

# e HIRN SEGEL

The Digital Library and Public Working Space

**DIPLOMARBEIT**

eHirnsegel:  
The Digital Library and Public Working Space

**ausgeführt zum Zwecke der Erlangung des akademischen Grades  
eines Diplom-Ingenieurs / Diplom-Ingenieurin  
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I would like to take this amazing opportunity to express my gratitude to my mother and father for unconditional support and love giving me through my life and studies.

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## ABSTRACT

We live in a time, in a new information age in which technology has become an inseparable part of our everyday life. It influences and impacts every aspect of our everyday living leading to the transformation of our society. It changes the ways we consume information, the way we search, handle and learn.

In order to understand information preservation and sharing, its role and importance, I had to start from the beginning, with the “house of knowledge”, a library, and its role in the society, its influence, development and transformation through history.

Thinking of today’s urban and social development, people’s needs, motivation and trends, as well as the whole transformation of the society affected by information and technology, I embarked upon creating a new building, a digital library and a public open working space situated on the Danube Canal.

The aim of this project is to induce, what I believe to be missing, employment of the Canal by creating a new space for learning, reading and education. This creation is a library that maintains its original values, however presenting information in a different manner by trying to meet the needs and requirements of the present day users. In order to accomplish this I thought of ways in which the main tool to present information of a library, the book, could be reinterpreted and replaced. Nowadays, the book is no longer the only way in which information is being displayed, but rather, it is limited in the technique of its presentation.

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Since this new type of library is intended to attract and (re)motivate people to use the library as an institution, it is located on the Danube Canal, a place that lately has been going through a significant urban transformation. The idea is to create a strong conceptual and sculptural building that would positively influence the users and the environment of the Canal, not only on a visual but rather on a functional level as well.

This exceptional location, being situated on the island on the Canal itself, makes the building accessible, exposed and attractive. It opens the possibility to make an impact, to contribute to the quality of life bearing a cultural, social and educational momentum.





## LIBRARY

1 Ancient Library of Alexandria



**Library -Definitions:**

- 1. Libraries are spaces where people of all ages can practice a lifelong learning;<sup>1</sup>
- 2. Libraries serve as a vital social service by helping bridge the gap between the haves and have nots, especially when it comes to a literacy and computer skills training;<sup>2</sup>
- 3. Library could be regarded as a place where information and knowledge meet in a physical place, where tasks such as reading, studying, discussing or exchanging ideas are being performed.

**Libraries through history**

Library has always been a place, house, building or institution where valuable information and knowledge have been kept carefully.

Having such an important task and responsibility, it has had a significant role in the history of human kind. Since 5000 years information has been retained in different ways. They were kept and marked on stones, wood, leather, clay, and upon its invention on pa

pyrus which later became paper, one of the most important tools even today, and finally in a digital manner. With the development of new materials the storing conditions have been changing.

Papyrus was invented in 2nd AD in China and changed the history of sharing and keeping information. Distribution was being carried out by simple rewriting or printing i.e. pressing with a wooden or stone blocks until the development of various machines.

Alexandria, which was the largest and the most compelling library of the ancient world, was also the first known to introduce and to employ the alphabetical order to organize its scrolls.

In the 10thcentury the art of block printing helped invent and improve the multiplying and copying of books which led to increase in the number of private libraries.

1, 2 <http://www.librariesareessential.com/why-are-libraries-essential/>

The 11th century was a period of collecting books from public and private sectors aiming towards creating national libraries.

The 16th century libraries introduced separated areas for reading. Buildings now often had small openings on the facade to let the natural light illuminate the inner, now reading space.

Books that were previously ordered in rows on the side shelves were now placed more central making them more visible and accessible. At that time libraries often had galleries and were decorated with paintings in order to make them look wealthier and noble.

During following three centuries libraries continued to grow by continuously increasing their collections. All the way until the opening of the first public libraries, the collections were kept either in state libraries or in religious institutions.

Untill then, the main purpose of the libraries, except of keeping knowledge and valuable information, was to show off the wealth. Library was, and in a certain way still is, a luxury. Thus libraries were always richly decorated using only the best materials available such as marble, best quality wood or textile.

**Public libraries**

Throughout history the library was adapting, mostly to the political and, influenced by it, social needs. It was a place of intellectual interest, place of discussion, sharing views and awakening new ideas. It has always had a bigger role than just a place for storing books.

It was only at the beginning of the 20th century when first public libraries opened.

At that time the libraries got divided into public, academic and national depending on the literature available and on the accessibility. This library division resulted from the necessity to better organise the materials due to a constantly increasing number of written pieces, increased interest of the public for literacy and education, increased need of control of literature available and the desire for better public control.

By the middle of the 20th century, many new public libraries were built and were primarily used as a political tool for educating the masses.

Opening the libraries to the public positively influenced literacy and raised political, economic and social awareness.

Apart from universities, they were regarded as public buildings and centres of education.

Bearing in mind the fact that power and knowledge are closely related, the libraries were of increasing importance for the society and therefore were often connected, influenced and controlled by powerful and often ruling institutions, such as the state, religious institutions and few others. Essentially, the availability of information has always been controlled by economic and political interests.

As a consequence, at that time, the libraries offered selected information available to the public while teaching chosen ideologies in favour of someone's interest.

Studying the history, this is most noticeable in events of planned, forced and fast changing political and social order that libraries would become ideal places for spreading desired propaganda.

However, destroying the library also meant destroying the traditional, cultural and existing indoctrinations aiming to shake the pillars of the existing society. Weakening of the role of the library in society would then mean endangering culture and tradition.

**Library organizations and services. Technology and Digitalization role**

Every book in the library needs to be printed, bound, ordered, bought, delivered, catalogued, sorted before and after usage, when needed copied, scanned, cleaned, maintained and replaced.

Cataloguing is the most heavy and expensive service that libraries provide. It is usually being done individually for each unit by institution. After successfully cataloguing of a book, it needs to be sorted. This is also not an easy task since it needs to be well planned and maintained. Due to the limited physical space in libraries, they are storing only books of specific interest, and once the space gets full, efforts have to be made to reduce and to keep "the most valuable and important" volumes.

Good organisation is essential in order to properly store and maintain books since it is a never ending work that takes time, space and costs. The sorting and storing in more recent times is also being done also with help of the machines.

Using digital information, steps that include physical efforts such as printing, binding, delivery, sorting, copying, maintenance and replacement, can be left out or much easily accomplished. This would lead to a faster and more sustainable system. Consequently, libraries could be more cost-effective, efficient and flexible in changing their systems, upgrading, improving communication and sharing. They could focus much more on the users. Handling ever-increasing collections and faster implementation of new demands could also be more

straightforward.

A book can be identified in several manners, by author, theme, publication or language. If converted digitally the search can be further expanded by quotations, symbols, references, pictures, number of pages and more which in return could better meet the needs of the users which greatly differ. For instance, the manners in which scholars and quick-info seekers browse and process the information are different. This is also the case with users of different age, language, background and experience level. Therefore, information search and presentation should be more flexible, efficient and comprehensive.

Libraries serve to ensure that information and knowledge are available to everyone, not just to those who can afford it. That means that they allow people of any income level and background to access high quality information. This is not a charity work, it is a crucial work that helps raise the level of education in the society as a whole. Sharing information is a big responsibility, as well as keeping it. In the past a library was there to educate through the agency of a book, however, today there are more ways in which an information can be shared and expressed.

Traditional libraries keep information in their limited spaces and offer limited number of literature which is mostly in printed form offering the possibility of using only texts and pictures. Today's information is not only presented in written form, but also in a shape of other media such as newspapers, magazine, graphic images, audio and video recordings. That means that libraries are not places for storing only books anymore, but rather places for storing media as

well.

Digital library uses the virtual space to store everything apart from printed information bearing the form of texts, pictures, videos and audio recordings with the possibility of being interactive. They also offer the possibility for a faster upgrade and update all along successfully fulfilling present requirements. The final goal is to encourage people to read and learn. Taking this into consideration, every technological advance should be looked as an opportunity.

The European Union suggests that 90 % of all books in the European national libraries are no longer commercially available. In 2011 Google estimated that 75% of worlds printed books fall into the dormant category. Furthermore, a large number of books regularly fall out of print, nonetheless, due to the copy rights they are hardly available. Moreover, there are many "orphan books" whose author is unknown. This represents an enormous loss, both for the authors in question and for our culture more broadly. <sup>3</sup>

Once a library space is full, and has no free space for extension, the only option is to remove part of the collection or to digitalize it which is already happening. Therefore, digitalizing and using technology could be seen as an opportunity to "save" all of those disappearing data and work.

Since digital collections do not need to be bought, but also rented, the concept of building and storing collections becomes anachronistic. A digital library can assemble as many as rental contracts as its current patrons need, which could be renewed or cancelled according to negotiable terms. <sup>4</sup> That means that col

<sup>3</sup> Peter Barron: *The library of the future-Google's vision for books. Learned Publishing. Vol. 24. No. 3. 2011*  
<sup>4</sup> Lyman Ross and Pongracz Sennyey: *The Library is Dead, Long Live the Library. The Journal of Academic Librarianship. Vol. 34. No. 2. 2008)*

lections can be made, renewed and cancelled with little effort, in no time, and without physical constraints.

„As a result, today even small libraries can provide access to collections so vast that the number of titles no longer distinguishes the great from the lesser libraries. In a digital environment, the distinguishing characteristic of great libraries is that they will create virtual environments that are compelling and efficient to use, and are sensitive to the patron’s productivity.“<sup>5</sup>

Internet and Library

Even though libraries have been partially changing and adjusting, the traditional operation method essentially remained the same i.e. to store, order, preserve and pass on the knowledge.

Every advance in science or literature has been seen as new and important therefore the preservation of information has had a very important role and it was the primary task of the libraries. Up until the appearance of Internet, which influenced the society on all levels, academic libraries had no competition, so keeping their users had been an easy task.

“Libraries assumed that much of the material they purchased had lasting value and would be either unavailable or more costly in the future.”<sup>6</sup>

We have entered the new information age where technology is an element that is inseparable from the social, cultural, economic and political trend and which is leading to a transformation of the society as we know it.

„As we shape technology, it shapes us. We are connecting everything to everything, and so our entire culture is migrating to a „network culture“ and a new network economics.”<sup>7</sup>

Technology and internet changed forever the way we communicate and work together, the manner of teaching and learning, as well as the way we find, use, create and share information.

According to the global research data in Google Web index, by 1994 there were fewer than 1000 websites, by 1999 this number increased to 30 million which in 2009 had risen to 300 billion to lead to an estimate of 1 trillion websites in 2011.<sup>8</sup>

This makes information easily available and accessible and because of that, exchange is so vast that it begins to be difficult to distinguish between the reader and author.

Another problem when using the Internet is that it is packed with all sorts of information so sometimes it can be hard to distinguish between true and false, or high and less quality one. All information are being treated and presented in the same way. At least the available and the free ones. Nevertheless, it seems that the biggest and most serious problem for the society is that most Internet sites are controlled and commercialized by entrepreneurs which are in return more often than not led only by interest.<sup>9</sup>

So they actually “filter” the content presented. Furthermore, they make them available, accessible and make constant efforts to keep the old and attract new users. They follow the trends or even create new ones.

Because of this commercialized and “fast-food” information source, society needs better and more efficient quality control system and service. That service actually already exists and it is called a library.

Society today and its Working Field

“Closer analysis indicates that most patrons entering the library are not using library resources or services. They are buying coffee in our cafes, reading e-mail on our terminals, socializing with friends, or using group studies.”<sup>10</sup>  
This means that the libraries are being used as a local community place of refuge, as a place for information, inspiration and work.

If the users, being teachers, students, children or adults, do not believe that libraries offer them something they want, something unique that they cannot find somewhere else, the motivation for its use will decrease. This is already the case.

The major barrier of library change and reconstruction seems to be an adherence to a traditional thinking and lack of awareness or even avoidance as to what stimulates the present society.

Future libraries could be built on their already deserved identity and reputation as being part of cultural heritage but they also need to reflect ongoing social changes and technological developments. However, it is important that they continue to be the place of successfully promoting cultural and social values.

New generations are interested in communication and are very often using some ways to connect and communicate. They are dynamic, technology dependant and hungry for new experiences, but also less patient. Therefore, the main concern of today’s users is access to information and they want it now.

5, 6 Lyman Ross and Pongracz Sennyey: *The Library is Dead, Long Live the Library. The Journal of Academic Librarianship. Vol. 34. No. 2. 2008*  
7 Kevin Kelly in TED talk explaining his book „What technology wants“

8 Peter Barron: *The library of the future- Google’s vision for books. Learned Publishing. Vol. 24. No. 3. 2011*  
9 Anna Klingmann: *Datascapes – Bibliotheken als Informationslandschaften. Detail Vol. 3. 2005*  
10 Lyman Ross and Pongracz Sennyey: *The Library is Dead, Long Live the Library. The Journal of Academic Librarianship. Vol. 34. No. 2. 2008*

However, for a library to stay competent and to keep up with the new market, it is necessary that it follows and uses all of the tools that this new age brings. Every technological advancement should be seen and taken as an opportunity to improve.

The libraries should use every additional available tool to keep the already existing users and attract new ones. The aim should be detecting new approaches to getting and consuming information, encouraging new users, educating those that are less familiar with it, in order to accelerate learning, as well as to achieve and maintain a person's competence in today's market. Understanding and assisting people's needs is an important social and cultural task.

One thing to be taken into consideration is the fact that for individuals in public and personal settings, the willingness to employ something new is often related to their perceived personal competence when using it.

By taking advantage of new technology and digitalization, apart from keeping up the competence of the growing and very demanding market, a library could increase its efficiency by further educating, motivating, preparing and keeping its users to stay at work and to stay competent in today's rapidly changing world of technology dependent environment. It is important to realize and accept that we are surrounded by technology. That we are using and consuming it in every way, at every step, which, at the end, makes our lives dependant on it.

Bearing in mind that this leads to the fact that we consume, work, find, use and

share information in a different way than before, therefore, the manner in which we learn, study and work should change as well.

Taking into consideration all of the above elements and noticing how the information is presently being delivered, especially how young people reach it, it is important to stimulate people to again, especially the young ones, use different, actually an old source of information.

### Working places and Special libraries

One of the first ideas on the flexibility of libraries was studied in the beginning of 1970 when the British architect Harry Faulkner-Brown presented a catalogue of 10 qualitative design features for an "open plan library".

The "Principles of Library Building" explain how a new open plan library should look like: flexible, accessible, varied, organized, comfortable, constant in the environment, secure, economic, expendable and compact. Furthermore, it explains that those developments neither change the essential purpose of libraries nor the conception of their work, that they have remained the same since the first idea of library was developed i.e. collecting, preserving, maintaining and making their stocks available to their users.<sup>11</sup>

Today, flexibility, sharing and personal individualism are often very important factors of the society. They ought to be taken into consideration when thinking of new design, whether furniture, small accessories or a public building. We tend to customize everything, trying to be flexible to better meet the needs of people, realizing that they are different.

Corporations and firms whose work, and whose profit, in a way depend on their employees were of the first to realize the alteration in people and in the society tending towards higher level of individualism and customization. Investing and enabling collaboration of designers, psychologists, engineers and other specialists related to work and production, they researched and finally tried various techniques to increase the productiveness of their employees. The tools

that have been employed range from different shapes, choice of furniture, materials, colours, lights, textures etc., all which, for us, are familiar architectural elements. This results in creating various spaces offering and insinuating different environment and atmosphere to motivate and stimulate, to provide better working space with intention to increase productiveness.

Similar principles apply to children and young people. In modern and advanced kindergartens and schools different techniques are used for learning and stimulating, trying to motivate and keep the interest of pupils and students. These new ideas and principles which facilitate the creation of new working environments, applied mostly in offices, and fortunately gradually being used in kindergartens and schools, are slowly introduced to libraries.

<sup>11</sup> Ulrich Neumann: Grundsätze des Bibliotheksbaus in Petra Hauke, Klaus Ulrich Werner: Bibliotheken bauen und ausstatten. BOCK+HERCHEN. 2009

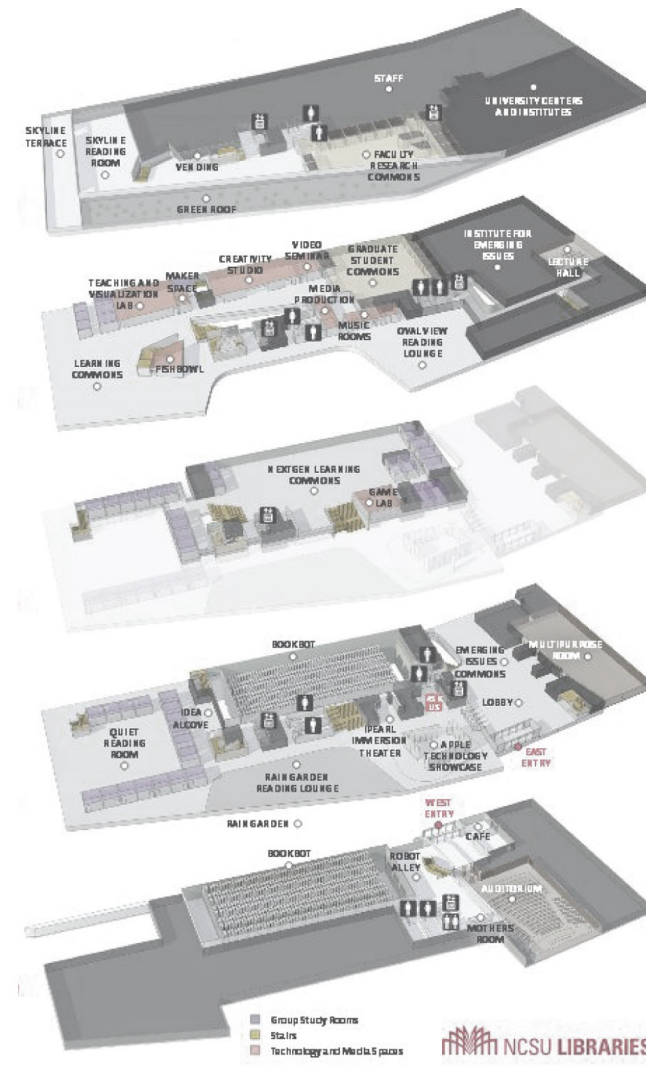
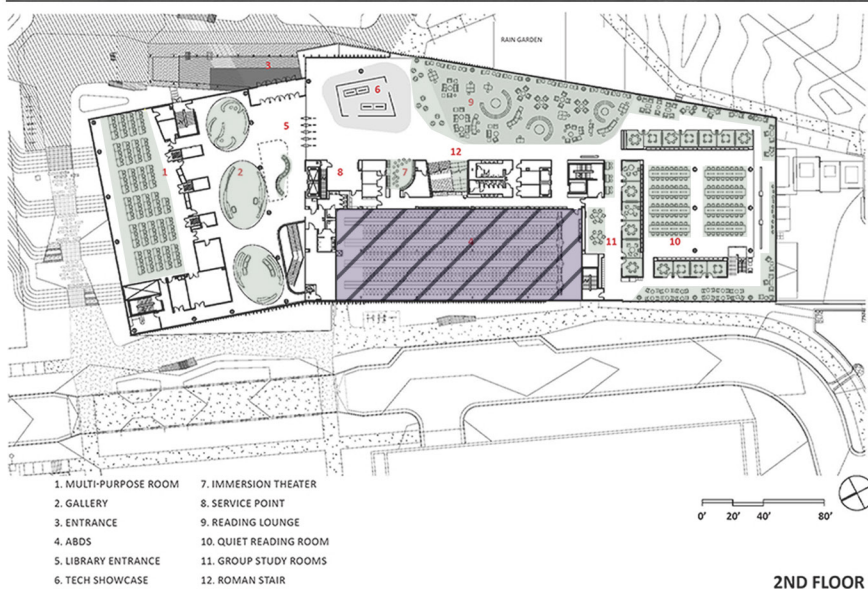
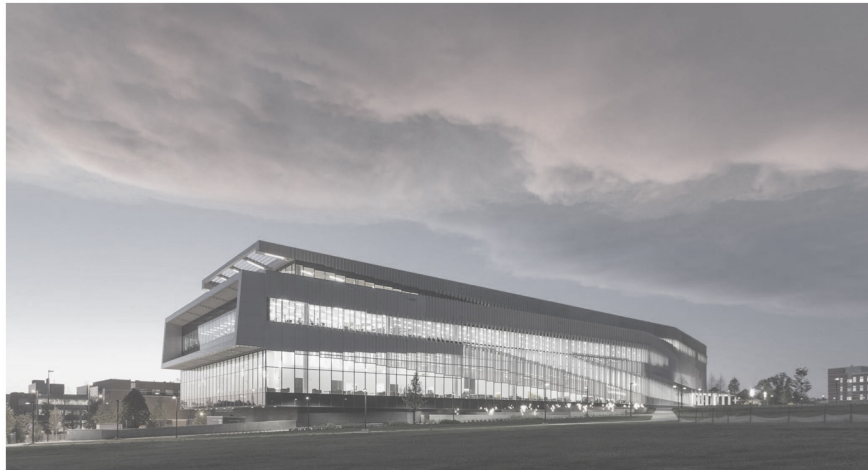


### Library Analysis

I present several libraries that I analyzed, not strictly looking at the traditional values of how many books they offer, but rather focusing on the manner in which the available information are being presented, and in the end, consumed. I compared them trying to emphasize the elements used that are credited for their success.

