GRADUATION REPORT

MEDIAHEIM BERLIN

2022-2023

MEDIAHEIM BERLIN

MEDIATHEQUE & COMMUNITY LOUNGE

Iris van der Moolen
MSc4 Public Building
19 June 2023

MEDIAHEIM BERLIN
MEDIATHEQUE & COMMUNITY LOUNGE

Graduation Report	Final version P5
Date	19-06-2023
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Design Supervisors	Stefan Witteman and Ger Warries
Theoretical Supervisor	Sang Lee
Course	AR3AP100 | Public Building
University	Technische Universiteit Delft

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GRADUATION PLAN

MASTER OF SCIENCE ARCHITECTURE, URBANISM & BUILDING SCIENCES

Personal information

Name	Iris van der Moolen
Student number	5482887

Studio

Name / Theme	Public Building & commons | Public condenser, new urban lounge	
Main mentor	Stefan Witteman	Project Design
Second mentor	Ger Warries	Building Technology
Third mentor	Sang Lee	Research

Argumentation of choice of the studio

Throughout my studies, I have been interested in how architecture can respond to the city's and its users' needs through form, colour, materials and facilities. For instance, considering the corona pandemic, isolated home situations confronted people with their social needs. Need for a collective place where meeting and interacting are central, a physical place alongside the built-up digital communities.

In my earlier design studios, I also had the opportunity to design multifunctional public buildings. However, I can still better develop myself in this field to create timeless and more sustainable designs. Within this studio, I want to investigate the critical factors for designing a well-functioning public building that all people feel attracted to and can relate to.

Graduation project

Title of the graduation project	Mediaheim Berlin. *Mediatheque & Community Lounge, Friedrichshain, Berlin*

Goal

Location

Berlin, Friedrichshain, Karl-Marx-Allee Süd

The Posed Problem

After the fall of the Berlin Wall, Berlin's gentrification has grown significantly in former 'East' districts like Friedrichshain (Holm et al., 2013). However, in an area like Friedrichshain, gentrification brings many negative consequences in terms of social cohesion. Four significant effects of gentrification can be identified:

1. Loneliness: With the arrival of event and entertainment venues, original, mostly ageing residents no longer associate with their neighbourhood (Holm, 2009). As a result, older people can no longer use their familiar social facilities and loneliness increases even faster (Davidson, 2008).

2. Segregation: Due to extensive modernisation of old buildings in areas like Weberwiese, rents go up and poorer households cannot afford them (Holm, 2009). This drives low-income residents out of their neighbourhoods, increasing socio-economic inequality and segregation.

3. Isolation and individualisation: In newly developed areas such as the south of Wriezener Bahnhof, large apartment complexes generate more individualism and isolation. Elevator access, undefined public spaces and the possibility of working from home reduce people's social interaction.

The Posed Problem

Ultimately, gentrification undermines the native culture and society, where transformations should take place hand in hand with existing conditions and demographics.

Essential target groups often ignored in gentrifying areas but with a high number of residents are lonely elderly, less affluent families and individual youth. Interviews conducted in Friedrichshain revealed that these target groups desire a safe place to entertain and learn. Older people need a place where they can reacquaint with their neighbourhood. They desire a place where they can pursue new hobbies and make new contacts so they are less likely to be alone.

Families driven out of the area by rising house prices are also unable to afford certain activities. Besides, in densely populated areas, there is little consideration for social space, and families do not want to give up their old home. Less wealthy families desire free activities within their familiar surroundings to meet up with old friends or neighbours, for example.

Finally, young people have faced the transition from a physical to a virtual online community. As a result, they spend more time at home and have fewer physical relationships. Consequently, 25% of Berlin's youth experience loneliness at times (Schumacher, 2019). For them, it is crucial to have a place where they can physically connect with peers and be in a broader environment than their home.

The design will therefore have the function of a public library that serves as an urban lounge where different generations can interact and cohabit.

Research Questions

Main research question:
How can different media types form a new library typology that serves as a cultural heart between gentrifying neighbourhoods?

Subquestions:

1. How can a library be socially and culturally open instead of a typical individual and isolated object?
2. How can different generations help each other break up social isolation?
3. How can a public building mediate between the individual and the collective?
4. How can a media library adapt to the future enlargement of digital technology?

Design Assignment & Results

The design aims to form a new central heart between an existing and new neighbourhood and their society. The public condenser should blur rigid divisions between neighbourhoods and enhance inclusivity and diversity.

A public function that facilitates different generations' recreational and intellectual needs is a library. Today's libraries already have a social function in addition to the intellectual purpose. In addition, Freeman and Braconi (2002) state in their 'Gentrification and Displacement; The Urban Prospectus' that if the availability of social services increases, changes in neighbourhood resources can be seen as 'positive elements'.

In other words, adding social functions to existing services ensures that renewal and origin reinforce each other. Moreover, bringing different socioeconomic groups together reduces crime and disorder and enhances the collective sense of security (Vigdor, 2002).

Design Assignment & Results

The standard library will be expanded to include other media forms to anticipate the future. So there will not only be printed books in the building but also devices on which users can read digital books and listen to audiobooks. In addition, the media library will contain extra functions that activate the left and right hemispheres. Activities that activate the left hemisphere of the brain are more intellectual functions, such as offices, study rooms, reading rooms and debate rooms.

The right hemisphere responds to creative activities, such as crafts, painting, dancing and singing. The different types of media will connect the thinking and doing activities in the building through a guiding routing. Finally, in addition to the activities for thinking and doing, there will also be space for leisure and gathering. Traditional formal functions associated with a library will be transformed into more informal ones with room for both the individual and the collective. The negative space of the media library will serve as a living room for the community.

Four design principles are formulated to design a public library that serves as a central heart between contrasting neighbourhoods. Firstly, the building should be inclusive; the design will consist of different functions and users mixed through the building to create more interaction. Secondly, the design will enhance the visibility of activities, which will act as an invitation to enter the building and stimulate interaction with the surroundings.

Interaction is the third principle where the building will react on. To promote interaction, circulation will be the catalyst of social encounters. Prof. Dr Erik Scherder (2018) states that movement significantly improves our brain's 'executive functions', the ability to take the initiative, plan things, control impulses and self-regulate.

Lastly, the design must be flexible for future changes and user needs. Also, some functions will become redundant due to digitalisation and future technology. For the building to last longer than the life cycle of the functions, it is crucial to be adaptable to different activities.

In short, the media library will serve as an urban living room where different generations can interact and cohabit. In order to create a new central heart for contrasting neighbourhoods, the design will focus on diversity, visibility, interactivity and flexibility.

Process

Method description

Various research methods have been and will be used to answer the research questions correctly. For background information on Berlin and Friedrichshain, quantitative research was conducted in the first weeks. During the site visit, the data was extended with participant observation and interviews to discover who the commons and their needs in Friedrichshain are.

Qualitative research will be used to investigate the social and spatial effects of gentrification and the influence of public interiors in an urban context. Furthermore, qualitative research will also be used to explore the types of media used in existing libraries to find new media to read books with the help of future technology.

Moreover, plan analysis of contemporary libraries will be used to explore how a public library can be socially and culturally more open instead of a typical individual and isolated object. Additionally, the plan analysis will research how a public library can mediate between the individual and the collective and how different generations can work together.

Literature and general practical preference

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Reflection

What is the relation between your graduation (project) topic, the studio topic, your master track (A), and your master programme (MSc AUBS)?

The social and spatial effects of gentrification already play a significant role throughout the architecture master track. At the complex projects msc1 studio called 'Dutch Change', I was commissioned to design an amateur art centre in the centre of Rotterdam. Rotterdam is also experiencing gentrification, leaving residents with few social places to go.

During the MSc 2 semester, I followed the design studio High Rise, an interdisciplinary studio between public building, dwelling and form studies. The assignment was to design a performative hybrid high-rise where housing, collective and public programmes are housed in one building. The reason for this assignment was that there is much housing shortage in cities like Amsterdam, but there also remains much need for public spaces.

Of course, this public building studio is also about public spaces in a densely populated city. However, the public condenser theme goes deeper into the social aspect and differs from the other studios' artistic, residential or commercial aspects. A public condenser attracts many audiences because it has more than one particular function. The building has more to offer than a media library; it is a public heart for intellectual, creative and leisure activities. This graduation project investigates how different socioeconomic target groups can help each other break up social isolation. It also examines how a public building can mediate between the individual and the collective.

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

Architecture today should be more than a beautiful aesthetic building or a well-detailed design. At a time when cities are becoming more densely populated, where there is a lot of housing shortage while housing is becoming more expensive, and where digitalisation is taking over from physical encounters, architecture is more about social character.

The need for public buildings will continue to be strong in the future. There is less space in the city to spread small public facilities, so a single multifunctional building is essential. However, it is crucial that future changes, such as digital technology, are considered when designing new public buildings. This graduation project investigates how a public building can positively use digital technology to allow different generations and target groups to work and learn together. It also examines how the building can anticipate future functions and user needs changes.

Planning

After presenting the master plan, the defined programme and a schematic design with floor plans and cross-sections, the project will evolve over the next five months.

Between P2 and P3, the schematic design will be further developed into a preliminary design. The preliminary design will focus on floor plans, cross-sections, facades, and a facade section with schematic details.

After P3, the design will be further developed to a detailed level. The situation drawing, floor plans, sections and façades will be elaborated to a 1:100 level. In addition, part of the building will be worked out in even more detail, 1:50, and a facade fragment with corresponding details will clarify which connections the building holds together. By P4, the above products will already be completed, and some products will be further fine-tuned until graduation at P5.

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PROJECT ABSTRACT

INTRODUCTION | RESEARCH PLAN

Since the fall of the Berlin Wall, Berlin's gentrification has grown significantly in former 'East Berlin' districts.[1] However, in an area like Friedrichshain, gentrification brings many consequences in terms of social cohesion. Four significant effects of gentrification can be identified:

1. Loneliness: With the arrival of event and entertainment venues, original, mostly ageing residents no longer associate with their neighbourhood.[2] As a result, older people can no longer use their familiar social facilities and loneliness increases even faster.[3]

2. Segregation: Due to extensive modernisation of old buildings in areas like Weberwiese, rents go up and poorer households cannot afford them. This drives low-income residents out of their neighbourhoods, increasing socio-economic inequality and segregation.

3. Isolation and individualisation: In newly developed areas such as the south of Wriezener Bahnhof, large apartment complexes generate more individualism and isolation. Elevator access, undefined public spaces and the possibility of working from home reduce people's social interaction.

Ultimately, gentrification undermines the native culture and society, whereas transformations should take place hand in hand with existing conditions and demographics. For this reason, the thesis will investigate the following research question: *"How can different media types form a new library typology that serves as a cultural heart between gentrifying neighbourhoods?"*

The research question is supported by sub-questions discussing the typical individual and isolated character of a library and how this can be transformed to a socially and culturally open building. Moreover, it will explore how different generations can help each other to break up social isolation and how a public building can mediate between the individual and the collective. Furthermore, the research will address how a media library can adapt to the future enlargement of digital technology.

The design aims to form a new central heart between an existing and new neighbourhood and their society. The public condenser should blur rigid divisions between neighbourhoods and enhance inclusivity and diversity. Essential target groups often ignored in gentrifying areas but with a high number of residents are lonely elderly, less affluent families and individual youth.

Interviews conducted in Friedrichshain revealed that these target groups desire a safe place to entertain and learn. The design will therefore have the function of a public library that serves as an urban lounge where different generations can interact and cohabit.

The standard library will be expanded to include other media forms to anticipate the future. In addition, the media library will contain extra functions such as a study area, debate rooms, an auditorium, a laboratory and workshops. The building will be inclusive, hybrid and adaptable to future changes and users' needs.

Changes in neighbourhood resources can be seen as "positive elements" of gentrification if the availability of social services increases.[4] Adding social functions to existing services ensures that renewal and origin reinforce each other. Moreover, bringing different socioeconomic groups together reduces crime and disorder and enhances the collective sense of security.[5]

Various research methods have been and will be used to answer the research questions correctly. For background information on Berlin and Friedrichshain, quantitative research was conducted in the first weeks. During the site visit, the data was extended with participant observation and interviews to discover who the commons in Friedrichshain are and their needs.

Qualitative research will be used to explore the types of media used in existing libraries to find new media to read books with the help of future technology. Moreover, plan analysis of contemporary libraries will be used to explore how a public library can be socially and culturally more open instead of a typical individual and isolated object. Finally, the plan analysis will research how a public library can mediate between the individual and the collective and how different generations can work together.

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02

THEORY AND DELINEATION

RESEARCH PHASES | COLLECTION

The research course used different media and design techniques to develop its own position on a contemporary public condenser. Each week, a new technique and a new tool were discussed in order to gain new ways of knowing. The research-by-design method led to several experiments and new insights. Each week, my own vision and perception emerged more and more and I was able to visualise my concept better.

Techniques covered were: collage montage, diagrams, mapping, physical and digital models, grasshopper, remix and finally a draft for the schematic design. The process documentation incorporates the design techniques used in the research, showing the relationship between research and design.

COLLAGE - MONTAGE

Assignment 1 - Collage

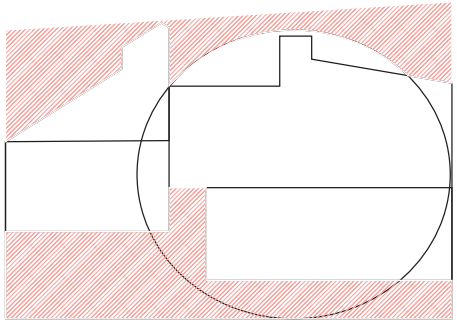
A contemporary public condenser catalyses at the local level and acts as a place for creativity and diversity. It should house different functions, combining intellectual, physical health and artistic processes. The combination of different functions makes it a hybrid building that will attract many different users. The building should blend into the existing context, where the old and new elements are visible. This will be a link between new and old buildings and history and the future.

Status: Revised

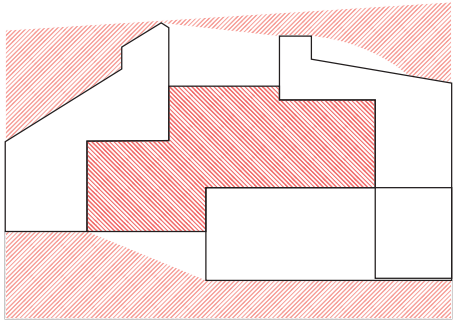
SUPERPOSITION - SUPERIMPOSITION

Assignment 2 - Diagrams

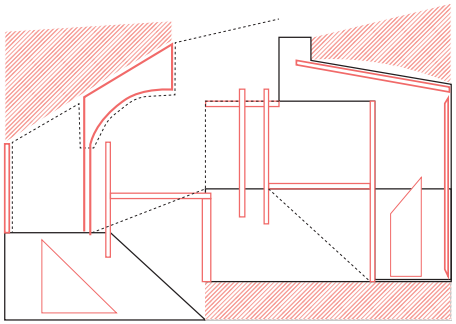
Collage Public Condenser



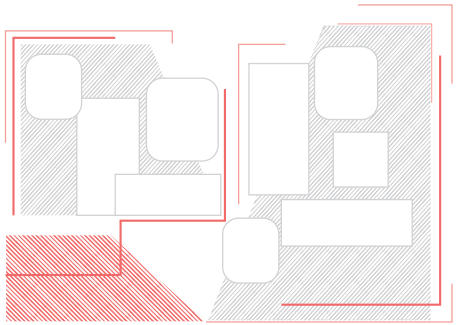
Context



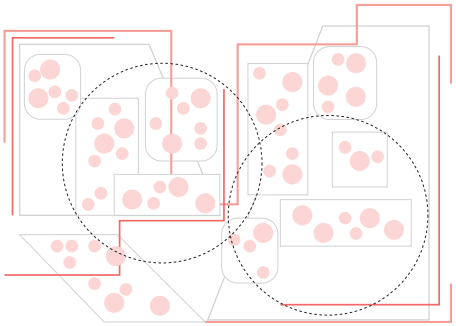
Building



Structure



Organisation



People

The collage is a collection of different building elements that are important for a public building. First, the relationship with the surroundings is essential, not only with surrounding buildings but also with the outdoor space adjacent to the building. Public activities need not only take place inside the building but can also be drawn outside. Secondly, it is essential that the building has a central heart to which people can always go. A central place in the building is excellent for the community feeling and wayfinding inside.

The third aspect is structure. To maximise the lifespan of the building, a column structure with free spans is a must. Indeed, light partitions can be placed between the columns, which can be adapted in the future. The organisation of the building is the fourth aspect. The different functions can overlap or border each other to encourage more interaction. This also leads straight to the fifth aspect, where the diversity and quantity of people spread throughout the building. The building should be a community lounge where everyone feels welcome.

Status: Revised

MONTAGE

Assignment 1 - Montage

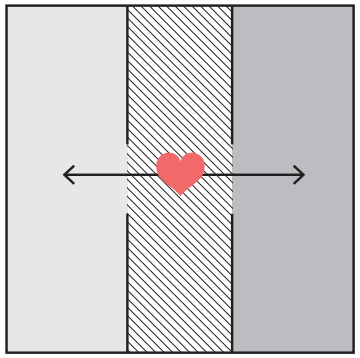
A contemporary public condenser should be an extension of our own living room. Various activities you normally do in your own living room are housed in one building without the usual separation of functions. It is a place where recreational and intellectual activities intertwine and where different socioeconomic groups can interact and cohabit. The building will be inclusive, hybrid and flexible for future changes and users' needs.

An urban lounge thus becomes a shared centre for different generations to reduce isolation and segregation within gentrifying areas.

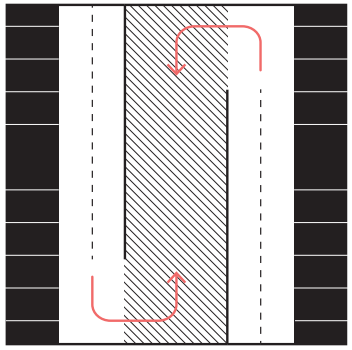
Status: Used

The urban lounge will serve as a central place between contrasting neighbourhoods to create a connection between residents. The building should be an extension of the public street, where people feel welcome and can be themselves. Interaction between different audiences will also be encouraged in the building through open activities. Finally, the building will have to be able to anticipate the future and maintain its lifespan as long as possible using a flexible and adaptive design.

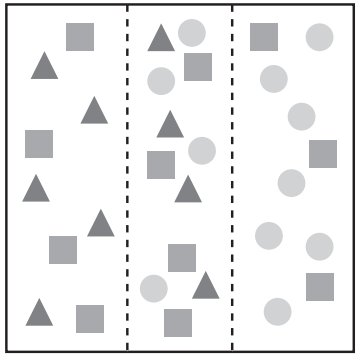
Status: Used



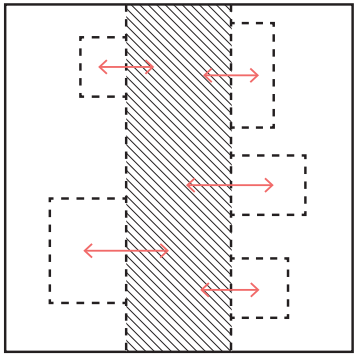
Connecting different neighbourhoods



Extension of public street



Merge different target groups



Ensure flexibility and adaptivity

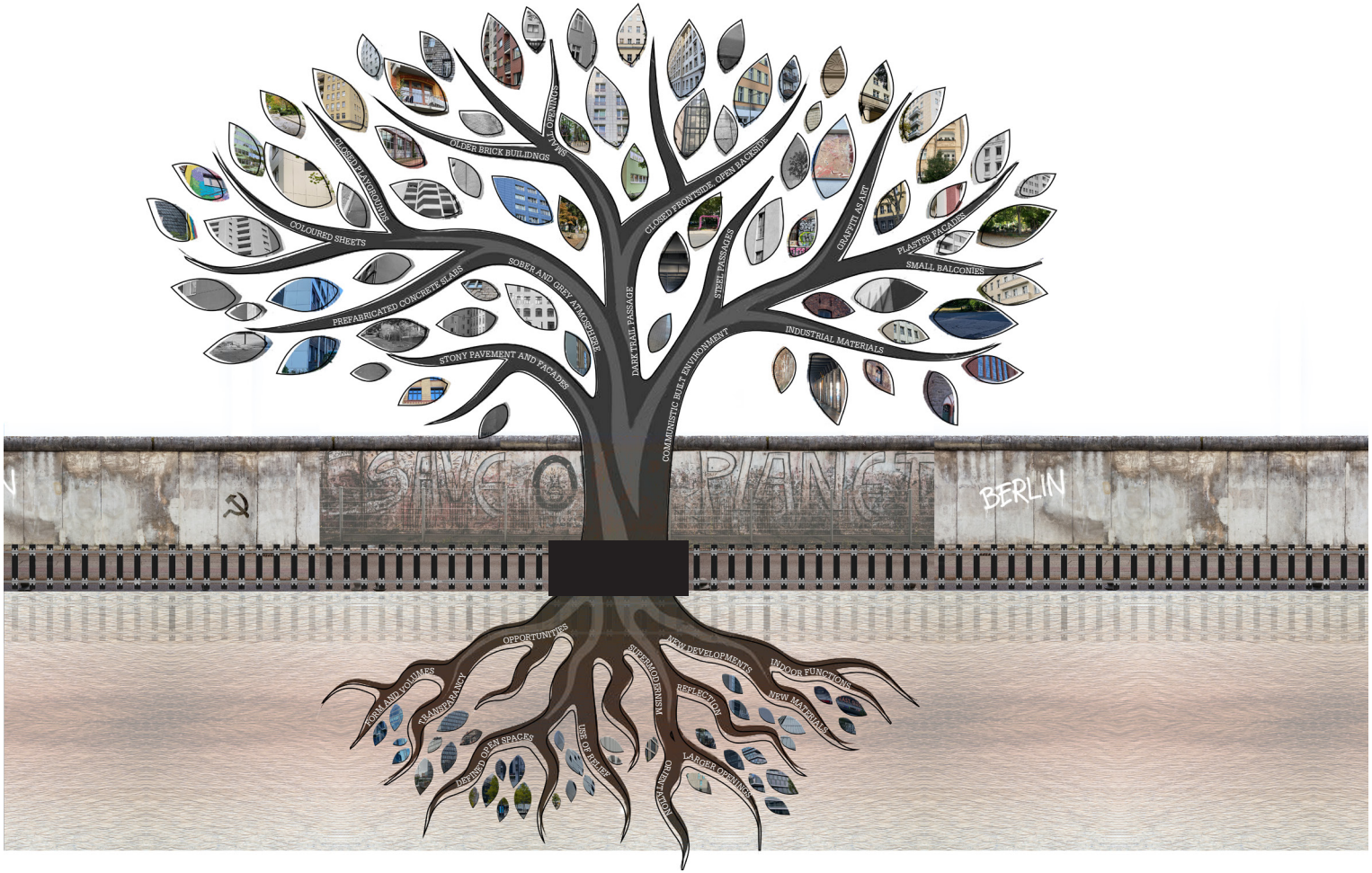
PSYCHOGEOGRAPHY

Assignment 3 - Mapping

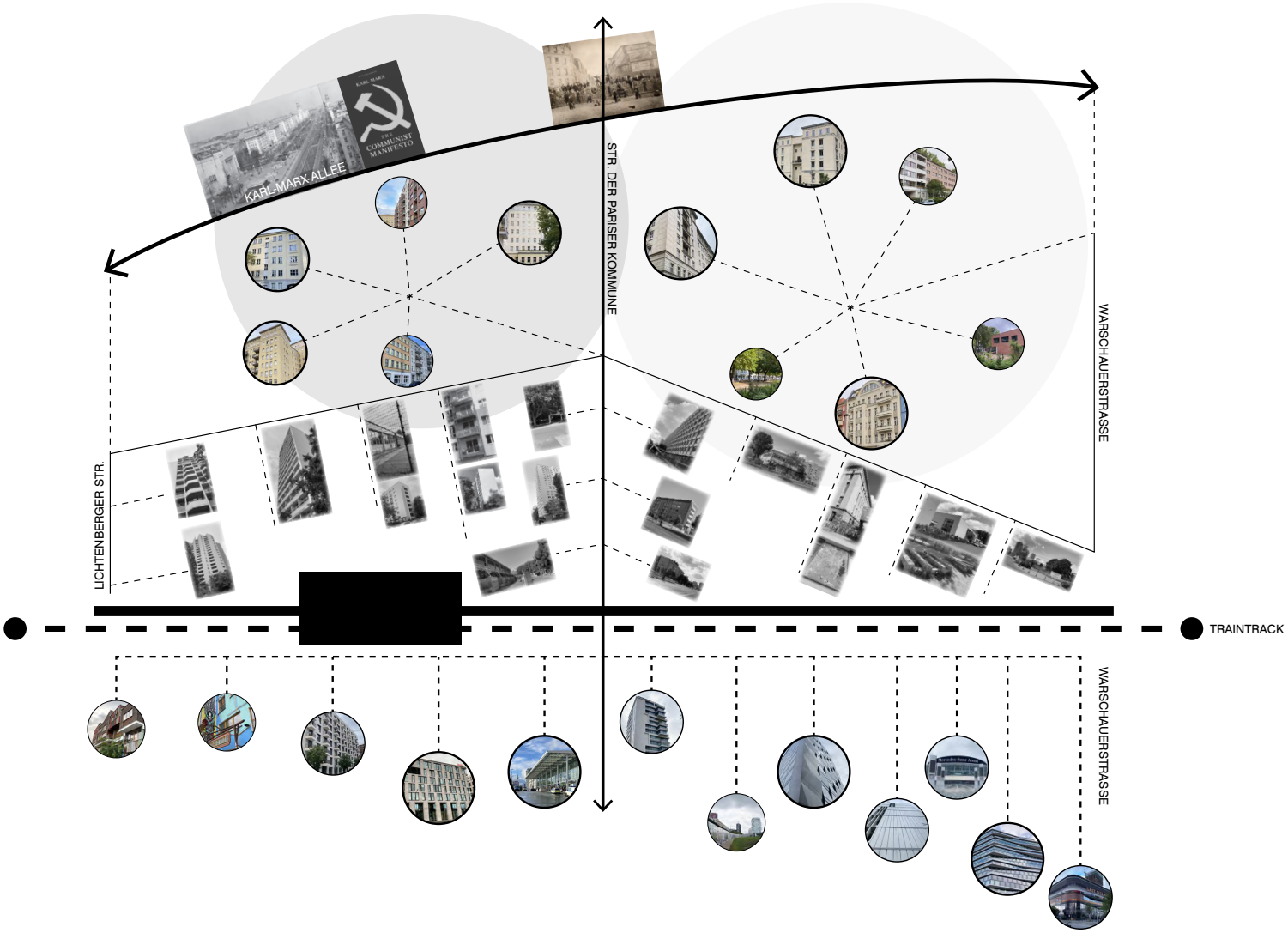
The tree represents the site plan of the Karl-Marx-Allee Süd project district. The top of the tree represents the old area that was very popular during the East Berlin period. The main road from Karl-Marx-Allee, down towards the newly emerging area, is the link between the ramifications of the old regions. The top of the district has already blossomed. The imprint of communism is still evident in the architecture, which is already filled with slabs. This is, therefore, one of the reasons why the area on the southern side of the station is growing increasingly.

The great contrast between the north and south sides of the railway not only separates the two areas, but also creates a great contrast between the front and back of Ostbahnhof. Many public and commercial functions are located around the front of the station, facing the Spree. Partly because of the closed facade at the back of the station and the small number of public functions, the station and the neighbourhood around it are more of a border for the neighbourhood than an added value.

Status: Revised



Mapping Karl-Marx-Allee Süd, during site visit



Simplified map of Karl-Marx-Allee Süd, after site visit

The visit to the study area yielded several findings. First, there is a clear difference between the north and south of the railway. The residential areas close to Karl-Marx-Allee and in the Weberwiese district, are qualitatively well developed and contain many different types of public functions. However, it is clearly visible that mainly the higher-income class lives here and the lower class is pushed out of the area.

In Andreasviertel, on the other hand, the communist ideal is still clearly visible. Many housing blocks are built using the Platenbau method, with a lot of concrete or plasterboard being used. This district is mainly home to the lower income class and older people. However, many care facilities and primary schools are located in this neighbourhood.

The northern part of Wriezener Bahnhof is mainly industrial with many open spaces, many closed façades and few unauthorised people live here. In contrast, the other side of the railway is a much newer district with many apartment blocks and office buildings. Transparency and rejuvenation are key here and there is much more interaction on the streets.

Status: Used

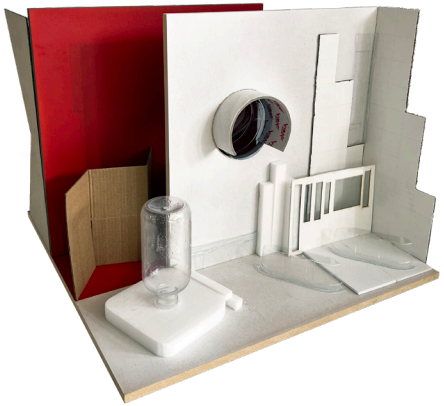
ASSEMBLAGE

Assignment 4 - Physical Model

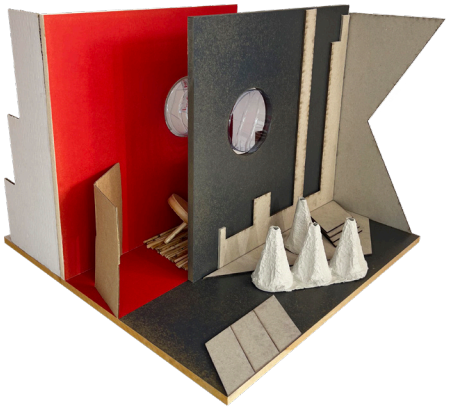
Ostbahnhof forms a strict social and spatial division between the growing, vibrant and diverse city district of Wriezener Bahnhof and the historical suburban Andreasviertel district.

A new public condenser should Bridge the two neighbourhoods and enhance inclusivity and diversity. Adding social functions to existing services ensures that renewal and origin reinforce each other. Moreover, bringing different socioeconomic groups together reduces crime and disorder and enhances the collective sense of security.

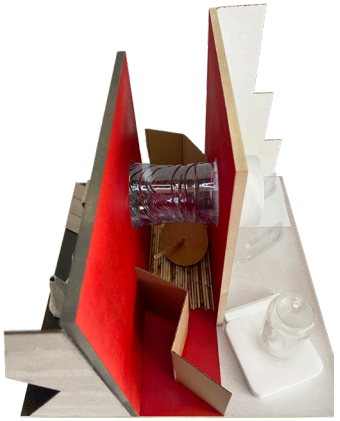
Status: Used



Growing, vibrant and diverse neighbourhood



Historic, repetitive and outdated neighbourhood



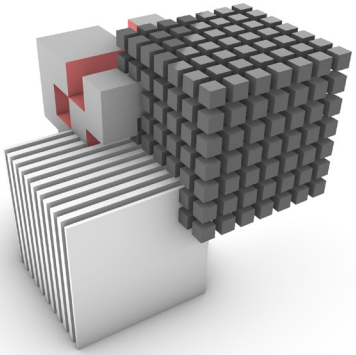
Activate separation between two districts

AFFECTATION

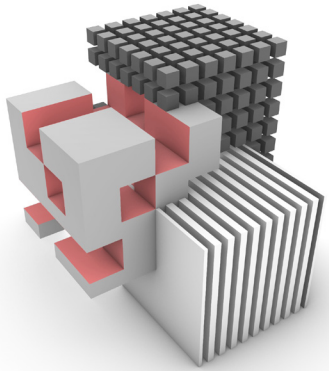
Assignment 5 - Digital Model

The design of the public condenser in Friedrichshain consists of three elements with different meanings. First, the design will connect the two contrasting neighbourhoods adjacent to the station. Second, the functions in the building will contribute to the social changes of urbanisation, ageing and socio-economic inequality. And finally, the building itself will ensure diversity of users, hybridity and adaptability of functions to continue to adapt to users' needs in the future.

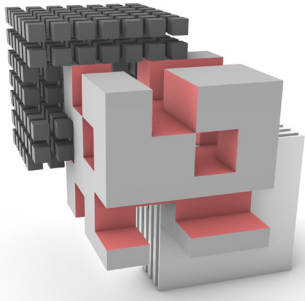
Status: Used



Connecting different neighbourhoods, dealing with the social and spatial effects of gentrification



Contribute to the societal changes of urbanisation, aging population and socioeconomic inequalities



Ensure diversity, hybridity and adaptability for future changes and users' needs

COLLAGE

Assignment 1 - Collage

The design aims to form a new central heart between an existing and new neighbourhood and their society. The public condenser should blur rigid divisions between neighbourhoods and enhance inclusivity and diversity. Essential target groups often ignored in gentrifying areas but with a high number of residents are lonely elderly, less affluent families and individual youth.

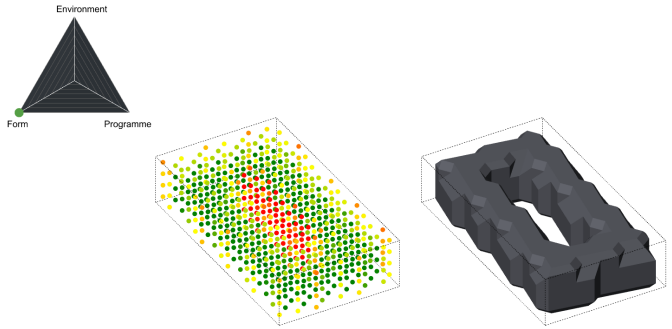
Interviews conducted in Friedrichshain revealed that these target groups desire a safe place to entertain and learn. The design will therefore have the function of a public library that serves as an urban lounge where different generations can interact and cohabit.

The standard library will be expanded to include other media forms to anticipate the future. In addition, the media library will contain extra functions such as a study area, debate rooms, an auditorium, a laboratory and workshops. The building will be inclusive, hybrid and adaptable to future changes and users' needs.

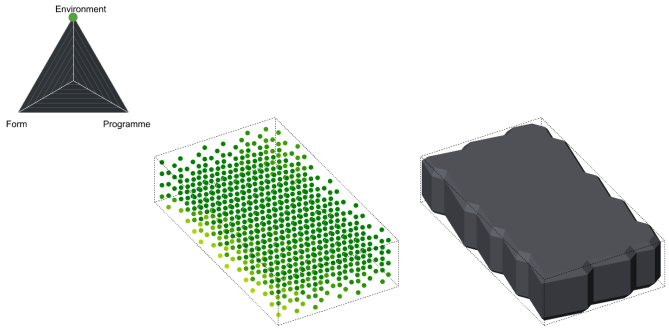
Status: Used

ARCHITECTURAL FIELDS

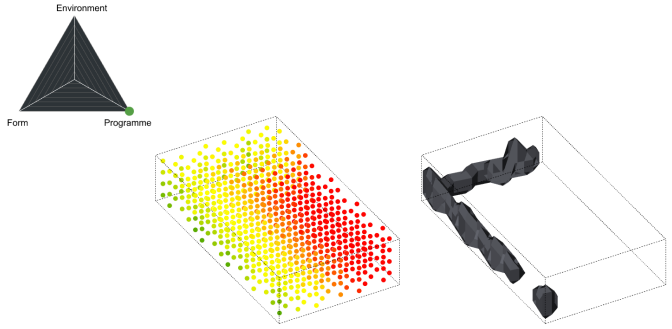
Assignment 6 - Grasshopper



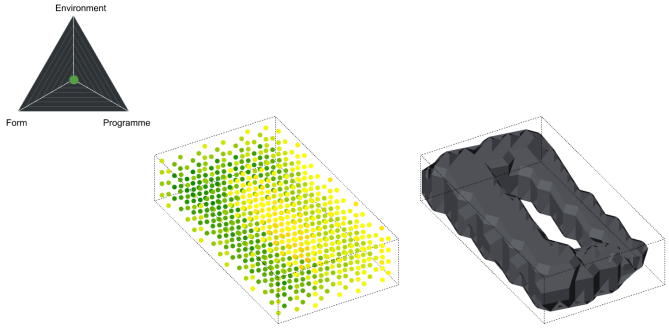
Form



Environment



Programme



Total overview

The Architectural Fields workshop revolved around using and applying computational tools through the concept of Architectural Fields. These constructions allow continuous space to be systematically subdivided into discrete segments, represented by points, whose properties can then be evaluated, performance quantified and results stored in the field.

The base of the field is a clear envelope at my chosen project site, north of the Ostbahnhof. The envelope and its performance were tested according to the Form, Programme and Environment parameters. The resulting fields were combined in various ways and visualised through animation to show the envelope's complex correlations and underlying spatial qualities.

The animation shows that the detached envelope benefits from its prominent location. In addition, the public programme on the plinth is especially beneficial on the station side as there are many walkways. However, the connection with the residential towers at the bottom right of the animation is interesting to explore further.

Status: Used

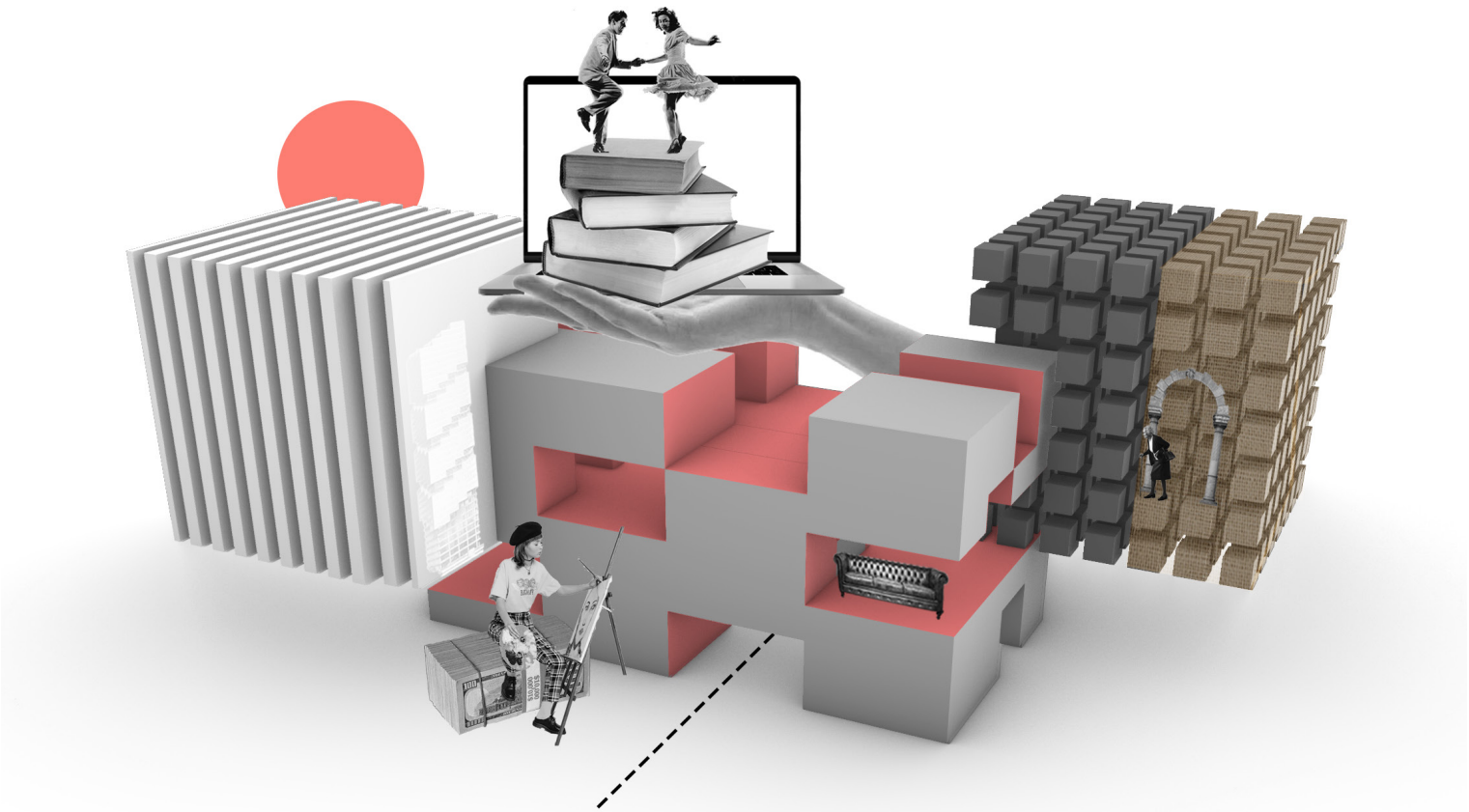
POST-PRODUCTION

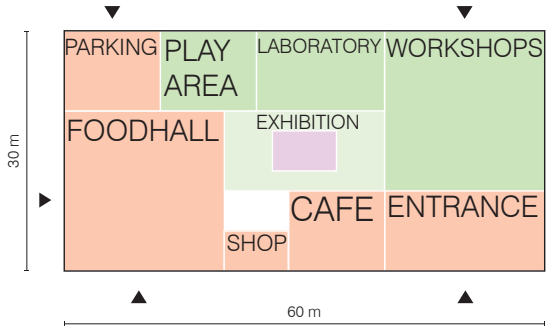
Assignment 7 - Remix

Architecture today should be more than a beautiful aesthetic building or a well-detailed design. At a time when cities are becoming more densely populated, where there is a lot of housing shortage while housing is becoming more expensive, and where digitalisation is taking over from physical encounters, architecture is more about social character.

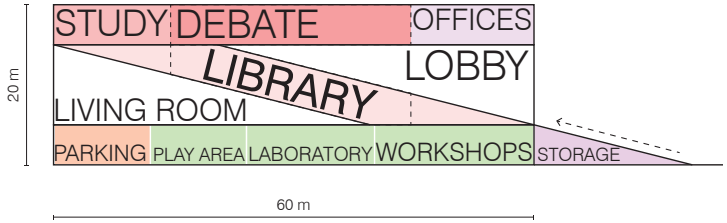
The need for public buildings will continue to be strong in the future. There is less space in the city to spread small public facilities, so a single multifunctional building is essential. However, it is crucial that future changes, such as digital technology, are considered when designing new public buildings. This graduation project investigates how a public building can positively use digital technology to allow different generations and target groups to work and learn together. It also examines how the building can anticipate future functions and user needs changes.

Status: Not used

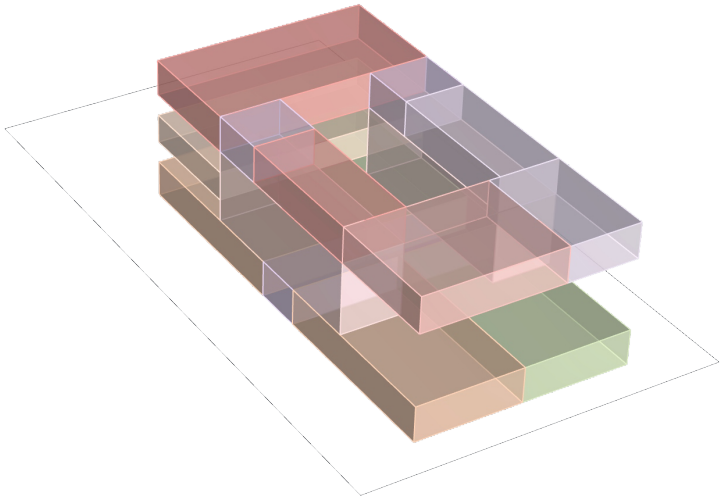




Ground floor plan



Programmatic section



Building organisation

The media library will contain extra functions that activate the left and right hemispheres. Activities that activate the left hemisphere of the brain are more intellectual functions, such as offices, study rooms, reading rooms and debate rooms.

The right hemisphere responds to creative activities, such as crafts, painting, dancing and singing. The different types of media will connect the thinking and doing activities in the building through a guiding routing. Finally, in addition to the activities for thinking and doing, there will also be space for leisure and gathering. Traditional formal functions associated with a library will be transformed into more informal ones with room for both the individual and the collective. The negative space of the media library will serve as a living room for the community.

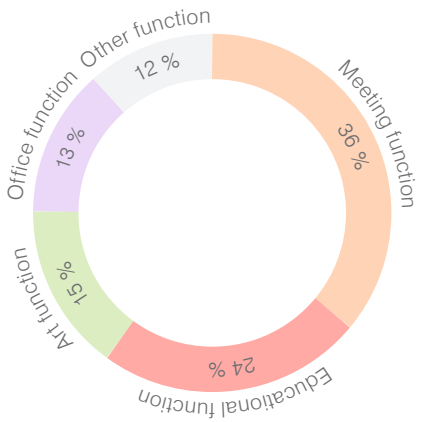
Status: Used

03

© PK / Jörg F. Müller, 2013

PROGRAMME	COMPONENTS	GUIDELINE NET AREA M²
SOCIAL		
Arrive		**945 m²**
Entrance	Reception	225 m²
	Back office	
	Information	
	Waiting area	
	Shop	
	Toilets	
Restaurant	Kitchen	450 m²
Café	Small kitchen	135 m²
Parking	Bikes and disabled	135 m²
Recreate		**270 m²**
Living room		270 m²
INTELLECTUAL		
Focus	*Read & Digest*	**720 m²**
Library		720 m²
Study	*Research & Learn*	**450 m²**
Work & Study		270 m²
Digital room		180 m²
Debate	*Discuss & Reflect*	**495 m²**
Auditorium	*180 seats*	270 m²
Meeting rooms		225 m²

PROGRAMME	COMPONENTS	GUIDELINE NET AREA M²
CREATIVE		
Create	*Create & Express*	**810 m²**
Workshops		450 m²
Laboratory		180 m²
Playroom		180 m²
Exhibit	*Present & Watch*	**180 m²**
Exhibition		180 m²
SUPPORTIVE		
Operate		**270 m²**
Offices	Changing rooms	135 m²
	Kitchen	
Storage		135 m²
Maintain		**360 m²**
Mechanical		225 m²
Utilities	*Also disabled toilets*	135 m²
TOTAL		4500 m²



Function groups media library

04

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PROCESS DOCUMENTATION

RESEARCH PHASES | COLLECTION

The process documentation contains the main results of the research by design period up to P2. Over the past period, I have studied the social and spatial impacts of gentrification in Friedrichshain and Berlin more closely. In addition, based on interviews and written pieces, I listed the wishes of residents in Friedrichshain and looked at what a public condenser could do for them. This soon resulted in a library that housed recreational and intellectual functions together.

Next, I started researching contemporary libraries. In doing so, I examined not only the program but also the building typology. Using a self-composed program, I also arrived at a new library typology that reaches more toward a media library. Then I started to test the program and volumes on the situation.

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GENTRIFICATION

URBAN DEVELOPMENT IN FRIEDRICHSHAIN

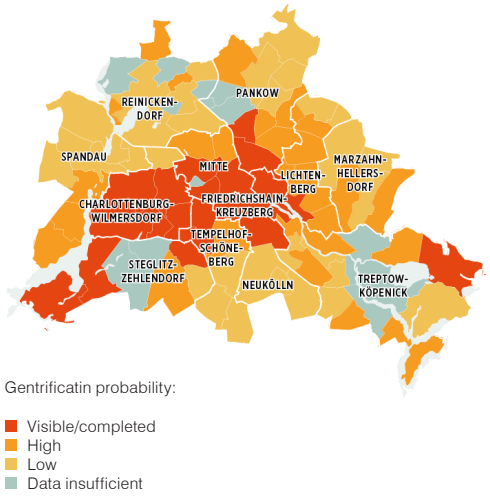


Figure 1. *Gentrification study Berlin. Development potential based on rent development, relocation frequency, size of households, shops and gastronomy.* Source: (Realxdata GmbH, 2019)

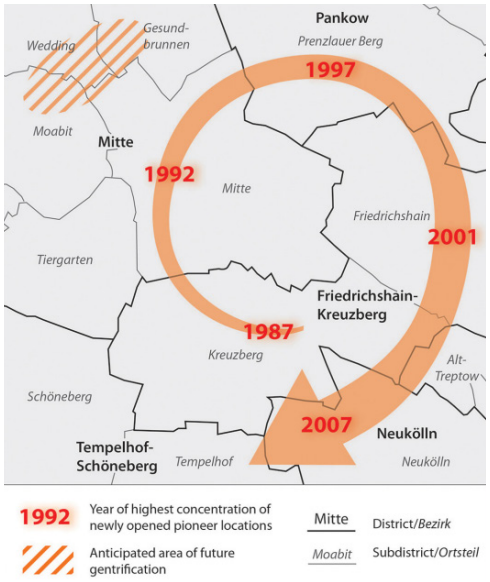


Figure 2. *Spatial displacement of pioneering phases of gentrification in Berlin (1987-2007).* Source: (Siemer & Matthews-Hunter, 2017).

GENTRIFICATION

Since the fall of the Berlin Wall, Berlin's gentrification has been at the centre of political debates and media reports covering urban development.[1] The upward trend has developed more slowly in Friedrichshain in contrast to the surrounding parts of the city, but it still has a significant impact.

Since the late 1990s, an event and entertainment structure typical for gentrification processes has also established itself in Friedrichshain.[2] Bars, pubs and clubs ensured the arrival of many students and wealthy migrants. As a result, the places with which people once defined their neighbourhood have become spaces with which they no longer associate.[3] Especially for origin, ageing residents, this has consequences; if they can no longer use their familiar social facilities, loneliness will increase even faster.

Despite the delayed pioneering phase, extensive modernisation of old buildings has also occurred in Friedrichshain. Although rents are far below those in Mitte or Prenzlauer Berg, poorer households cannot afford them.[2] As a result, llow-income residents are being driven out of neighbourhoods like Weberwiese to make way for more affluent residents. This change creates significant socioeconomic inequality and segregation in a neighbourhood.

Besides the conversion of old buildings, many new apartment complexes are rising from the ground in large open areas like the south of Wriezener Bahnhof. Anonymous facades, elevator access to the apartments, and undefined public space between the buildings creates more individualism and isolation. When enlarging the housing stock, social interaction is often forgotten.

1. Holm, A., Grell, B., & Bernt, M. (2013). Berlin's Gentrification Mainstream. In The Berlin Reader. A Compendium on Urban Change and Activism (pp. 171–187).
2. Holm, A. (2009, July 29). Berlin: Die Karawane zieht weiter – Stationen einer Aufwertung. Gentrificationblog.
3. Davidson, M. (2008). Spoiled mixture: where does state-led 'positive' gentrification end? Urban Studies 45.12, 2385–405.

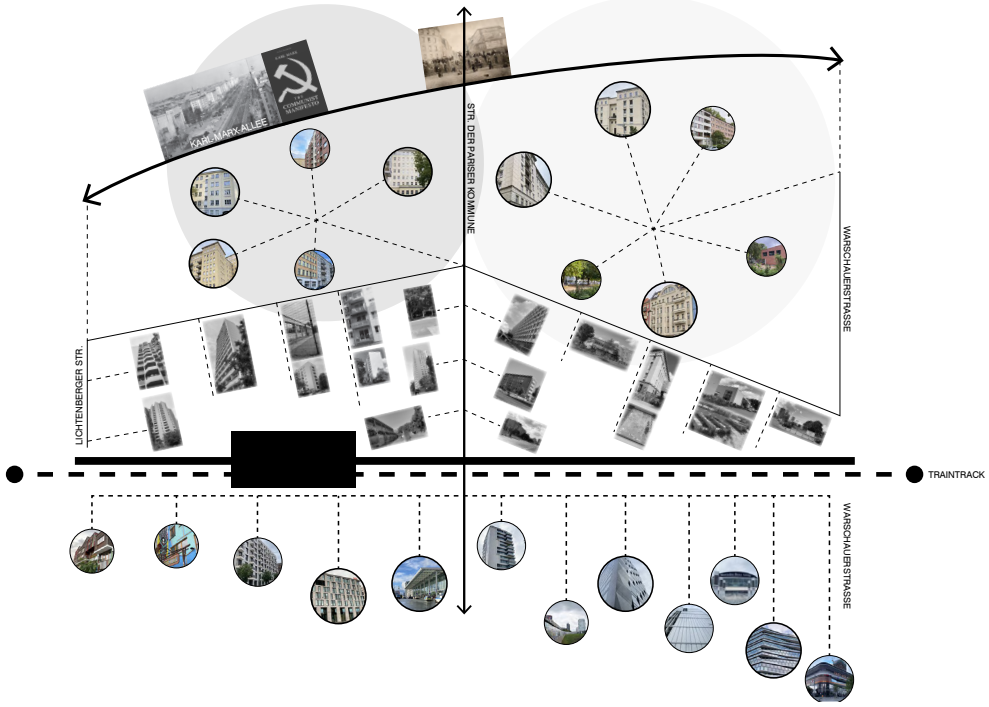
FRIEDRICHSHAIN

The visit to the study area yielded several findings. First, there is a clear difference between the north and south of the railway. The residential areas close to Karl-Marx-Allee and in the Weberwiese district, are qualitatively well developed and contain many different types of public functions. However, it is clearly visible that mainly the higher-income class lives here and the lower class is pushed out of the area.

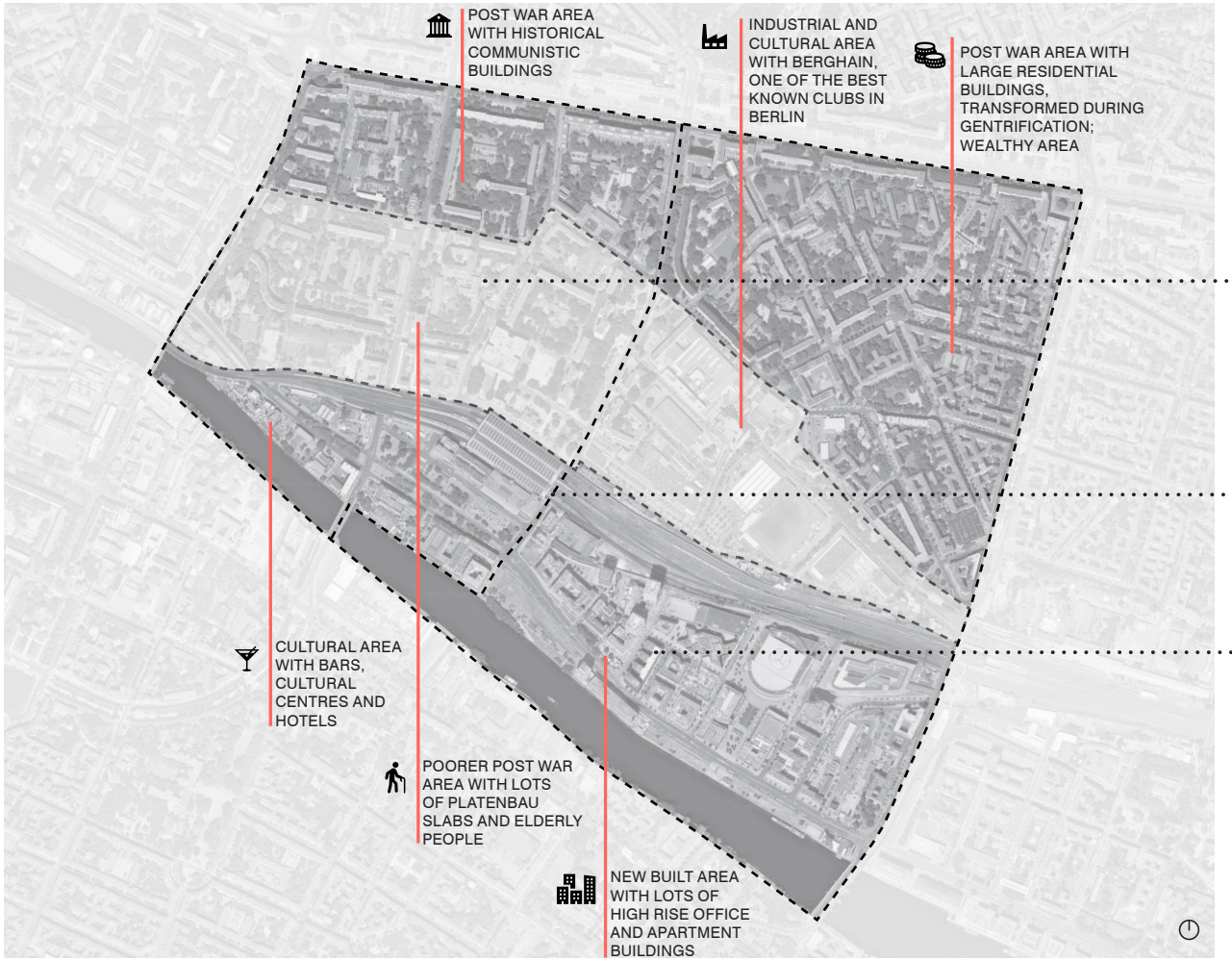
In Andreasviertel, on the other hand, the communist ideal is still clearly visible. Many housing blocks are built using the Platenbau method, with a lot of concrete or plasterboard being used. This district is mainly home to the lower income class and older people. However, many care facilities and primary schools are located in this neighbourhood.

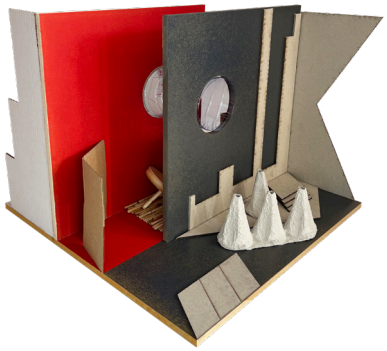
The northern part of Wriezener Bahnhof is mainly industrial with many open spaces, many closed façades and few unauthorised people live here. In contrast, the other side of the railway is a much newer district with many apartment blocks and office buildings. Transparency and rejuvenation are key here and there is much more interaction on the streets.

The great contrast between the north and south sides of the railway not only separates the two areas, but also creates a great contrast between the front and back of Ostbahnhof. Many public and commercial functions are located around the front of the station, facing the Spree. Partly because of the closed facade at the back of the station and the small number of public functions, the station and the neighbourhood around it are more of a border for the neighbourhood than an added value.



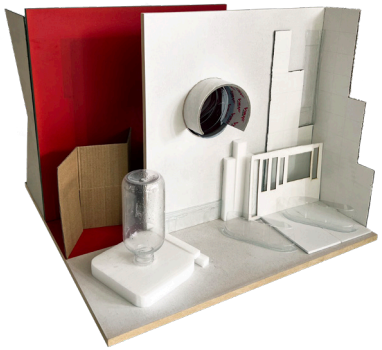
CURRENT CONDITIONS





Historic, repetitive and outdated neighbourhood

Strict separation between the two districts



Growing, vibrant and diverse neighbourhood

OSTBAHNHOF FORMS A STRICT SOCIAL AND SPATIAL DIVISION BETWEEN THE GROWING, VIBRANT AND DIVERSE CITY DISTRICT OF WRIEZENER BAHNHOF AND THE HISTORICAL SUBURBAN ANDREASVIERTEL DISTRICT.

A NEW PUBLIC CONDENSER SHOULD BRIDGE THE TWO NEIGHBOURHOODS AND ENHANCE INCLUSIVITY AND DIVERSITY. ADDING SOCIAL FUNCTIONS TO EXISTING SERVICES ENSURES THAT RENEWAL AND ORIGIN REINFORCE EACH OTHER. MOREOVER, BRINGING DIFFERENT SOCIOECONOMIC GROUPS TOGETHER REDUCES CRIME AND DISORDER AND ENHANCES THE COLLECTIVE SENSE OF SECURITY.

PUBLIC BUILDINGS

A PLACE TO DISCUSS

A PLACE TO PERFORM

A PLACE TO DEVELOP

LEISURE ACTIVITIES

A PLACE TO MEET

A PLACE TO PLAY

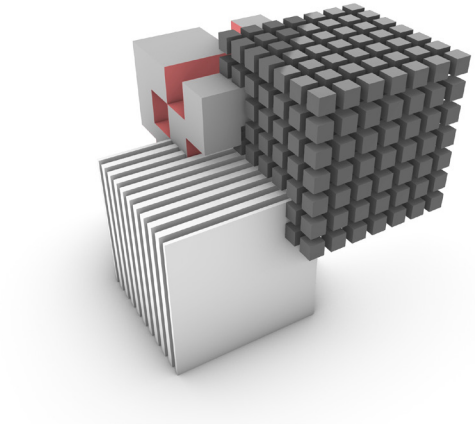
MUSIC / MOVIE STORE

CONTRIBUTE TO THE SOCIETAL CHANGES OF...

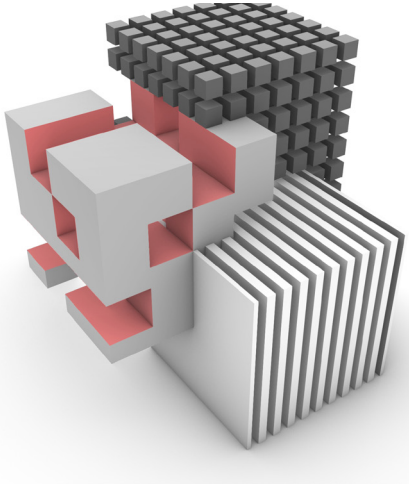
Urbanisation

Aging populations

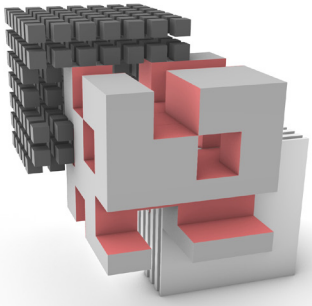
Socioeconomic inequalities



Connecting different neighbourhoods, dealing with the social and spatial effects of gentrification



Contribute to the societal changes of urbanisation, aging population and socioeconomic inequalities



Ensure Diversity, hybridity and adaptability for future changes and users' needs

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URBAN LOUNGE: EVERYONE'S HOME

DESIGN A PLACE TO FOCUS, RELAX AND SOCIALISE

URBAN LIVING ROOM

All places change over time; however, the extent and availability of alternatives are essential. The transition to a large-scale class can have significant consequences for low-income and older people with fewer choices and fewer opportunities to travel to recreate and socialise.[1]

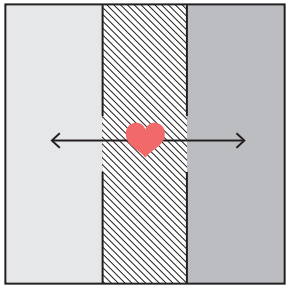
Changes in neighbourhood resources can be seen as “positive elements” of gentrification if the availability of social services increases.[2] Adding social functions to existing services ensures that renewal and origin reinforce each other. Moreover, bringing different socioeconomic groups together reduces crime and disorder and enhances the collective sense of security.[3]

The design aims to form a new central heart between an existing and new neighbourhood and their society. The public condenser should blur rigid divisions between neighbourhoods and enhance inclusivity and diversity.

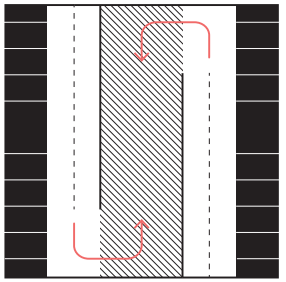
Essential target groups often ignored in gentrifying areas but with a high number of residents are lonely elderly, less affluent families and individual youth.

Interviews conducted in Friedrichshain revealed that these target groups desire a safe place to recreate and learn. The design will therefore have the function of a public library that serves as an urban lounge where different generations can interact and cohabit. Functions such as a library, workshops, meeting rooms, play areas and catering facilities will be brought together in one building. The building will be inclusive, hybrid, flexible and resilient to future changes and users’ needs.

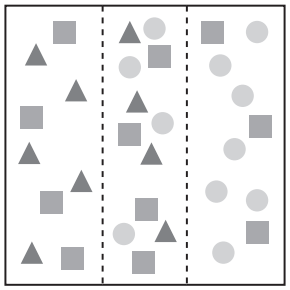
1. Shaw, K. S., & Hagemans, I. W. (2015). Gentrification Without Displacement’ and the Consequent Loss of Place. IJURR, 39(2), 323–341.
2. Freeman, L. and F. Braconi (2002). Gentrification and displacement. The Urban Prospect 8.1, 1–4.
3. Vigdor, J.L. (2002). Does Gentrification Harm the Poor? Brookings-Wharton Papers on Urban Affairs, 133–182.



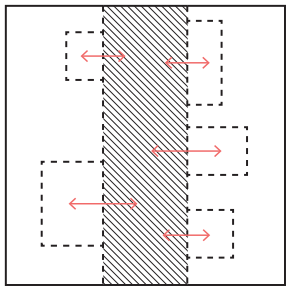
Connecting two neighbourhoods



Extension of public street



Merge different target groups



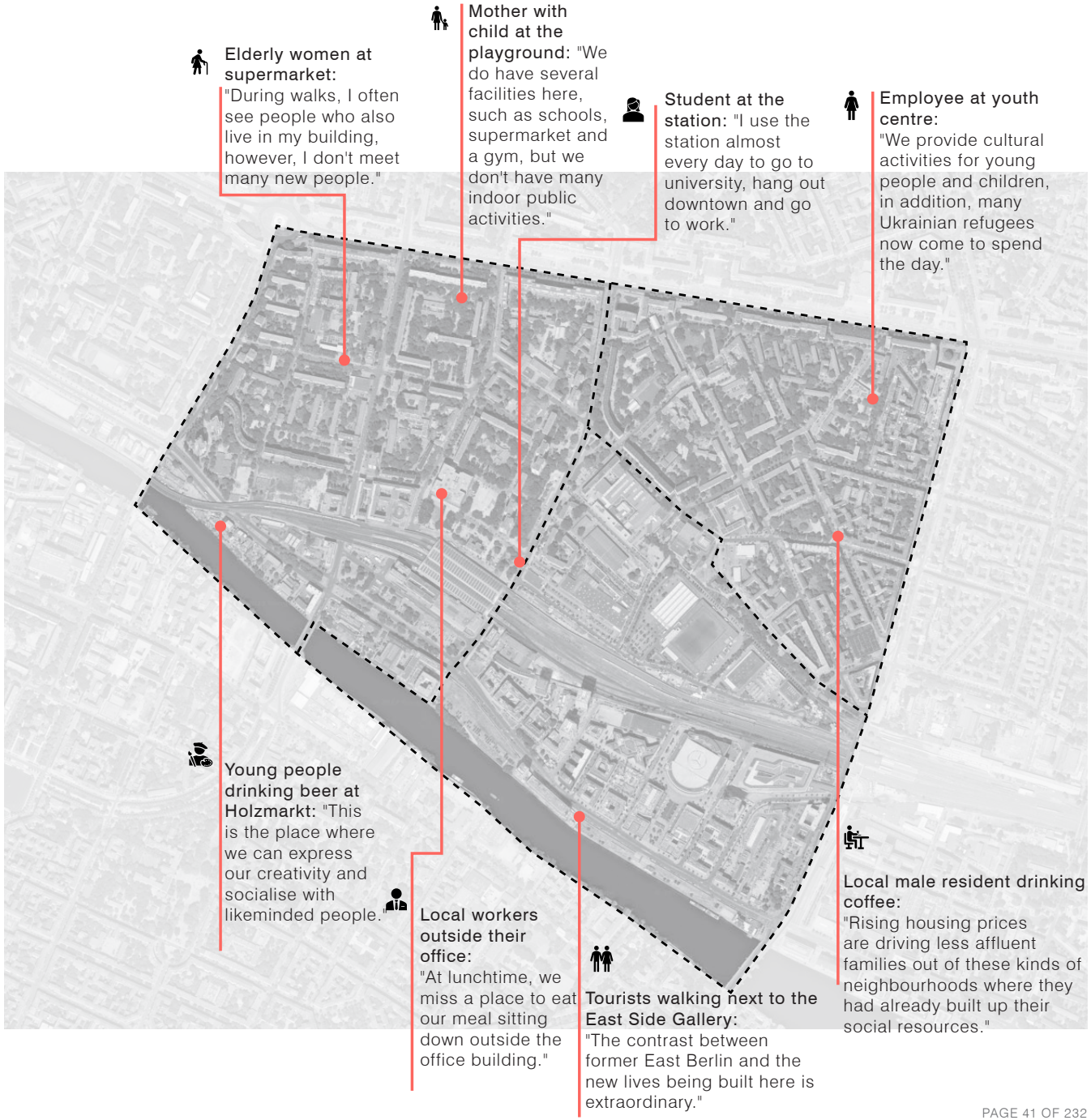
Ensure flexibility and adaptivity

SOCIAL EFFECTS OF GENTRIFICATION

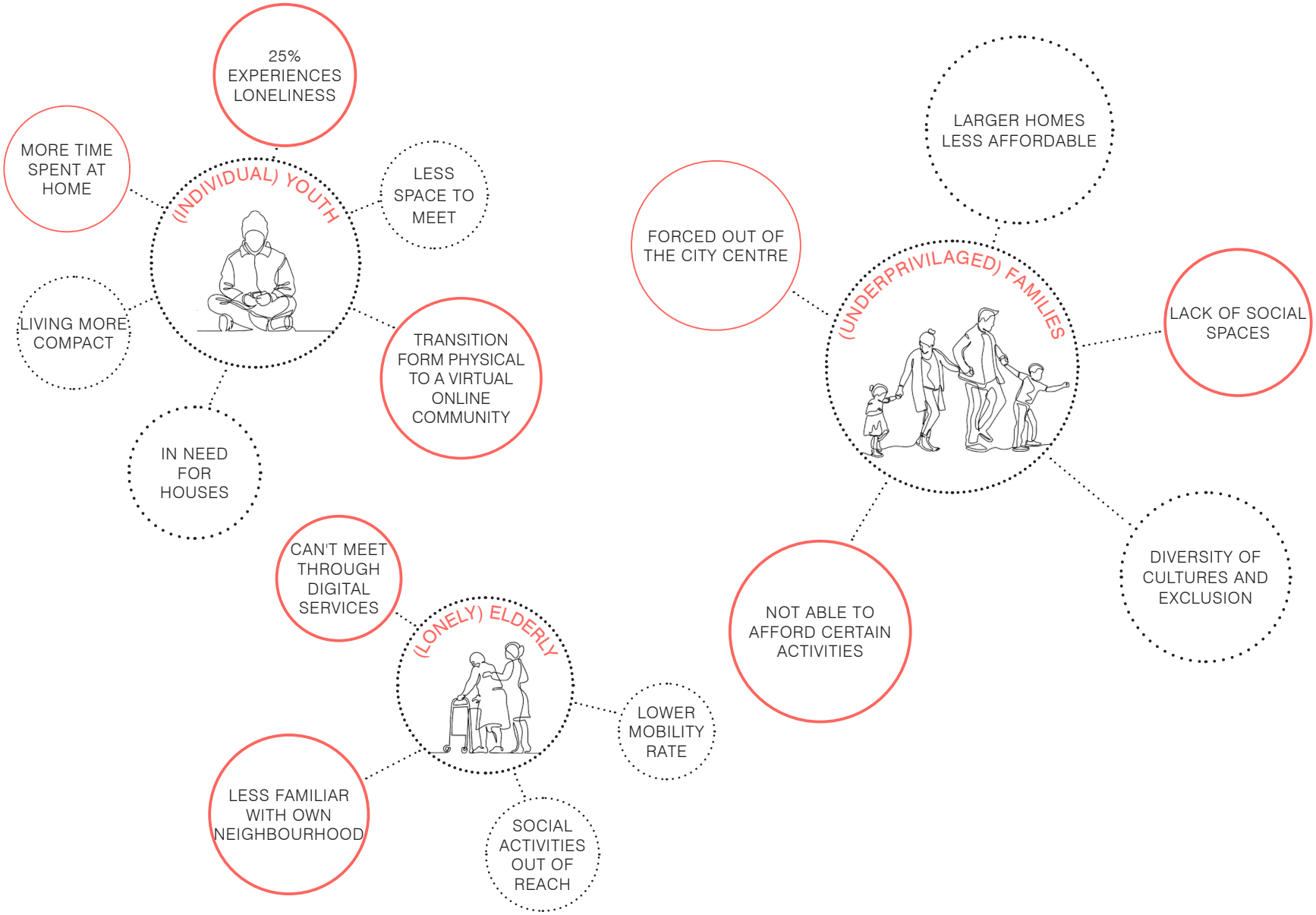
CONDUCTED INTERVIEWS

To learn more about the Karl-Marx-Allee Süd neighbourhood, several interviews were done with locals during the site visit. Nice to see that the different places in the neighbourhood also bring different stories with them. One place is very affluent which drives less wealthy people out of the neighbourhood, while the other place is very new and touristic which actually attracts many people.

It also turned out that there are already a number of social and cultural facilities in the neighbourhood, but what is still missing is a central heart that can strengthen social interaction for several generations. The following pages elaborate on the critical target groups that have a strong need for new or returning old functions in their neighbourhood.



MAIN TARGET GROUPS



A CONTEMPORARY PUBLIC CONDENSER SHOULD BE A PLACE FOR EQUAL OPPORTUNITIES, ENCOUNTERS AND ACCESS TO CULTURE AND RELEVANT KNOWLEDGE

A PLACE FOR DEMOCRACY AND EQUITY, THE ADDITION TO EVERYONE'S HOME

"Inspire and encourage everyone to work together, share knowledge and experience."

A PLACE WHERE CITIZENS CAN DEBATE AND ACT ON SOCIAL UNREST

"Not only a place where knowledge is available in the latest forms but where you learn to deal with this multitude of information."

A PLACE WHERE BEING CONNECTED MEANS SHARING AND COLLECTING THE RIGHT INFORMATION

"Changing society needs public institutions that can move with it, are adaptive and make room for continuous innovation."

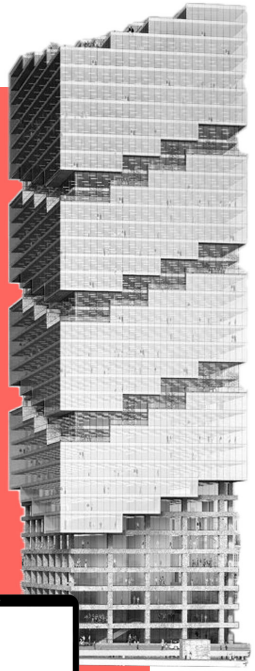
PUBLIC CONDENSER SHOULD BE...

A CREATIVE SPACE...

A place to work & develop
For activities and participation
A place to play
To learn and expand

AN URBAN HOTSPOT...

