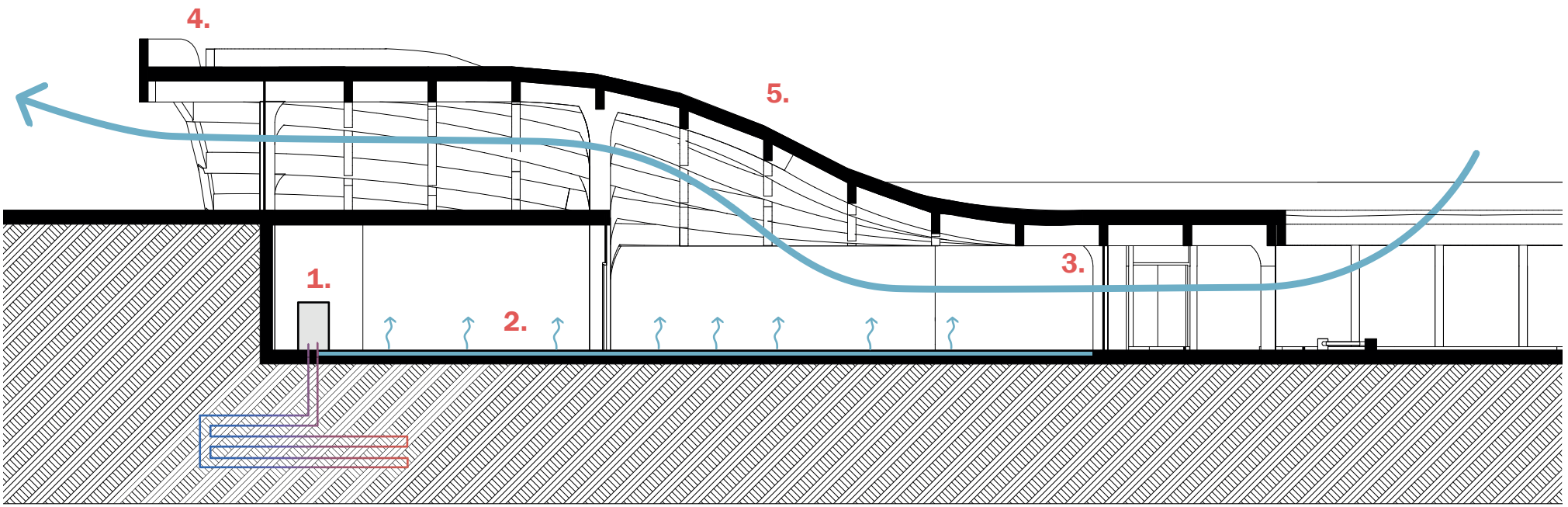


(Belluco et al, 2023)