To achieve their intent, i.e. to have impact and influence on their surroundings, in each of them, different architectural elements and tools were being employed due to different background. Since most of them are purpose made libraries, they are aiming towards serving particular groups of users, whether students, kids, families, adults or users with or without previous knowledge.

In reference to the tools that are today being utilized in regards to digital data we could divide them into computers and tablets, for a single or several people use and projectors and beams employed to present digital data to more people.



## The Hunt Library, NCSU Snohetta

Project year: 2008-2013

Constructed Area: 20,500 m<sup>2</sup>

Most of the 1.5 million books in the Hunt Library are in the bookBot - Robot-driven automated book delivery system that holds up to 2 million volumes in 1/9 the space of conventional shelving.

The bookBot is 15.24 m wide, 49 m long by 15.2 m tall and is excavated 6.1 m below the first floor.

There is no definition per floors but rather per spaces. The library offers some special features such as special robotic book storage and retrieval system, a makerspace, 3D printing, technology-rich study rooms, audio and video production rooms, a video game lab, a teaching and visualization lab, and a technology showcase room demonstrating products such as tablets and Arduino available for lending or use in the library.

It has more than 80 different types of chairs with the Rain Garden Reading Lounge, the Quiet Reading Room and the Oval View Reading Lounge. Almost 100 group study rooms and technology-equipped spaces to support learning, research, and collaboration.

In praise of its architecture and technological innovations, the Boston Globe named the Hunt Library one of its "5 novel libraries" in April 2013.

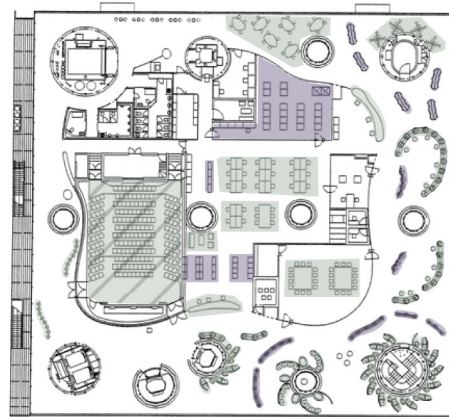
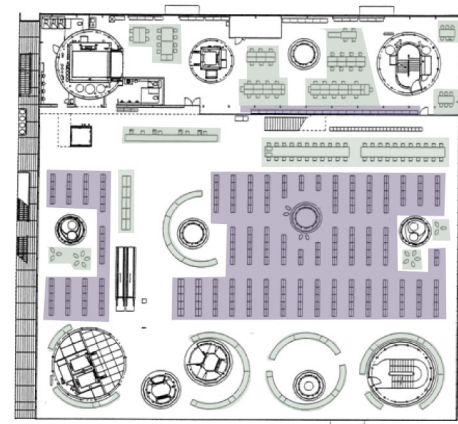
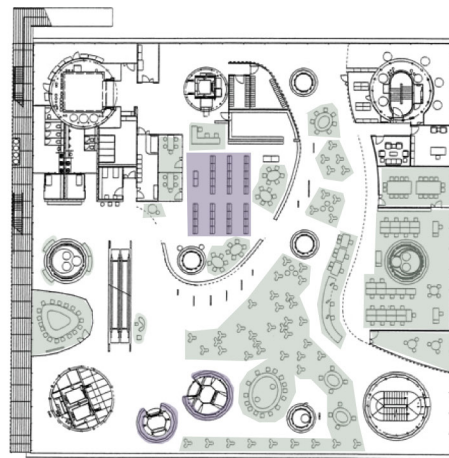
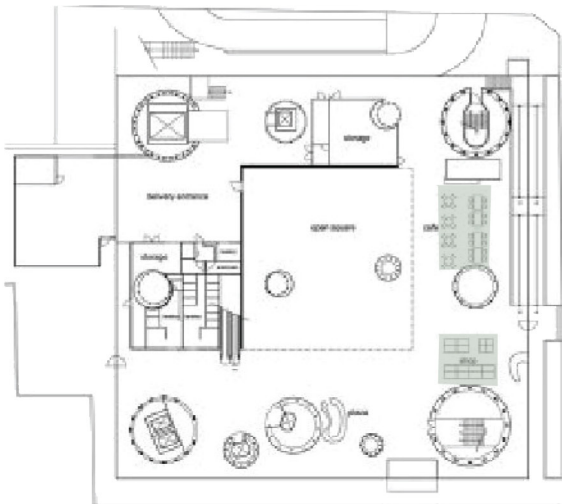
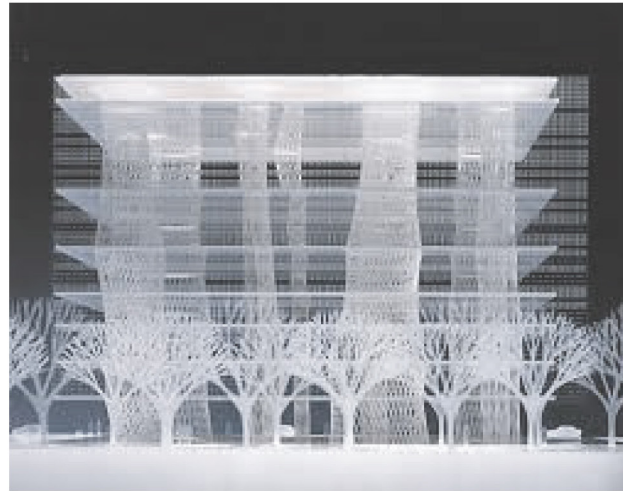
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<http://www.lib.ncsu.edu/huntlibrary/explorespaces>  
<http://snohetta.com/project/10-james-b-hunt-jr-library>  
[http://www.world-architects.com/en/projects/42358\\_James\\_B\\_Hunt\\_Jr\\_Library](http://www.world-architects.com/en/projects/42358_James_B_Hunt_Jr_Library)

The goal of the library was to offer advanced application of digital information technology and access to electronic materials, individual and collective study spaces that support both quiet, contemplative study and collaborative interactions and access to all of the required print materials.

### Legend

- public space for books storage (shelves)
- public working space
- public space intended for events (auditorium)





## Sendai Mediatheque

Toyo Ito

Project year: 1995-2001

Constructed Area: 21,682

Enclosed space: 53.000 m<sup>2</sup>

Open stacks: 4.700 m<sup>2</sup>

The Sendai Mediatheque is a mixed-program public facility which combines library and art gallery functions. The concept of project is an idea of “fluid” space of technology.

The building has an open floor plan which makes it flexible and adjustable.

The unique aspect of this building is the involvement of different designers, as the interior of each level is designed by another person which creates different spaces and atmosphere.

On the first floor is an “open-square” that is free to be used for different events.

Space usage is defined by floors.

First floor: Cafe, shop, information desk, “open square” multi-purpose event venue

Second floor: Multitmedia library, children’s library, inquiries for sight and hearing impaired, meeting room, current newspapers and magazines

Third Floor: Library




Fourth Floor: Library mezzanine

Fifth Floor: Public gallery spaces

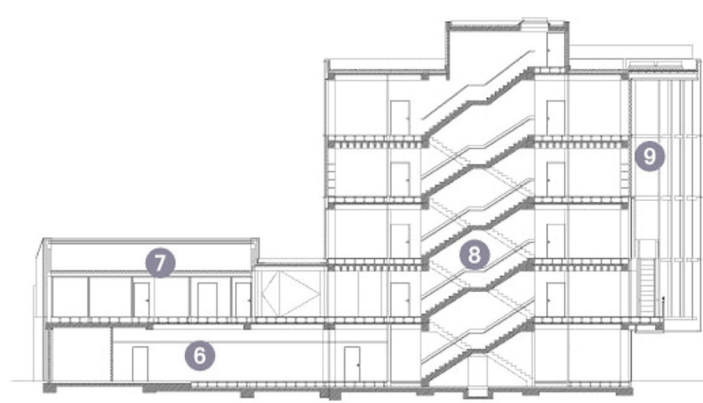
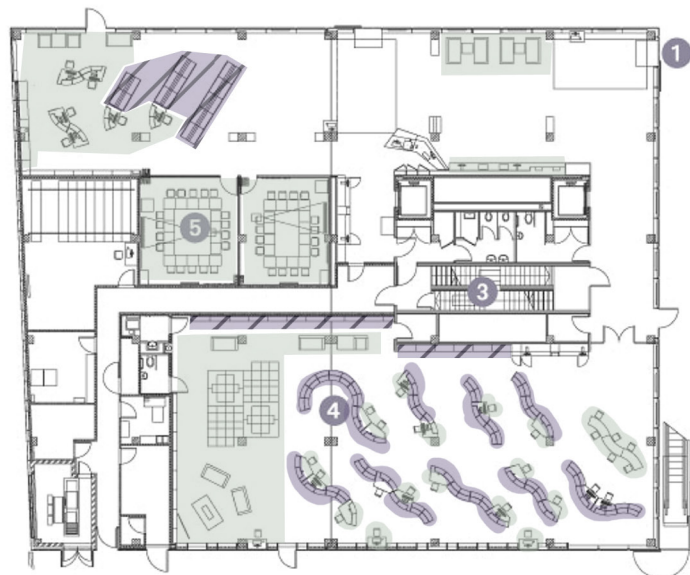
Sixth Floor: Professional gallery/exhibition space

Seventh floor: Cinema, studio spaces, meeting rooms, administration offices

## Legend




-  public space for books storage (shelves)
-  public working space
-  public space intended for events (auditorium)

<http://archdialog.com/tag/sendai-mediatheque/>  
[https://steelandglass2015.files.wordpress.com/2015/02/ito\\_sendaimediatheque.pdf](https://steelandglass2015.files.wordpress.com/2015/02/ito_sendaimediatheque.pdf)



- 1 entrance
- 2 escalator
- 3 stairwell and lifts
- 4 children's library
- 5 classrooms
- 6 children's library
- 7 plant
- 8 stairwell
- 9 atrium

#### Legend

-  public space for books storage (shelves)
-  public working space
-  public space intended for events (auditorium)

### Idea Store, Whitechapel Road, London David Adjaye

Project year: 2001-2005  
Constructed Area: 3,440 m<sup>2</sup>

Number of public computer terminals: 55  
Number of seats / study places: 134

The five storey highly accessible and transparent borough's flagship library, learning and information service, offers the fullest range of services: a large collection of books, CDs and DVDs, an extensive range of newspapers and magazines, a children's library, a cafe, free Internet access, a range of state-of-the-art learning spaces and classrooms, creche, dedicated reference and information library, dance studio, complementary therapy room, cafe, baby changing room and wheelchair accessible toilets.

Idea Stores are more than just a library or a place of learning. As well as the traditional library service, they offer a wide range of adult education classes, along with career support, training, meeting areas, cafes and arts and leisure pursuits but their major goal was to influence surrounding and meet the local needs.

After consulting with local residents in the largest consultation exercise ever undertaken by Tower Hamlets Council it became clear that major investment was needed.

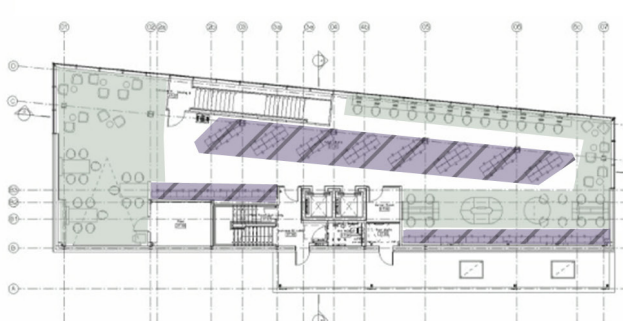
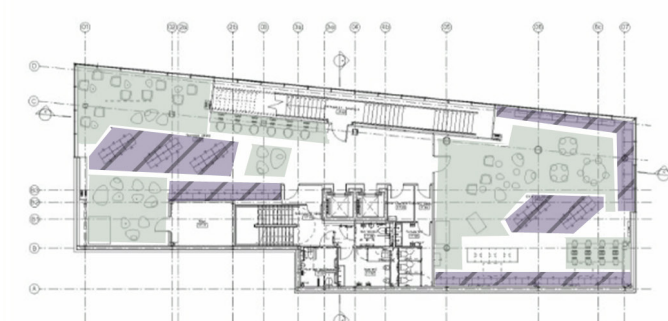
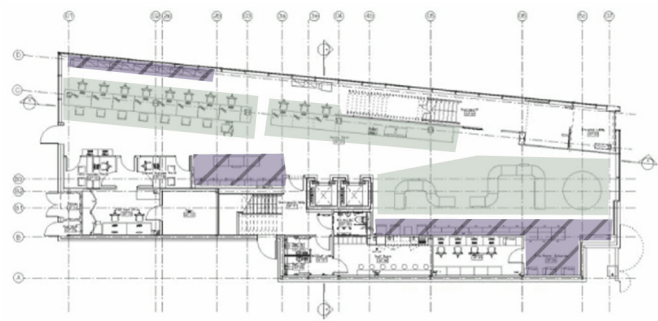
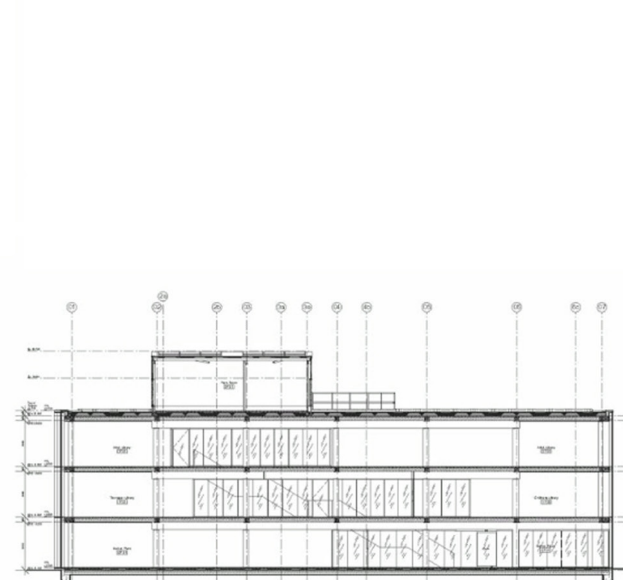
<https://www.ideastore.co.uk/idea-store-whitechapel>  
<https://www.ideastore.co.uk/idea-story>  
<http://www.building.co.uk/lovely-idea/3059479.article>  
<http://de.urbarama.com/project/idea-store-whitechapel>

The message from Tower Hamlets' households taking part in London's most comprehensive opinion survey about libraries was stark and simple: they wanted a high-quality, modern library service which provided a far greater range of services. Despite recognising the excellent effort of staff on behalf of residents, customers were dissatisfied with the quality, location and nature of the service they were getting.

The Secretary of State for the Department of Culture, Media and Sport, launched the groundbreaking Idea Stores concept in April 1999. Tower Hamlets, unveiled its plans to invest in library and learning services at a time when the national trend was to decrease funding.

The idea became a reality in May 2002 when the first, prototype Idea Store opened at Bow. This was followed by Idea Store Chrisp Street in July 2004, Idea Store Whitechapel in September 2005, Idea Store Canary Wharf in March 2006 and Idea Store Watney Market in May 2013





## Idea Store, Watney Market, London

Bisset Adams

Project year: 2013




Constructed Area: 1,300 sqm

Idea Store on Watney Market is based on three floors and offers a wide range of services, designed to be highly flexible. It is a vibrant mix of library, information, learning and community services.

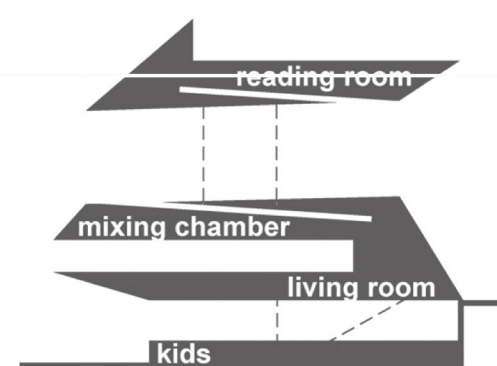
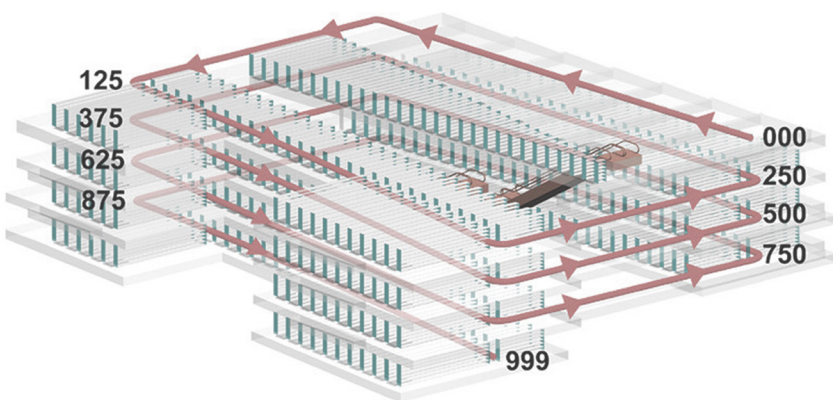
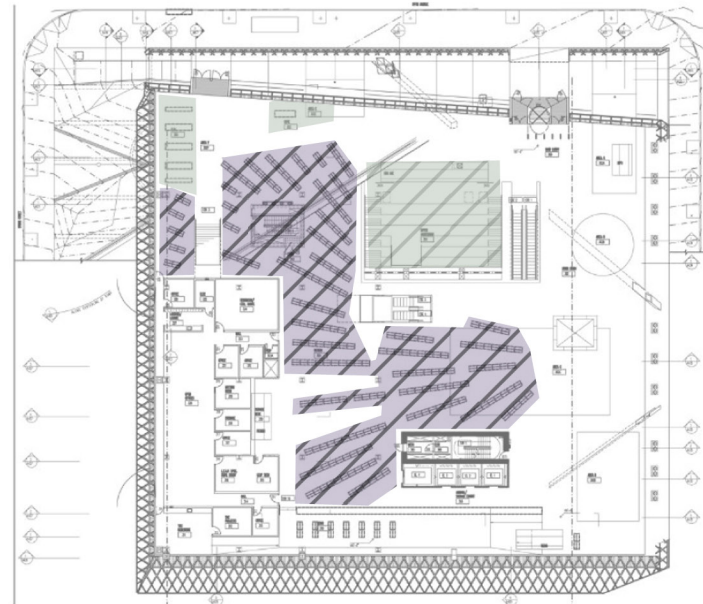
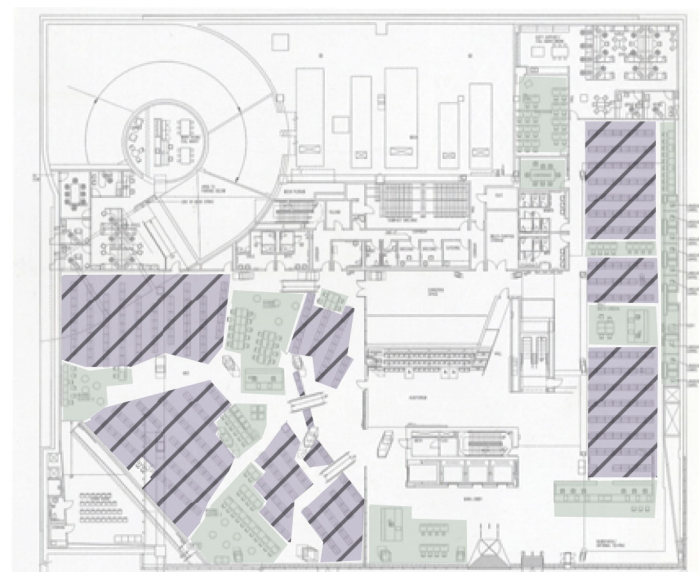
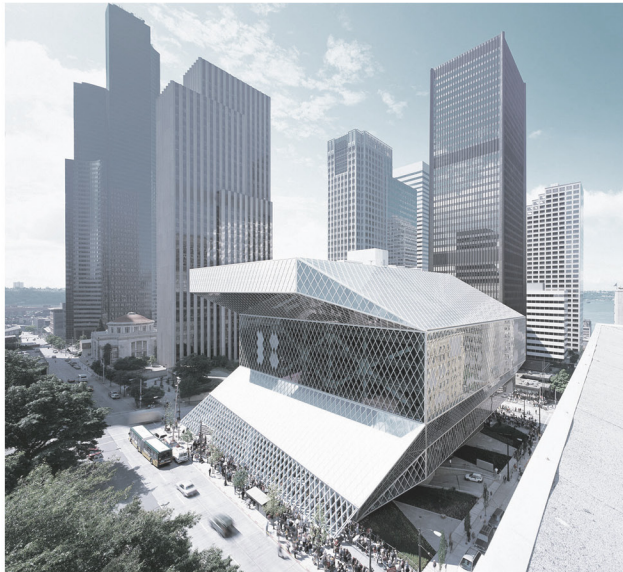
Based on the concept of a 'marketplace of information' with the library and council services as well as a range of partners for the council, offering services with the aim of providing benefits for local people in the areas of health and employment. Residents can access council services, as well as space for adult and family learning.