A connection point in the neighbourhood
A place of attraction
A place of diversity
A place to discover

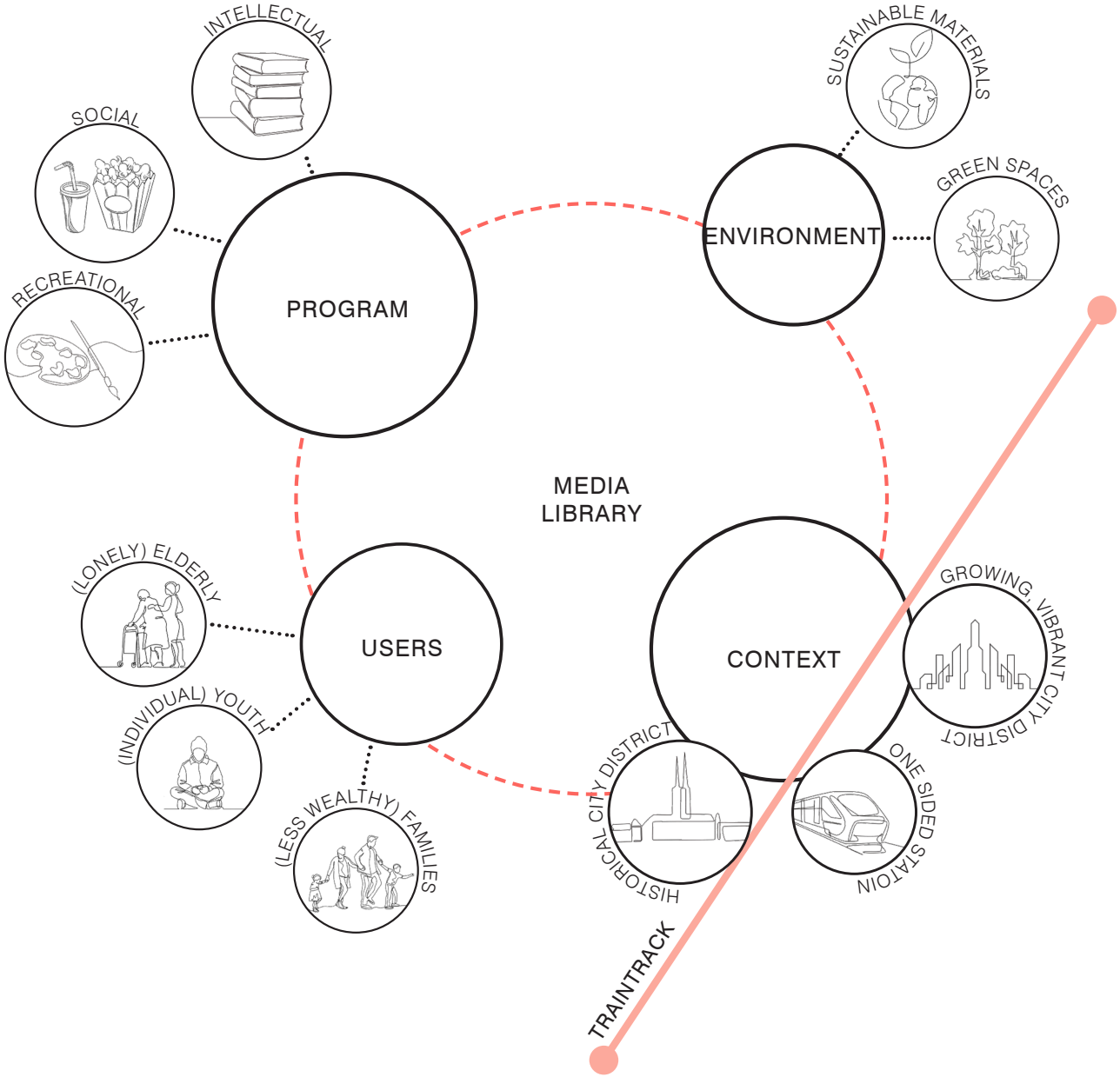


A COMMUNAL LIVING ROOM...

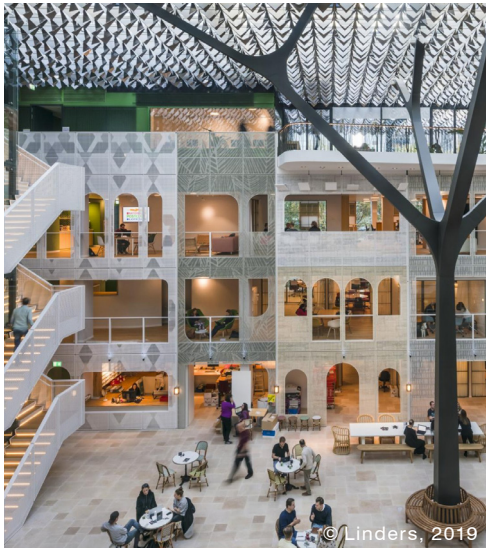
A place to be yourself
A place to relax
To do more than one thing
To feel at home

A SOCIAL STAGE...

A place of exchange
A central meeting point
For spontaneous interaction
An inclusive & democratic space

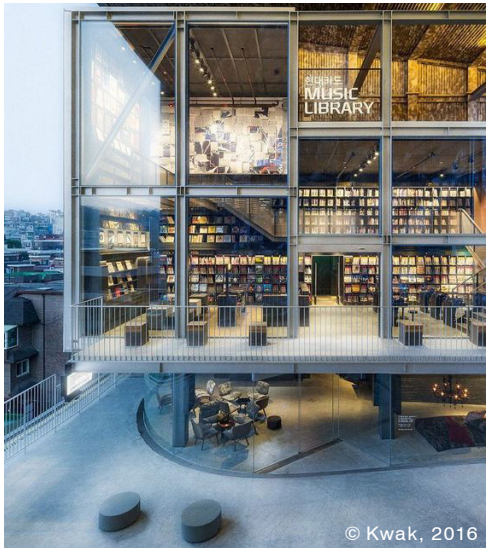

INTELLECTUAL
SOCIAL
RECREATIONAL
PROGRAM
SUSTAINABLE MATERIALS
GREEN SPACES
ENVIRONMENT
MEDIA
LIBRARY
(LONELY) ELDERLY
(INDIVIDUAL) YOUTH
(LESS WEALTHY) FAMILIES
USERS
CONTEXT
GROWING, VIBRANT CITY DISTRICT
HISTORICAL CITY DISTRICT
ONE SIDED STATION
TRAINTRACK

DESIGN QUESTIONS



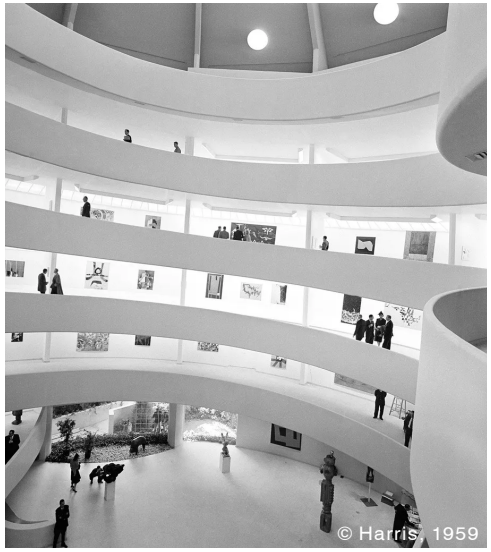
INCLUSIVE

What if you are welcome everywhere?



VISIBLE

What if everything is visible?



INTERACTIVE

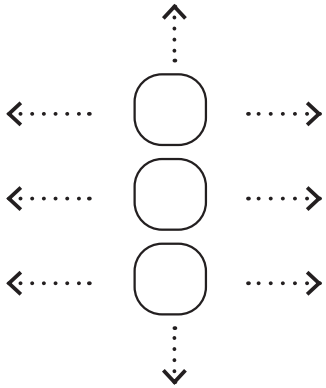
What if the circulation is the catalyst of social encounter?

FLEXIBLE

What if the building can change through time?

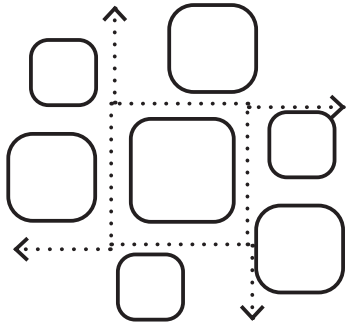
INCLUSIVE: ENSURE DIVERSITY

The building will consist of different functions and users. Different functions will be mixed through the building to create more interaction between users. In addition, the separation between different functions will also blur, creating an overlap of activities and target groups.



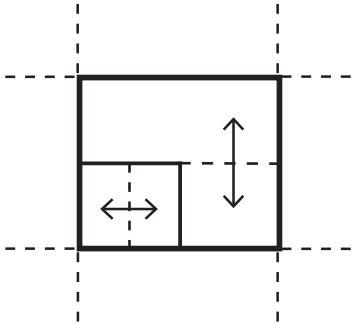
VISIBLE: IMPORTANT SIGHT LINES

To enhance the visibility of activities, it is important that functions are located at the façade. Making activities visible is at the same time an invitation to enter the building. Visibility and transparency is therefore one of the main principles in for both the layout and the final façade.



INTERACTIVE: MIX AND MOVEMENT

To promote interaction, circulation will be the catalyst of social encounters. Movement will have a central place in the building, moving through different functions and activities. Circulation is not only important within the building, it should also be inviting and easily accessible from outside.



FLEXIBLE: RESILIENT TO CHANGES

To ensure that the public building serves for a long time, it must be flexible for future changes and users' needs. Also due to digitalisation and future technology, some functions will become redundant later. In order for the building to last longer than the life cycle of the functions, it is important that the building should be adaptable for different activities.

© PK / Jörg F. Müller, 2013

WHAT IS A CONTEMPORARY LIBRARY?

REFERENCE PROJECTS USED TO ANALYSE THE CONTEMPORARY LIBRARY TYPOLOGY

LIBRARY TYPOLOGY

A public function that facilitates the recreational and intellectual needs of different generations is a library. Today's libraries already have a social function in addition to the intellectual purpose. The standard library will be expanded to include other forms of media to anticipate the future. For example, there will be printed books in the building and devices on which users can read digital books and listen to audiobooks. The design will fulfil a then new library typology.

Using case studies, contemporary libraries that work well in practice were analysed. From these, good and less good qualities have emerged that have been considered for the new typology. In addition, plan and usage analysis were used to determine the program's scope.

EVOLUTION OF LIBRARIES


© Mingren, 2019

The world's oldest known library was founded in the 7th century B.C. for the "royal contemplation" of the Assyrian ruler Ashurbanipal, located in Iraq.

In ancient times, temple libraries were almost exclusively temple libraries with shelves full of clay tablets. New 'clerics' learned to read, write and manage royal and temple organisations here.


© Wikimedia Commons (PD), n.d.

During the glory days of the Roman Empire, the main cities had public libraries. The libraries were divided into two with a Greek and Latin side. Despite the fact that Greek literature was more comprehensive, the Romans did make the sections the same size out of national pride.

In Europe, the most important library was this one in Constantinople. Otherwise, there were really only monastic libraries of any significance in Europe.


© Kieron, 2021

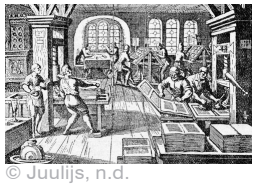
From the 2nd century, reading rooms were set up in bathhouses. This brought reading to all corners of the empire and also broadened the culture of reading, as the popular setting lowered the threshold.


© Gouts, 2020

In the Middle Ages, non-religious libraries were founded, which were part of the new universities in Paris, Genoa and Venice. In the Renaissance, an intellectual atmosphere gradually spread across Western Europe again.

From the late 15th century to the late 16th century, the first university libraries, city libraries and other public libraries emerged in Europe.

A very important invention of the late Middle Ages was the printing press, which ensured that knowledge could henceforth spread quickly over a large area and thus could no longer be quickly lost. Previously, of little-read works, the total circulation usually consisted of only a few dozen copies or even a single manuscript.


© Juulijs, n.d.

By 1900, every self-respecting city in the western world had a library. Major capitals and universities had libraries with sometimes millions of books in their collections.

From the mid-19th century, the triumph of the public library began from England. Originally intended to uplift the working class, the public library gradually became an instrument for the democratisation of society. This process peaked just after World War II, when the Unesco manifesto underlined the position of the public library in a democratised society.


© Women of Library History, 2013

In the early 20th century, initiatives to provide people in remote areas with access to books took off. In 1905, the first travelling library began in the United States. During the crisis years at that time, the most isolated communities there were served by the so-called Pack Horse Library Project. In the Netherlands, the library bus was introduced in 1951.

In today's world, libraries are increasingly becoming centres where many streams of information are brought together and made available to customers. The internet and other electronic infrastructure and media are also accelerating this process of information fusion.


© Grigsby, 2017

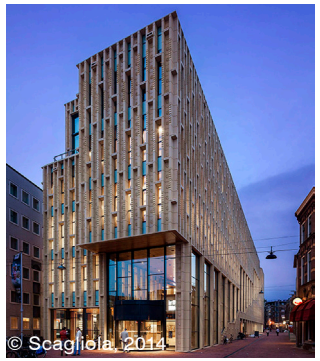
600 B.C. | 500 A.D. | 1000 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100

Classical Era | Middle Ages | Early Modern Era | Modern Era

Early library *One of a kind*	Collection of written books	Quiet reading room
Ordinary library *Book duplications*	Collection of printed books *And/or music / photos*	Read / borrow a book
	Available computers	Search / work on the internet
	Places to work & study	Discuss and debate your work
Contemporary library *Social catalyst*	Ordinary library	Work & study
	Hospitality functions	Take a break at the library
	Workshops *Classes for school children*	Learn how to write / research
Future library *House for people*	Contemporary library	Work & study
	Recreational functions *Additional cultural activities*	More than just a library
	Social hub	Home for everyone

CASE STUDIES

SEATTLE CENTRAL LIBRARY
OMA & LMN
2004

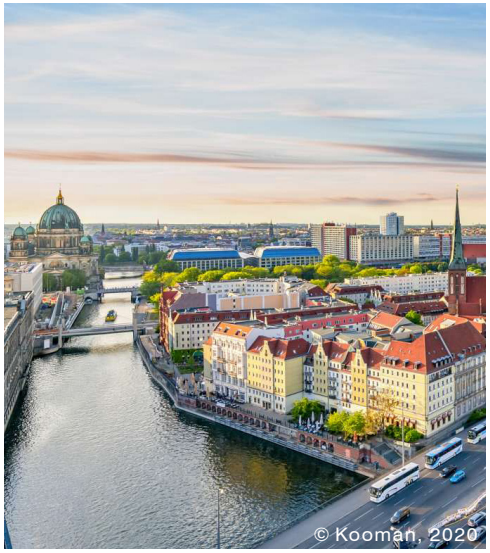


ROZET CULTUREHOUSE
NEUTELINGS RIEDIJK
2013

FORUM GRONINGEN
NL ARCHITECTS
2019

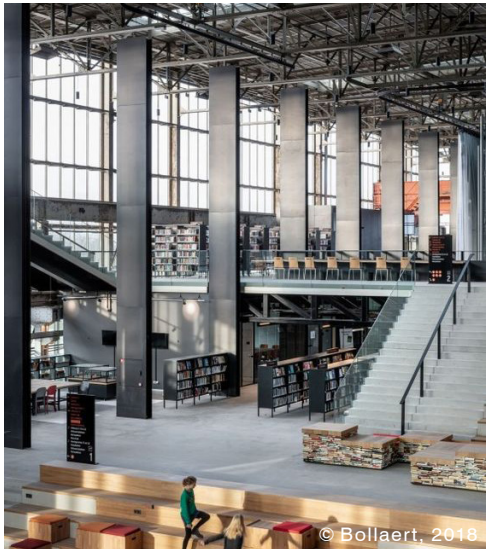
BOOK MOUNTAIN
MVRDV
2012

BIBLIOTHÈQUE ALEXIS DE TOCQUEVILLE
OMA & BARCODE ARCHITECTS
2017



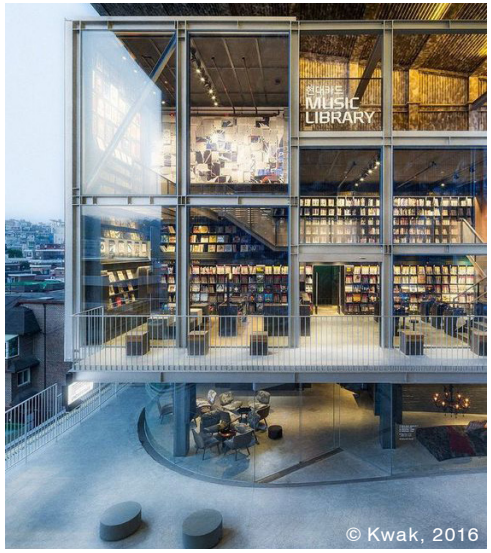
CONTEXT

For whom was the building designed?



USAGE

Why do people go to this building?



PROGRAM

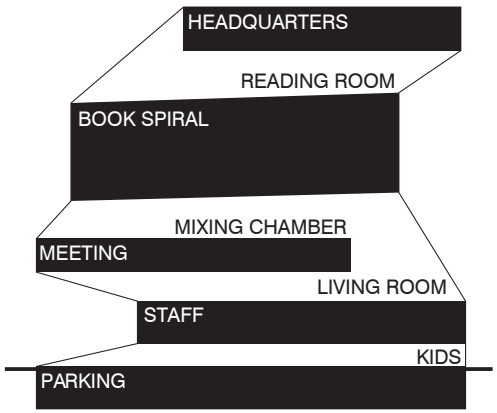
What does the program offer the users and the immediate surroundings?

ORGANISATION

How are the different activities in the building organised?

SEATTELE CENTRAL LIBRARY

Location | Seattle, United States
Architect | OMA & LMN
Construction year | 1999-2004
Floor area | 38.300 m²



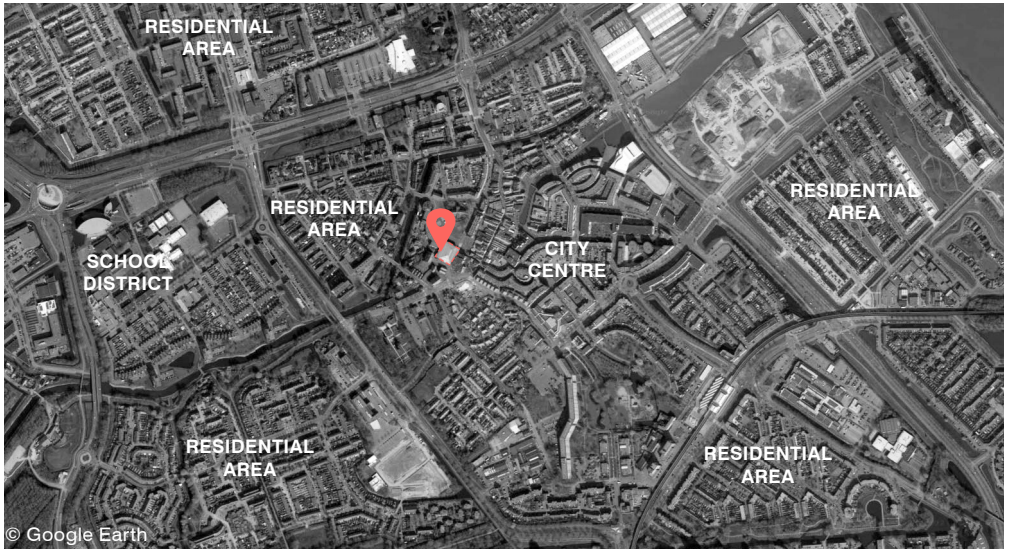
Design principles:

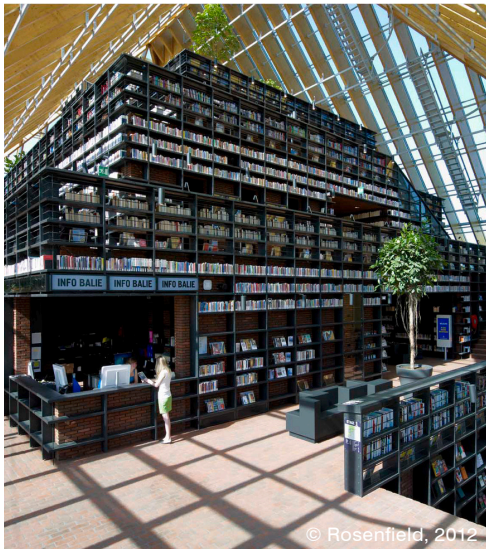
- The Seattle Central Library is redefining the library as an institution no longer exclusively dedicated for books, but as an information store for all potent forms of media. This will also increase the library's target group, especially since the Central Library has such a central location in the city.

- Flexibility in contemporary libraries is conceived as the creation of generic floors on which virtually any activity can take place. Programmes are not separated, rooms or individual spaces are not given unique characters. Bookcases define generous reading areas on opening day, but inevitably intrude into public space as the collection relentlessly expands.

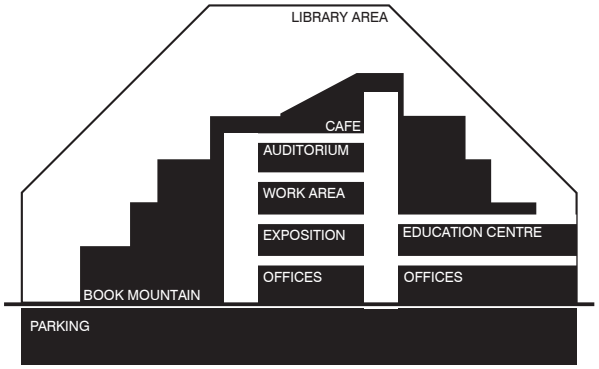
- To classify the growing programmes and media in libraries, peers were first combined with peers. From this, programmatic clusters emerged: five of stability and four of instability. Each platform is a programmatic cluster architecturally defined and equipped for maximum, dedicated performance. Because each platform is designed for a unique purpose, their size, flexibility, circulation, palette, structure and MEP vary. The spaces between platforms function as exhibition floors where librarians inform and stimulate, where the interface between them is organised - spaces for work, interaction and play.

- The Book Spiral implies a revaluation of the much-discussed Dewey Decimal System. By arranging the collection in an unbroken ribbon - from 000 to 999 - the subjects form a coexistence that approaches the organic. This makes books quick and easy for users to find and, in addition, provides enough space to store more books in the future.





Location | Spijkernisse, Netherlands
Architect | MVRDV
Construction year | 2003-2012
Floor area | 9.300 m²



Design principles:

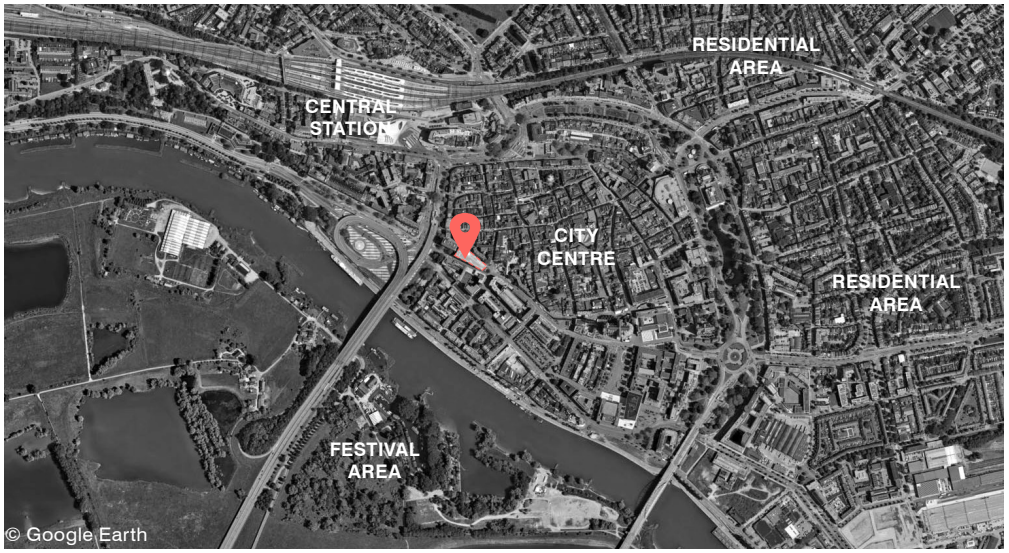
- The library is designed as an advertisement for reading, whose visible presence and invitation has great significance for a community with 10 per cent illiteracy. From under the glass dome, the library is visible from all sides, especially from the adjacent market square where the library appears to be one big mountain of books.

- The exterior of the library refers in form and materiality to the traditional Dutch farm, a reminder of the agricultural past of the town of Spijkernisse, which has grown from farming village to Ville Nouvelle over the past 40 years.

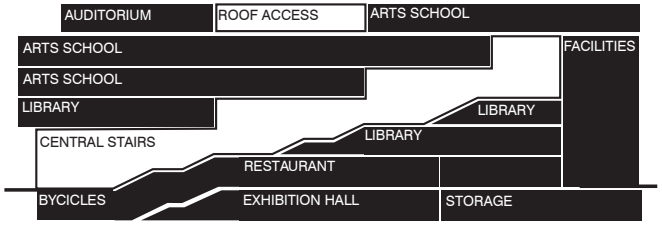
- The library was to accommodate a number of other, partly commercial functions such as offices and retail, as well as environmental education centre, chess club, meeting rooms and an auditorium.
  The stacking of this non-library programme forms a pyramidal base on which platforms are projected, housing the library's bookcases and forming a powerful symbol.

- To visually connect the former village core and clearly differentiate between commercial and library programme, a 'blanket' of brick has been laid over the pyramidal heart of the library. This consistent materialisation supports the public status of the library by clearly communicating the difference with open and closed materials.

ROZET CULTURE HOUSE



Location | Arnhem, The Netherlands
Architect | Neutelings Riedijk Architects
Construction year | 2013
Floor area | 12.000 m²



Design principles:

- Rozet is the new address for various cultural and educational institutions in Arnhem. The mix of library, heritage centre, arts centre and community school creates one of the city's most important public buildings.

- In volume and articulation, Rozet forms the architectural transition between the historic and post-war urban fabric of Arnhem. Rozet was designed as an urban extension of the central route between the Stationsgebied and Kerkplein.

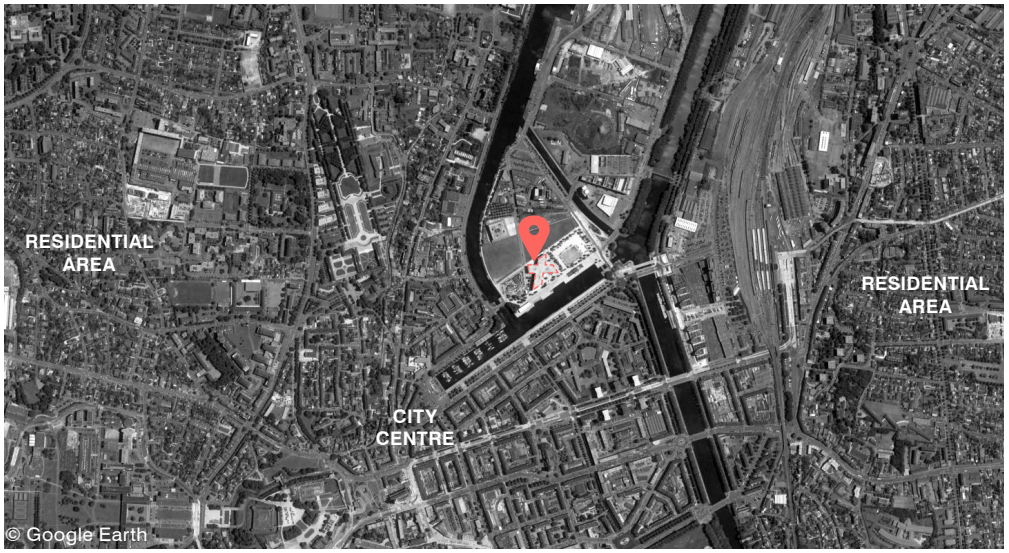
- The core of Rozet is formed by a glass inner route that cuts through the building on all floors. A trailing public gallery with a succession of attractive squares that act as entrances to the various institutions and reflect the synergy between them.

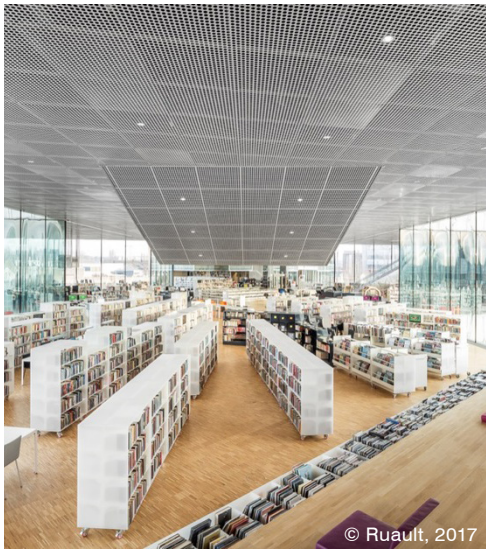
- The visibility of this inner street from outside and the visible programming on the inside of the building in shop windows, LED displays, bookcases and illuminated billboards reinforce the public identity of the building at both street and city level.

- The inner street is accessible to all and supports visitors to take the stairs and enjoy the roof terrace. The interior street also has various functions; sometimes it takes the form of an exhibition hall or foyer, other times it functions as an auditorium or ascending reading room with study areas.

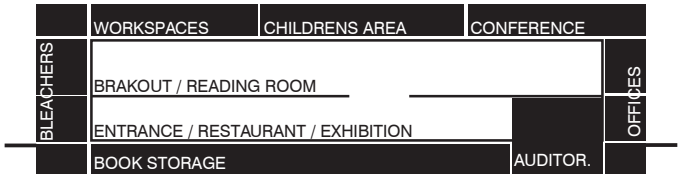
- Combining the library with the arts school increases the number of users of the building and provides an opportunity for parents to spend their time in a different way when their child has drama or dance classes, for example.

BIBLIOTHÈQUE ALEXIS DE TOCQUEVILLE





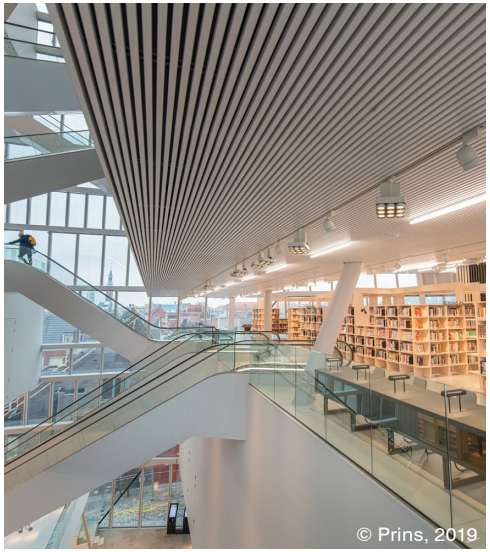
Location | Caen, France
Architect | OMA & Barcode Architects
Construction year | 2017
Floor area | 12.500 m²



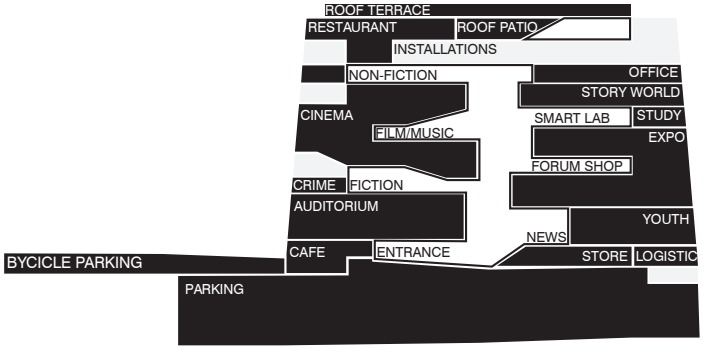
Design principles:

- Bibliothèque Alexis de Tocqueville is a public library for Caen la Mer in France. Its key position (between the city's historic core and a part of Caen that is being developed) supports the city's ambition to make the library a new social centre.
- The cross-shaped design of the building responds to the urban context, with each of the four projecting planes of the cross pointing to a prominent point in Caen.
- At the same time, the geometry of two intersecting axes is determined by the library's programmatic logic. The four planes, each harbouring an educational discipline (humanities, science and technology, literature and art) converge in a large reading room on the first floor to promote maximum flow between departments.
- Each platform is a programmatic cluster architecturally defined and equipped for maximum, dedicated performance. Because each platform is designed for a unique purpose, their size, flexibility, circulation, palette, structure and MEP vary.
- As a civic centre where people meet and share knowledge and information, the public space is at the heart of the library's design. At the entrance on the ground floor is a large open space with a press kiosk and entrances to an auditorium, an exhibition area and a restaurant.
- The first floor contains a wide variety of working and reading spaces with physical and digital books side by side in bookcases. The digital extension of the physical collections, integrated into the bookshelves, is one of the library's new multimedia features.

FORUM GRONINGEN



Location | Groningen, Netherlands
Architect | NL Architects
Construction year | 2019
Floor area | 17.000 m²



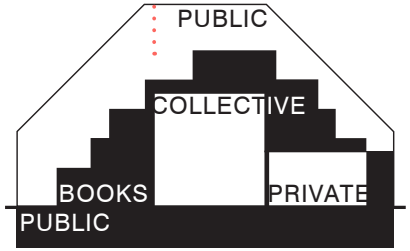
Design principles:

- Forum Groningen is a new multifunctional building where information is presented thematically in a way that transcends different media. It's a cultural 'department store' full of books and images, with exhibition spaces, movie theatres, meeting rooms, restaurants.
- It is NOT a library, NOT a museum, NOT a cinema, but a new type of public space where the traditional boundaries between these institutions are dissolved. It will become a new platform for interaction and debate, a 'living room' for the city.
- The building is designed as one clear volume to express the desire for synergy, to reinforce the shared ambition to combine different facilities into one new complex. A series of careful cut-outs nails the building in place, generating a multitude of different appearances.
- The void acts as a spatial interface connecting all functions and as such hopes to catalyse the exchange of knowledge and ideas.
- The central space creates a series of stacked 'squares' that can be experienced as the continuation of the network of open spaces in the city of Groningen. The vertical squares are publicly accessible and provide access to ticketable activities.
- Forum Groningen is designed "to provide space for finding, not for searching". The design encourages exploration: it should be the catalyst for the desire to wander, to 'browse' endlessly through a staggering interior landscape.

Open floors for public activities in between closed functions

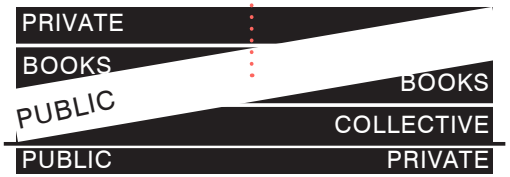
SEATTLE CENTRAL LIBRARY
OMA & LMN
2004

Visibility of books, to stimulate reading



ROZET CULTUREHOUSE
NEUTELINGS RIEDIJK
2013

Multifunctional stair is main object in building; extension of the street

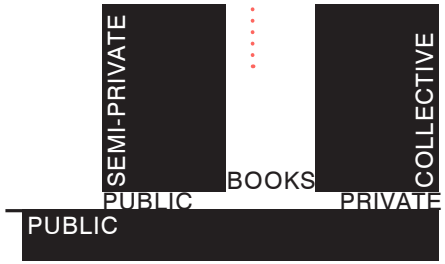


FORUM GRONINGEN
NL ARCHITECTS
2019

Central open space for entrance, books and reading

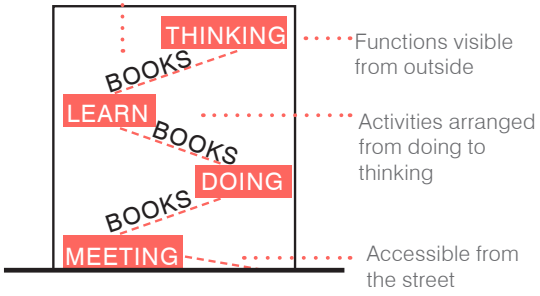
BOOK MOUNTAIN
MVRDV
2012

Circulation in the middle of the building with balconies for books



ALEXIS DE TOCQUEVILLE
OMA & BARCODE ARCHITECTS
2017

Movement through the books which connects the other functions



NEW TYPOLOGY

"MOVEMENT ESPECIALLY IMPROVES OUR BRAIN'S 'EXECUTIVE FUNCTIONS': THE ABILITY TO TAKE INITIATIVE, PLAN THINGS, CONTROL IMPULSES AND SELF-REGULATE. ALL FUNCTIONS WE NEED TO FUNCTION INDEPENDENTLY."

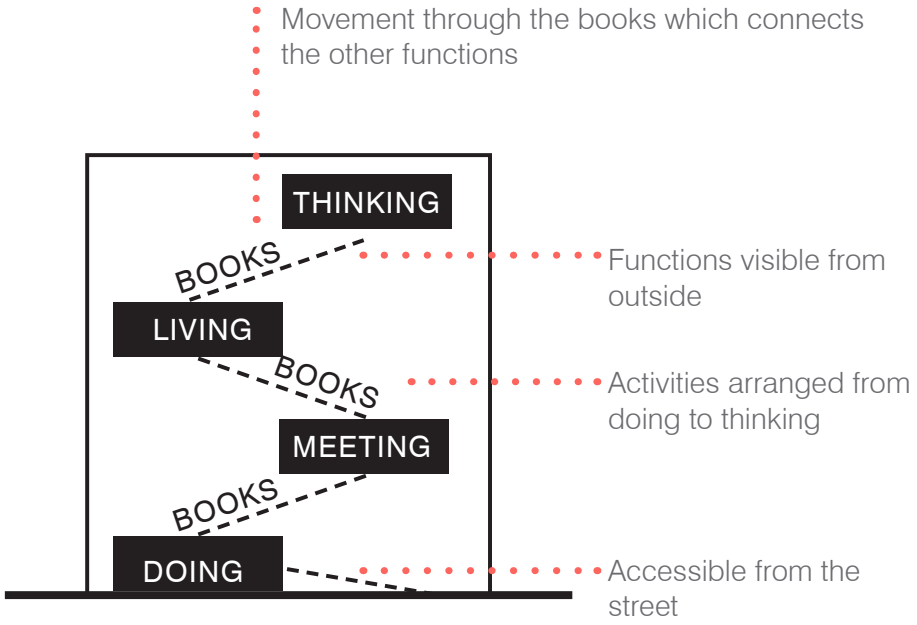
PROF. DR. ERIK J.A. SCHERDER
CLINICAL NEUROPSYCHOLOGY, VU, AMSTERDAM

In the new library typology, the books are part of the circulation in the building. Books are the connecting element between the different functions that range from thinking to doing. Because the circulation is now part of the organisation, it creates a dynamic routing in the building. Functions are no longer separated by the routing or the public centre, as in the case studies. Instead, functions are connected by active search between literature.

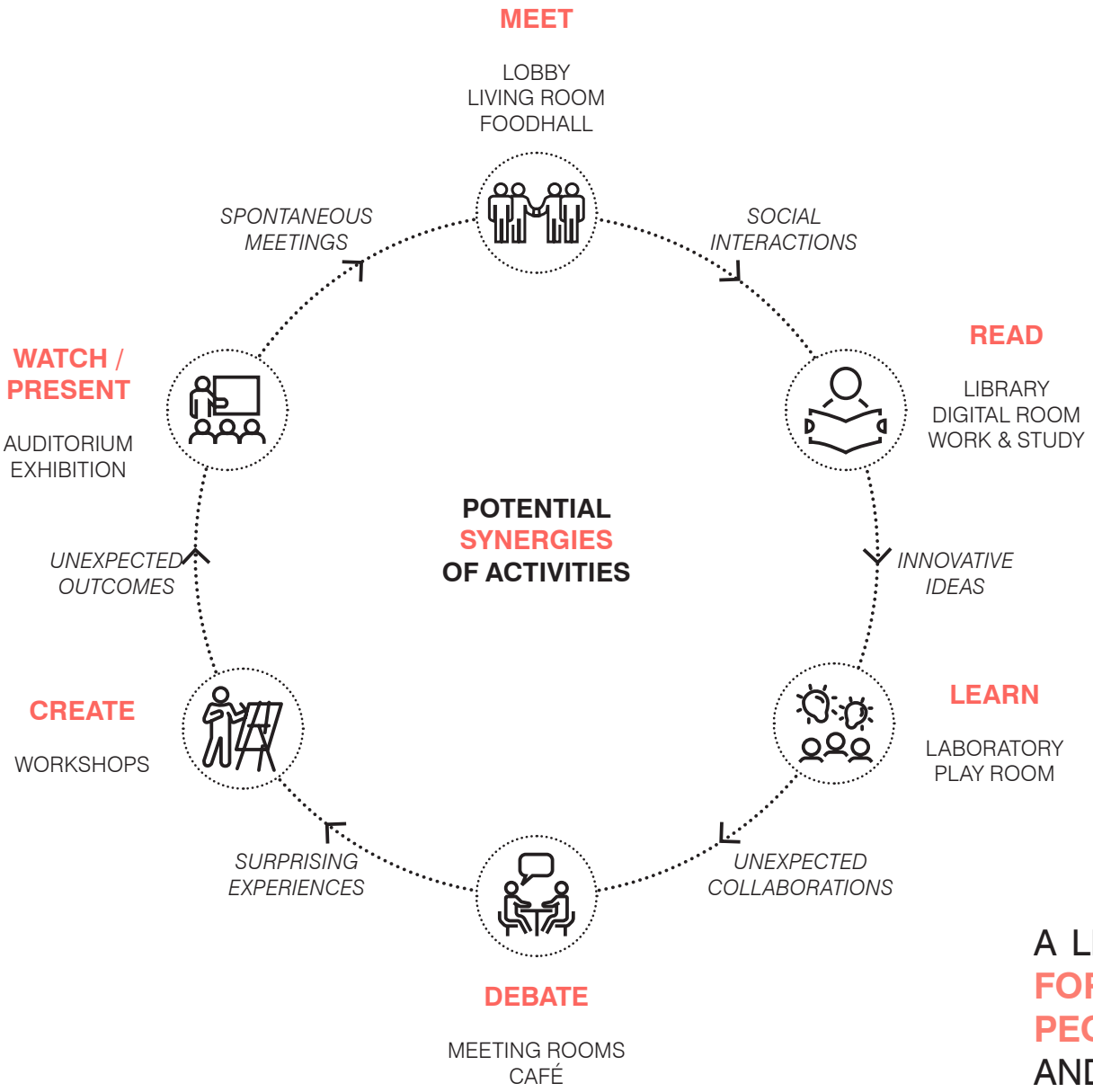
The circulation of the building will consist of stairs with adjacent platforms for bookcases and reading areas. The stairs will encourage users to move more. This is because worldwide, people are moving less and less, both young and old.

Causes include the availability of cars, which makes people walk and cycle less, and social media, which reduces the need to go 'outside'. Obesity is also on the rise, also leading to less exercise. The increasing inactivity is alarming because exercise is important for the body and mind. Exercise reduces your chances of high blood pressure, cardiovascular disease, and type 2 diabetes. And that, in turn, reduces the chances of dementia.

Research by Professor Dr. Erik Scherder (2018) shows that brains work better when exercising more. Exercise significantly improves our brain's 'executive functions'.[1] Executive functions are the functions humans need to function independently.



1. Scherder, E. (2018, August 24). Erik Scherder. Het Fitte Brein. https://www.hetfittebrein.nl/spreker/erik-scherdert/



A LIBRARY IS **NO LONGER A HOUSE FOR BOOKS, IT'S A HOUSE FOR PEOPLE** FOCUSSING ON INTERACTION AND EXCHANGE

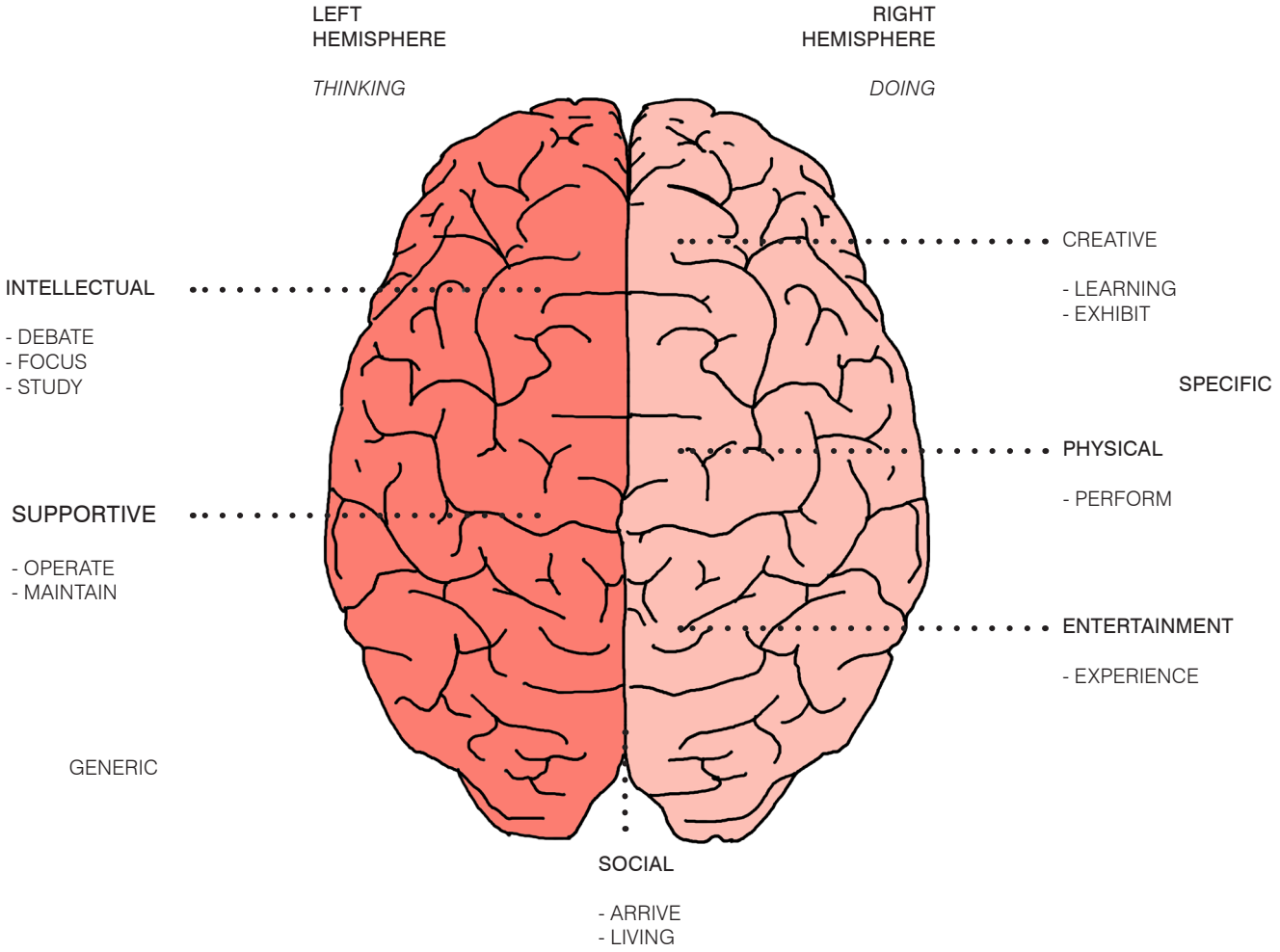
SOCIALLY AND CULTURALLY OPEN LIBRARY

RESEARCH ON ADDING SOCIAL AND CULTURAL FUNCTIONS TO THE NORMALLY INDIVIDUAL AND ISOLATED LIBRARY

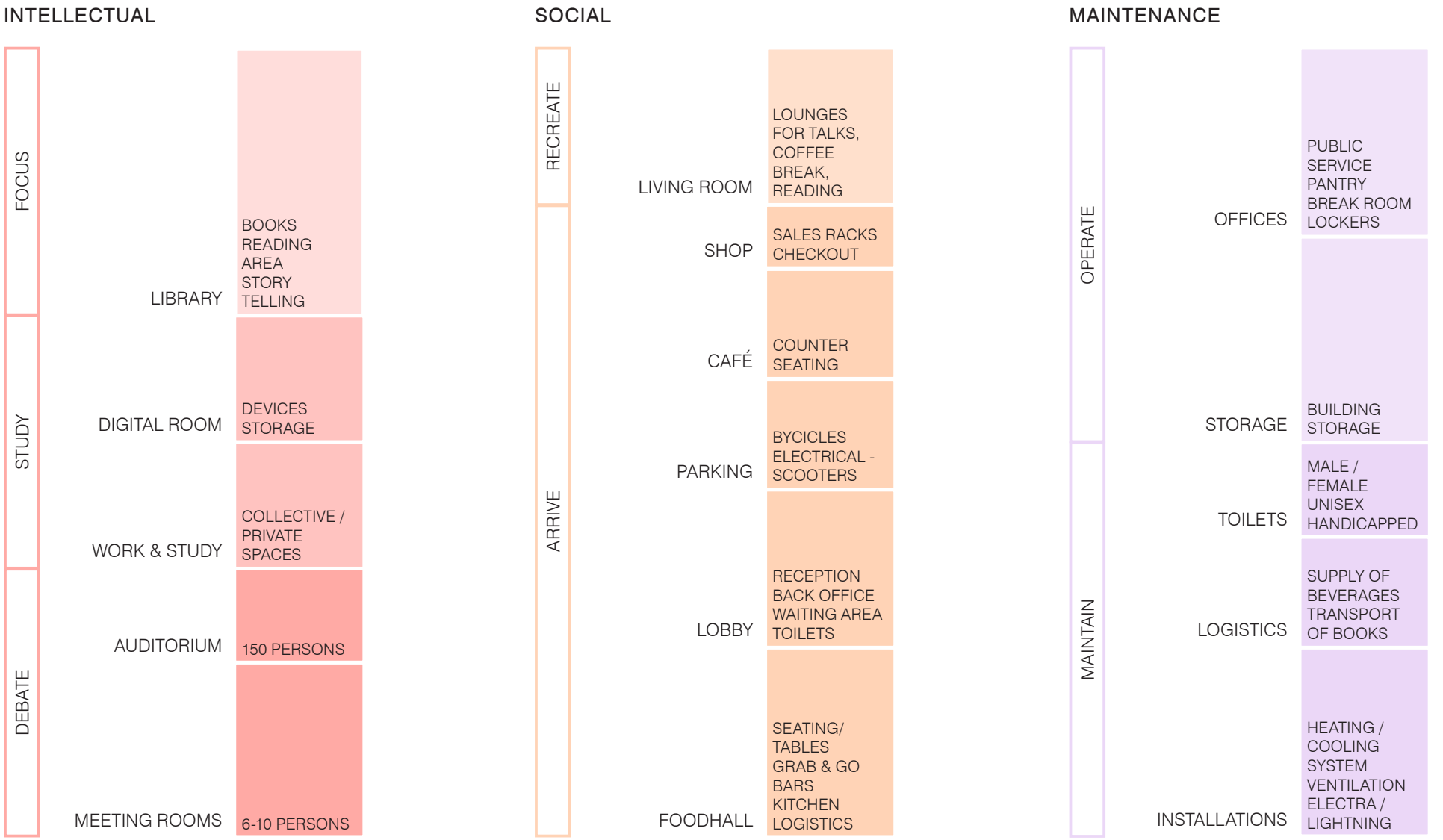
PROGRAMMATIC PROTOTYPE

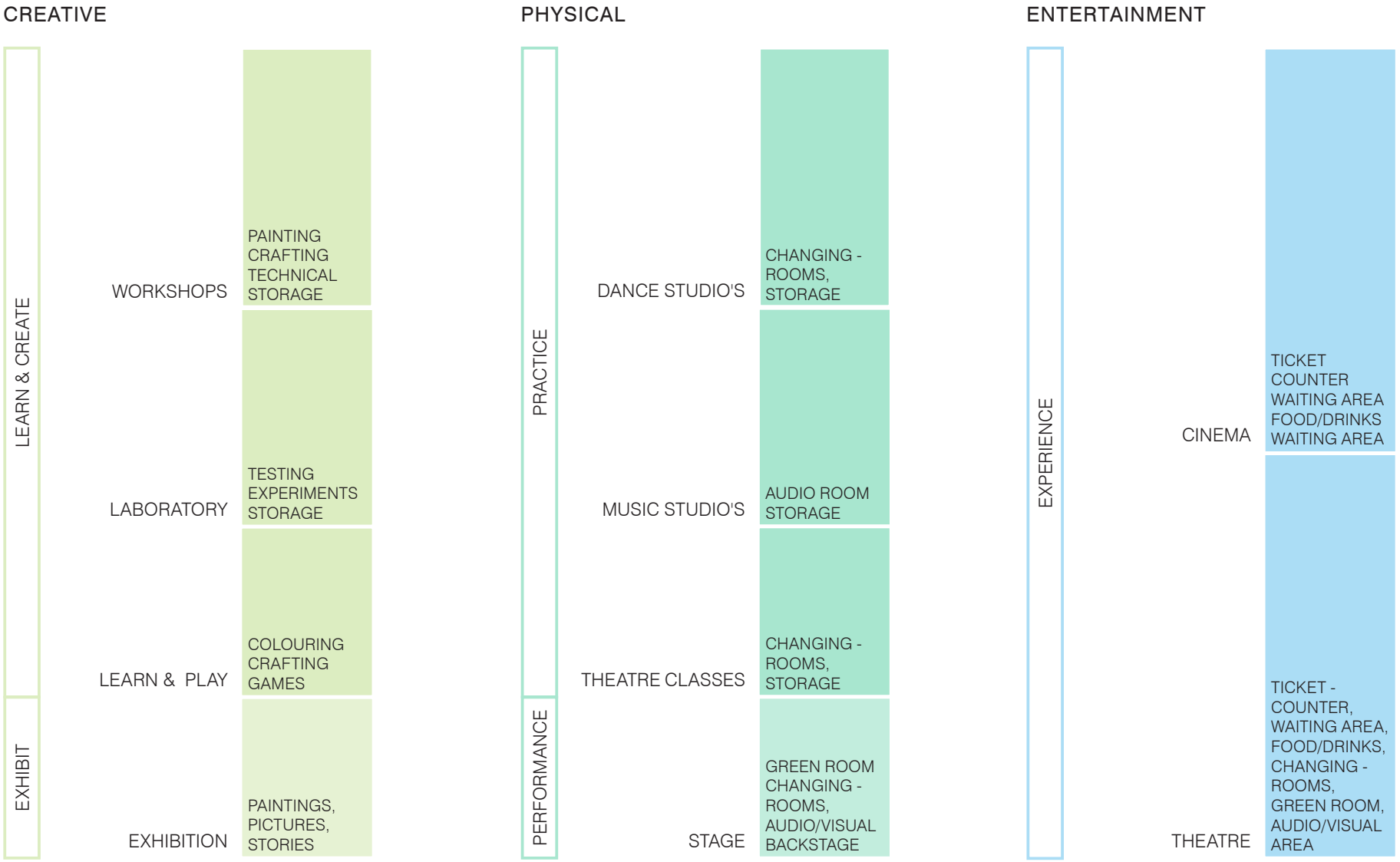
The standard library will be expanded to include other media forms to anticipate the future. So there will not only be printed books in the building but also devices on which users can read digital books and listen to audiobooks. In addition, the media library will contain extra functions that activate the left and right hemispheres. Activities that activate the left hemisphere of the brain are more intellectual functions, such as offices, study rooms, reading rooms and debate rooms.

The right hemisphere responds to creative activities, such as crafts, painting, dancing and singing. The different types of media will connect the thinking and doing activities in the building through a guiding routing. Finally, in addition to the activities for thinking and doing, there will also be space for leisure and gathering. Traditional formal functions associated with a library will be transformed into more informal ones with room for both the individual and the collective. The negative space of the media library will serve as a living room for the community.

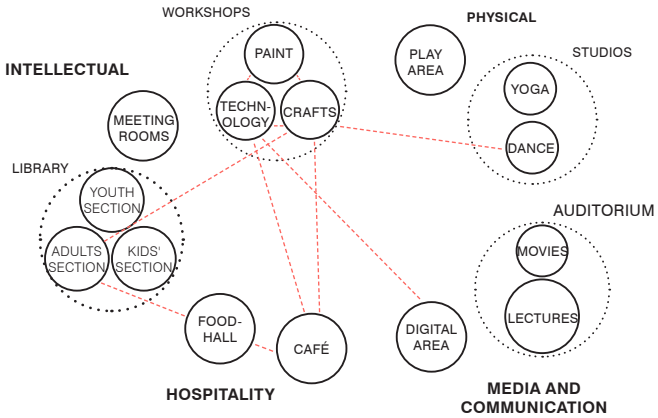


GENERIC PROGRAM



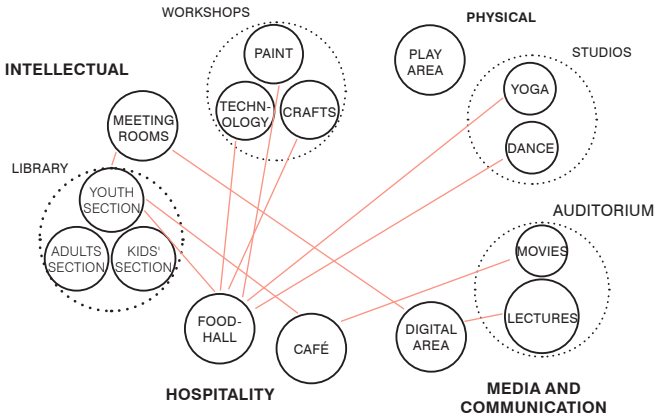

CREATIVE
LEARN & CREATE
EXHIBIT
WORKSHOPS
PAINTING
CRAFTING
TECHNICAL
STORAGE
LABORATORY
TESTING
EXPERIMENTS
STORAGE
LEARN & PLAY
COLOURING
CRAFTING
GAMES
EXHIBITION
PAINTINGS,
PICTURES,
STORIES
PHYSICAL
PRACTICE
PERFORMANCE
DANCE STUDIO'S
CHANGING -
ROOMS,
STORAGE
MUSIC STUDIO'S
AUDIO ROOM
STORAGE
THEATRE CLASSES
CHANGING -
ROOMS,
STORAGE
STAGE
GREEN ROOM
CHANGING -
ROOMS,
AUDIO/VISUAL
BACKSTAGE
ENTERTAINMENT
EXPERIENCE
CINEMA
TICKET
COUNTER
WAITING AREA
FOOD/DRINKS
WAITING AREA
THEATRE
TICKET -
COUNTER,
WAITING AREA,
FOOD/DRINKS,
CHANGING -
ROOMS,
GREEN ROOM,
AUDIO/VISUAL
AREA

SOCIAL RELATIONS BETWEEN USERS



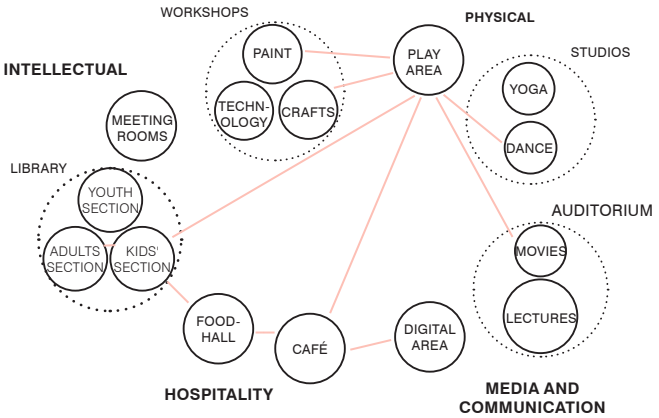
ELDERLY

Older people are mostly looking for a hobby to enrich their leisure time. For this reason, the target group will mainly be found in the workshops where there is room for painting, crafts and other manual skills. People can do their own thing but classes will also be organised to fulfil the educational role. After the workshops, a chat in the café over coffee or reading a book in the library, all functions are at hand.



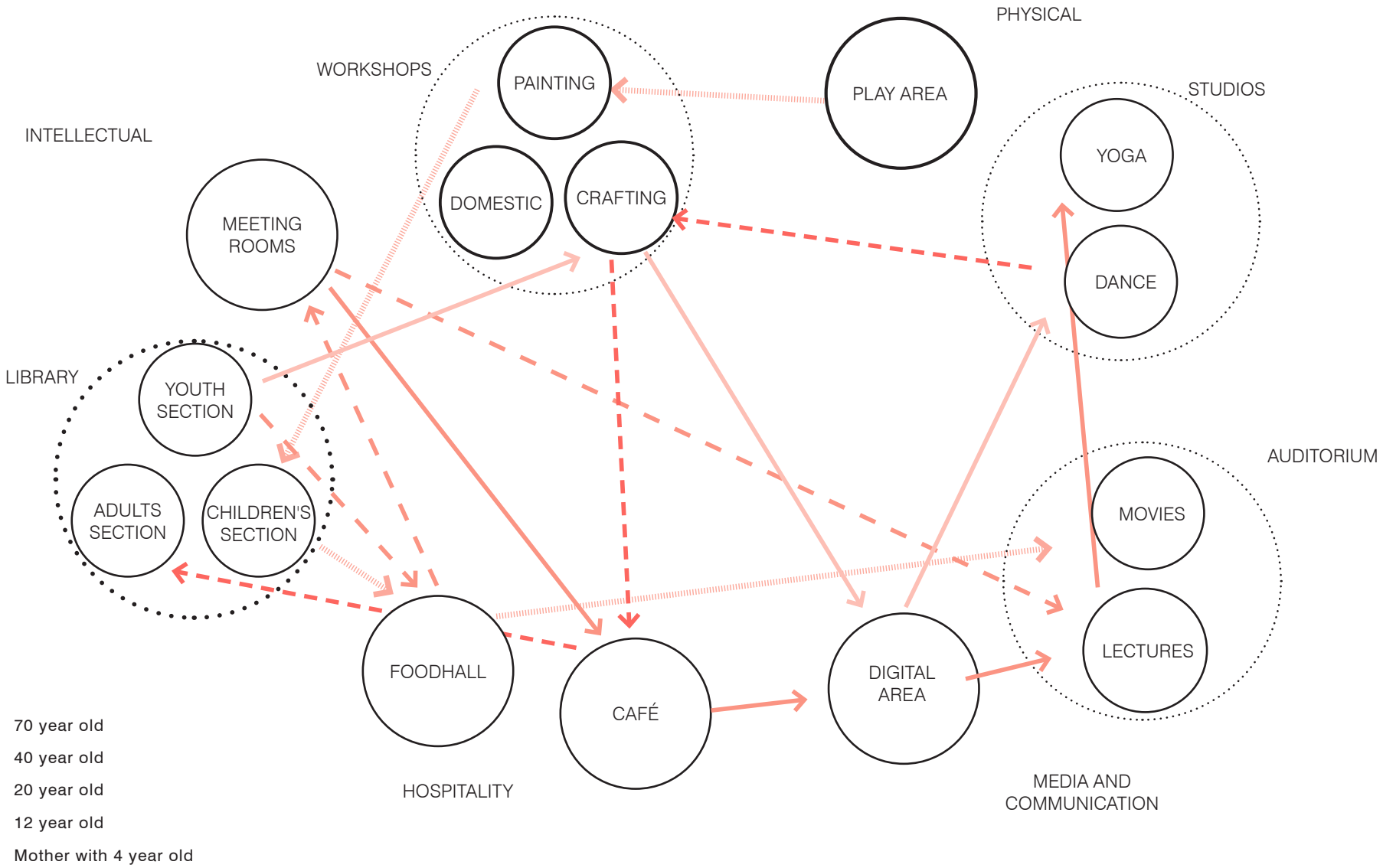
YOUTH

The interests of the youth are a bit more spread out. Chances are that young people will meet in the foodhall to have lunch or dinner in between studying. There are several locations to study, such as a place in the library, but there are also meeting and computer rooms. In their, young people can use the workshop spaces, studios and the auditorium for films.

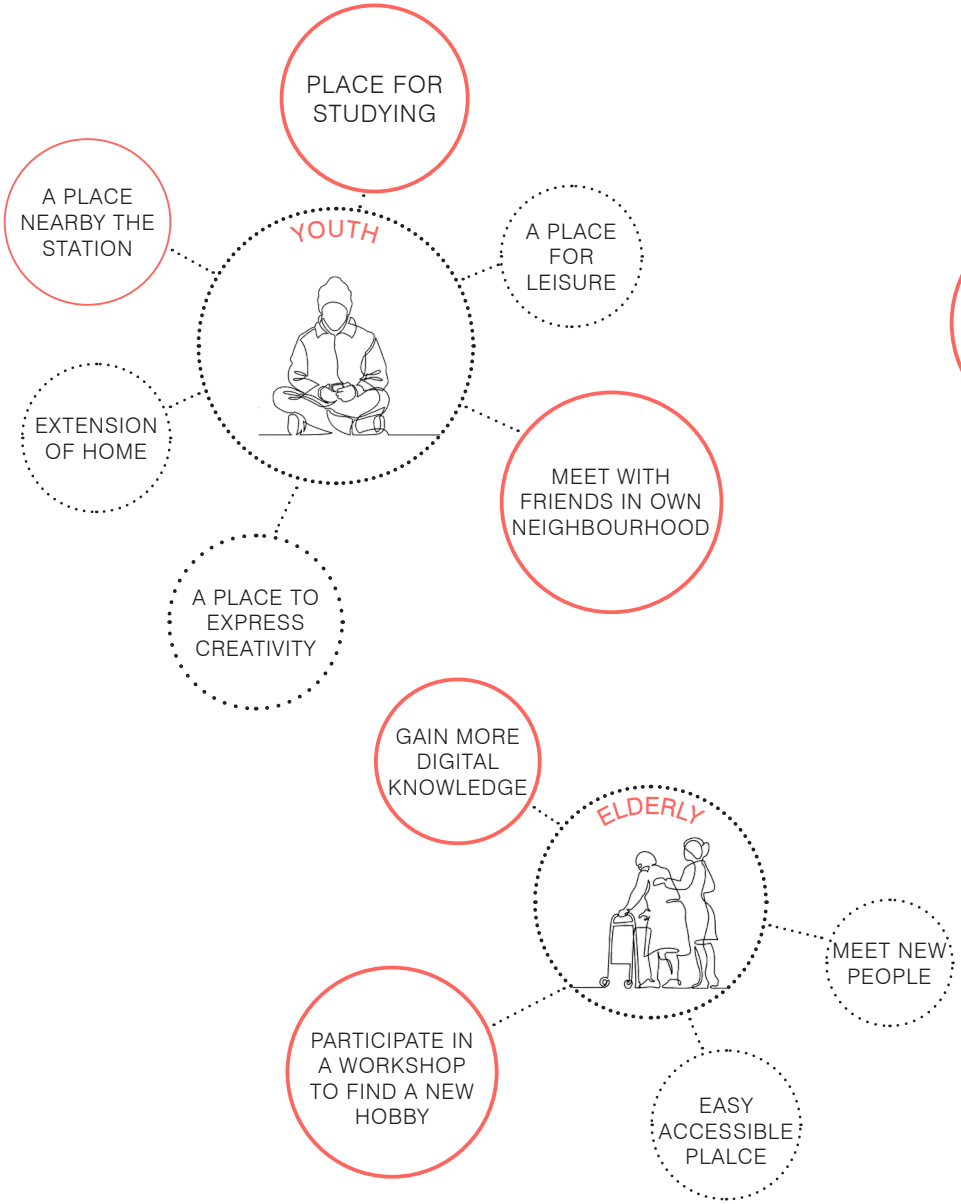


FAMILIES

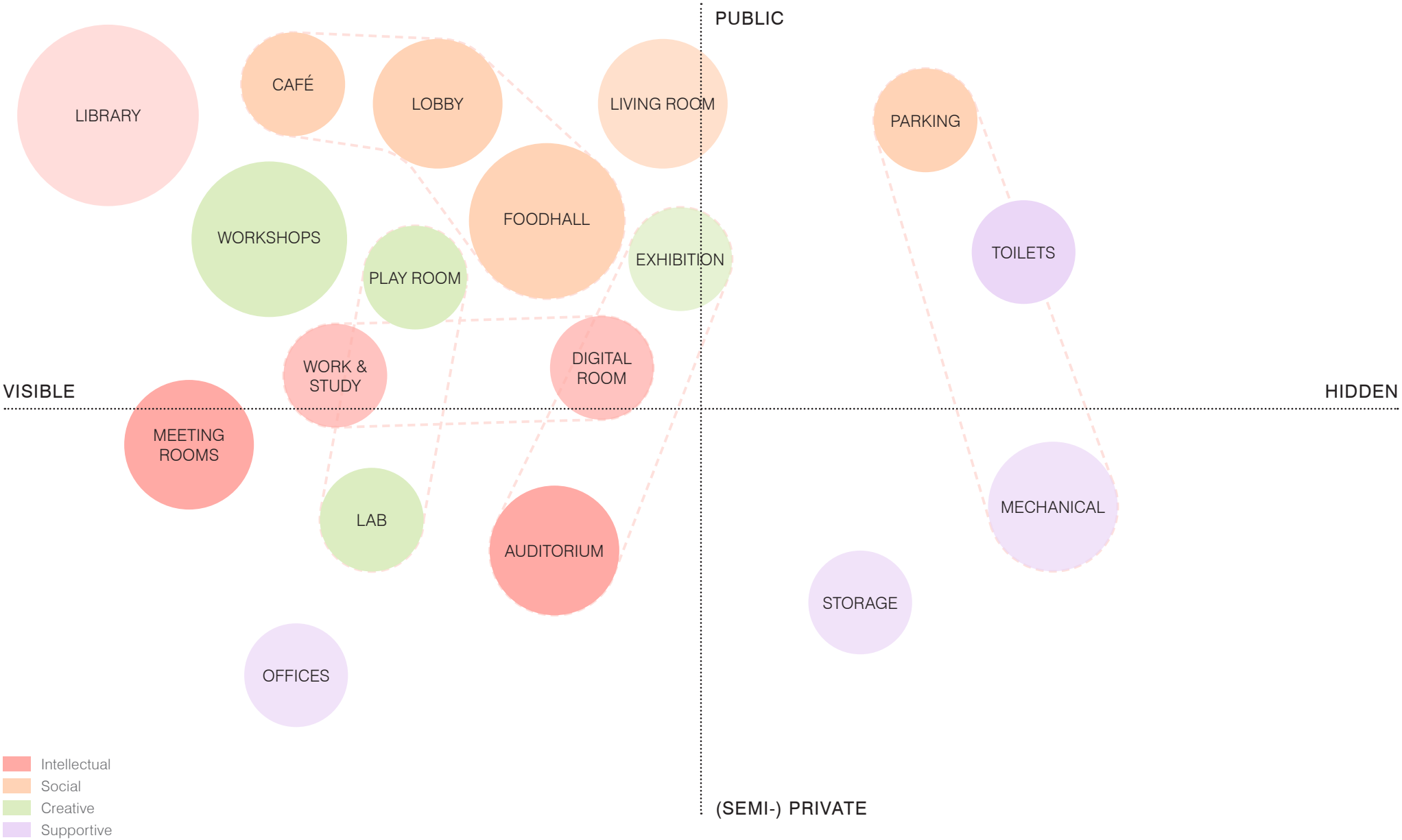
Families will spend a lot of time in the play area with their young children. From here, they can enhance their intellectuality in the library, workshops, auditorium and computer room. Parents can also relax to the library, foodhall or café.