INSECTS
- Healthy flora by pollination
- Affects public health

CLIMATE

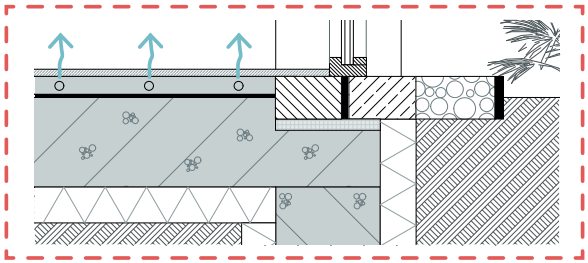
SUMMER SITUATION



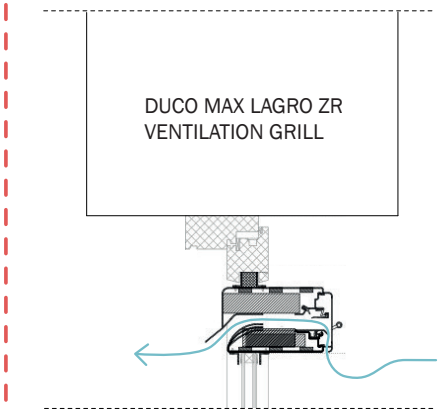
1. GEOTHERMAL HEAT PUMP

EXTRACTING COLD FROM THE SOIL

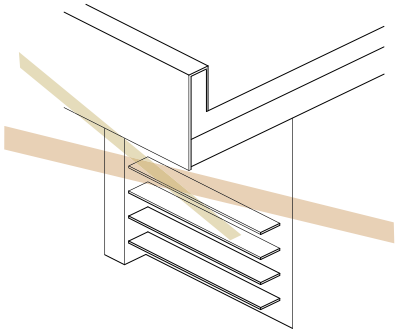
2. ENERGY SUFFICIENT FLOOR COOLING



3. PASSIVE VENTILATION



4. CANOPY & SLATS

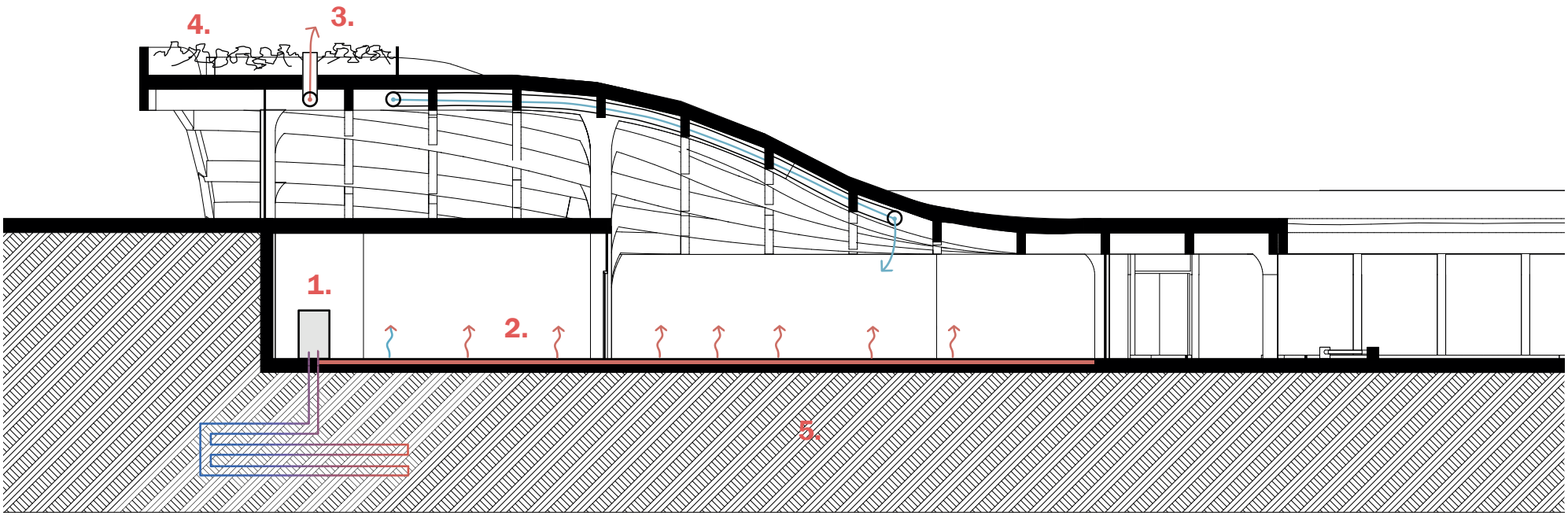


5. GREEN ROOF

REDUCES COOLING ENERGY

CLIMATE

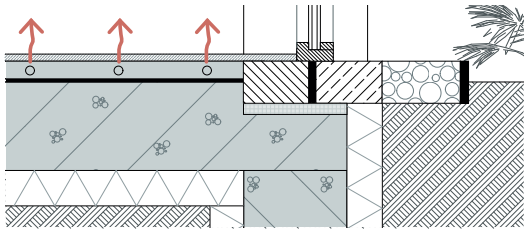
WINTER SITUATION



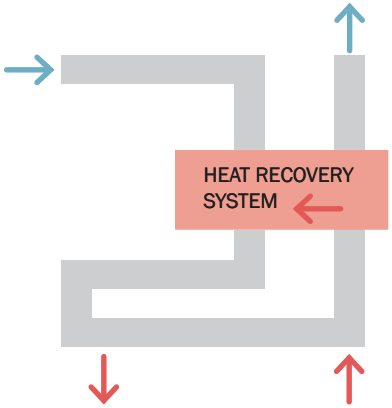
1. GEOTHERMAL HEAT PUMP

EXTRACTING WARMTH FROM THE SOIL

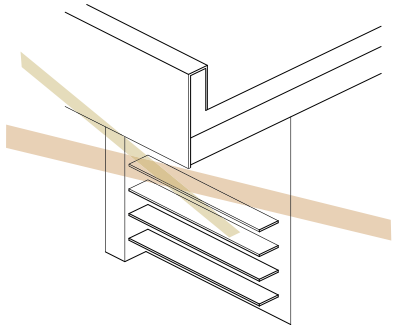
2. ENERGY SUFFICIENT FLOOR HEATING



3. MECHANICAL VENTILATION



4. CANOPY & SLATS

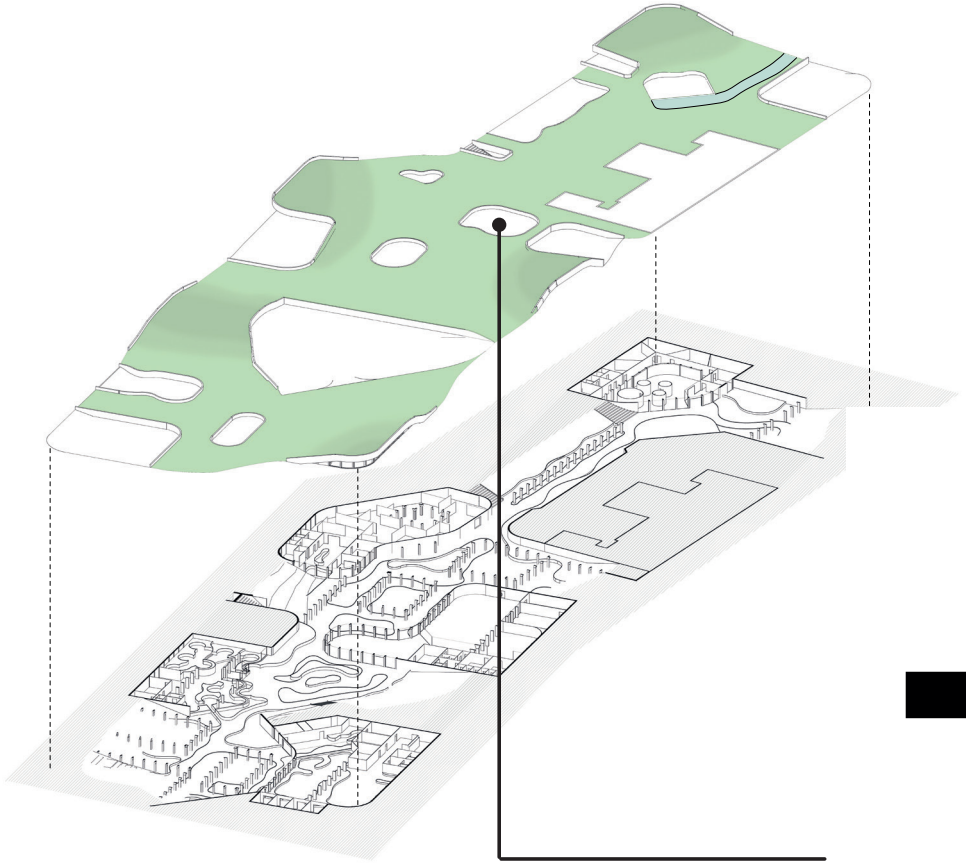


5. CONSTANT SOIL TEMPERATURE

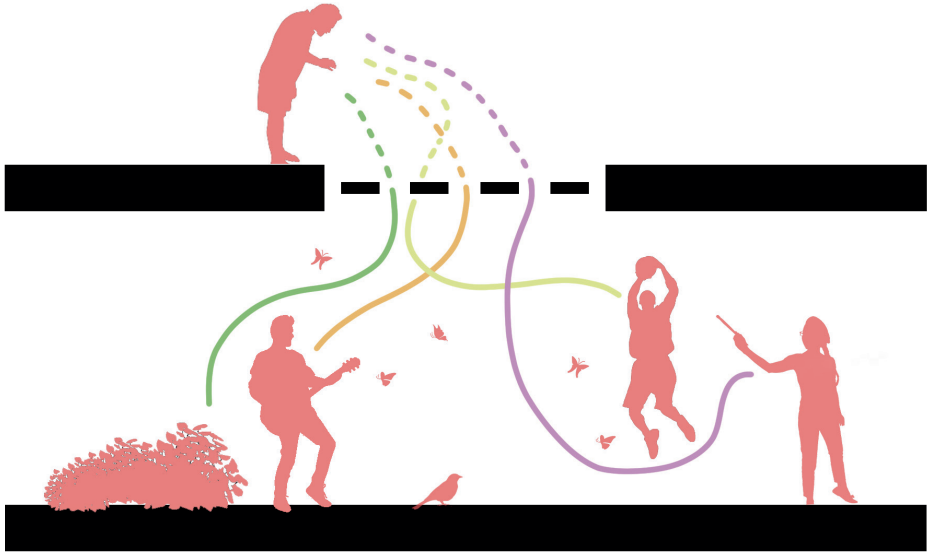
REDUCES HEATING ENERGY

CONSTANT S OIL TEMPERATURE OF AROUND 10 °C

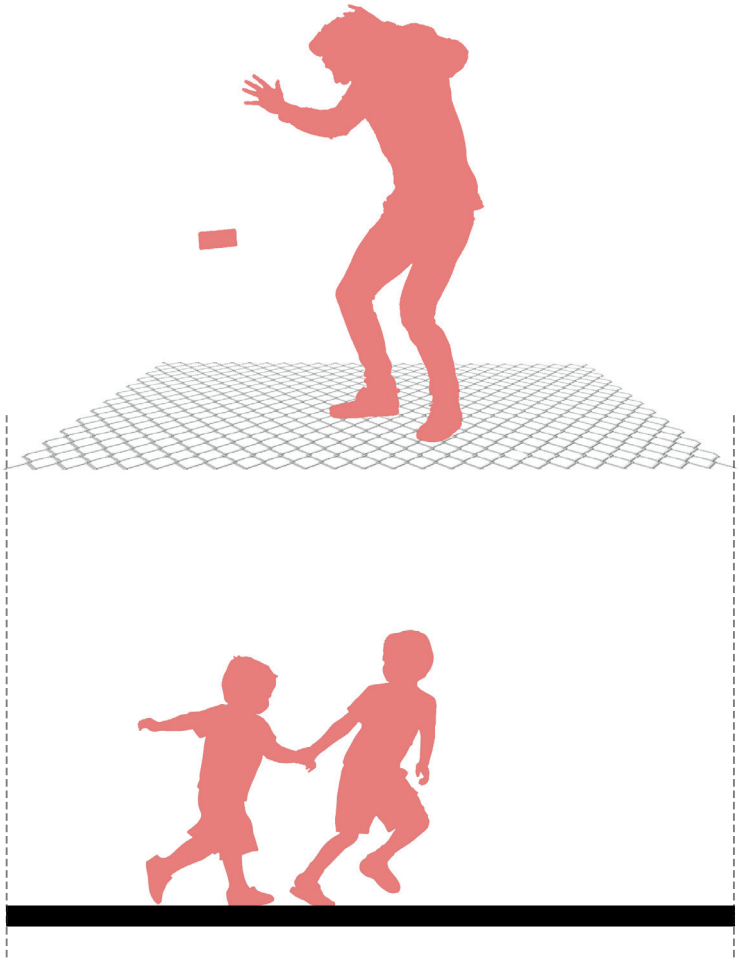
NET PRINCIPLE



Within the design, certain nets provide daylight and invites people to enter the sensory route. As a visitor, you can see, hear and smell a bit what is happening beneath you, but you do not have the full experience.



NET PRINCIPLE - SAFETY



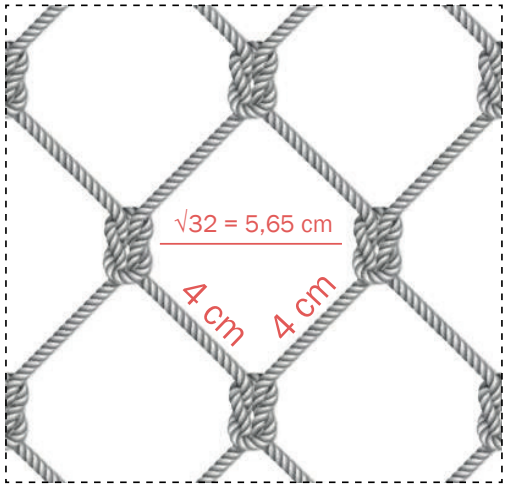
MOST COMMON PRODUCTS FALLING OUT OF POCKETS