In the library are organised various activities such as Book Groups, for children Boys and Girls Clubs for reading and learning, Computer Club, Teenage Book Club, Homework Club, Dads' Club, Family Reading Group. For older people Prime Time to meet new and old friends and other similar activities.

### Legend

-  public space for books storage (shelves)
-  public working space
-  public space intended for events (auditorium)

<https://www.ideastore.co.uk/idea-store-watney-market>  
<https://www.ideastore.co.uk/idea-stores-watney-activities-events>  
<http://www.architectsjournal.co.uk/news/new-generation-of-idea-stores-set-for-east-london/8607795.article>  
<http://arquitectura.estudioquagliata.com/tag/bisset-adams>



## Seattle Cetral Library

OMA + LMN

Project year: 1999-2004

Constructed Area: 38,300 m<sup>2</sup>




The Central library for Seattle's 28-branch library system, including 33,700 m<sup>2</sup> of headquarters has the capacity of 1,5 mil books and materials, 400 computers, with a reading room, book spiral, mixing chamber, meeting platform, living room, staff floor, children's collection, uditorium and 4,600 m<sup>2</sup> of parking.

The library has identified programmatic clusters: five of stability and four of instability.

The spaces in between the platforms function as trading floors where librarians inform and stimulate, where the interface between the different platforms is organized having spaces for work, interaction, and play.

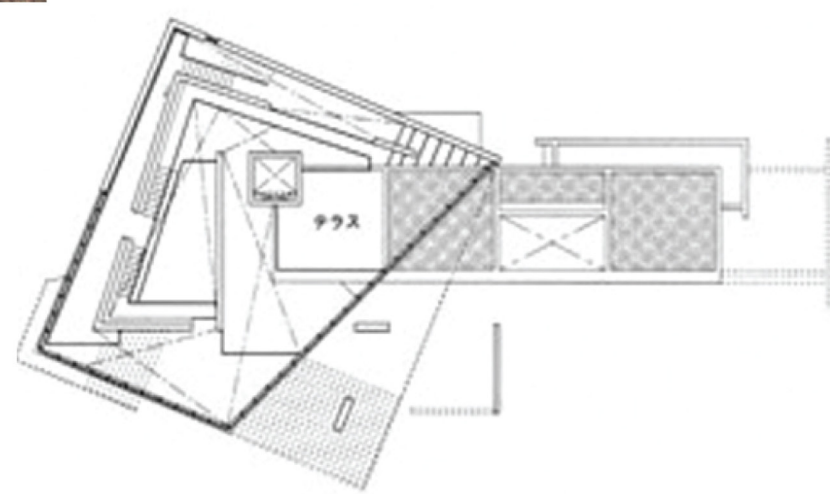
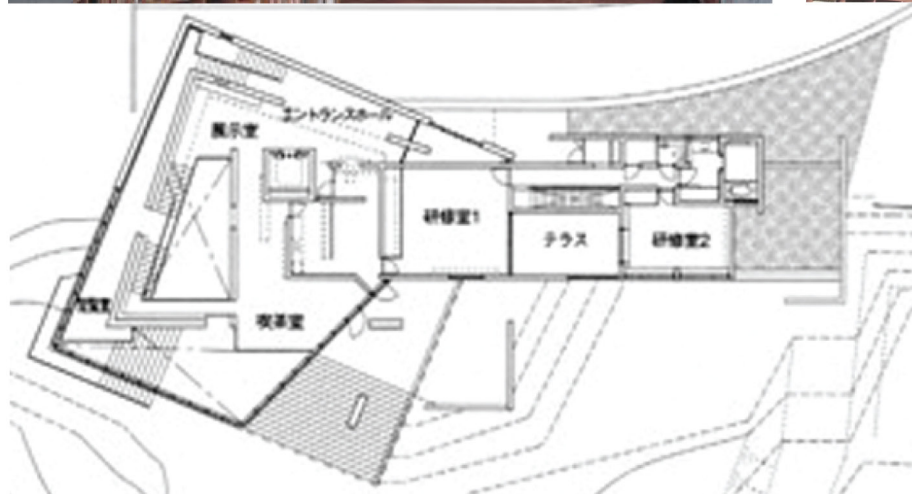
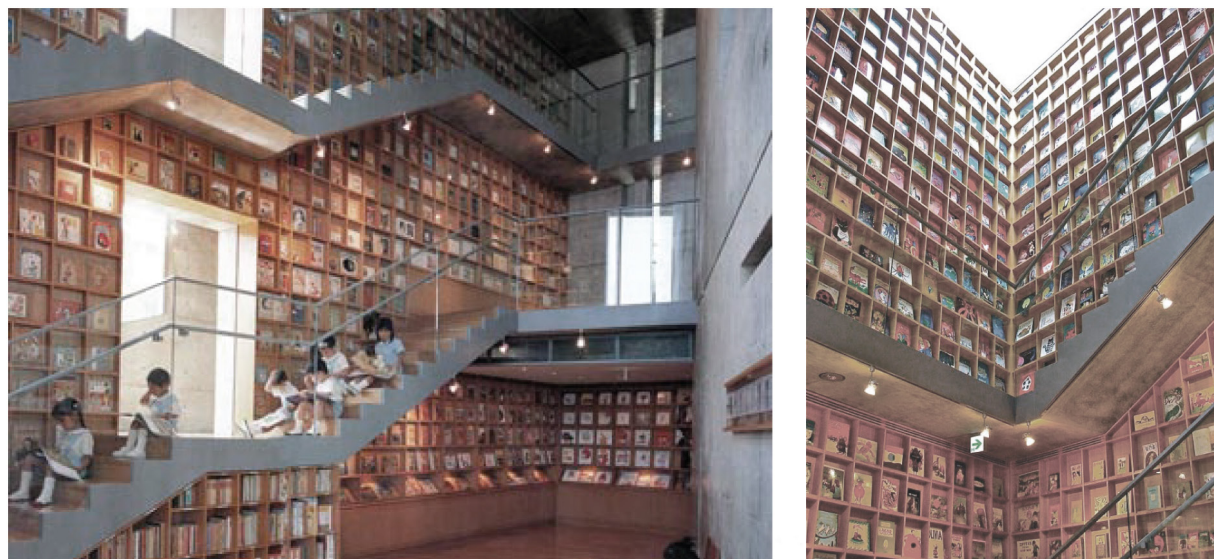
The programs are not separated, rooms or individual spaces are not given unique characters but it has spatial compartments where each is dedicated to, and equipped for, specific duties.

## Legend

-  public space for books storage (shelves)
-  public working space
-  public space intended for events (auditorium)

<http://www.archdaily.com/11651/seattle-central-library-oma-lmn>  
<https://architectureinmedia.wordpress.com/2008/03/07/plan/>





## The Picture Book Museum in Iwaki City

Tadao Ando

Project year: 2003

Constructed Area: 634 m<sup>2</sup>

There are approximately 10.000 books in the collection, 1500 of which are on display at any given time.

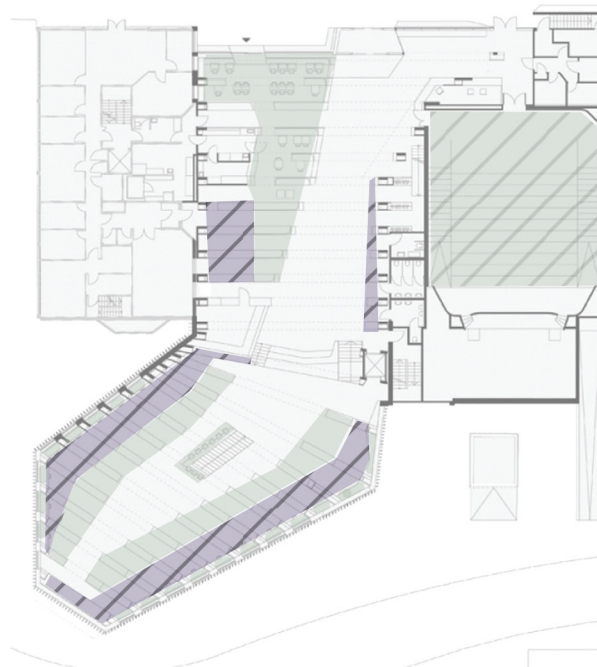
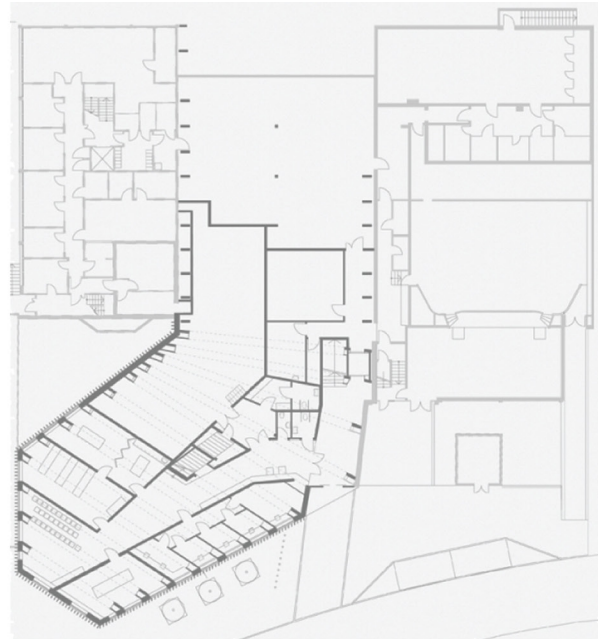
The library is build to serve the three Preschools so it contains only picture books aimed at young children.

Both the interior building and exterior grounds are full of kid-friendly play spaces and nooks for reading. Decorations are minimal, largely consisting of the books themselves in a cover-out display that dominates the space. All books are directly approachable.

Stairs ascend throughout the room, acting as both a method of conveyance and seating for reading children.

Some proportions of the building may also seem unusual to adult sensibilities because of the child-sized scale. Stair railings are at both child and adult level. The windows appear to incorporate panes that are child-scaled. Even the bathroom facilities exhibit sensitivity to the size of the primary user.

<https://libraryarchitecture.wikispaces.com/Picture+Book+Museum,+Iwaki+City,+Fukushima+Prefecture,+Japan+%28building%2>  
<http://all-that-is-interesting.com/the-worlds-coolest-libraries/2>



## The Vennesla Library and Culture House

Helen & Hard

Project year: 2011

Constructed Area: 1,900 sqm

Original intent was to mark the city's cultural centre and public meeting place.




Supporting the idea of an inviting public space, all main public functions have been gathered into one generous space allowing the structure combined with furniture and multiple spatial interfaces to be visible in the interior and from the exterior.

The new library in Vennesla comprises a library, a café, meeting places and administrative areas and links an existing community house and learning centre together.

The façade consists of glass and an urban loggia provides a protected outdoor seating area.

In the main room there are no walls to separate the different functions: functions overlap each other and are only differentiated by means of furniture and other fittings.

### Legend

-  public space for books storage (shelves)
-  public working space
-  public space intended for events (auditorium)

<http://www.archdaily.com/209340/vennesla-library-and-culture-house-helen-hard>  
[http://www.helenhard.no/projects/vennesla\\_library/](http://www.helenhard.no/projects/vennesla_library/)



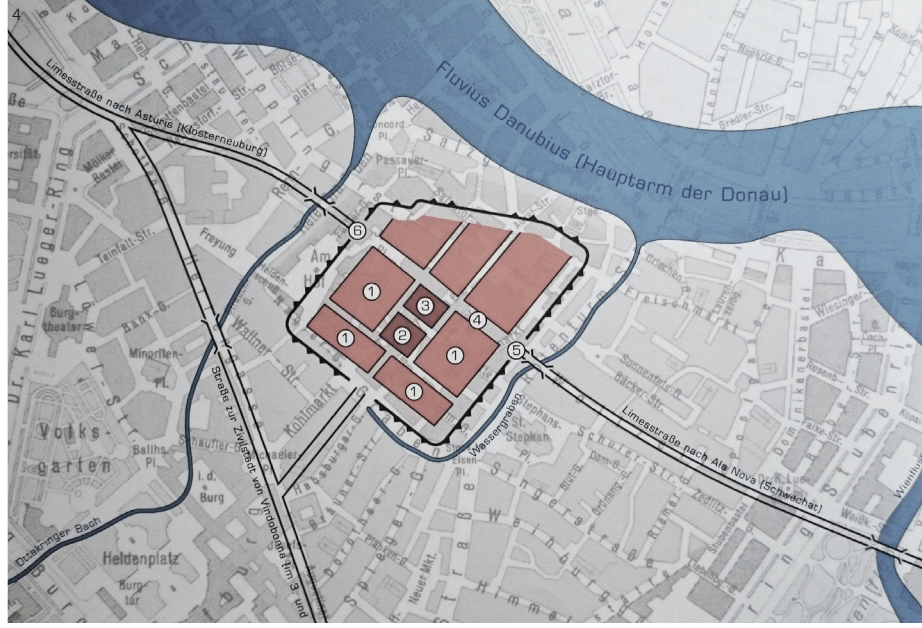


## DONAUKANAL - THE DANUBE CANAL

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2 The Danube Canal at night





## Vienna and the Danube flow

Already 20,000 years ago in the region of today's Vienna, first settlements were constructed. It was a good place, surrounded by hills, woods and most importantly by river. The river was essential for water and food supply at the same time protecting the settlement on the north. Furthermore, its position in the continent, at the second longest river in Europe, the Danube, was of an utmost importance.

Danube is a river that springs in central Europe, flows through another 9 countries and ends by emptying into the Black Sea. For centuries it was one of the most important shipping route which expectedly had a great influence of the future regional development.

It was during the Roman Empire in 70 AD when the city of Vindobona was built. Even today, some of the streets in the First district of the city actually follow the same paths of the old stone walls. The city continued to grow and so did its fortification.

Even though the river was the most deserving in regards to the development, it was also the cause of many great problems. The main current of Danube was actually relatively weak, however, the river was curving greatly thus creating many arches that influenced its side flows which were additionally often changing position. One of those side flows, called Nebenarm i.e. Wiener Arm, was close to the centre of Vienna, flowing just under its walls.

The river was seasonally over flooding or, the opposite, getting very shallow or was being swept by drifted ice. This all made the constant river usage, building and keeping safe surrounding very difficult. This inconstancy caused the first bridges to be built relatively late, only in the 14th century. The first permanent bridge built across the Danube, Schlagbrücke, was built in 1350 in the place of today's Schwedenbrücke. It connected the Rotenturm (Red tower) and the lower parts of the city called Untere Werd.

The irregular, uncontrolled flow affected food supplies, transportation, trade and prevented inhabitants of the surrounding to permanently plan and build around the river, making life and further development of the city harder.

Since the city was fortified and the population of the city was constantly growing, the population of the villages surrounding the city was increasing thus the stability of the river flow was getting more and more important. The attempt to create a stable access to the Danube continued and in the beginning of 17th century part of the city facing Wiener Arm was being straightened by building the masonry and in the same time creating the port.

For the next hundred years, those ramparts offered the only protection from over flooding, until the first partly successful project to control the current was developed.

The additional attempts to keep the flow regulated and constant by making the bed of the canal deeper in order to prevent drying in summer and by straightening the direction of the flow from the upper part near Nussdorf

3 Map of Danube  
4 Vienna in time of Roman Empire  
5 Danube close to Vienna in 1848





towards the middle central part did not have any long-term success.

Regardless the problems that Wiener Arm was causing, the city continued to grow along it, making the neighbourhoods encircling it to develop fastest.

The canal at that time was a place of markets, trade and the border of the old, still fortified, city.

The trade and transportation were of a significant importance so the first ship office (Schiffamt) was opened in 1688. In 1721 the water board's office (Wasserbauamt) was set up followed by the establishment of the first barracks (Kaserne) in Vienna in 1723. At that time Leopoldstadt was the most populated part of Vienna.

New buildings and new recreational parks such as Prater, Augarten and Brigittenau were being built.

Because of the main traffic roads passing along the canal that were being seasonally endangered by the flow that was still not completely contained, the importance of controlling the flow for the future urban infrastructure planning was becoming essential.

The next partly successful attempt to control the flow of the river was made in 1776 when the dam (Hubertsche Damm) on the left side of the flow was constructed. However, 10 years later, unfortunately the dam was destroyed by the strong high waters.

The dam was not being restored and the endeavours aiming towards regulating the flow continued. Furthermore, building the wall in an effort to control Wiener Arm continued. The direction of the flow was straightened, the canal edges were strengthened and the bottom was dredged in order to achieve bigger depth. The result was that at the beginning of the 19th century the central part of the canal was shaped to the form that it still keeps today.

Unfortunately, these efforts were not sufficient in regulating the flow throughout the whole year. Once more, in 1825, the canal was too shallow for the ships to pass, followed by drifting ice in winter.