PHYSICAL
WORKSHOPS
PAINTING
PLAY AREA
STUDIOS
INTELLECTUAL
YOGA
DOMESTIC
CRAFTING
MEETING ROOMS
DANCE
LIBRARY
YOUTH SECTION
AUDITORIUM
ADULTS SECTION
CHILDREN'S SECTION
MOVIES
FOODHALL
CAFÉ
DIGITAL AREA
LECTURES
HOSPITALITY
MEDIA AND COMMUNICATION
70 year old
40 year old
20 year old
12 year old
Mother with 4 year old

PROGRAM WISHES IN FRIEDRICHSHAIN

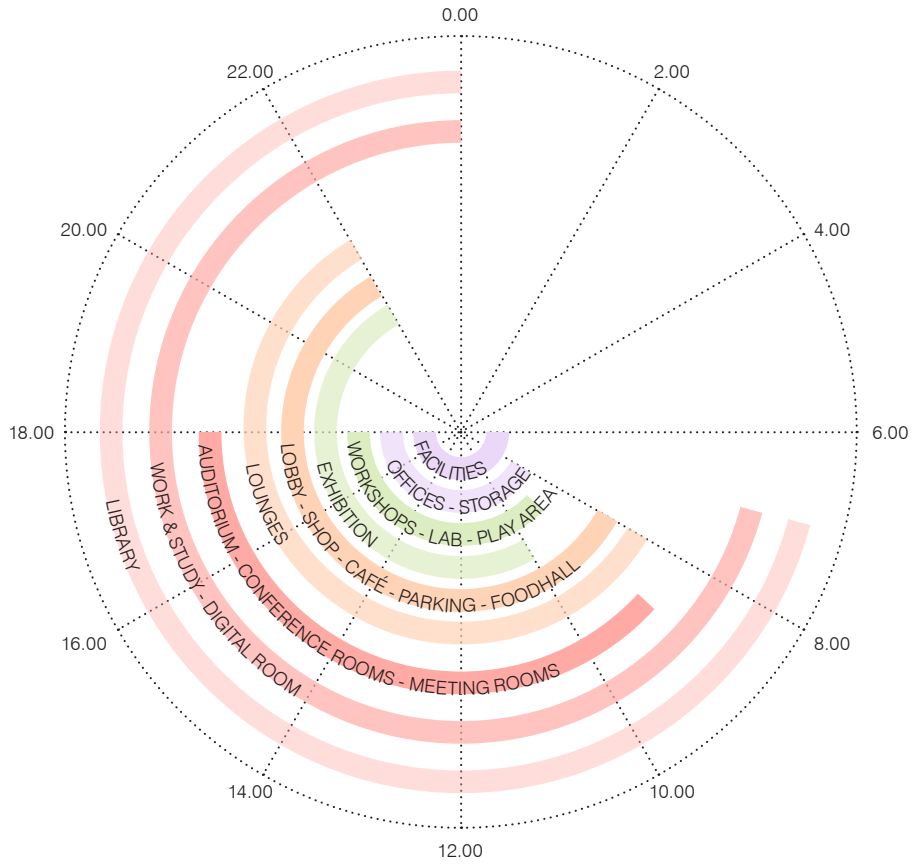


PUBLIC VS PRIVATE

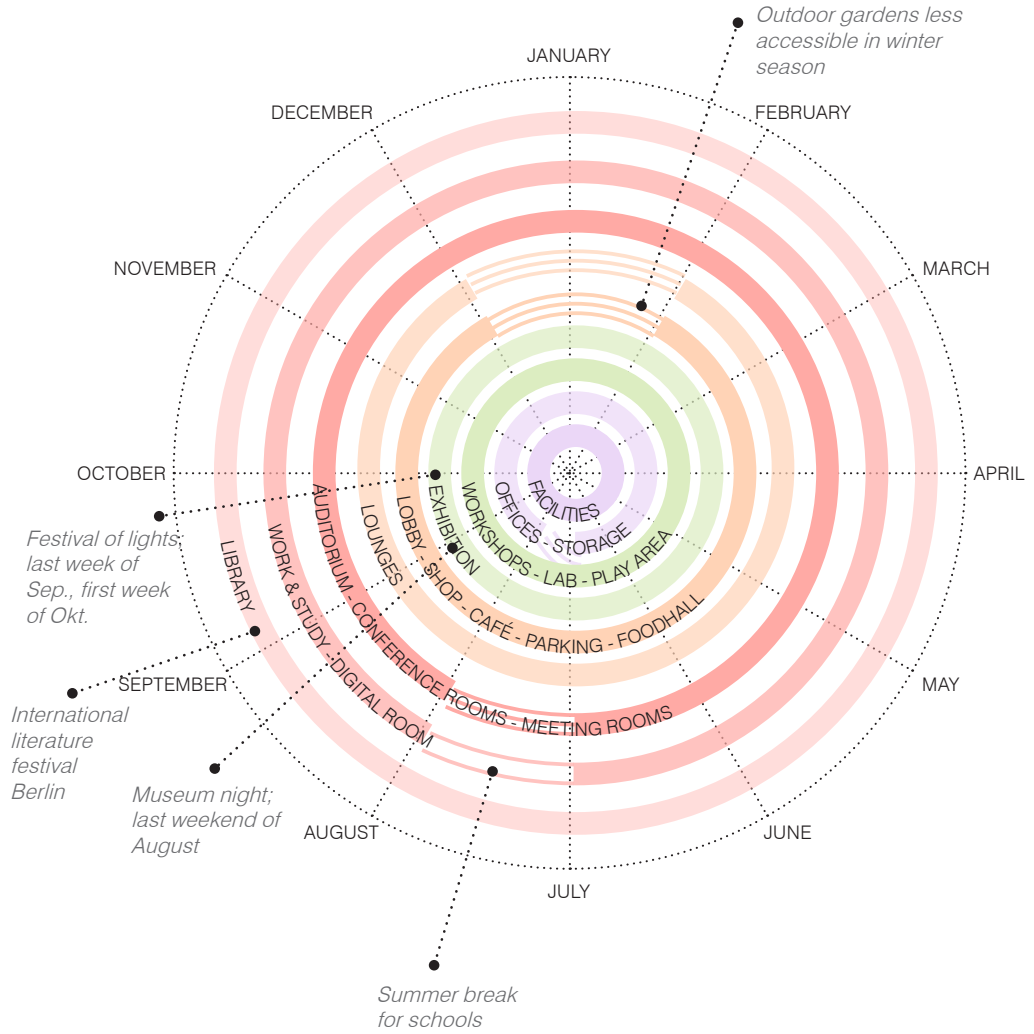


PROGRAM USAGE

ACTIVITIES THROUGH THE DAY



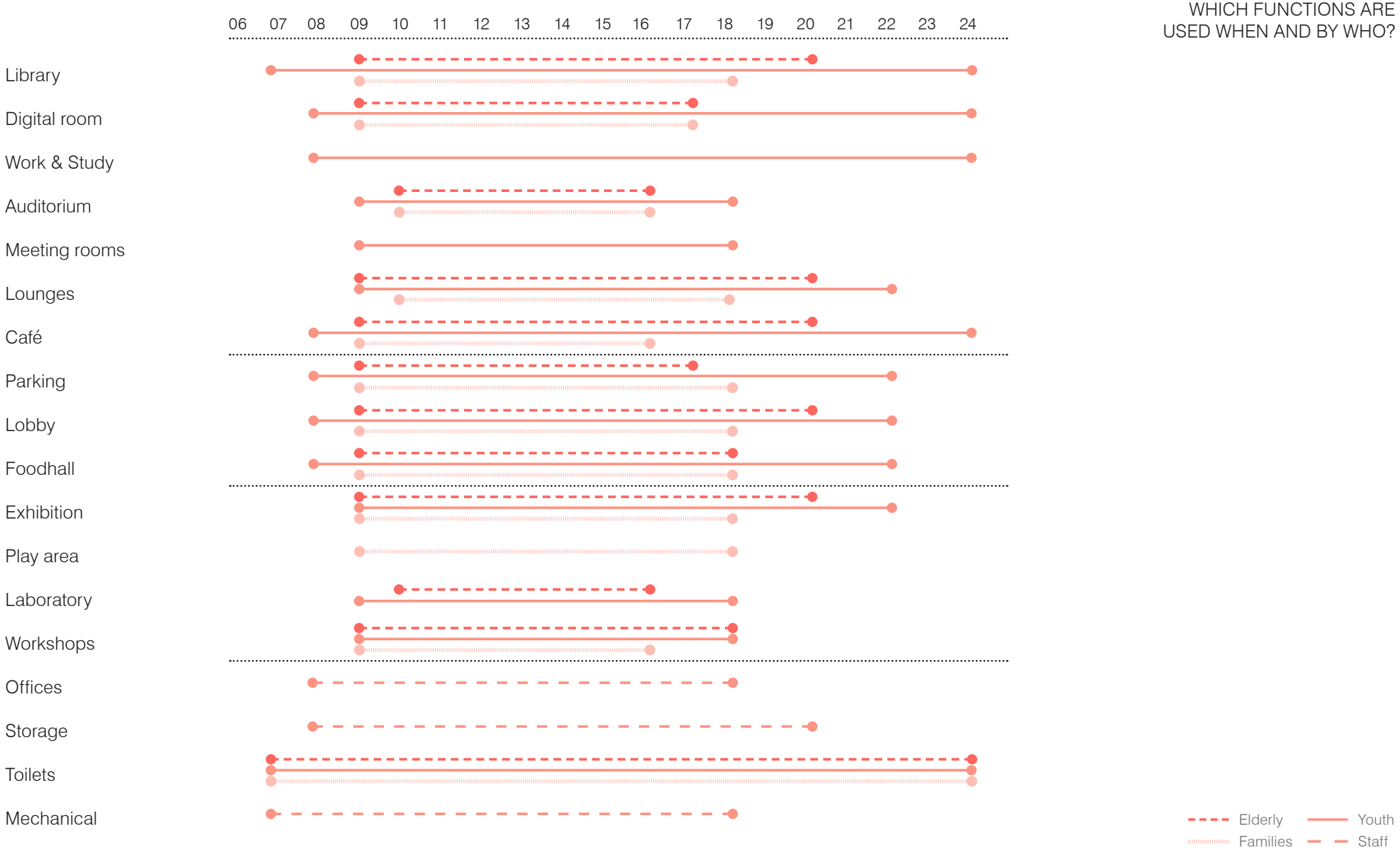
ACTIVITIES THROUGH THE YEAR



- Intellectual
- Social
- Creative
- Supportive

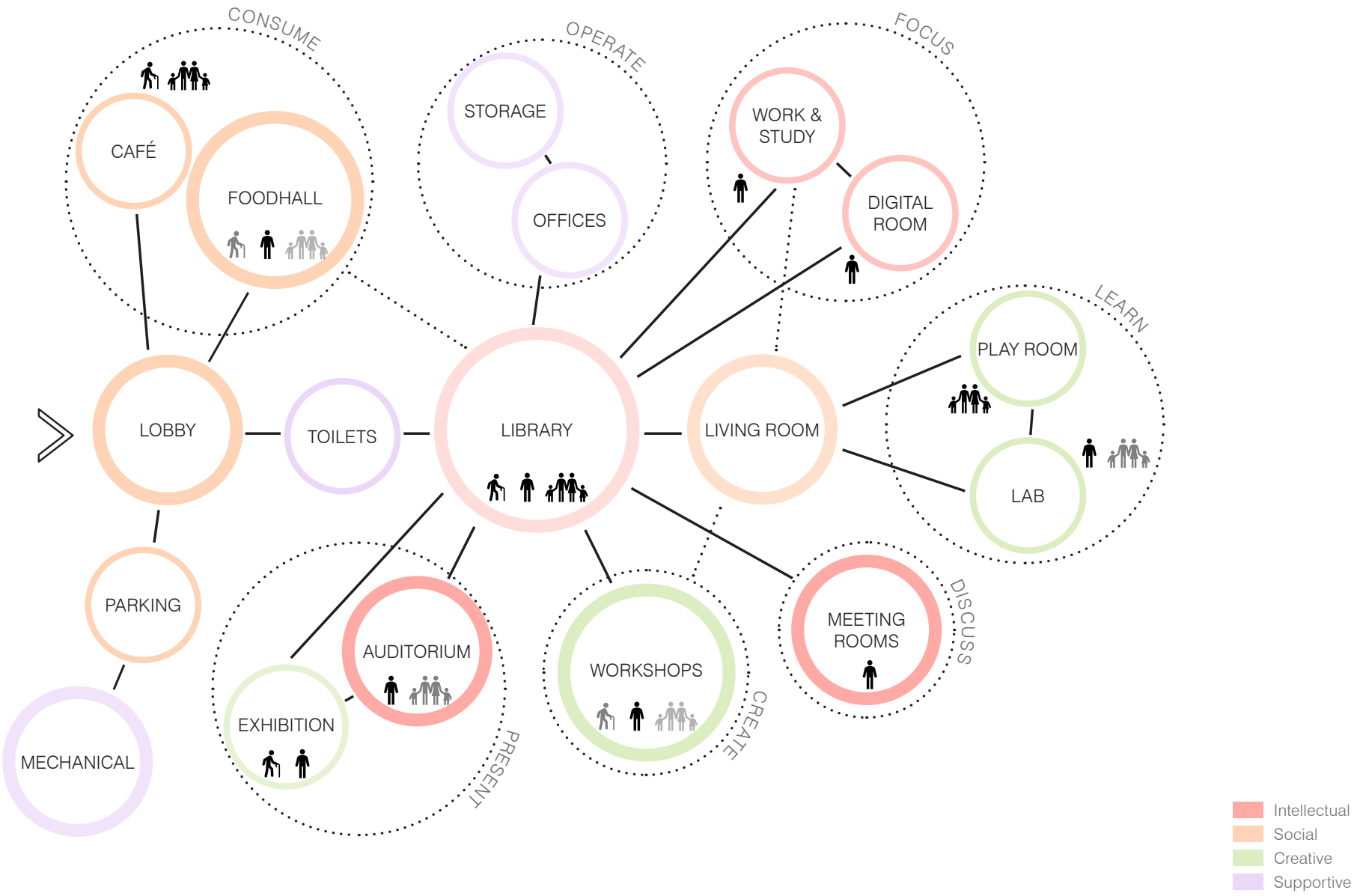
DAILY PROGRAM USAGE

WHICH FUNCTIONS ARE
USED WHEN AND BY WHO?

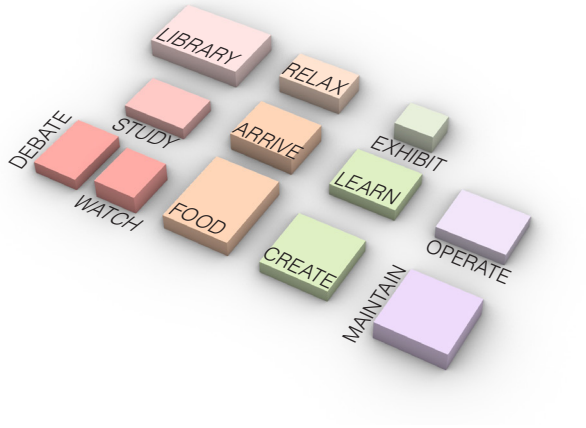


BUILDING PROGRAM

PROGRAM RELATION SCHEME

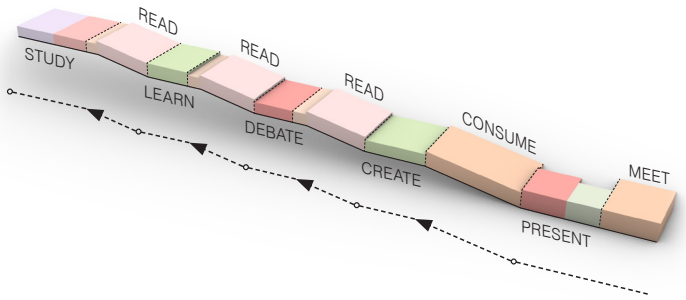


PROGRAM ORGANISATION



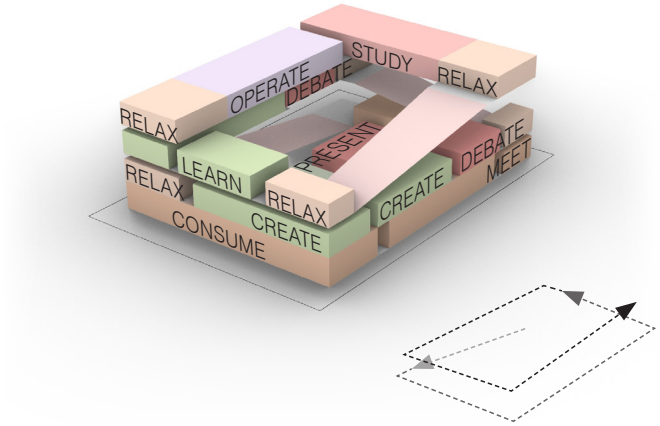
LEARNING PROGRAM

The programme consists of 12 activities. Each activity has its own quality, and together the activities reinforce each other.



LINE OF LEARNING PROCESS

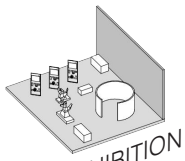
The activities can be laid out in the order according to the learning process, just as the circle of potential synergies showed above. The connecting factor between the activities is the library that supports the functions.

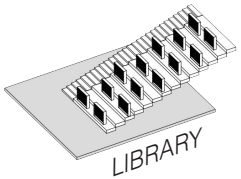


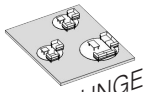
SPIRAL OF LEARNING

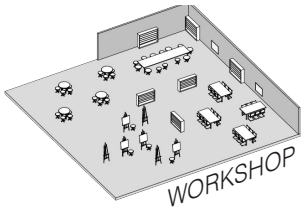
To strengthen the interaction between the functions, the linear line is folded into an ascending spiral. Here, the library is part of the circulation and shortcuts between floors will be possible more quickly.

70 YEAR OLD



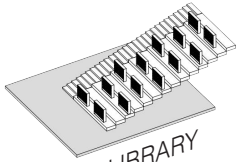


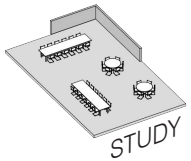


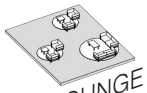


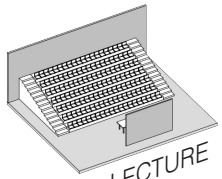
9 AM | 10 AM | Noon | 13 PM | 15 PM

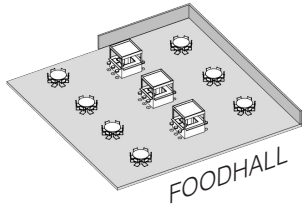
15 year old student





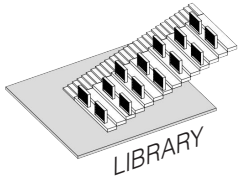


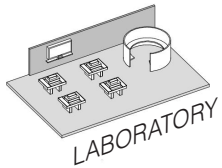


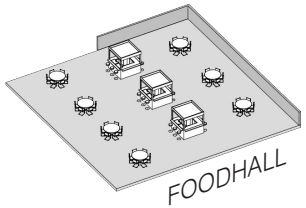


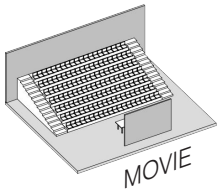
13 PM | 14 PM | 16 PM | 17 PM | 19 PM

6 year old with mother









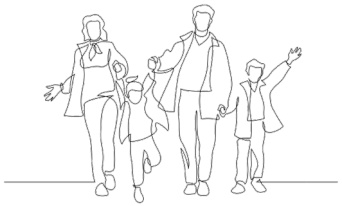
9 AM | 10 AM | Noon | 14 PM | 15 PM

SOCIAL INTERACTION

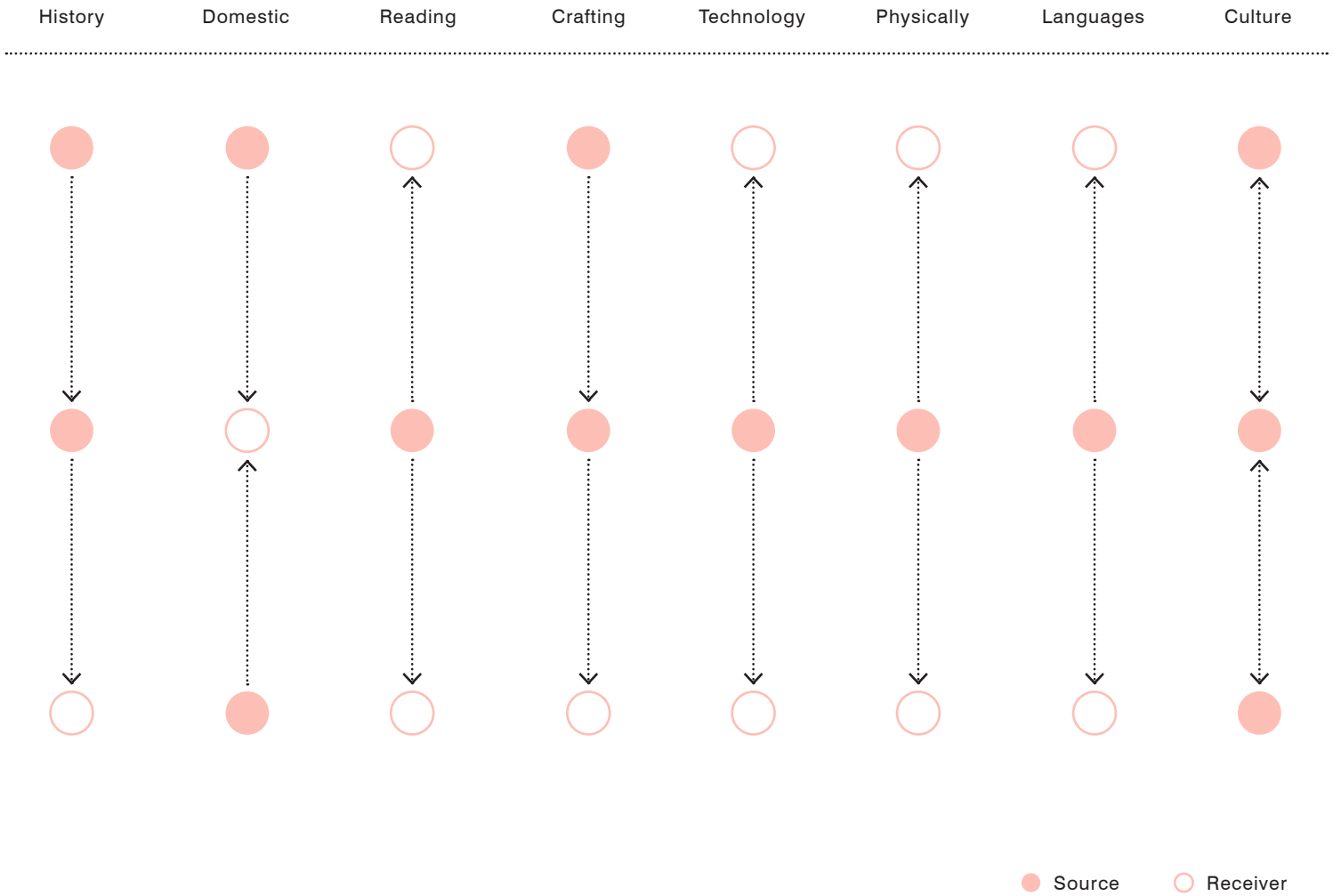
How can the target groups work and learn together?

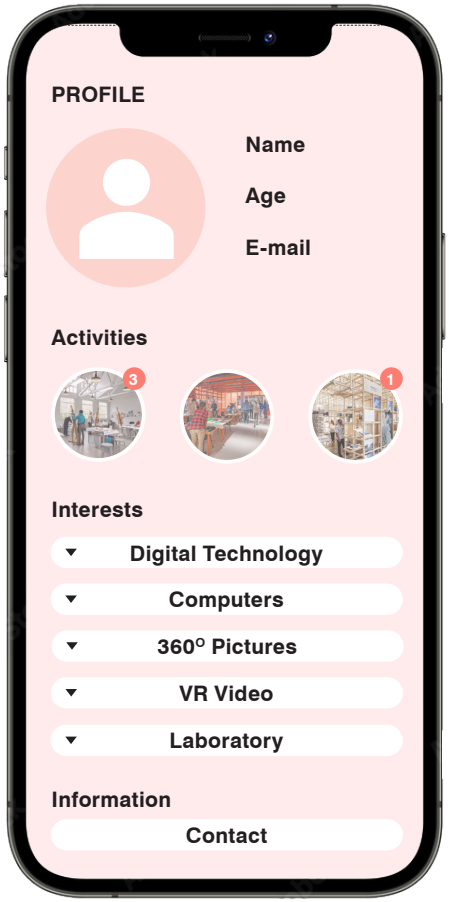
(Lonely) Elderly

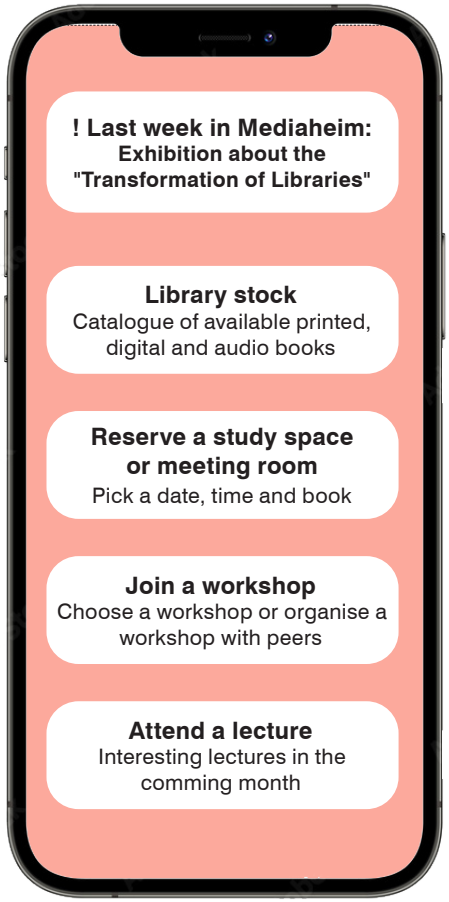
(Individual) Youth



(Underprivileged) families
(e.g. refugees / immigrants)







To allow the different audiences and generations of visitors to interact with each other, an application was developed. This will enable visitors to create an account with their interests related to the activities in the building. The app then seeks out users with similar interests and suggests they perform an activity together. In this process, users do not seek out their peers themselves, but the app provides unexpected collaborations.

In addition, the app will also contribute to the users' personal experience. The app will give notifications regarding the interests entered, and users can reserve study places and books in advance. In this way, digital technology makes a positive contribution to the use of the building.

MEDIA TOOLBOX

The media library will house different types of media. The library will not only be filled with printed books, but digital devices will also be available to read books on. There will also be areas where audiobooks or podcasts can be listened to.

The combination of physical and digital resources has been applied to each feature. There is a different option for each user. Some traditionally want to have a book and work with their hands, and the other user would like to store everything digitally in the cloud. For example, the workshops are set up for handwork, where the laboratory is completely focused on digital and virtual technology.

Spaces will therefore be designed to be adaptable to each situation. For example, one week, there will be an analogue presentation in the exhibition room and a digital one next week. The interior will be adaptable to such changes.

INTELLECTUAL ACTIVITIES

LIBRARY

Printed books in book shelves

E-readers on tables / chairs

Story telling: seating with headphones

DIGITAL ROOM

Digital devices in stead of laptops

WORK & STUDY

Reading and writing (own materials)

MEETING ROOMS

Real-life conversation

Online meeting

AUDITORIUM

Lecture or presentation

Informative film

CREATIVE

PLAY AREA

Interactive screen

Colouring / games

Reading

LABORATORY

VR for education

Technology

WORKSHOPS

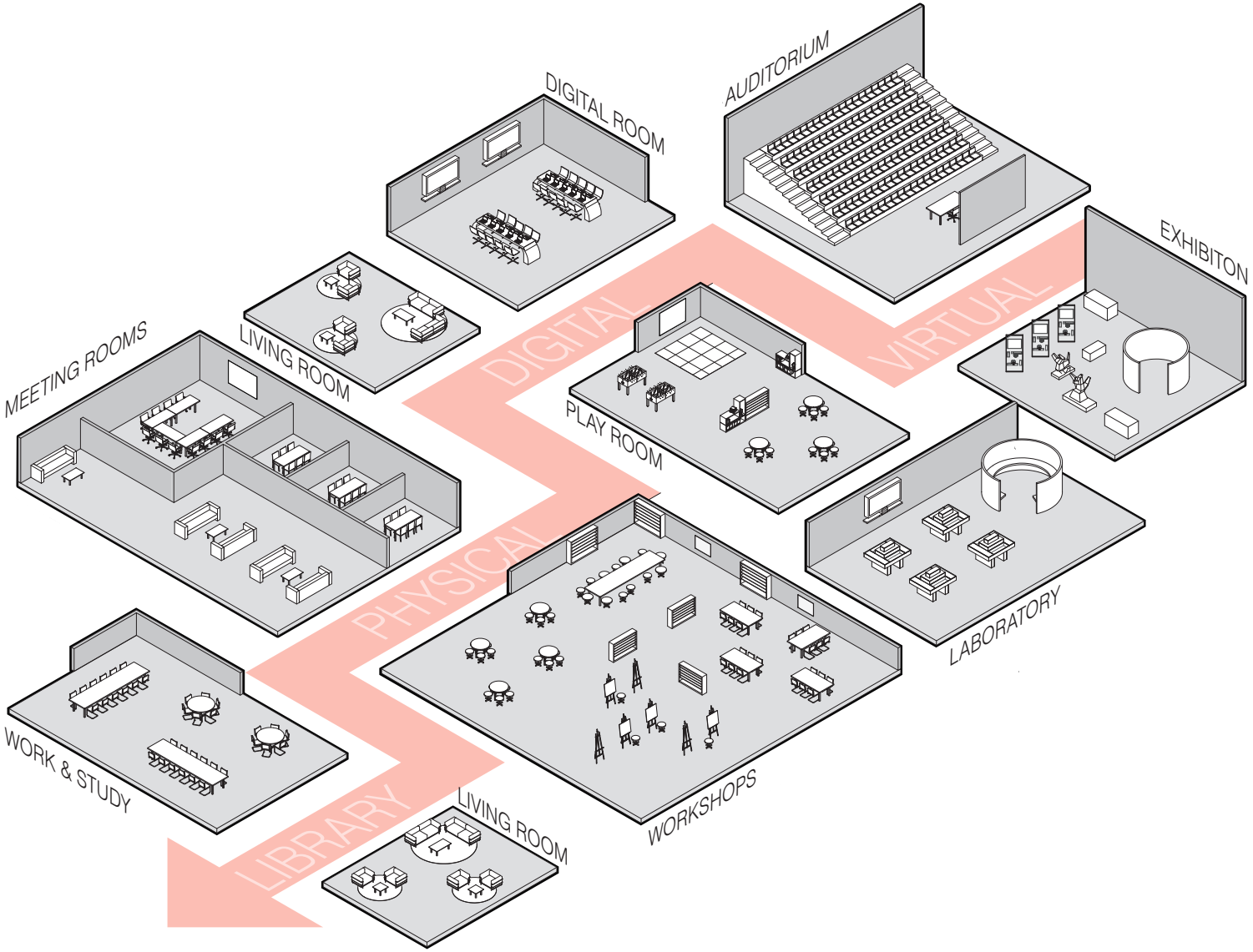
Painting

Crafting

EXHIBITION

Analogue presentation

Digital presentation


DIGITAL ROOM
AUDITORIUM
EXHIBITON
LIVING ROOM
MEETING ROOMS
PLAY ROOM
DIGITAL
VIRTUAL
PHYSICAL
LABORATORY
WORK & STUDY
WORKSHOPS
LIBRARY
LIVING ROOM

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SITE ANALYSIS

RESEARCH TO POTENTIAL PROJECT LOCATIONS

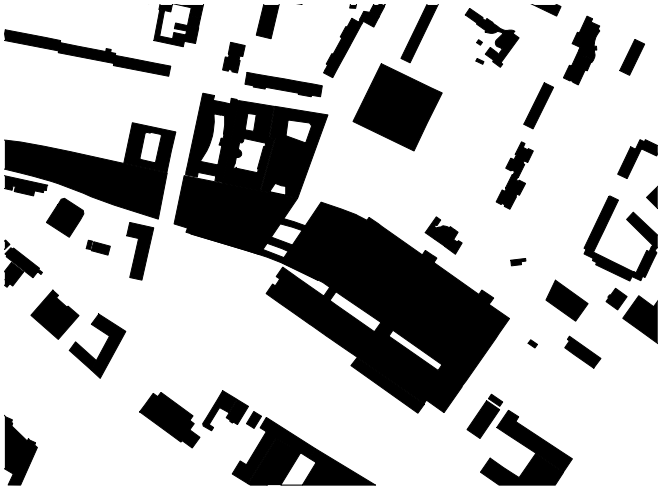
OSTBAHNHOF

Ostbahnhof forms a strict social and spatial division between the growing, vibrant and diverse city district of Wriezener Bahnhof and the historical suburban Andreasviertel district.

A new public condenser should Bridge the two neighbourhoods and enhance inclusivity and diversity. Adding social functions to existing services ensures that renewal and origin reinforce each other. Moreover, bringing different socioeconomic groups together reduces crime and disorder and enhances the collective sense of security.

The three chosen locations are all at the back of Ostbahnhof in the Andreasviertel district. The first is more in the residential area and the other two are a bit more in the station district. For all three locations, I did a programme study to find out where the Urban Living Room would work best.

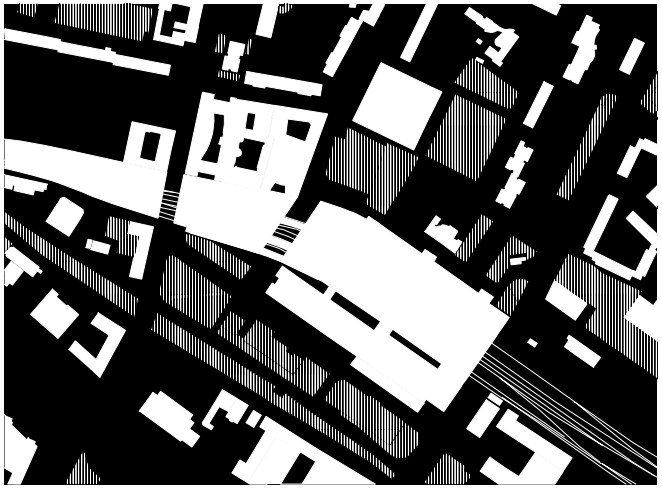
BUILT ENVIRONMENT



MORPHOLOGY

The morphological map reveals that the station area is not very developed. The traditional residential blocks are mostly unfinished or never conceived. Many blind façades and detached buildings characterise the area.

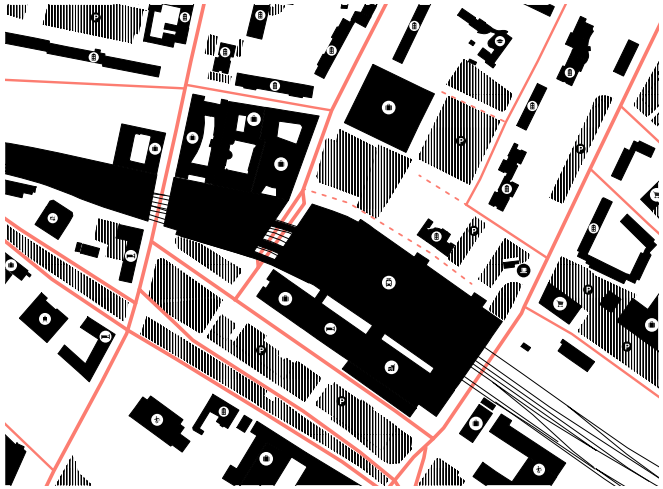
■ Build Environment



PUBLIC SPACE

Because there is limited building in this area, many large open spaces are created, which is sometimes already designated as public space, but mostly undefined. So far, the 'defined' public space has mainly been designated for greenery and parking spaces.

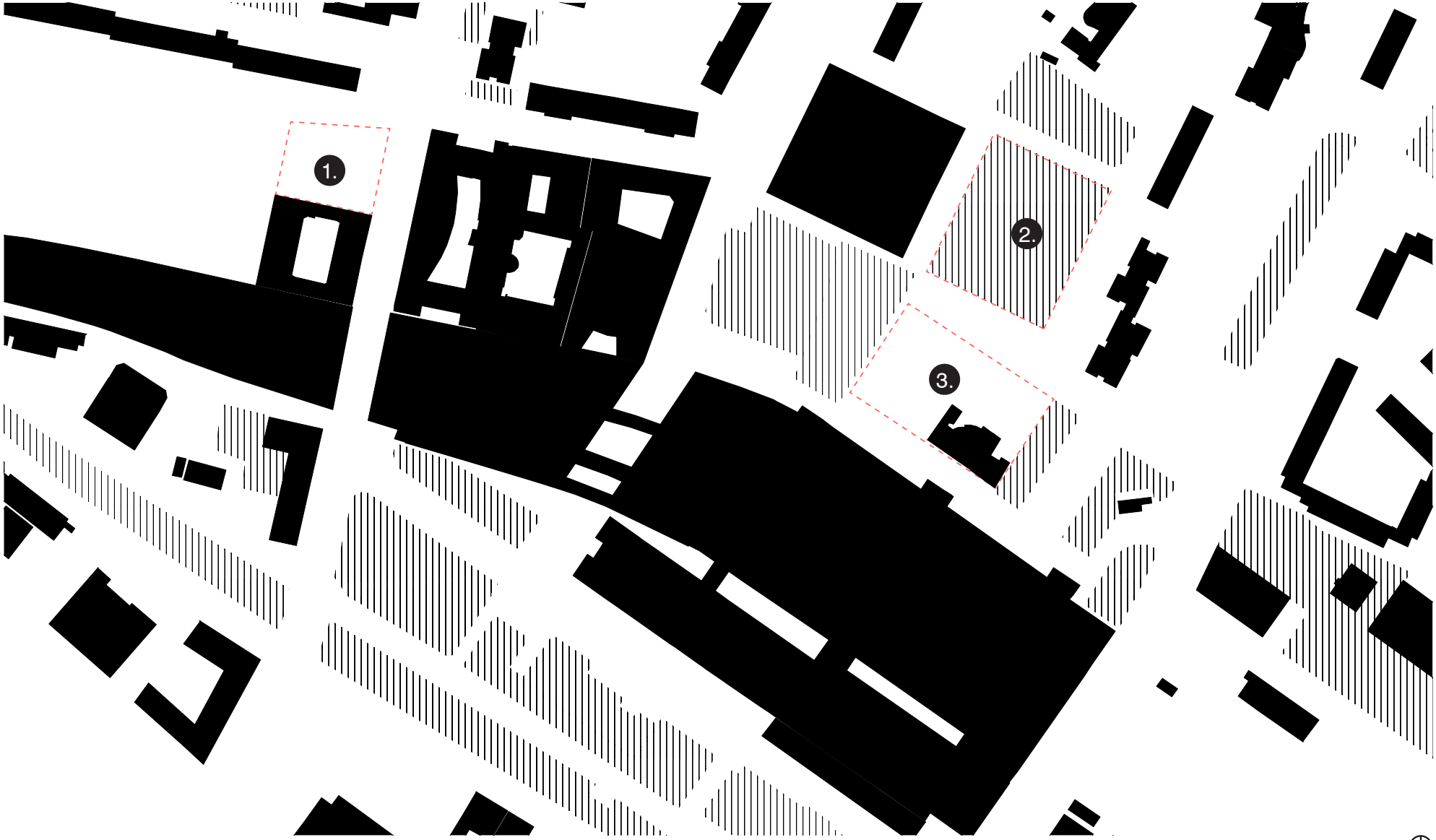
■ Open space
▥ Used Public Space



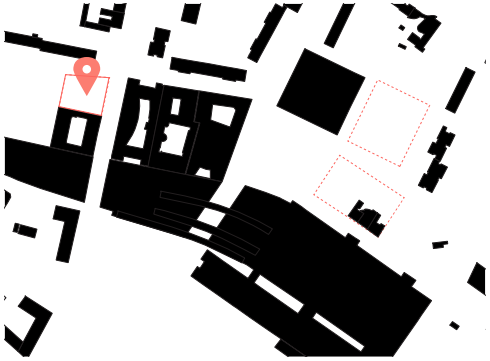
CURRENT FUNCTIONS

Various functions are currently located in the station area. The north mainly contains the residential area, around the station many offices are located and the south and east are home to many commercial and cultural activities.

■ Built Environment
▥ Used Public Space
▮ Traffic Roads


1.
2.
3.
Built Environment
Used Public Space
Potential Sites
100 m

ANDREASSTRASSE 69



The first potential location is to the left of Ostbahnhof, situated in the residential area on a corner. Despite its location close to the railway, it is a very quiet location with little movement on the street. The plot is located on the blind facade of a historic, recently renovated, office building. Next to the plot are large residential buildings with many small open spaces and some playgrounds for children. There are some older people walking the streets here and there, and around the playground are parents with young children. There are very few balconies and benches, resulting in little street interaction.

Because the plot is adjacent to a historic building, the dialogue between the old and new architecture is very interesting. How can the new building translate the old style into a modern version? And how can this building be a link between the residential and office functions in this area?

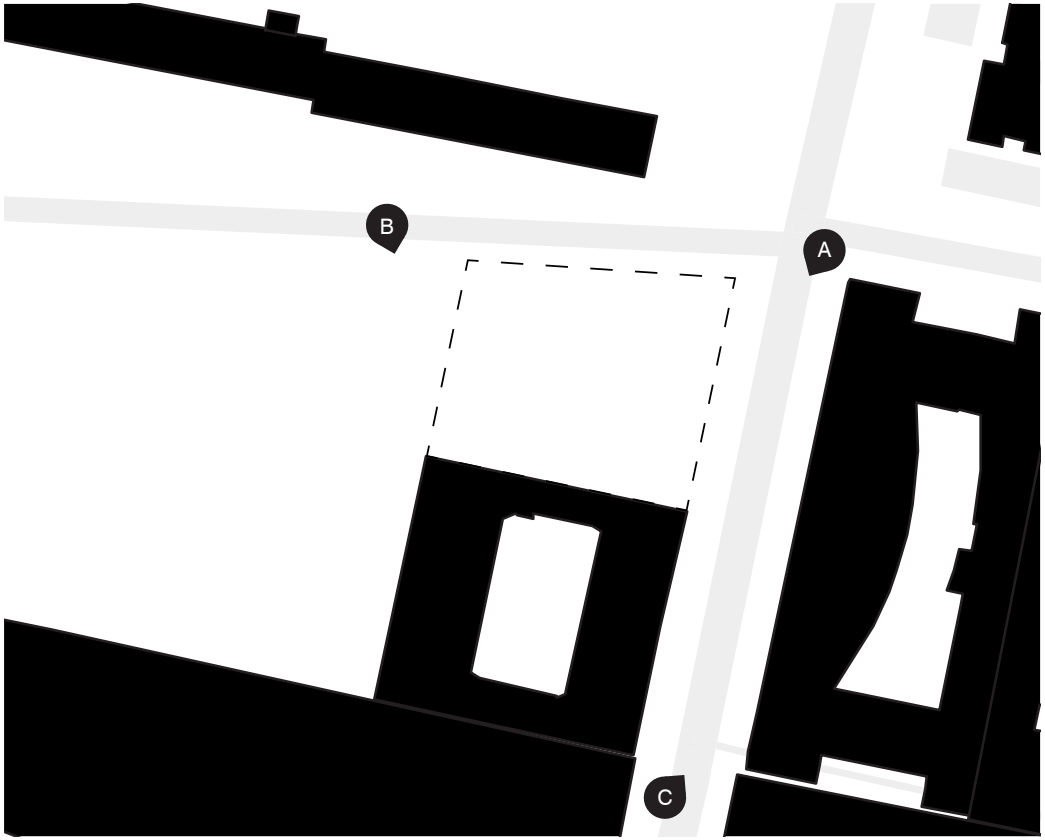
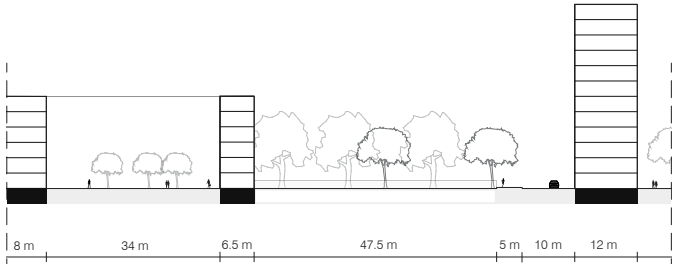
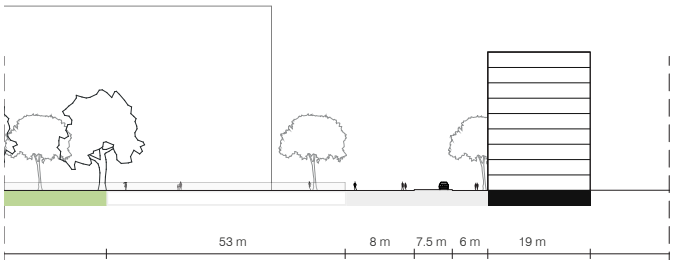


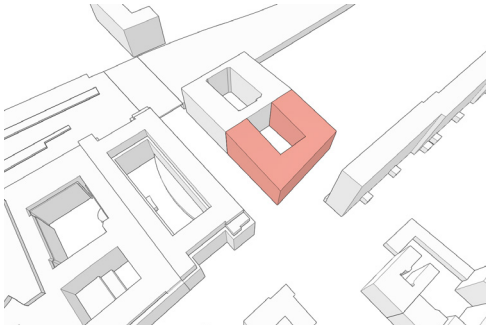
Figure-ground plan 1:1000



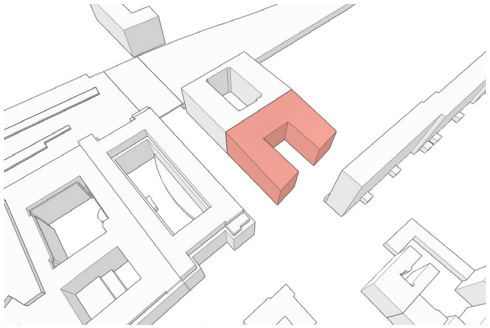
Cross section 1:1000



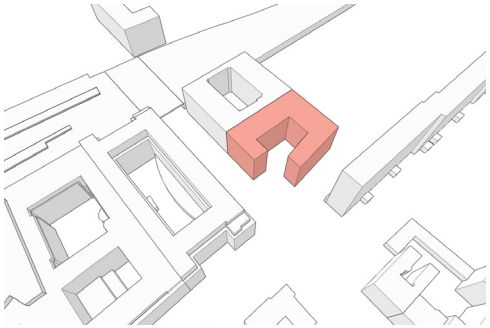
Longitudinal section 1:1000



Massing study 1

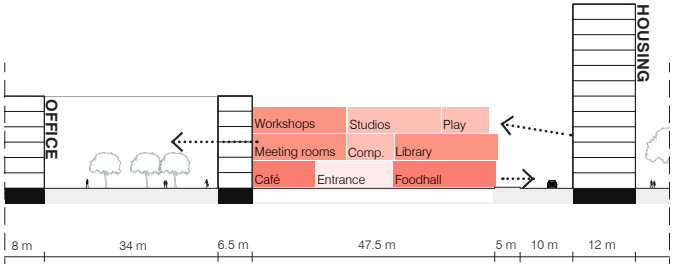


Massing study 2

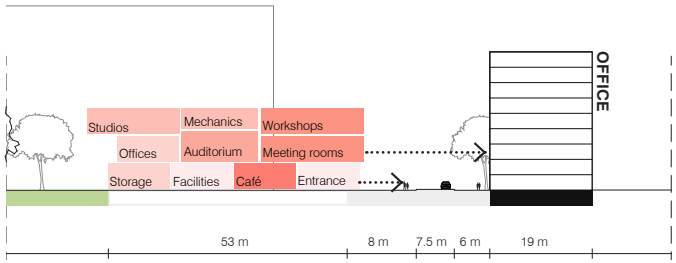


Massing study 3

Prototype to site plan 1:2000

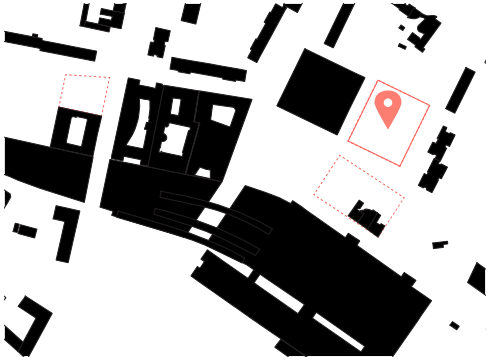


Cross section 1:1000



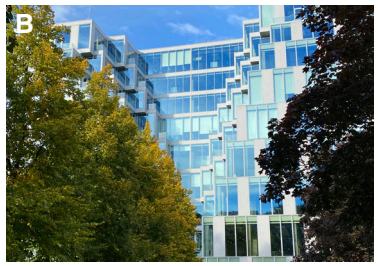
Longitudinal section 1:1000

LANGE STRASSE



The plot is located next to the new Zalando office building consisting of a glass cube with prominent volumes. On the right side of the plot are the characteristic communist slabs with flat facades of sheet metal. The plot is close to the back of Ostbahnhof with the Herman-Stöhr-Platz in between with lots of food trucks. Currently, the plot is zoned as a parking lot for the surrounding residential buildings and offices. Remarkably, employees of surrounding buildings are having lunch in front of their buildings, as they have no relaxing place to go.

The plot has the potential to activate the direct area behind Ostbahnhof. This can be enhanced by connecting the two parks in front and behind the plot and giving the square in front of it a more specific function. The challenge for this building lies mainly in the size and scale between the surrounding buildings. How can the public building among such tall buildings, still be striking enough to attract people?



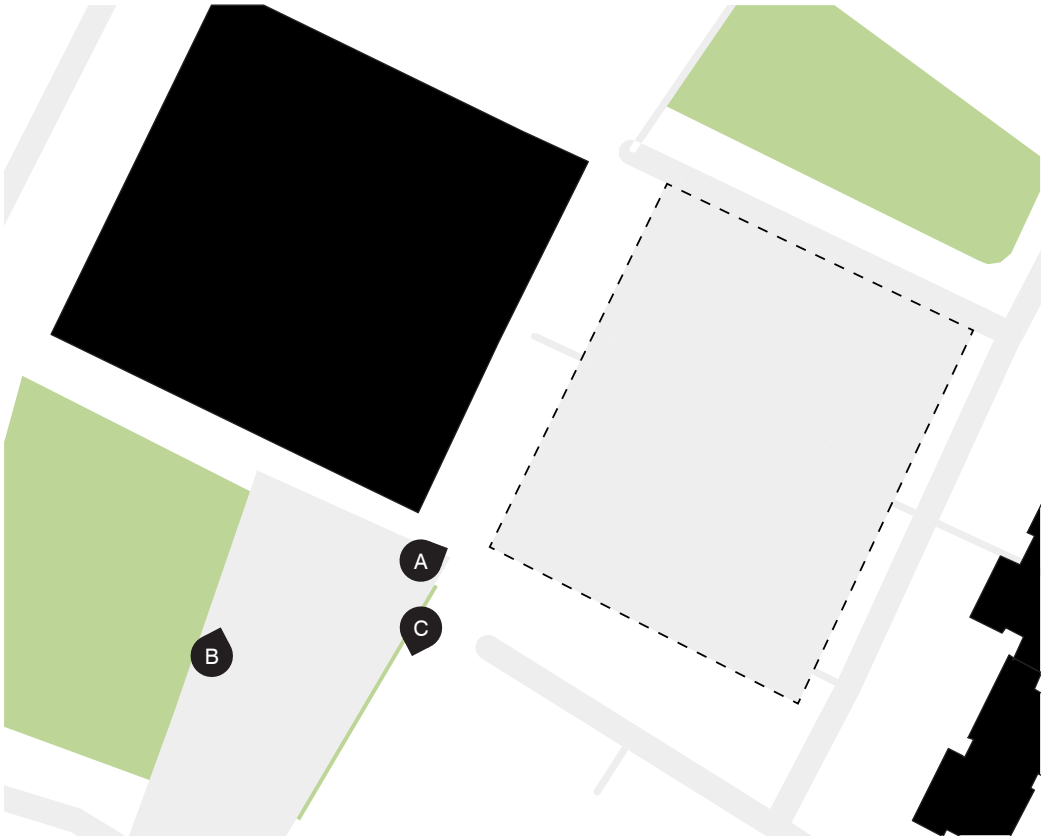
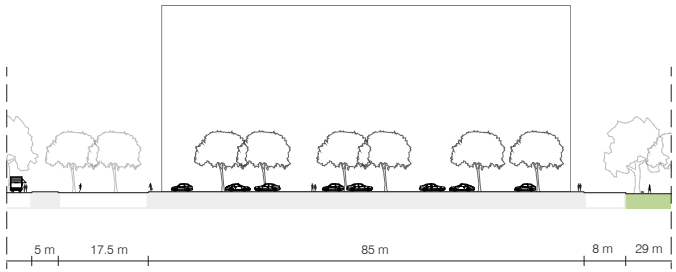
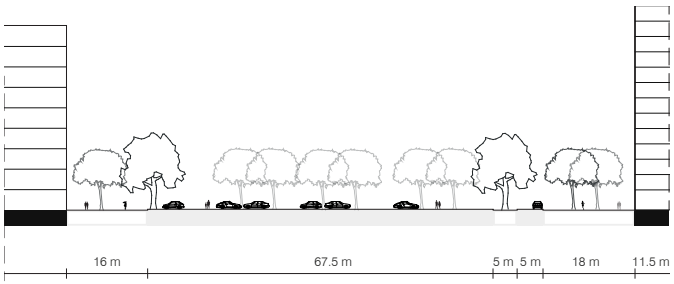


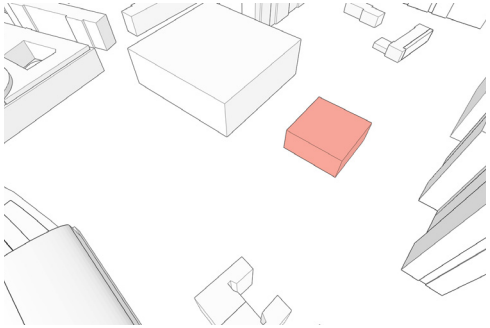
Figure-ground plan 1:1000



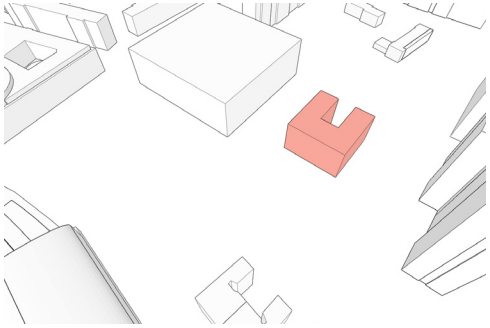
Cross section 1:1000



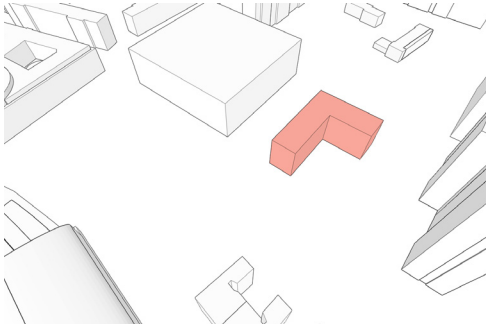
Longitudinal section 1:1000



Massing study 1



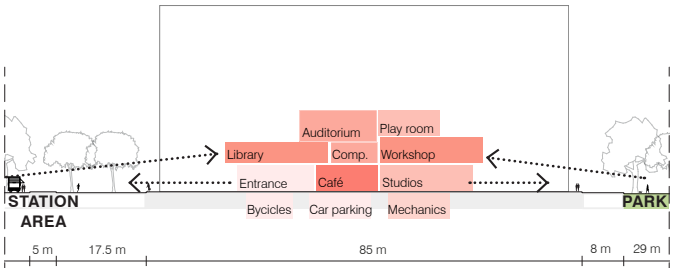
Massing study 2



Massing study 3

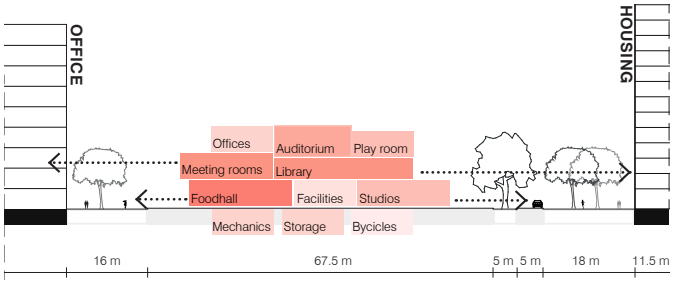
Prototype to site plan

1:2000



Cross section

1:1000



Longitudinal section

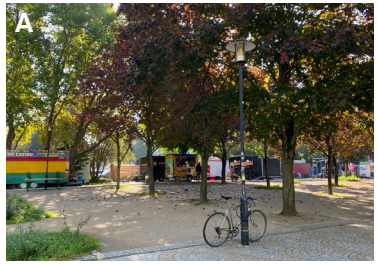
1:1000

HERMAN-STÖHR-PLATZ

The plot is located next to the entrance/ exit at the backside of Ostbahnhof. Currently, one-third of the site is used by food trucks but the other two-thirds of the plot are mostly vacant. Next to the plot are three existing buildings containing public functions in the plinth and housing above. However, these three buildings also have three blind façades that make the back and sides of the plot less attractive.

Station users walk across the square and past the food trucks, and employees of surrounding buildings stand in front of their buildings having lunch. Despite its green appearance, there is little visible sign of a park or leisure facility in the square.

The plot is an interesting place to activate the back of Ostbahnhof. However, size and scale have to be taken into account with this plot because of the large station and the passage that remains between the two buildings.



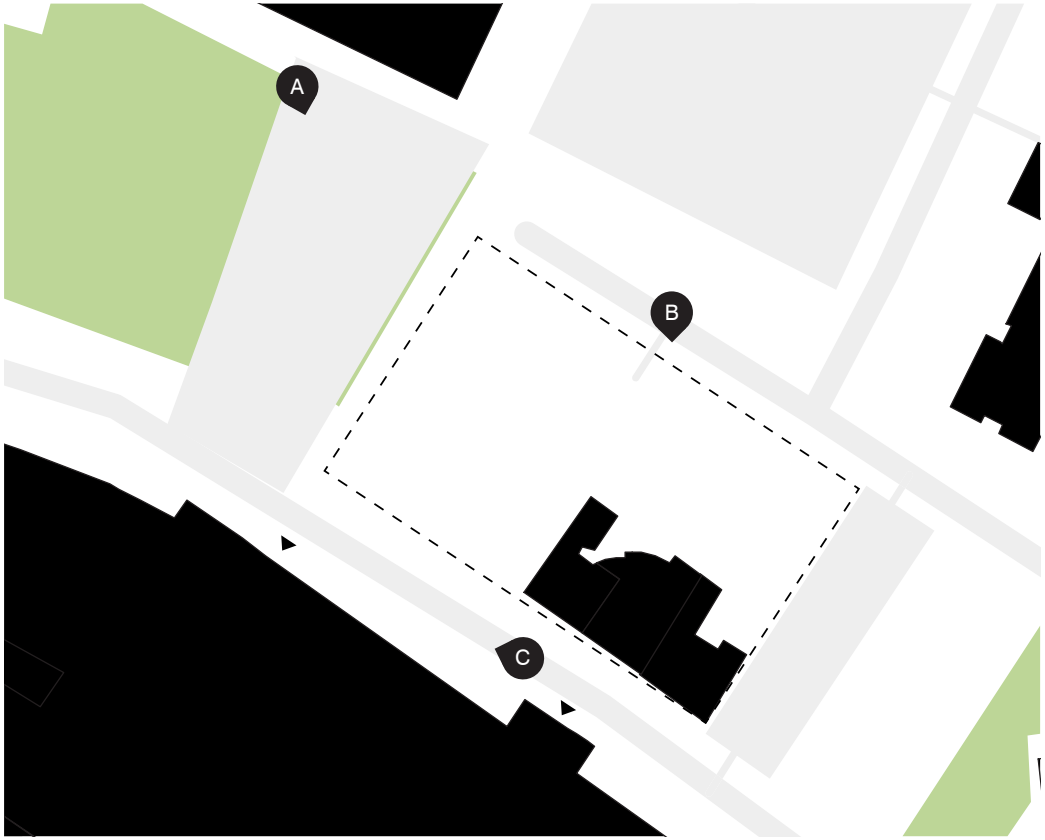
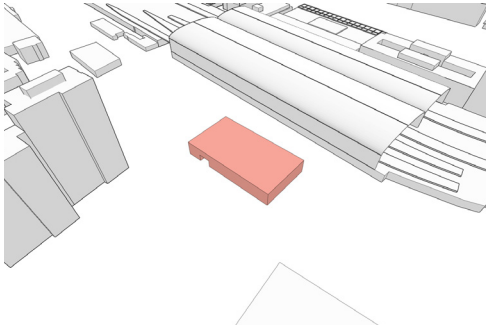


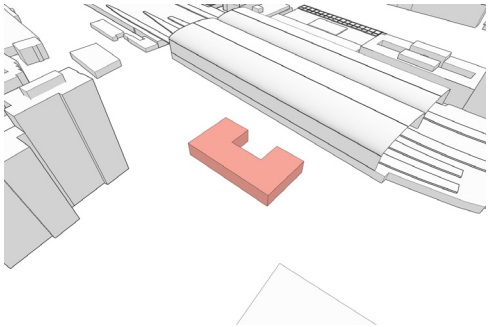
Figure-ground plan 1:1000

Cross section 1:1000

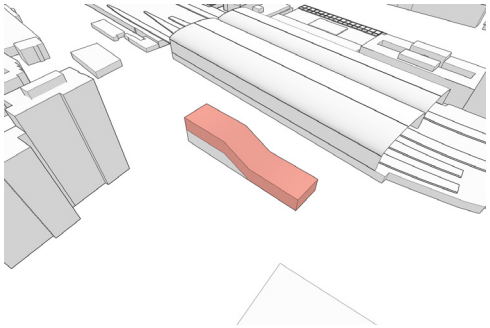
Longitudinal section 1:1000



Massing study 1

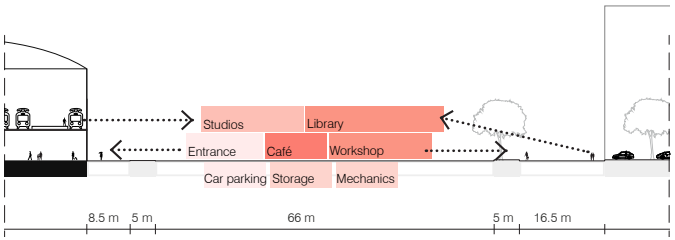


Massing study 2

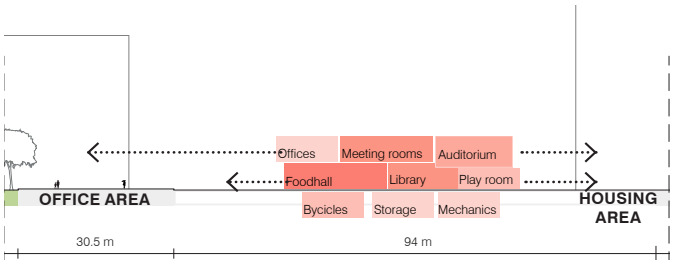


Massing study 3

Prototype to site plan 1:2000



Cross section 1:1000



Longitudinal section 1:1000

SITE COMPARISONS

ANDREASSTRASSE 69

\+ Plot is on a **corner** making it **highly visible** from different roads

\+ Plot is located in a **residential area** adjacent to an **office area**, therefore many different users present

\+ The road in front of the building is already a **through road** to the neighbourhood

\- Positioning next to the existing building leaves **little room for a landscape design**, a public building is more than just a building

\- Plot is more hidden away between the large buildings and **less easily visible from the other side of the track**

LANGE STRASSE

\+ **Large plot** where a new landscape can be integrated

\+ Transform car park to a more meaningful function and **make cars less visible in the city**

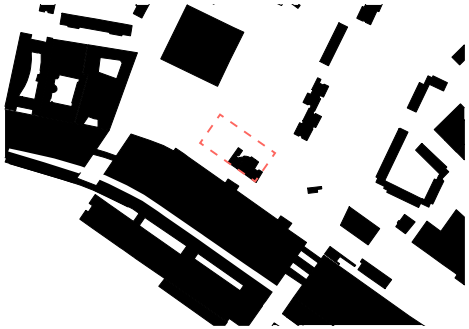
\+ Plot is in the **middle of the separation between the two neighbourhoods**, thus connecting all target groups

\- **Surrounding buildings so high** that the new volume becomes less visible and feels more hidden than inviting

\- Plot is **behind existing buildings and many trees** making it less visible and accessible from the station

\- **Much shade caused by high surrounding buildings and trees**, difficult to capture sunlight and possibly generate energy

HERMAN-STÖHR-PLATZ



\+ Plot is **close to the station** and could provide an extension

\+ Undesignated area transform to a **more meaningful function**

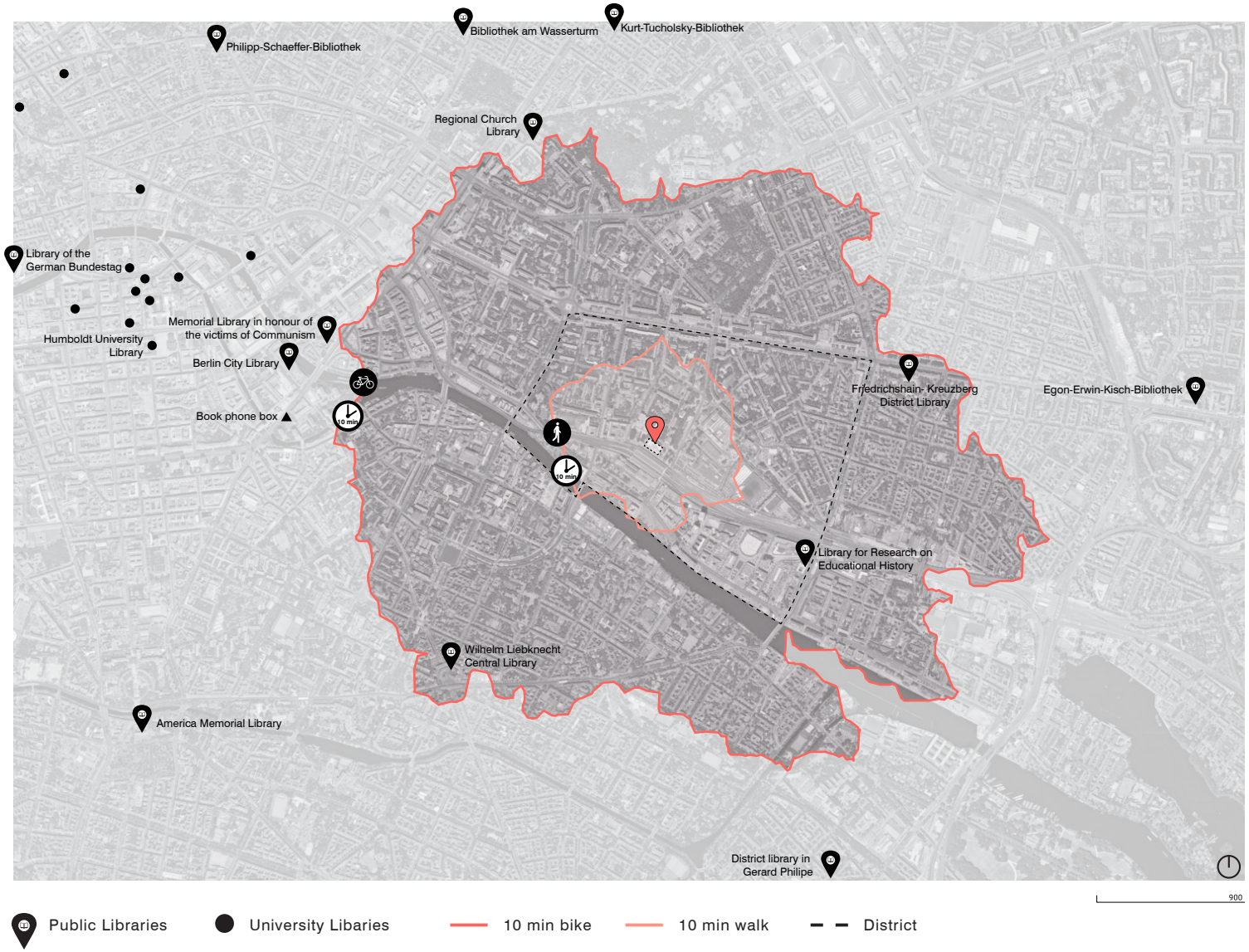
\+ Plot is right in the **middle of the separation between the two neighbourhoods** and therefore connects all targeted groups

\+ Possibility to remove the existing buildings and to use the whole plot for something new

\- **Height of existing buildings** too contrasting with new building with smaller volume

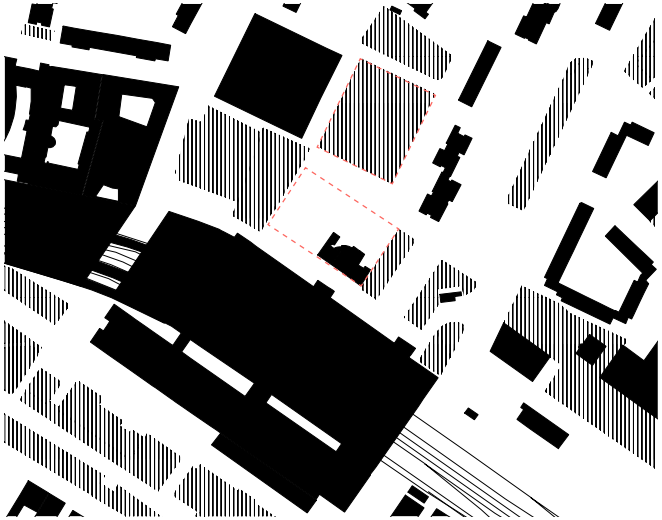
\- The **building line of the existing buildings is too close to the station** which creates a constriction and is not inviting

RANGE OF ACCESSIBILITY



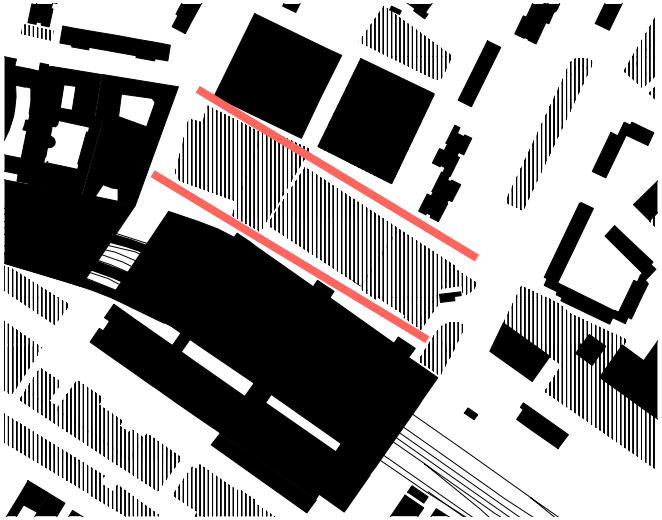
The location of the new media library is essential not only on a neighbourhood scale but also on an urban scale. This map highlights public libraries in Berlin, close to the project district. This map shows that only three public libraries are located within a 10 min cycling distance from Ostbahnhof. In addition, there is even only one library adjacent to the project district. This means that the media library is conveniently located in a central location in the neighbourhood. The plots adjacent to Ostbahnhof are centrally located in the area and easily accessible to residents outside the district. The central location makes the building an addition not only for the neighbourhood but also for the city.

MORPHOLOGICAL IMPACT



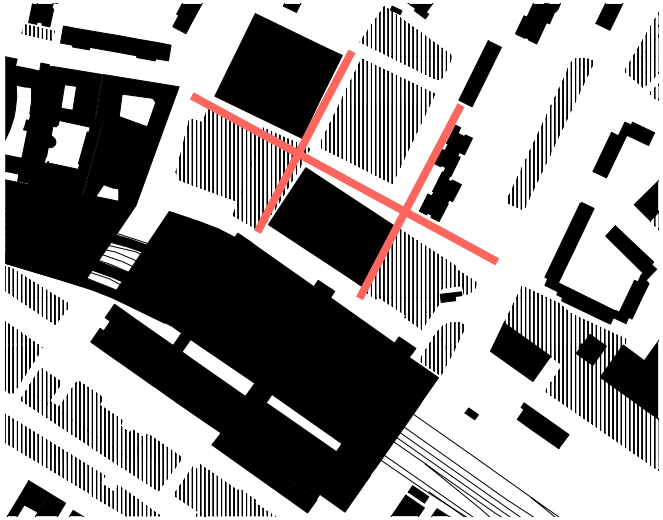
LOCATIONS OF INTEREST

The two locations behind Ostbahnhof offer the most freedom to connect a public building with public space and to engage different visitors to the building.



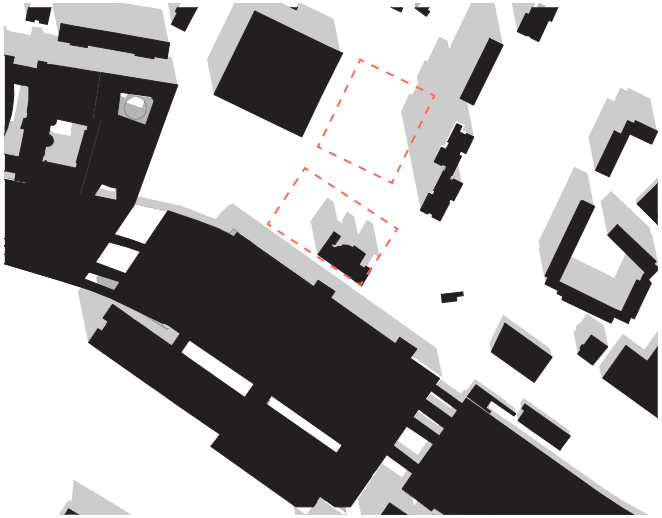
PUBLIC STRIP

Choosing to design a building on the first plot creates a strip of open public space between the buildings and the station. A public strip gives the potential for a large landscape design but also has a risk in the actual use and safety of such a large open space.



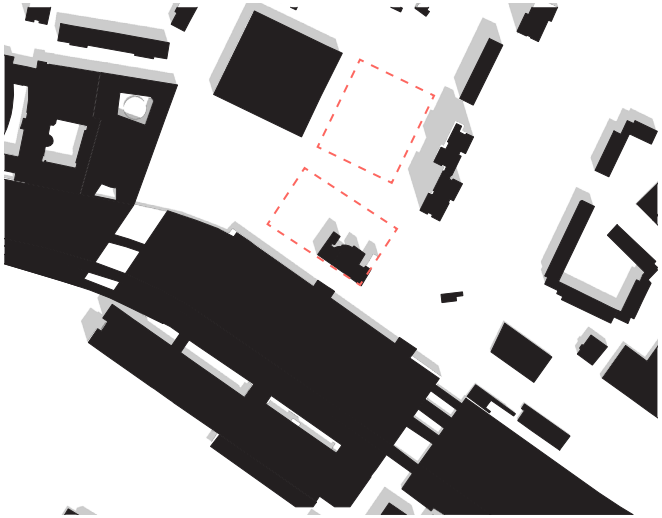
CHESSBOARD

Choosing to design a building on the second plot creates three smaller public spaces. Smaller public spaces offer the possibility of accommodating different activities in these places with plenty of social security from surrounding buildings.



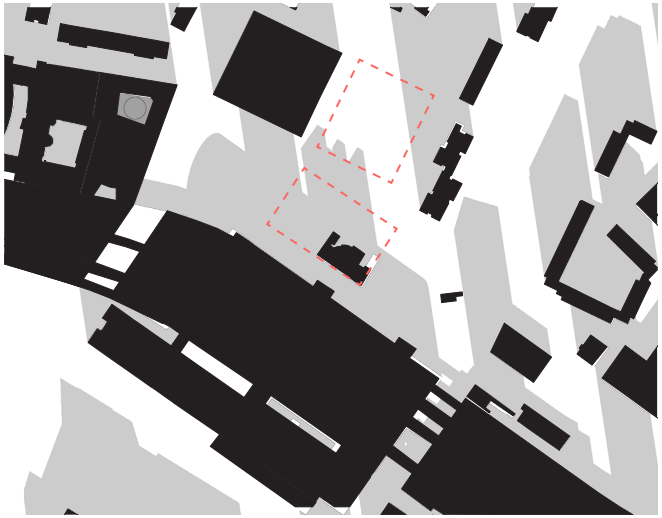
MARCH 20 & SEPTEMBER 23
12:30 AM

In March and September, the sun is at the same altitude. What is noticeable is that both plots have shadows from surrounding buildings. If the three existing buildings on the lower plot would be demolished, a shadow-free area would be created. This is not the case on the upper plot due to the tall apartment buildings to the right.