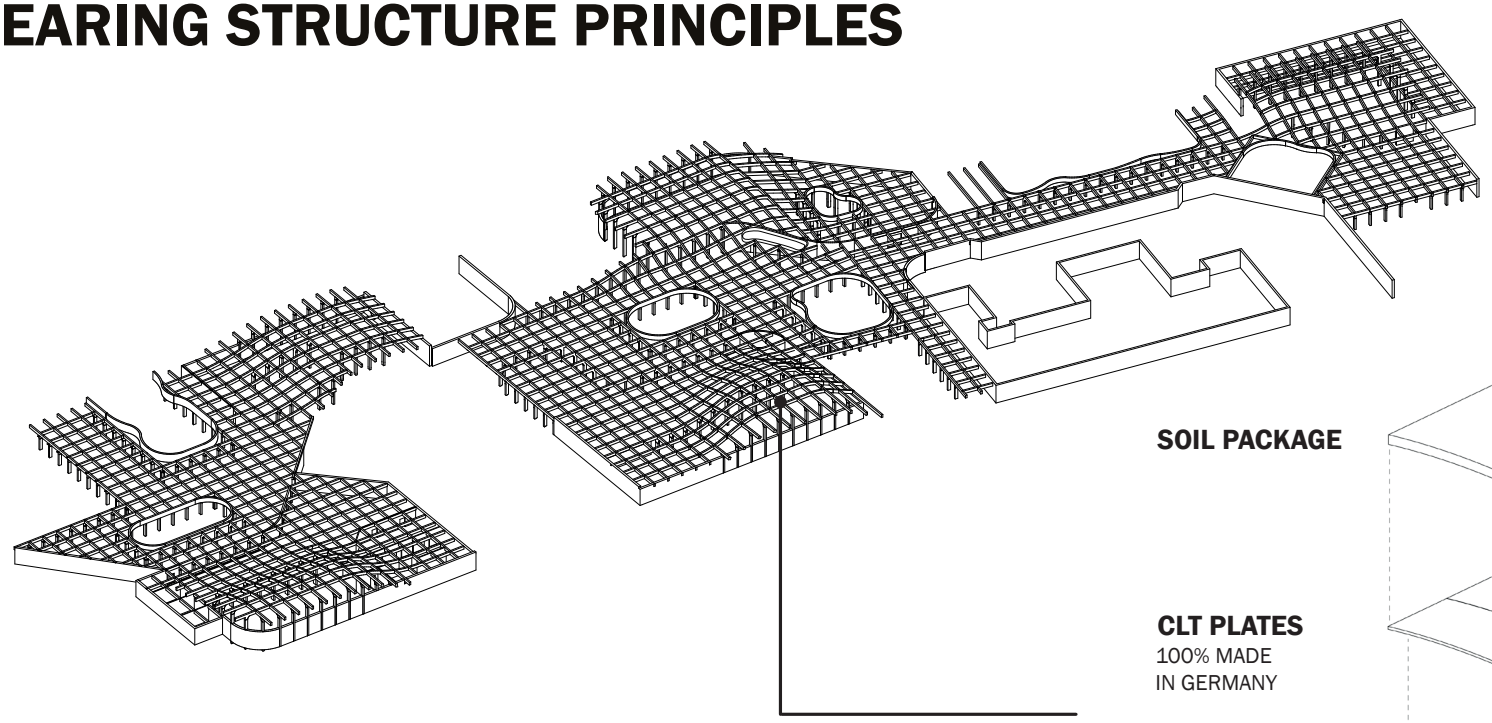
7 x 14,5 cm



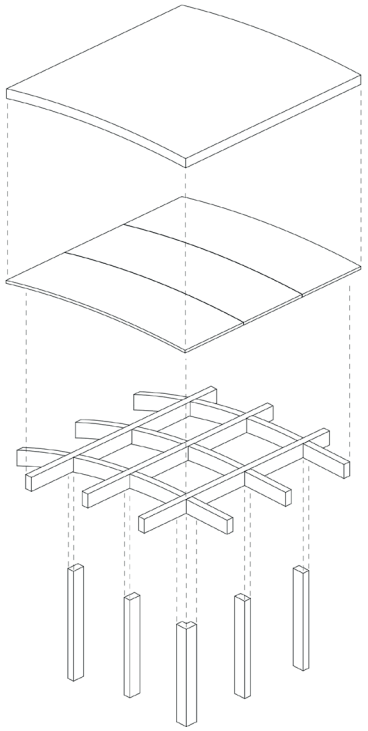
9 x 12 cm



LOAD BEARING STRUCTURE PRINCIPLES



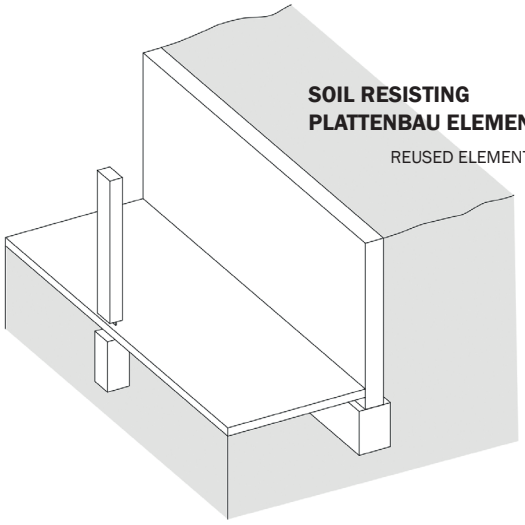
SOIL PACKAGE



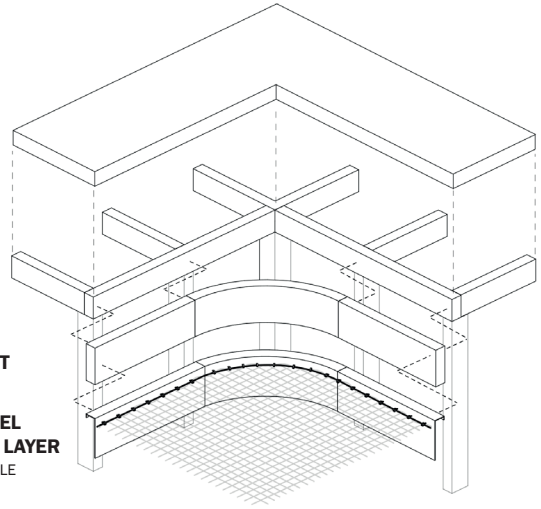
CLT PLATES
100% MADE
IN GERMANY

GLT BEAMS
100% MADE
IN GERMANY

GLT COLUMNS
100% MADE
IN GERMANY

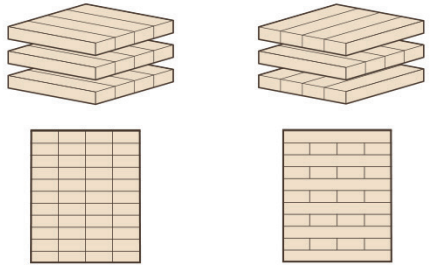


SOIL RESISTING
PLATTENBAU ELEMENT
REUSED ELEMENTS



GLT ELEMENT

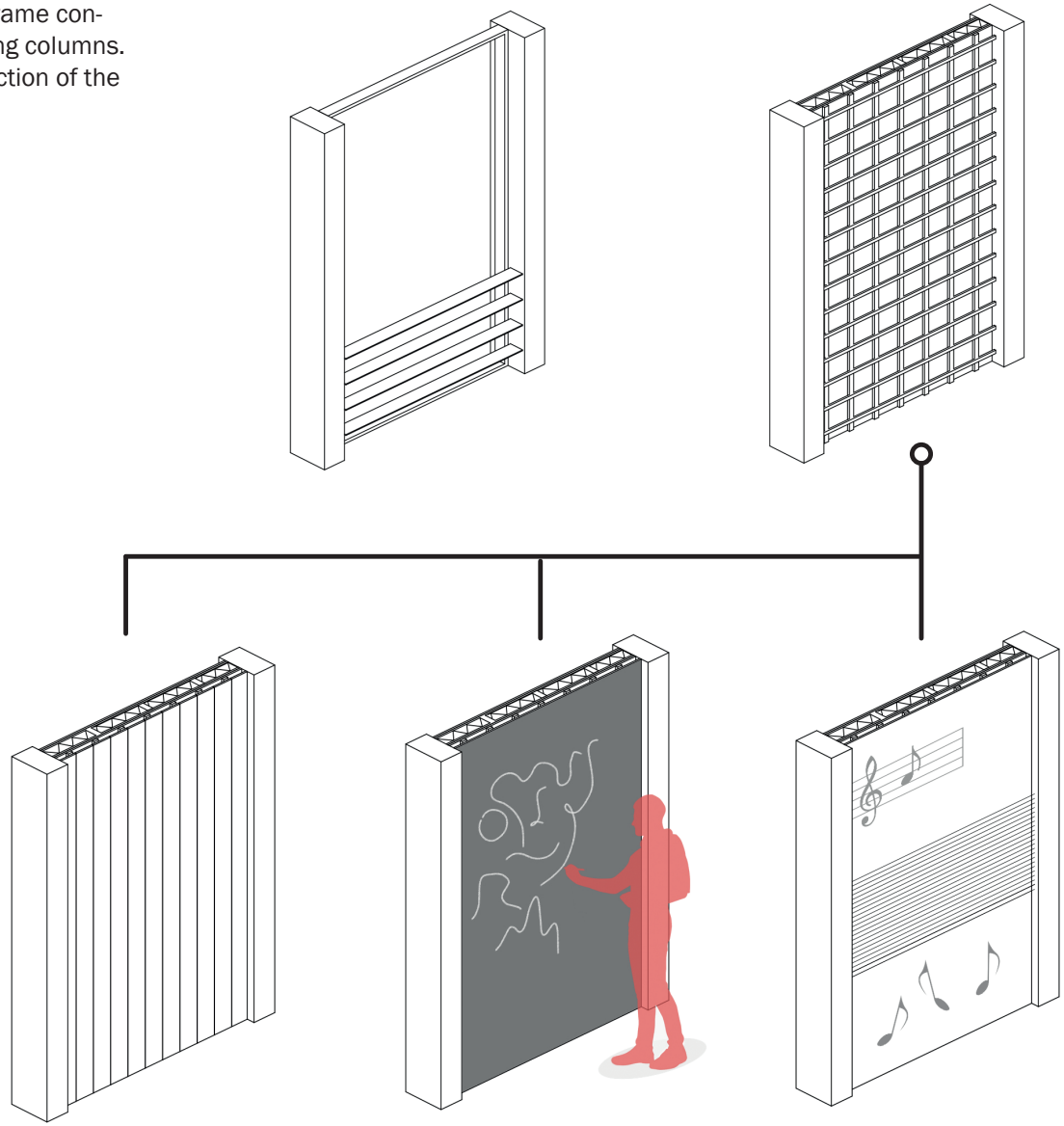
CORTEN STEEL
PROTECTIVE LAYER
100% RECYCLABLE
MATERIAL



GLT CLT

FACADE PRINCIPLE

The facade is made of a timber frame construction between the load bearing columns. The finishing depends on the function of the building and can be interactive.

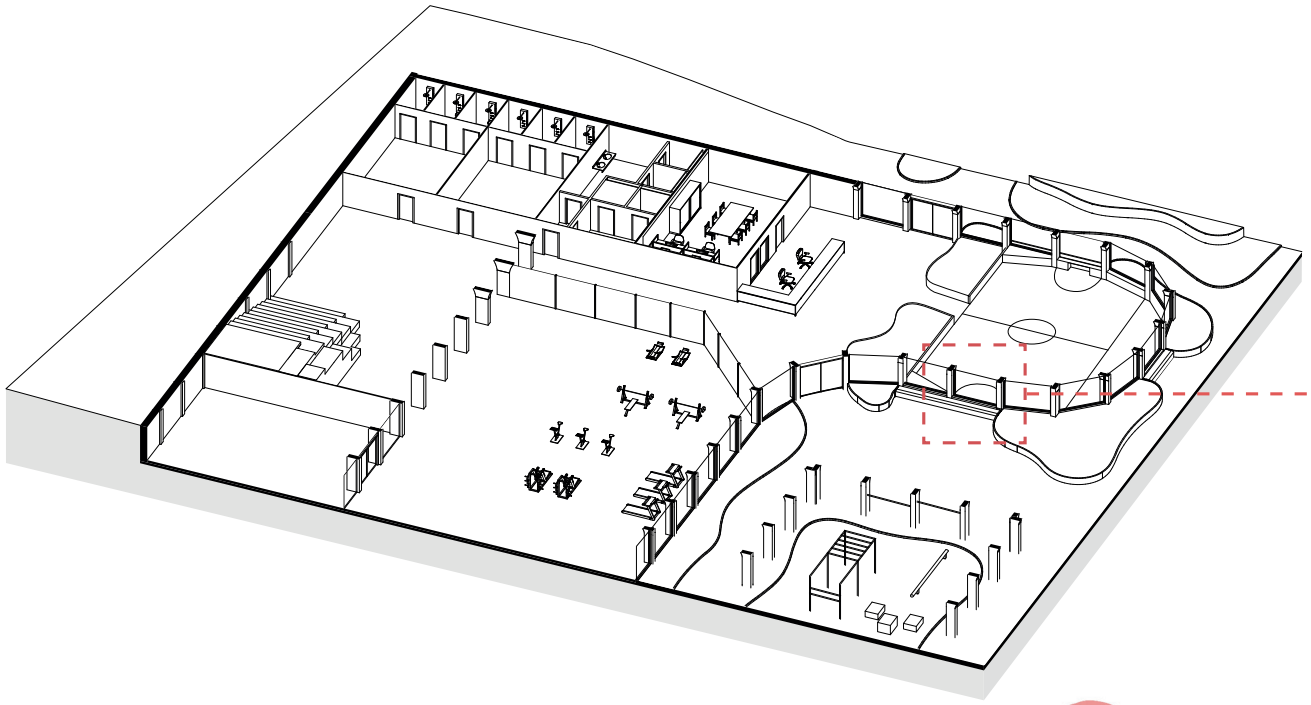


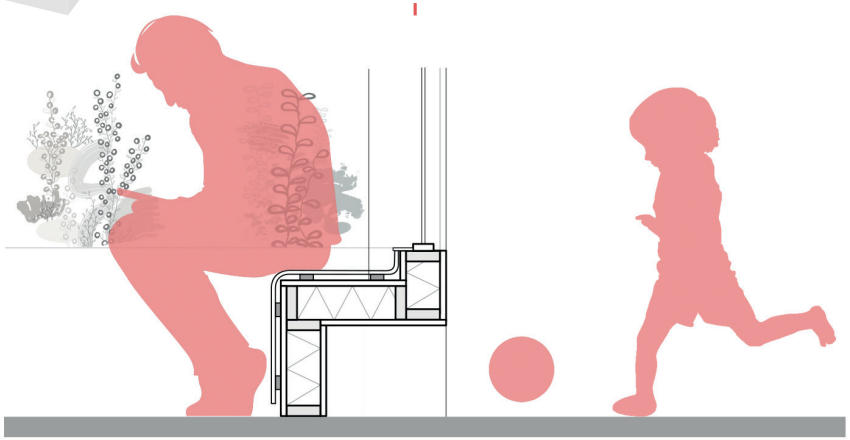
VERTICAL TIMBER FACADE FINISHING

CHALKBOARD (ART WALL)