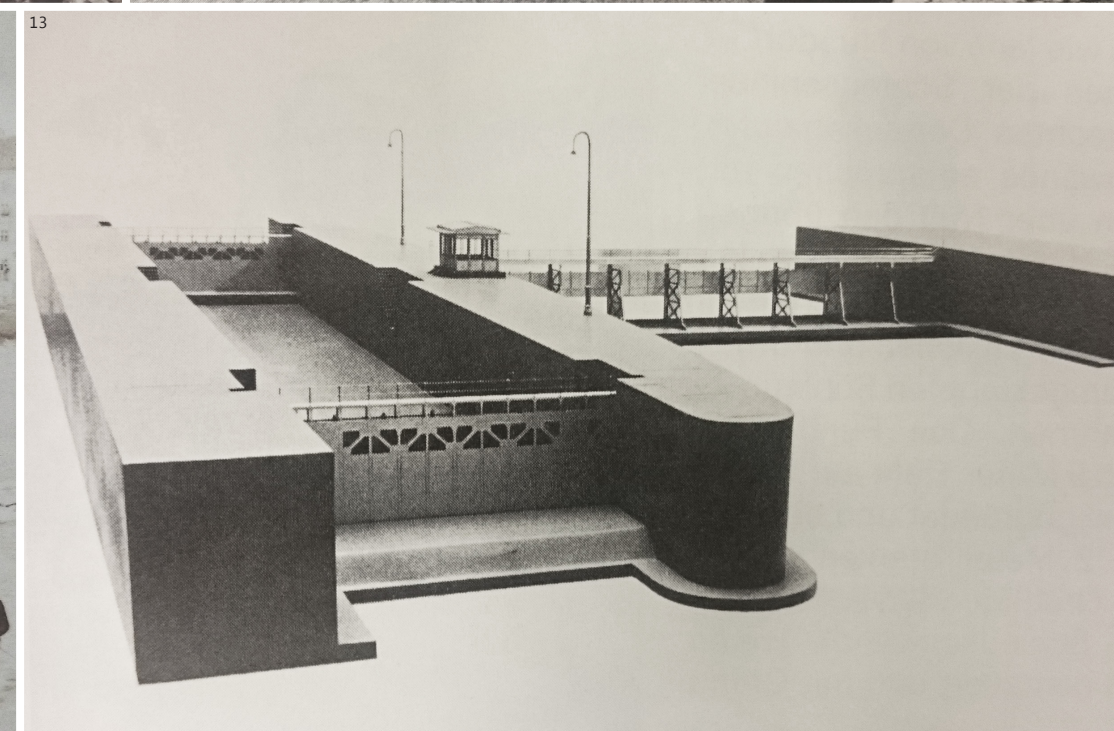
The city was growing and the industry was developing. Since the city was expanding, old city core needed to connect with the outer already urban parts, so in 1857, upon the demand of Emperor Franz Josef I, part of the old fortifications facing the canal were dismantled. This was followed by opening of the city from another parts thus creating today's Ringstrasse with its old and noble buildings. The Danube Canal and Leopoldstadt soon started to be of a less importance despite building a number of new bridges and the increasing importance of Franz Josefs quai.

The unification of the city accelerated the infrastructure development. By the end of the century new roads, railway tracks, and even the first tramway were built.

The next important project that would try to prevent the flooding of the canal was in 1873. By the initiative of Emperor Franz Josef, the architects

6 Vienna Austriae, Wien in Oostenreyn, colored engraving from Jacob Hoefnagels 1609  
7 Vienna in 1830 from Vasquez Leopoldstadt  
8 The overflooded city of Leopoldstadt in 1784  
9 The plan of Vienna, suburbs and the surrounding, engraving in copper from Johann B, 1931





James Abenethey and Georg Sexauer, who already had experience with new technologies and strategies by working on the Suez Canal, were invited to try and solve the problem of regulation of the flow in Danube Canal.

The solution involved altering of the opening of the Danube Canal, fixating its width and extending the flows length from 14 km to 17 km. New sluice gates were installed on the canal that could open and close it in order to control the amount of water and ice entering the canal. Even though the flooding and ice breach were prevented, the attempts to keep the level of the water constant were still unsuccessful. In summertime the level would still sink to the point where the approach of the ships was impossible.

### Successful regulation of the Danube Canal, Kaiserbad weir and Schützenhaus (Control House )

The next three big, and most importantly, successful projects that followed the traffic and railway development, including building new bridges, installing sluice in Nussdorf (Nussdorferschleuse), sluice next to the Kaiserbad (Kaiserbadschleuse) and the chamber (Kammerschlese) that could accomodate big ships.

Apart from controlling the water flow, the locks also controlled number of ships entering the canal keeping the water traffic in the canal less crowded.

Otto Wagner, who was at that time one of the leaders of the new Jugendstil movement (Austrian Sezession), got a main design role for the buildings connected with the infrastructure in those projects.

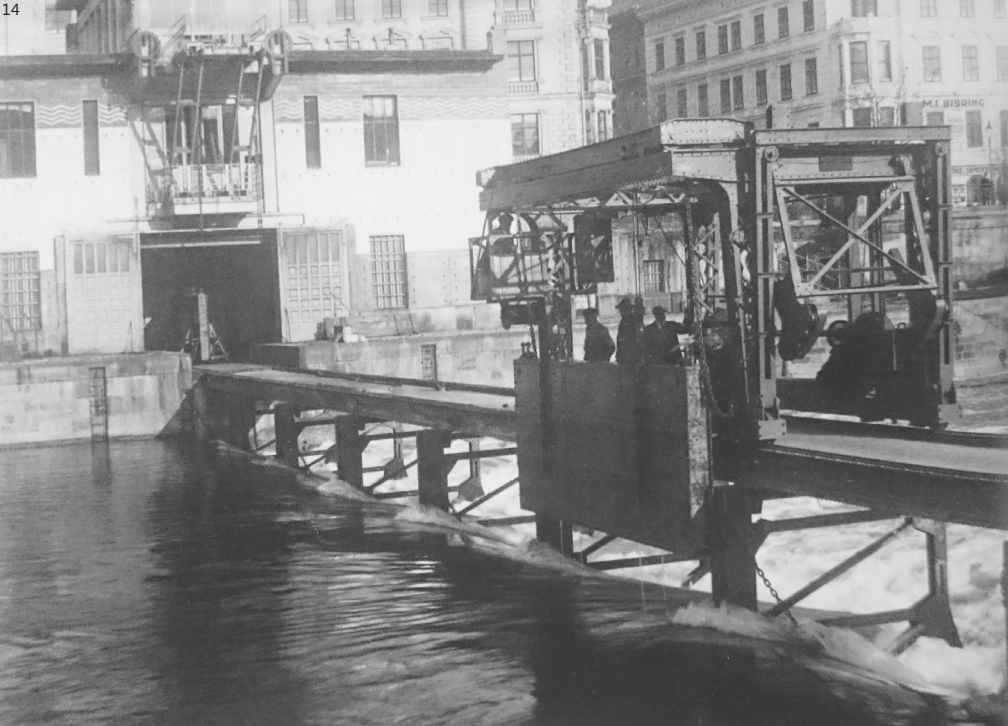
The Kaiserbad sluice and weir (Kaiserbadschleuse und –wehr), placed instead of previous Kaiserbad between Augarten and Saltor bridge, were closest to the city.

The island for the sluice was being built in the period 1904 until 1908. Its width was from 4.5m to 10m and was 122m long. It was built out of concrete, with 0.5m to 1.5m thick ashlar masonry (Quadermauerwerk) and its depth from zero to the bottom was 8m.

Since the weir was build together with a control house where the mechanism

- 10 Franz-Josephs-Kai before regulation, with Ferdinandsbrücke in the background 1895
- 11 Building up the right part of the weir
- 12 A vessel and horses in Danube Canal in front of Dampfschiffstrasse in 1897
- 13 Picture of the model of the Kaiserbad weir





for lifting the gates was installed, Otto Wagner took a special care in designing the Control House (Schützenhaus). This functional building, that had a strictly technical purpose, had an iron construction with corresponding big foundations, but with a facade that was carefully designed in Jugendstil. The facade of the ground floor was covered with 5 cm thick granite slabs from Mauthausen. At a first level height there were plates of Sterzinger marble. Each plate was fixed with visible aluminium screws and the top part was covered with ceramic plates bearing a wave pattern.

Even though the weir and sluice were fully functional, the sluice chamber never took any real vessel and was never operational. The Kaiserbad sluice was destroyed during the Second World War in 1945 and was never rebuilt. The Schützenhaus was renovated in 1977.

After 1930 vessel traffic was prohibited. However, the region of Danube Canal continued to be used bearing a more social and meeting place function. It served as an attractive area for social encounter with public baths, markets, with elders walking and children playing.

It was a constantly growing area where administration buildings and housing were rising but unfortunately without any urban planning. Even the empty spaces which were created by the destruction of the buildings during the WW II were filled with new ones just in order to fill up the empty space.

After the 1950s the bridges were repaired and new were made. The whole interconnection of the city improved. The infrastructure was upgraded, metro

line U4 opened and bridges and pavements became wider in favour to pedestrians. However, the new roads tracking and crossing the canal became heavier and busier, in a way disregarding the existing closeness between water and nature.

- 14 Schützenhaus and Kaiserbadwehr 1910
- 15 View of the Schützenhaus
- 16 Franz-Josephs-Kai before regulation, with Ferdinandsbrücke in the background 1895
- 17 Regulation of Danube while building the city railway, with Ferdinandsbrücke in the background 1901





### Regulated Danube Canal by the end of the 20th century

In time the Canal became neglected, unmaintained and poorly used only during summer days by small groups of people.

The steep Kai walls and the scarce access points to the canal alone made it less accessible for pedestrians. The buildings edging the canal served mostly for administrative and housing purposes and were built too high with no human friendly scale or without significant architectural value. Difficult accessibility, lack of trees and green, insufficient night illumination and general design abandonment in time made the Danube Canal area less attractive.

### New urban plan STEP 05

Finally, the last urban planning initiative called STEP 05 (Stadtentwicklung-splan 2005) and the Masterplan for the Danube Canal, studied the situation closely and identified missing elements needed for the revival of the canal making it more accessible and bringing it closer to the people.

Before taking those steps and before actually commencing with the building of the projects to revitalize the canal, it was important to make it more approachable by introducing new traffic options such as the metro line U2 with a direct exit to the canal, new city bike stations and elevators.

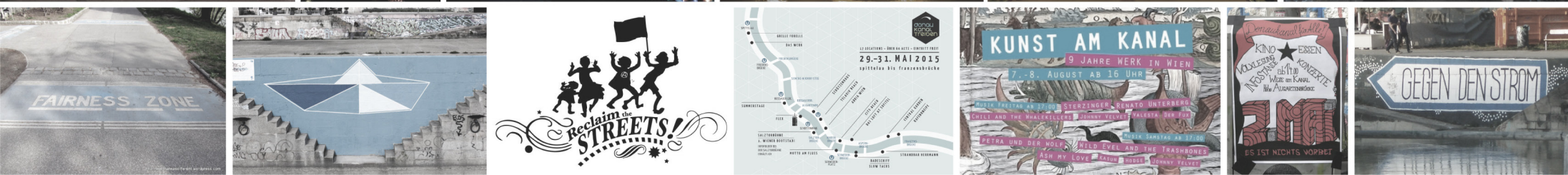
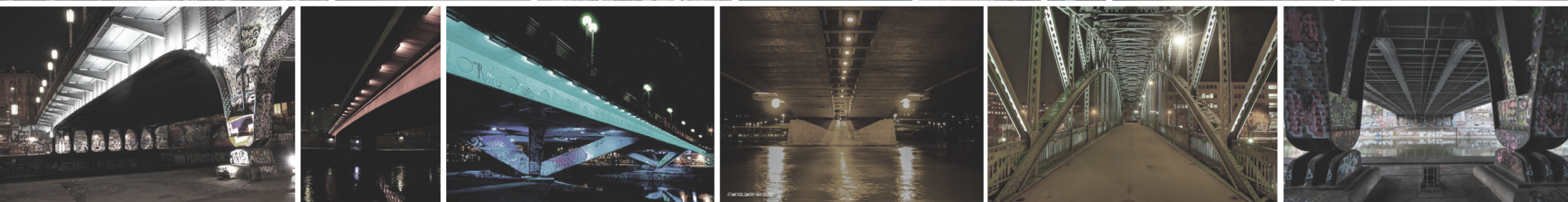
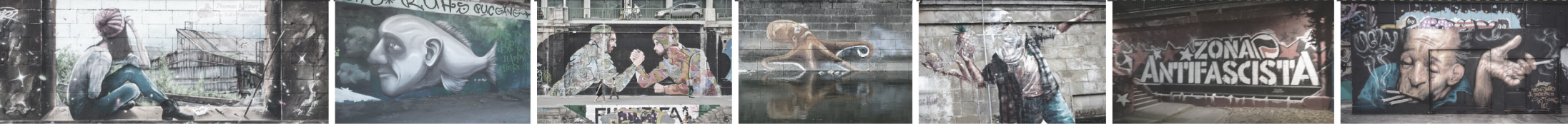
Aiming towards welcoming users of all ages, new playgrounds, sports facilities and green areas were built. Also gastronomic and entertaining facilities such as clubs, bars and restaurants, some of which operating on permanent and others on temporal basis, were opened.

It all led to spontaneous emergence of new places ranging from the urban-agricultural space used by people interested in this area to a sculpture and painting park where various workshops have been organized to wall-climbing courses.

All of the above alterations and novelties resulted in making the Danube Canal very popular and a vibrant area gladly used by people of all ages, especially during warm and dry days and nights.

- 18 Fish market in 1905
- 19 Public bath next to Schwedenbrücke 1930s
- 20 First sun of the spring 1975





## The Danube Canal today

During the last several years it has served as a home to many summer festivals and various events such as the Waves Vienna, Donaukanaltreiben, festival of the second district, and many other art, music and theatre performances organized by groups or individuals, sometimes creating provisional stages or just simply finding their place on the partly path. It has also been a place of temporary exhibitions, flea markets or counters selling books, art or various accessories.

Today, the Danube Canal is a place where arts, music, sociology, psychology, philosophy and politics meet. It is a place where the current state of the society can be seen and where the freedom of speech is widely used. Today a person of every age can sit on the bench, grass or pavement on the Donaukanal. People are free to walk, run, jump, play in the sand or grass, swing on the swings, seed flowers, build sculptures, climb the wall or paint. They can drink fresh squeezed juice, beer or fancy cocktail. Eat fresh fish, soup, hot dog, hummus and olives, ice cream, pancakes or potatoes. See performances, be part of various discussions or protest. Listen to more or less known bands, DJs or just the radio. There is a choice between being part the crowd, being seen or just simply retreat, sit in the sun or in the shade. The Donaukanal offers a place and a choice for everyone.

Bearing in mind its huge and increasing popularity and its rising importance to the city, I believe we should be careful and “keep an eye” on its rapid development still being able to direct it, protect it and, most importantly, to keep its positive influence on the quality of the Viennese life.

The Danube Canal finally got the attention it deserves by making it a unique place in the city where urban life, water and nature meet. After all, it has already proven its special role through the history of Vienna.





## eHIRNSEGEL



**The Danube Canal - Position in the city**

Donaukanal borders seven Viennese districts: 1., 2, 3., 9., 11., 19. and 20.

Its flow is distinguished by upper, middle (central) and lower flow (by the urban planning programme STEP 05).

It is distinguished according to its position, landscape, usage, design and activities offered.

The upper and lower flow are more nature oriented with park-similar landscape, edging river with a natural slope. It is wider and has more green and free surfaces than the middle flow.

The middle or cetral flow is edging the river with it's Kai walls which dominate the landscape.

The central part is more urban, built and rough, offering more gastronomic and entertaining facilities of temporary and permanent kind.

**Situation Plan**



### Location analysis

The building site is located on the long and narrow island on the Danube Canal.

The location is on the intersection of three Viennese districts; 1., 2., and 9.

It is 2 min away by foot from the metro, tram and city bike station making it easily connected to the other parts of the city.

The nearest metro station is the intersection of two metro lines (U2, U4) both connecting three main Universities; Vienna University of Technology, University of Vienna and Vienna University of Economics and Business.

Two lines 1 and 31 drive from the tram station. City bike station is placed on the both sides of the Canal.

The Danube Canal has gone through big urban transformation lately. Its development made the area of the Canal lively and popular, positively influencing the surroundings. In the last few years new galleries, spaces for education and art has been opened, as well as new permanent and temporary bars on the Canal itself.

### Situation Plan

1:12500

The plan shows all public and private institutions related to education and learning, free activity spaces, museums and galleries, permanent and temporary gastronomy and entertaining offered along the canal, in a radius of 500 - 1500 meters (6 - 18 min walking distance) employed by potential library users.

### Legend

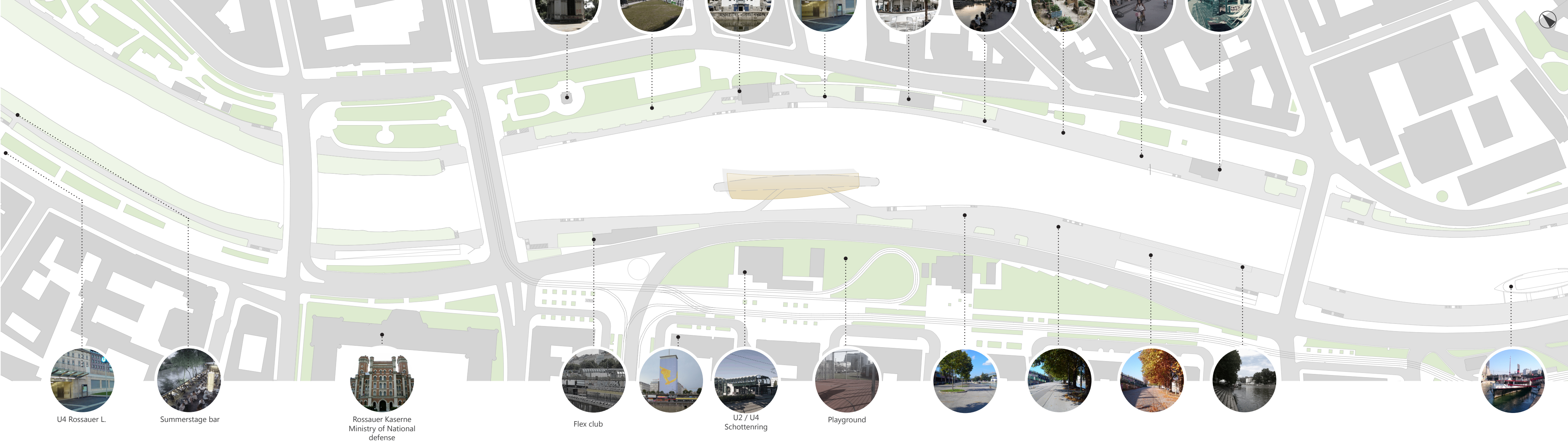
- Historical Site | Cultural Heritage
- Gastronomy: Bar, Club, Coffee shop, Restaurant
- Hotel, Hostel, Student Residence, Apartment
- ⋮ Commercial area frequently visited
- Museum, Gallery, Exhibition space
- Office, Studio
- Sports ground, Children playground, Sport centre
- Markets, Stands
- Art: Stage, Exhibition wall surface, Sculpture
- Public administration, Public facilities
- University, School, Kindergarten, Library





Situation Plan

1:2000



Noise Exposure

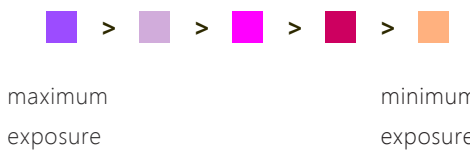
The building is situated between two very different noise impacts. One side is exposed to heavy noise produced by the heavy traffic. The other side is relatively quiet with occasional noise made by passing travel boats.

Therefore the building's space usage i.e. floor plan reacts to the noise exposure having on one side service facilities where the facade is being mostly closed.

The other side of the building is a library and working space with open and transparent facade.

Noise Exposure Diagram

1:12500



Functions Plan - Space Programme

The library has an area of approximately 1000 m<sup>2</sup> and is intended to be used for reading, learning and work, adapting its flexible space to the needs of its users.

Ground floor:

The shape of the building defines its inner and outer space.