JUNE 21, 12:30 AM

In summer, in mid-June, the sun is at its highest. This means there is little shade from the surrounding buildings on the available plots. Even the tall flats to the right of the upper plot, leave little shadow. So there is a lot of potential to use solar to generate energy on both plots.



DECEMBER 22, 12:30 AM

In winter, in mid-December, the sun is at its lowest. As a result, the massive station creates a lot of shadow on the lower plot. What is striking is that the tall apartment buildings create more shade to the north than on the upper plot. As a result, the upper plot offers a lot of potential to act as a public space. After all, a public space in shadow is less attractive and will be used less. For this reason, it is better to place a building on the lower plot.

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MASSING STUDIES

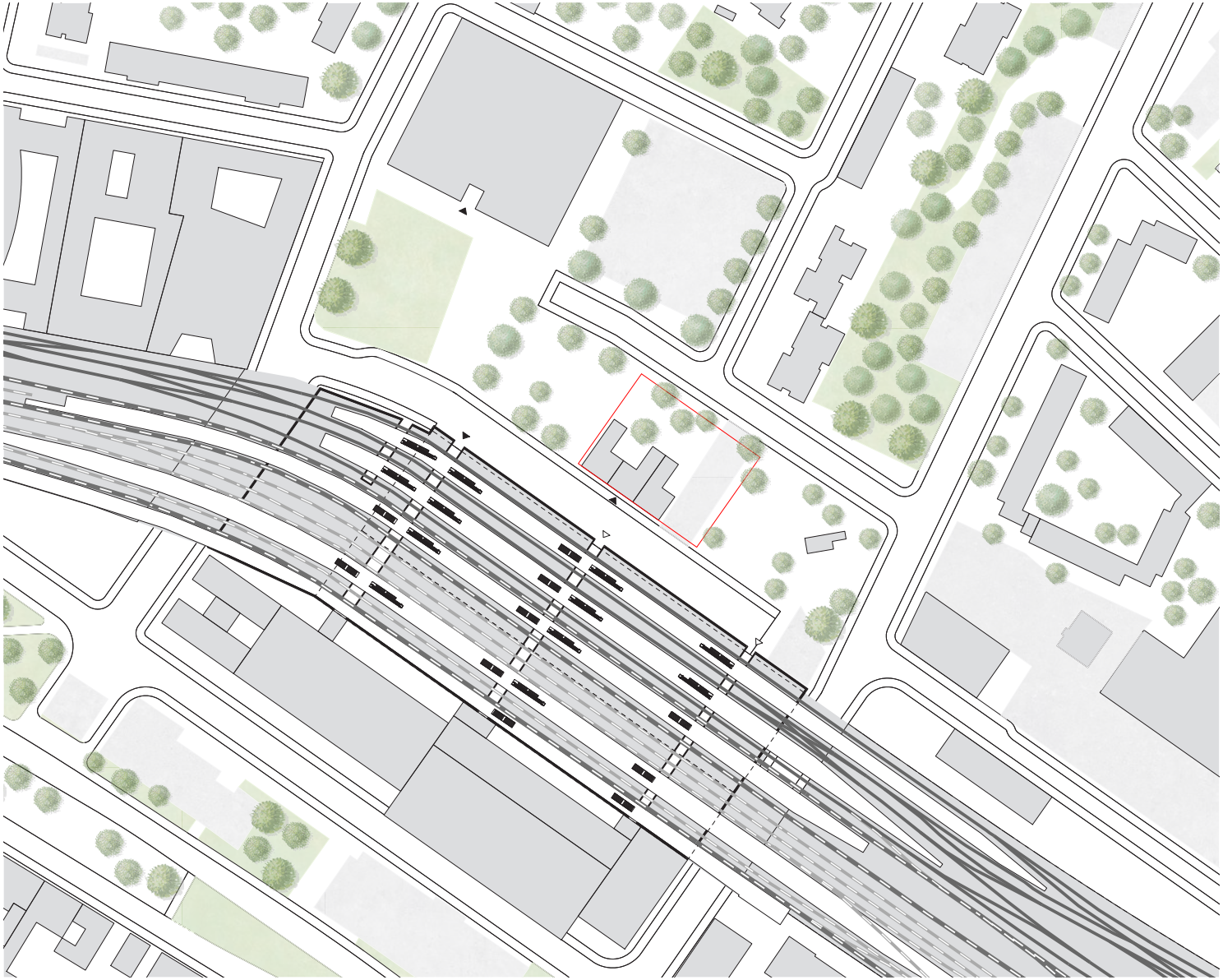
BUILDING AND PROGRAM VOLUME STUDIES ON PROJECT LOCATION

PROJECT LOCATION

Using programme studies, morphological analyses and shadow analyses, a site with the greatest potential for a public condenser emerged. A new public building at Herman-Stöhr-Platz offers more possibilities than just connecting two neighbourhoods.

The building at this location could also activate the back of Ostbahnhof, giving people from the southern area of the station a reason to go to the other side of the station. This not only better defines the back of the station as a space, but strengthens the interaction between residents from different socio-economic backgrounds. Also, this plot offers a five-sided building, meaning that due to the open space around the plot, there are many sight lines going to and from the building. As a result, the building's presence will be noticed faster and ultimately used more often.

However, further research needs to be done on the size and scale of the building in relation to the station. If the building functions as an addition to the station, it also has to do with the lines of sight and walk to and from the station.

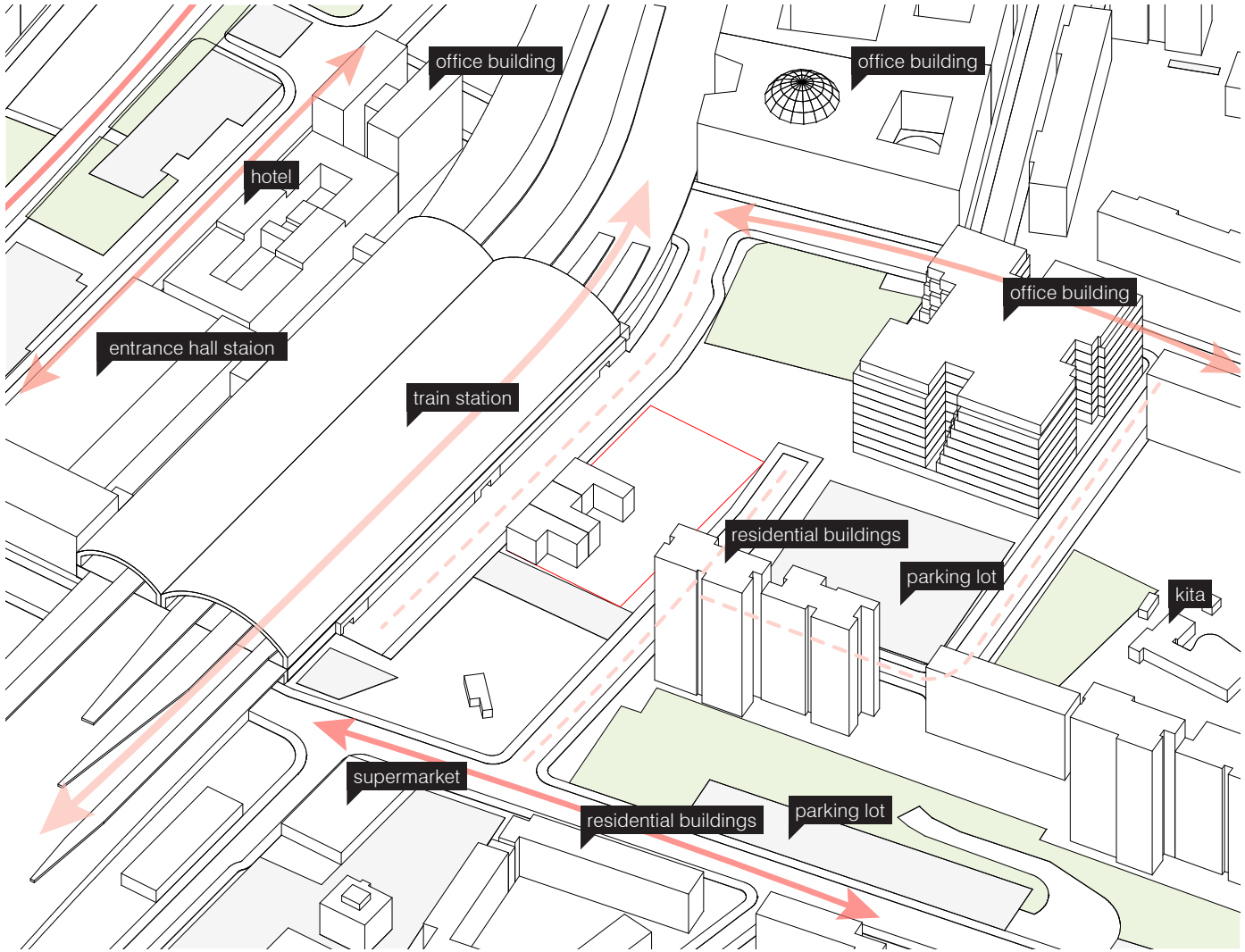


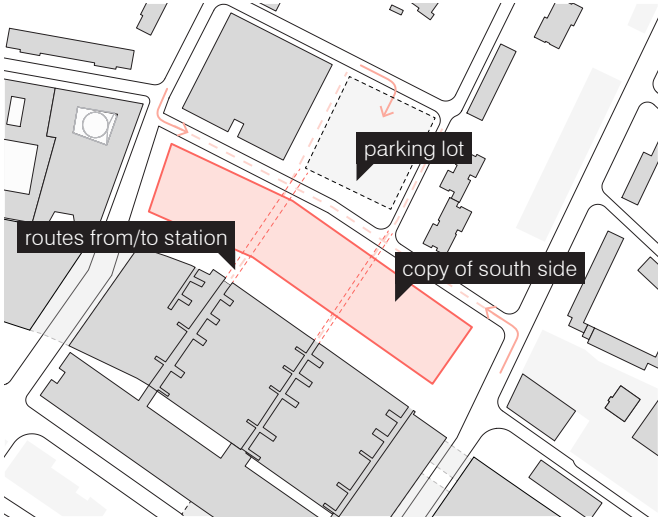
Scale, 1:2000

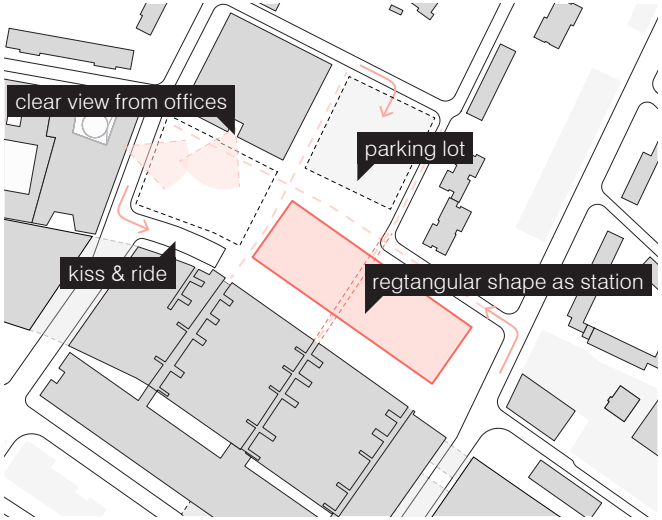
SITE CONDITIONS

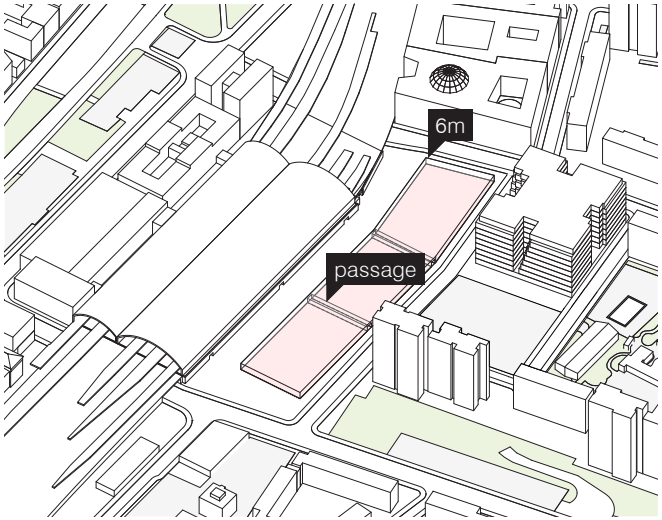
At the current location of the chosen plot, three old buildings currently stand directly opposite the middle exit of the station. The three buildings will be demolished for the media library design. The remaining plot is the connecting element between the train station, offices and residential towers. In addition, the visibility and accessibility of the plot are excellent due to the significant streets on the sides.

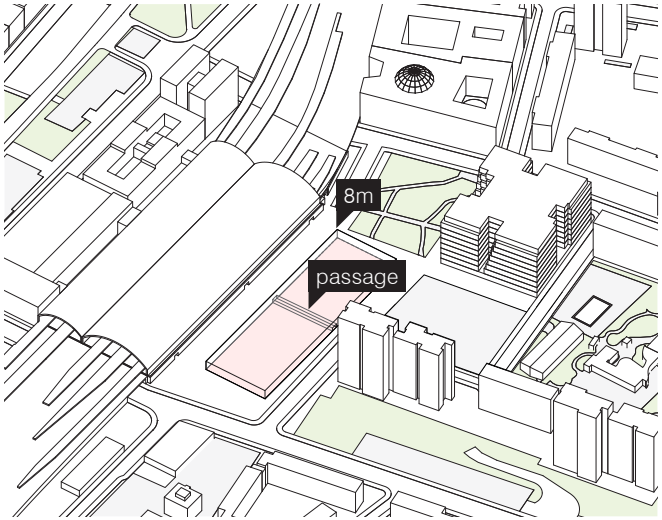
The challenge for this plot lies mainly in the size and scale of the building. The diagrams on the next page study the building envelope size in the urban situation. This includes consideration of any adjustments to the road structure around the plot.

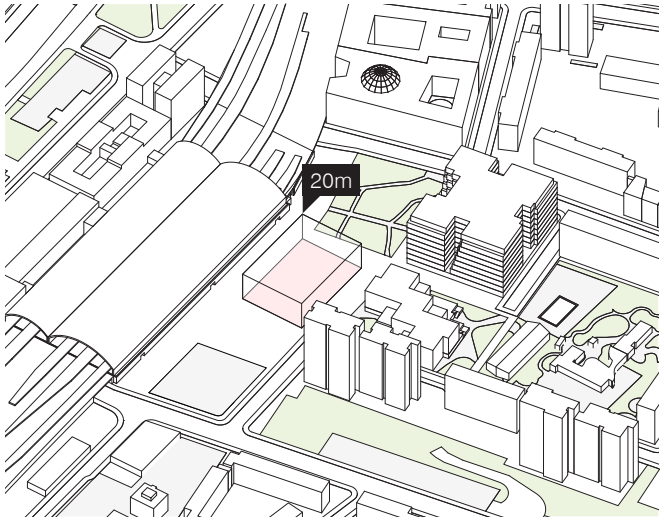










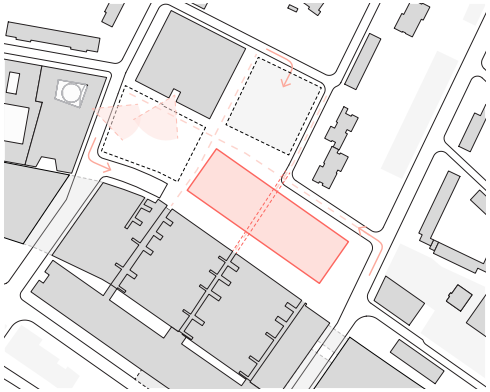


TOTAL LENGTH OF URBAN PLOT

RECTANGULAR PLOT

PLOT WITHIN URBAN GRID

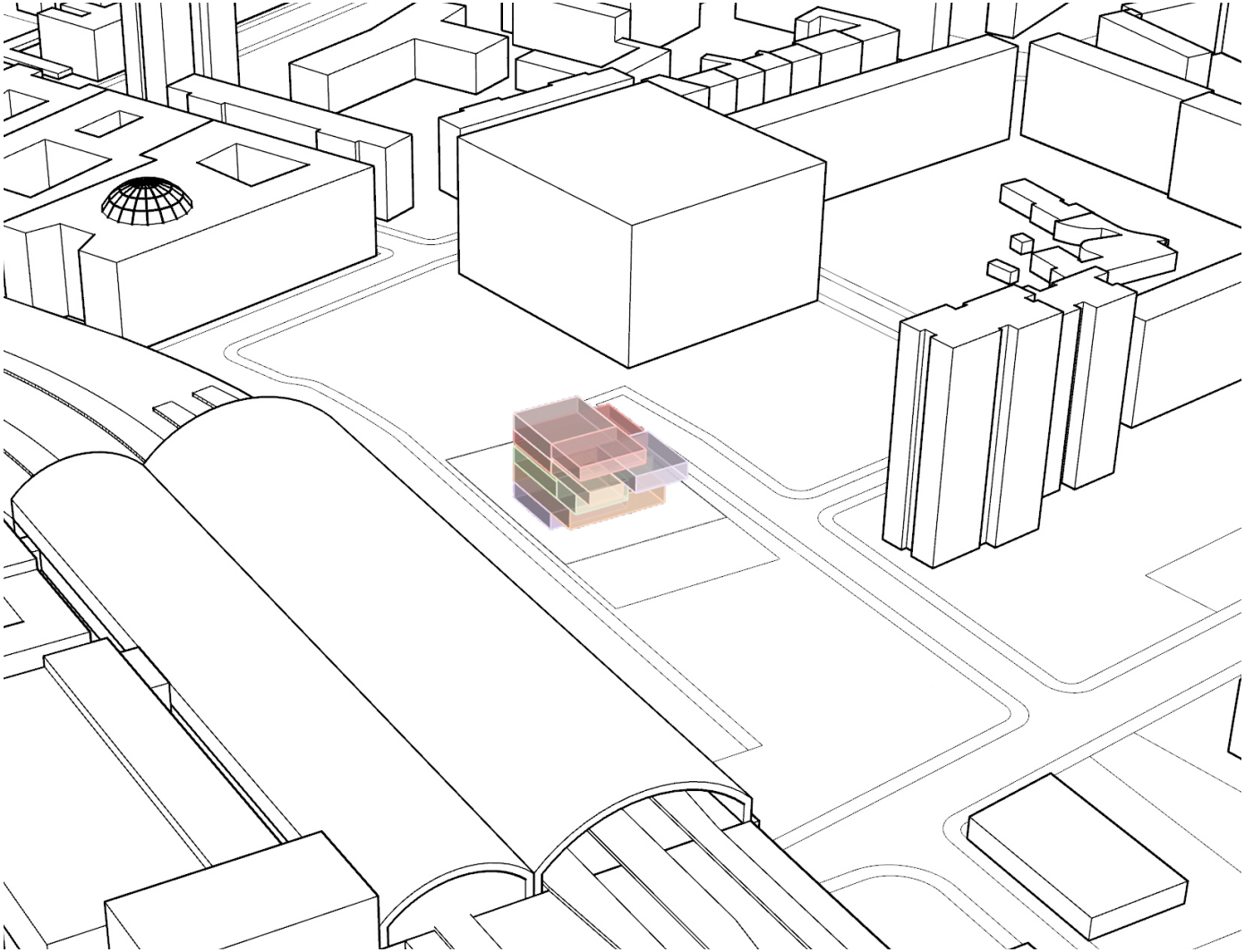
MAXIMUM PLOT, MINIMUM HEIGHT

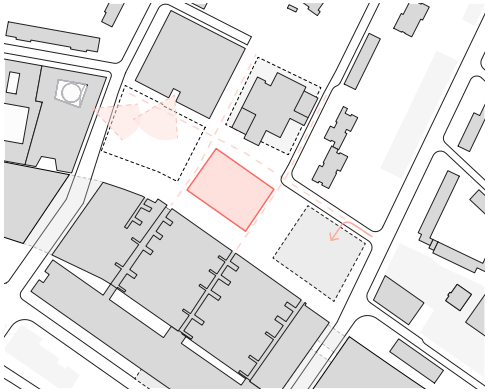


The net floor area of the building may be, at most, 4500 m2. This means that if this is spread over the maximum plot, the floor height will be a maximum of 6 meters. This creates an elongated plot, which from above looks very much like the shape of the station. However, the height of the building is then dwarfed by the surrounding buildings.

The program's organisation is arranged, so the hospitality functions are located on the square, which is left above the station. The focus functions, such as study and office, are located on the roadside, where fewer pedestrians will walk by. Together with the library, the debate and creative functions form the link between the station and the housing development.

MINIMUM PLOT, MAXIMUM HEIGHT



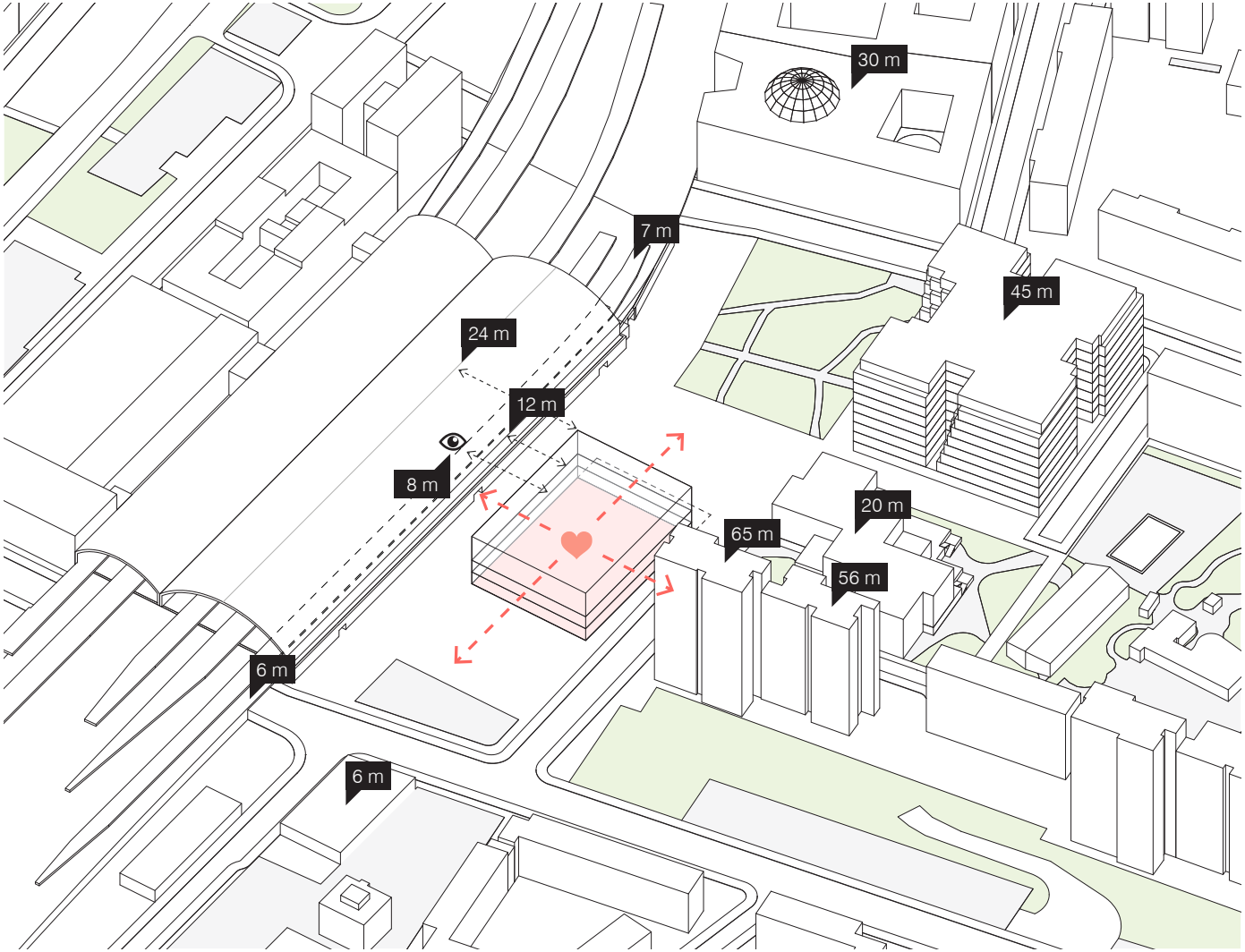


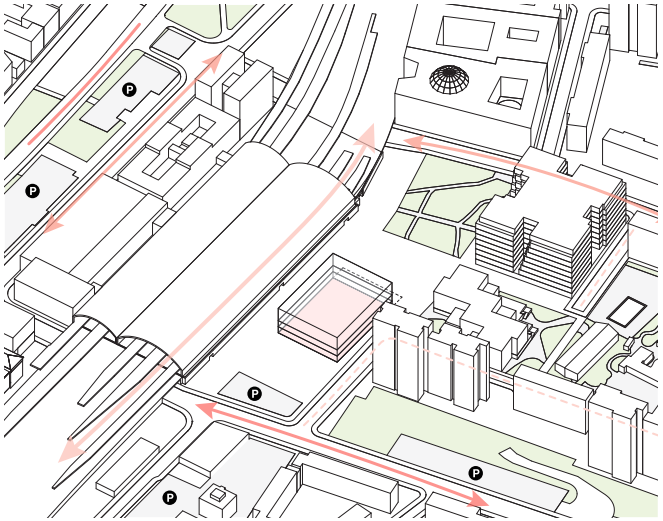
When choosing the minimum plot, a square is also created on the right side, just as on the left side. This makes the building easily visible and accessible from all sides. Also, the height of the building better matches the height of the other buildings. The stacking of the program is arranged from think to do functions. The commercial functions and creative functions create more interaction with the street. The intellectual functions are positioned at the top of the building so that users will be less distracted from the street. With the help of circulation and voids, the building will have more volume and more opportunities for interaction between the functions.

BUILDING ENVELOPE

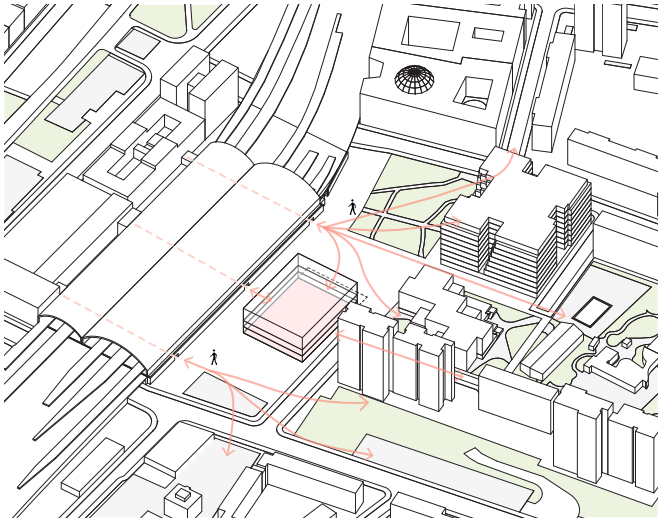
The building will be designed within the smallest envelope based on the studies. However, the envelope has been moved slightly to the east. This will increase its relationship with the school north of the plot. The relocation creates a larger square that will serve as a starting point for the entrance to the station, the school, the office building and, of course, the media library. Everyone going to and from the station will walk past the new public condenser, increasing the attraction to go inside.

The envelope also considers the line of sight from the platform to the building. Keeping this line of sight transparent creates a connection between the station and the library. If people can see the activities in the library from the platform, they are more likely to want to go there.

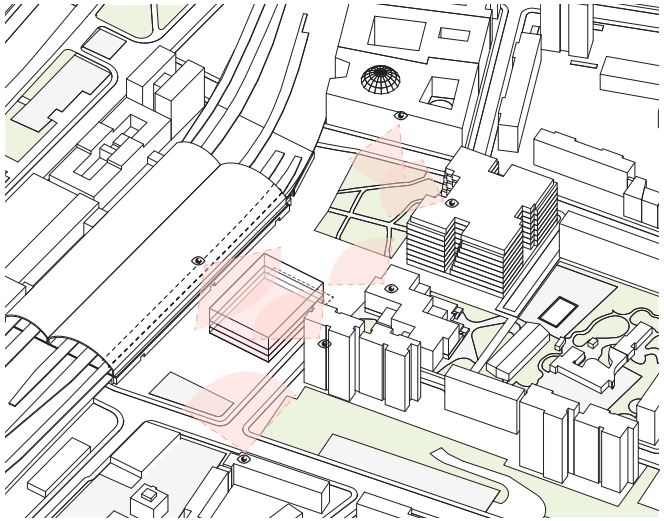




INFRASTRUCTURE

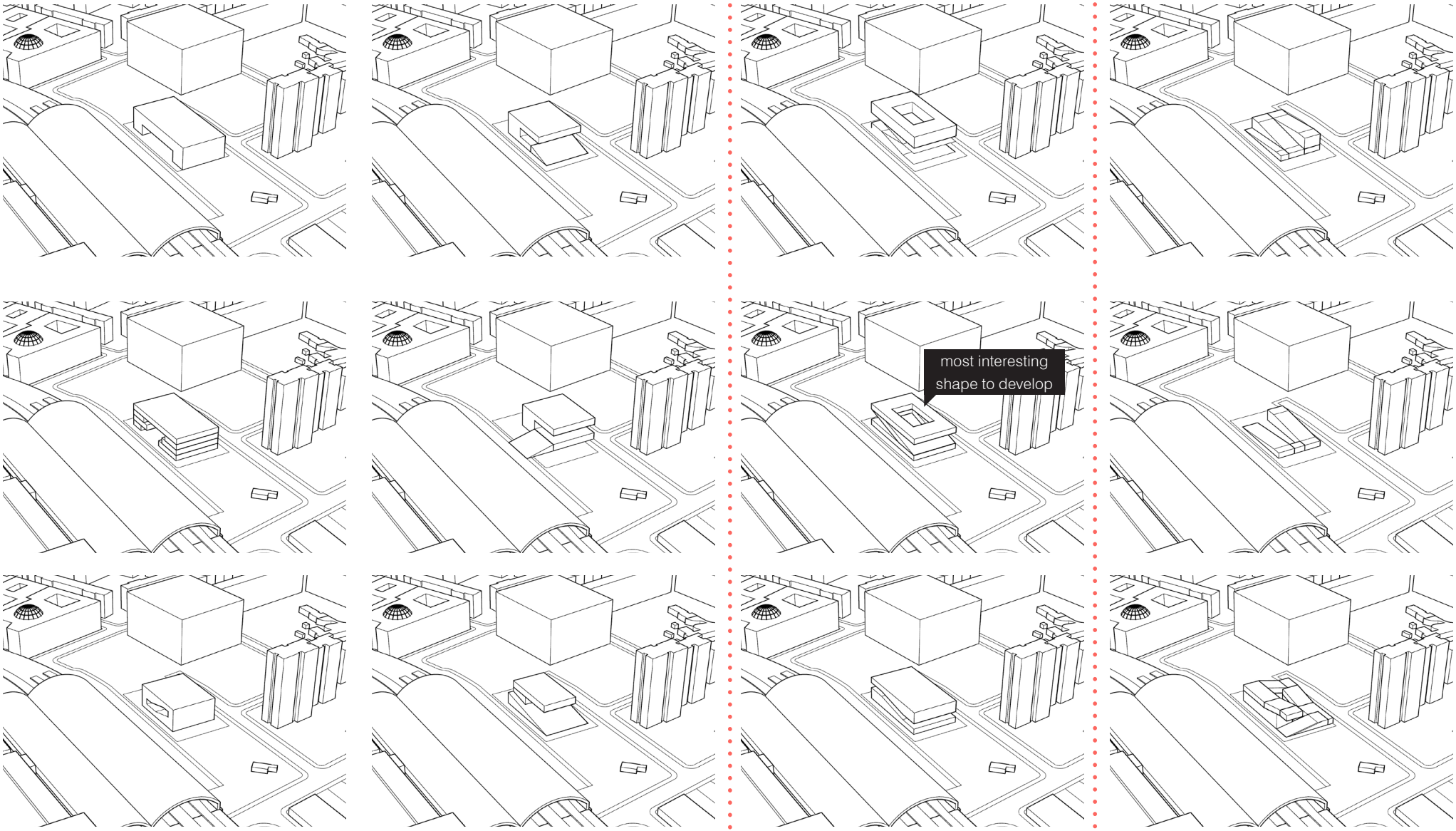


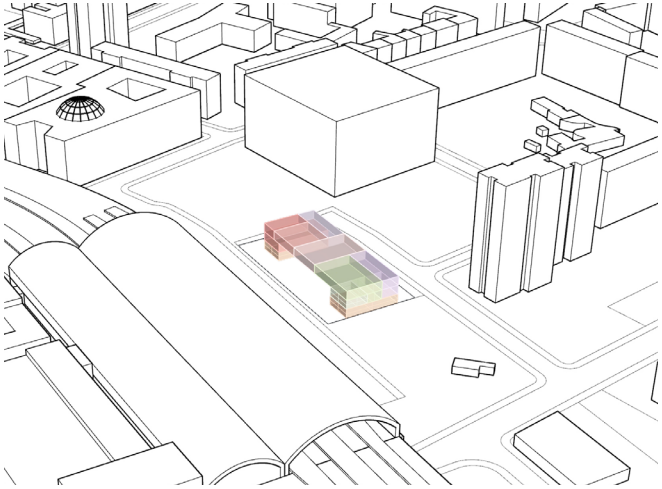
STATION TRAFFIC

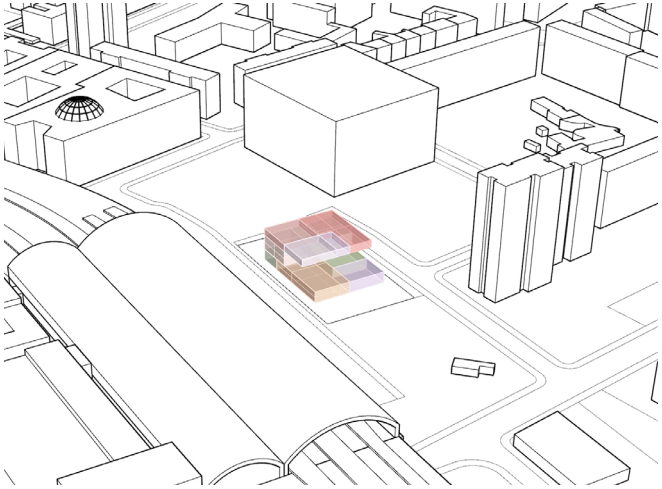


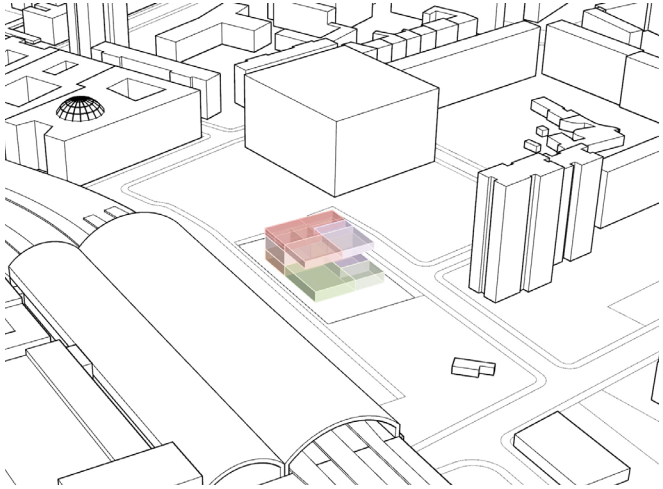
VIEWS

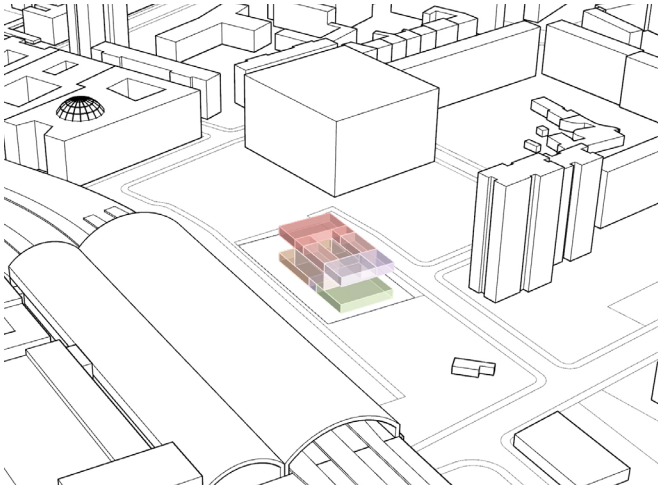
VOLUME STUDIES

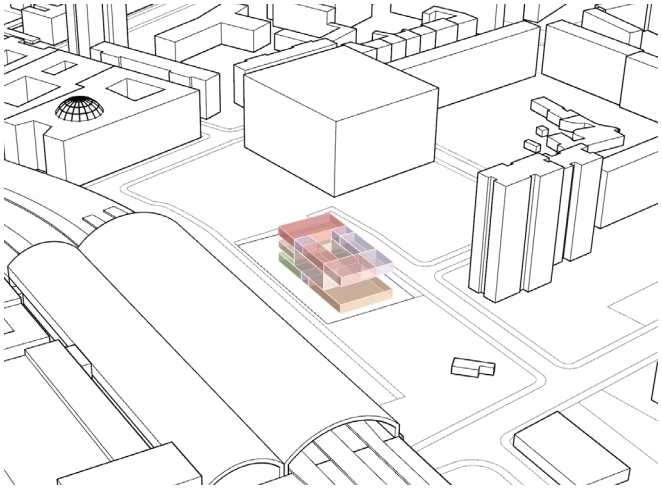


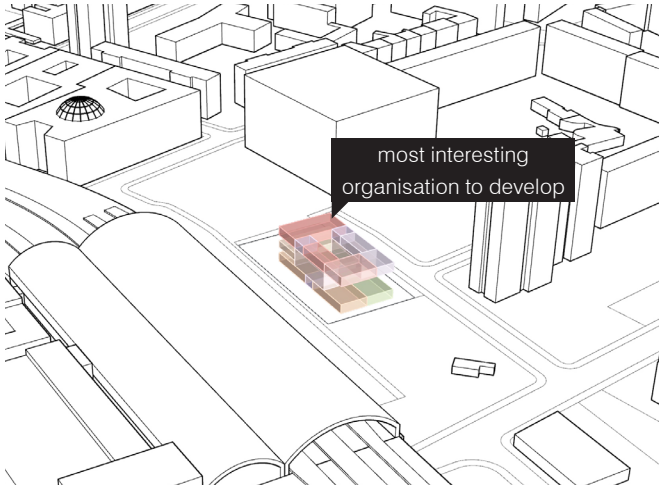












Focus
Study
Debate

Living room
Arrive

Exhibit
Learning

Operate
Maintain

05

Interior impression of schematic design

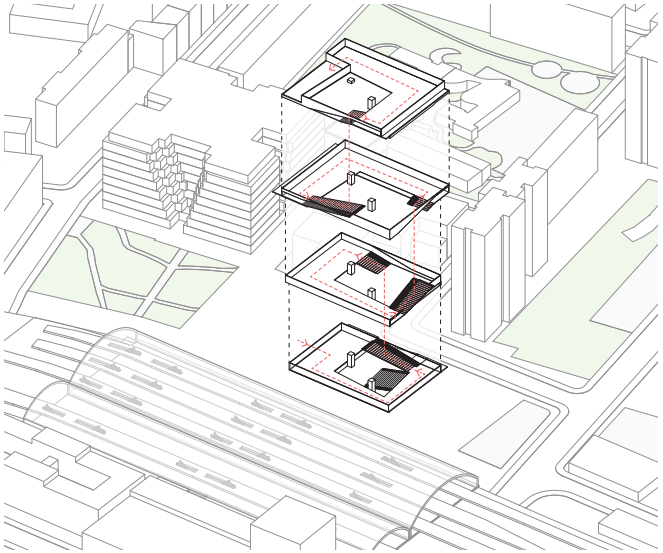
SCHEMATIC DESIGN

PRESENTED AT P2

The knowledge and design ideas gained from the research by design process were incorporated into a schematic design. The main focus here is the relationship of the building to its surroundings and the organisation of functions in the building. The situation studies led to an urban design in which the building is an addition to its surroundings.

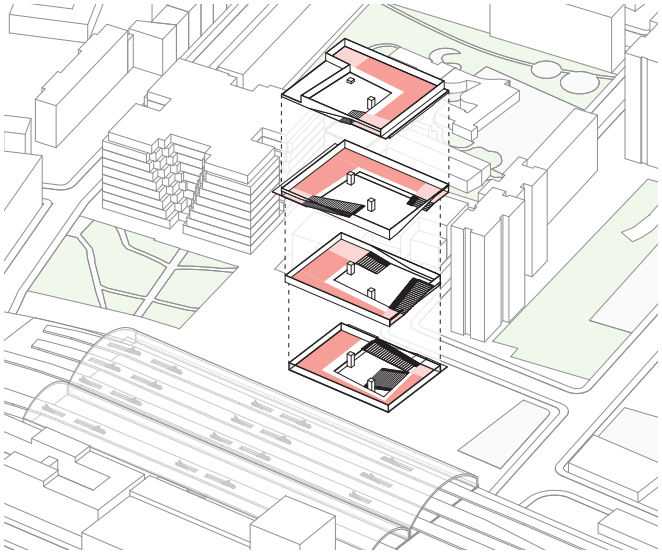
The programme analyses led to the organisation and final form of the building. Diagrams, floor plans and cross-sections highlight the design. Finally, initial ideas on sustainability, facades and atmosphere are visualised.

BUILDING CONCEPT



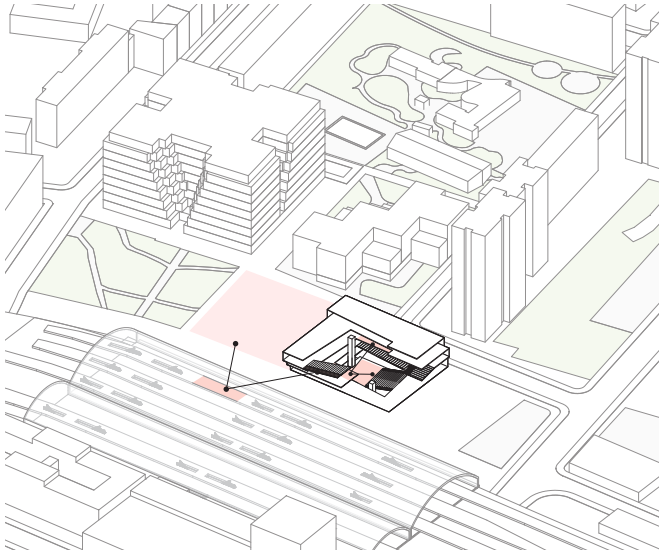
CIRCULATION

Circulation in the building is the catalyst for social encounter. Therefore, this is the reason why the user always has to travel two building sides to get one floor up. The staircase is in a different place on each floor and offers the visitor a different view each time.



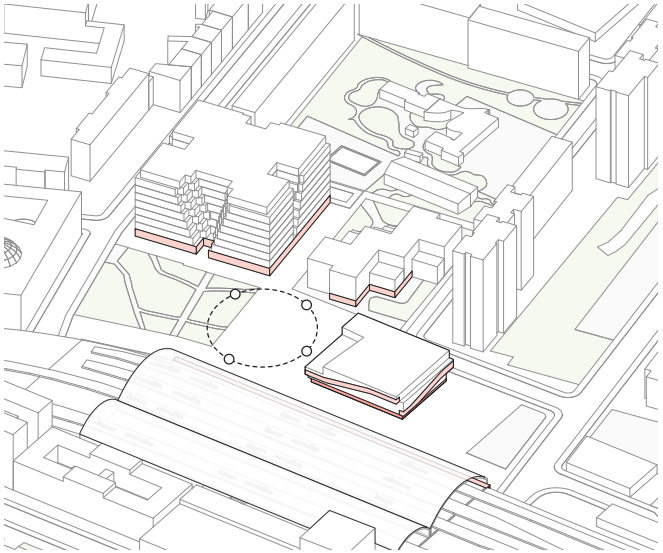
ORGANISATION

At the beginning and end of the stairs, there is a place to relax on each floor. This place is also called the lounge where people can relax, socialise or read a book. The other uses are situated between the lounges, with a lot of visibility along the façade.



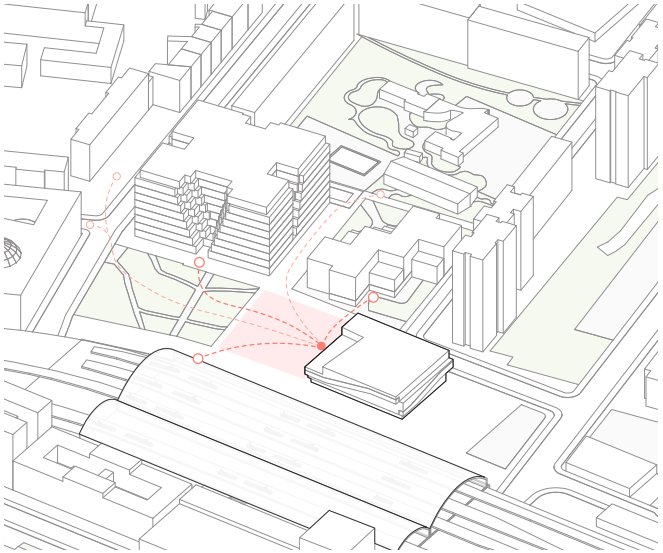
INTERACTION

The sloping floors and staggered stairs create many sightlines within the building. But activities in the building and on the square are also clearly visible from the station platform. The stairs on the second floor are therefore situated so that people can wave to people at the bookcases from the platform.



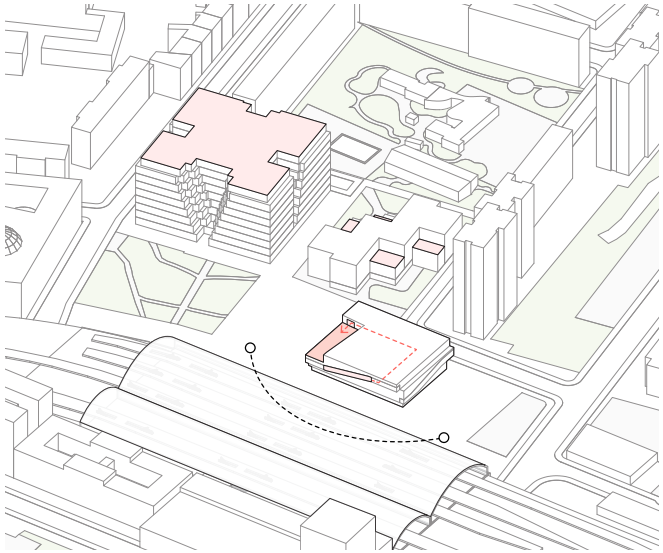
TRANSPARENT CONNECTIONS

To integrate the building well into its surroundings, like the office building and the school on the north side, the plinth will be made transparent. A transparent plinth has a public feel and encourages passers-by to enter. In addition, the transparency is continued along the routing upwards to further express the public character.



INTERACTION WITH FLOWS

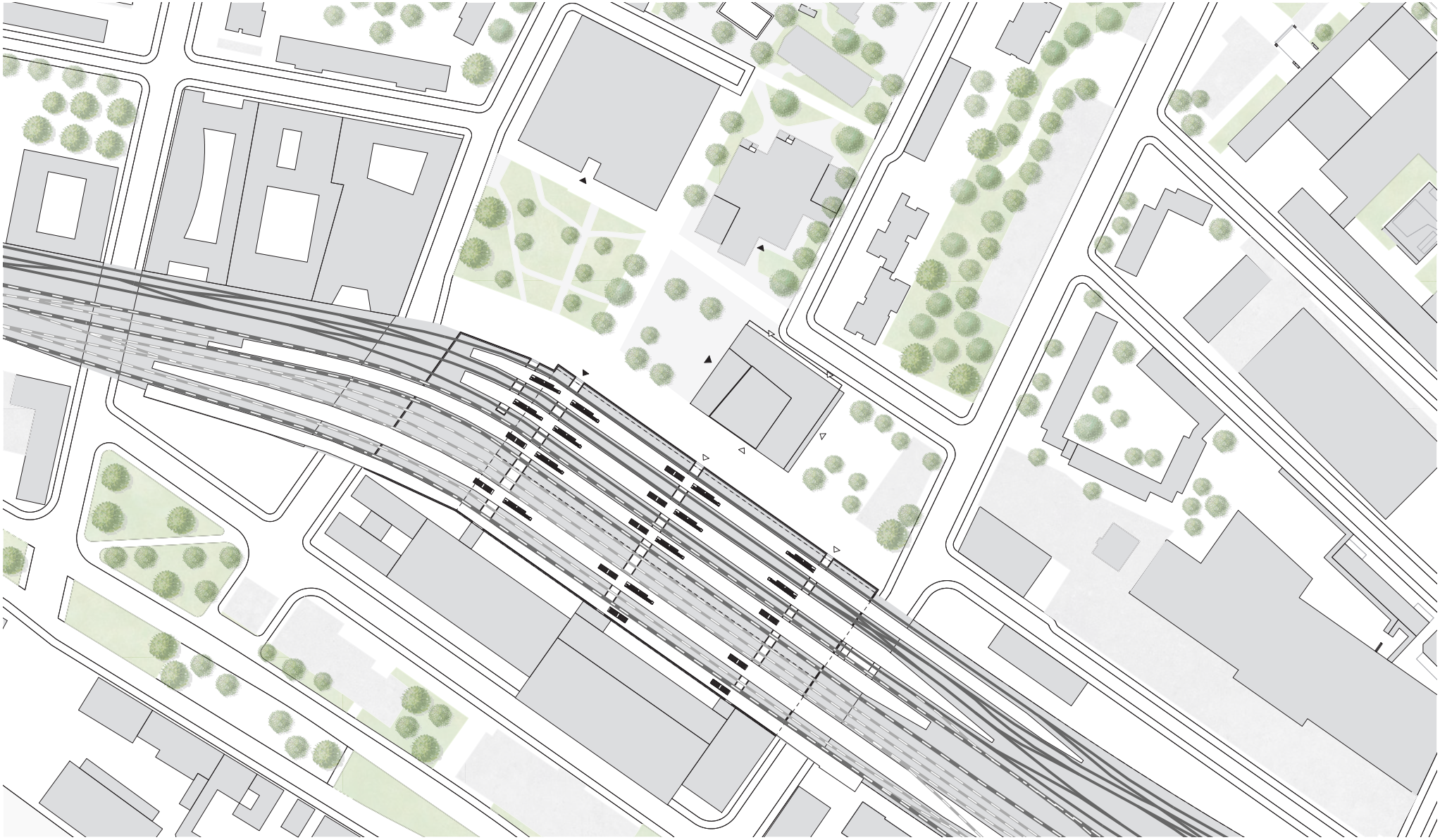
The square on the west side of the building will play an important role for visitors. Indeed, the square connects the western exit of the station, with the school, the office building and the media library.



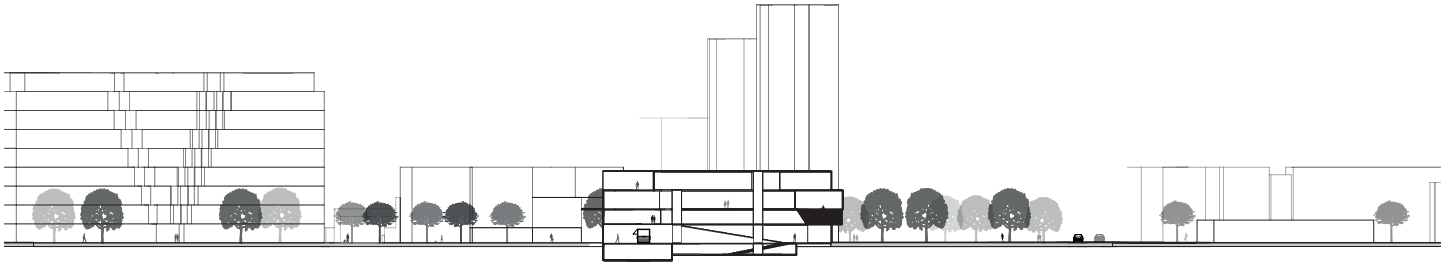
UTILISING THE ROOF

Besides the square at ground level, the roof of the building will also be activated. Like the office and school building, the media library will also have an accessible roof. Users can relax in the evening sun on the roof terrace after an intensive day of studying or workshops.

SITE PLAN

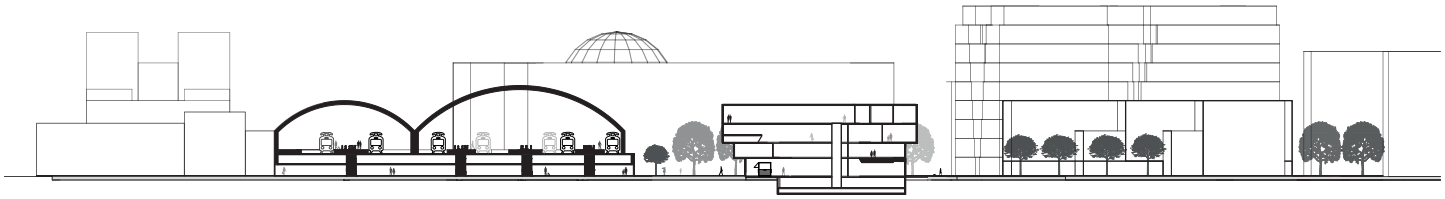


Scale, 1:2000



Longitudinal section

Scale, 1:2000



Cross section

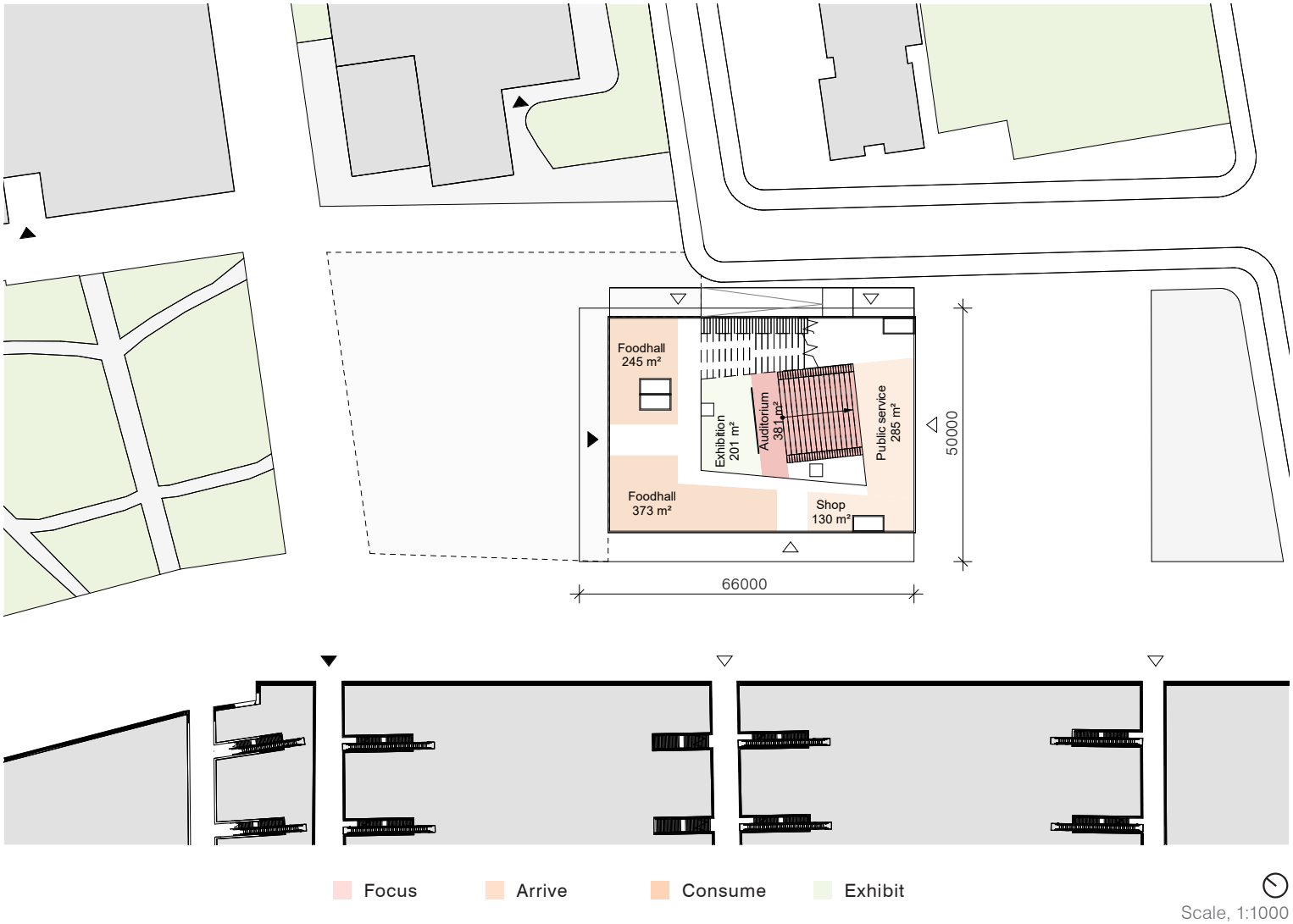
Scale, 1:2000

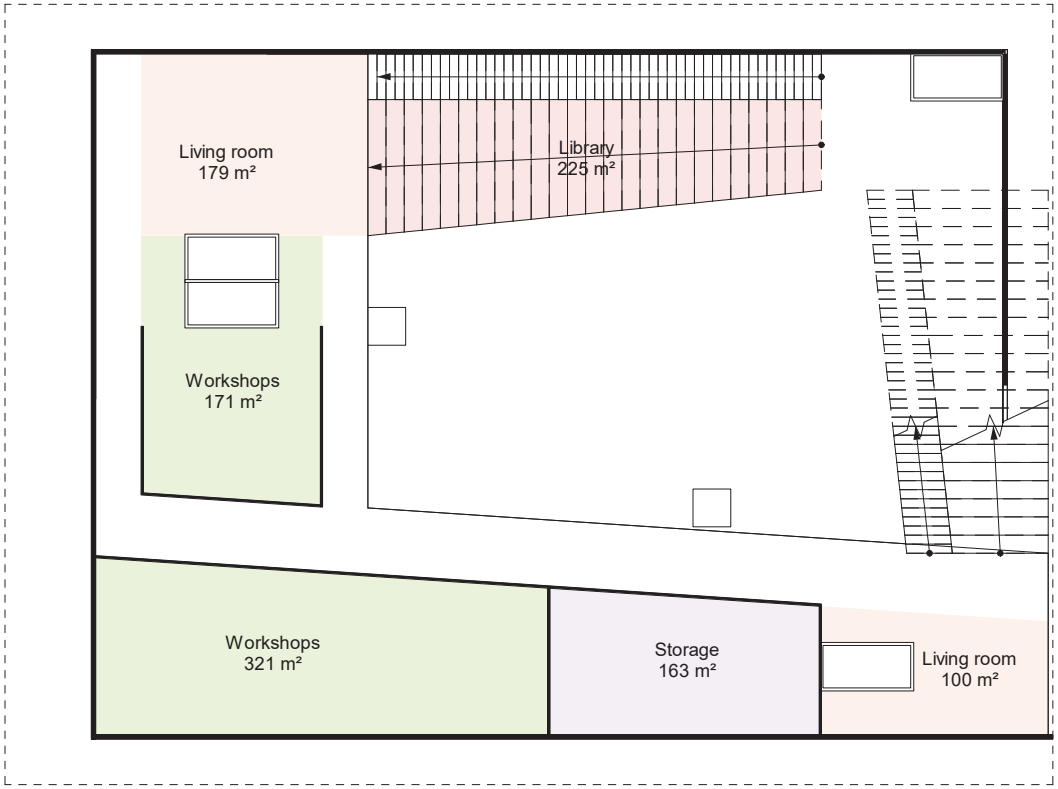
GROUND FLOOR

Foodhall

Exhibition

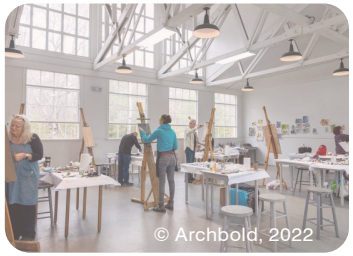
Auditorium





Scale, 1:500

Library



Workshops

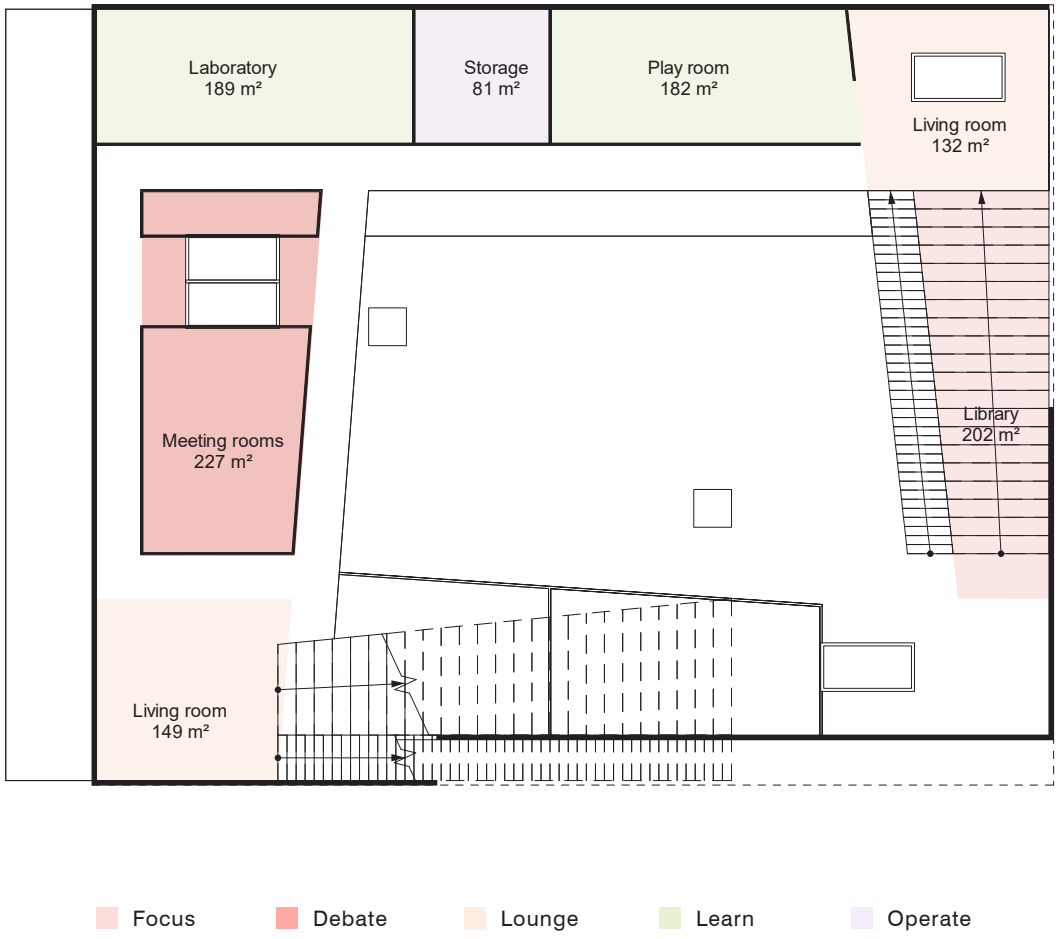
Living room

SECOND FLOOR

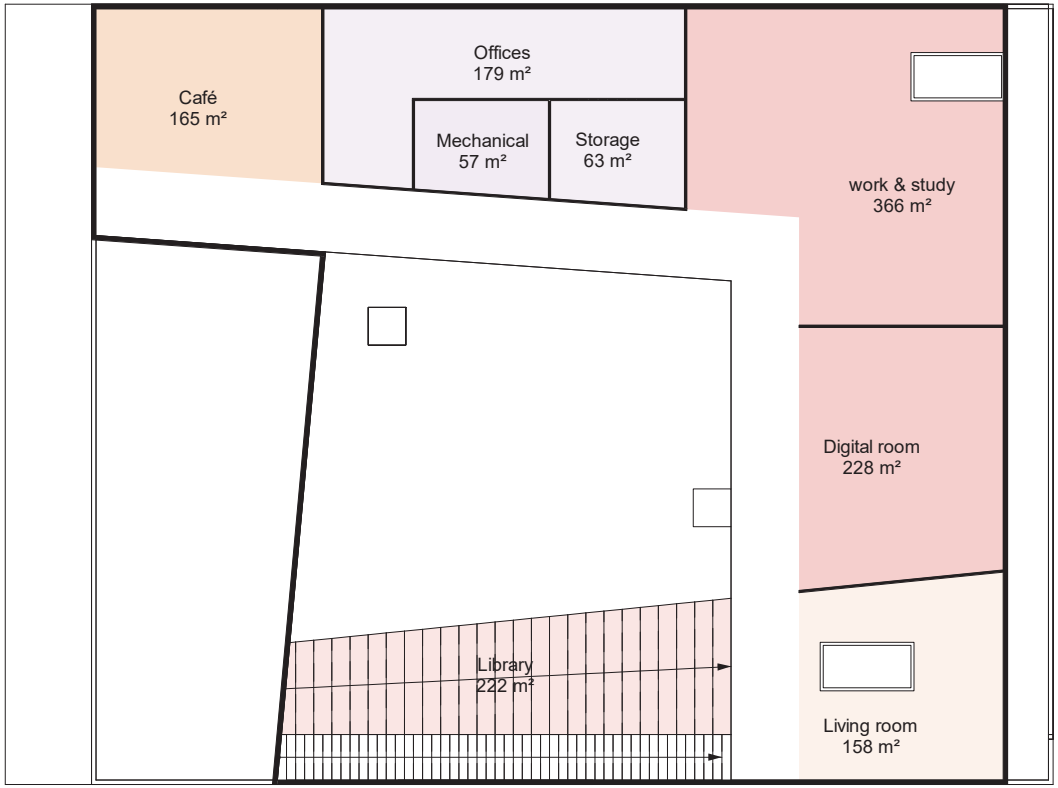
Play room

Laboratory

Meeting rooms



Scale, 1:500



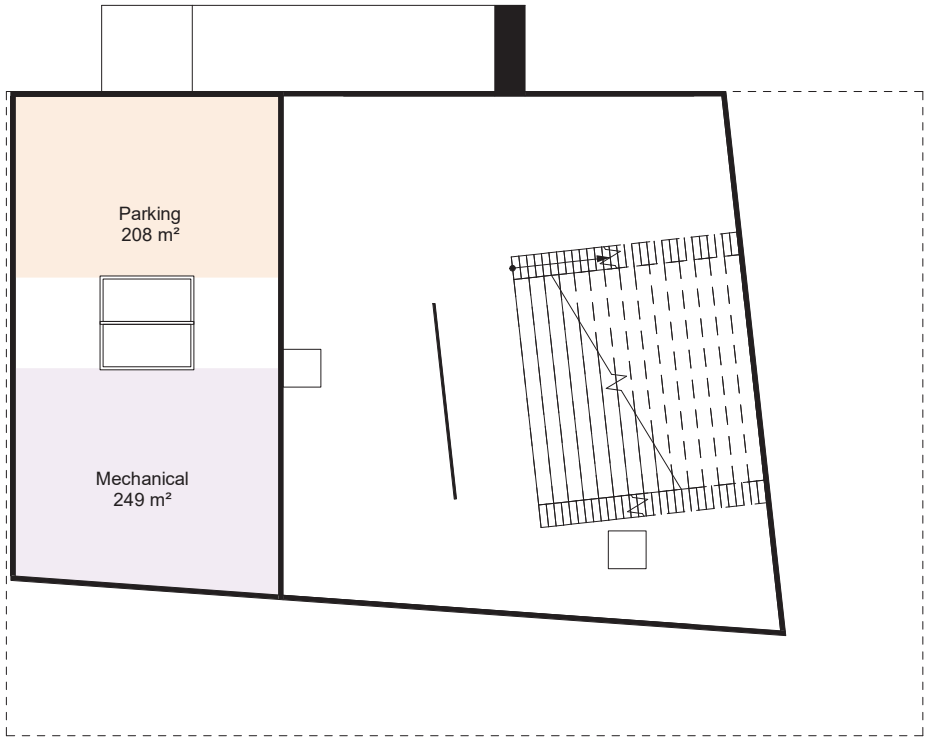
Café

Work & Study

Digital Room

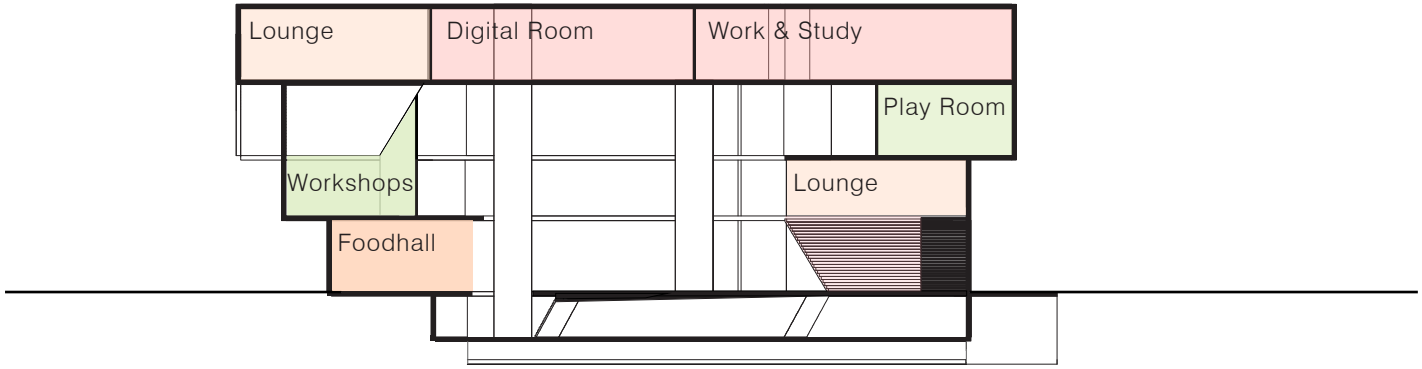
BASEMENT

Bicycle parking



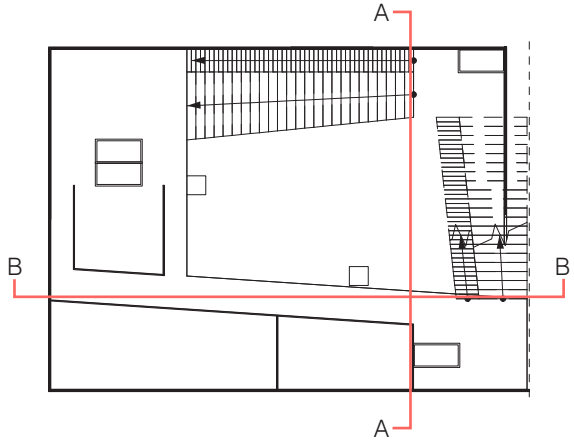
Arrive Maintain

Scale, 1:500

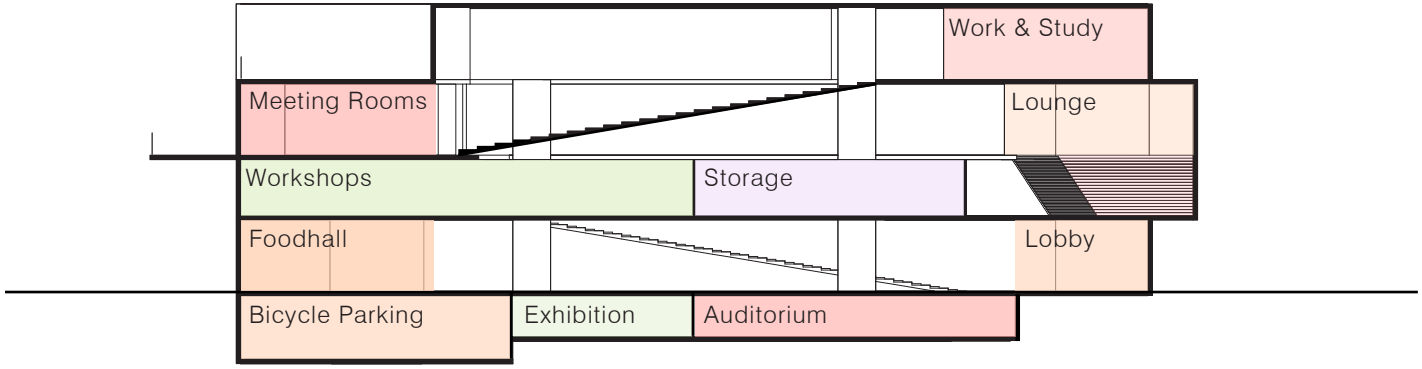


CROSS SECTION, A

Scale, 1:500



First floor, scale 1:1000



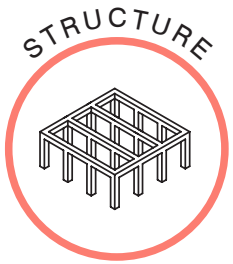
LONGITUDINAL SECTION, B

Scale, 1:500

SUSTAINABILITY

In preparation for the next design phase, several sustainability aspects have been established against which the building will be tested. Part of the sustainability aspects are circularity, reuse and recycling. But also themes such as refuse and rethink are addressed. Designing or using materials differently can save many emissions.

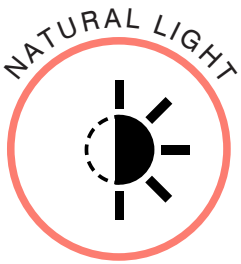
Besides being sustainable, the building must also be a healthy living environment. Therefore, five aspects from the Well Certification are highlighted that apply to this design. In the next design phase, the themes must be well integrated with the design.