MUSIC FACADE (SOUND CENTRE)

FACADE PRINCIPLE - INTERACTIVE DESIGN



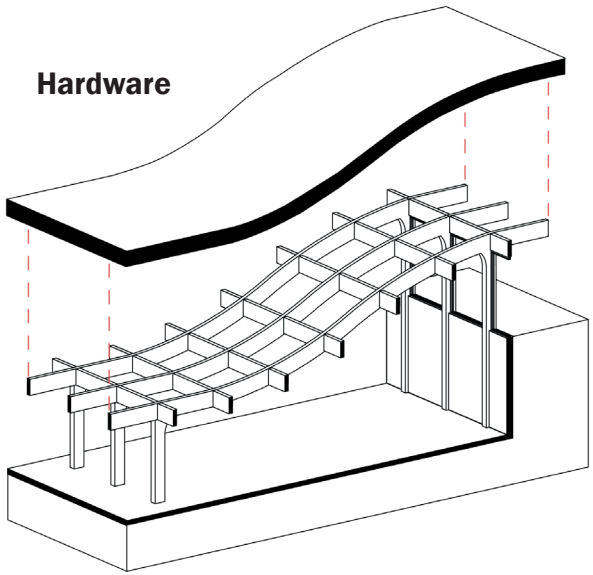


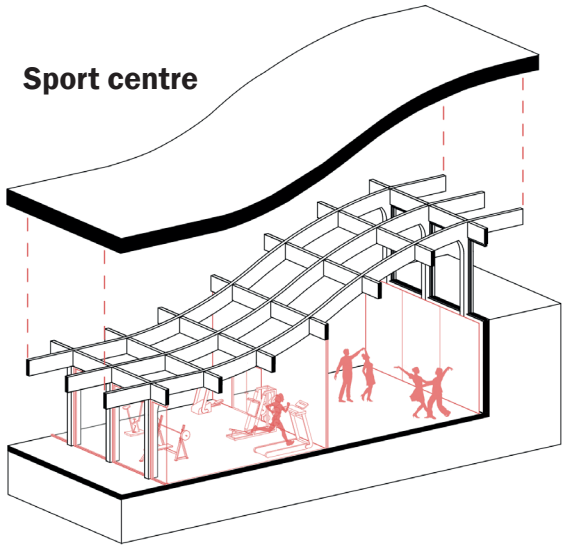
Within the design, interactive facades are designed. These facades does not only have the goal to make a difference between inside and outside and keep the warmth in the building, but does also interact with the function and the users.

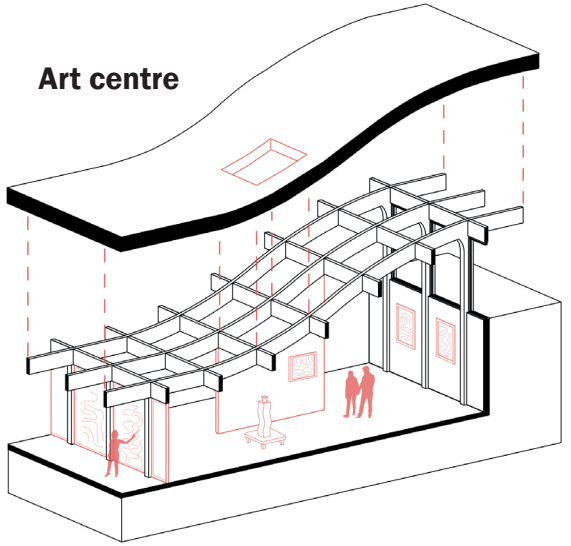
For example this facade, that is a facade, a bench and a soccer goal at the same time. Another example is the art facade made of chalkboard, where people can draw on (see render).

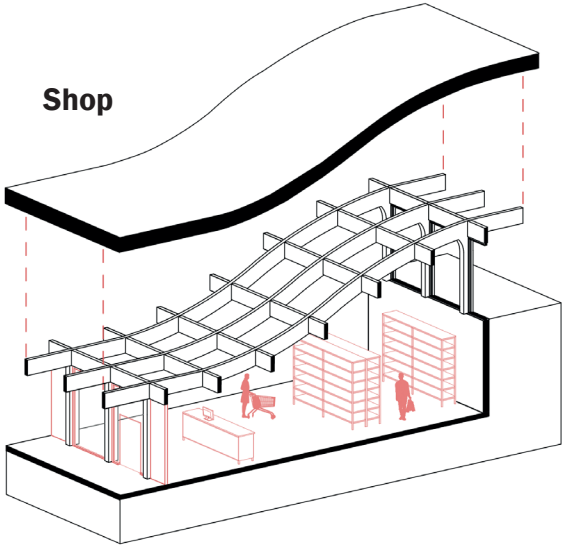
‘HARDWARE’ VS ‘SOFTWARE’

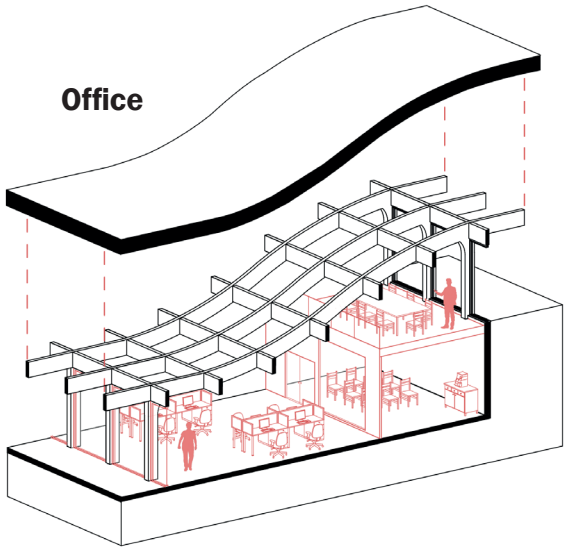
The hardware are the building parts that will always stay the same, like the construction and the green roofs. The software is the infill. This can easily change over time and is ‘futue proof’.