The core of the building is slightly lifted creating curved bottom which affects public part under, on the ground floor, by simulating a centre on the island (a).

It also enhances acoustics making it a good space for public performances (b), but at the same time leaving the other part of the island private and quiet (c).

First floor:

The shape of the building defines its interior space. Two slope directions divide its functions and views (d) (e).

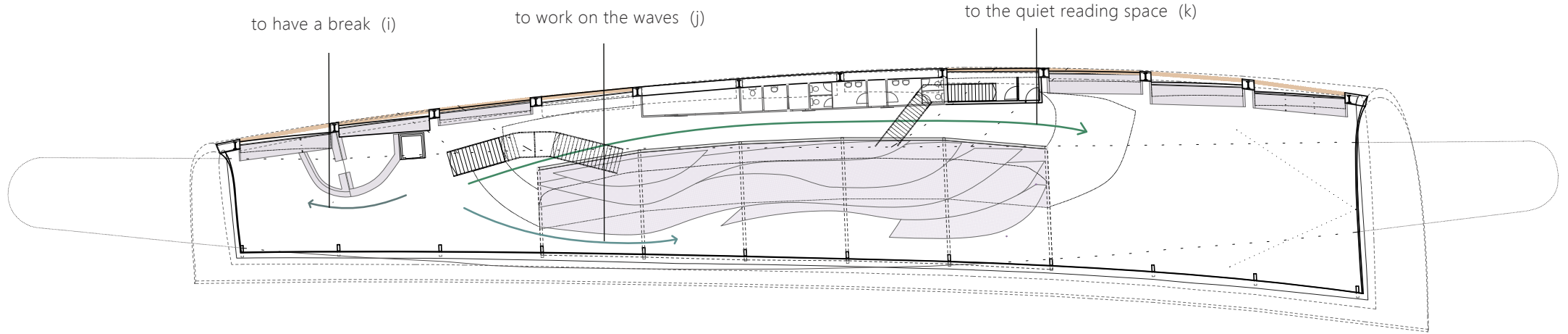
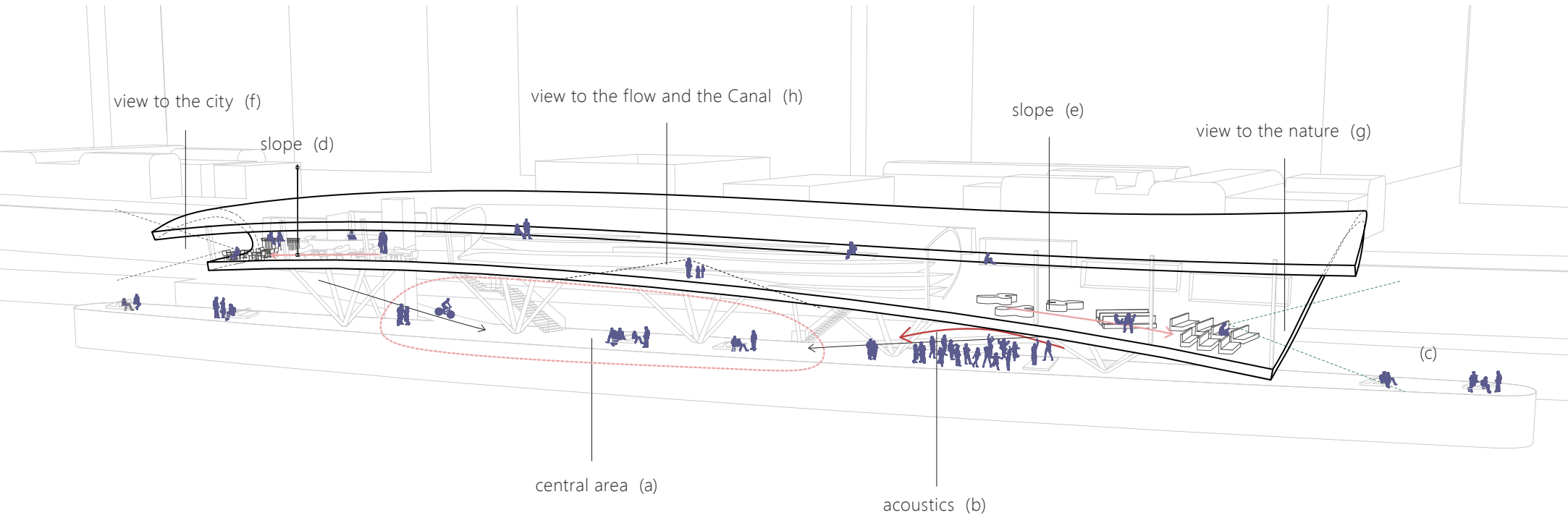
The space of the building oriented to the active part of the city is used for break and coffee (f).

The other part oriented towards the upper flow and its natural environment is intended for quiet work and reading, while the slope frees the view to the nature, at the same time making an auditorium (g).

The middle part of the building used for group and single work is oriented towards the flow and the other side of the Canal (h).

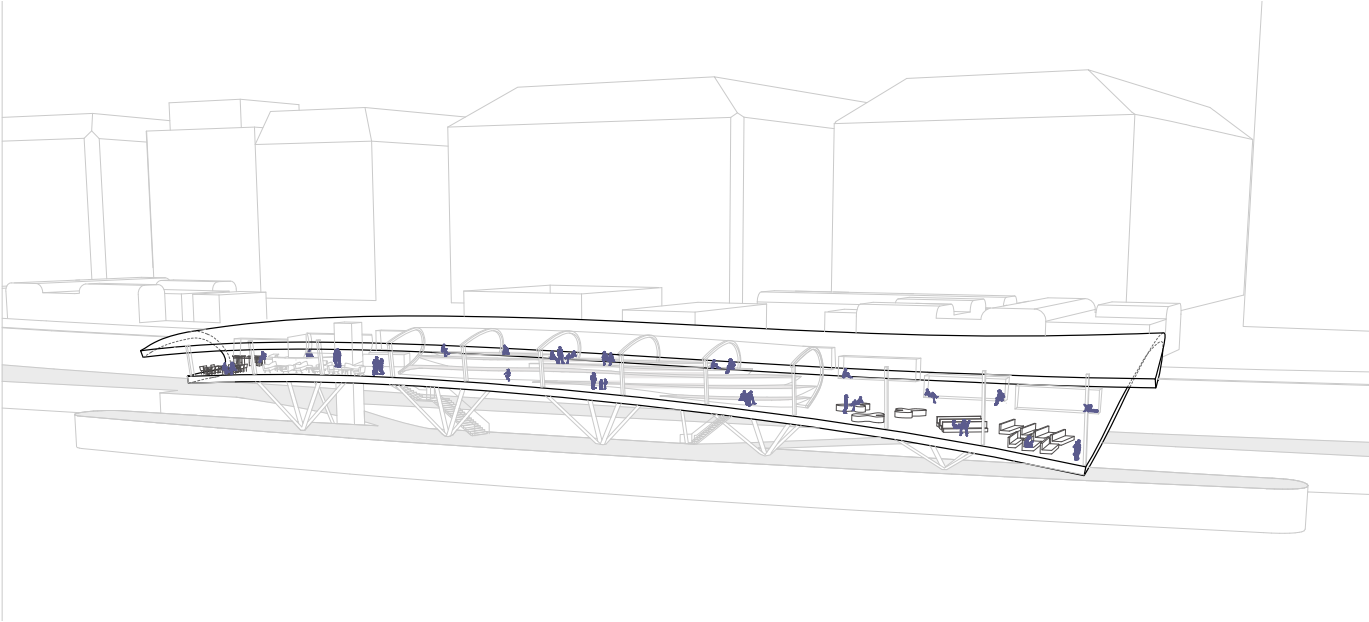
Entering the building, the users can go directly, without disturbing the others, to desired spaces.

Go to the cafe (i), to work alone or in a group in the middle area (j), to read or attend a lecture or projection, in the quiet space at the right end of the building (k).