Skeleton structure with beams and columns to allow free layout of spaces in the future.

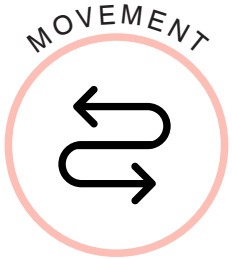
Maximum use of natural materials, such as wood, in construction and interiors.

Reuse of stony materials from existing buildings, for such purposes as basement and possible finishes

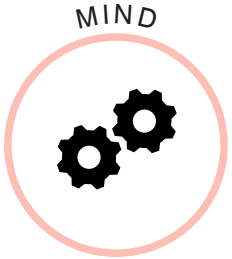


Getting the light right minimises disruption and has a positive impact on a person's mood, productivity and sleep quality.

Minimising the amount of energy consumed while maximising the amount of clean, renewable energy generated.

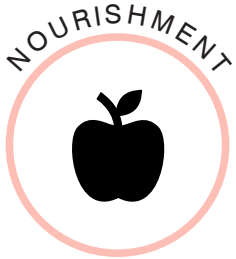


Promoting physical movement and discouraging sedentary behaviour, through stairs and dynamic routing.

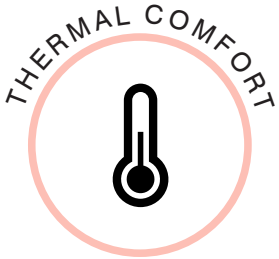


Organising and actively providing mental health promotion schemes and programmes, such as think and do activities.

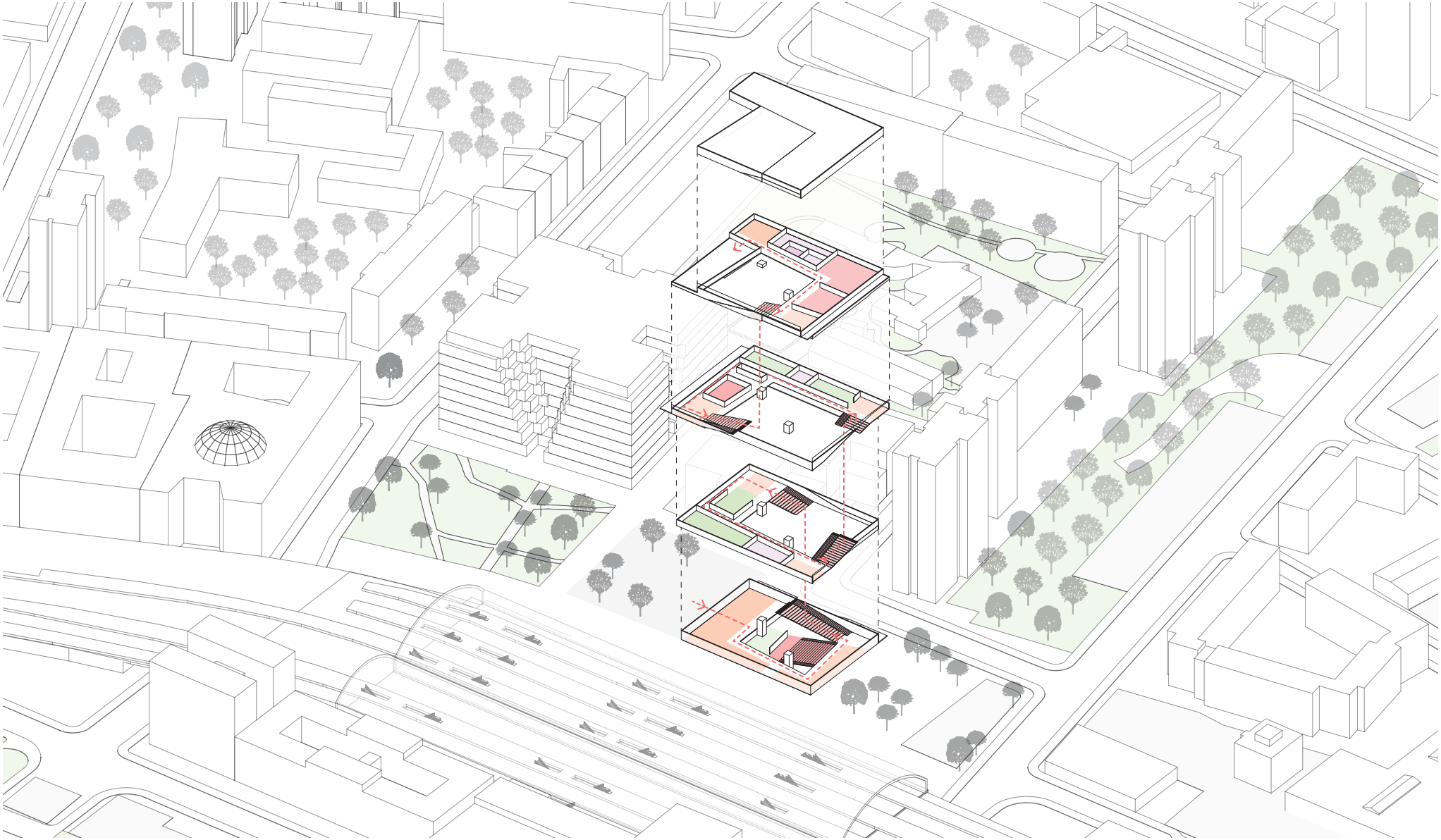
Implementing strategies that actively support and promote healthy lifestyles.



Arrange the layout of the building to increase access to healthier choices while eliminating access to unhealthier choices.



An integral control of thermal quality that will support human health, well-being and productivity.



Scale, 1:2000

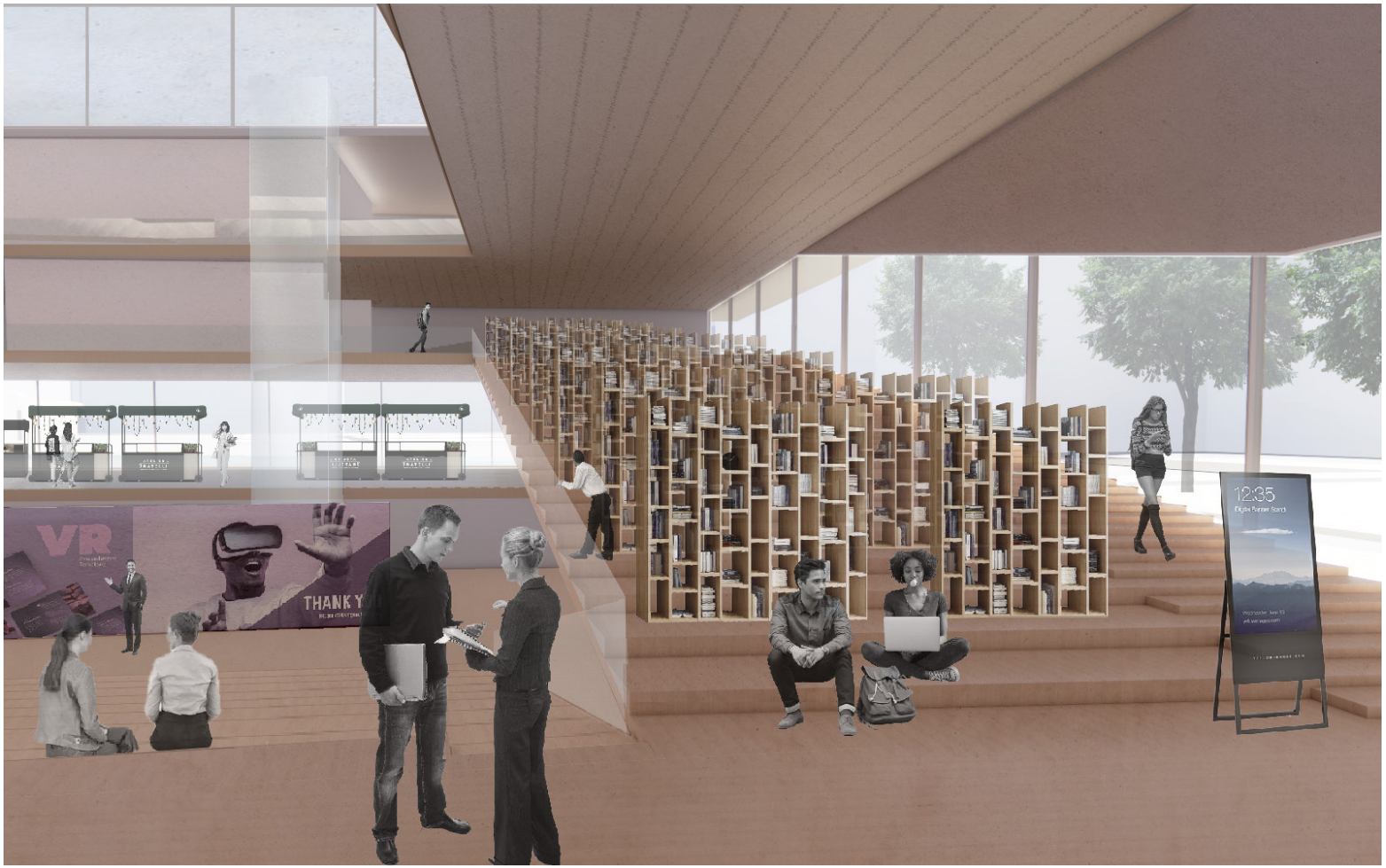
FACADE SPECULATIONS

View from station entrance

Framing of routing around facade

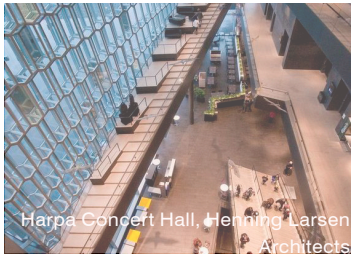
Routing a transparent look, other functions semi-transparent

Semitransparent facade with pattern



View on ground floor, to auditorium and library

Create an appealing stair environment



Incorporate interesting views along paths of travel

Semitransparent facade with pattern

06

Impression from south side of MediaHeim

DESIGN DEVELOPMENT

RESEARCH BY DESIGN

After the conceptual design, the building programme was analysed again on site using traffic noise, wind, sun and shade. This resulted in an improved and simplified organisational diagram, which was applied to the cross-section of the building. As a result, not only the programmatic organisation changed but also the shape of the building.

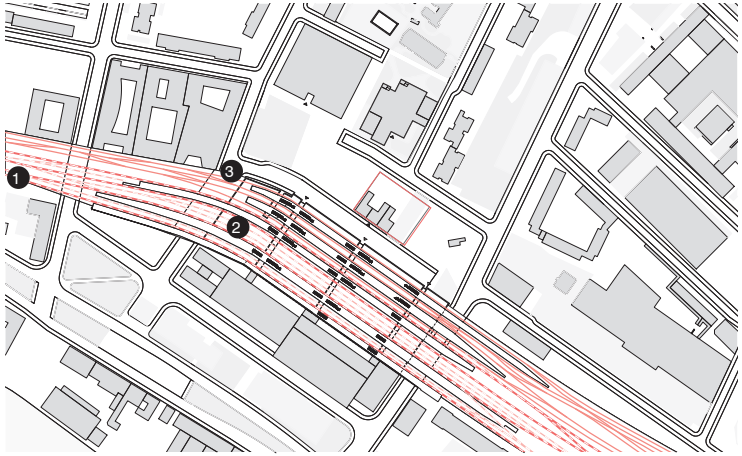
After that, in the elaboration phase, much research was done on the structure, façade material and distribution and climate techniques. The elaboration of the media library is categorised using Stewart Brand's 'shearing layers'. Particular emphasis was placed on the shearing layers Structure, Skin, Services, and Space Plan. To ensure the adaptability of the building in the future for changes in media or function, a generic and a specific element were used for each layer.

Generic means that the building component does not need to be adapted; it can last many years. Specific means that the element can be adapted to a particular activity or user need.

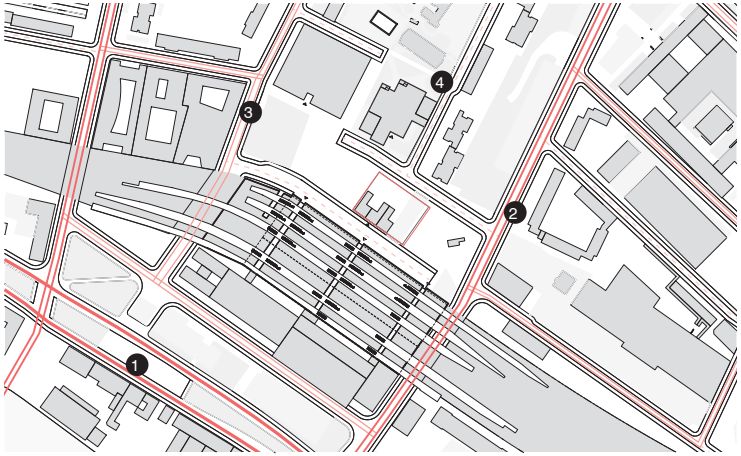
In addition, the building's sustainability ambition was set beforehand on making it a carbon-positive building. A carbon-based design is essential today because of the significant CO2 emissions that buildings contribute to date. Three R-strategies for the transition from a linear to a circular economy were used for the design, which helped create a carbon-based design. The three strategies used are reduce, reuse and recycle. With the help of a light wooden structure and an intelligent façade, the media library has become a carbon-positive design. In other words, the building absorbs more CO2 than it emits.

TRAFFIC FLOWS

1. Local trains
2. Trains
3. S-bahn



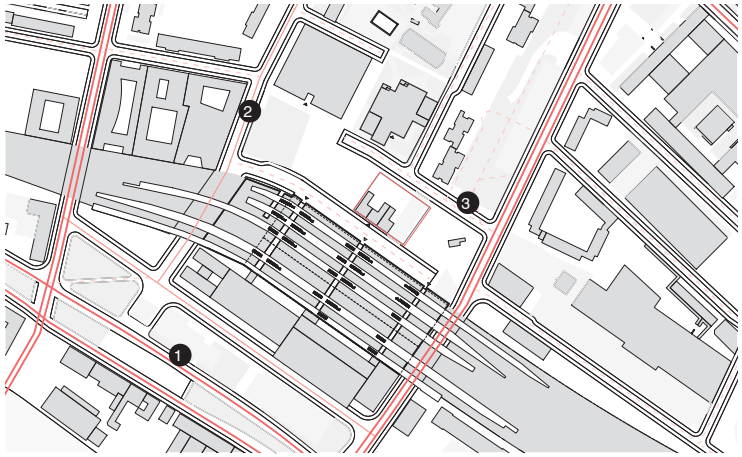
Trains



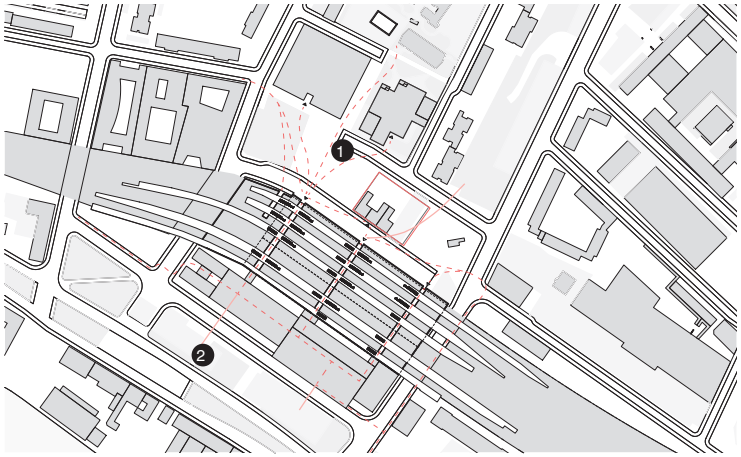
Vehicles

1. Main road to Mitte
2. Main road
3. Subroad
4. Local traffic

1. Bike Paths
2. Bicycle-friendly roads
3. Cycling routes

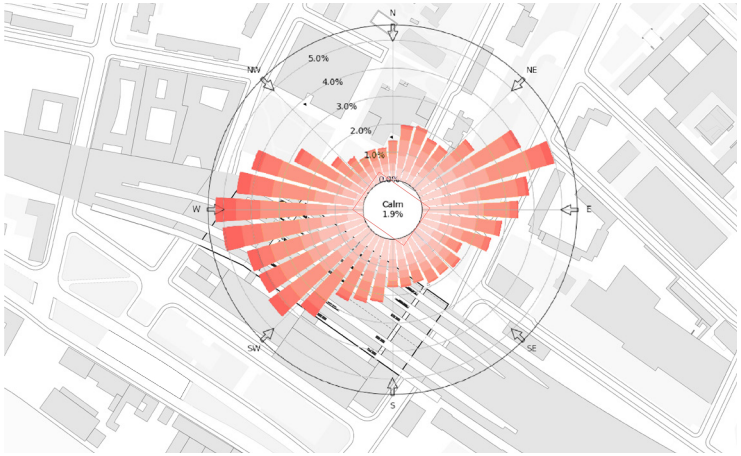


Bicycles

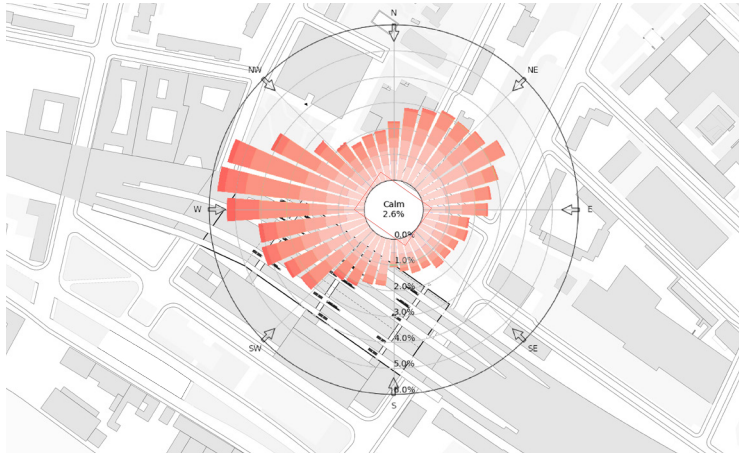


Pedestrians

1. Local Pedestrians
2. Pedestrians with parked cars

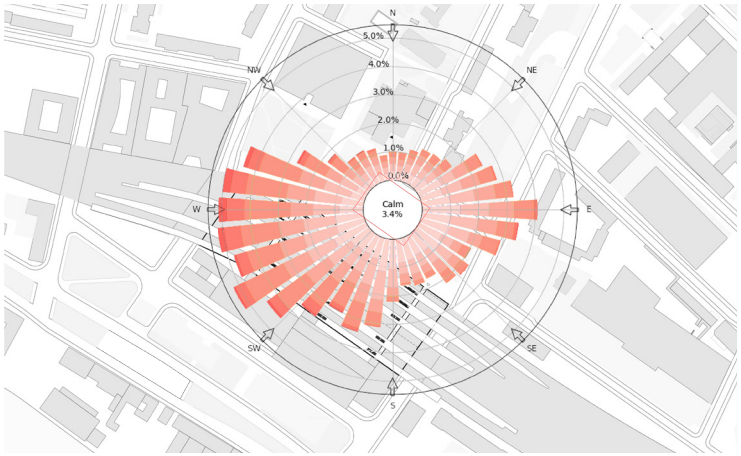


March - average speed: 9.6 mph

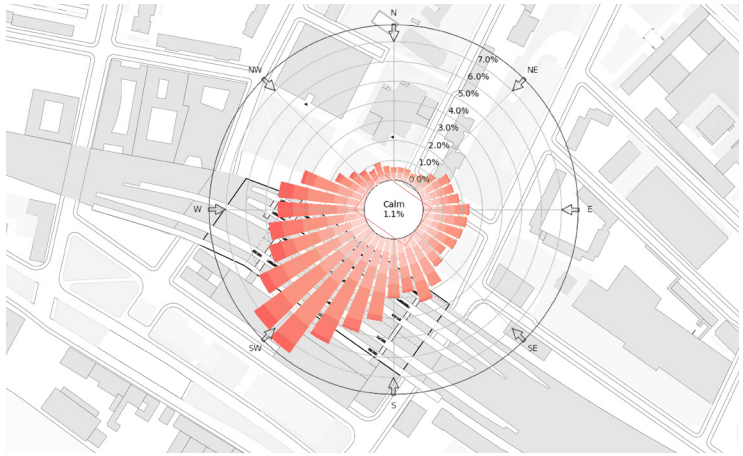


June - average speed: 8.3 mph

The survey shows high winds from the west throughout the year. In spring, the wind shifts slightly to the east and more to the south in winter. Still, the wind will affect the future building less because it is hidden behind the station. The station roof will catch most of the wind if the building is not taller than the station and is not too close to the road.



September - average speed: 8.0 mph

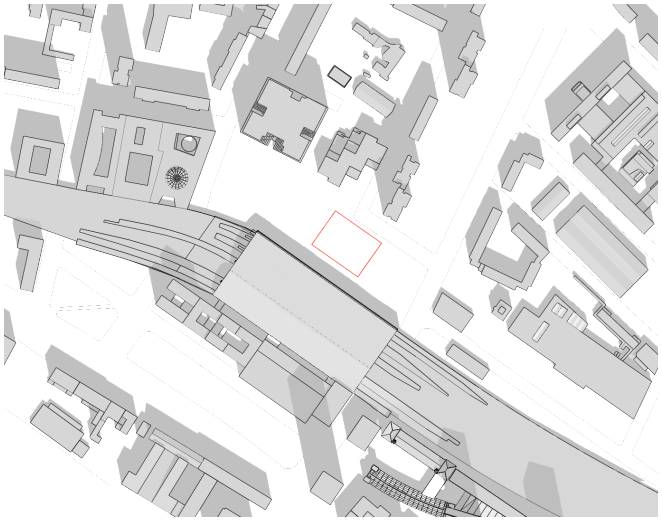


December - average speed: 10.0 mph

2 - 4.9 mph
5 - 6.9 mph
7 - 9.9 mph
10 - 14.9 mph
15 - 19.9 mph
20 + mph

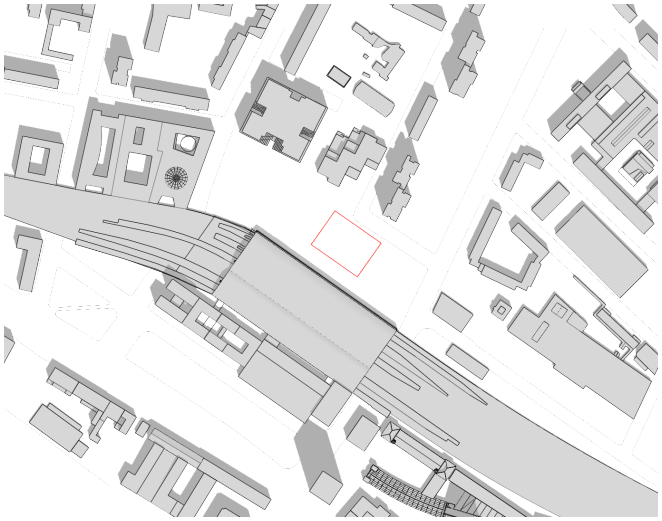
Genetated: 04 december 2022. Observations between: 01 Jan 1973 and 04 Dec 2022
Source: *https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=EDDB&network=DE__ASOS*

INFLUENCE OF SUN AND SHADOW



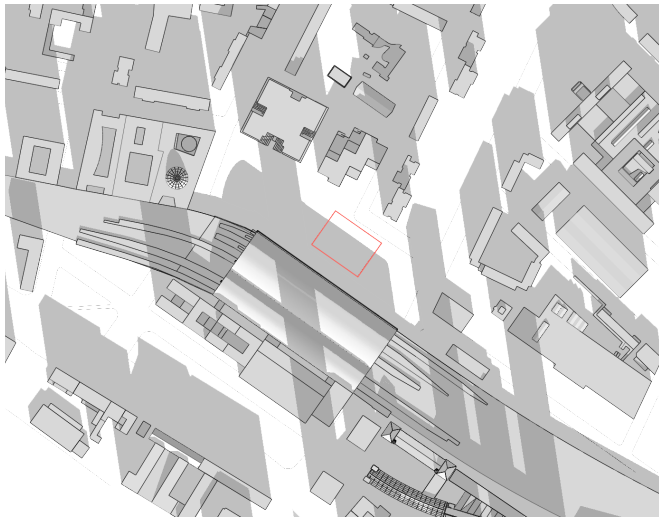
MARCH 20 & SEPTEMBER 23
12:30 AM

In March and September, the sun is at the same altitude. What is noticeable is that almost the entire strip on the north side of the station is sunlit. However, the adjacent road along the back and thereby the entrances to the station are shaded. This means that the route to the station must already be clear in the pavement to really draw people to one point.



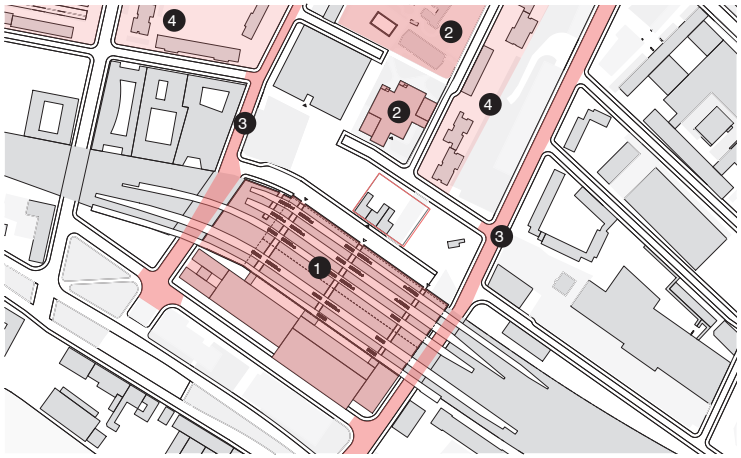
JUNE 21, 12:30 AM

In summer, in mid-June, the sun is at its highest. This means there is little shade from the surrounding buildings on the plot. Therefore, there is a lot of potential to generate solar energy around the lower three facades and, of course, the roof of the building. In addition, the public areas around the building are well sunlit which offers a lot of potential for public activities and greening.



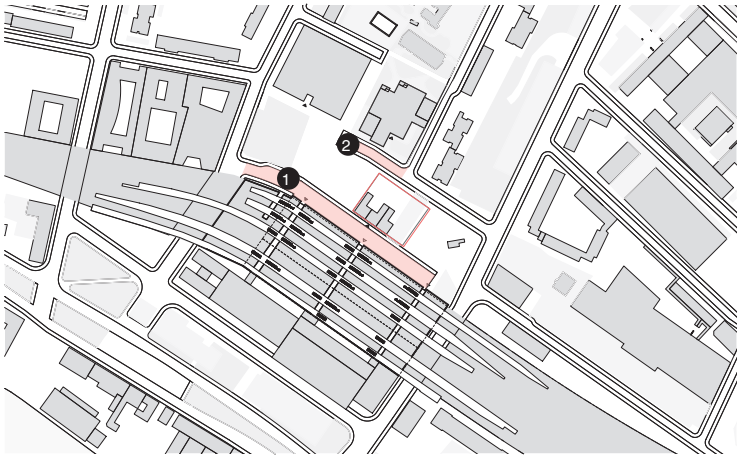
DECEMBER 22, 12:30 AM

In winter, in mid-December, the sun is at its lowest. As a result, the enormous volume of the station creates a lot of shadow on the plot. What is striking is that the north side of the building, adjacent to the school, is not shaded. This gives potential for different functions inside the building. One advantage is that the station roof is currently being restored to a fully glazed roof, so this will always allow light to enter the building.



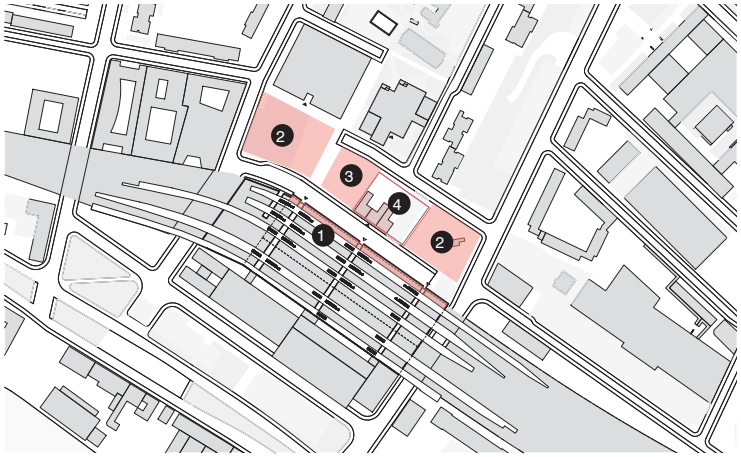
Strengths

1. Central location in the district and close to the area's gateway.
2. The arrival of the gymnasium and the kindergarten brings many students to the media library.
3. The main roads and station provide good accessibility and visibility.
4. The plot is surrounded by housing and will add a recreational function among all formal activities.



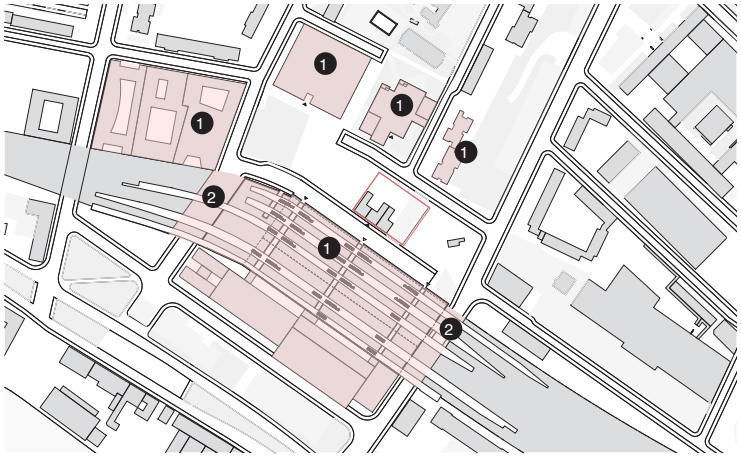
Weaknesses

1. The road in front of the station exits impedes pedestrian safety to and from the station. The road could better function as a cycle and walkway instead of park and ride.
2. The road between the gymnasium and the plot is a dead end and will be a barrier for students. This is why the space between the school and the station will be pedestrian-friendly.



Opportunities

1. Activate the backside of the station with attractive activities.
2. Increase biodiversity in the park between the offices and along the road.
3. A public square where different types of station users intersect and encourage interactions.
4. Existing buildings will be demolished, which creates an opportunity to recycle and reuse materials.



Threats

1. The size and scale of surrounding buildings threaten not only the plot with shade but also privacy. In addition, the public building must stand out among the large buildings.
2. The passages under the tracks act as a boundary between the north and south side of the station. These passages must be more attractive to act as a clear link.

PROGRAM ORIENTATIONS

The organisation of the program was tested on the unexamined categories of daylight and sound. In addition, the functions were also classified by sight lines from the activities and the visibility of the activities.

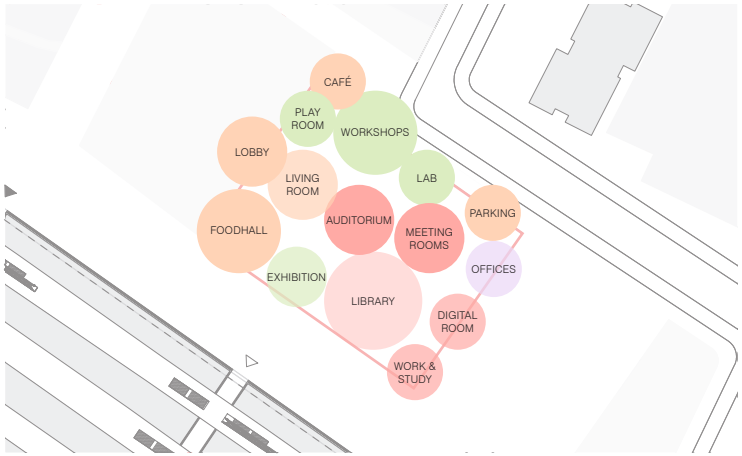
The similarities in this analysis are that the meeting functions are best located on the park and station sides. This is because it is easily visible to passersby and because little car traffic passes here, making it pedestrian-friendly.

In addition, the intellectual functions can be better oriented on the east side because of noise, sightlines and views. The creative functions are more spread over the plot; this is because these functions are less dependent on noise and sunlight. However, it is nicer if these activities are oriented to the neighbourhood to encourage residents to participate in similar activities.

Organisation based on daylight

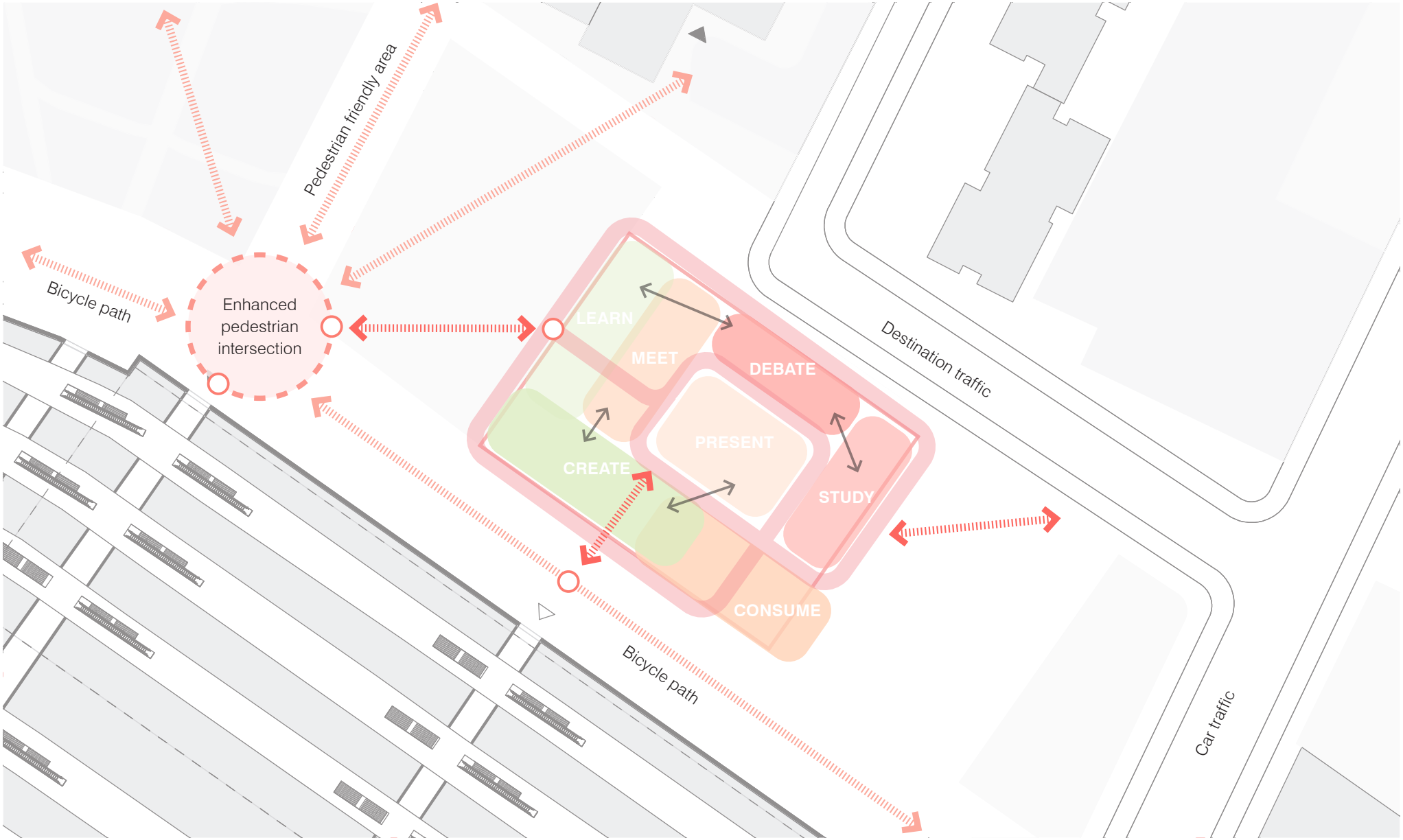
Organisation based on noise

Organisation based on views from the activities



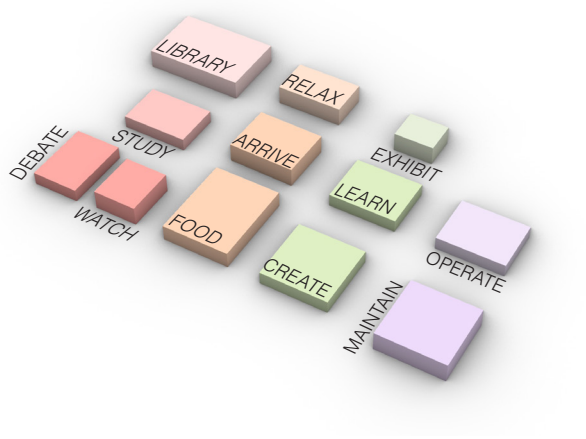
Organisation based on visibility of activities

Intellectual Social Creative Supportive



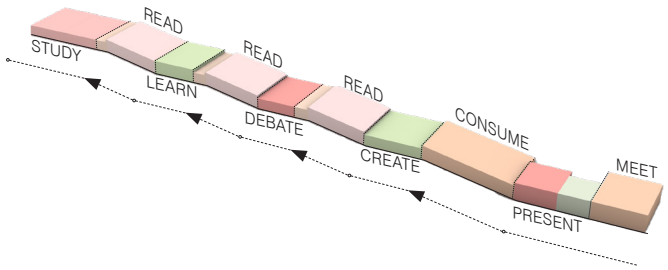
New Situation | Scale 1:1000

CONTRASTS IN SECTION



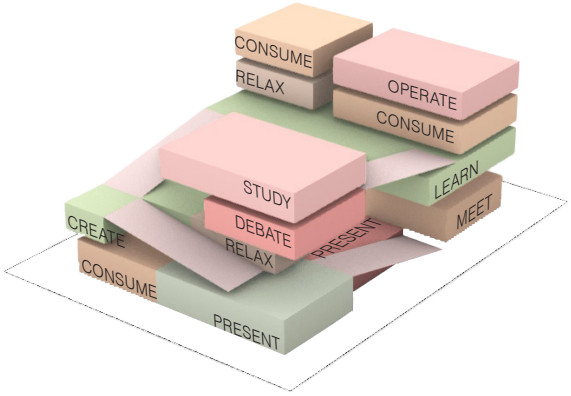
LEARNING PROGRAM

The programme consists of 12 activities. Each activity has its own quality, and together the activities reinforce each other.



LINE OF LEARNING PROCESS

The activities can be laid out in the order according to the learning process, just as the circle of potential synergies showed above. The connecting factor between the activities is the library that supports the functions.



SPIRAL OF LEARNING

To strengthen the interaction between the functions, the linear line is folded into an ascending spiral. Here, the library is part of the circulation and shortcuts between floors will be possible more quickly.

SUSTAINABILITY AMBITIONS

Substrate Factory Ayase Aki Hamada

FLEXIBLE AND RESILIENT

To ensure that the public building serves for a long time, it must be flexible for future changes and users' needs. Also due to digitalisation and future technology, some functions will become redundant later. In order for the building to last longer than the life cycle of the functions, it is important that the building should be adaptable for different activities.

World of Volvo Henning Larsen Architects

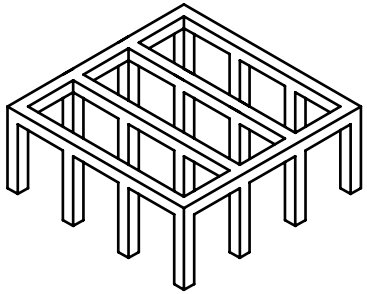
BIOBASED MATERIALS

An important aspect in today's construction world is the CO2 emissions released from the construction and use of buildings. To reduce this, bio-based materials will be used in the design as much as possible. Especially in the structure that requires a lot of material, working with wood will have a big impact on the carbon footprint.

Resource Rows, Lendager

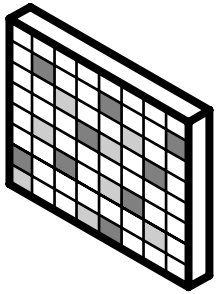
EXISTING BUILDINGS

The current buildings on the chosen plot have become redundant, although materials can be reused. The brick facade of one of the buildings will be used as interior wall finishes, and existing windows can be reused inside the building. In addition, all the concrete from the buildings can be recycled for the cores and basement of the new public building.



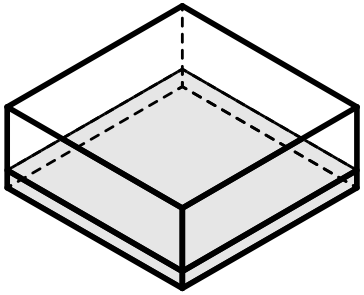
POST AND BEAM GRID

The structure of the building consists of a timber column and beam structure. The advantage of this is that it leaves a lot of freely divisible space for creating smaller rooms or areas. Furthermore, the post and beam structure will be designed for disassembly in the future.



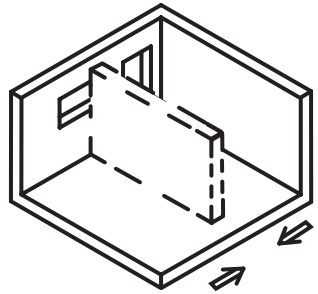
FACADE PANELS

The building's skin is divided with lines, this refers to a bookcase and gives more human scale to the large building. The facade system is composed of aluminium-wood frames containing a translucent or (to be opened) transparent infill. This infill can be replaced from the outside in the future according to the function behind it.



HOLLOW FLOORS

The services in the building will also be adaptive. This is possible by using hollow floors between which pipes can run through. In addition, the hollow floor also saves a lot of weight and material, which is beneficial for the circularity of the building.



ADAPTABLE INFILL

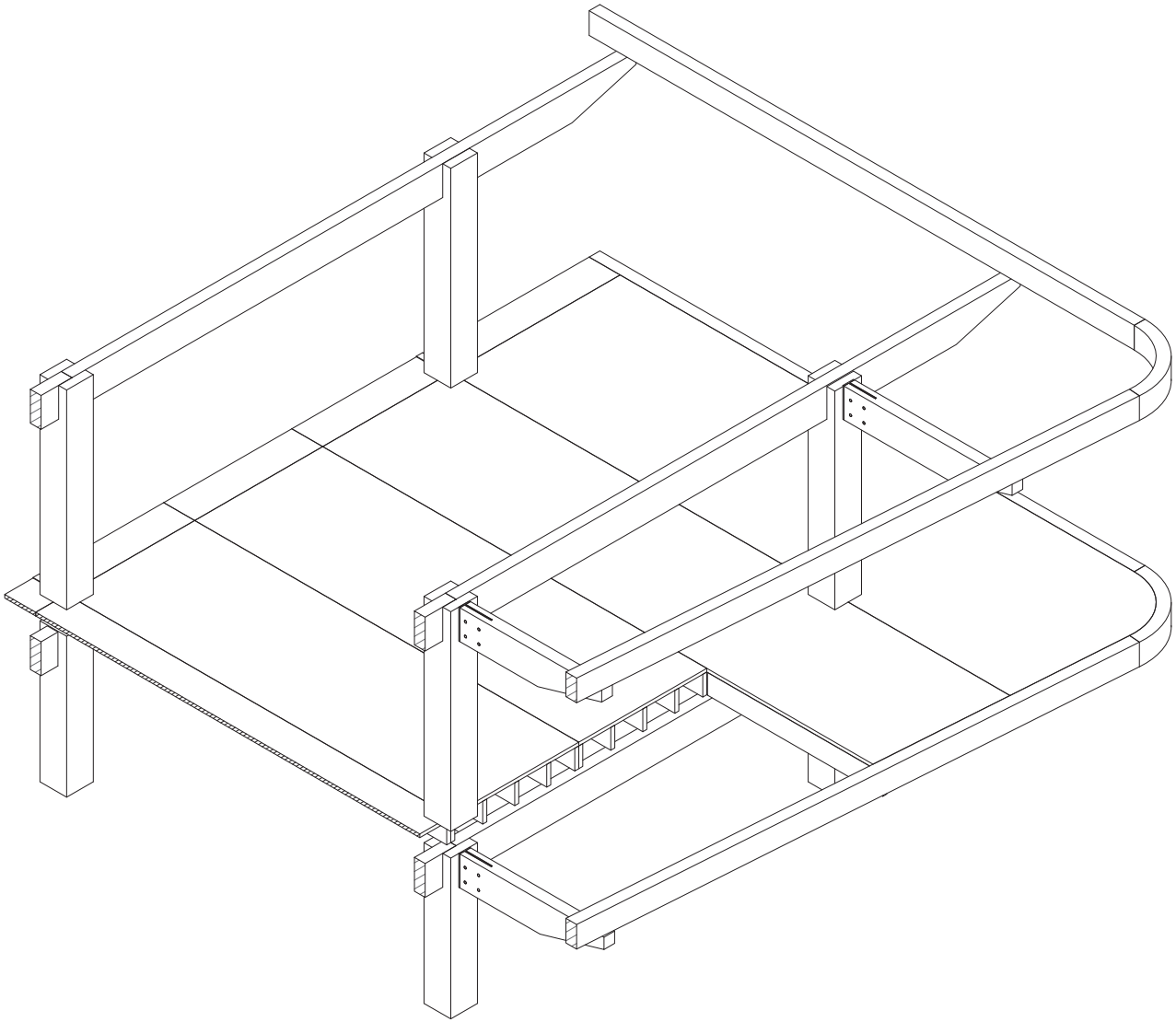
Finally, the space will be freely dividable, including the multifunctional staircase. The circulation is defined, but the infill of the multifunctional staircase can be replaced in the future.

ADAPTABILITY OF STRUCTURE

The structure of the building consists of a wooden column and beam structure. The advantage of this is that it leaves a lot of freely divisible space for creating smaller rooms or spaces.

The beams are positioned in the transverse direction of the building on which hollow floor boxes span in the shortest direction. The generic beams on the columns will extend at the long sides' overhangs. At the overhang on the short side of the building, a facade edge beam will be attached to the columns through smaller intermediate beams.

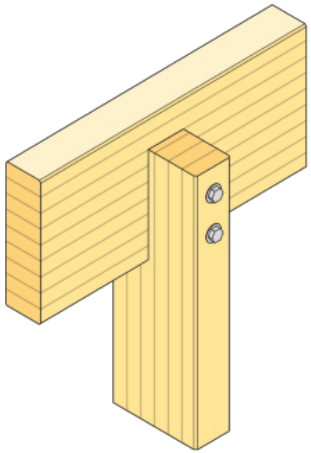
The entire column and beam structure will be designed to be demountable for future changes.



GLULAM

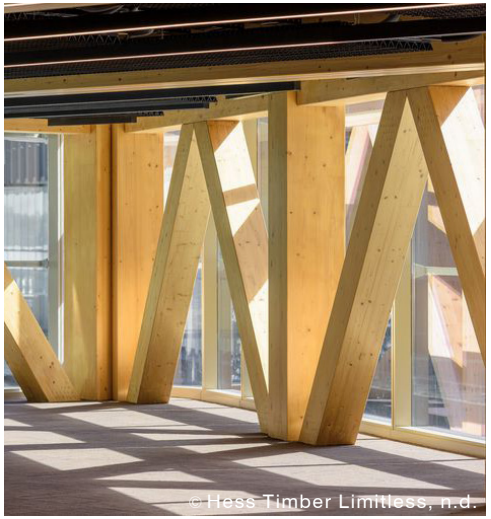
Glued laminated timber (GLT/Glulam) is increasingly used in large-span designs where it can replace steel and concrete in load-bearing structures. Glulam is a biobased material and moisture-resistant, using biodegradable glue, large pieces and unique shapes can be generated. The advantage of wooden construction is that it absorbs a lot of CO2 and also has a finer appearance than grey concrete or steel structures.

For the design of the public condenser, not only the columns and beams will be in glulam, but also the trusses. The regular beams lie on a cut-out column and are fixed using screws, washers and nuts. Additional beams around the façade zone and the trusses are attached to the columns with steel plates to create a fixed connection.



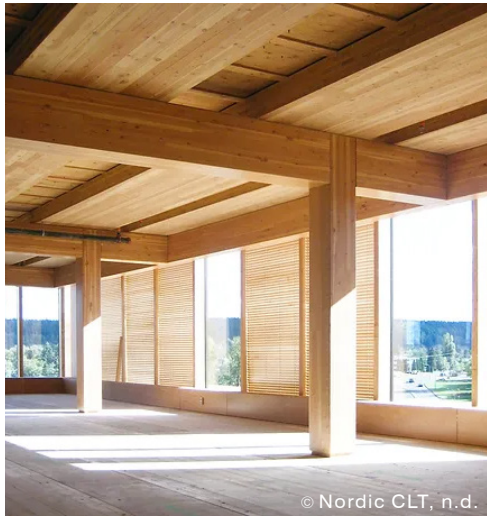
© Setra Group

CONNECTIONS



© Hess Timber Limitless, n.d.

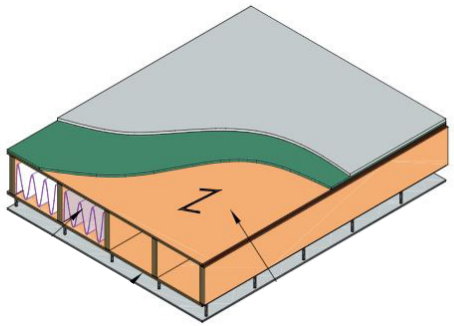
GLULAM TRUSSES



© Nordic CLT, n.d.

COLUMNS AND BEAMS

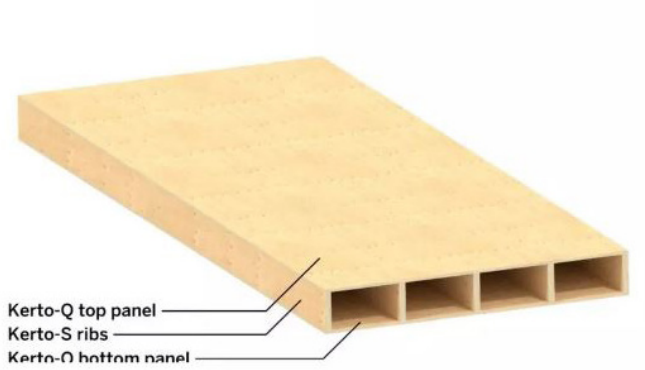
FLOOR SYSTEM RESEARCH



© Metsa group

KERTO RIPA

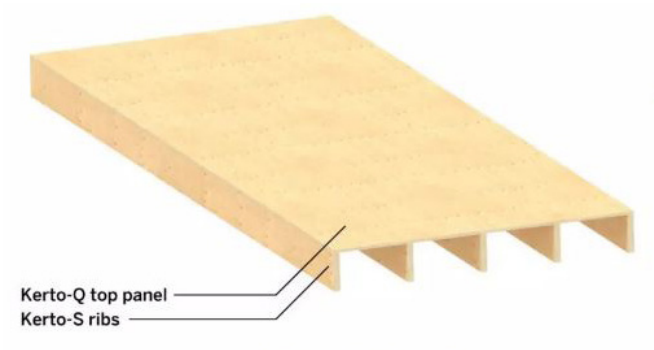
The Kerto-Ripa panel is a structural engineered timber building element made from glued Kerto members. It is used to create the ground, intermediate floors and roofs of residential, commercial and public buildings. Kerto-Ripa can be used in both Thermo insulated structures and non-insulated structures.



© Metsa group

BOX-SYSTEM

Kerto LVL Q-panel is an ideal material for load-bearing applications that can be used in both horizontal and vertical structures. Using a large Q-panel ensures material efficiency and minimises installation time. Kerto LVL Q-panel with thicknesses of 27–75 mm fulfil the requirements for strength class LVL 36 C and thicknesses 21–24 mm fulfil the requirements for strength class LVL 32 C.



© Metsa group

T-SYSTEM

Kerto® LVL S-beam combines excellent technical performance with ease of use. It is an ideal choice for all types of construction projects – renovation, new buildings, prefabricated houses and elements. Kerto LVL S-beam (21–75 mm) fulfils the requirements for strength class LVL 48 P.

© Lignatur

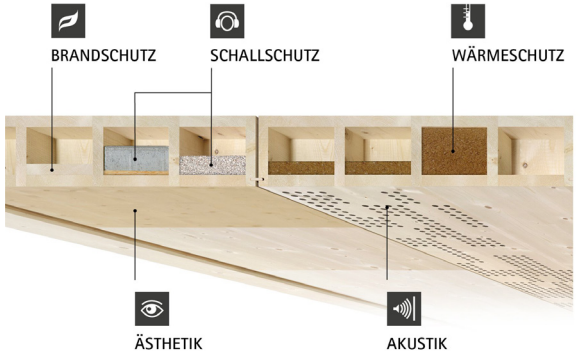
SYSTEM ELEMENT (LFE)

LIGNATUR surface elements are the ideal solution for multi-storey residential, office or school buildings. Their covering width is 1000 mm, the maximum length is 16 m, excess lengths are possible on request. Choose element heights of between 90 and 360 mm to satisfy your needs. LIGNATUR surface elements can be modified for spans up to 12 m depending on the fire protection and sound insulation, sound absorption and heat insulation requirements.

© Lignatur

BOX ELEMENT (LKE)

LIGNATUR box elements have a covering width of 200 mm, are lightweight and can be laid by hand. The running meter weighs only approx. 7 kg – ideal for redevelopments. The maximum length is 12 m, excess lengths are possible on request. Choose element heights of between 120 and 320 mm to satisfy your needs. LIGNATUR box elements can be modified for spans up to 12 m depending on the fire protection and sound insulation, sound absorption and heat insulation requirements.



© Lignatur

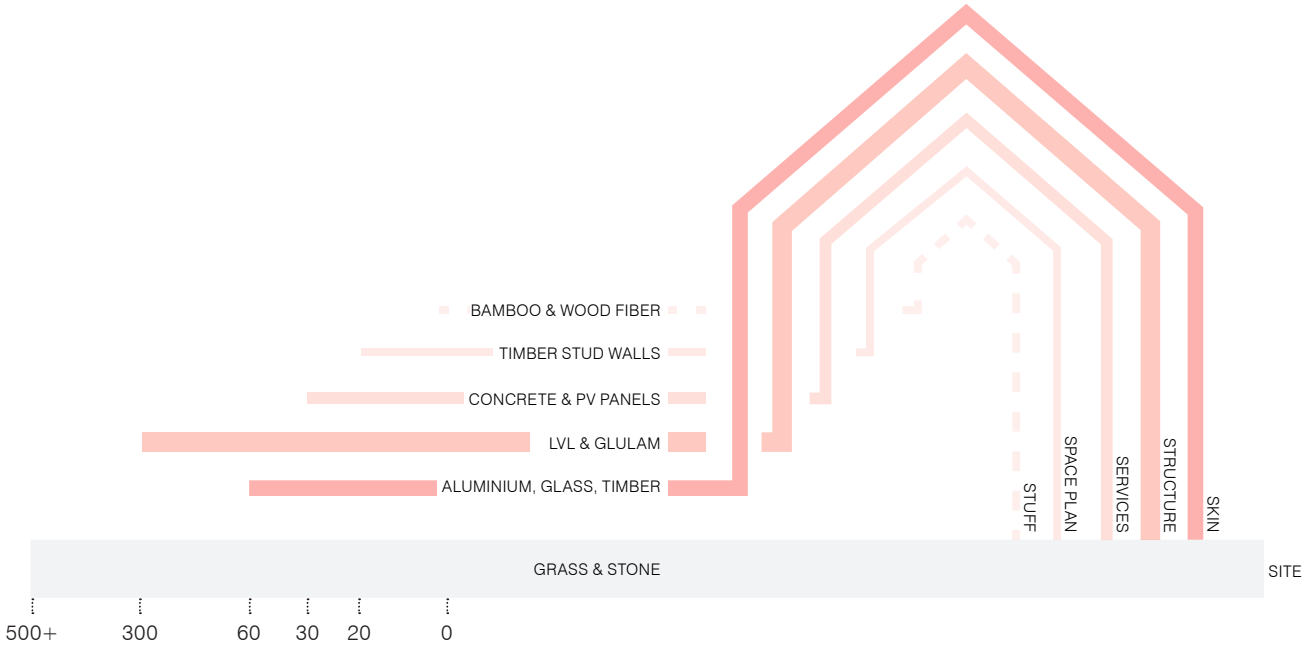
LIGNATUR

An element that combines most functions of a ceiling, a roof, in one. An element that needs no supports, even with a larger span, that effectively insulates sound, improves the room acoustics and satisfies strict fire protection regulations. An element that is produced and supplied to quality specifications for visible areas and can integrate technical installations.

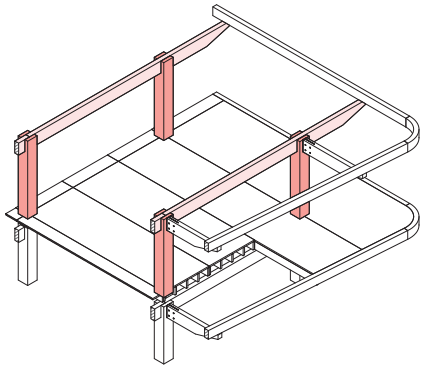
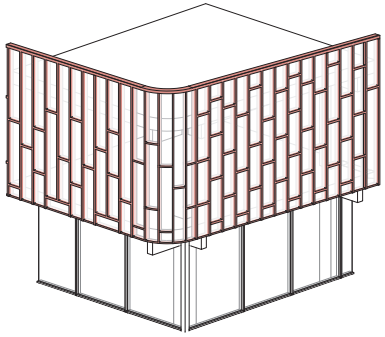
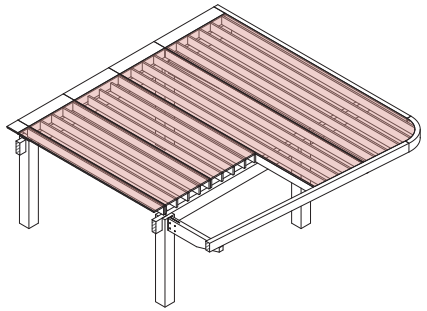
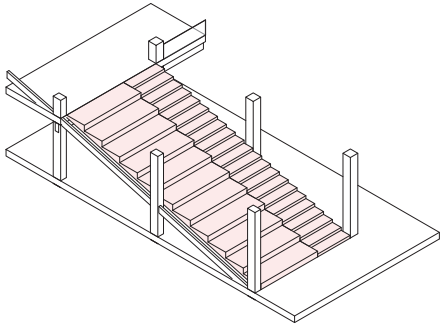
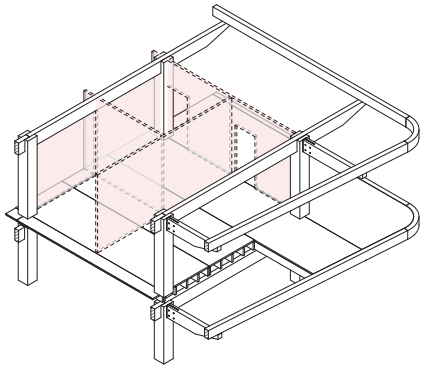
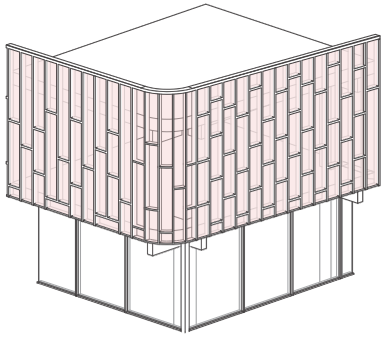
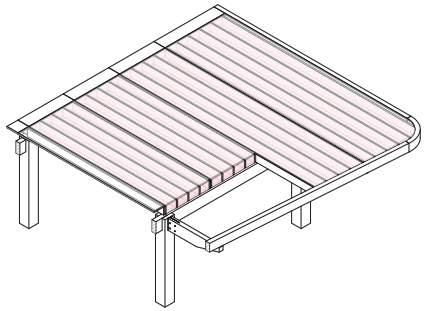
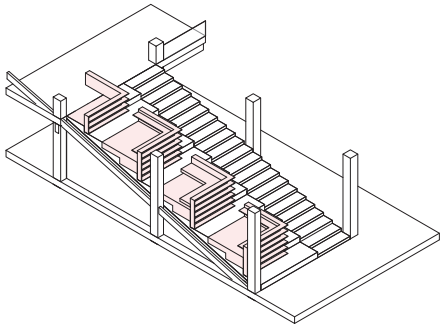
SHEARING LAYERS

The elaboration of the media library is categorised using Stewart Brand's 'shearing layers'. Particular emphasis was placed on the shearing layers Structure, Skin, Services, and Space Plan. To ensure the adaptability of the building in the future for changes in media or function, a generic and a specific element were used for each layer.

Generic means that the building component does not need to be adapted; it can last many years. Specific means that the element can be adapted to a particular activity or user need. In addition, the lifetime of the material was considered when choosing materials to make each building layer resilient.



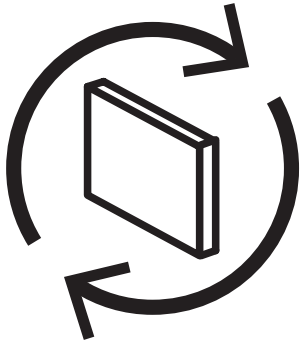
GENERIC VS SPECIFIC ELEMENTS

	STRUCTURE	SKIN	SERVICES	SPACE
GENERIC	 Columns and beams	 Facade system	 Hollow floors	 Circulation
SPECIFIC	 Spaces and infill	 Panels and openings	 Open space for services	 Multi-functionality of stair

CARBON BASED DESIGN

REDUCE

In this strategy, the impact through circular use of materials is balanced by the consequences for environmental impact and environmental performance in the use phase and at the end-of-life understanding.



REUSE

Reuse is about designing for future-proofing and designing with or for reusable objects. First, the design should be adaptable for future user needs and requirements. In addition, the design should also consider the reuse of building products or building components/ elements, whether or not after processing.

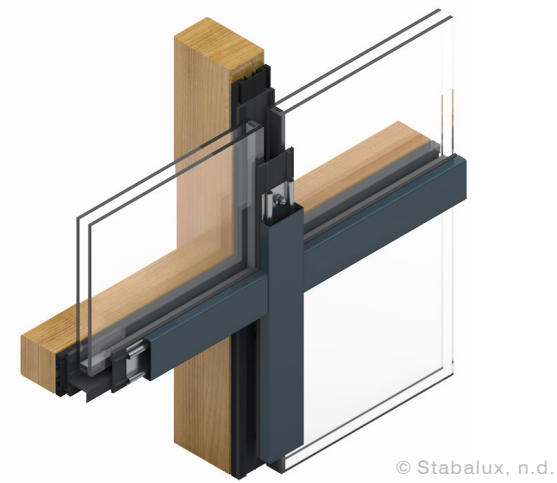
RECYCLE

The concept of recycle mainly involves designing with raw materials that have been used before or with residual streams from another product system. But recycle also deals with designing with so as much as possible or exclusively building materials from renewable sources. Renewable raw materials are grown, naturally replenished or cleaned naturally.

© Metsa group, n.d.

MATERIAL WEIGHT

Using hollow floor boxes saves not only weight but also material. Even with biobased materials, it is good to build with less material. The added advantage is that installations can easily run through the floor and do not have to hang above a suspended ceiling.



© Stabalux, n.d.

MATERIALS WITH LARGE EMISSIONS

The curtain walls in the building will be designed with an aluminium-wood frame. This will make the inner structure of wood which not only reduces the amount of aluminium but also gives a more pleasant atmosphere inside. In addition, the facade is also resilient for the future as aluminium requires little maintenance.

© Philips, Schiphol Airport

ENERGY CONSUMPTION

Finally, energy consumption is also reduced. This is done first by smart sensors that turn off lights when there is little movement in a room. In addition, the mechanical ventilation system in a room turns off when more than two windows are open. Finally, the overload of energy will be stored in the building allowing it to be used at another time.

REUSE

EXISTING BRICK FACADE

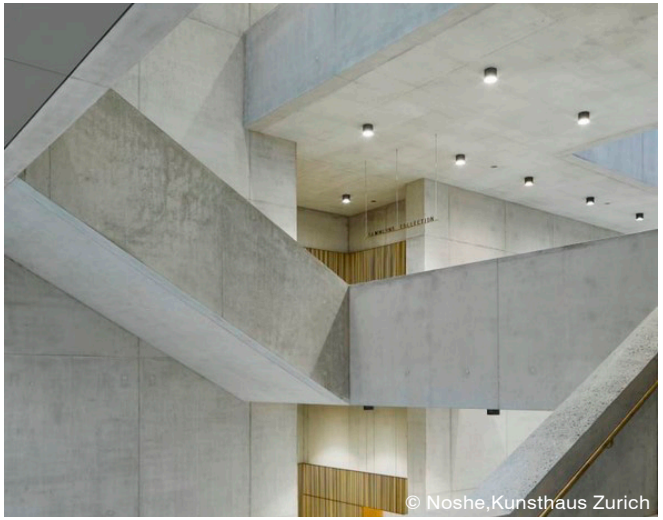
The current buildings on the chosen plot have become redundant, although materials can be reused. The brick facade of one of the buildings will be used as interior wall finishes, and existing windows can be reused inside the building.

DEMOUNTABLE BUILDING

To enable future reuse, the building will be designed to be fully demountable. This means that all joints will be secured with screws and bolts instead of glue or cement. In this way, the building or parts of it, can easily be removed and reused as one component in another building.

MOVABLE PARTITION WALLS

Flexibility also belongs to the reuse category. In addition to demountable construction, the interior walls in the building will be lightweight partitions that can easily be changed in the future. In addition, many moveable interior elements will be used as function separation, for example bookcases and small units.



RECYCLED CONCRETE

Concrete is needed for the basement and cores, for this purpose the concrete from the existing buildings will be recycled. When remixed into cement, it can be poured in any form. Recycling existing concrete is already much better than remaking concrete because it reuses the material that is already there.

BUILDINGS HEATH

Besides recycling materials, heat can also be recycled. The building's atrium provides a lot of heating in summer. In addition, heat from the floors is drawn to the atrium and accumulates at the top of the atrium. Therefore, a heat recovery will be placed at the top of the atrium to store the excess heat and reuse it to heat cold air in winter.

CO2 ABSORPTION

Finally, the use of renewable resources also falls under the theme of recycle. The largest renewable resource that will be used in the building is wood. The advantage of this is that it grows in large numbers but also that it absorbs a lot of CO2 instead of emitting it during production. This neutralises the building's CO2 emissions and makes building much more environmentally responsible.

FACADE PRINCIPLES

FRAMING OF LIBRARY ROUTING

To increase the visibility and accessibility of the library, the multimedia route will be implemented completely transparently. In addition, it will appear to be cut out of the building volume so that the route is truly framed.

TRANSLUCENT FUNCTIONS

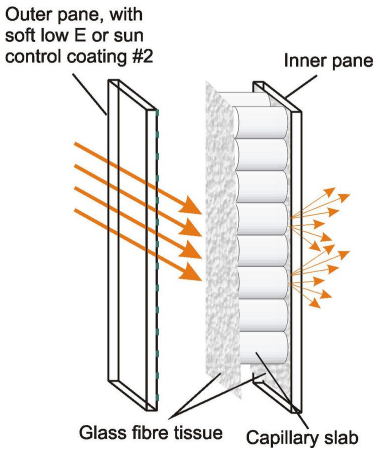
The rest of the façade will consist of a translucent facade. This allows people to see shadows of movement from outside but not quite see inside. This way, the other activities will still have their privacy but plenty of daylight.

PATTERN IN FACADE

In addition, the translucent facade will be patterned to break up the large surface area. Within the pattern, the infill panels will vary between translucent, transparent and opening windows.

OKALUX+ FACADE PANELS

Light-diffusing Double-Glazing Insulating Glass with Optimized Ug-value



© Okalux, n.d.

In comparison to the product variant OKALUX, OKALUX+ achieves an optimized Ug-value even in narrow pane build-ups thanks to a functional layer in combination with a gas-filled cavity.

High Functionality

- Optimal, even illumination of the room, without hard shadows
- Effective sun and glare protection
- High light transmission, light entry can be adjusted individually
- High colour rendering
- Good heat and sound insulation
- Protection from UV rays
- Bird-friendly solution
- Fire protection according to requirements

Sustainability

- Daylight entry reduces amount of artificial light required
- Reduction of cooling loads in summer
- Fully recyclable
- Long-Lasting, maintenance-free and easy to clean

Attractive Aesthetics

- Attractive appearance
- Vivid surface with depth effect
- Capillary inserts can be printed with colour and décor

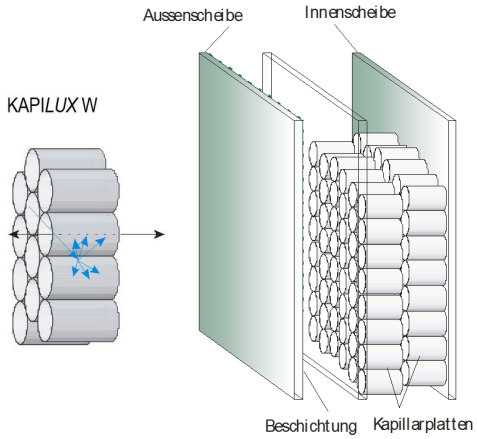
User Comfort

- Comfortable daylight atmosphere
- Effective privacy protection
- Reduced amount of solar input into the building

TRANSLUCENT FACADE STUDIES

KAPILUX W FACADE PANELS

Capillary System with white capillary slabs.



© Okalux, n.d.

Compared to the capillary System OKALUX, the system KAPILUX is larger and visible which allows for partial transparency and gives KAPILUX solutions an especially modern, lively appearance.

High Functionality

- Optimal, even illumination of the room, without hard shadows
- Effective sun and glare protection
- High light transmission, light entry can be adjusted individually
- High colour rendering
- Good heat and sound insulation
- Protection from UV rays
- Bird-friendly solution
- Fire protection according to requirements

Sustainability

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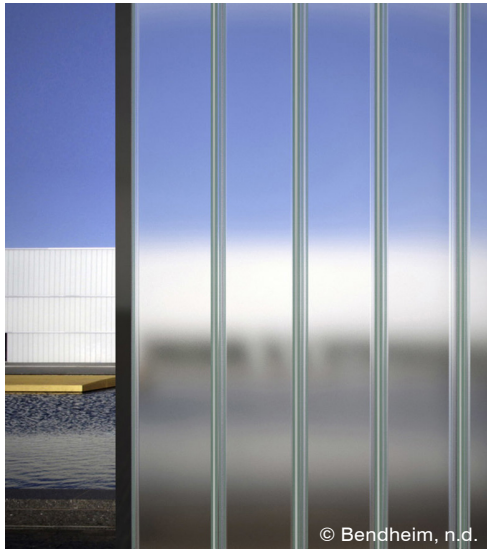
- Attractive appearance
- Vivid surface with depth effect
- Capillary inserts can be printed with colour and décor

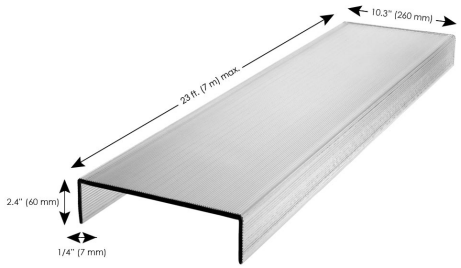
User Comfort

- Comfortable daylight atmosphere
- Effective privacy protection
- Reduced amount of solar input into the building
- Partial Vision



BENDHEIM CHANNEL GLASS

Channel glass requires minimal framing, creating a uniform appearance with clean design lines.



© Bendheim, n.d.