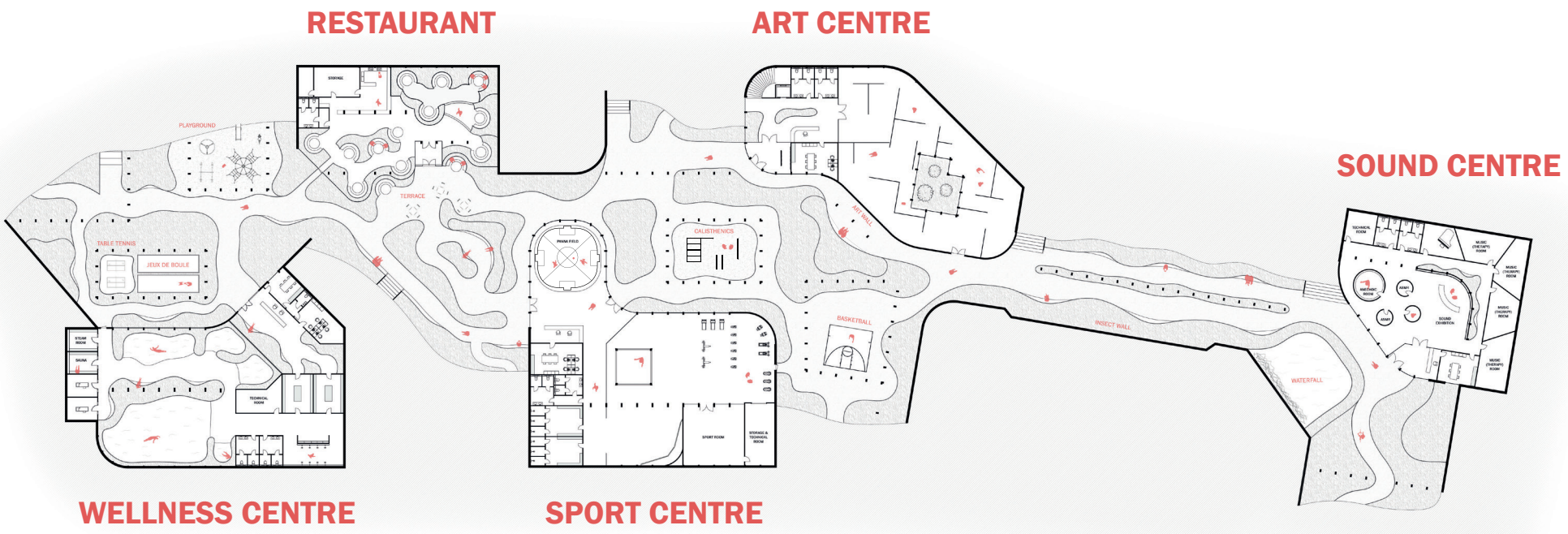




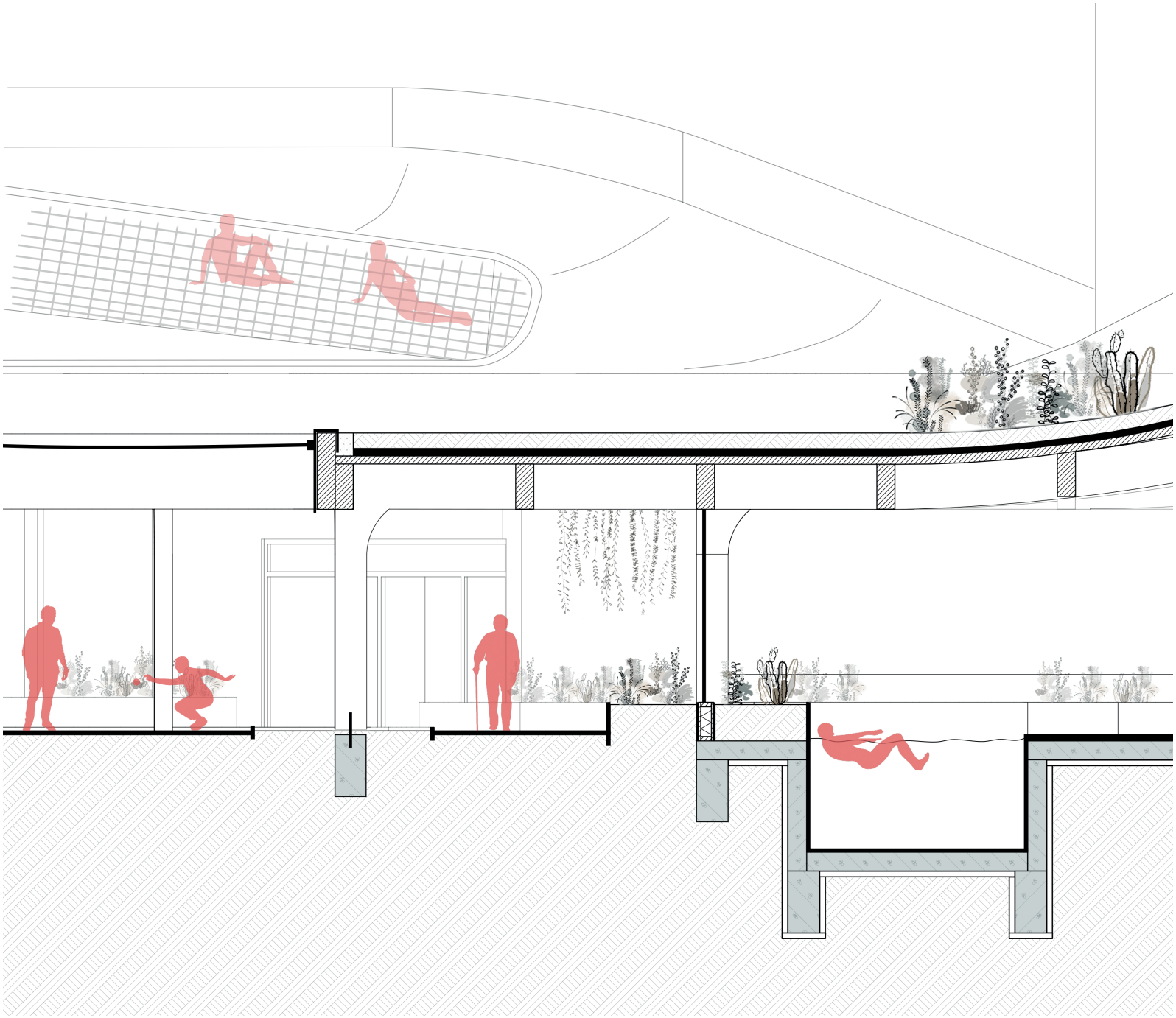




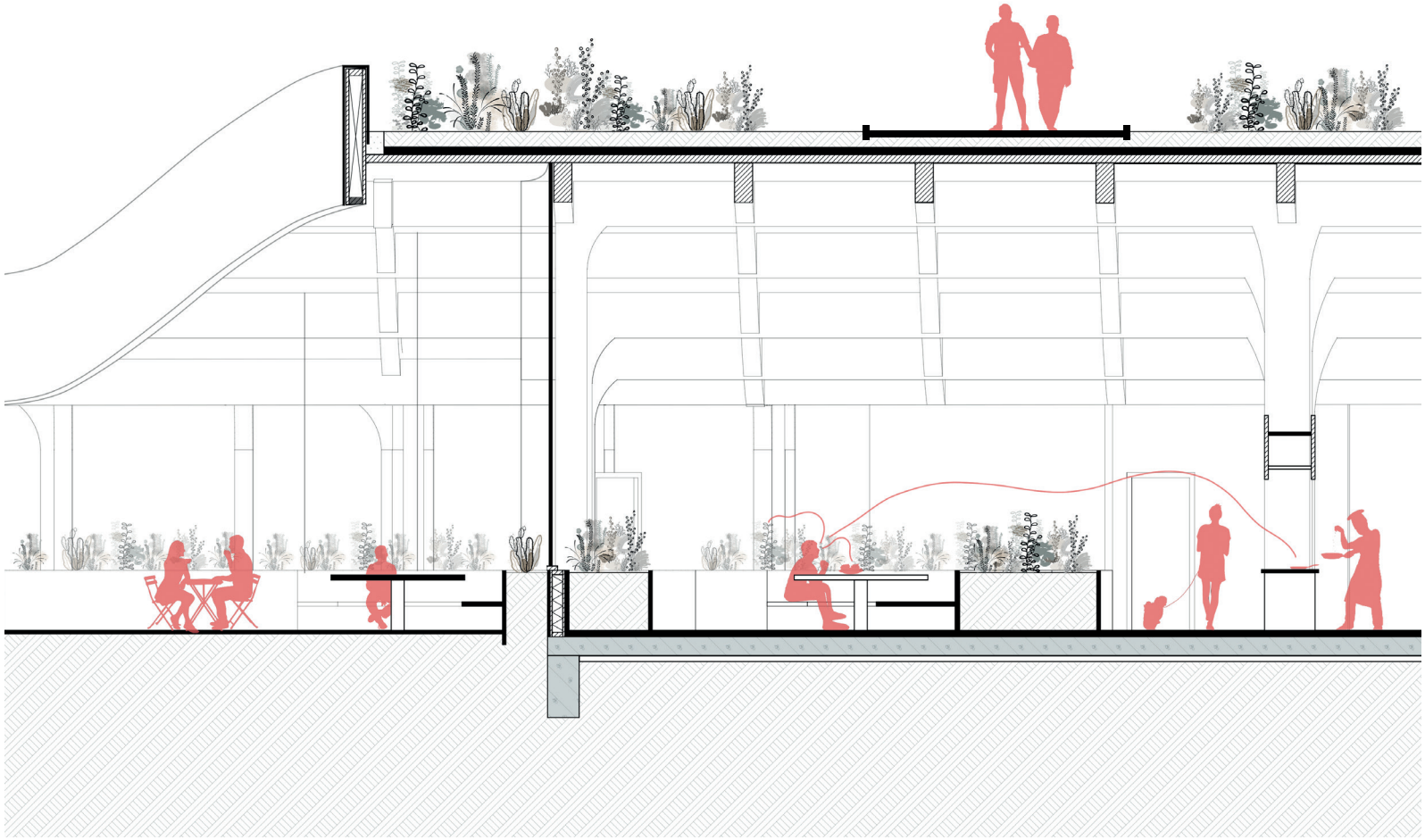
FLOORPLAN


RESTAURANT
ART CENTRE
SOUND CENTRE
WELLNESS CENTRE
SPORT CENTRE
PLAYGROUND
TERRACE
TABLE TENNIS
JEUX DE BOULE
CALISTHENICS
BASKETBALL
ART WALL
INSECT WALL
WATERFALL