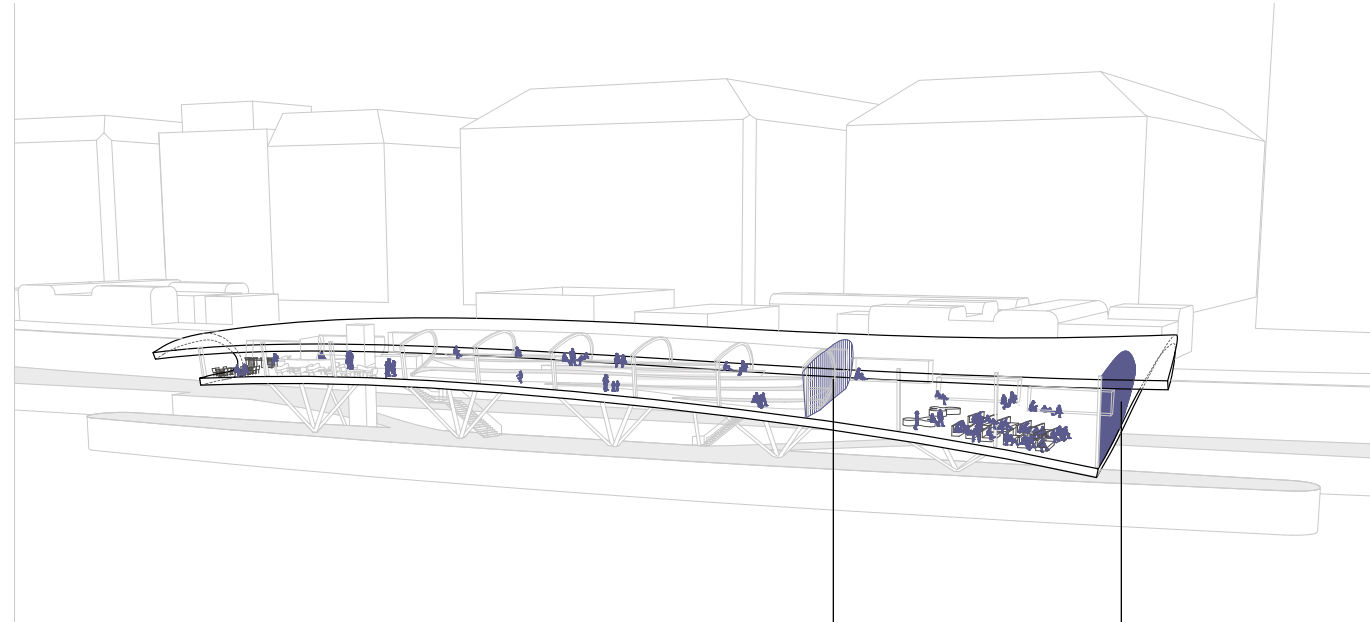


**Functions Plan**

Space Programme



**Programme 1** - continuous open working space



**Programme 2** - open working space and private space  
used for projection, lecture or workshop

curtains for visual and  
acoustic separation

projection screen

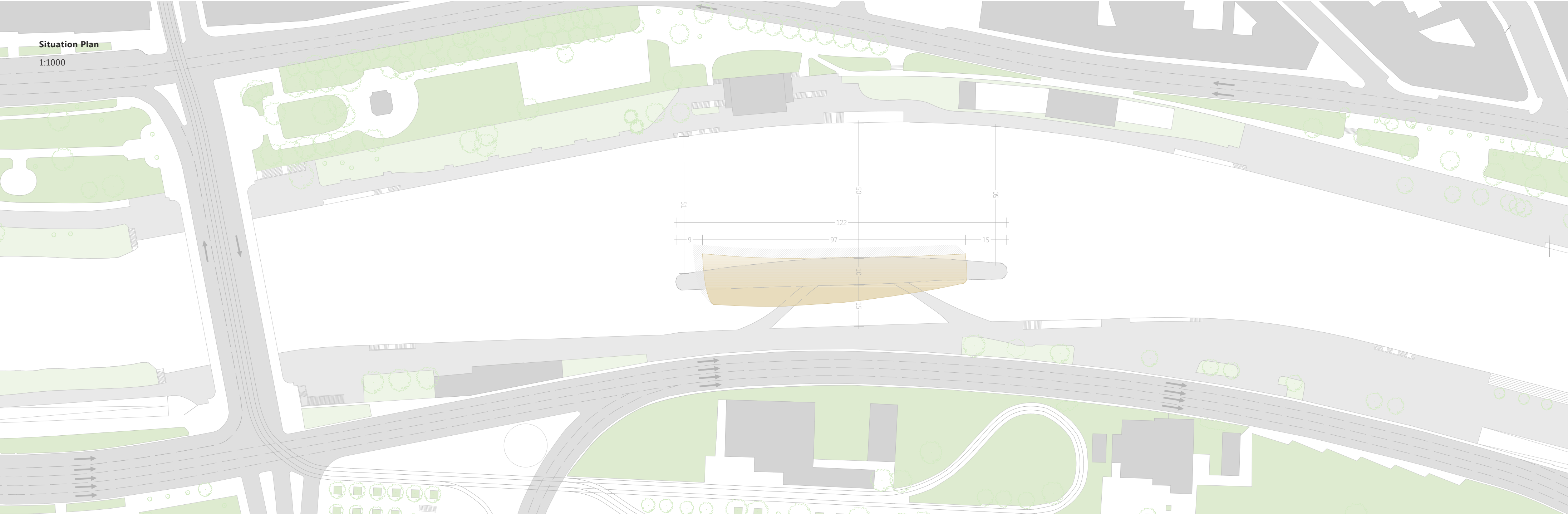


**Programme 3** - up to four separate spaces

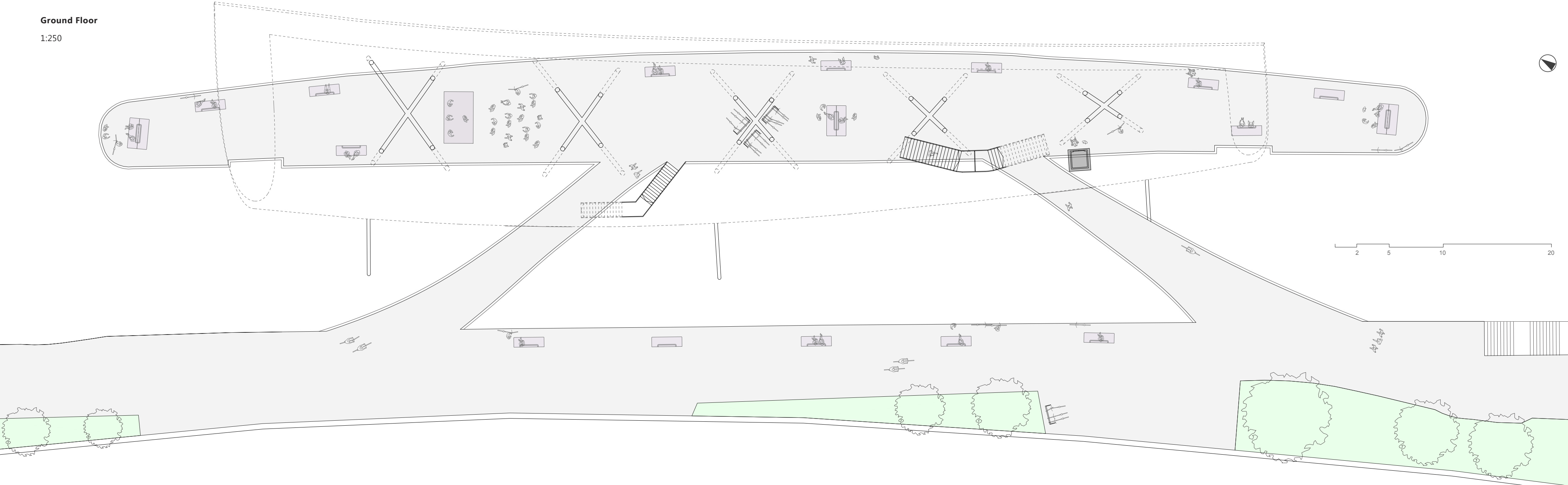


Situation Plan

1:1000

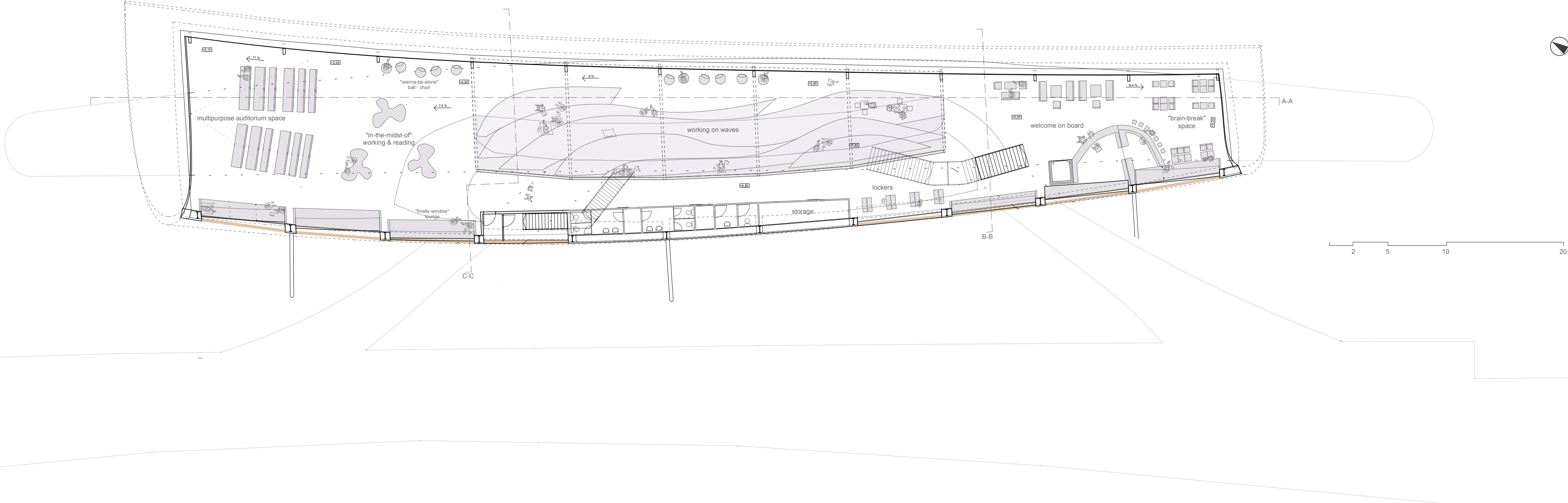


Ground Floor  
1:250



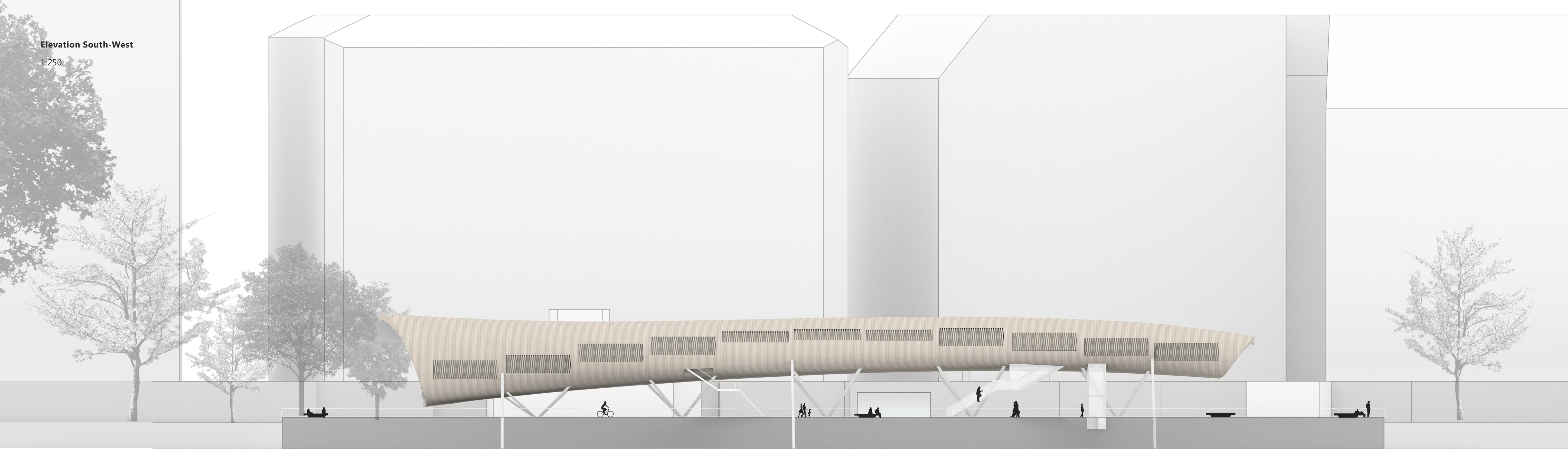


First Floor  
1:250



Elevation South-West

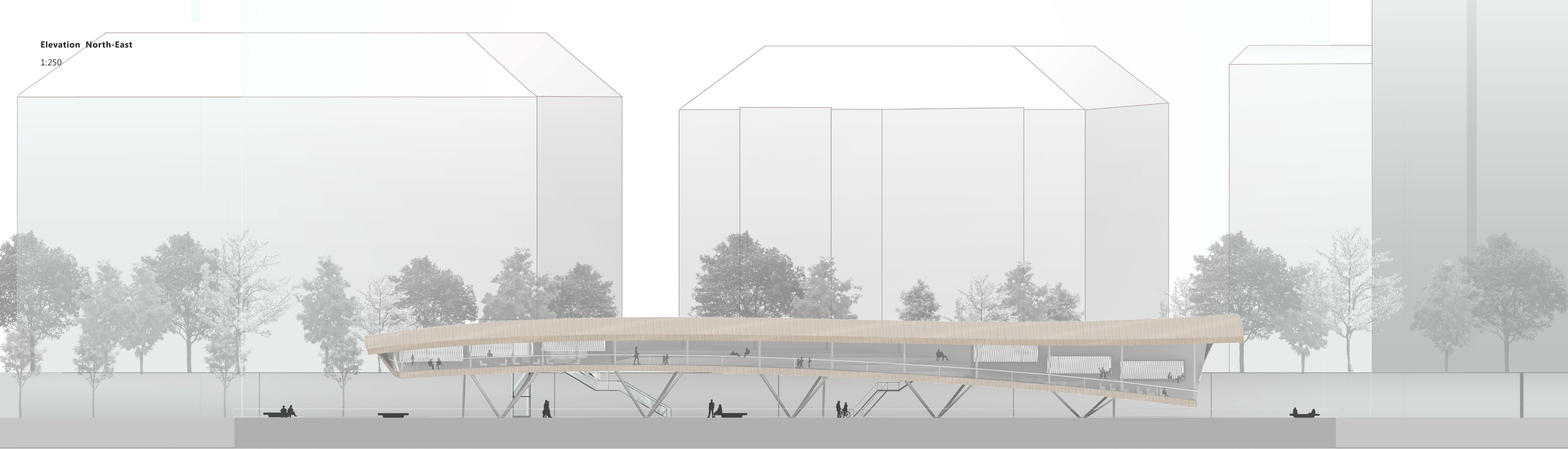
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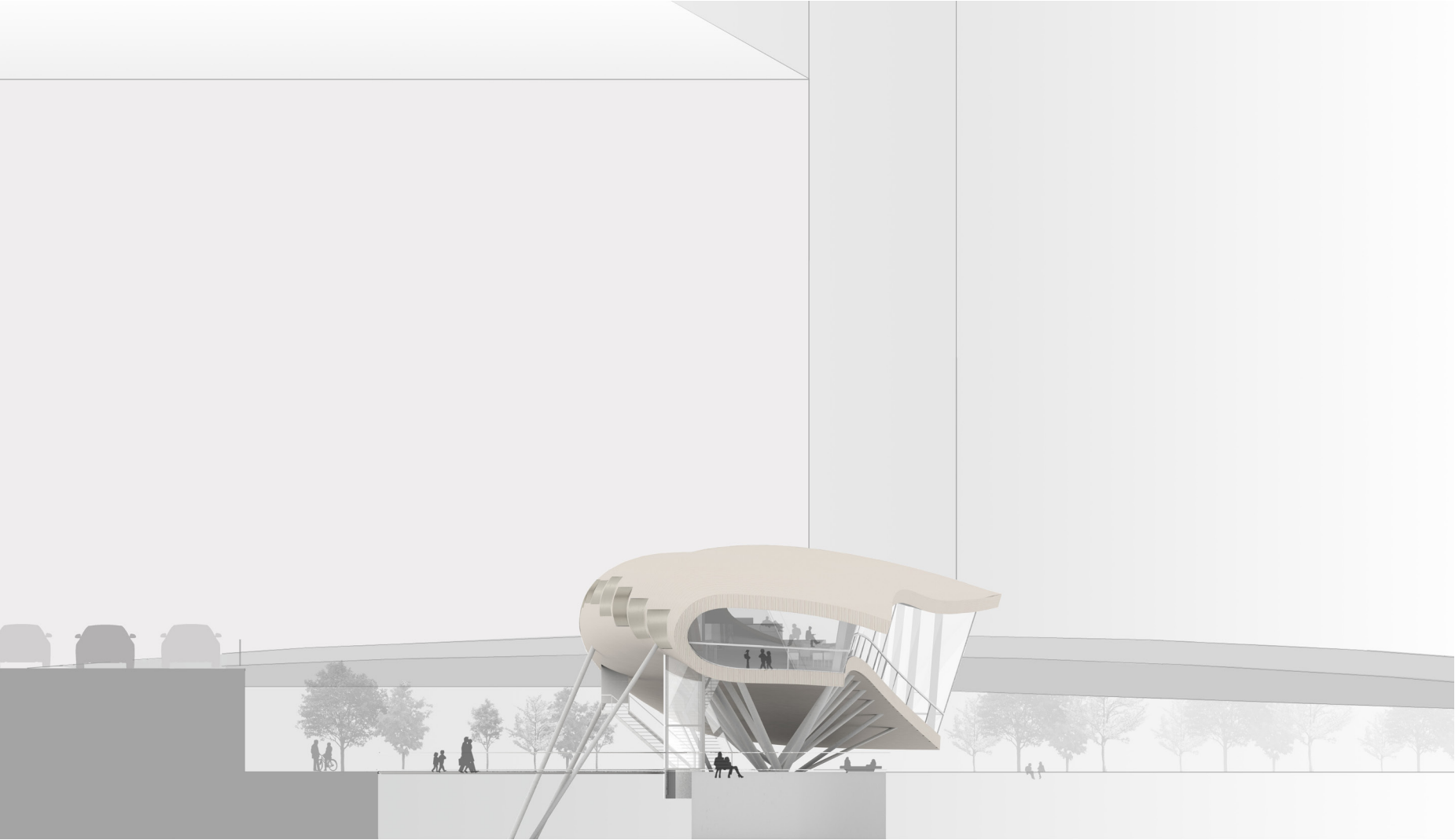
Elevation North-East

1:250



Elevation South-East

1:250

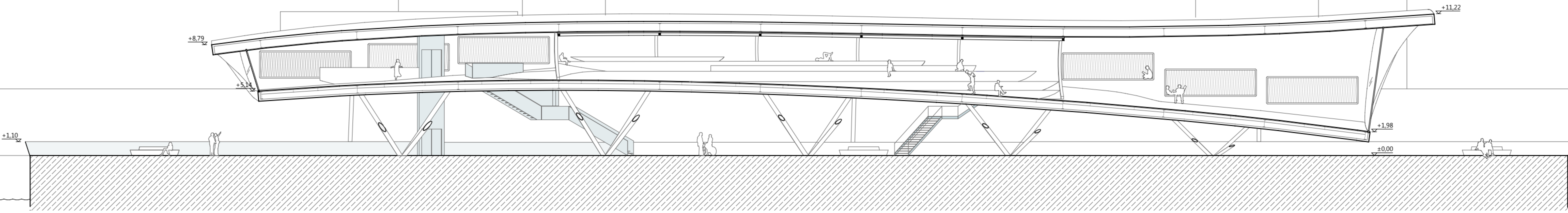


Elevation North-West

1:250



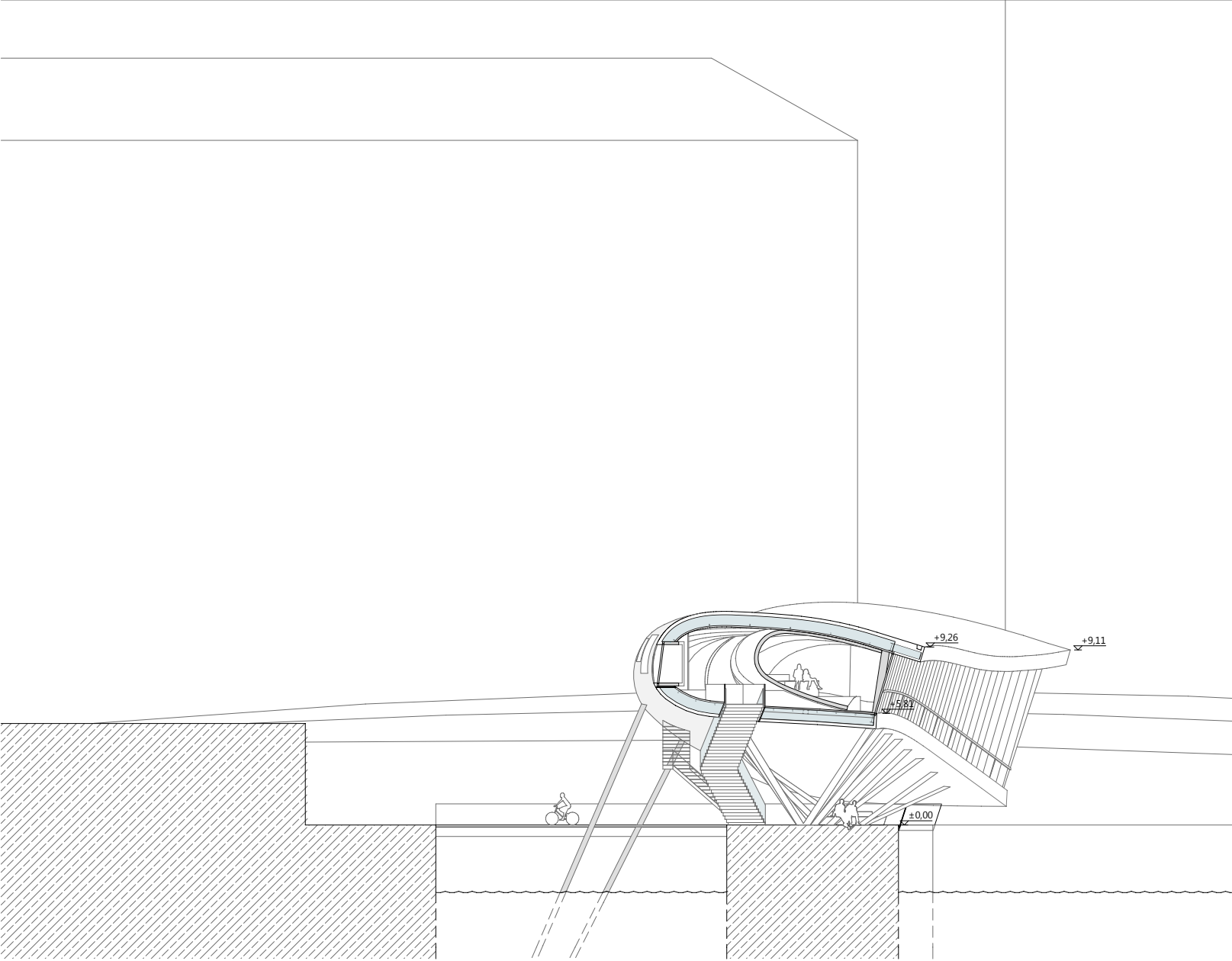
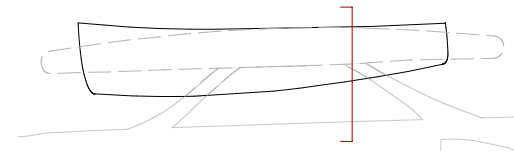
Section A-A  
1:250





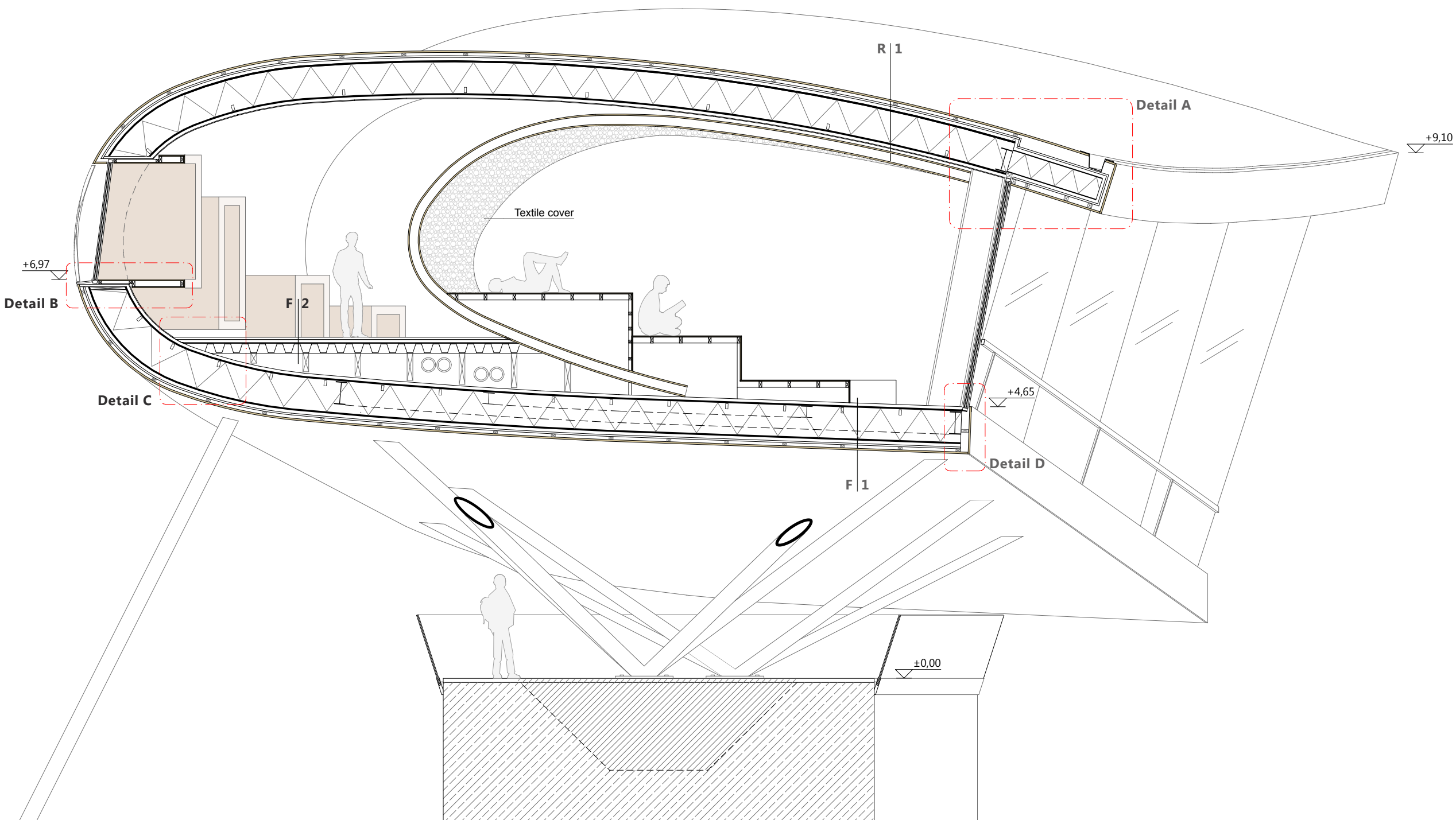
Section B-B

1:250



Section C-C

1:75



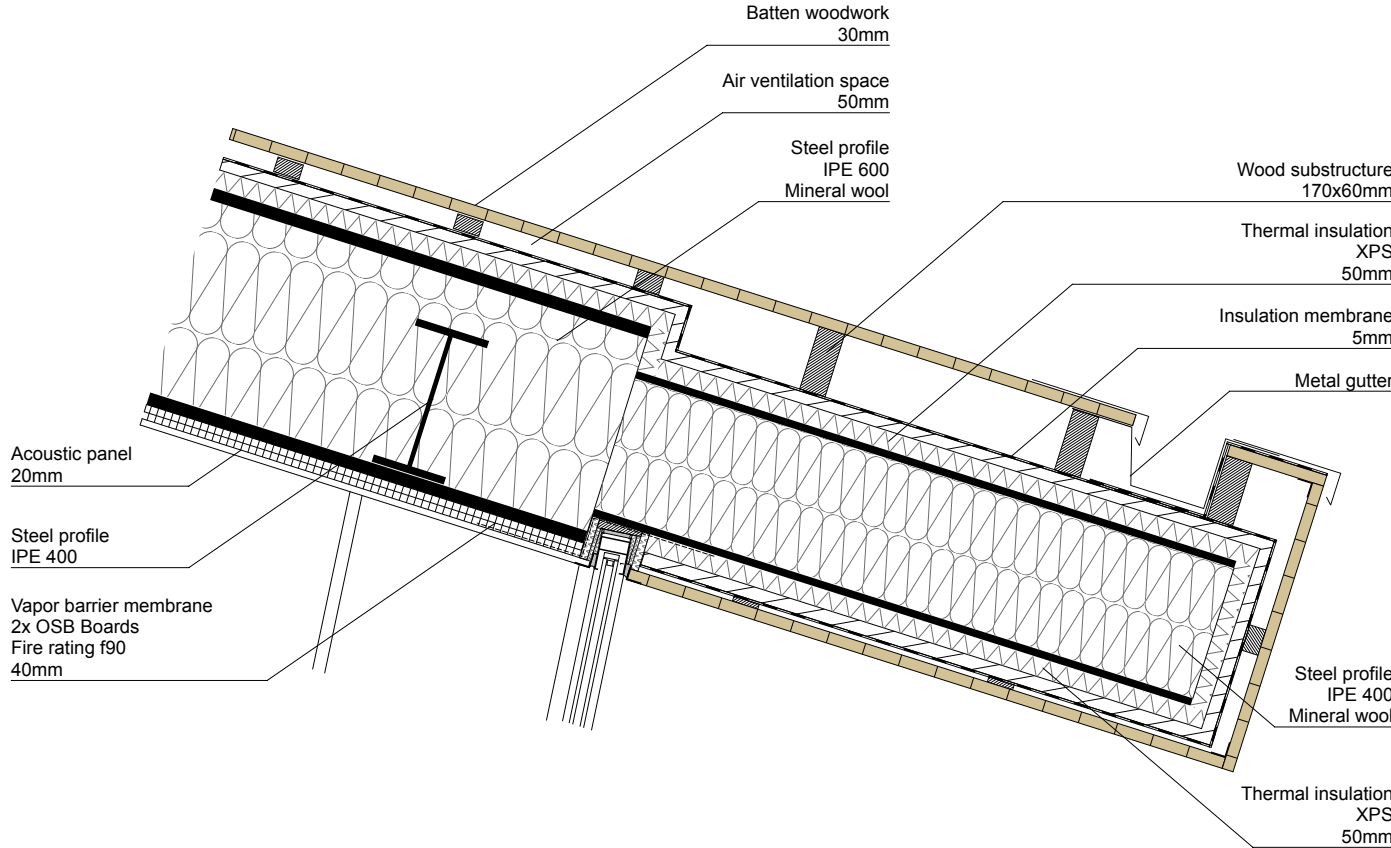
		R 1
20	mm	Acoustic panel
40	mm	2x20mm OSB boards ( Fire rating f90)
		Vapor barrier
600	mm	Steel profile IPE 600   Mineral wool
50	mm	Thermal insulation XPS
30	mm	1x OSB board
5	mm	Insulation membrane
50	mm	Air ventilation space   Wood construction
30	mm	Finishing batten woodwork
825		mm