Daylighting:
- Diffuses light & minimizes glare, provides natural light without the loss of privacy

Great Spans:
- Glass walls of limitless distances horizontally & heights up to 7 m

Elegance:
- Glass-to-glass corners & serpentine curves provide soft, even light distribution

Versatility:
- From facades to interior partitions to lighting

Thermal Performance:
- U-Value range = 0.49 to 0.19 (minimal heat transfer)

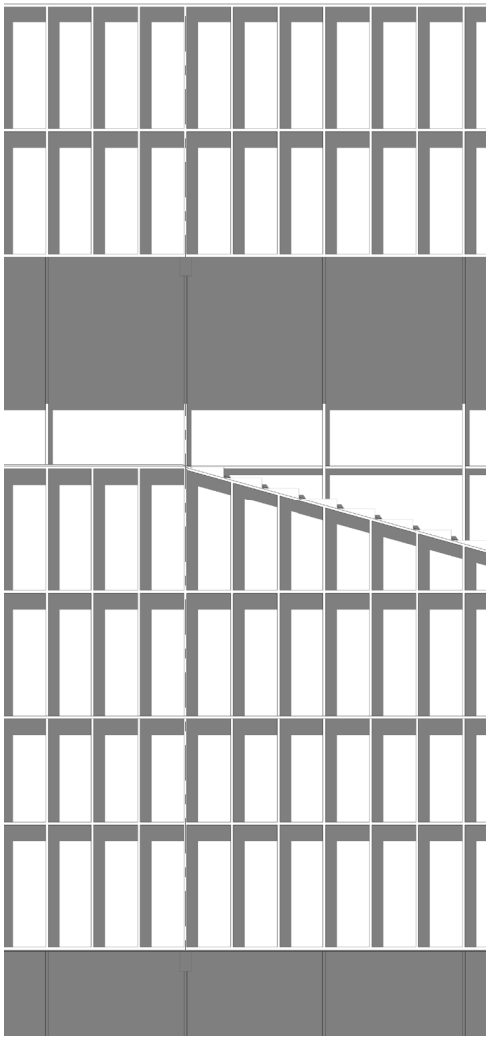
Acoustic Performance:
- Reaches a sound reduction rating of STC 43

Seamless:
- No vertical metal supports required

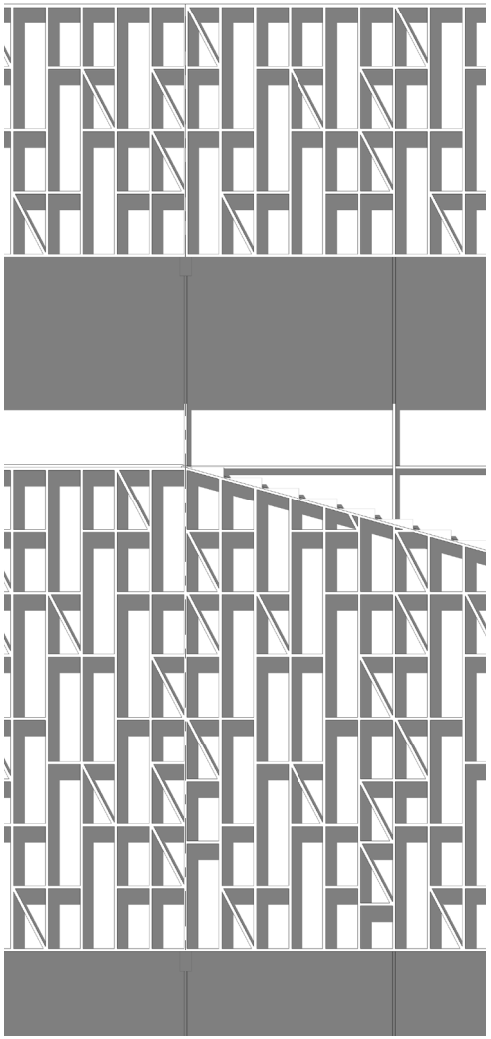
Lightweight:
- ¼" thick channel glass is easy to design with and handle

- Bird-Friendly: Tested, ABC threat factor 25

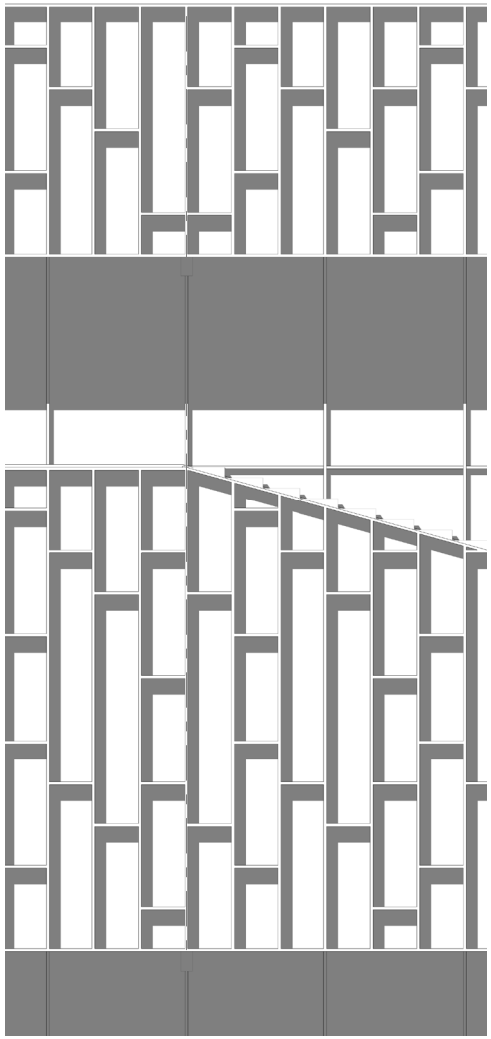
FACADE PATTERN STUDIES



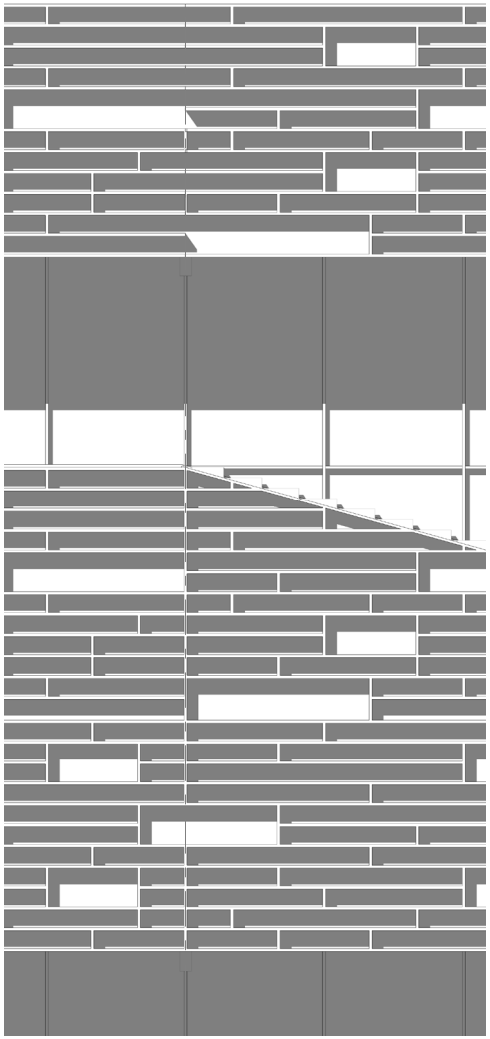
Straight panels



Diagonal panels

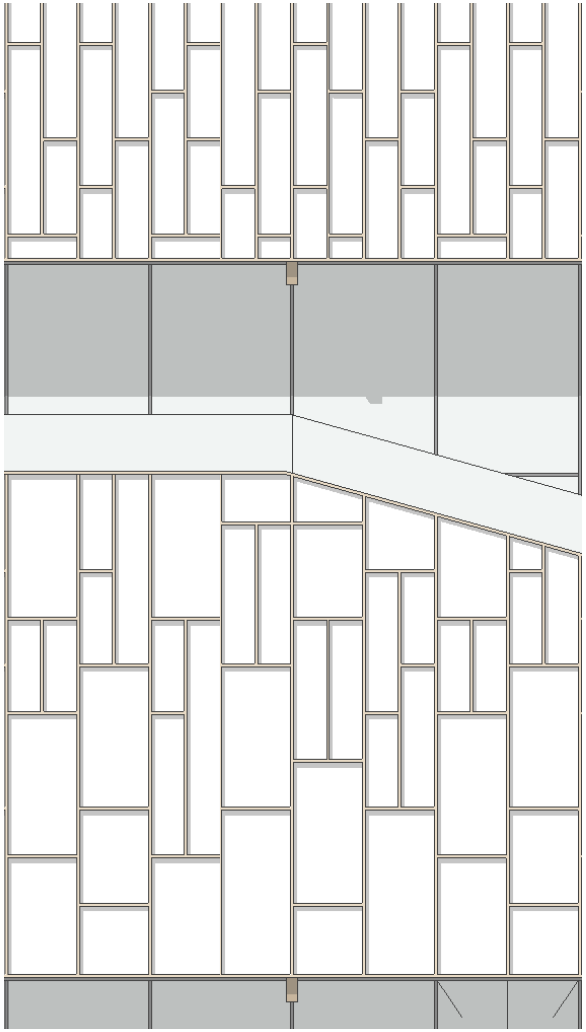


Shifting heights

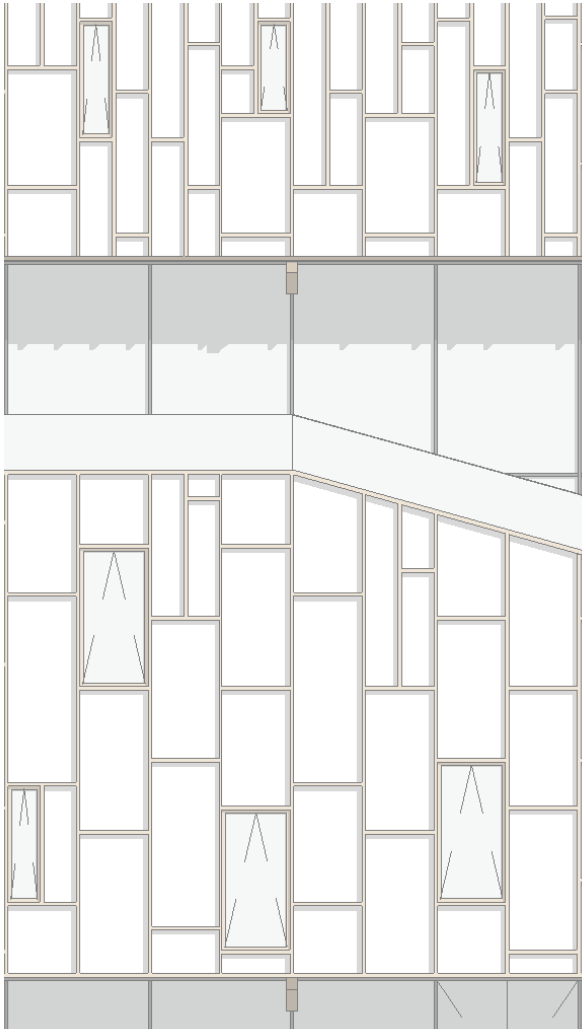


Horizontal shelfs

FACADE PATTERN DEVELOPMENT



Combined pattern



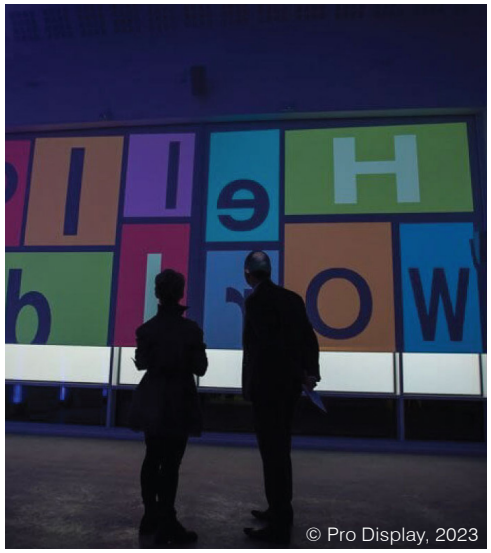
Pattern with facade openings

The rhythm of the translucent facade refers to a bookcase. The study of the vertical and horizontal rhythm distribution brought different results. The conclusion is that the pattern must be at least vertically oriented because otherwise, it will be a very long building next to the elongated station. But there should be a second horizontal division within the vertical division to create the bookcase effect. This division also gives more human scale to the building because it is divided into smaller sections.

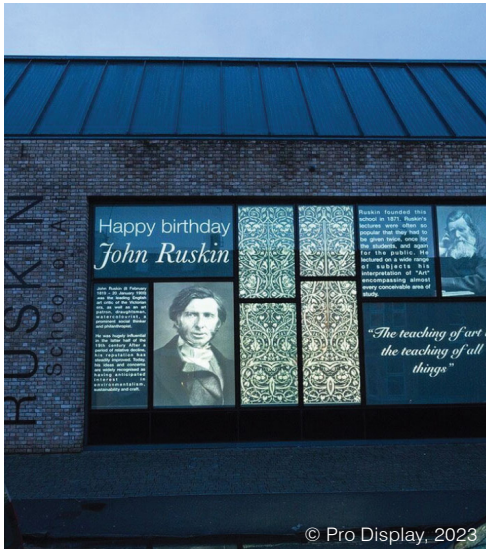
In the end, a distribution of vertical panels was chosen. The broader panels are located in large numbers at the bottom of the building and become narrower with the spiral routing upward. In addition, opening windows were also added to give users the homely feeling of being in control of their climate control.

MEDIA INTEGRATION IN FACADE

© Pro Display, 2023

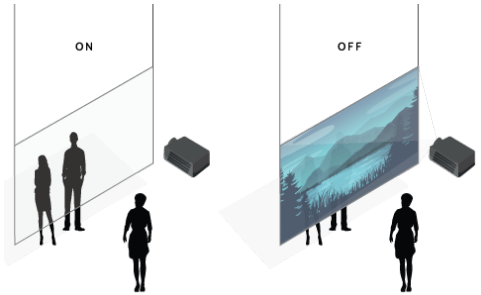


© Pro Display, 2023



© Pro Display, 2023

PRO DISPLAY
Switchable Film Projection Screen



© Pro Display, 2023

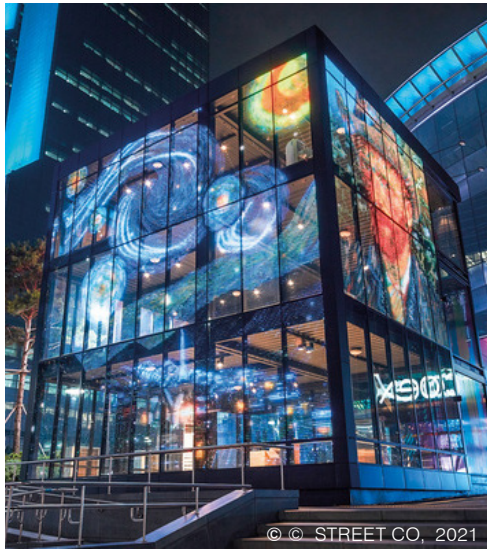
In addition to referencing bookcases, the facade will also have a digital media touch. This study will examine where and what kind of media will be used for this purpose. First, Pro Display's Switchable film projection screen was explored for possible application to the translucent façade with the smaller panel distribution.

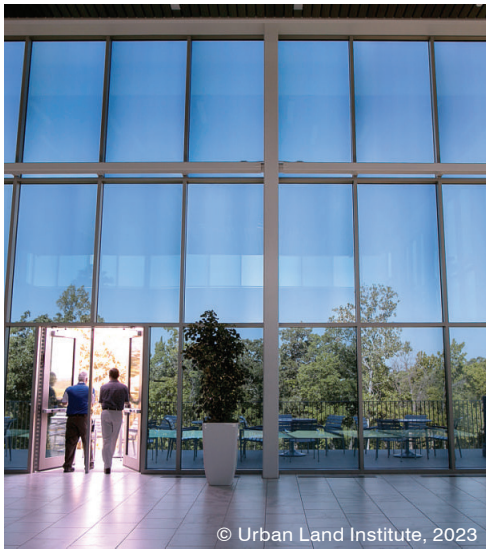
The Switchable film projection screen can be simply applied to any glass or Plexiglas. A simple ON – OFF mode switches the film from being clear (transparent) to frosted (translucent) and in its frosted state the film becomes a high definition rear projection screen.
The film is available in a range of standard screen sizes 30”– 95” or custom cut to any glass size; multiple pieces can be joined to create large format displays.

The switchable film is manufactured with a self adhesive cling layer (peel and stick), which makes the installation process very quick and easy (no special installation equipment required).

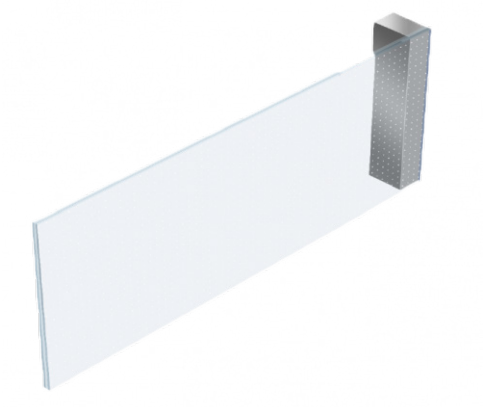
These screens offer a very minimal look which blends easily into the architectural facade. The application of this screen offers many possibilities but will quickly become crowded in the narrow rhythm of the façade panels. In addition, it is less pleasant for the function behind it if little light enters. This is a reason to look further into another application of digital media.

© STREET CO, 2021


© © STREET CO, 2021


© Urban Land Institute, 2023

STREETCOMMUNICATION
In-glass transparant led screen for curtain wall facade, media facade pitch 40-60.



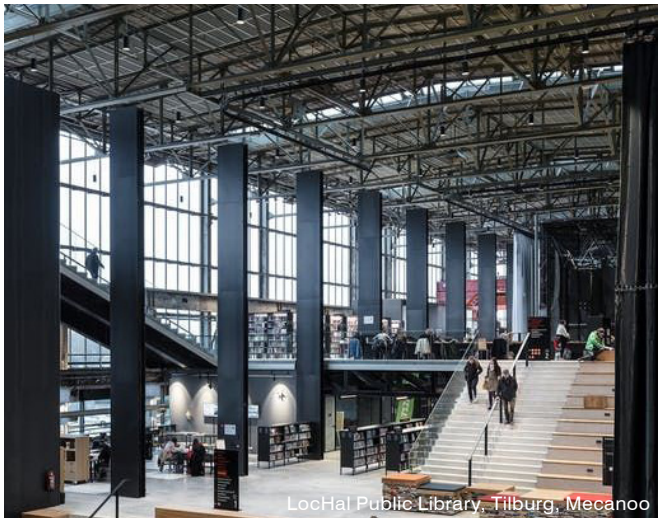
© STREET CO 2020 - 2021

Street Co's transparent LED panels allow daylight to still enter the building, but the product retains the same properties of brightness, reliability and visibility. These type of LED screens can be integrated with the transparent library route to announce, for example, lectures, workshops or other events.

There are several advantages to the transparent LED screens. First, the high refresh rate and high gray scale provide vivid images and meet the high visual image requirements.

In addition, direct communication provides remote control and control of multiple displays simultaneously. In addition, advertising content can be changed at any time so that advertising is updated in real time.

Also, the panel takes almost no space, the thickness of the screen is only 10 mm, the screen weighs only 12 kg/m2, without changing the structure of the building,; it can be stuck directly on glass curtain wall. No steel structure is also needed, which saves a lot of installation and maintenance costs. And finally, easy installation and easy maintenance also saves a lot of labor cost.


LocHal Public Library, Tilburg, Mecanoo

CREATE AN APPEALING STAIR ENVIRONMENT

Increase stair use by locating a highly visible and appealing stair within the building's orientation areas and points of decision. Research indicates that stairs that are directly accessible and visible from the entrance, most-used corridors and atrium are more likely to be used for daily travel. Highly visible large or ornate stairs indicate that they are intended for use.


Harpa Concert Hall, Henning Larsen Architects

INCORPORATE INTERESTING VIEWS ALONG PATHS OF TRAVEL

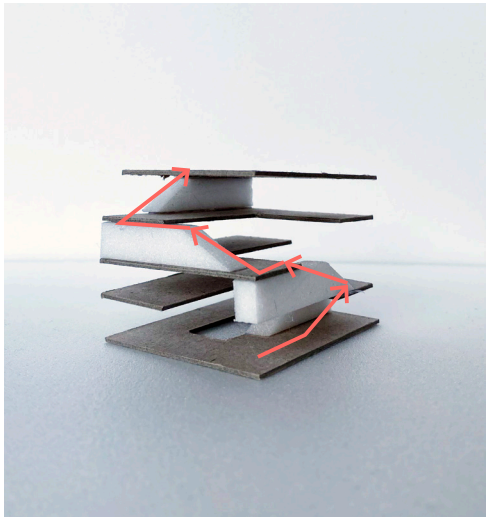
Integrate interesting views along trails in a building to increase the frequency and duration of walking. These views can include natural and designed landscapes, nearby architecture, natural light, interior views of people-oriented activities and visually appealing interior finishes.


ING Headquarters Cedar, HofmanDujardin

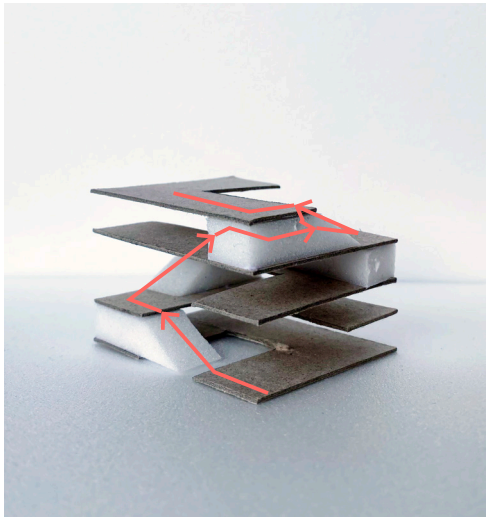
STRATEGICALLY LOCATION OF COMMONLY USED FUNCTIONS

Strategically place common building functions to encourage walking, standing and wheelchair use throughout the day. In public mixed-use buildings, place common functions in the lobby to promote walking to routine lunch and after-school activities.

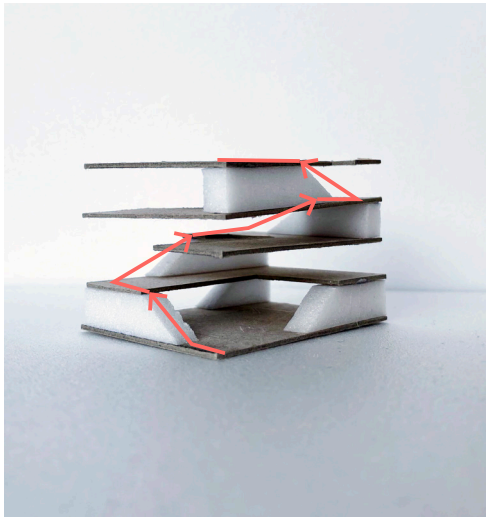
©Active Design Guidelines, 2010, City of New York



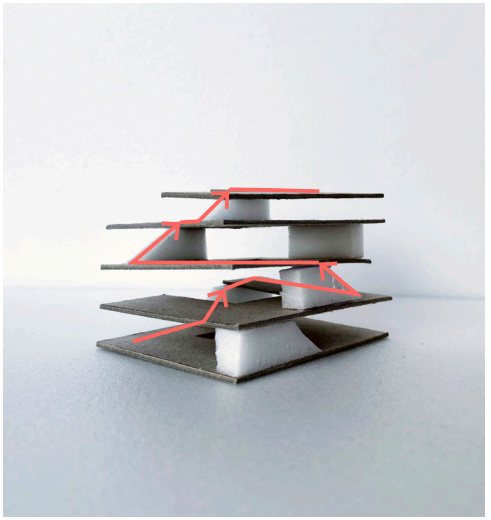
CENTRAL BEGINNING



CONTINUOUS SPIRAL



START AT THE END

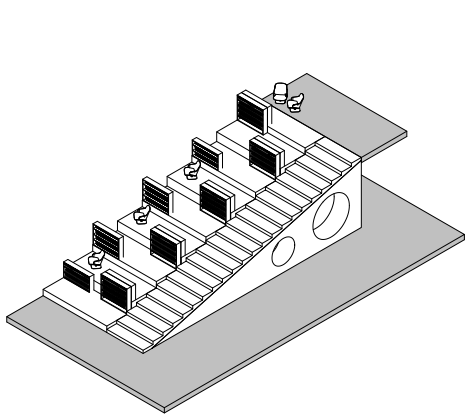


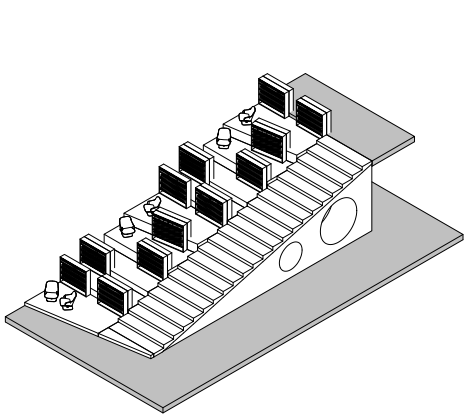
TWO SIDED STAIRS

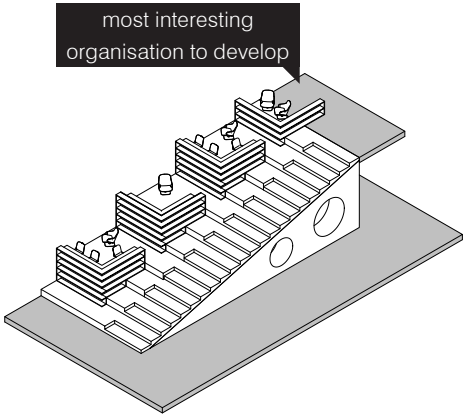
STAIR DEVELOPMENT

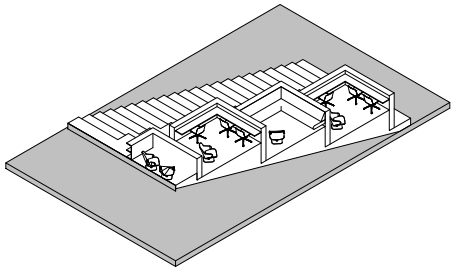
The continuous route upstairs, which runs as a red thread through the building, will serve not only for circulation but also as a library. To explore how the staircase can be multifunctional, several design options were created. The most important of these are visible here.

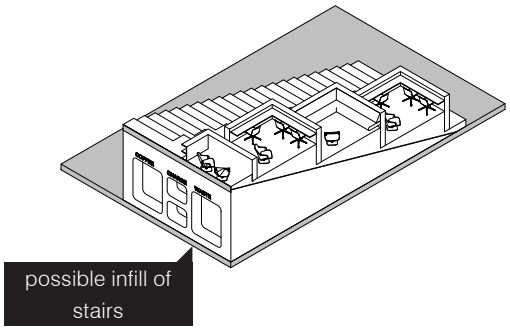
From the variants made, a mix of the different infills of the stairs was chosen. For instance, the stairs will serve as storage for books, but will also occasionally contain reading or study areas. In addition, underneath the stairs the base is drawn open in the building, but can be built closed in the future with different functions for surrounding activities underneath again.

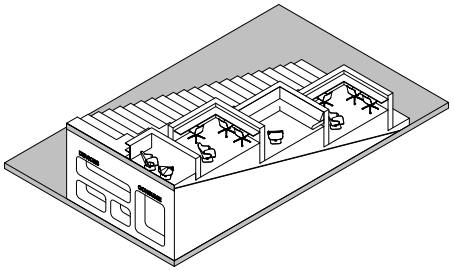




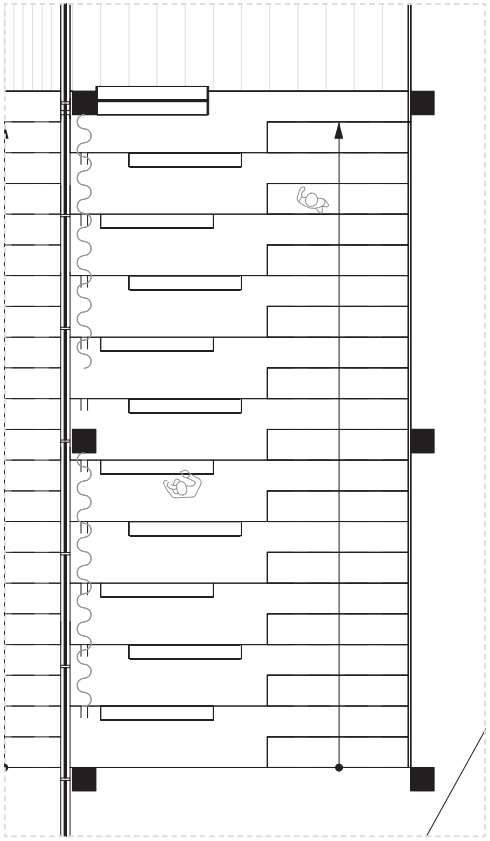




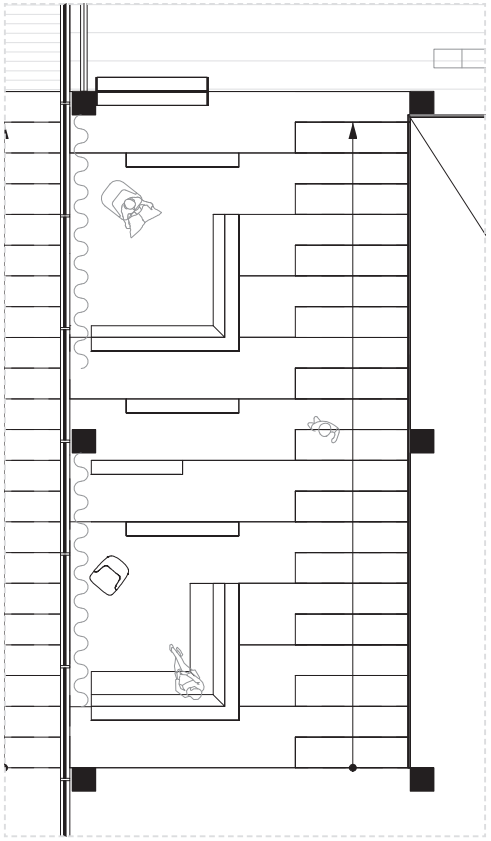




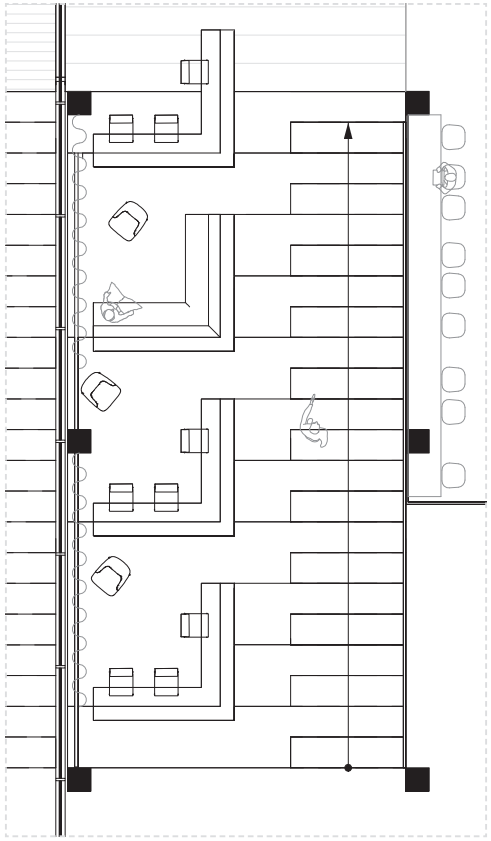
VARIATIONS OF STAIRS THROUGH BUILDING



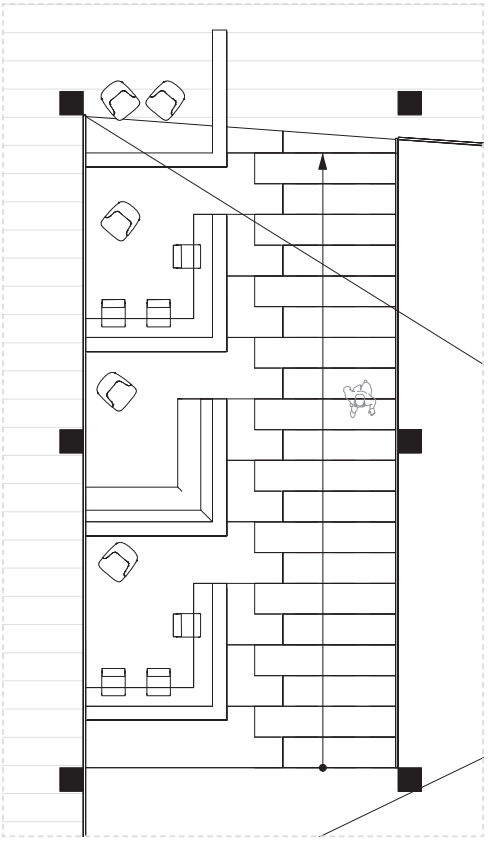
BOOK STORAGE



BOOKS AND LOUNGE



READ AND WORK



READ AND STUDY

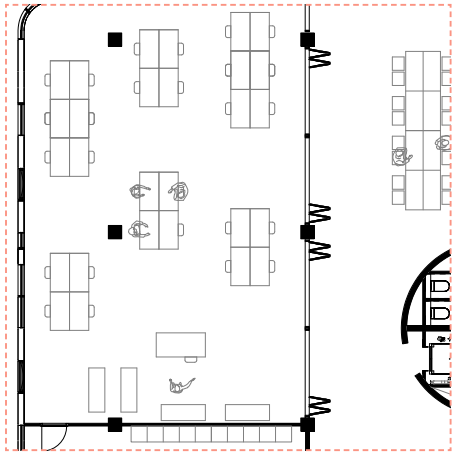
SPATIAL ELEMENTS

In addition to the adaptive use of the stairs, the interior spaces are also designed to be adaptable. Because of the column structure, different configurations of spaces are possible within the 7.2-metre grid.

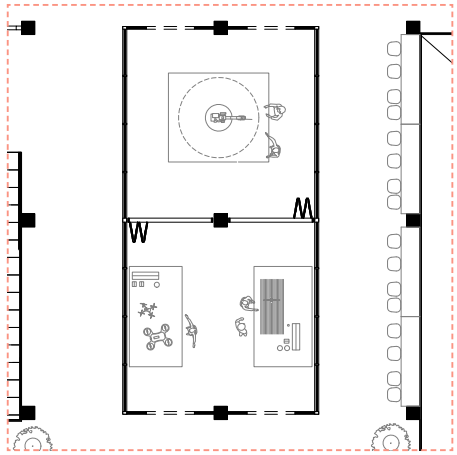
A room can be defined by walls, or can be divided up using modules or movable elements. This gives floors a different atmosphere and appearance. The lightweight partition walls will be built fully demountable so they can be moved easily in the future.

The six options on the right show the flexibility of the building's layout, allowing future adaptations to users' needs.

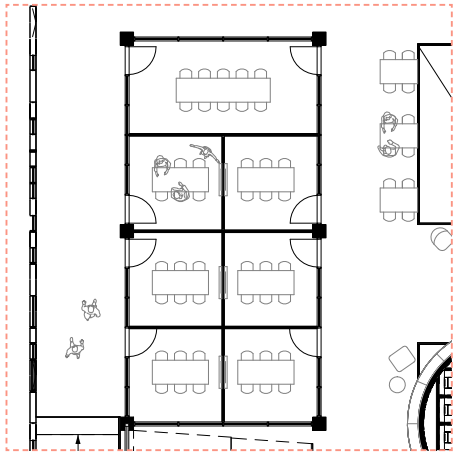
WALL BASED



Facade oriented

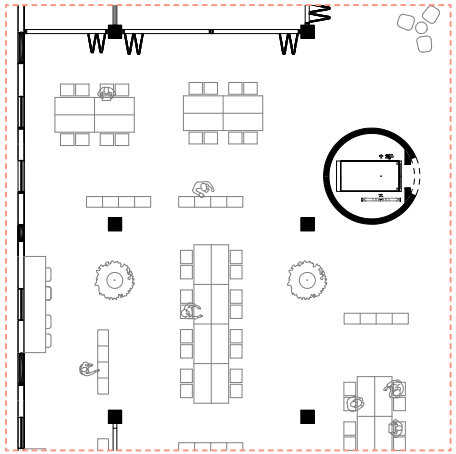


Centred

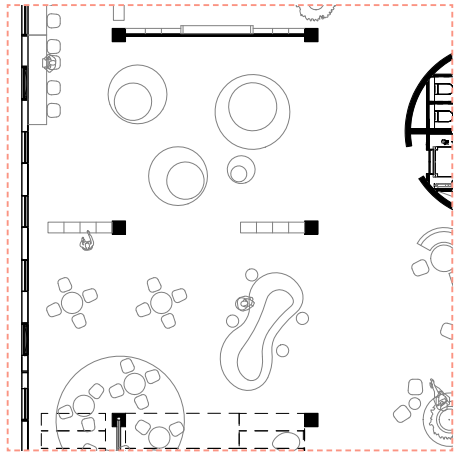


Within structure

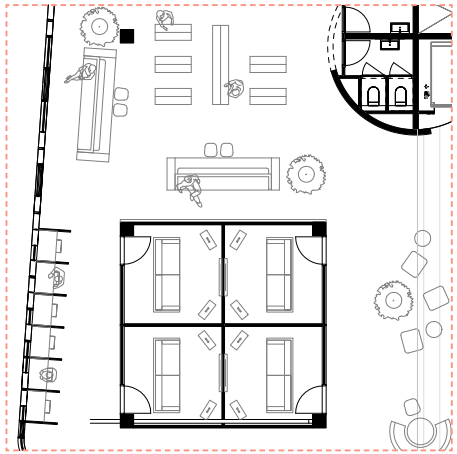
OPEN INFILL



Wall elements



Different modules



Small box

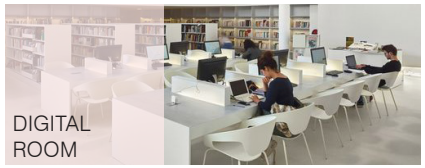
INTELLECTUAL

Operate

Debate

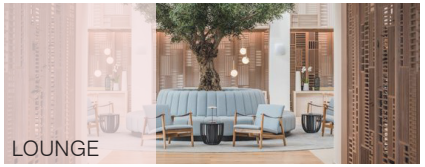
Focus

Study

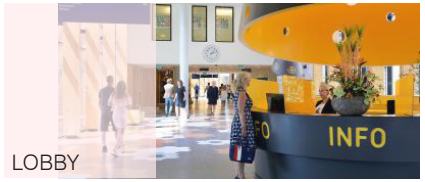


SOCIAL

Recreate



Arrive

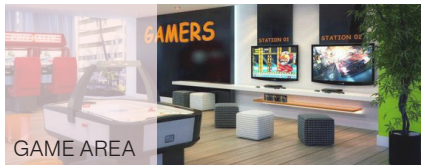


Consume

CREATIVE

Present

Learn



Create

The different activities and spaces in the building will each have their own expression. First, there will be a clear separation between the library route and the rest of the building. This will be done by executing the library route in wood and giving the rest of the floors a light linoleum finish.

In addition, to make it easy and convenient for users, each activity will have its own colour. In this, the furniture will be coloured and for closed rooms, the floor and walls as well. This colour will help with visibility, recognition and recall of an activity.

07

Impression of main entrance at north side of MediaHeim

DESIGN

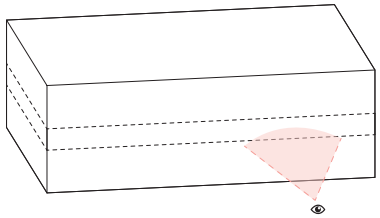
FINAL DESIGN

The knowledge and design ideas gained during the pre-and post-P2 research by design process have been incorporated into a final design. Central to this are the relationship of the building to its surroundings and the organisation of functions in the building. The additional situation and programme analyses led to a better-defined programme distribution in the building.

The studies on material, structure and façade revealed various possibilities. All possibilities were weighed and tested before design, leading to an integrated whole.

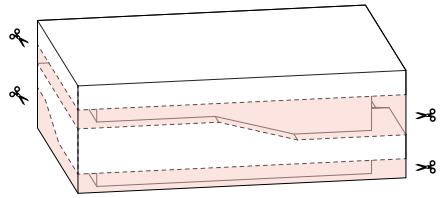
The final design contains all drawings of the building with occasional descriptive diagrams. The design is worked out in detail and, in the end, also validated against the predetermined CO2 ambition.

FORM DEVELOPMENT



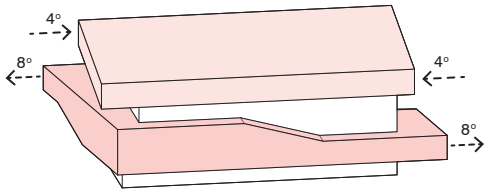
BASIC VOLUME

The base volume is the envelope at the chosen location. Here, a defined zone should be transparent to connect with people on the platform across the building. The bottom of this zone aligns with the plinth of the station, and the top of the zone with the bottom of the station roof.



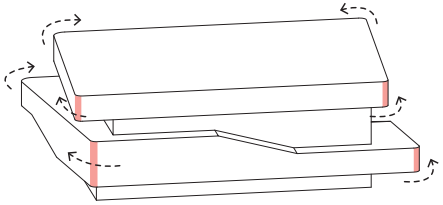
SPLIT BY LIBRARY ROUTING

The library route was then cut out of the volume and pushed inwards. This creates a canopy over the library route making it more visible. The library route will give a fully transparent appearance to attract even more audience.



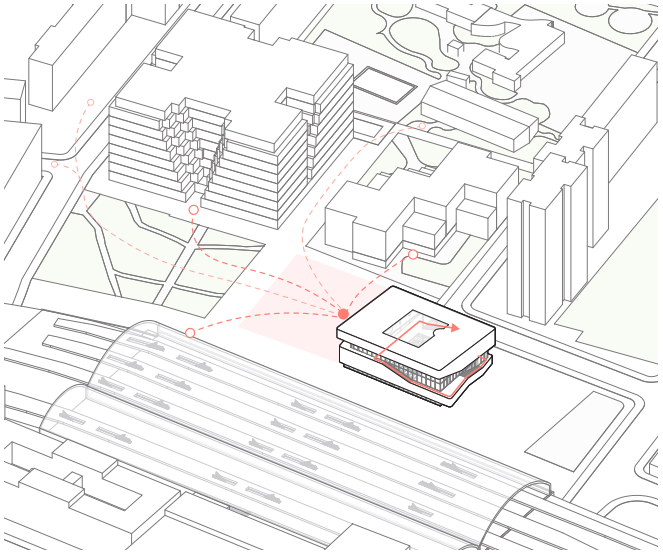
ROTATION TO OTHER BUILDINGS

The overhanging volumes are rotated relative to the base volume. The base volume runs parallel to the facade lines of the station, and the cantilevered volumes align with the northern buildings, which are rotated just 8 degrees. This preserves the lines of sight from the platform along the public building to the buildings behind it.



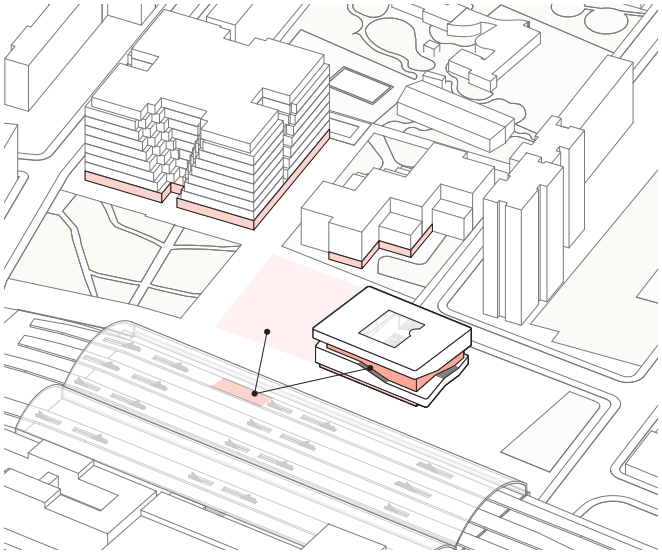
ROUNDING THE CORNERS

Finally, the corners of the cantilevered volumes are rounded to break the angular and rigid lines of the surrounding buildings. The rounded corners are also a link to the arches of the station roof, giving the building a softer look.



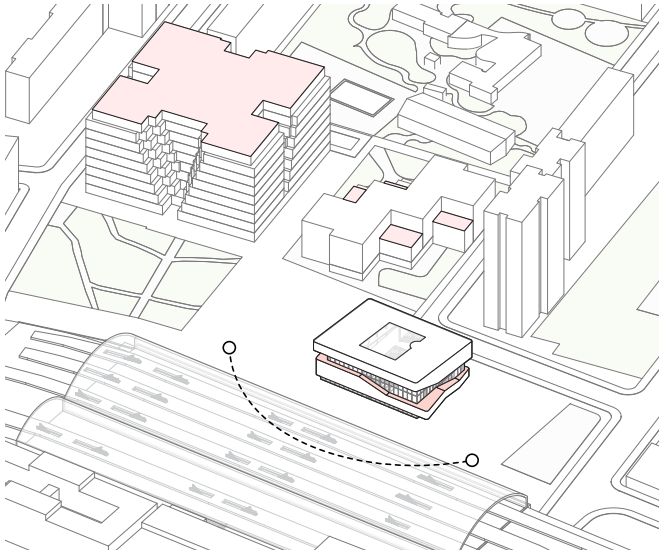
EXTENSION OF THE STREET

The square on the west side of the building will play an important role for visitors. Indeed, the square connects the western exit of the station, with the school, the office building and the media library. From this square, the building's circulation is immediately accessible. There is both an indoor and outdoor route that draws the public street up through the building



LIBRARY AS CONNECTING ELEMENT

To integrate the building well into its surroundings, like the office building and the school on the north side, the plinth will be made transparent. A transparent plinth has a public feel and encourages passers-by to enter. In addition, the transparency is continued along the routing upwards to further express the public character.



UTILISING OUTDOOR SPACES

In addition to the plaza on the ground floor, three rooftop terraces are also made accessible to the building. Like the office and school building, the media library will have a large green terrace on the third floor where users can relax in the evening sun after an intensive day of studying or attending workshops.

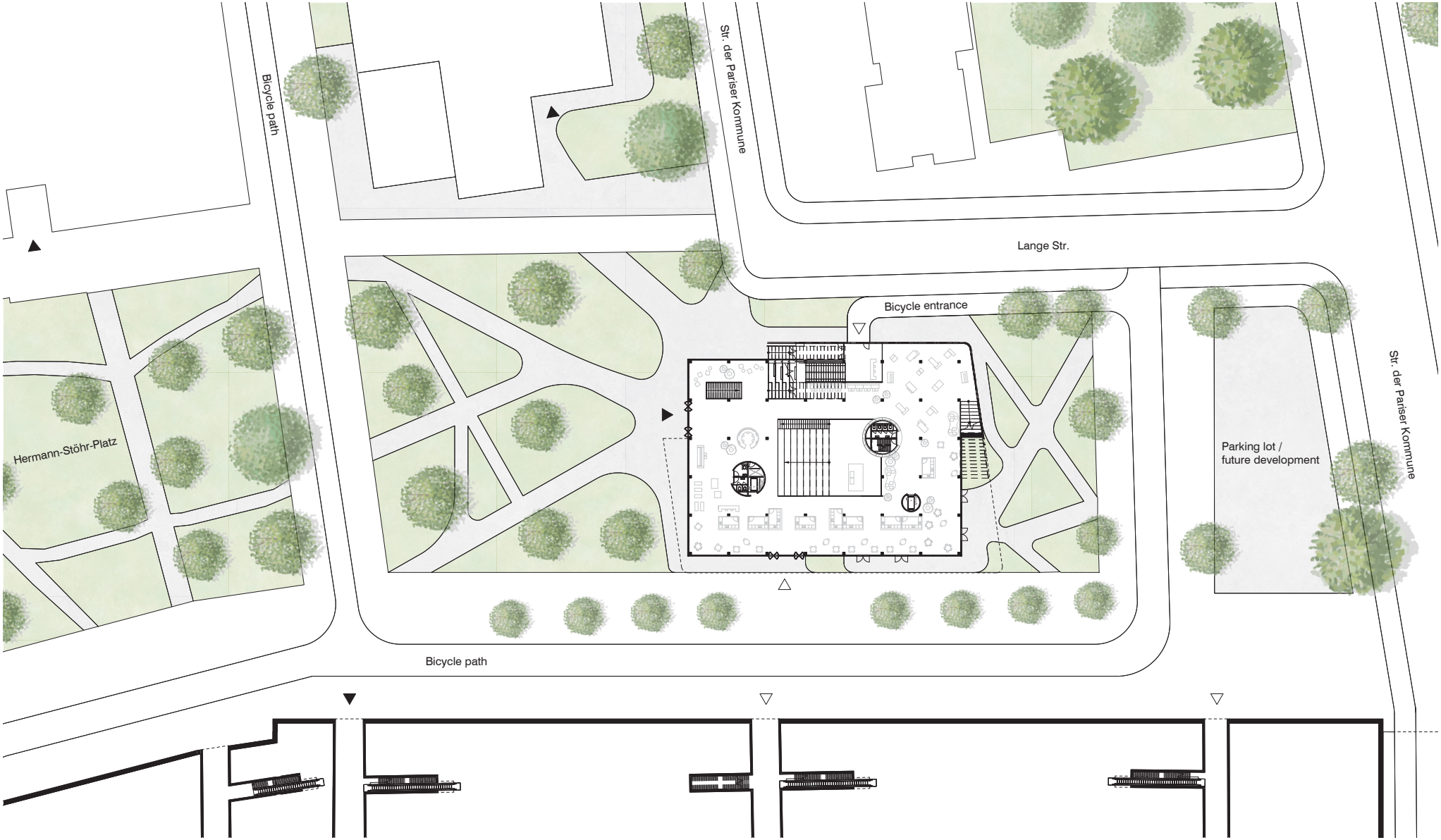
EXISTING SITE PLAN

Scale, 1:2000

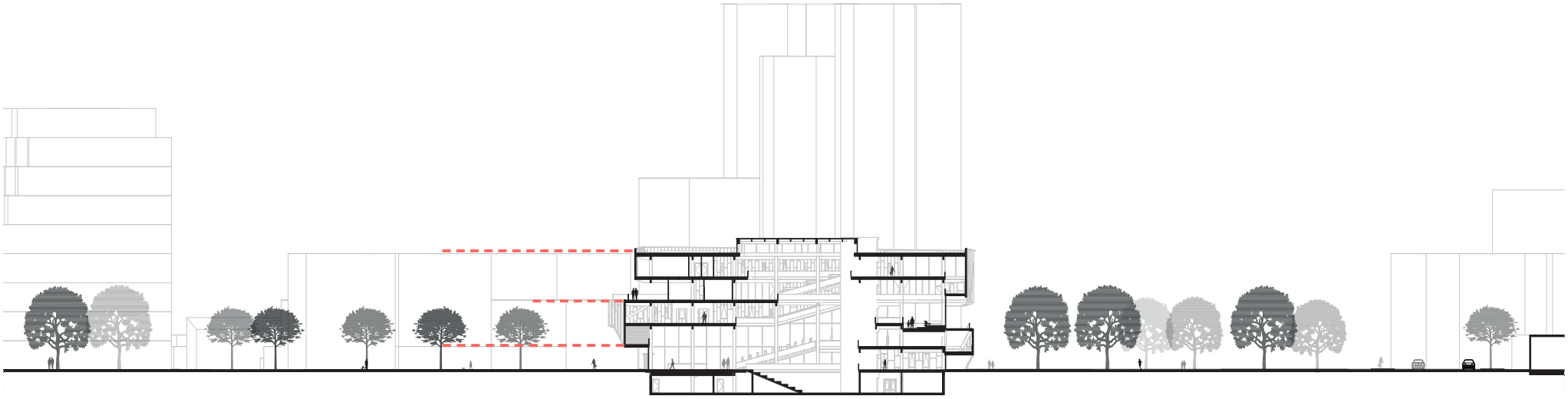
NEW SITE PLAN

Scale, 1:2000

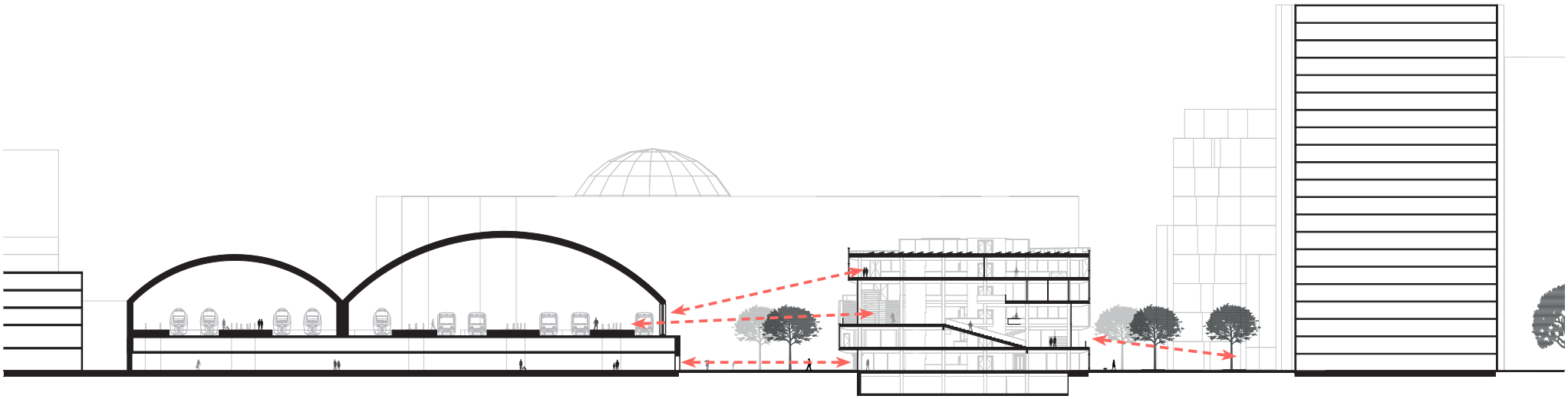
INTEGRATION OF GROUND FLOOR



Scale, 1:1000



Longitudinal section, scale 1:2000

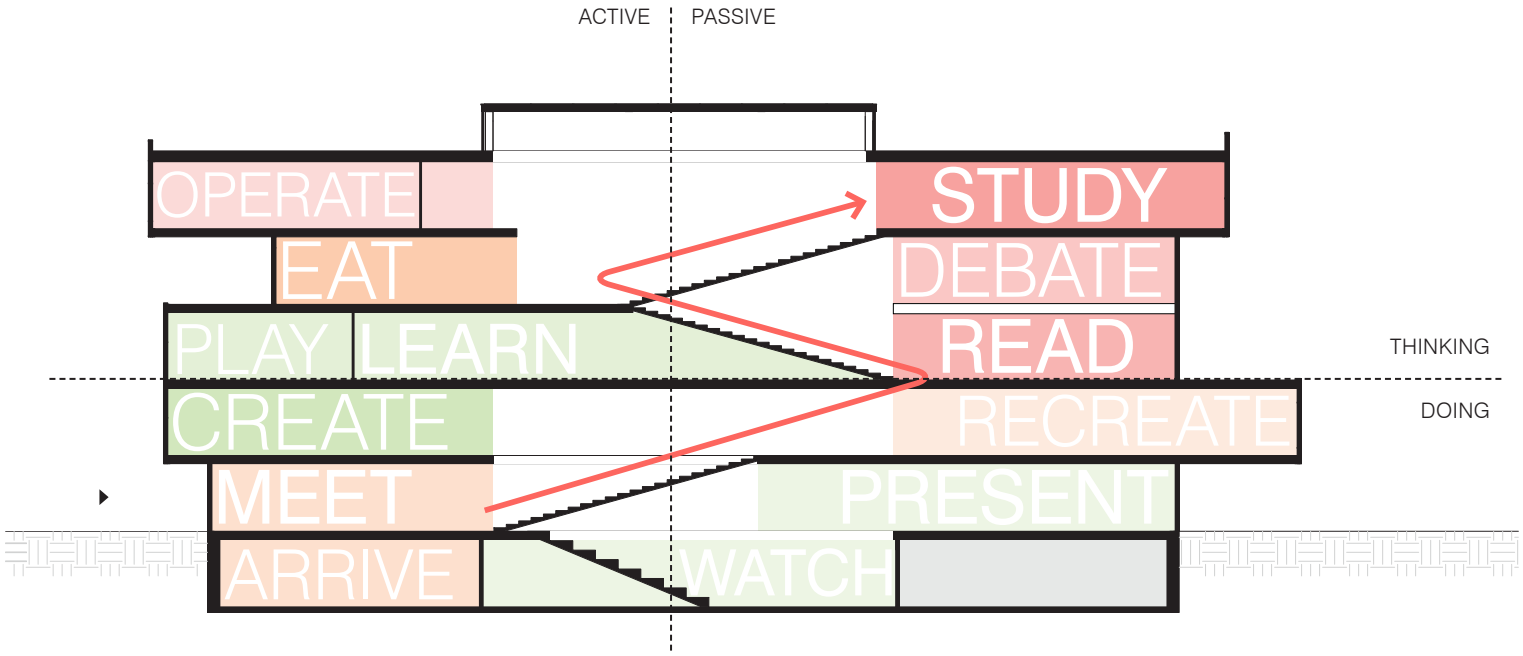


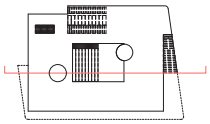
Cross section, Scale 1:2000

EXTERIOR IMPRESSION WEST SIDE

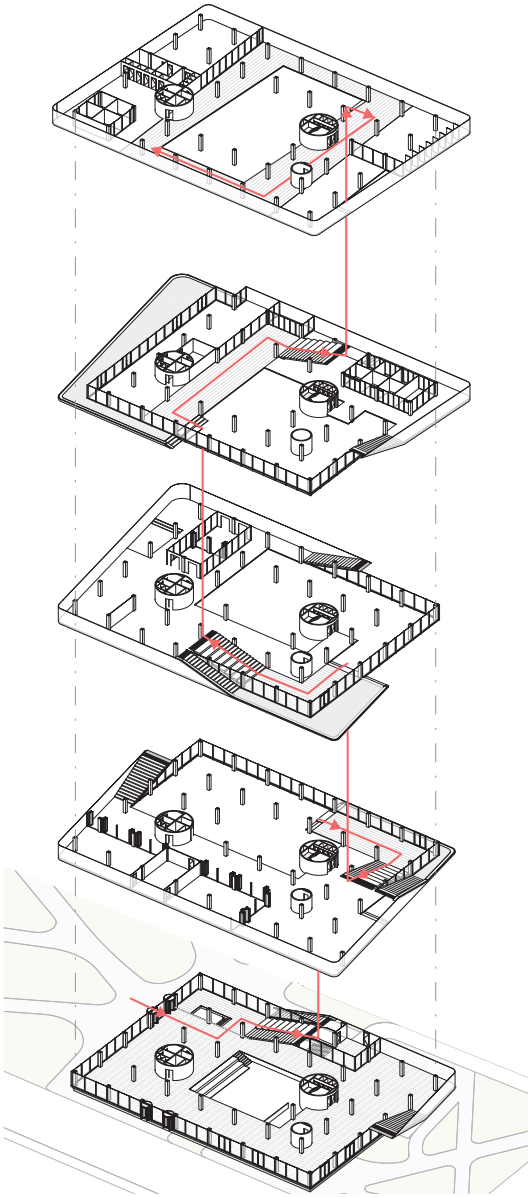
EXTERIOR IMPRESSION EAST SIDE

BUILDING CONCEPT

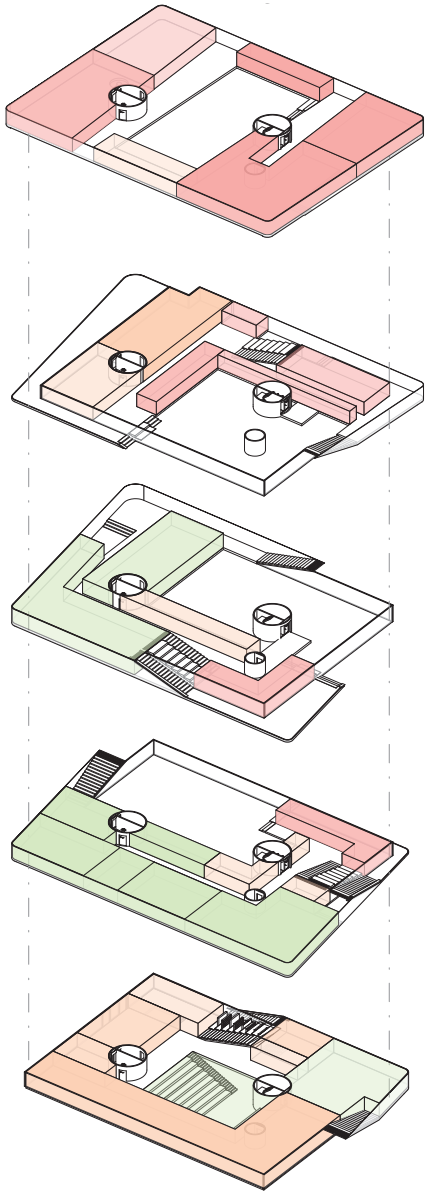




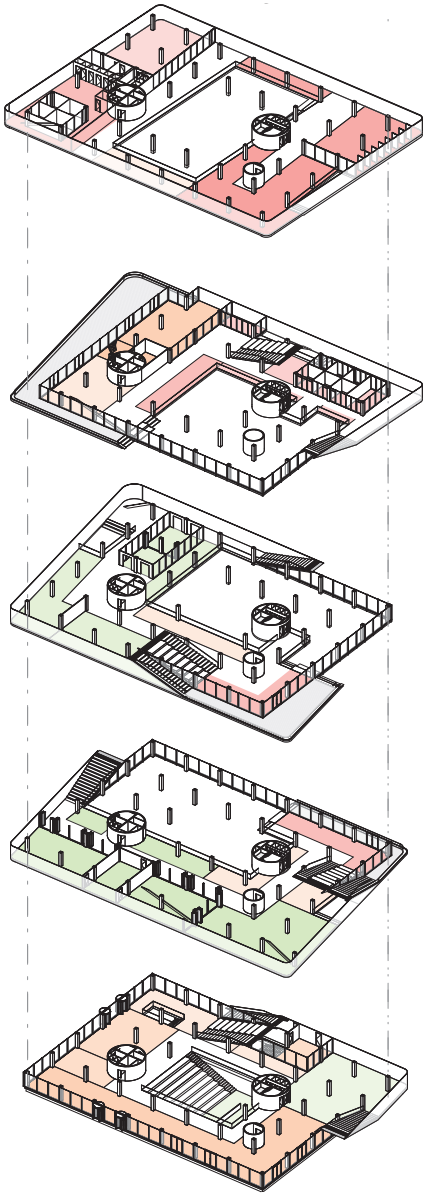
Scale, 1:400



Approach and interior routing

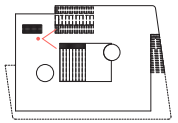


Programmatic placement

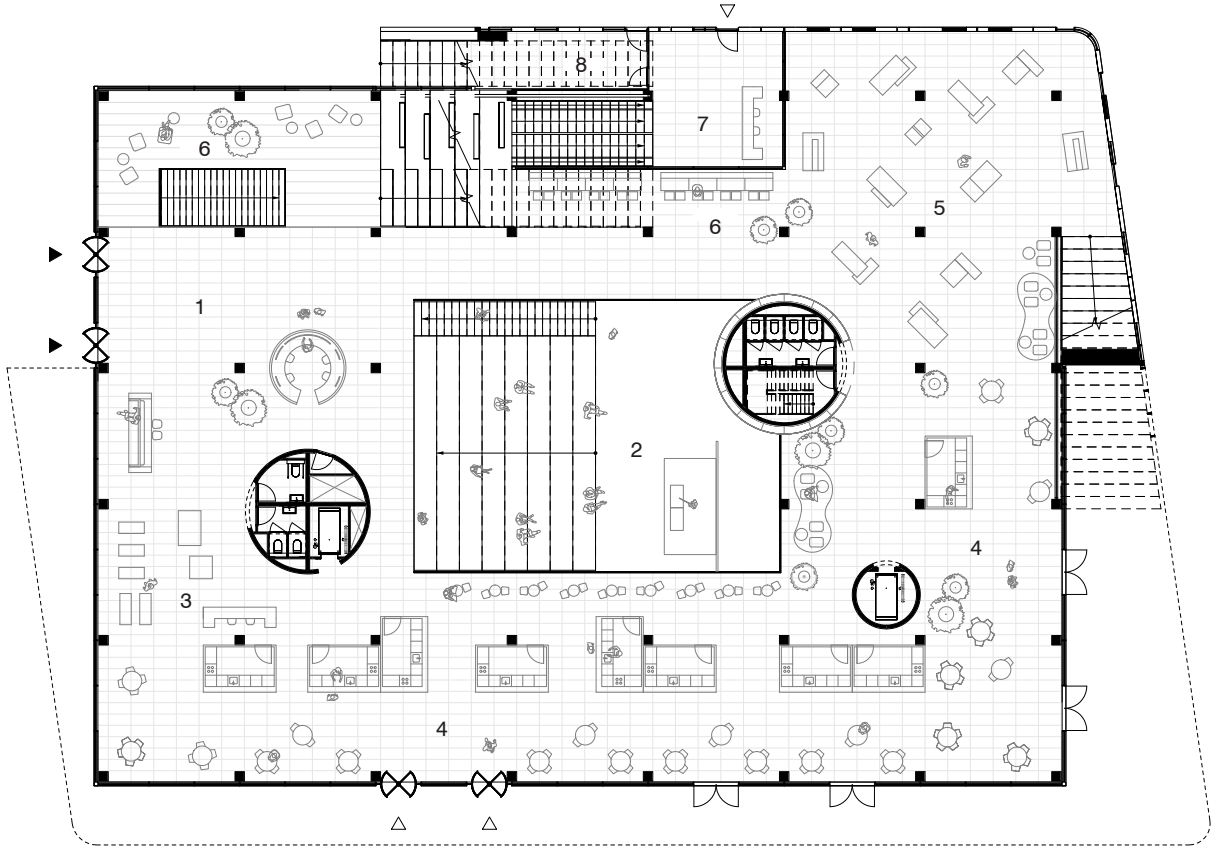


Spatial structure

GROUND FLOOR



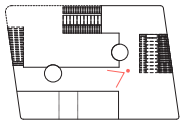
GROUND FLOOR



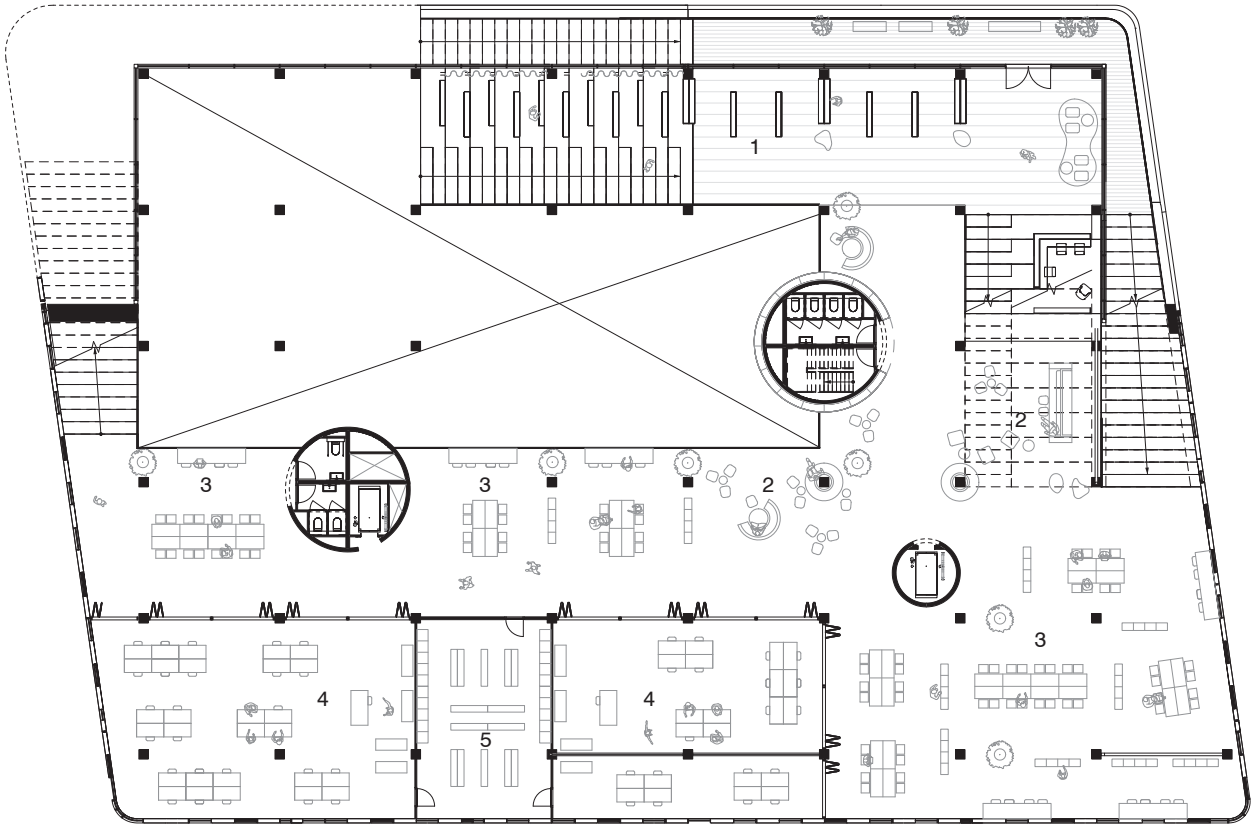
1. Entrance / Lobby
2. Auditorium
3. Media shop
4. Food-court
5. Exhibition
6. Lounge
7. Parking entrance
8. Storage

Scale, 1:400

FIRST FLOOR



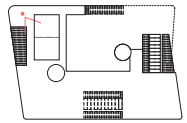
FIRST FLOOR



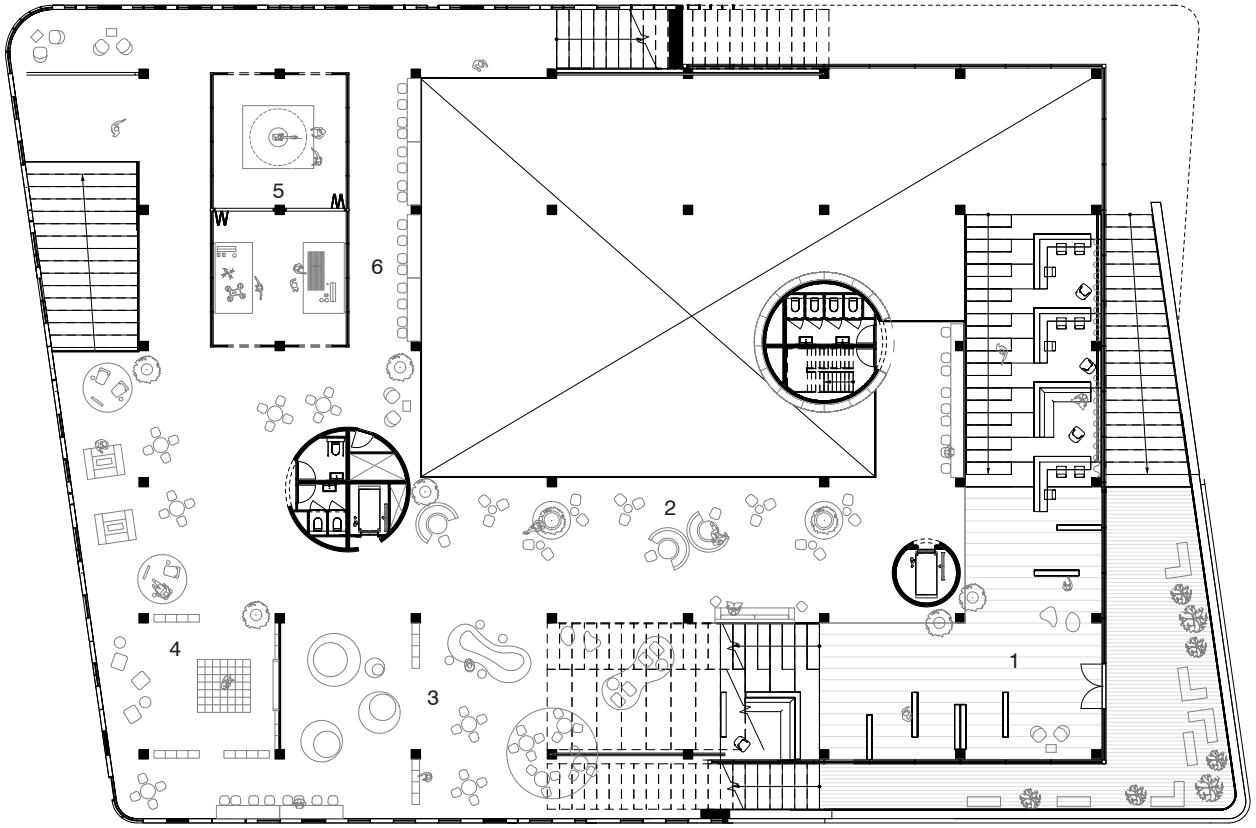
1. Library
2. Lounge
3. Open workshop
4. Workshop
5. Storage

Scale, 1:400

SECOND FLOOR



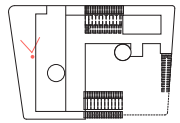
SECOND FLOOR



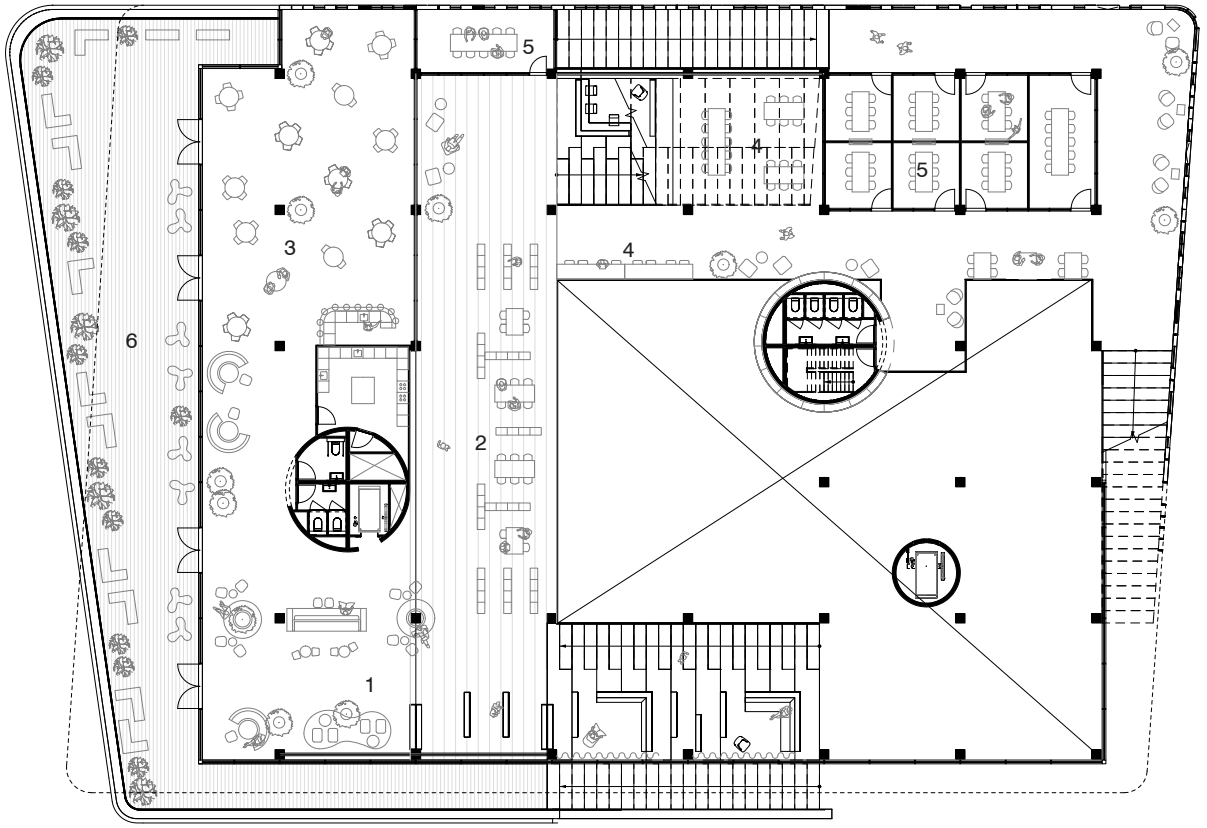
1. Library
2. Lounge
3. Kids area
4. Interactive play & learn
5. Laboratory
6. Workspaces