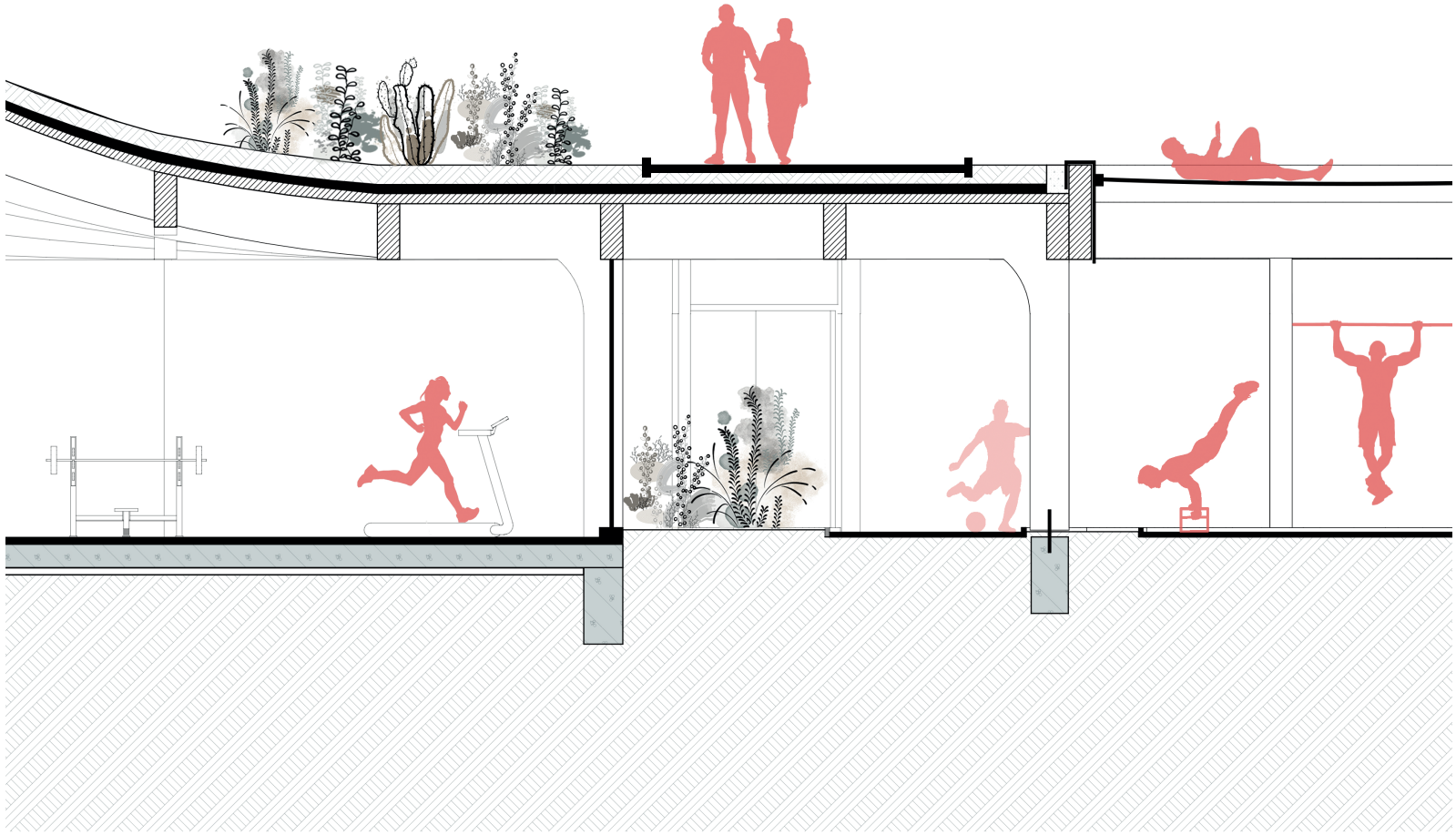
1:50 FRAGMENT WELLNESS



1:50 FRAGMENT RESTAURANT



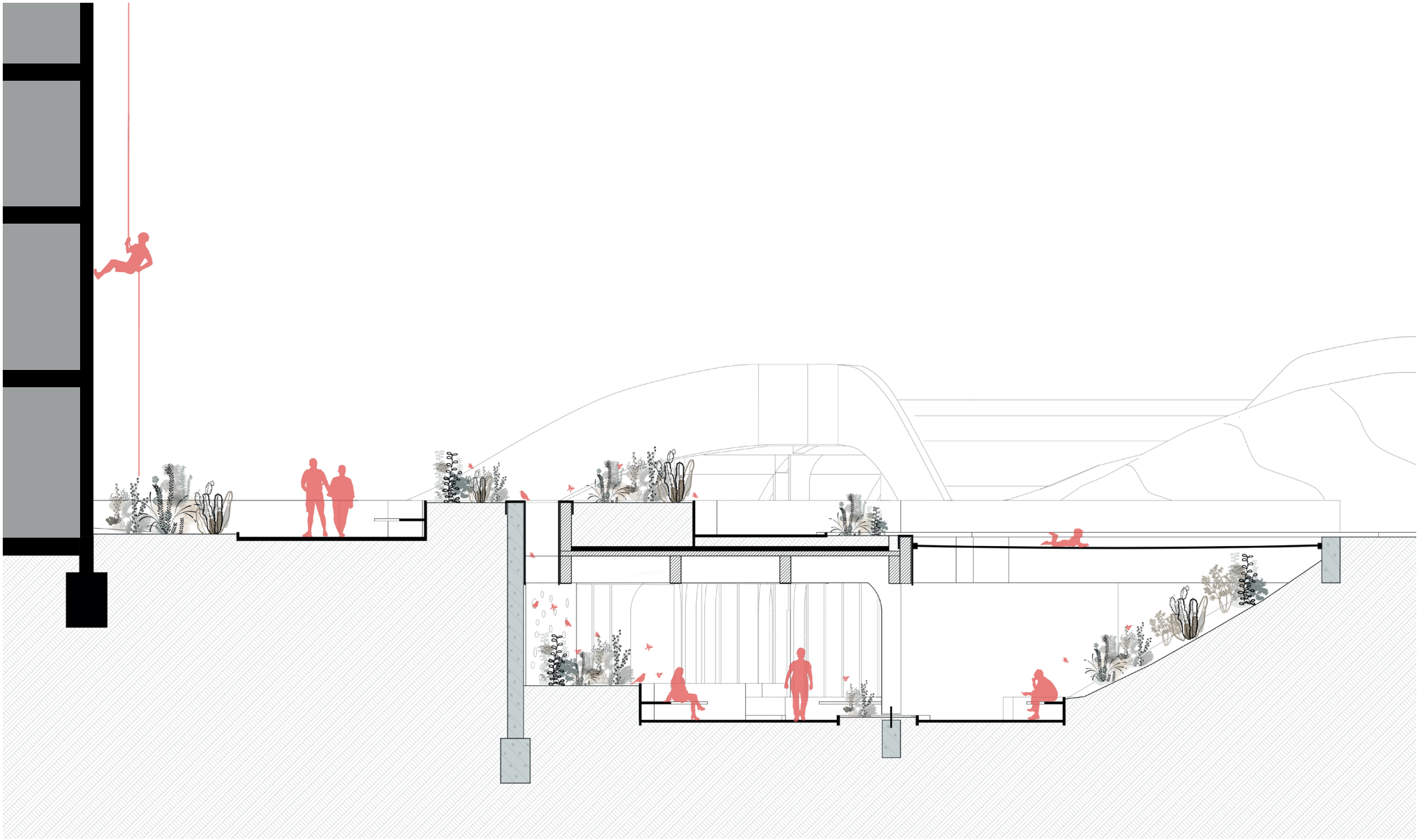
1:50 FRAGMENT SPORT CENTRE



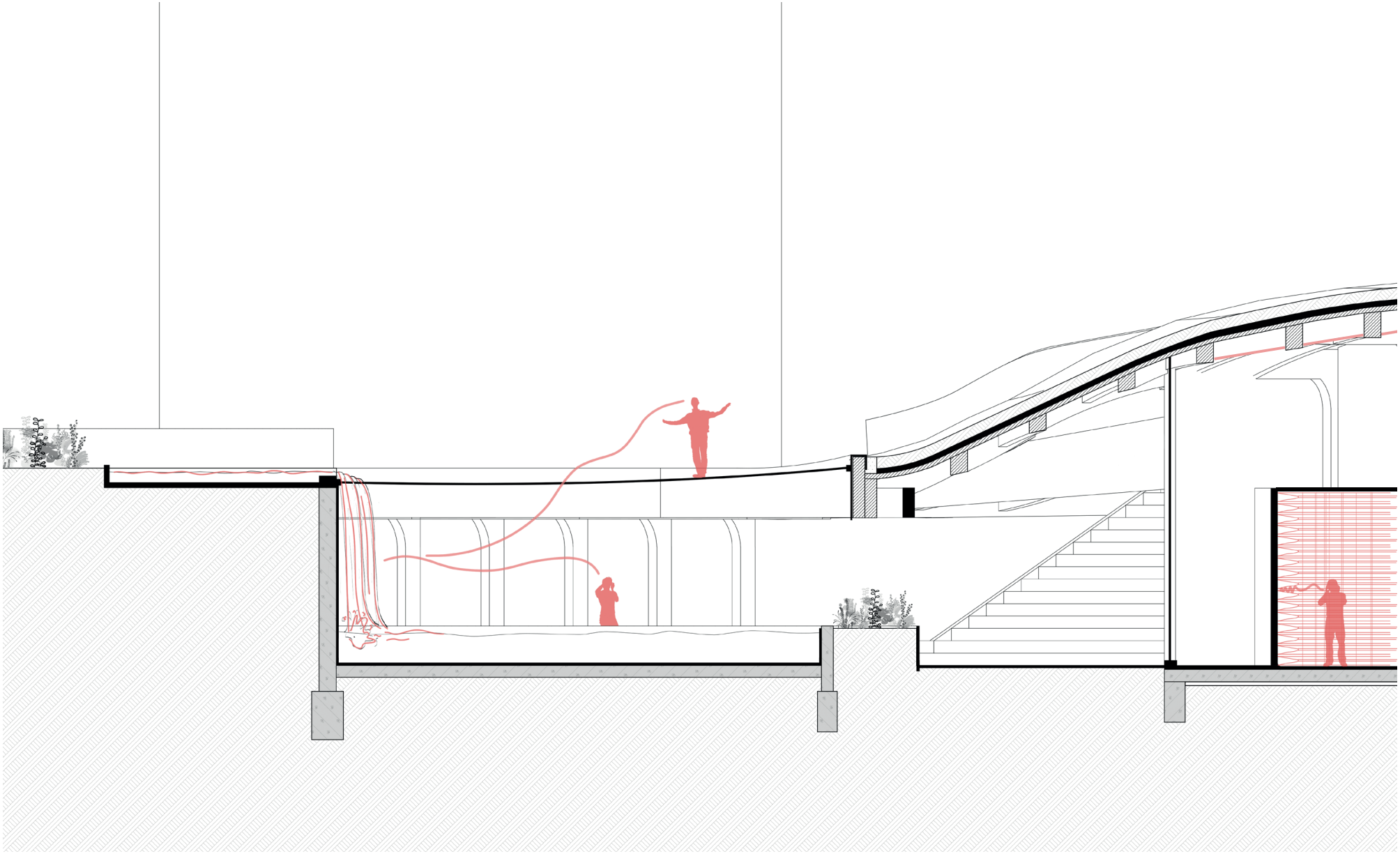
1:50 FRAGMENT ART CENTRE



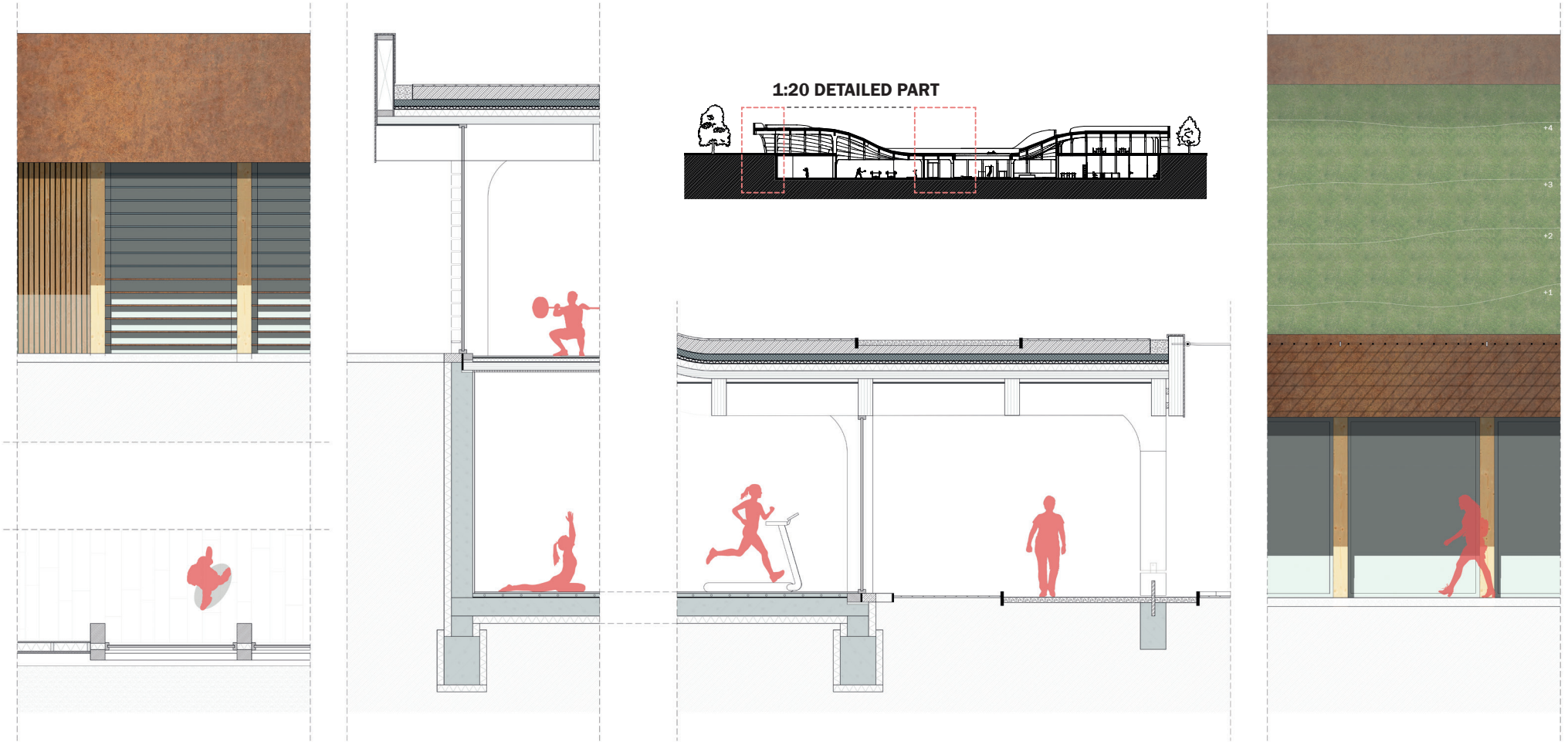