		F 1
10	mm	Carpet finish
20	mm	Concrete (leveling)
5	mm	Insulation membrane
50	mm	Light filling (ex. Liapor)
40	mm	2x20mm OSB boards (Fire rating f90)
		Vapor barrier
600	mm	Steel profile IPE 600   Mineral wool
50	mm	Thermal insulation XPS
30	mm	1x OSB board
5	mm	Insulation membrane
50	mm	Air ventilation space   Wood construction
30	mm	Finishing batten woodwork
890		mm

		F 2
10	mm	Carpet finish
20	mm	Concrete (leveling)
5	mm	Insulation membrane
50	mm	Light filling (e. Liapor)
20	mm	1x OSB board
150	mm	Trapeze metal sheet
var. 500-1200	mm	Wood construction / Technical area
40	mm	2x20mm OSB boards ( Fire rating f90)
		Vapor barrier
600	mm	Steel profile IPE 600   Mineral wool
50	mm	Thermal insulation XPS
30	mm	1x OSB board
5	mm	Insulation membrane
50	mm	Air ventilation space   Wood construction
30	mm	Finishing batten woodwork
var. 1560-2260	mm	

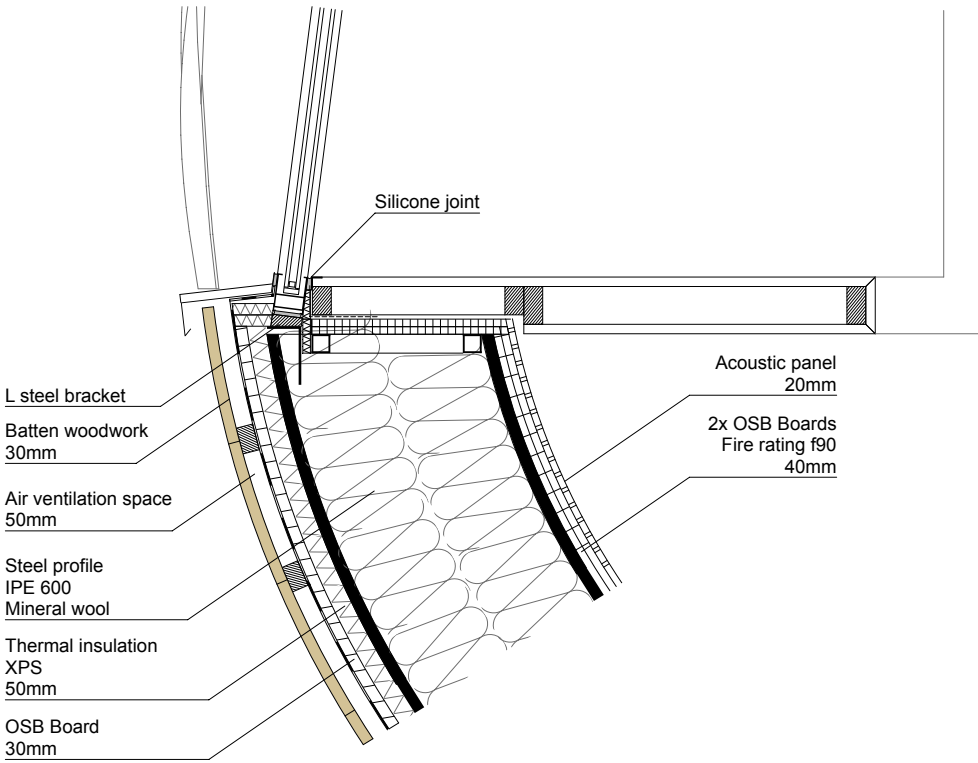
Detail A

1:20



Detail B

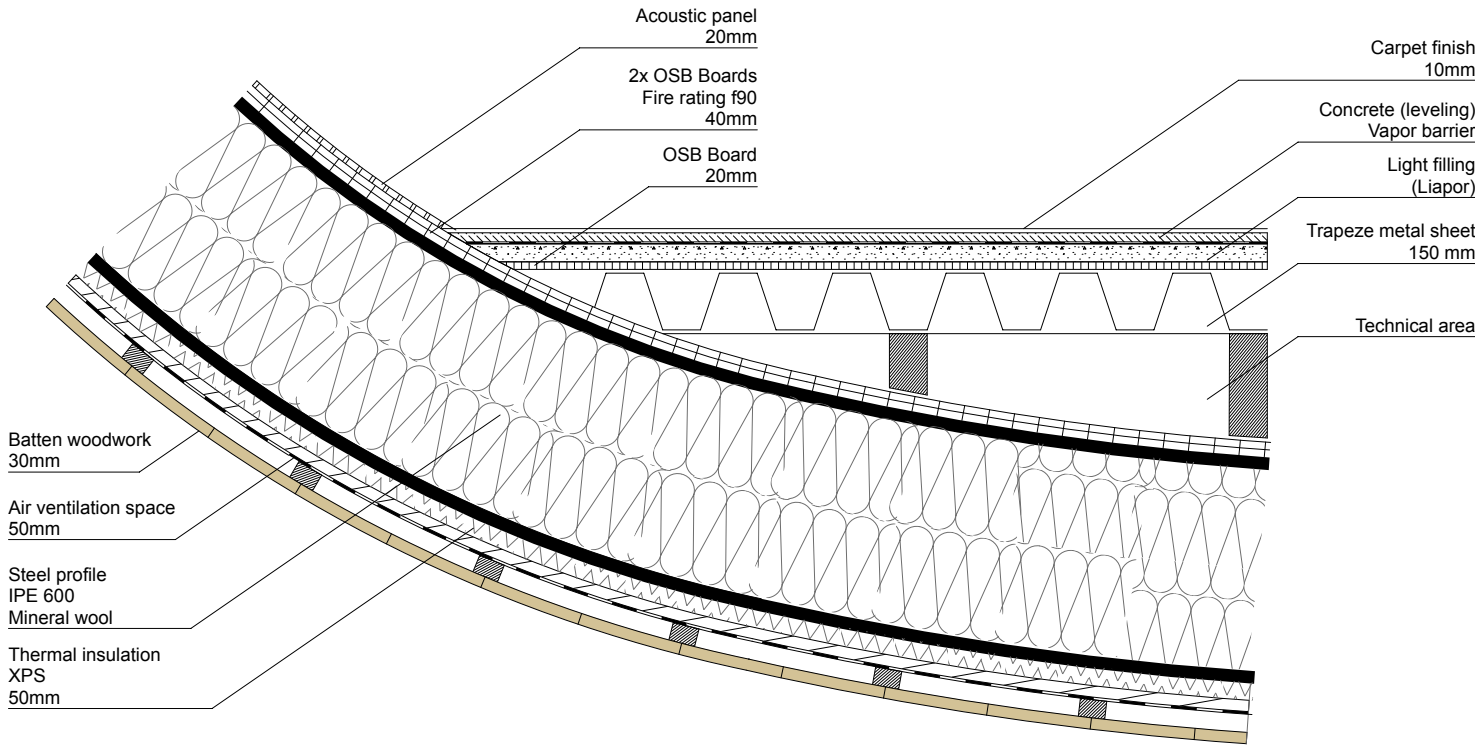
1:20





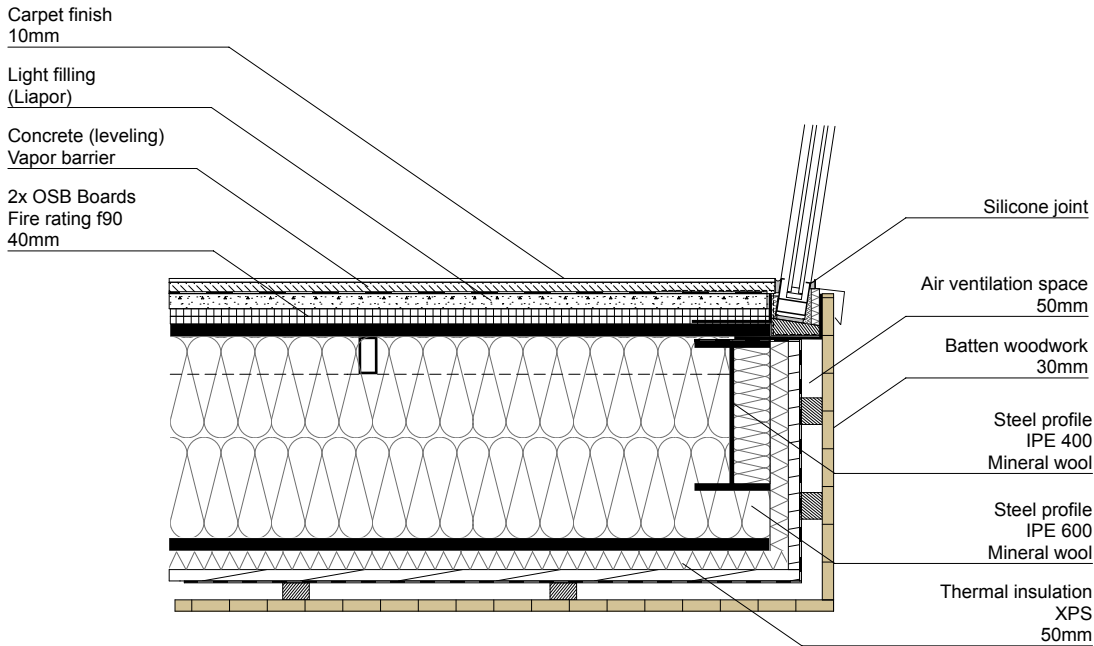
Detail C

1:20



Detail D

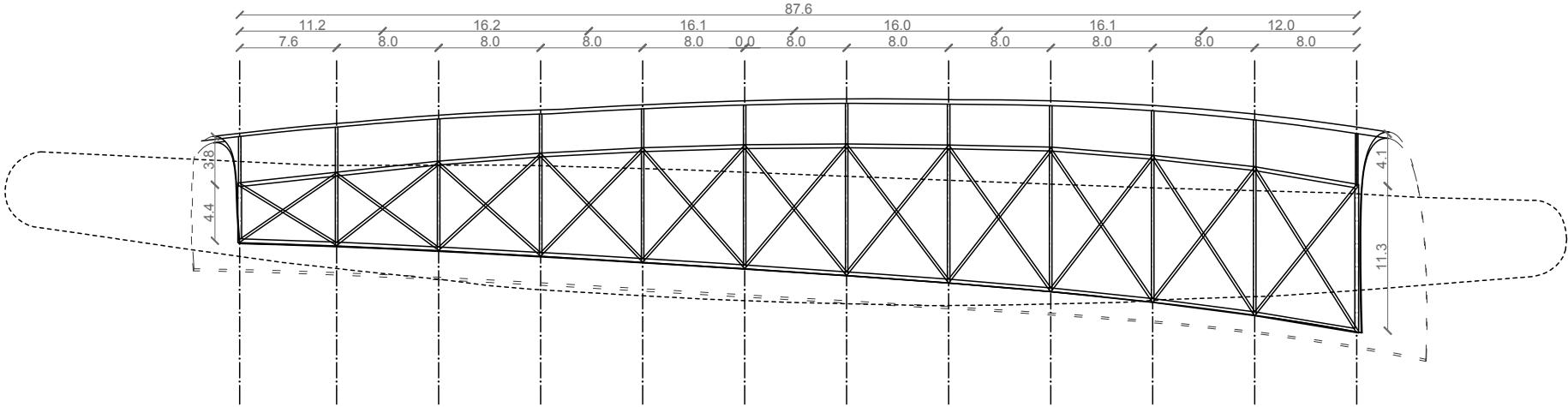
1:20



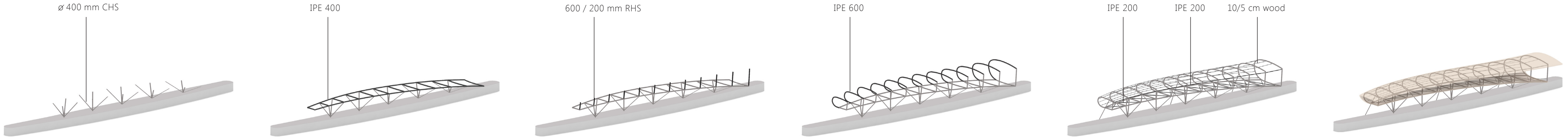
Construction scheme

1:1000

The building is a light-weight structure with steel load-bearing construction and a timber facade. The primary construction is made of prefabricated steel beams and columns creating steel frames, and the secondary construction is for the reinforcement of the primary, altogether creating a firm steel system.



Axonometric scheme of the load-bearing steel frame

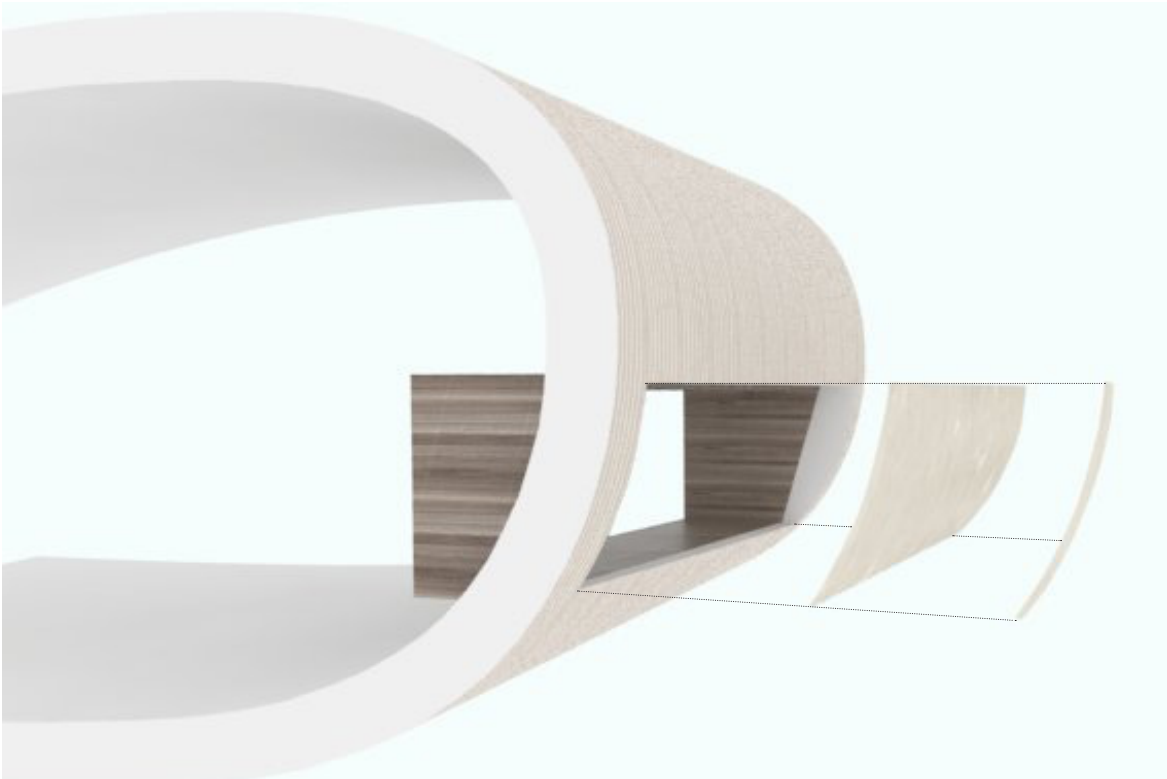
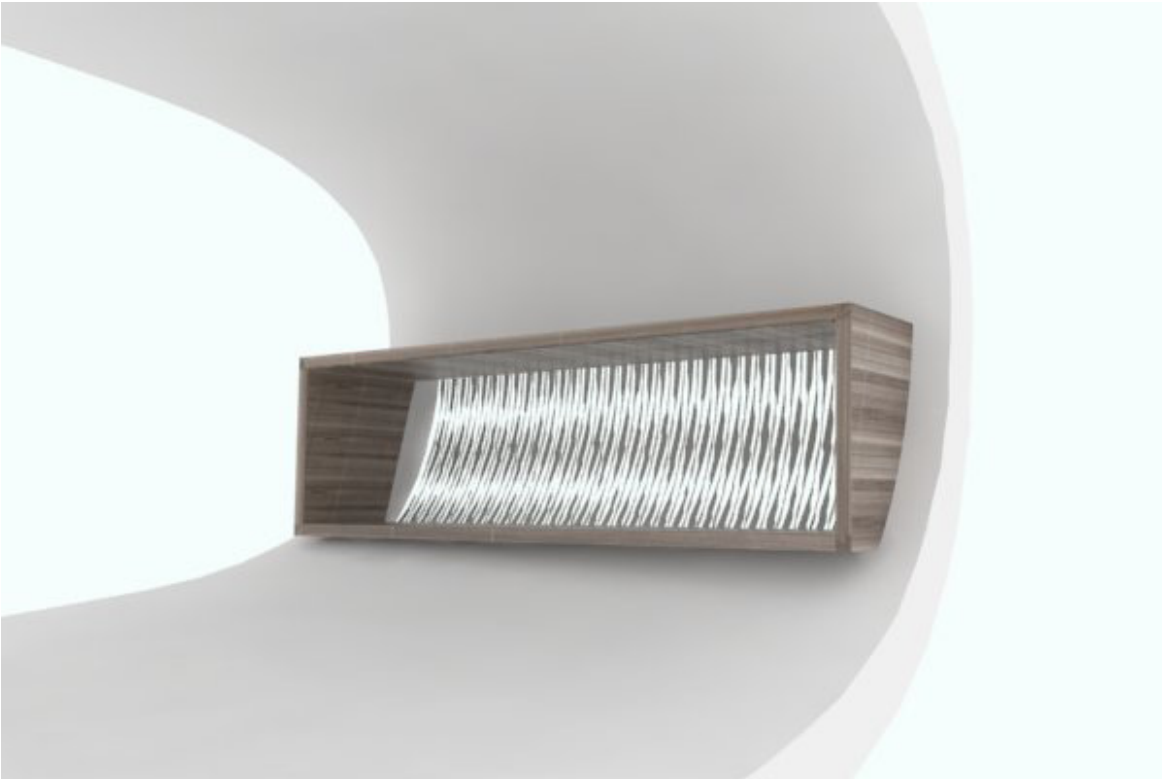


**The Facade**

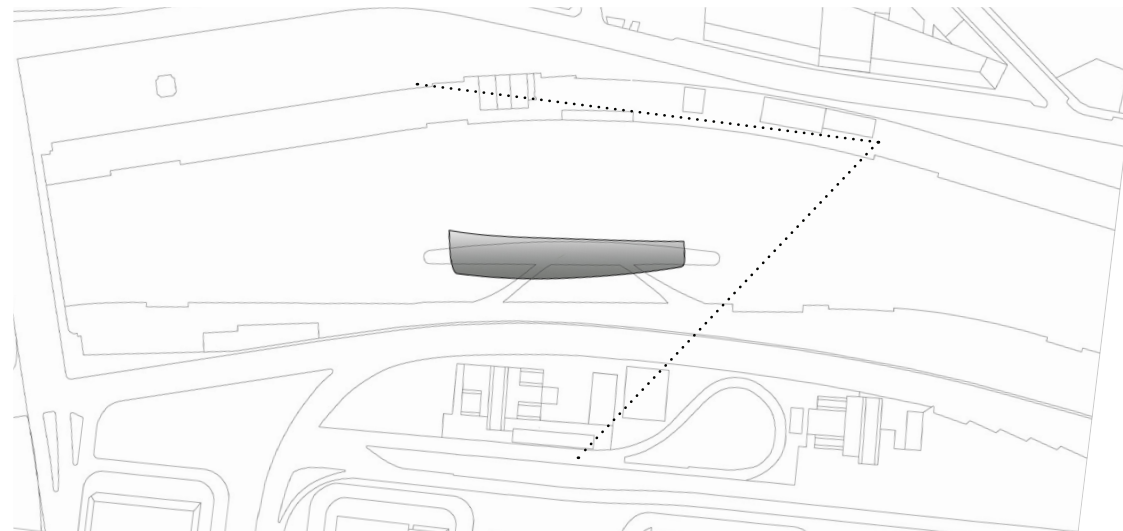
The facade is intended to flawlessly and perpetually coat the building.