Scale, 1:400

THIRD FLOOR



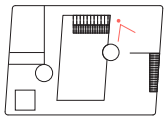
THIRD FLOOR



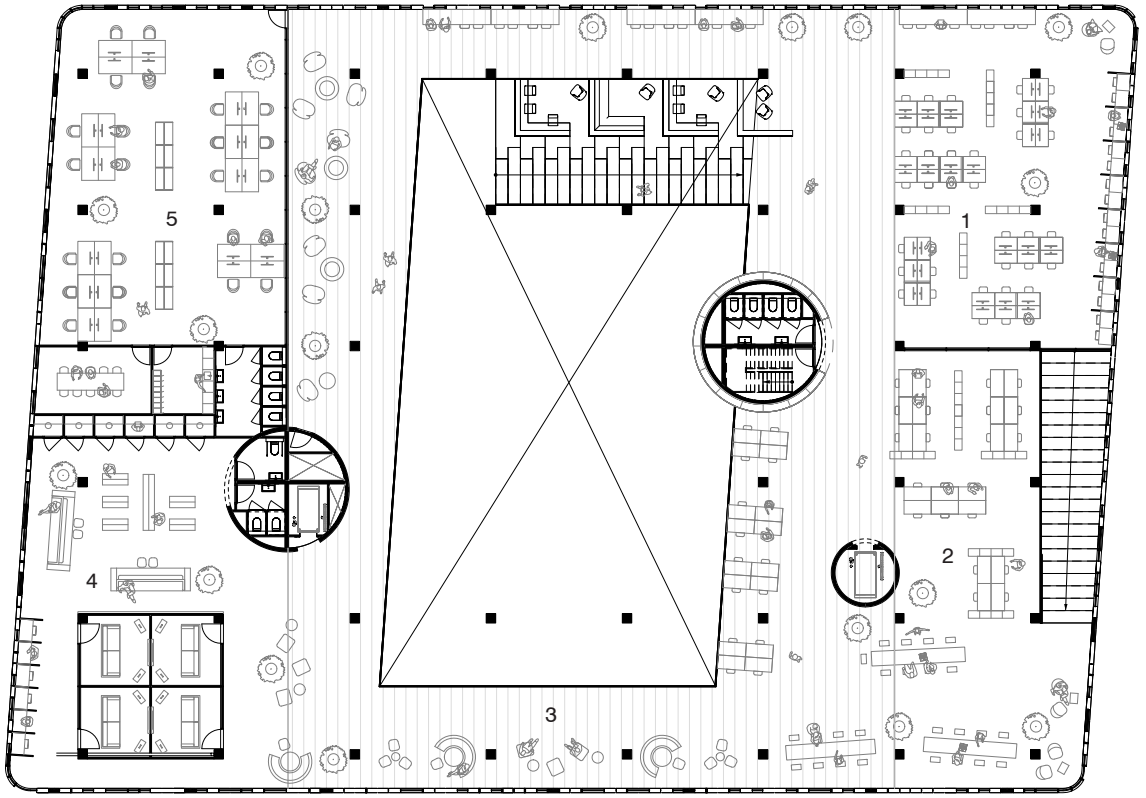
1. Lounge
2. Multimedia library
3. Café
4. Workspaces
5. Meeting rooms
6. Terrace

Scale, 1:400

FOURTH FLOOR



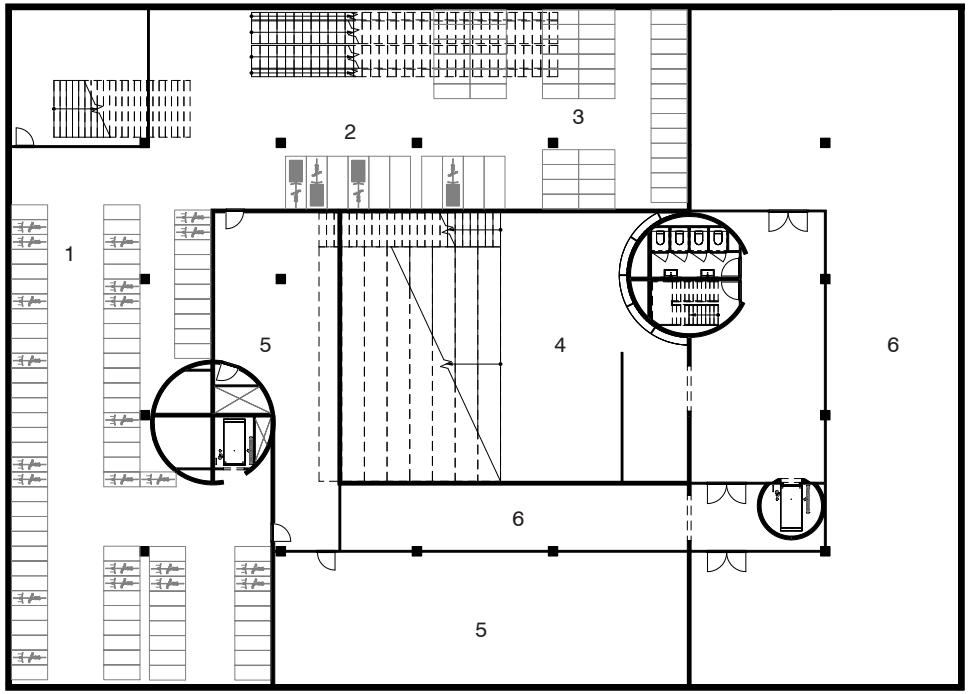
FOURTH FLOOR



1. Digital area with focus rooms
2. Work & Study area
3. Lounge
4. Audio area with listen rooms
5. Offices

Scale, 1:400

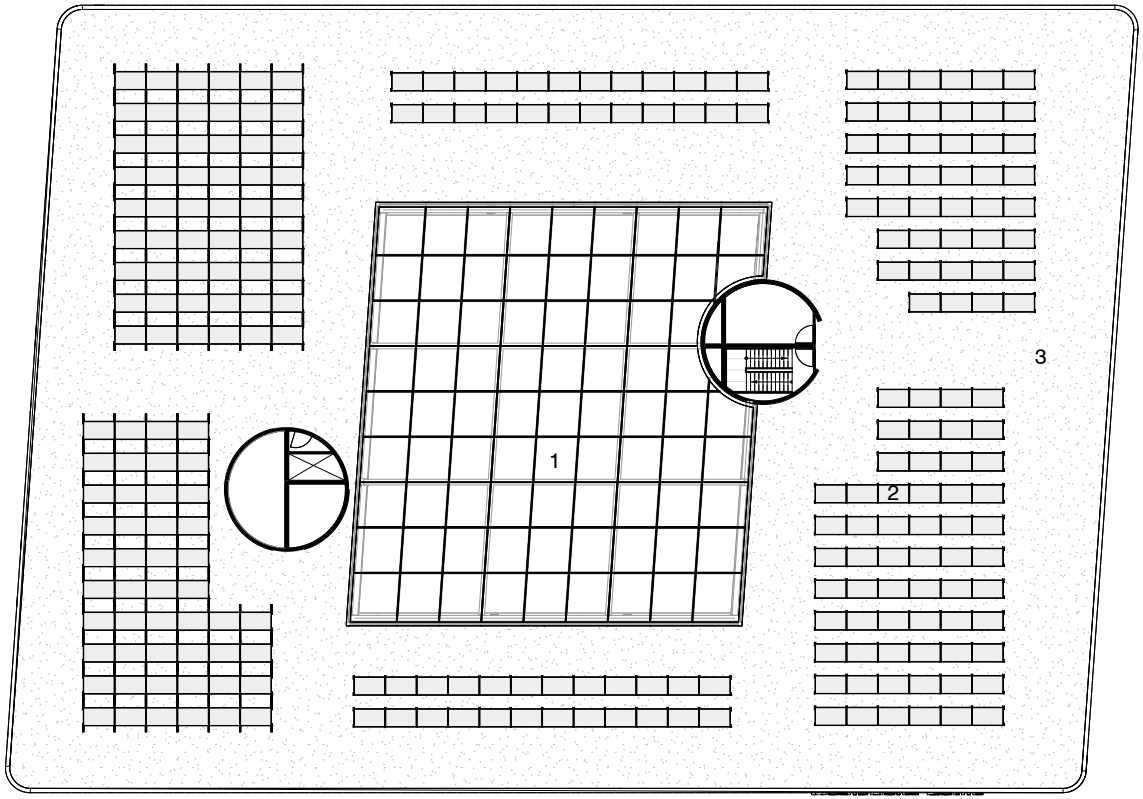
BASEMENT



1. Stacked bike parking
2. Cargo bike parking
3. E-step parking
4. Auditorium
5. Mechanical room
6. Storage

Scale, 1:400

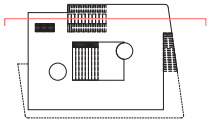
THIRD FLOOR

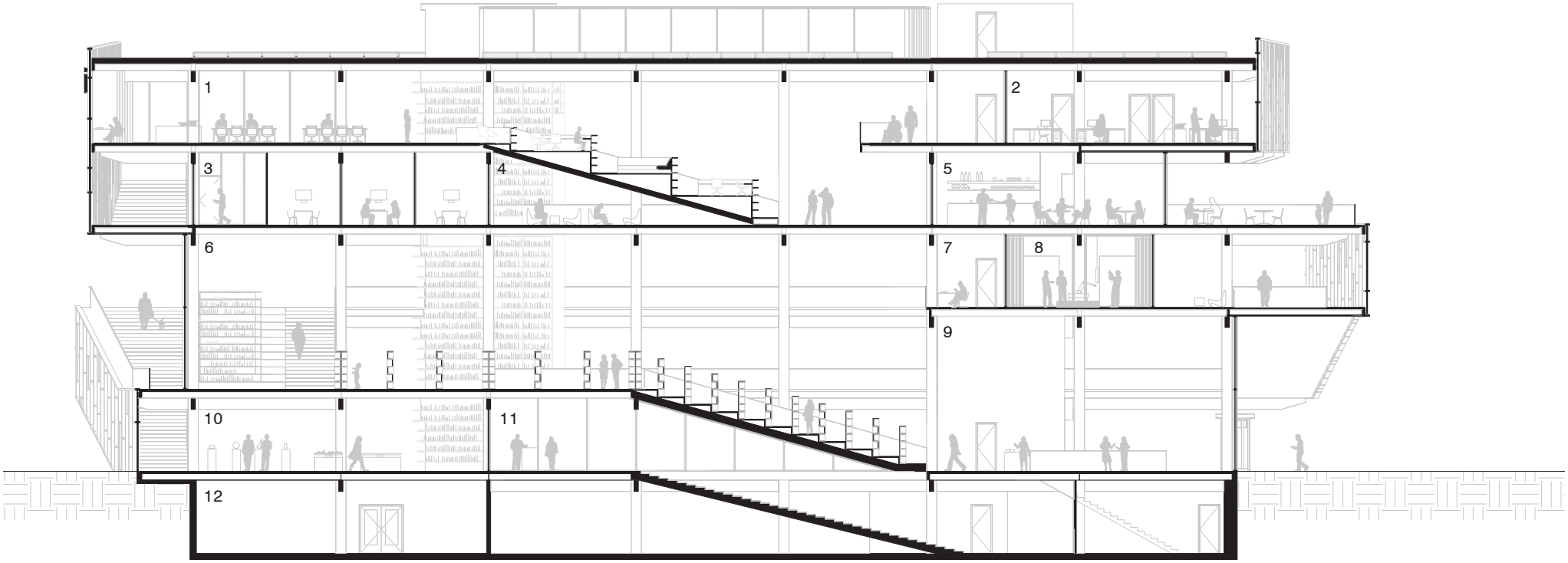


1. Atrium roof with translucent glass
2. Solar panels facing south-west
3. Green roof, collecting rainwater

Scale, 1:400

LONGITUDINAL SECTION

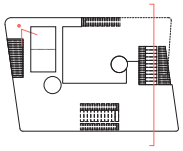




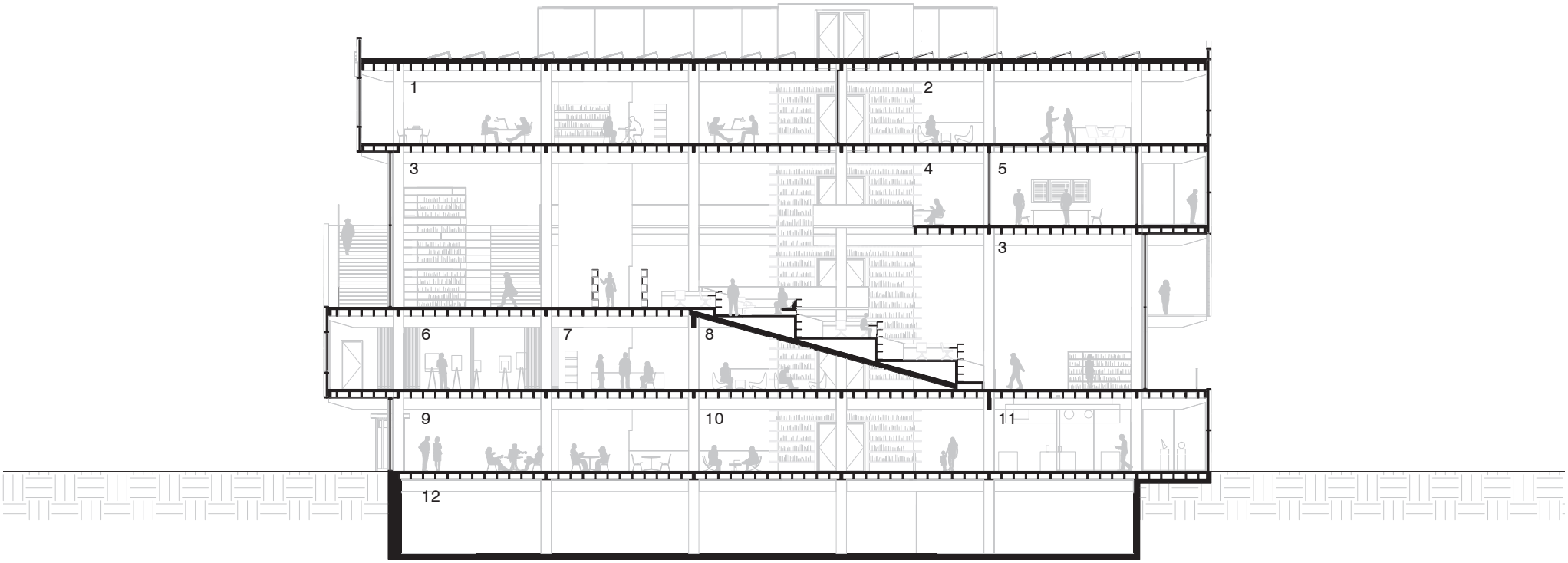
1. Digital area
2. Offices
3. Meeting rooms
4. Lounge
5. Café with terrace
6. Library
7. Workspaces
8. Laboratory
9. Entrance / Lobby
10. Exhibition
11. Bike parking
12. Storage

Scale, 1:200

5m



CROSS SECTION

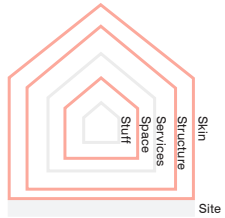


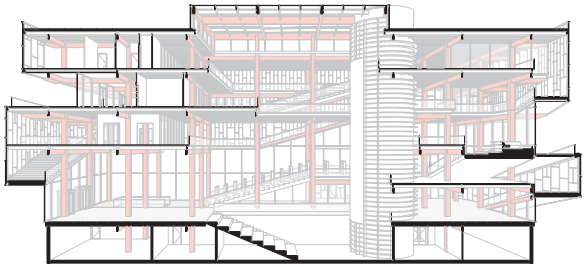
1. Study area
2. Digital area
3. Library
4. Workspace
5. Meeting room
6. Workshop
7. Open workshop
8. Lounge
9. Foodcourt
10. Lounge
11. Exhibition
12. Storage

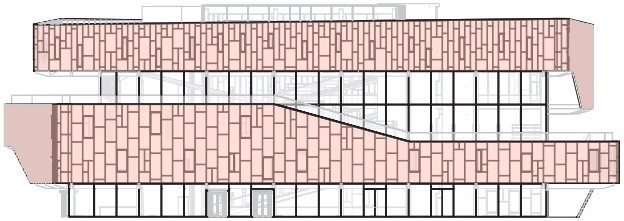
5m

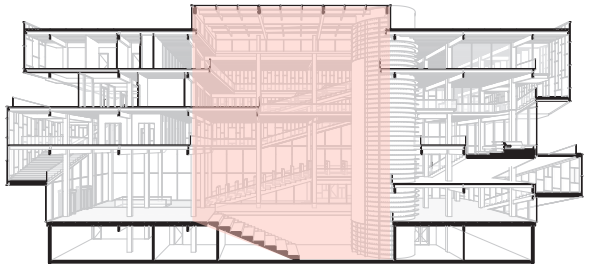
Scale, 1:200

MULTIPLICITY CONCEPT









STRUCTURE FOR...

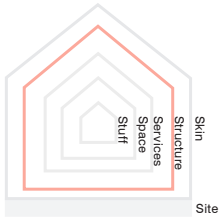
the framework of the building
defining rooms and spaces
the flexibility of rooms and divisions
absorption of carbon

SKIN ACTS AS...

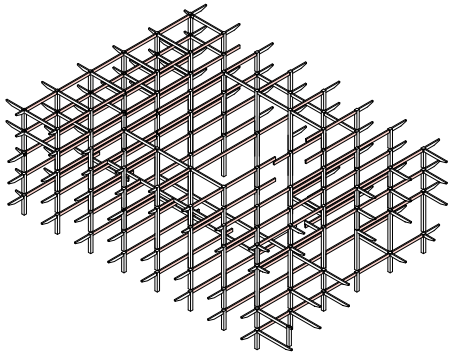
separation between inside and outside
relation with surrounding buildings
communication of the buildings' function
supply of natural ventilation and daylight

ATRIUM PROVIDES...

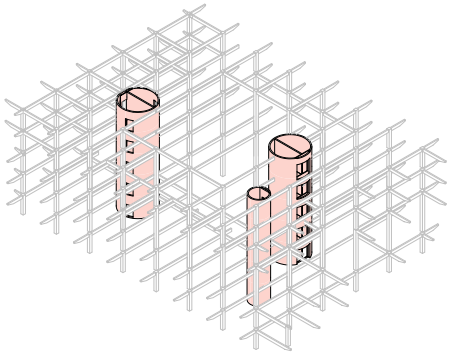
a positive effect on the users' comfort perception
sightlines and interaction between floors
daylighting for centrally located functions
night ventilation through the building



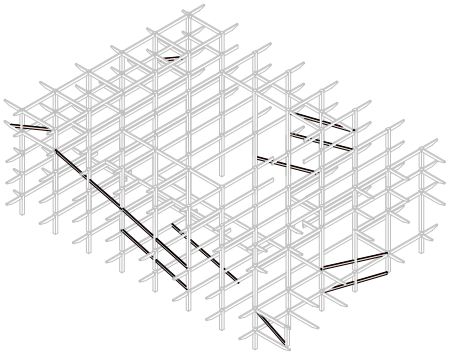
STRUCTURAL AND STABILITY PRINCIPLES



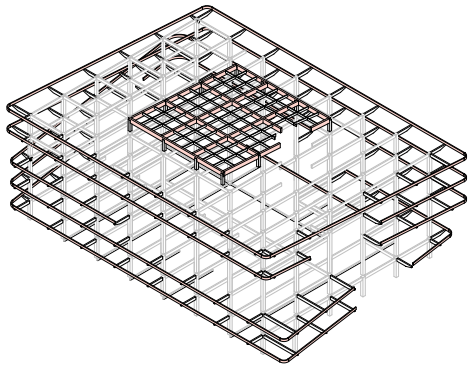
POST AND BEAMS



CORES

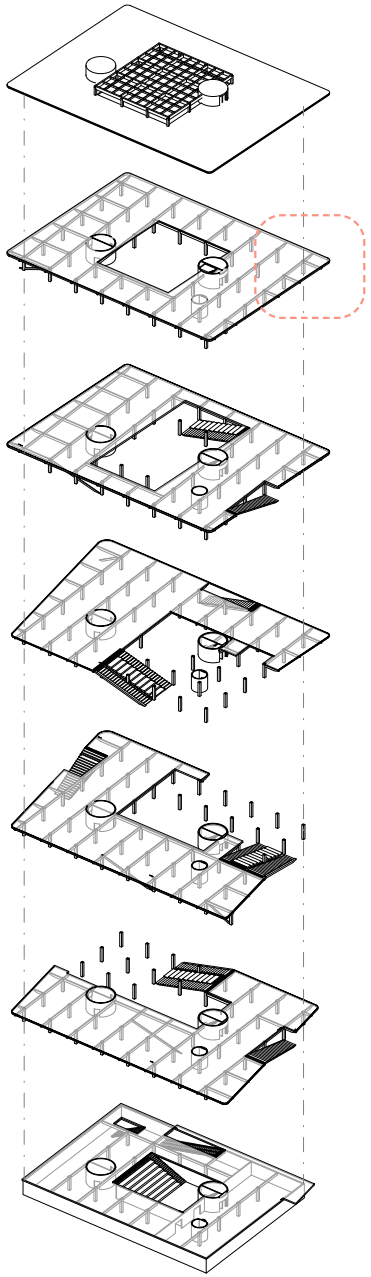


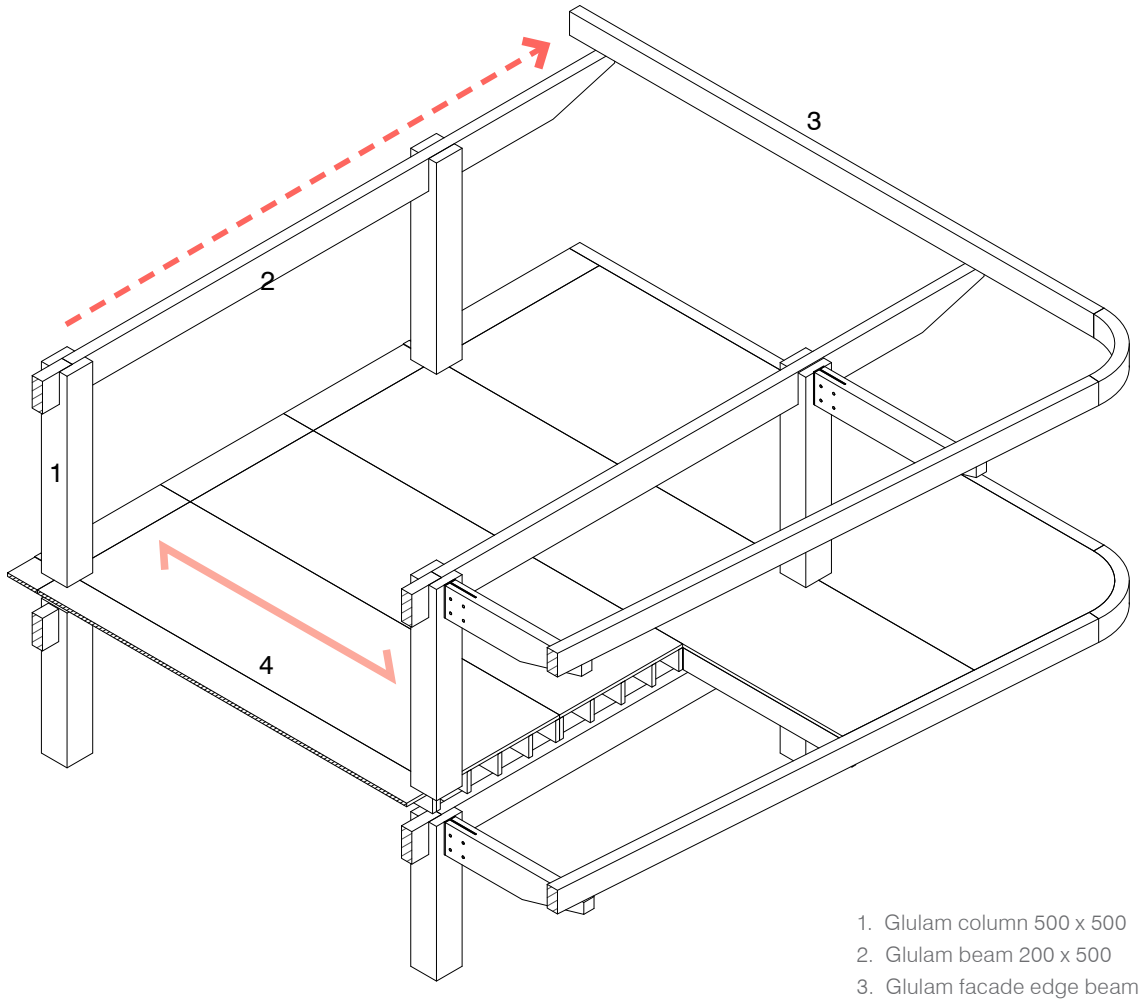
TRUSSES



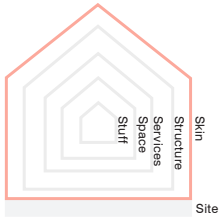
EXTRA CONSTRUCTION

STRUCTURAL EXPLOADED VIEW

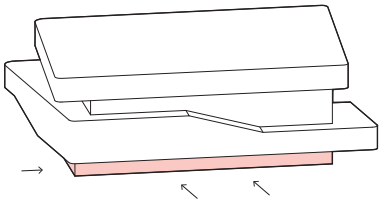




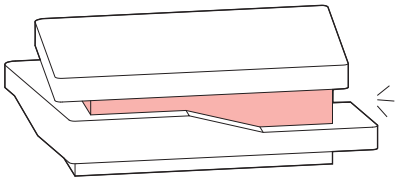
1. Glulam column 500 x 500
2. Glulam beam 200 x 500
3. Glulam facade edge beam 126 x 380
4. Kerto Ripa T system 7200 x 2400 x 380



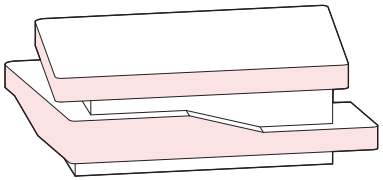
FACADE LANGUAGE



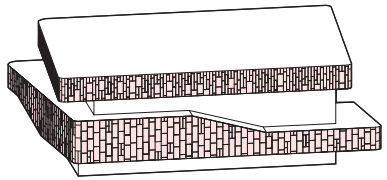
Transparent plinth



Library clearly visible from outside

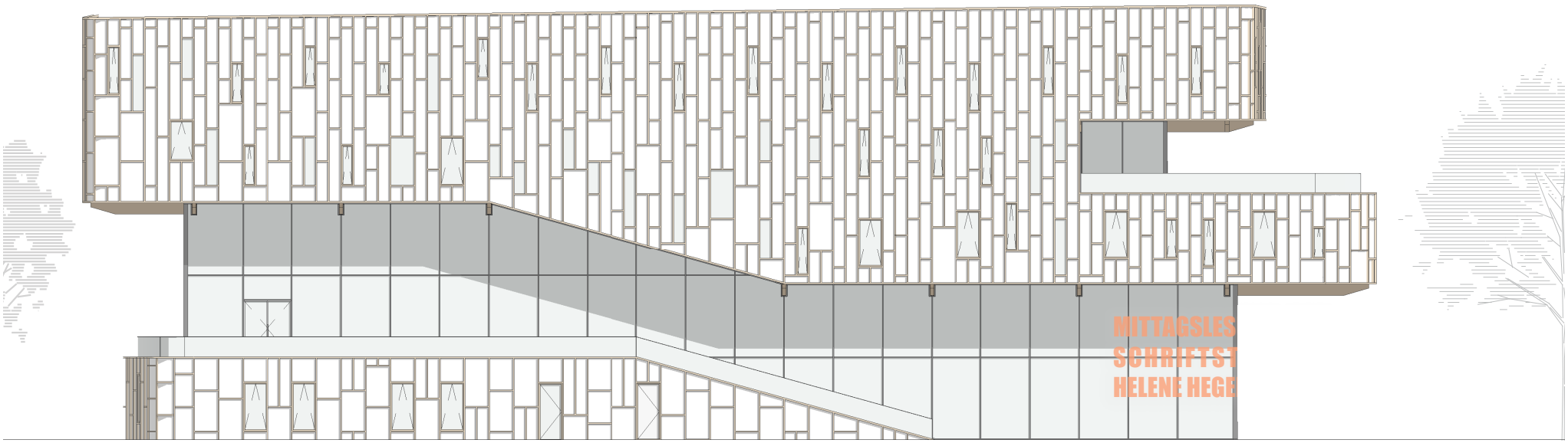


Other functions are semi-transparent



Facade pattern refers to bookcase

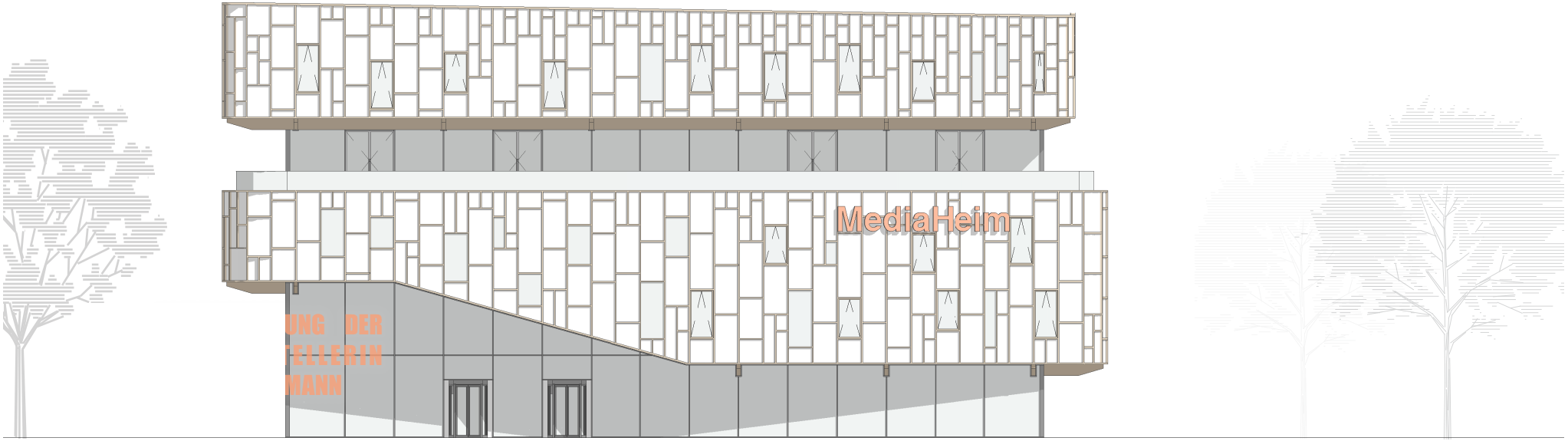
NORTH FACADE



Scale, 1:200

5m

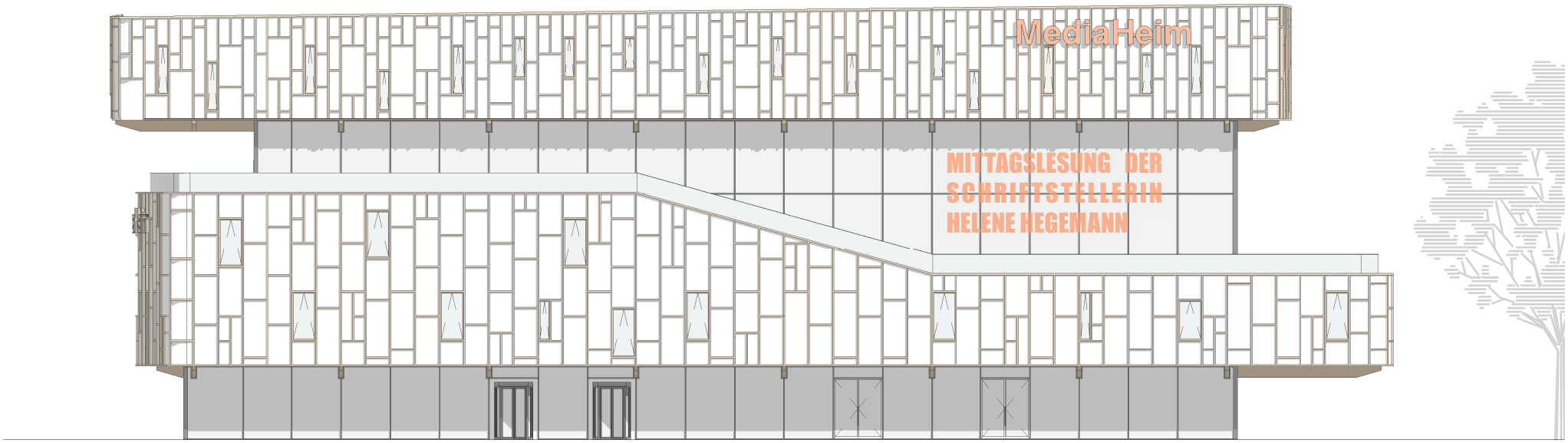
WEST FACADE



5m

Scale, 1:200

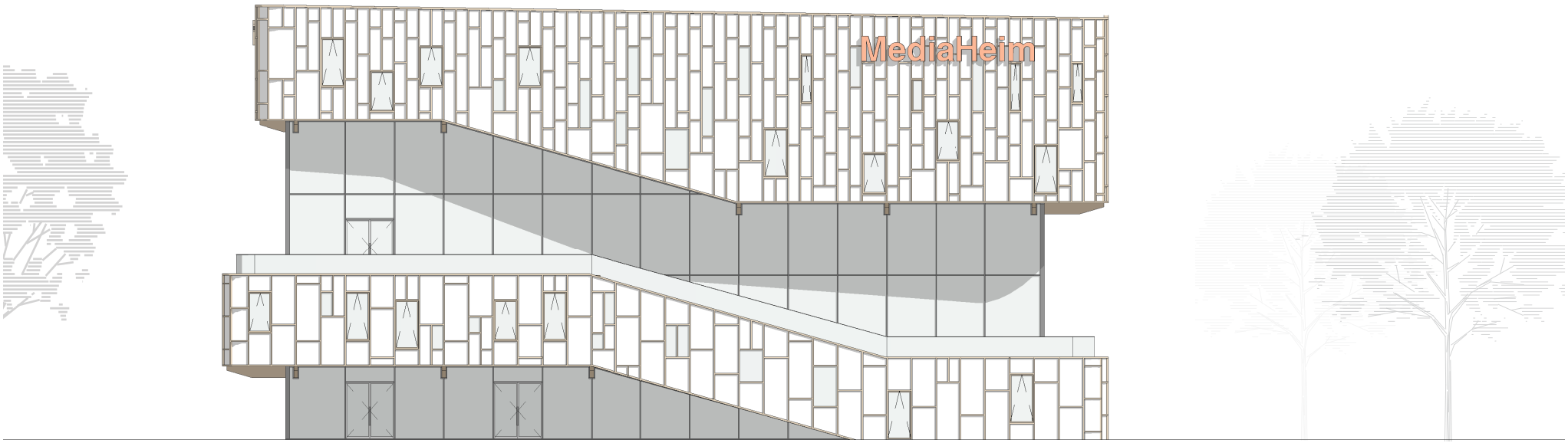
SOUTH FACADE



Scale, 1:200

5m

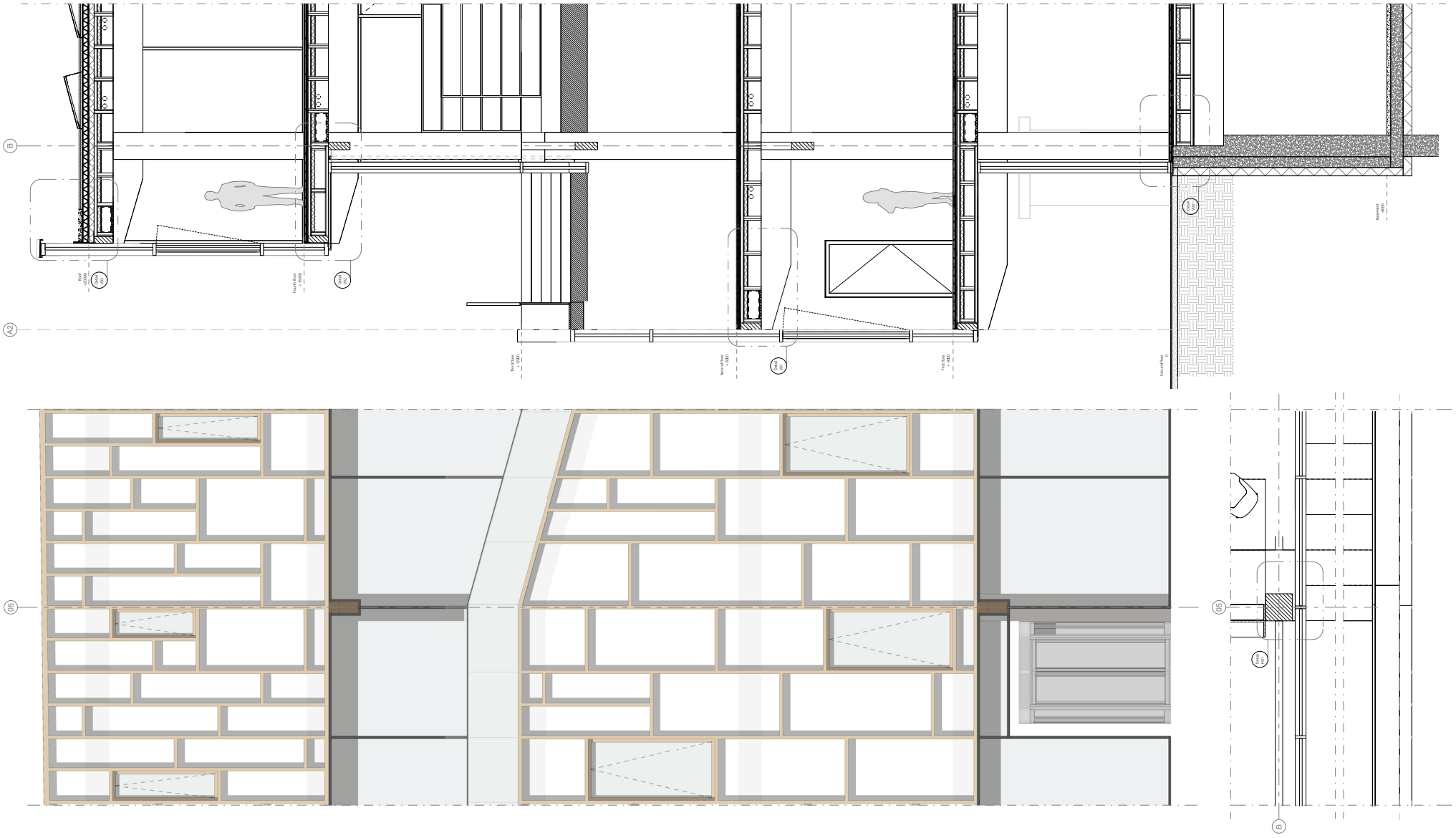
EAST FACADE



5m

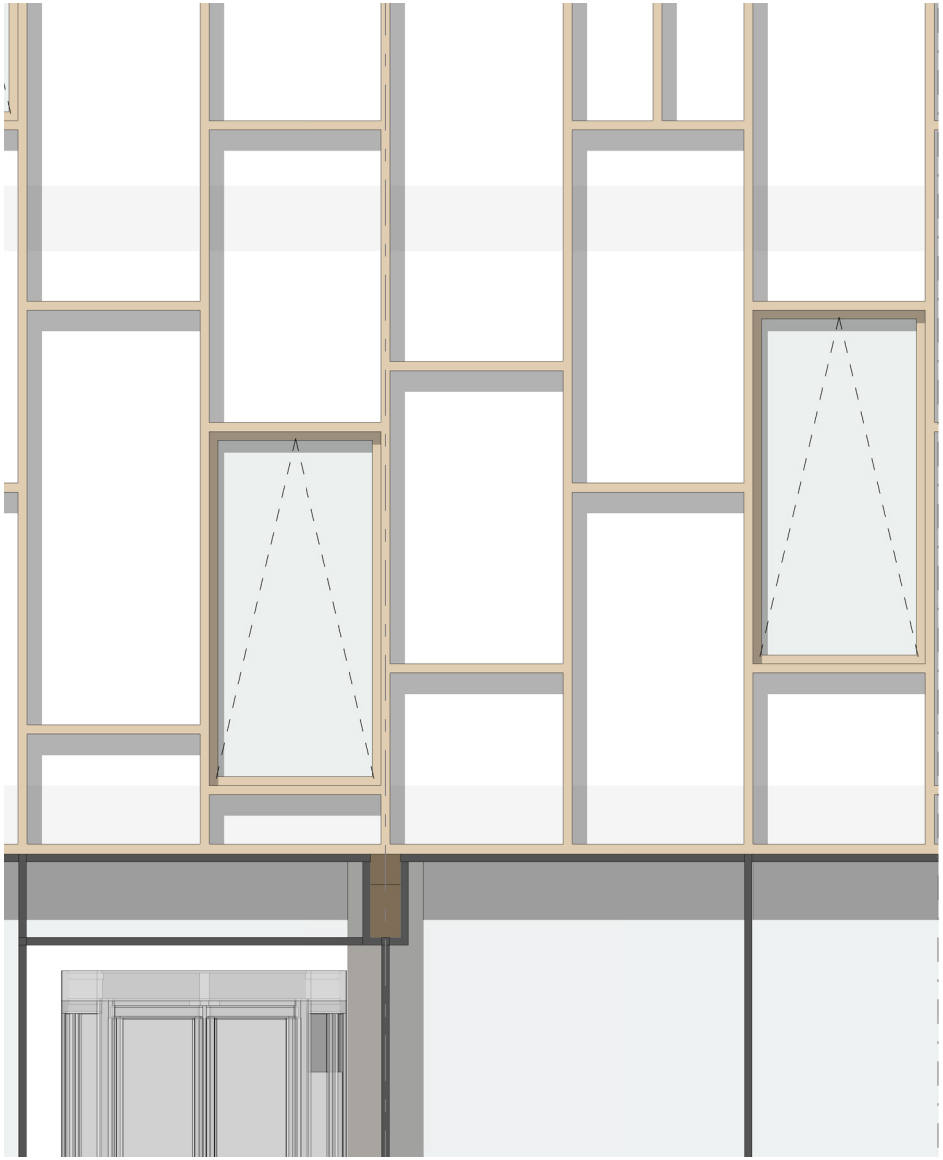
Scale, 1:200

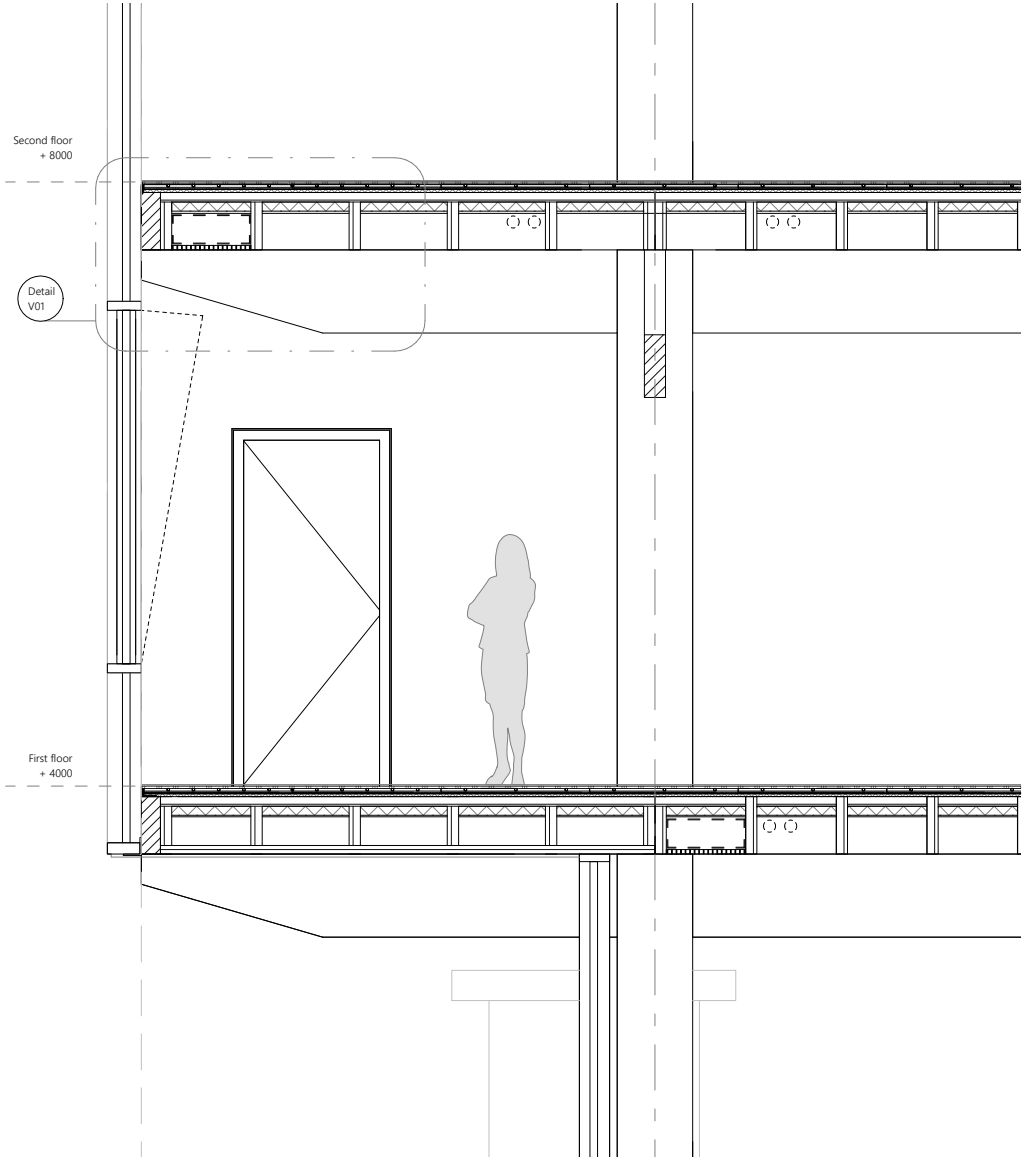
FACADE FRAGMENT



Scale, 1:20

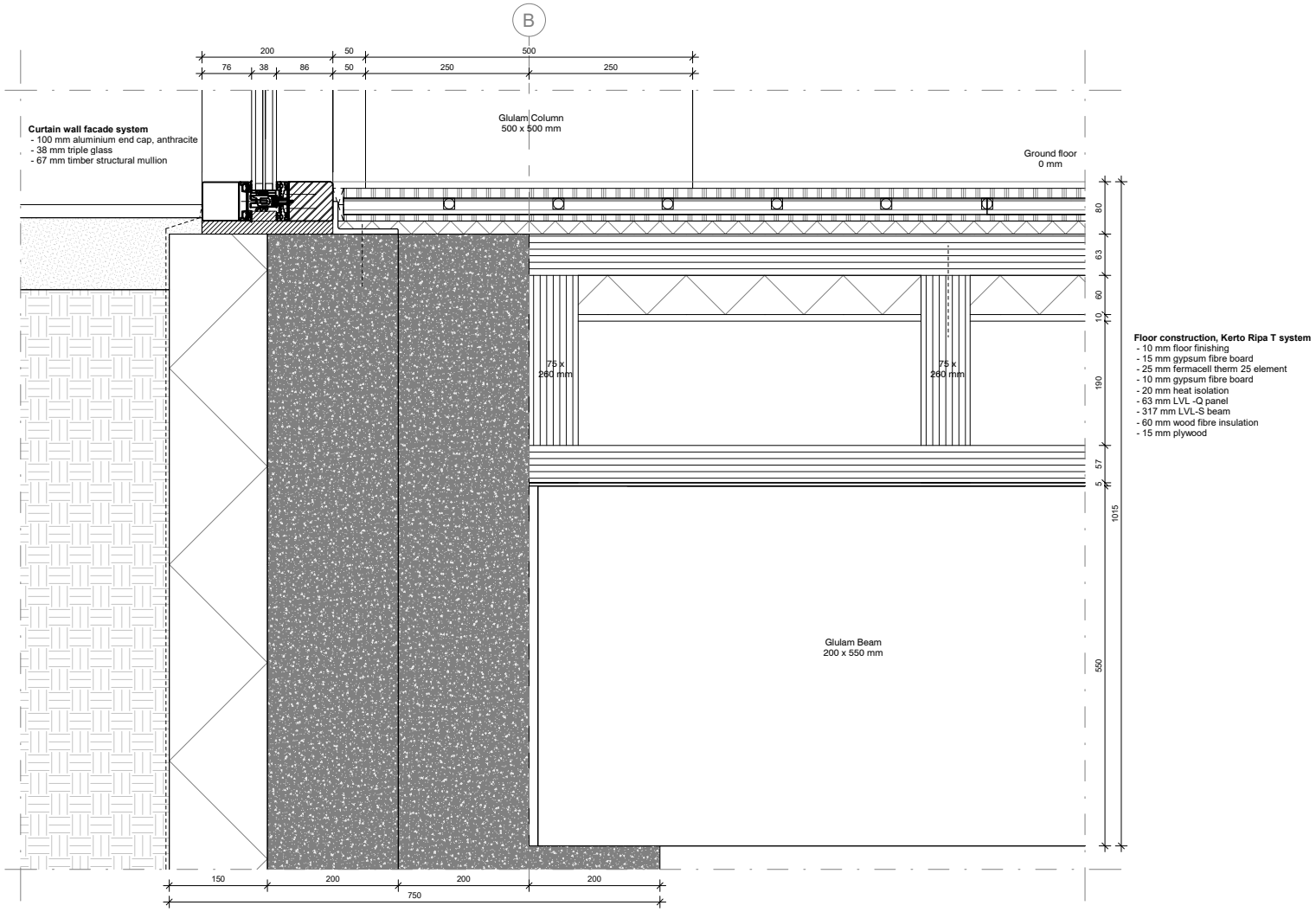
ZOOM-IN FACADE FRAGMENT





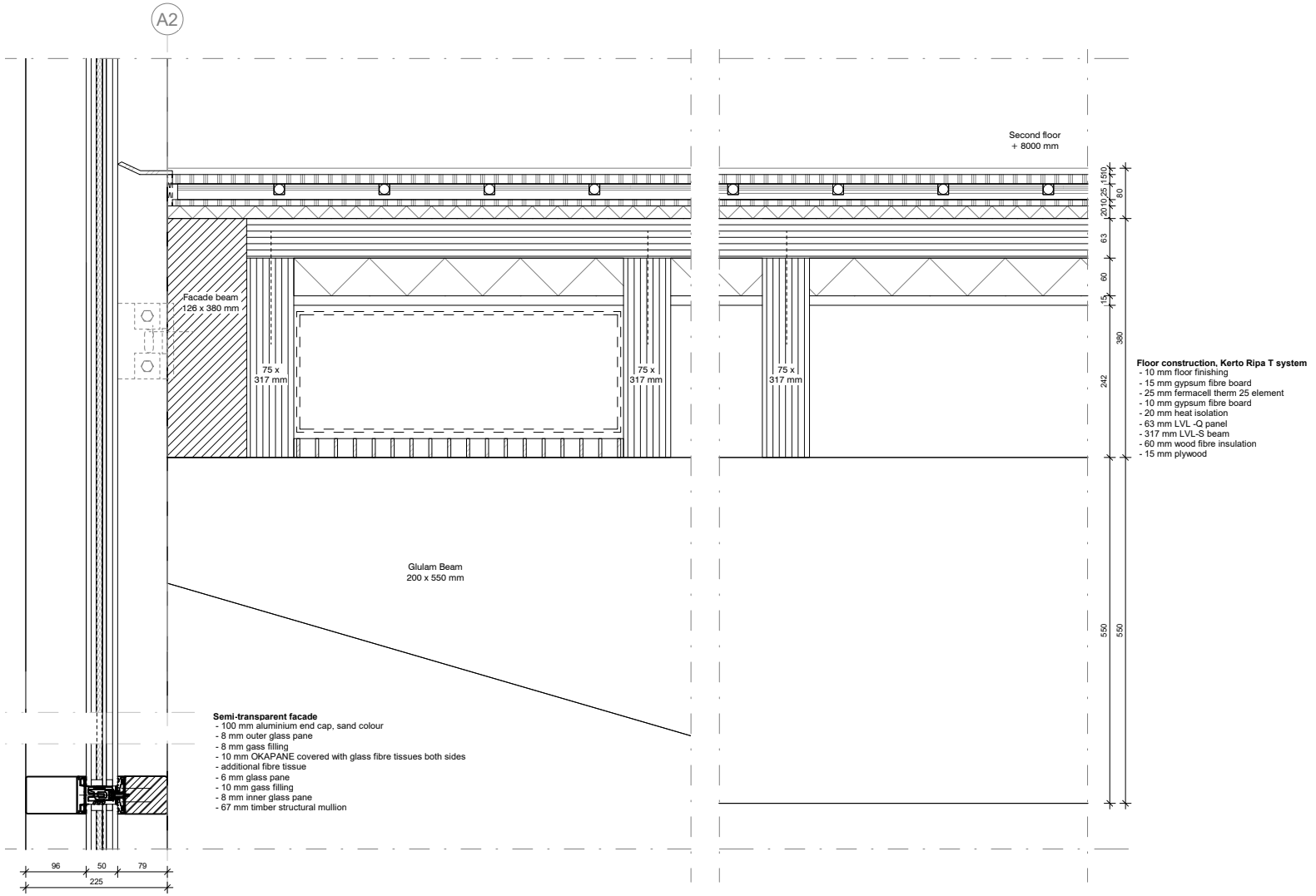
Scale, 1:20

DETAIL - GROUND FLOOR



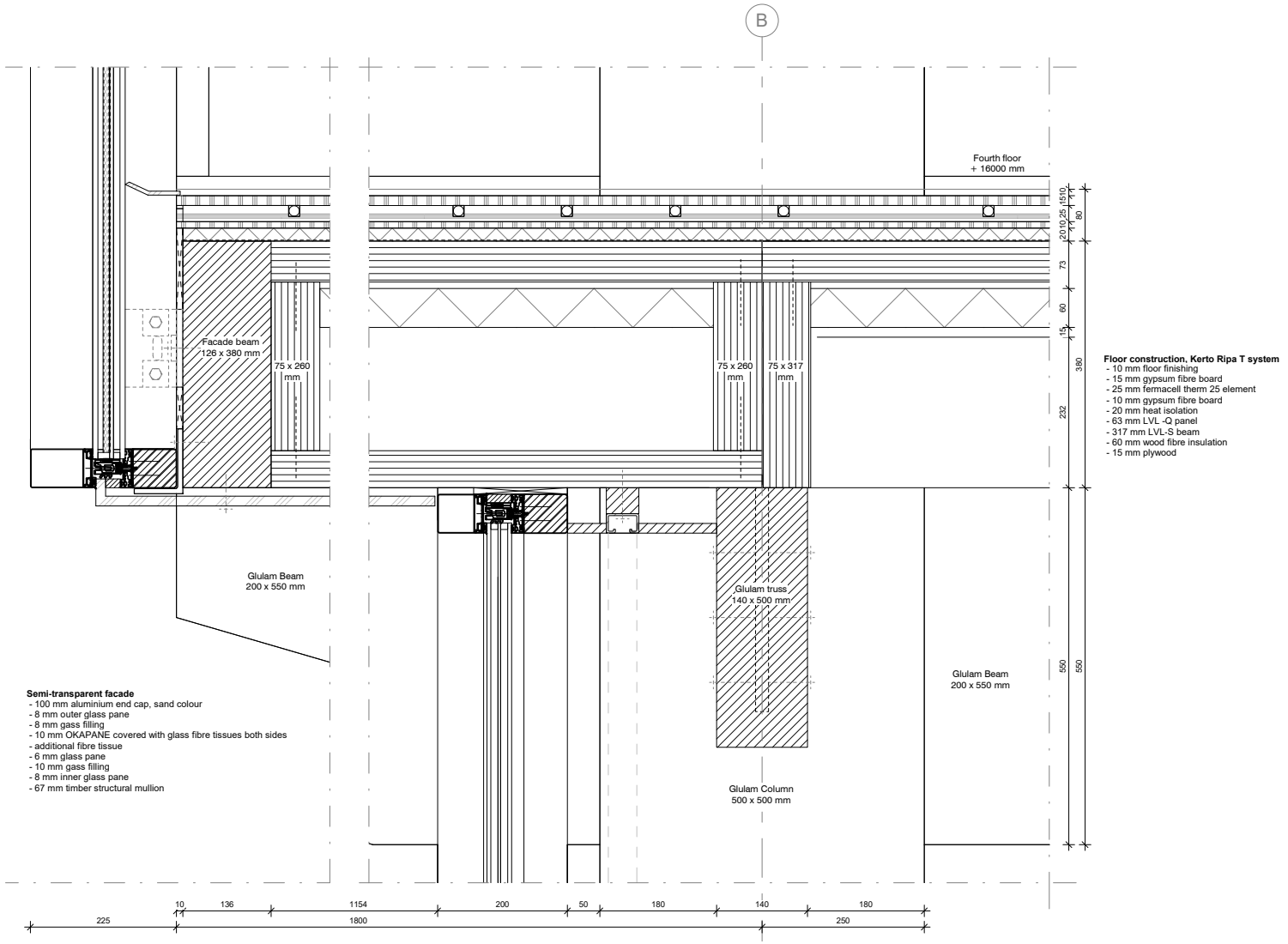
Scale, 1:10

SEMI TRANSPARENT FACADE - DETAIL



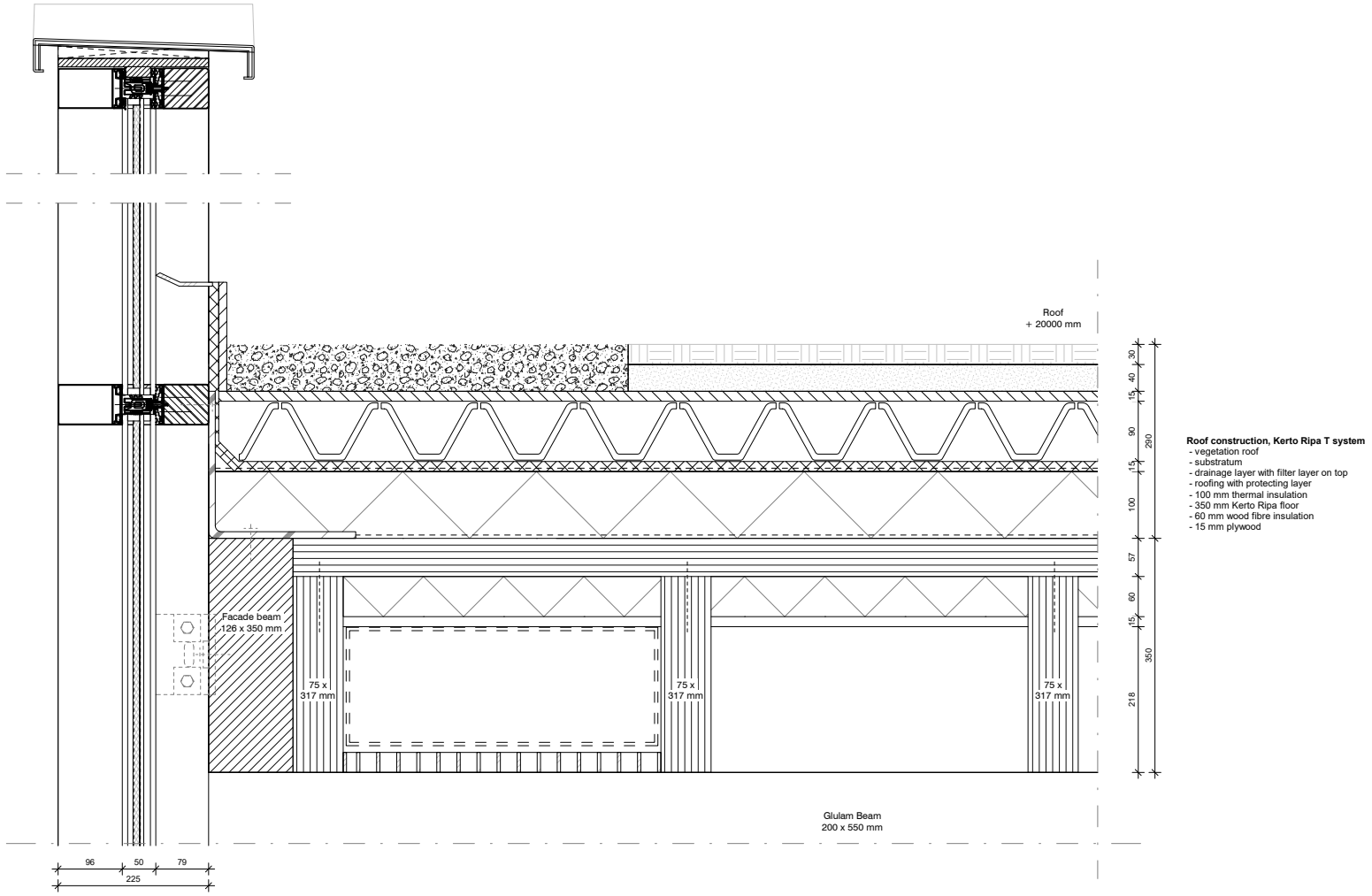
Scale, 1:10

DETAIL - OVERHANG



Scale, 1:10

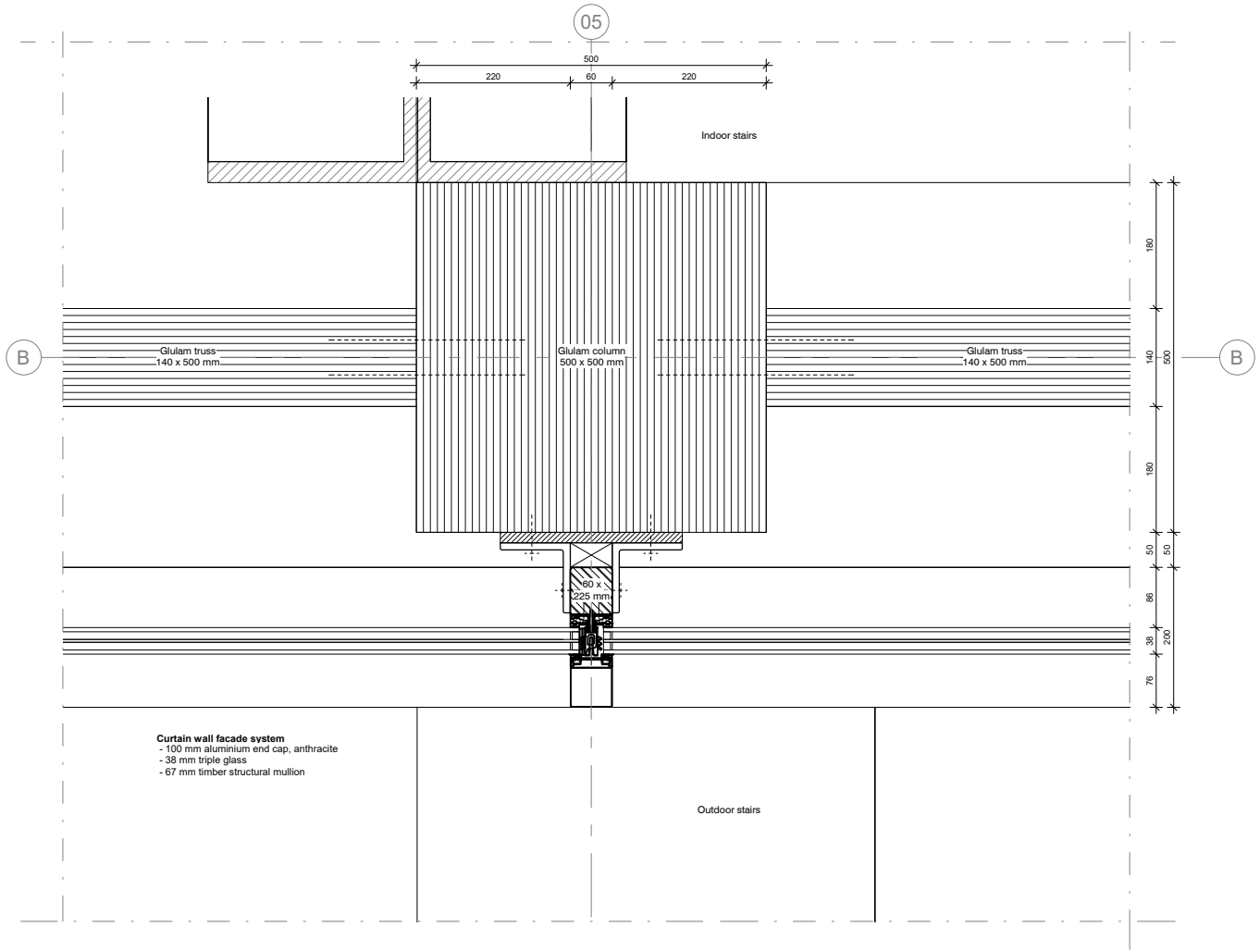
ROOF - DETAIL



Roof construction, Kerto Ripa T system
- vegetation roof
- substratum
- drainage layer with filter layer on top
- roofing with protecting layer
- 100 mm thermal insulation
- 350 mm Kerto Ripa floor
- 60 mm wood fibre insulation
- 15 mm plywood

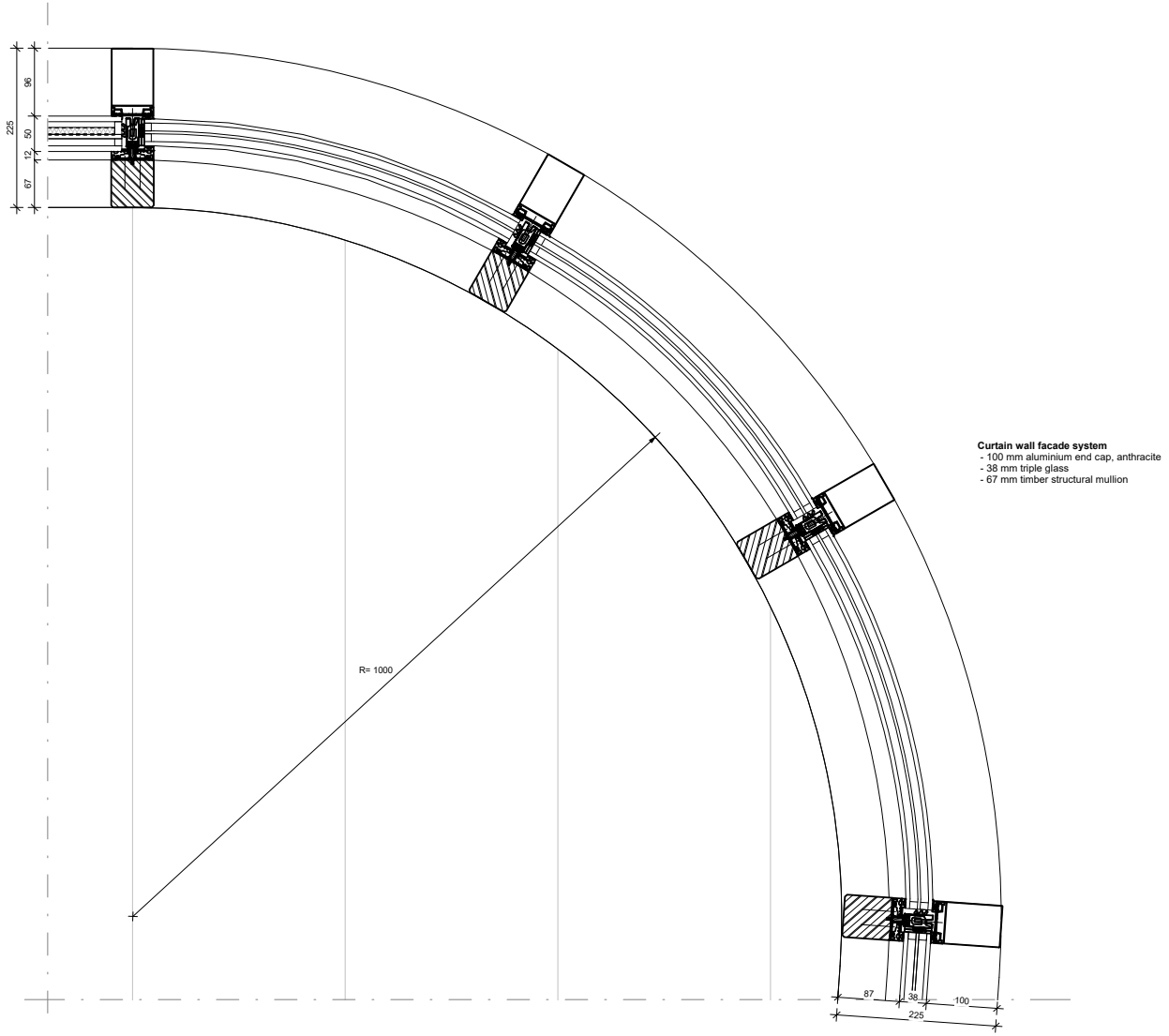
Scale, 1:10

DETAIL - LIBRARY FACADE



Scale, 1:10

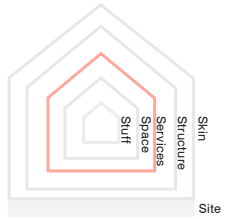
ROUND CORNER - DETAIL



Curtain wall facade system
- 100 mm aluminium end cap, anthracite
- 38 mm triple glass
- 67 mm timber structural mullion

Scale, 1:10

CLIMATE SCHEME - COOLING

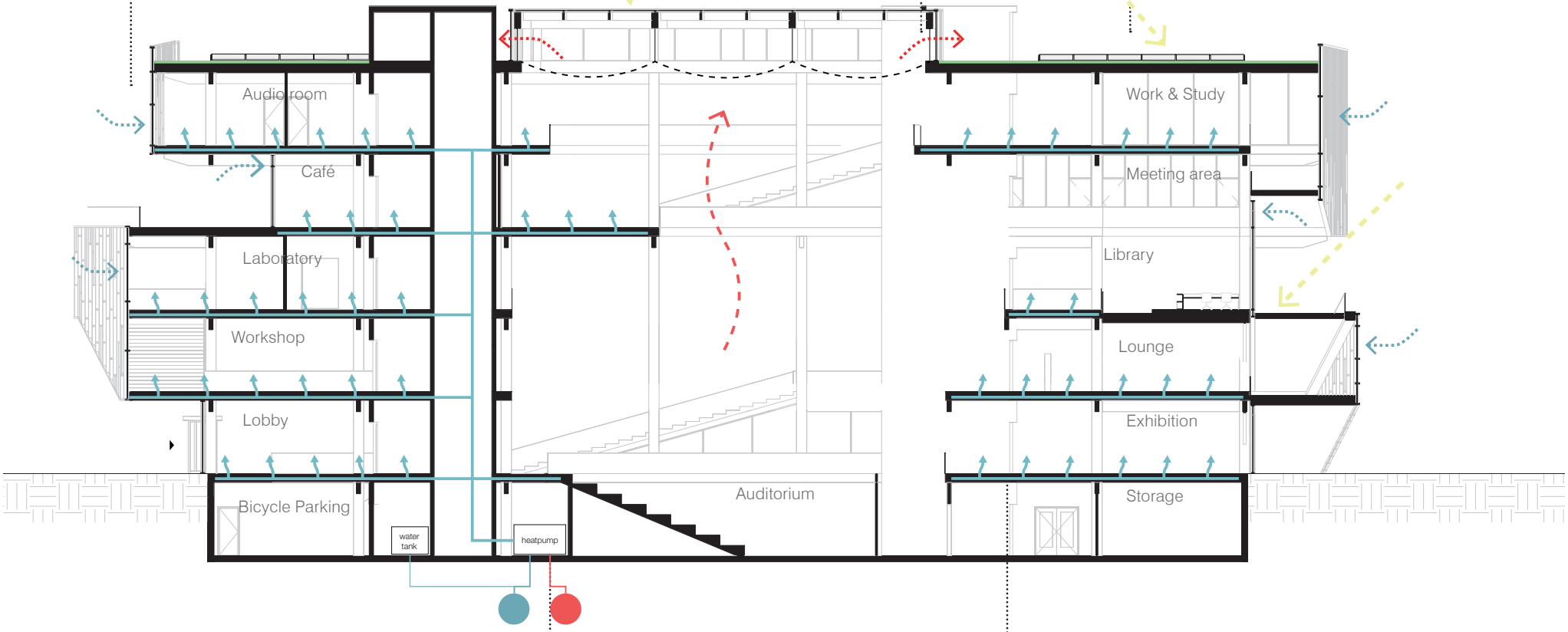


Natural ventilation through openable windows and ceiling grills in overhang for natural ventilation

Maximum daylight with optimum rejection of direct sunlight

Heat recovery above adaptable sun shading in central atrium

Solar panels on sedum roof to increase the efficiency and extend the life of solar panels and for increasing biodiversity.



Aquifer Thermal Energy Storage (ATES) offers sustainable energy storage and reduction

Cooling, Comfortable high-capacity cooling from floor with low energy consumption.