1:50 FRAGMENT INSECT WALL



1:50 FRAGMENT SOUND CENTRE



1:20 FRAGMENT



RENDER



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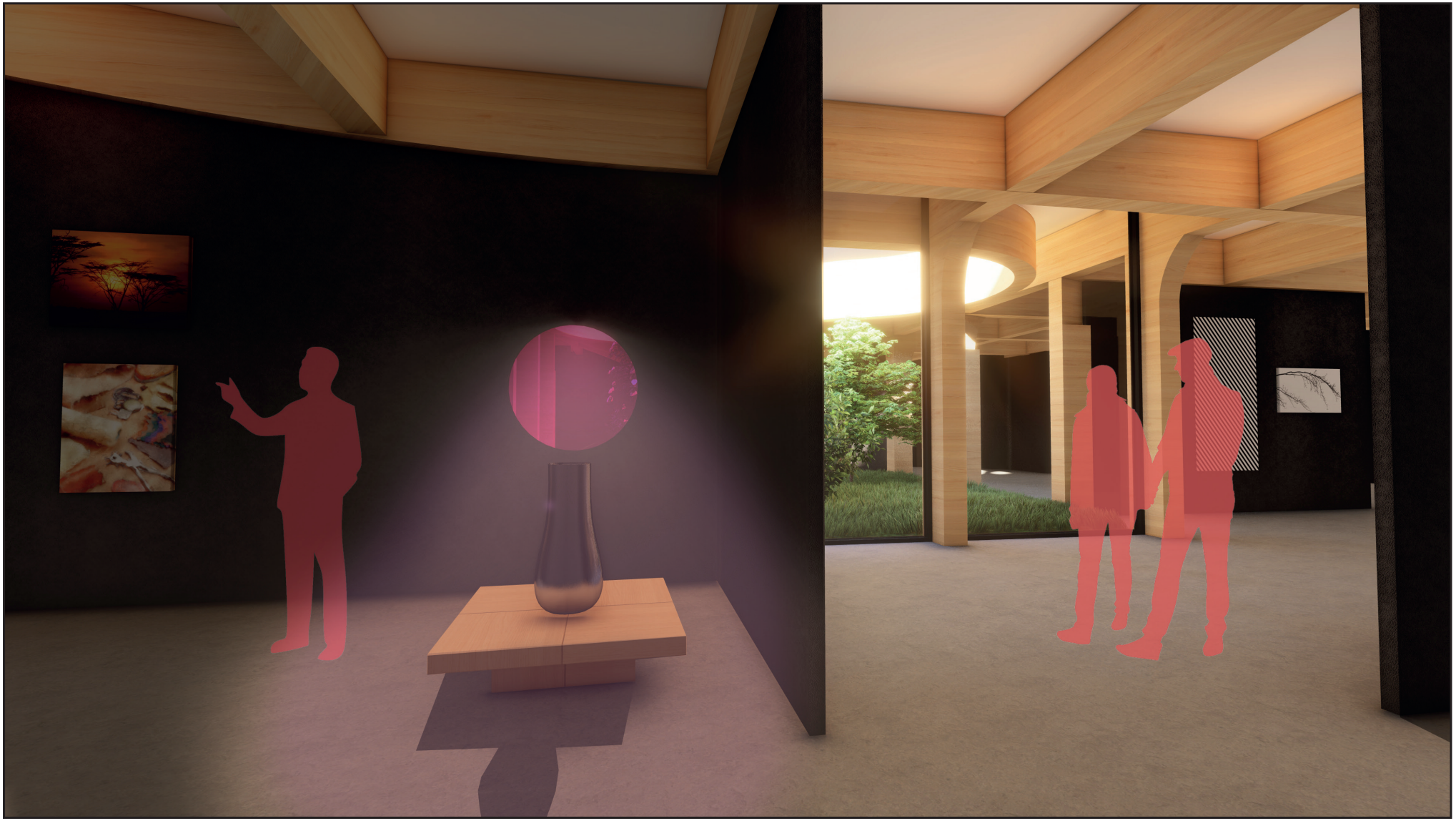

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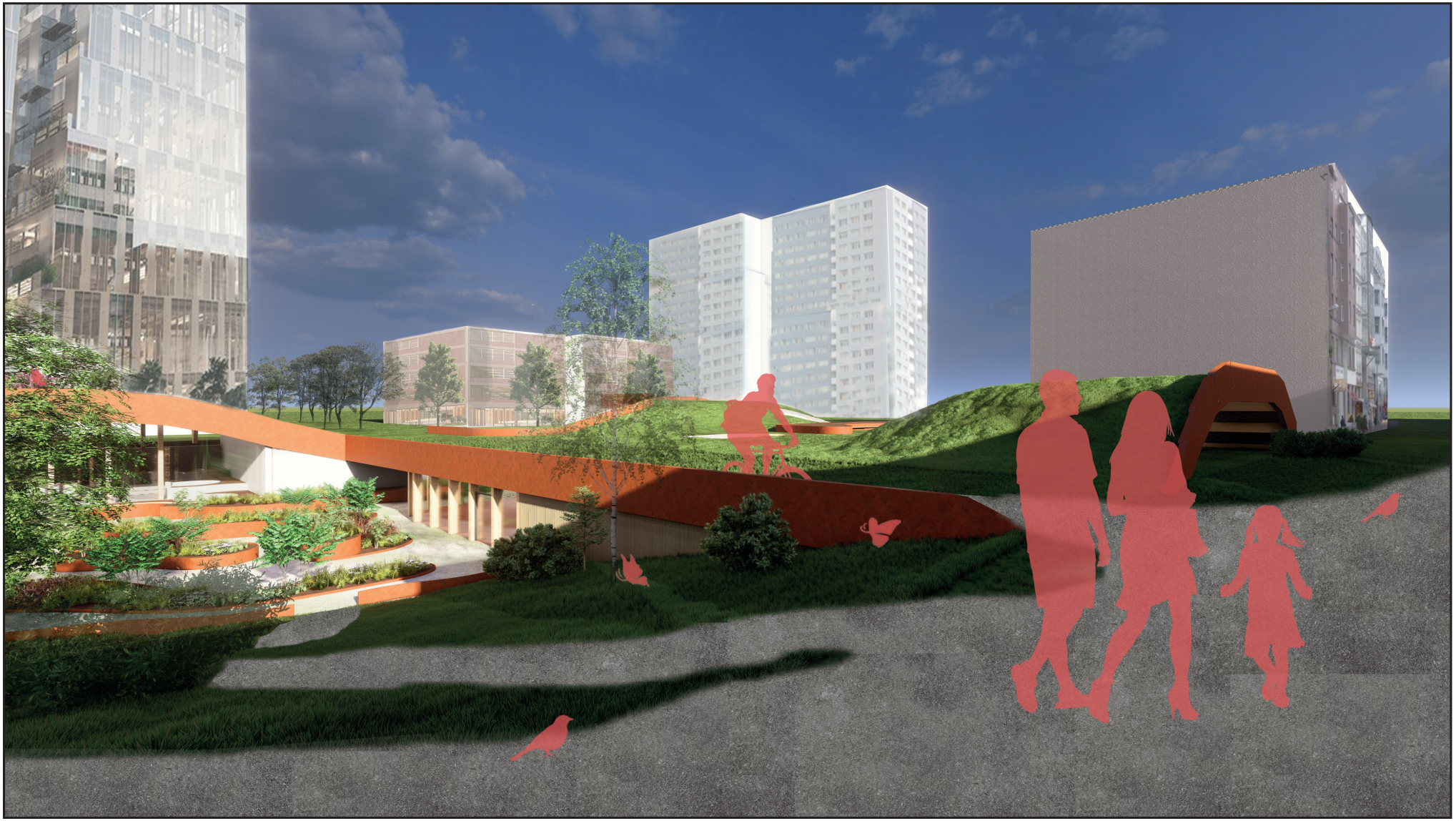