Scale, 1:200

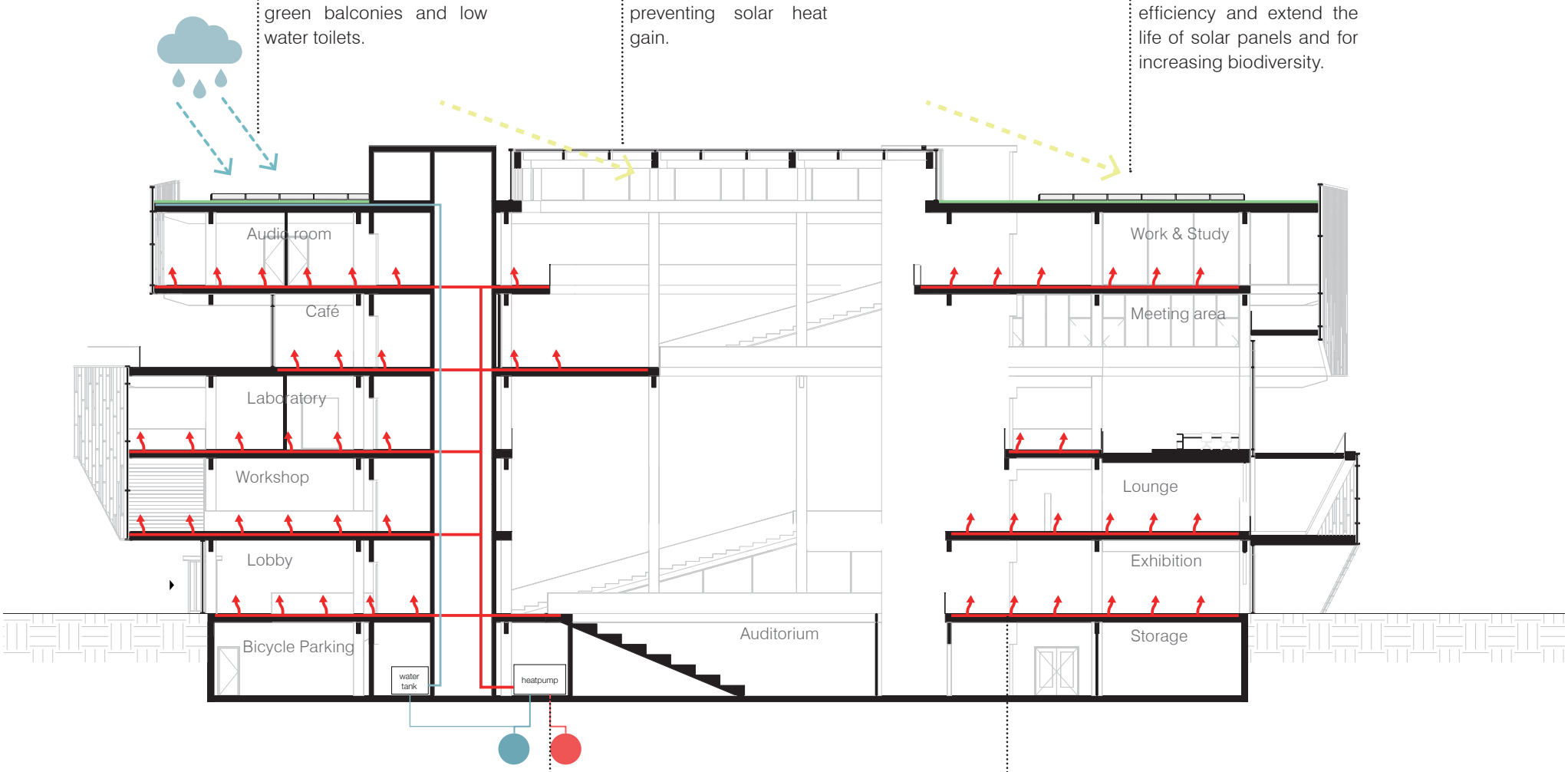
5m

HEATING - CLIMATE SCHEME

Smart Water Use, rainwater collection for watering green balconies and low water toilets.

Daylight, maximum amount of daylight while preventing solar heat gain.

Solar panels on sedum roof to increase the efficiency and extend the life of solar panels and for increasing biodiversity.

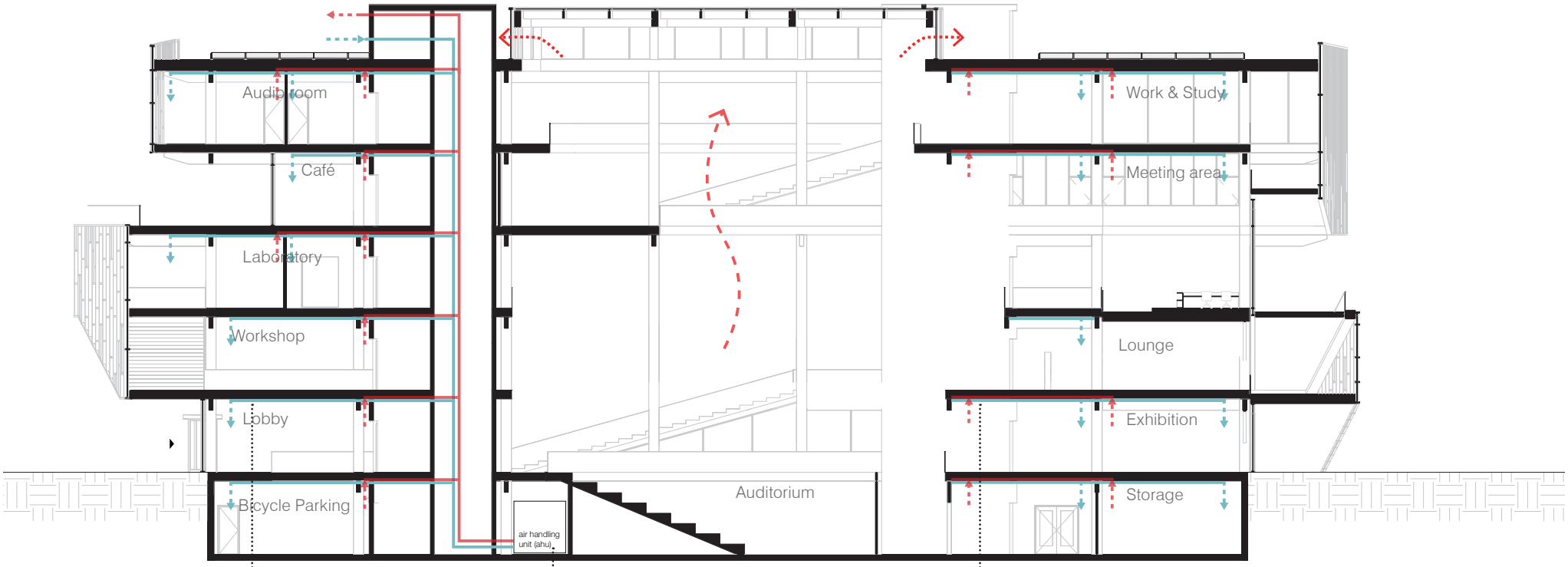


Aquifer Thermal Energy Storage (ATES) offers sustainable energy storage and reduction

Heating, Comfortable high-capacity floor heating, low energy consumption.

Scale, 1:200

VENTILATION SCHEME



Fresh air supply from facade, through ceiling

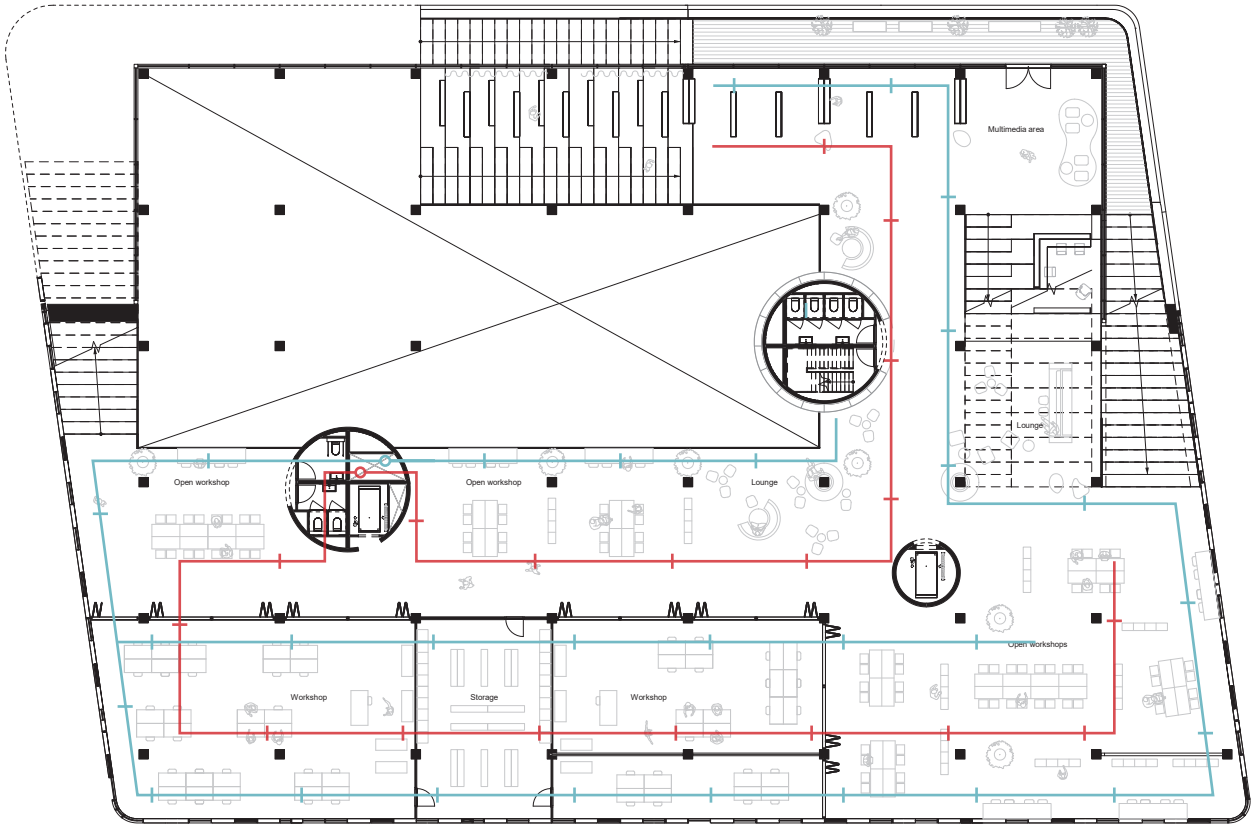
Ventilation type C (natural supply and mechanical extraction) with heat recovery system

Mechanical extraction with heat recovery system

Scale, 1:200

5m

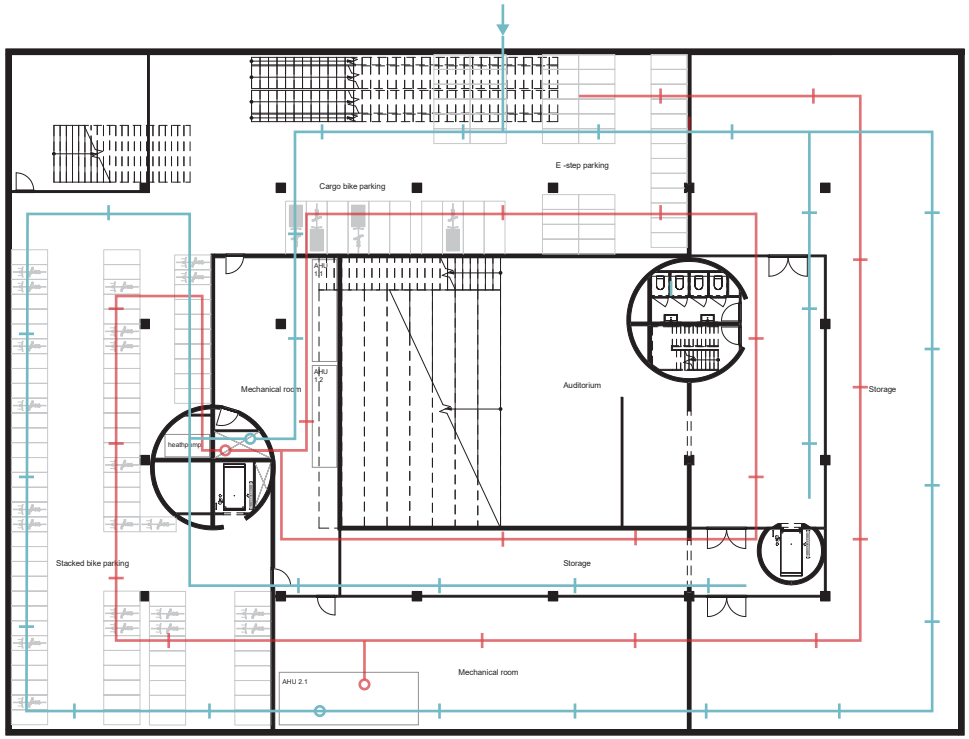
FIRST FLOOR - VENTILATION SCHEME



Fresh air supply to room
Mechanical extraction from room
Fresh air supply from facade
Mechanical extraction through roof

Scale, 1:400

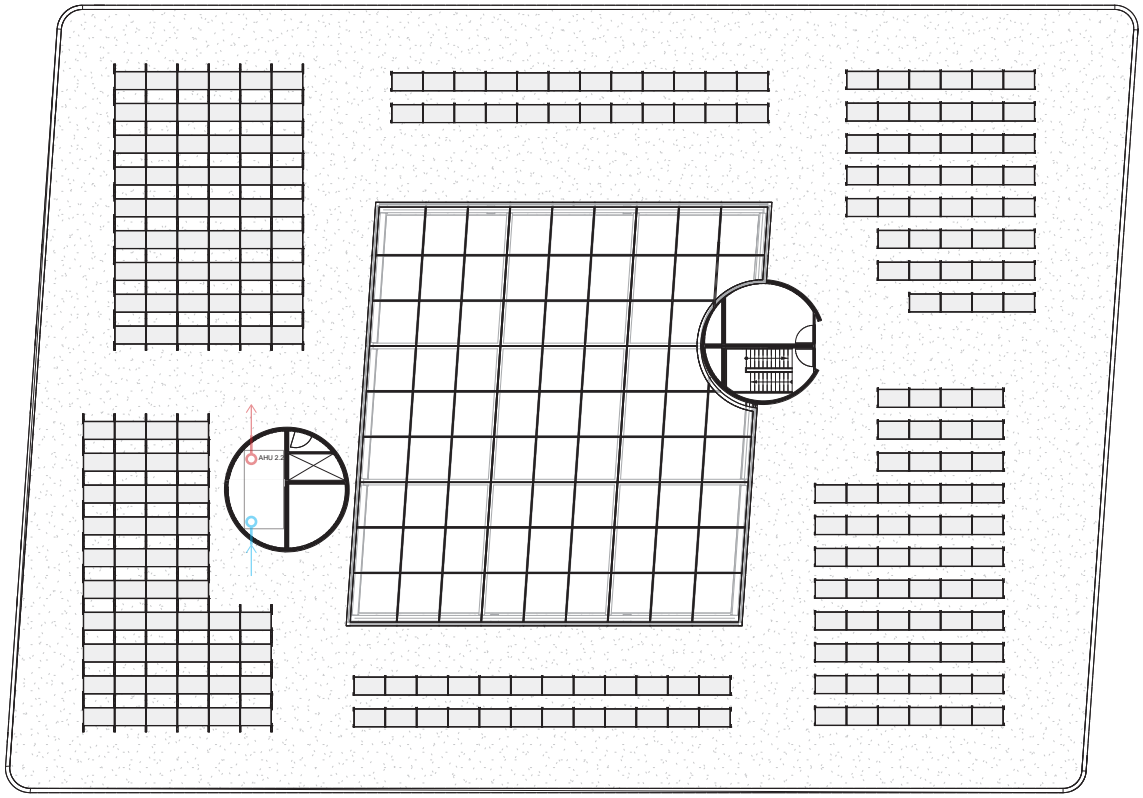
VENTILATION SCHEME - BASEMENT



Fresh air supply to room
Mechanical extraction from room
Fresh air supply from facade
Mechanical extraction through roof

Scale, 1:400

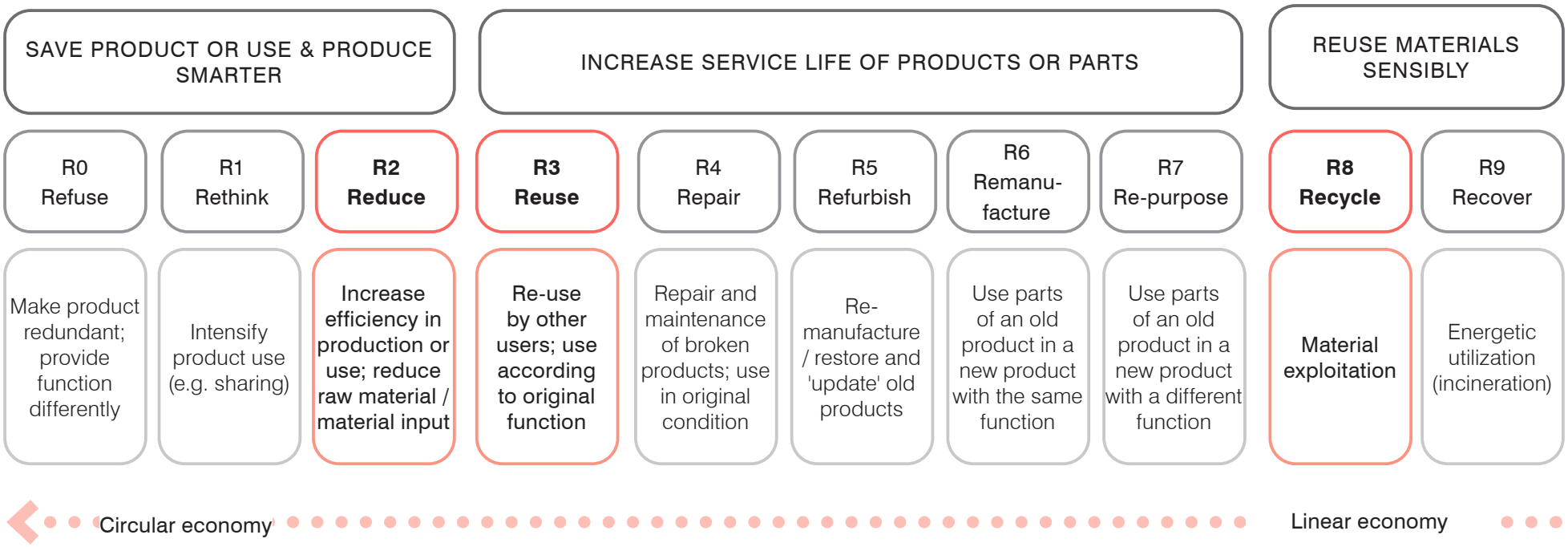
ROOF - VENTILATION SCHEME



Fresh air supply to room
Mechanical extraction from room
Fresh air supply from facade
Mechanical extraction through roof

Scale, 1:400

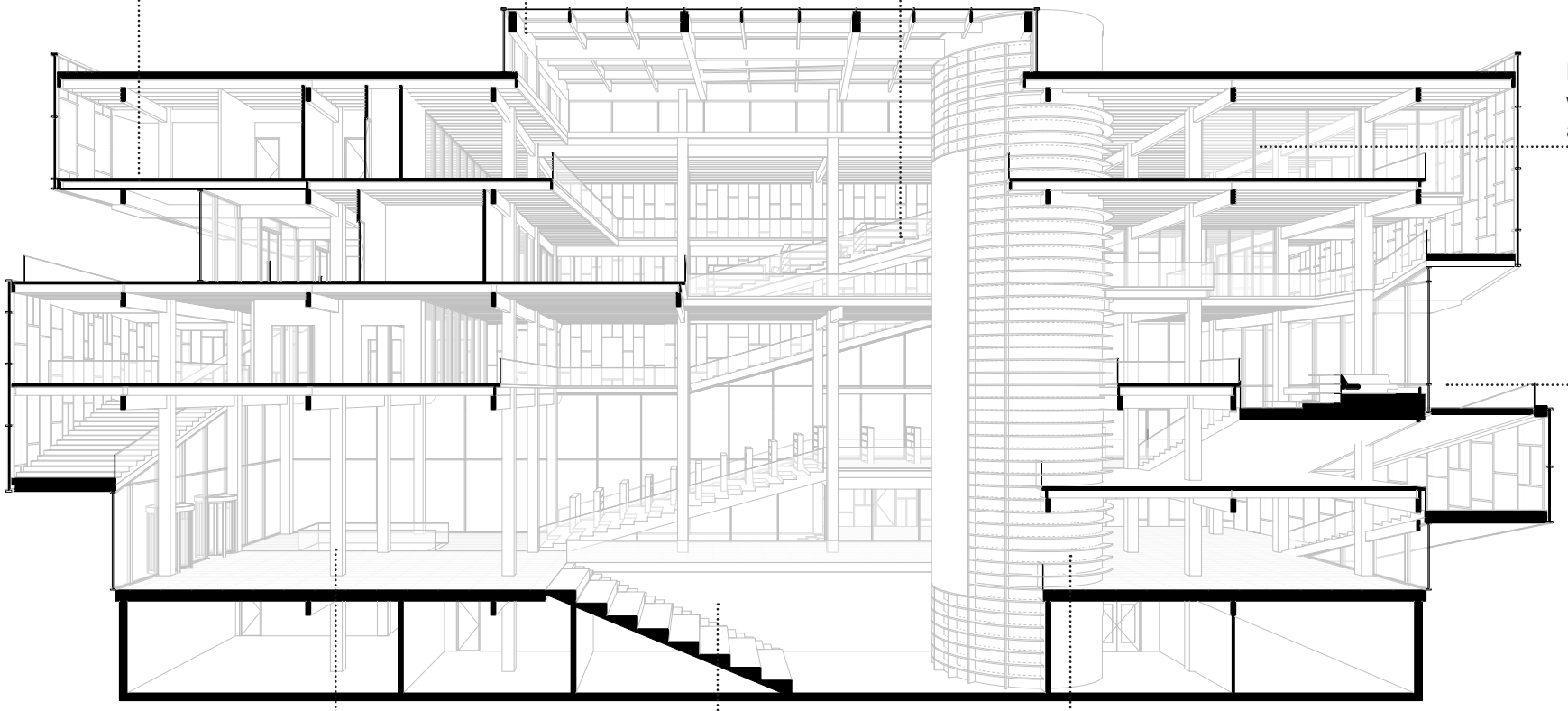
SUSTAINABILITY - R STRATEGIES



Hollow-core floor saves weight and material, also installations are easily accessible under the floor

Reduce the amount of energy consumption by saving overloads

The wooden interior provides a more pleasant living environment and absorbs a lot of CO2



Removable partition walls ensure adaptable layout

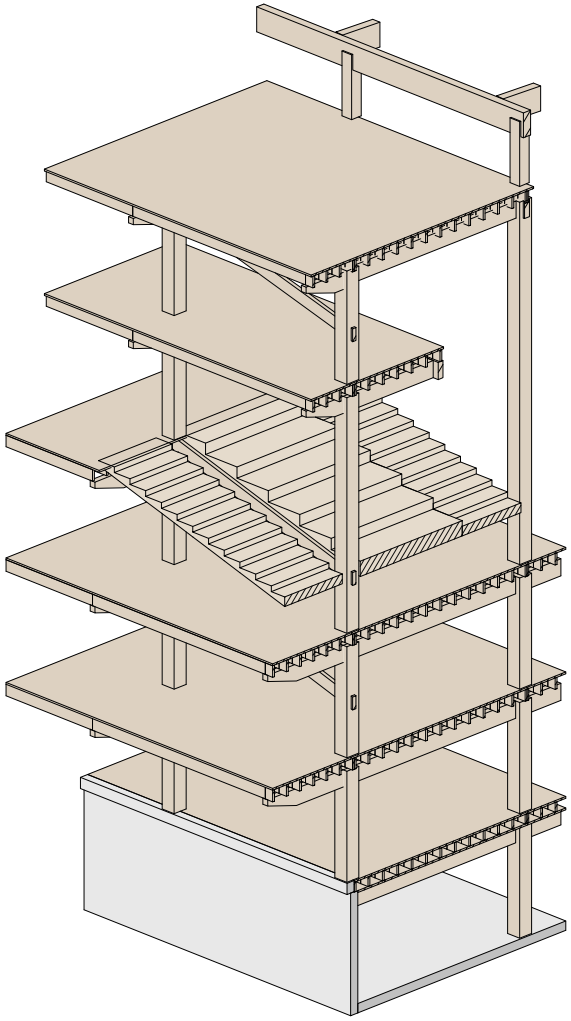
Curtain wall with timber substructure reduces use of aluminium

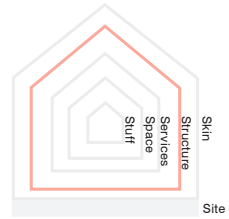
The timber structure is entirely circular constructed and adaptable

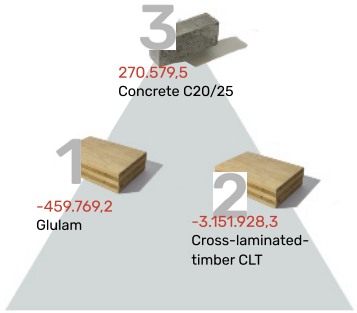
Reused brick from old buildings as wall cladding in bike parking and auditorium

Cores and basement are made from recycled concrete of old buildings

CARBON IN STRUCTURE







| kg $CO_{2\ eq}$
| module A1-A3

Timber structure

Your pyramid:
-3.341.118,0 kg $CO_{2\ eq}$

-334.1 kg $CO_{2\ eq}/m^2$

	material	impact / m3	volume [m3]	result
1	**Glulam**	-610.0 kg CO2eq/m3	**753.72** m3	**-459.769,2** kg $CO_{2\ eq}$
2	**Cross-laminated-timber CLT**	-664.0 kg CO2eq/m3	**4746.88** m3	**-3.151.928,3** kg $CO_{2\ eq}$
3	**Concrete C20/25**	229.0 kg CO2eq/m3	**1181.57** m3	**270.579,5** kg $CO_{2\ eq}$
				-3.341.118,0 kg $CO_{2\ eq}$

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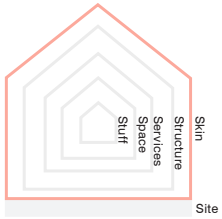
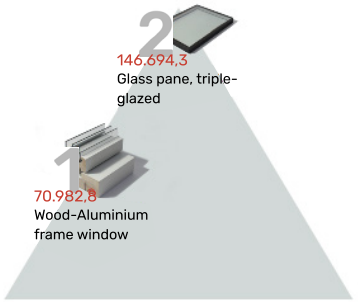




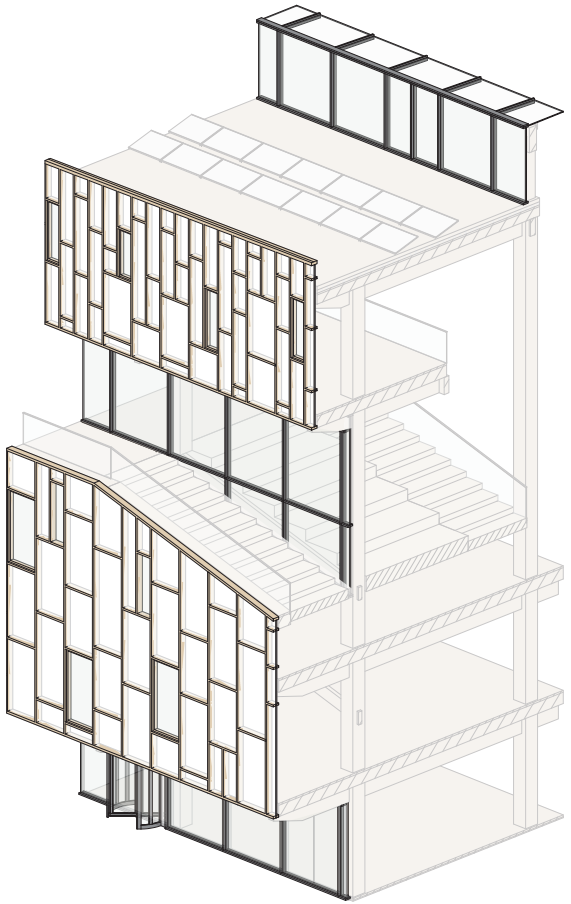
| kg $CO_{2\ eq}$
| module A1-A3

Facade

Your pyramid:
217.677,1 kg $CO_{2\ eq}$

21.8 kg $CO_{2\ eq}/m^2$

	material	impact / m3	volume [m3]	result
1	**Wood-Aluminium frame window**	762.6 kg CO2eq/m3	**93.08** m3	70.982,8 kg $CO_{2\ eq}$
2	**Glass pane, triple-glazed**	415.6 kg CO2eq/m3	**352.97** m3	146.694,3 kg $CO_{2\ eq}$
				217.677,1 kg $CO_{2\ eq}$



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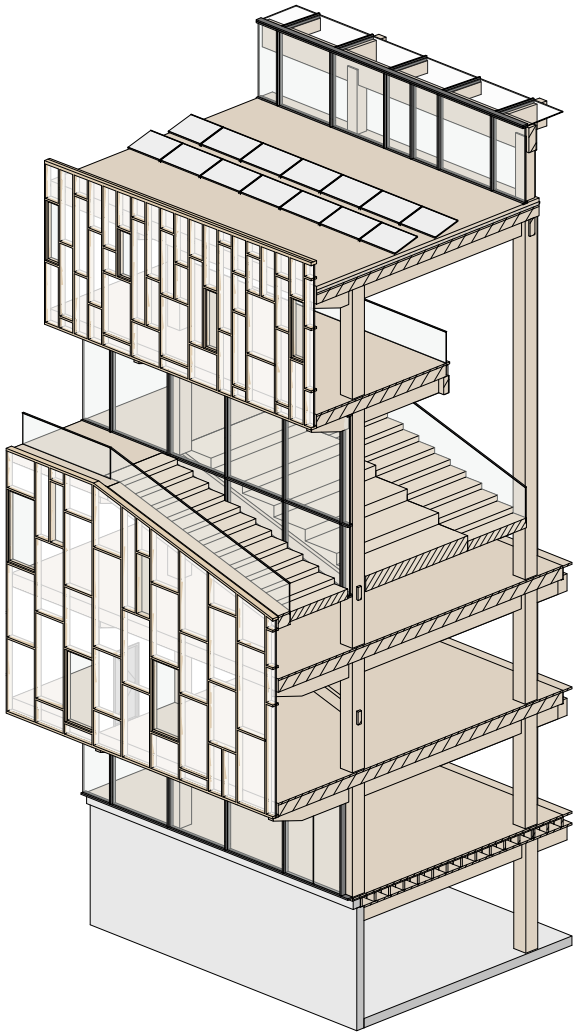
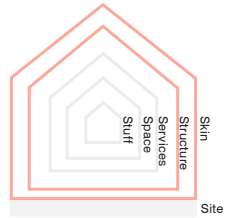
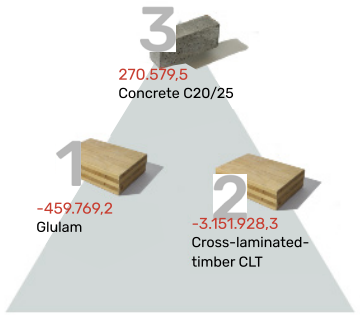
CARBON POSITIVE BUILDING





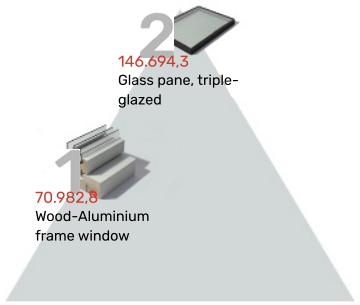


| kg $CO_{2\ eq}$
| module A1-A3

Timber structure

Your pyramid:
-3.341.118,0 kg $CO_{2\ eq}$

-334.1 kg $CO_{2\ eq}/m^2$



| kg $CO_{2\ eq}$
| module A1-A3

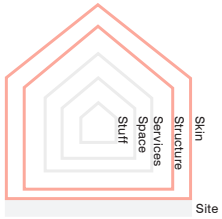
Facade

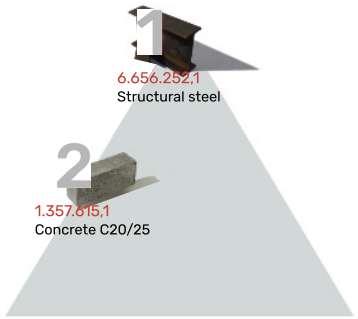
Your pyramid:
217.677,1 kg $CO_{2\ eq}$

21.8 kg $CO_{2\ eq}/m^2$

Total GWP impact of structure and facade:

-3.123.440,9 kg $CO_{2\ eq}$
-312,3 kg $CO_{2\ eq}$ / m^2



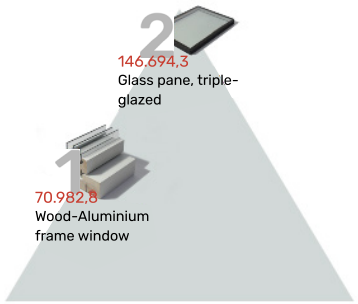


| kg $CO_{2\ eq}$
| module A1-A3

Steel / Concrete structure

Your pyramid:
8.013.867,1 kg $CO_{2\ eq}$

801.4 kg $CO_{2\ eq}/m^2$



| kg $CO_{2\ eq}$
| module A1-A3

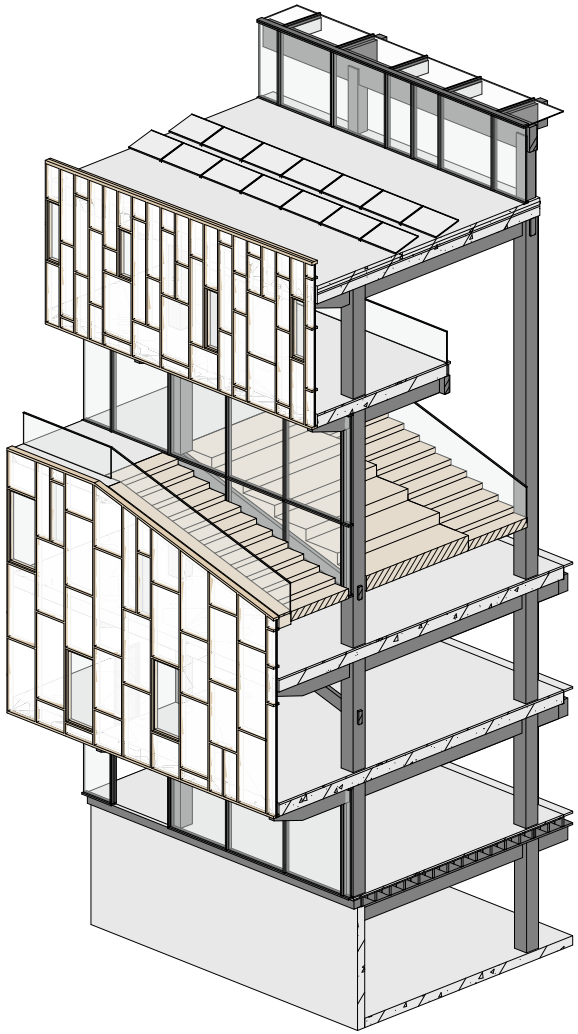
Facade

Your pyramid:
217.677,1 kg $CO_{2\ eq}$

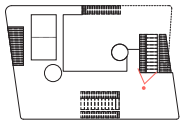
21.8 kg $CO_{2\ eq}/m^2$

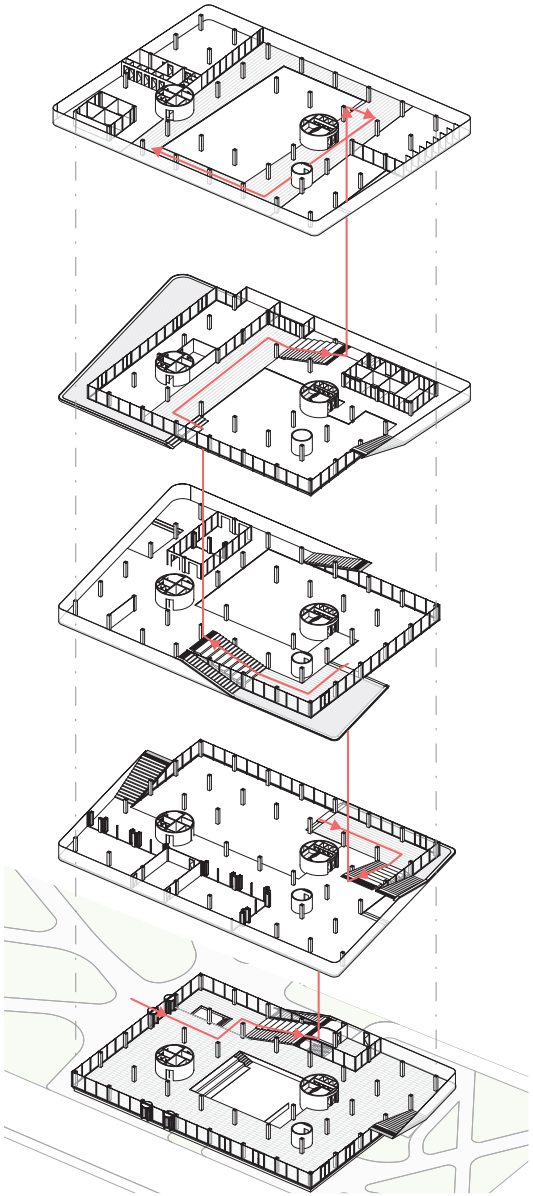
Total GWP impact of structure and facade:

8.231.544,2 kg $CO_{2\ eq}$
823,1 kg $CO_{2\ eq}$ / m^2

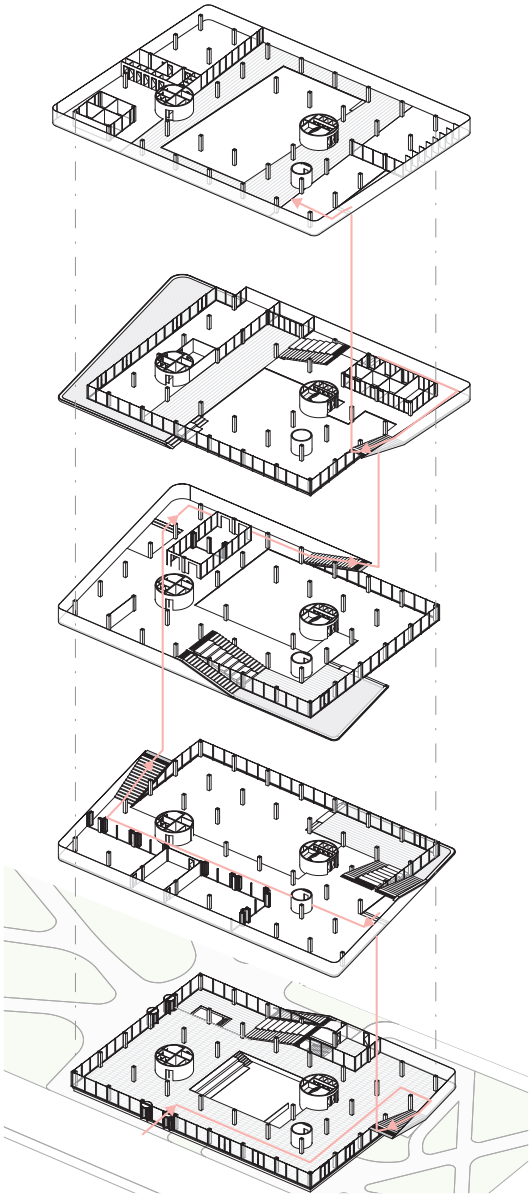


ACTIVE DESIGN

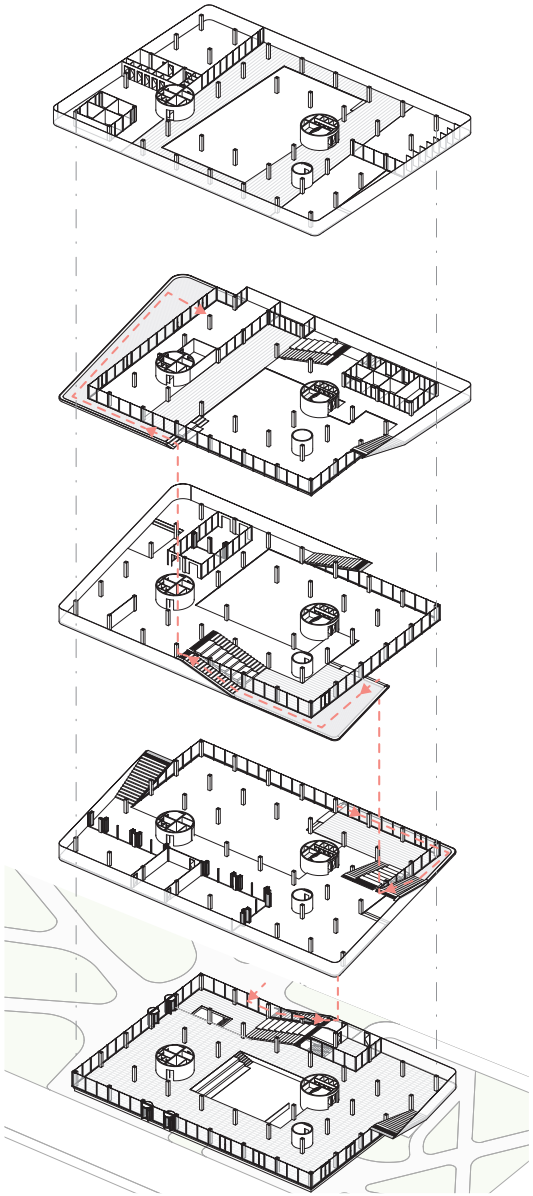




Main route

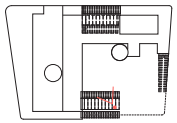


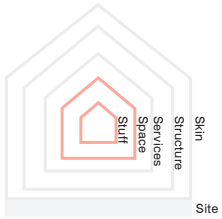
Subroute

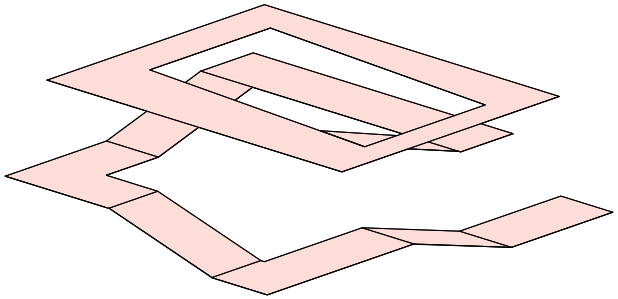


Outdoor route

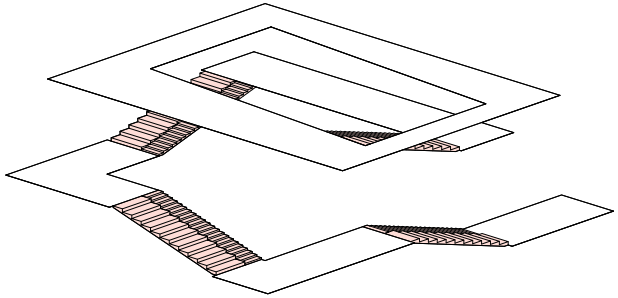
MAIN ROUTE



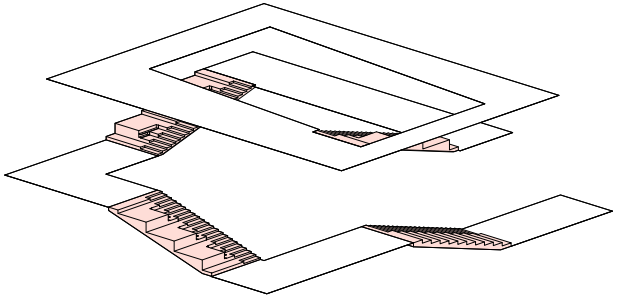




Spiral routing upwards

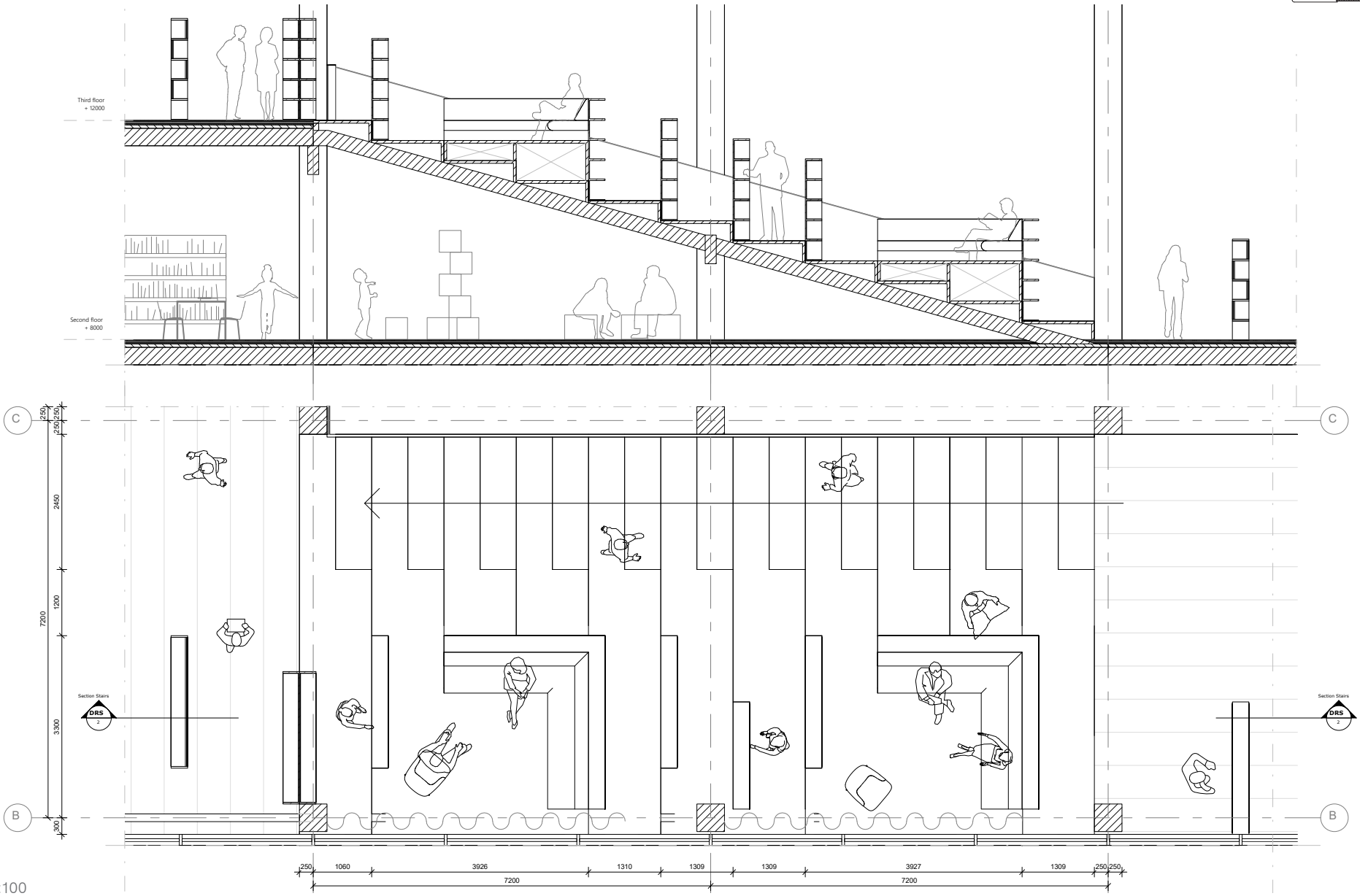


Division of stairs

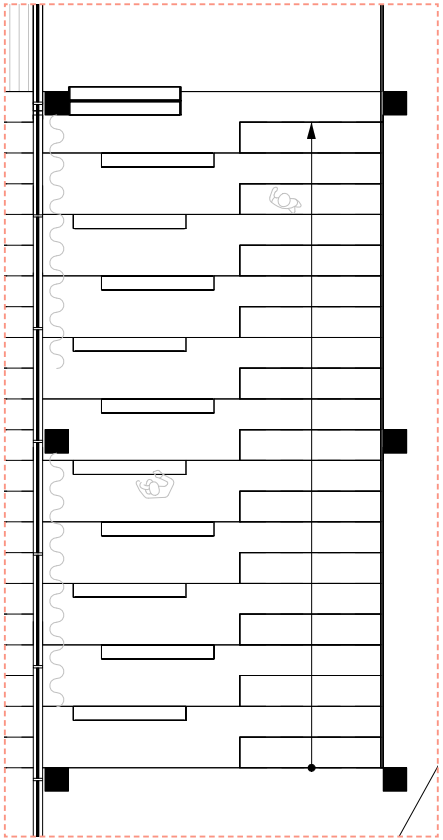


Multiplicity of stairs

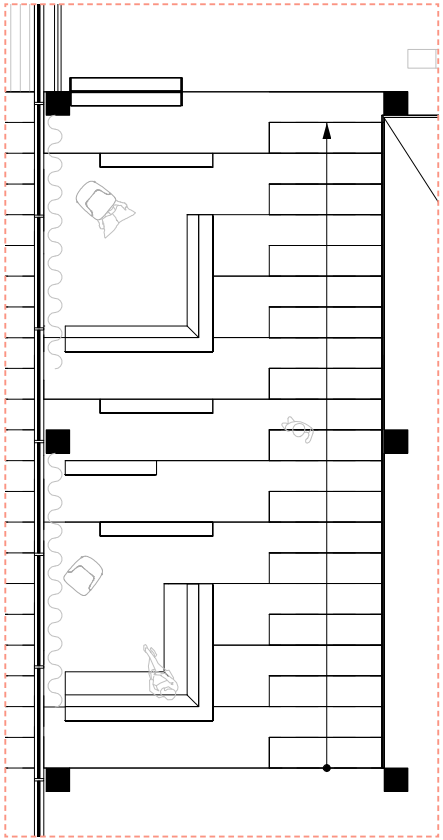
MAIN STAIRS



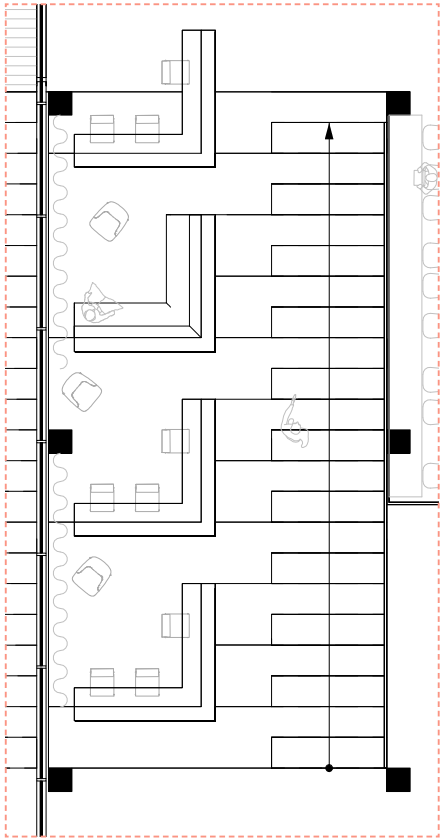
Scale, 1:100



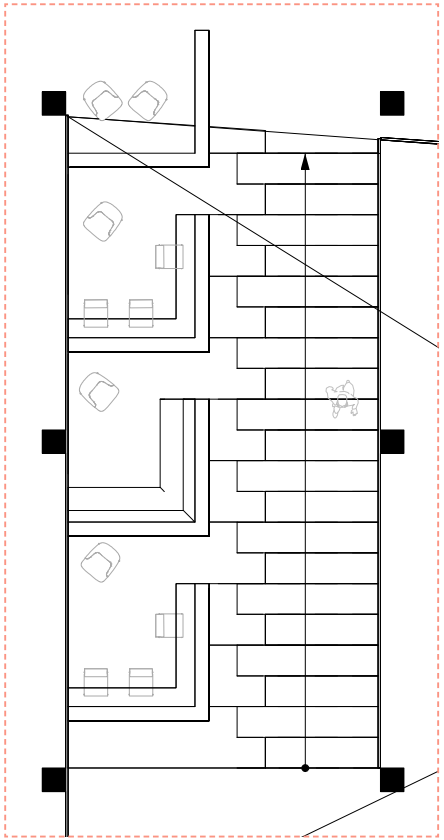
Book storage



Books and lounge



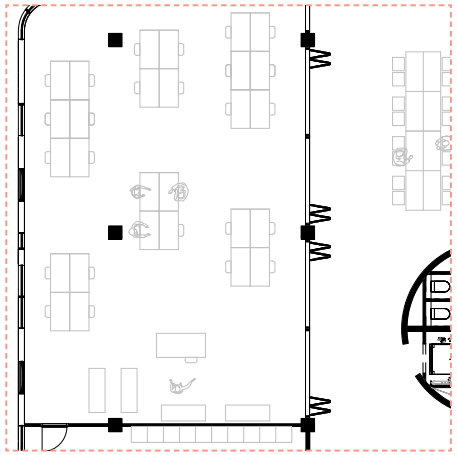
Read and work



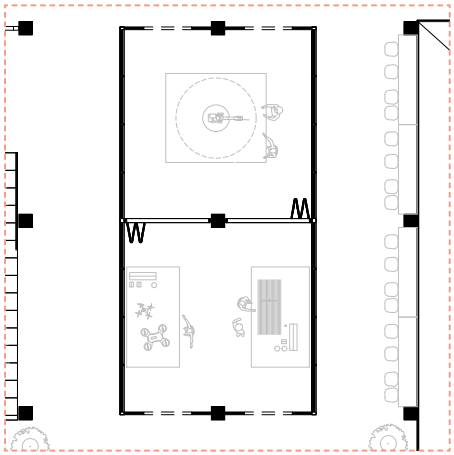
Read and study

SPATIAL ELEMENTS

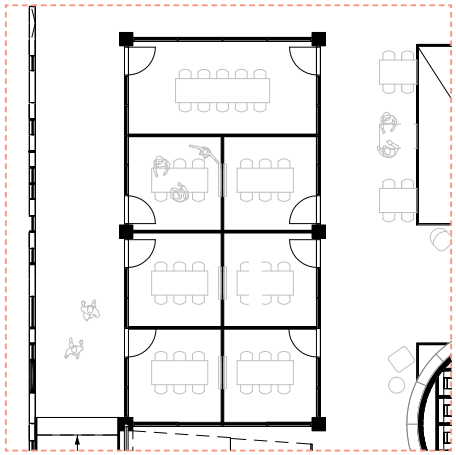
WALL BASED



Facade oriented

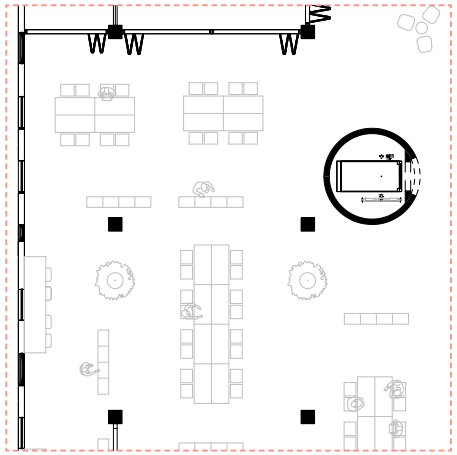


Centred

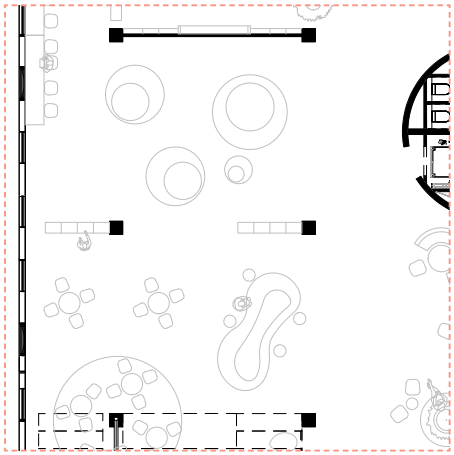


Within structure

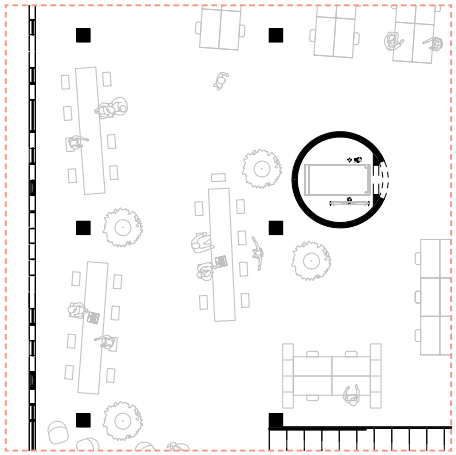
OPEN INFILL



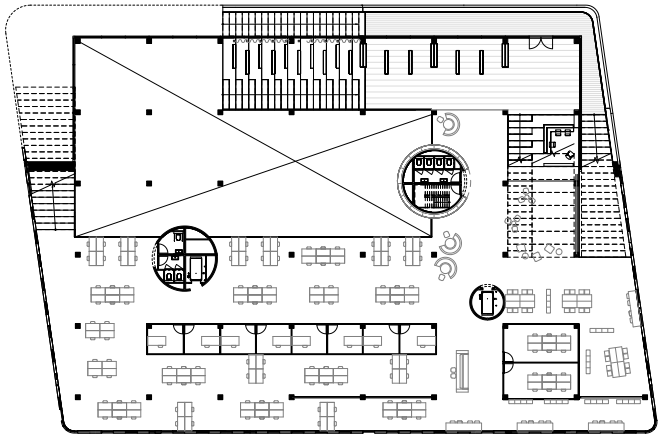
Wall elements



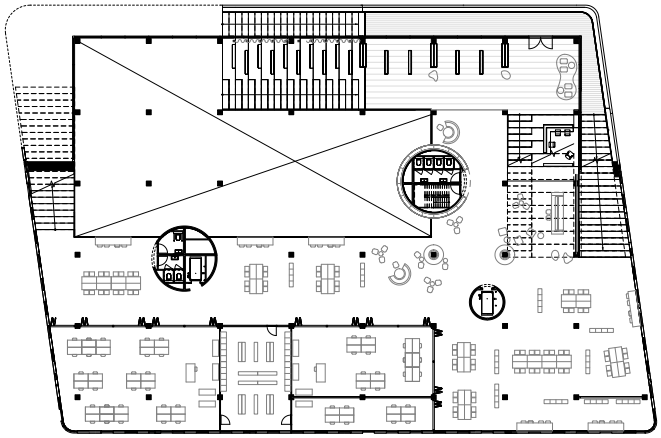
Different modules



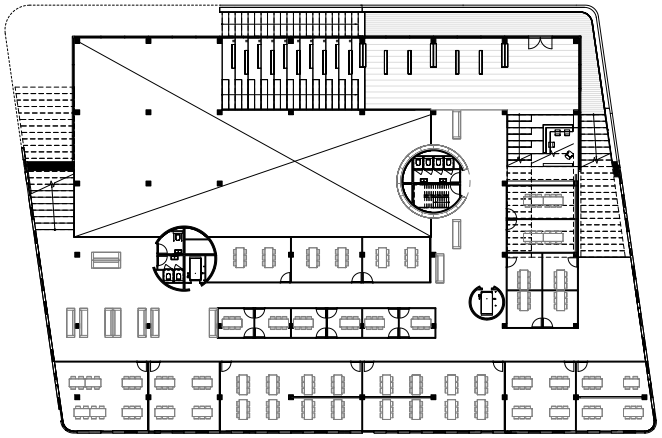
Free infill



Open workspaces



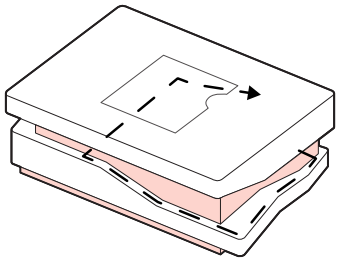
Semi-open workshops



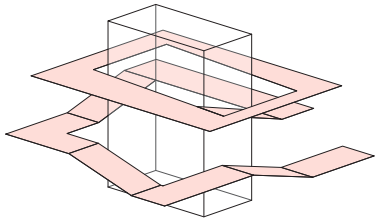
Closed offices

08

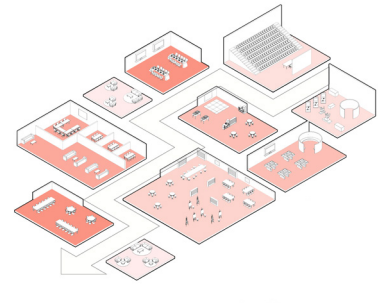
Impression from west side of MediaHeim



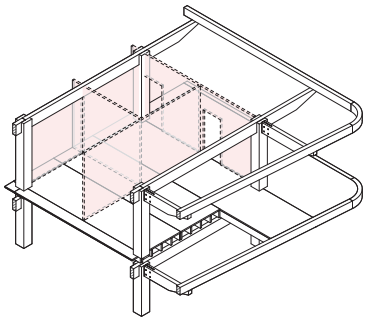
Visible and accessible:
Spiral library route around the building



Interactive:
Circulation and activities around atrium



Diversity:
Function mix attracts multiple target groups



Flexible:
Infill of regid structure is flexible for changes

CONCLUSION

RESEARCH BY DESIGN

From the beginning, the design of this project aimed to bring different generations and backgrounds together in one building. For this project, it was important that the different spatial experiences would fall within one unity due to the current separation and contrasts between neighbourhoods. Four important design principles were established for the design, which can also apply to future public buildings: accessibility, visibility, interaction, and flexibility.

With its spiral-shaped circulation, the building is an extension of the public street and is accessible in several ways. Visitors can reach higher-level activities both from outside and inside, and there is always another route to take back. Furthermore, the building has a distinctive appearance and is different from the immediate surroundings. It is transparent, but at the same time, there is sufficient privacy. Inside the building, where all kinds of people are already clustered, one can choose their activity with its character.

The flexibility of the building is ensured with a column structure and demountable interior where the use of the building can be adapted to the users' needs. Integrating these aspects adds value to society by ensuring diversity, inclusivity, and adaptability. The focus of the project was mainly on integrating different users and their needs while also considering future needs.

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FINAL REFLECTION

INTRODUCTION | MEDIAHEIM

All places change over time; however, the extent and availability of alternatives are essential. Friedrichshain is an example of a neighbourhood where the transition to a high-income society can have significant consequences for low-income and elderly, who have fewer choices and fewer opportunities to travel for recreation and socialising.

The design of a public condenser in Friedrichshain will form a new heart between the existing and upcoming neighbourhood and their society. The public condenser will blur the division between neighbourhoods and enhance inclusivity and diversity.

A public function that facilitates different generations' recreational and intellectual needs is a library. Today's libraries already have a social function in addition to the intellectual purpose. Adding social functions to current services ensures that the existing and new cultures and societies reinforce each other. Moreover, bringing different socioeconomic groups together reduces conflicts and disorder and enhances collective security.

This design expands the standard library with other media forms to anticipate the future. So there are printed books in the building and devices on which users can read digital books, listen to audiobooks and communicate via multimedia. In addition, the media library will contain extra functions that activate the brain's left (intellectual) and right (creative) hemispheres.

The different media types connect the thinking and doing activities in the building through a guiding routing. The guiding routing serves as an extension of the public street and is designed for stocking books and other media types, the media library.

Finally, there will also be space for leisure and gathering in addition to activities for thinking and doing. Traditional formal functions associated with a library are transformed into more informal spaces with room for the individual and the collective.

THE RELATION BETWEEN THE GRADUATION TOPIC, THE STUDIO TOPIC AND THE MASTER TRACK

The final project is a response to the study theme "public condenser," in which the reasons for such a typology of mixed-use were investigated. For the application in Friedrichshain, the study theme was mainly applied to the gentrifying neighbourhoods within the district. The emphasis was on combining the disappearing functions and bringing together the proprietary spatial experiences currently lacking in the district in one building. The commons imply inclusive participation; therefore, the design is an expanded version of inclusion, offering different moments in one building.

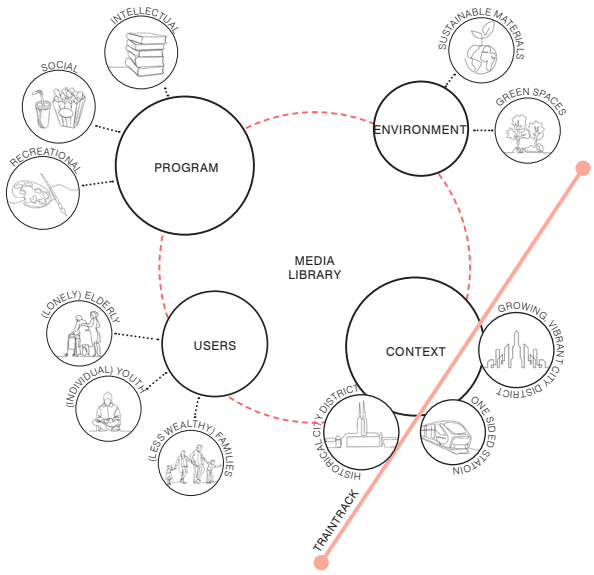
The graduation project defines the characteristics of a public condenser as a contemporary library compared to other public libraries with similar social purposes. This project focuses mainly on active design and interaction of the building where routing and sightlines are central. The public street from outside is drawn upwards through the building as a spiral. Besides the main route inside the building with the library function, two other routes have been designed so that users can explore the building differently.

In addition, the urban scale also distinguishes the design from other community centres in Berlin. Due to it's central location, the media library is an addition for the surrounding neighbourhoods and for the whole of Friedrichshain and the districts around it. Moreover, the project focuses on a positive carbon design concerning sustainability.

The design makes extensive use of renewable and local resources, focusing on reducing material and energy consumption and reusing existing materials. Finally, the building is designed for disassembly in the future to adapt for users needs. The graduation project results from the knowledge I gained during the master's program in architecture. The academic research supporting design reflected the conceptualization and critical positioning during my master's period. Previous design studios and electives have shown me that the research-by-design method has a good influence on architecture. The different viewpoints of authors, researchers and professors brought new insights and a critical attitude regarding the impact of architecture on the individual, society, climate and environment and much more.

The integration of all the knowledge and insights I gained makes the critical view of the thesis project a good addition to the Master of Architecture program.

Concerning the master's program of Architecture, Urban Planning and Building Sciences, the project touches on urban planning, structural engineering, and architecture. First, the research and design strategies connect the building to the urban context of Friedrichshain and Berlin. Second, the feasibility and sustainability of the project are supported by integrated techniques and structural systems. Combining these aspects has created an integrated urban, structural and architectural whole.



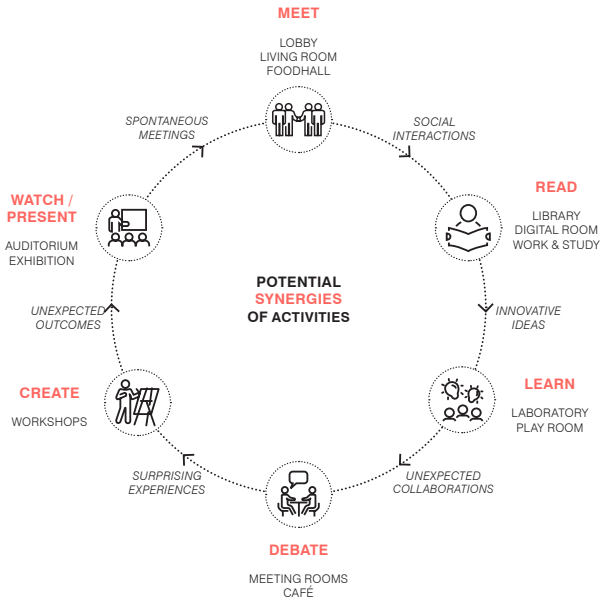
Building vision in diagram

THE RELATION BETWEEN RESEARCH AND DESIGN

The development of the thesis project began with preliminary research on three main aspects. Firstly, Friedrichshain in the larger context of Berlin as the context of design. Secondly, the changing role of public buildings in contemporary urban society and, thirdly, the building typology of public libraries. This research formed the entire conceptualisation of design.

Through understanding Friedrichshain's urban condition, society and economy, one central theme emerged as problematic for social cohesion within the area and the city of Berlin: gentrification. the research revealed four significant effects of gentrification, namely isolation, individualism, loneliness and segregation. Ultimately, gentrification undermines the native culture and society, where transformations should emerge with existing conditions and demographics. These findings were also visible in the urban context, where a clear boundary separates the old from the new. The design for the new public condenser thus has the outstanding opportunity to blur this boundary and connect the contrasting areas.
Starting from the urban scale, the research was specified on the social segregation between different target groups and generations. On-site interviews revealed that few public buildings currently bring together target groups such as older people, families and youth under one roof.

To formulate the program, a mixed-use study was crucial, and this considered the needs of surrounding residents and explored how different generations could work together. Case studies and theories on public libraries as social havens revealed the benefits of a diverse program for social mix and flexibility. The research on public libraries revealed the challenge and potential of making an open and accessible, and interactive building with lots of movement.



Building organisation to activate synergies

THE VALUE OF THE WAY OF WORKING DURING THE GRADUATION PERIOD

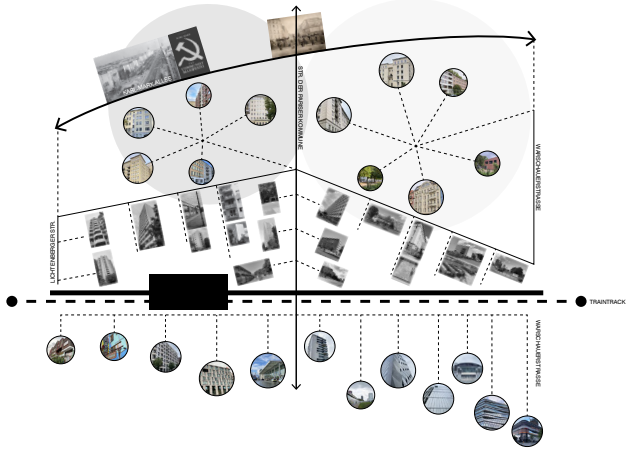
The preliminary research into the project location and the excursion itself was organized as a collective work on history, power, connection, culture, people, and city. This was a helpful framework for the excursion to Friedrichshain, where all aspects became visible in real life. During the argumentation of the necessity of the public condenser and the chosen location within the district, a problem statement soon emerged that encompassed the various researched themes

While researching the meaning of a contemporary public condenser, the studio encouraged using various design instruments and methodologies, such as collages, diagrams, and physical models.

For me, collages have been increasingly useful in the design to show the function and atmosphere of the design. In addition, diagrams have helped me to explain the design principles and choices, and physical models have assisted me in organizational and urban planning decisions.

In the development of the design, I made more use of digital models. The advantage of this is that it allows for better integral design, such as the construction that affects the distribution of spaces and the creation of voids and the facade that responds to the areas behind it. However, a disadvantage is that it often leads to getting into details too quickly, resulting in a loss of time

The supervising teachers helped here and there in choosing the methodology used and kept the design process sharp through critical questioning. However, I did miss professional guidance from profession-related teachers with insights into construction and climate. As a result, I spent more effort and time researching this properly. I also spent much time on the spatial organisation of the building after P2. This gave me more pressure to determine climate and sustainability aspects by the time of P3. But overall, it ended well and resulted in an integrated design.



Mapping of contrasting neighbourhoods in Friedrichshain

Collage of contemporary mediatheque as public condenser

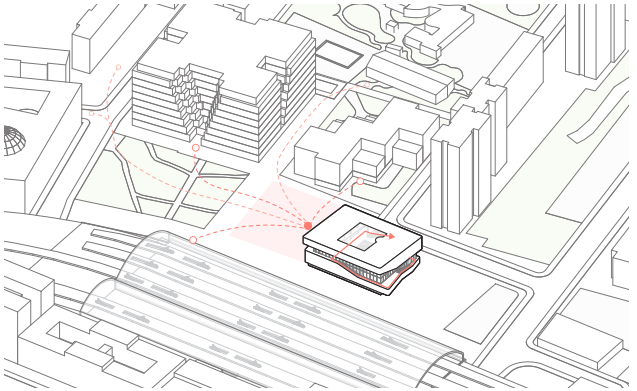


Diagram of activation in building; extension of the street

THE ACADEMIC AND SOCIETAL VALUE, SCOPE AND IMPLICATION OF THE PROJECT, INCLUDING ETHICAL ASPECTS

Gentrifying urban areas is inevitable, including replacing public functions with housing and the increasing socioeconomic difference between residents. In architecture and urban planning, we can anticipate gentrification by combining lost functions in one place or building. Through mixed-use, buildings or public spaces become more available for inclusive participation and diversity.

From the beginning, the design of this project aimed to bring different generations and backgrounds together in one building. For this project, it was important that the different spatial experiences would fall within one unity due to the current separation and contrasts between neighbourhoods. Four important design principles were established for the design, which can also apply to future public buildings: accessibility, visibility, interaction, and flexibility.

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THE TRANSFERABILITY VALUE OF THE PROJECT RESULTS

The project results can be transferred in several ways: bringing together different socioeconomic groups and designing with a low carbon impact.

Gentrification is common in European cities, which leads to increased loneliness, segregation, isolation, and individualization. For this reason, it is crucial to cluster public functions on a "border zone" between contrasting neighbourhoods, allowing different target groups to interact. The research has shown that these functions should combine intellectual and creative activities to serve as many generations as possible. The specific space functions required for a location depend on the available functions in the neighbourhood, whether the functions are in one or multiple buildings.

The sustainability principle of designing public buildings with a low carbon impact can also be transferred in the future. In any future project, it is essential to be critical of using materials and energy. This is done firstly by reducing energy needs and material use, and secondly, this can be expanded by recycling existing materials and using renewable materials. Finally, in the design stage, consideration should be given to reusing building elements by designing them to be as demountable as possible.

As for the design principles, the project can be generalized to make public buildings visually open, provide a good mix of functions, make them interactive using multifunctional circulation and sightlines, and make the building adaptable for the future.

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