RENDER



REFLECTION

REFLECTION

THE SENSORY HEALING-SCAPE

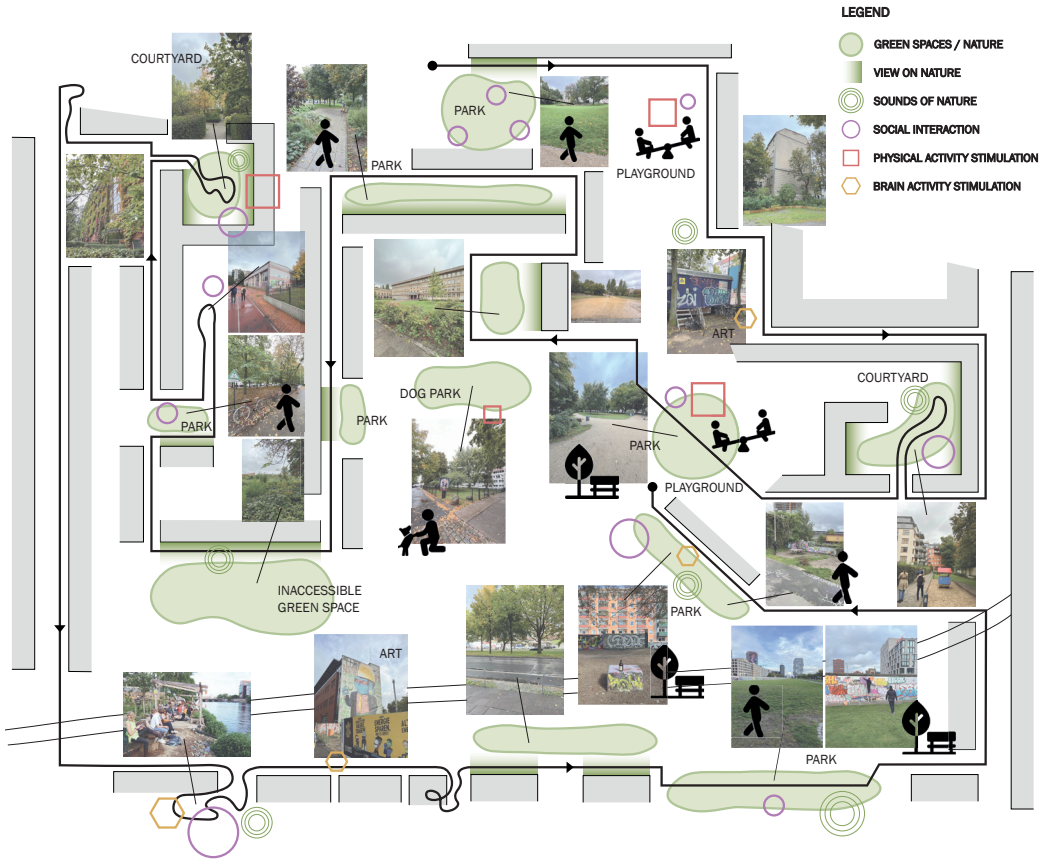
Rutger Kok - 4781589

Public Building Graduation Studio
Public Condenser - Berlin

This reflection is written after designing a public condenser in Berlin, Friedrichshain. Creating a place where all kind of city-users can experience a well-being improving route. The design is based on multiplicity; a place with different facilities of inclusion and diversity. An healthy environment accessible for both short and long staying periods. This reflection tells about the design narrative, the used method and the design process.

1. DESIGN NARRATIVE

The development of the project started after visiting Friedrichshain, Berlin. While making a psychogeographical map for a Theory and Delineation assignment, I started forming the narrative of the project. My perception of the site area and surrounding environment was – based on observation and interviews – that the overall well-being of the residents and users of the space was not stimulating for improvement. The amount of green spaces in the area is lacking behind in comparison with surrounded districts of Berlin, and there is no community within the area of design. I did not find any social or communal activities or functions in the area. Residents of the neighborhood said that there is not that much space for the children to play, because of the low amount of playgrounds and activities around their house. Also, the children were not allowed to leave the surrounding area of the house because of safety. People generally do only know their direct neighbors.
To increase the overall well-being and health conditions of the users of the space, the new design should give the user an experience whereby all their senses will be touched. By creating atmospheres that triggers sensory experience, the buildings and the environment will have influence in how people feel, their behavior, the amount of physical activity, their creativity and so on. This creates a memorable place in the city where the physical and mental well-being of the user will be improved.



Phychogeographic map (own work, 2022)

2. RESEARCH METHOD - USE OF 'RESEARCH BY DESIGN'

Within this project, the 'Research by Design' approach is used to design spaces that are based on scientific research, experiencing, perceptions and memories. This method helps with experiencing the design. By designing and drawing, the space will become visible. From here, you can find what needs to be experienced in another way and what will happen if you change for example the angle of a wall or the amount of light. In my specific situation, I started designing and when I came to a point where scientific research was needed, I started to do research on how to tackle that for the best results. This research was based on literature, but also on making models, diagrams, mapping, collages and so on. By creating these products, you can see what is missing or what need to be changed within the design.

3. DESIGN PROCESS - RELATIONSHIP RESEARCH AND DESIGN

What I did in my process, was to use literature and scientific research to gain knowledge on how to create atmospheres (what is needed and which aspects should be taken into account to create these meaningful places), how to stimulate your senses and why these stimulations affect your physical or mental well-being.
In the period from the start till P2, I did learn a lot about different techniques of Research by Design. This shaped the narrative mentioned above. The weekly research consult helped me a lot to think about how the buildings should be experienced and how that infects the architecture. During the P2 period, the narrative was clear to me.

After P2, the Technical Building Design started with consults, where the Research consults stopped. During the P2, the feedback was to create its own atmosphere inside each building. I started with researching how the building shapes should be changed by thinking of the spatial conditions of each building. By creating accessible green roofs, the landscape will be shaped.

The proposal added another layer to the complexity of Berlin; the relationship with the existing buildings. The P2 presentation let me also think about the existing building on the site, which is the only left-over building of World War II on the site. It tells a story. Rather than demolishing the building for an easier space to design on, the building should be kept the way it is. Designing with this building was quite difficult. Via the research by design method, I tried to integrate the building in the new design, which was complex because of the missing floorplans and sections. At the end, the decision was made to left the builing as it is.

The Technical Building Design consults let me think of the technical details in the designed buildings and park. This resulted in technically fine details, but I lost the narrative formed for P2. The buildings does had their own spatial conditions, but the overall sensory experience was not there.
Since this point, I redesigned the project or parts of it several times, where I sometimes experienced a lot of stress because of the limited time. This did not help with making the right choices.

In the period between P3 and P4, I started redesigning the site, keeping the idea of using the waved roofs as landscape, and creating two layers: the ground level park and the underground level sensory experiencing route (a combination of the strong elements of P2 and P3).

This route should face all the buildings, where each building focusses on one or two senses. These are the dominant senses in the building, which creates hierarchy in the design. By following the route and entering each building, you finally will have a fully sensory experience.

4. FEEDBACK AND TRANSLATION

During the first semester, the feedback of the tutors was interesting, giving me new insights on the graduation topic which developed the narrative quite well. After finishing the conceptual design on P2, the feedback of the tutoring sessions became less helpful. The tutors were giving feedback based on the drawings and research I did. After each consult, I had the feeling everything was not going into the right direction and I changed my design again and again. 3/4 days in the week, I was working on changing the plans and 3D model, and that for a period of a few months. Week after week, I had new floorplans and sections and it did not improve. Because I did not updated the process documentation, I was not sure what was working and what was not. This led into a cycle of redesigning again and again, but never developing new elements.
After zooming out and thinking about the process, I picked out the things that were working in the last few designs, and started with my narrative and urban strategy again. This led into a story and explains why the route in the design is this specific and why the buildings are placed into that specific spot.

I learned a lot from this graduation project, especially on the design process. A design will not improve by only changing what is not working, but it is also about zooming in and out, thinking about what your overall ideas were and how the floorplan you are working on affects these ideas.



Urban strategy in which I kept designing new floorplans (own work, 2022)

5. STUDY PROCESS - RELATIONSHIP BETWEEN GRADUATION TOPIC, STUDIO TOPIC AND MASTER PROGRAM

What fascinates me, is the how architecture can have influence on their users and the environment. Architects can designs spaces in such a way that in can affect the experience, behavior and health conditions of the user. Something I really tried to do in my design period.

During the Master period, I was always fascinated with designing for health. I followed multiple courses where health conditions of the user was important and did lots of research in how to improve these conditions in my designs. Firstly, I designed a shelter on Sint-Maarten where residents can grow their own food. I also did design a co-living concept for elderly that suffer from dementia and have physical movement problems. My theory thesis was about how to improve the health conditions of elderly people in the Netherlands. The reason I chose for the Public Building design studio was that I wanted to have variety in designing different kind of buildings during my study period. A public condenser was something I never designed and can work as a great influencer on the surrounding society. On these kind of buildings and in this case, landscape design, an architect can really have influence on the users and the surrounding environment.

6. GRADUATION PROJECT AND THE WIDER SOCIAL, PROFESSIONAL AND SCIENTIFIC FRAMEWORK

The project consist of research and design, problem statement and solution. It serves different scales and levels, from urban city level to detail level. Within these levels, the project dived into the city; urban strategy, environment and experience. The users; urban experience nowadays, perception, sensory experience, use of the space/functions and well-being. And the future: green (biophilic) design attracting new flora and fauna, reusing and recycling of materials, reduction of urban heat stress, lowering the energy usage.

Within these scales, (scientific) research is combined creating the experience needed to improve the users well-being and making the city ‘future proof’. What could be better is the way this project can be retained in the future. The buildings are specifically designed for their current function and are not easily changeable into another function. Also, expansion of the buildings is hard, because of the surrounding designed spaces.

Although this design is specifically designed for this site and her conditions, the elements of designing for sensory experience to reach improvements in the users feelings, health conditions or behavior can be copied in other projects. Creating architecture in a way that people are willing to (and not forced) discover more of the building or project is a way to reach your goal; in this case improving the well-being of the users. The way of keeping (or even improving) the existing situation and creating new elements which does not contradict the existing can create meaningful places.

7. ETHICAL ISSUES AND DILEMMAS DURING RESEARCH AND DESIGN

The data used for the research of Andreasviertel was based on interviews and some general data research. The residents were questioned about daily life and the missing functions in the surrounded area, to create ideas of what kind of building should be built in this area or what kind of functions should be included. Within the interviews, no questions were asked about their health conditions or well-being and why people feel that way.

The observation of Andreasviertel was based on greenery, social communal activities and building functions. Later on, with the application of the Research by Design tools, the idea of designing for well-being was created. The observation could have been extended by noticing all sounds and smells, social interactions and sightlines on the site spot. Also, no good pictures were made of the used site, because when visiting the location we did not have a specific location in mind.

Within the designed proposal, I tried to keep the existing environment and situation as it is, but improving it from transforming a parking plot into a landscape. As an architect, I tried to design in such a way that the new buildings and route are integrated in the existing situation, and invite people to enter the lowered level by creating spots where people can see, hear and smell the designed experience partly. This attracts people to leave the city and enter the multi-sensory route; to forget the stressfull environment for a bit and improve the physical and mental well-being. Healthier people makes a healthier city!

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