The sun panels follow the form of the building creating a single coating.

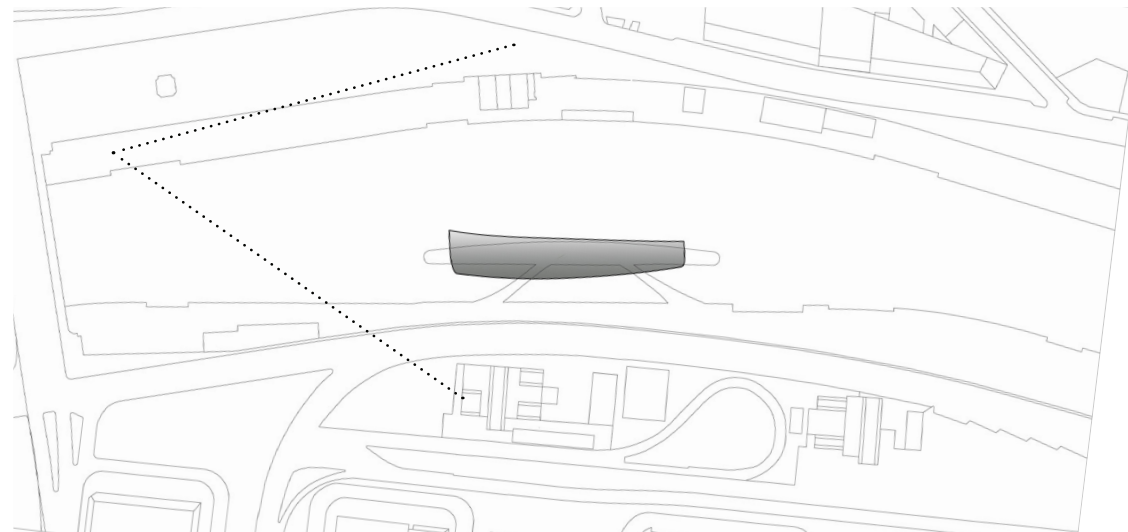
The sun panels continue to the other panels of the facade, narrowing and twisting in the middle to allow view to the outside and to let natural light enter the interior at the same time blocking direct light in order to avoid disturbing the work.



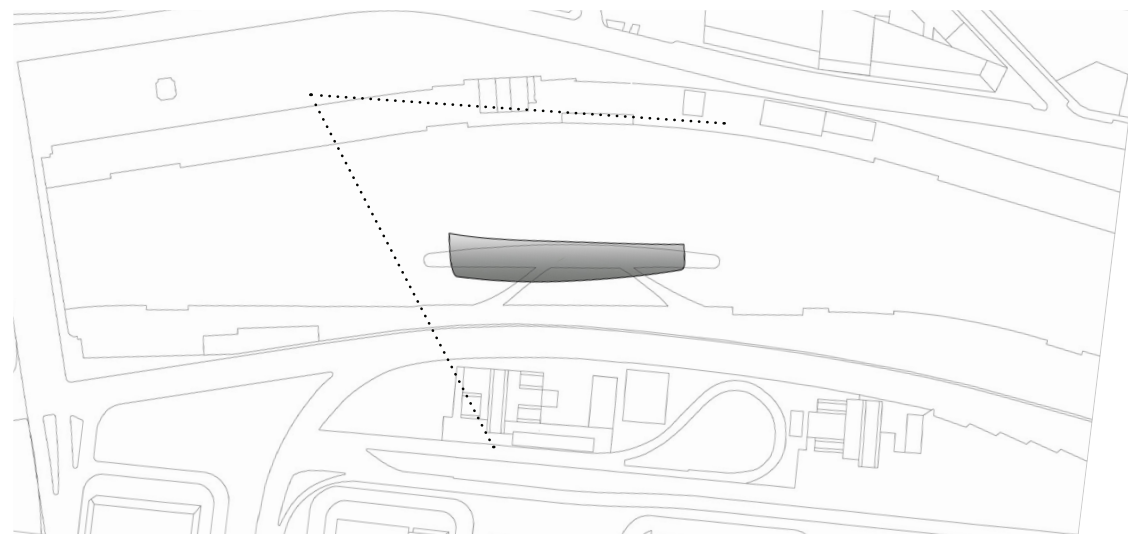




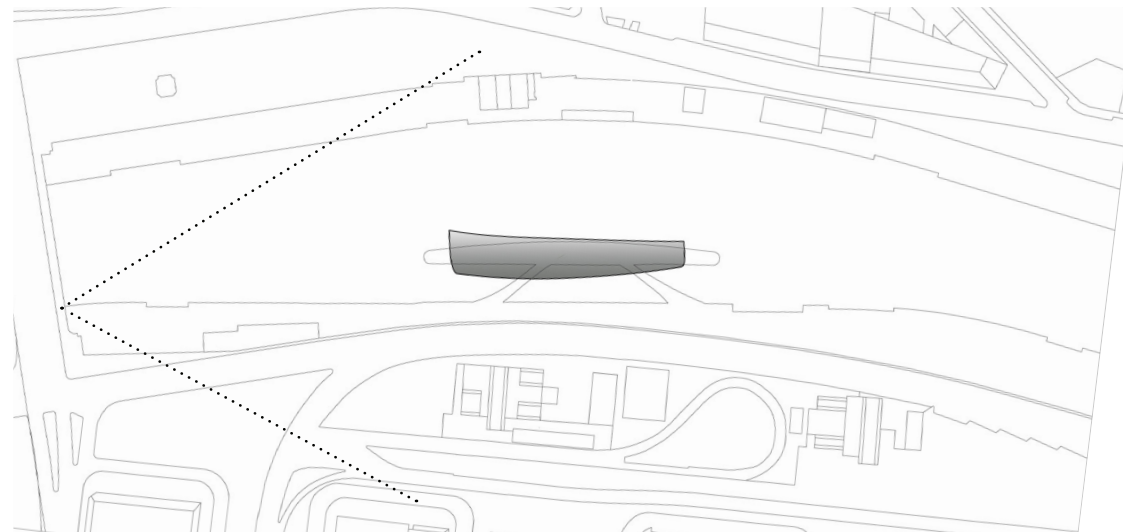




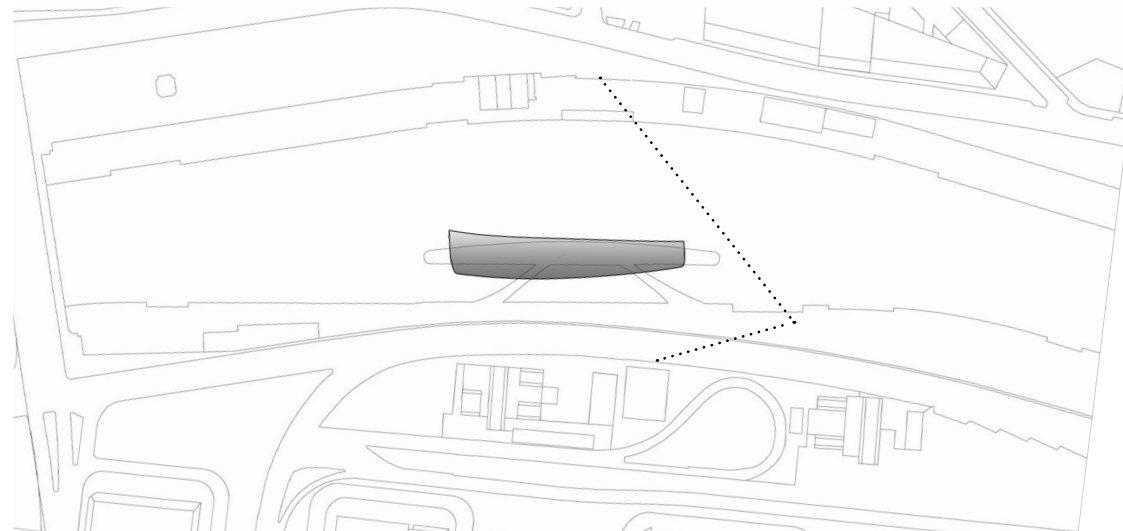




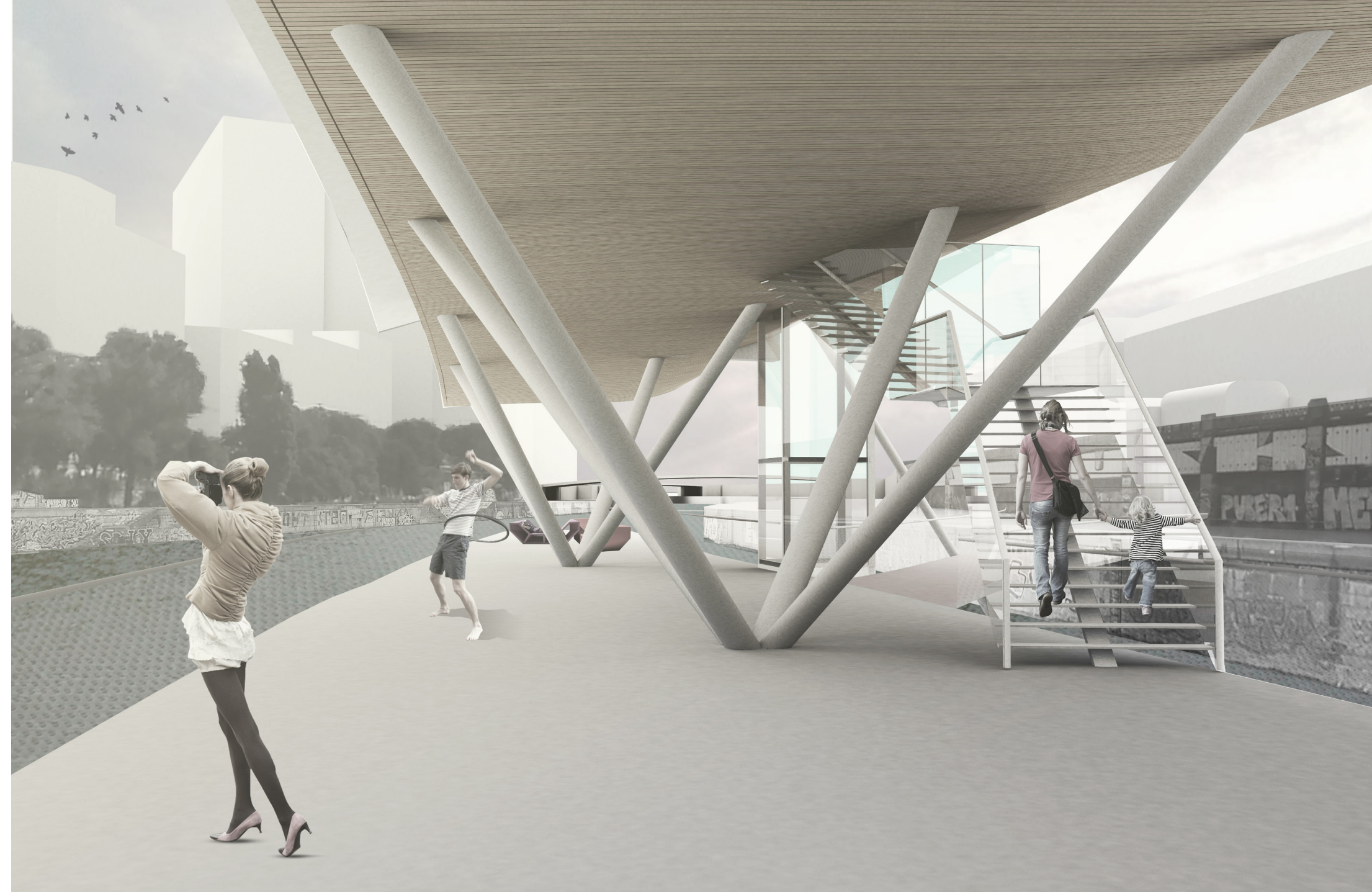
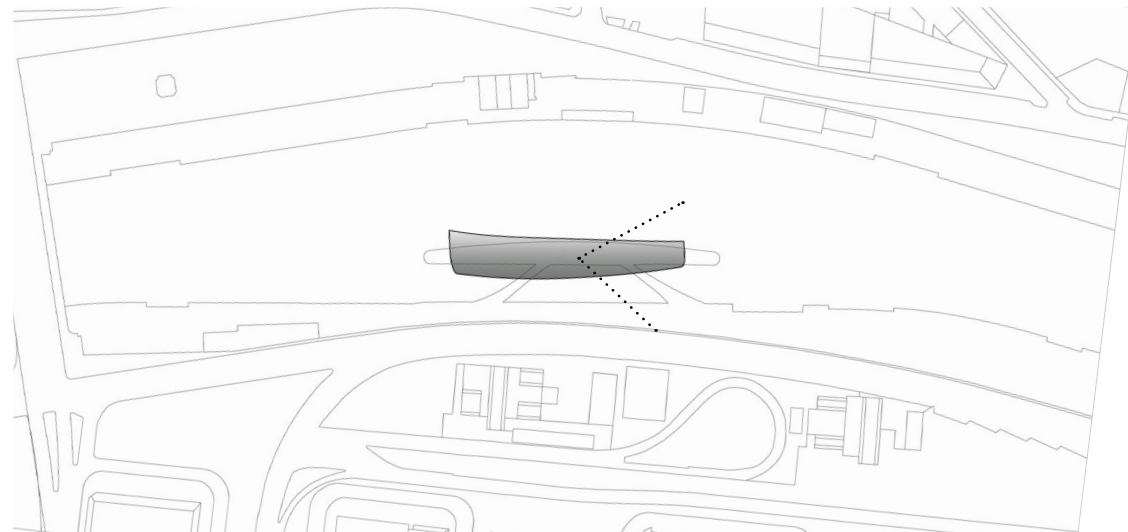




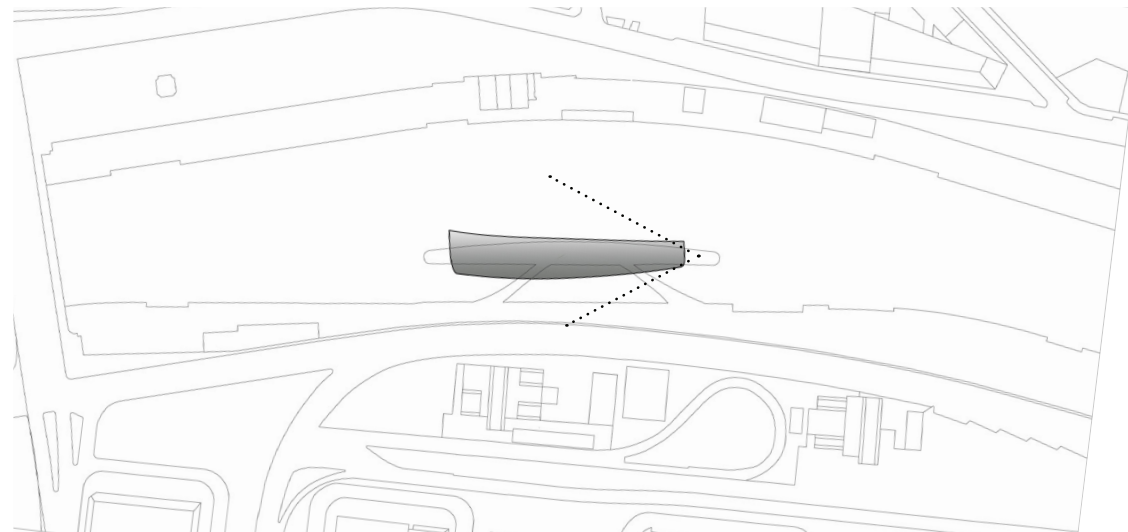




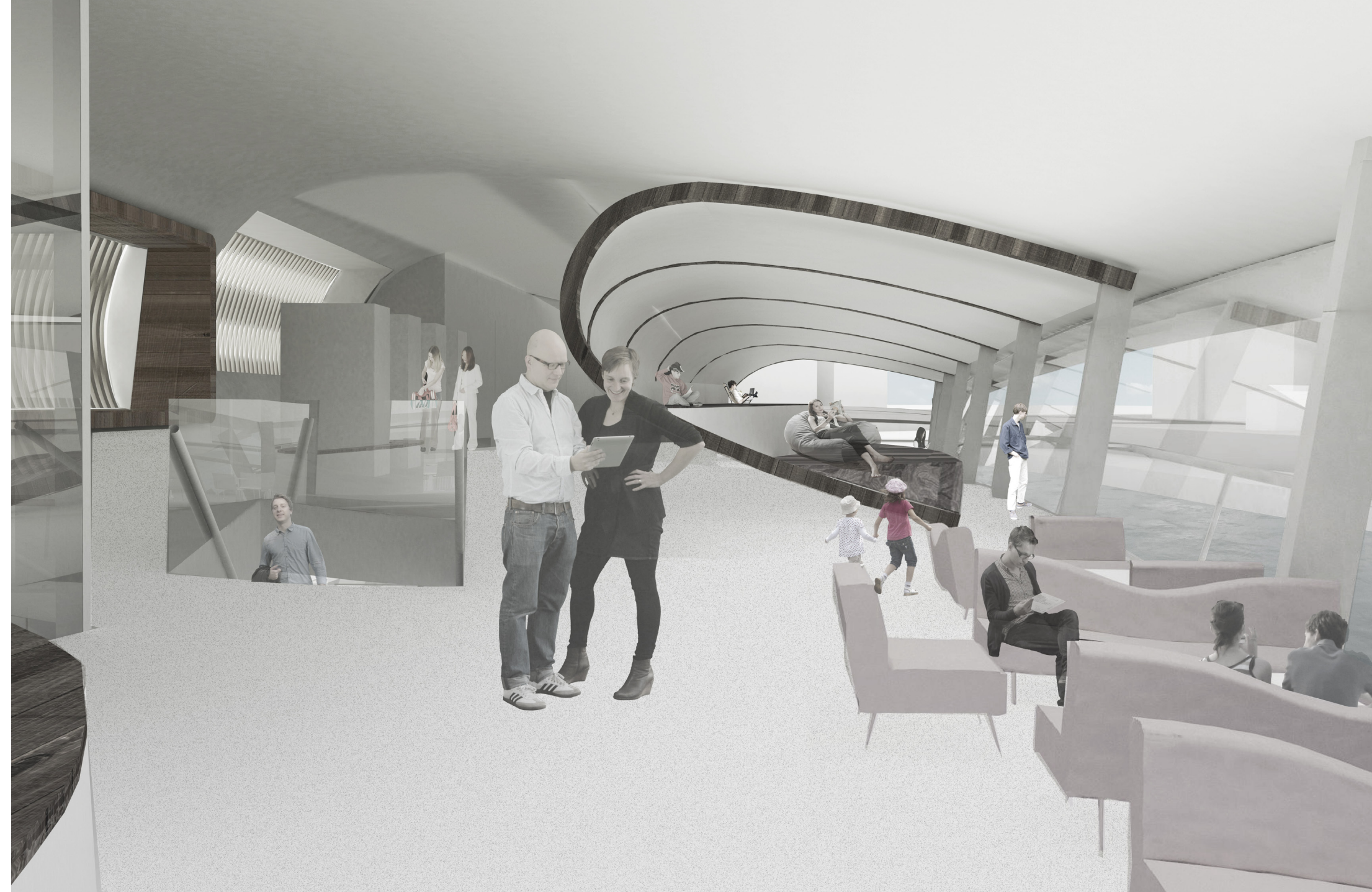
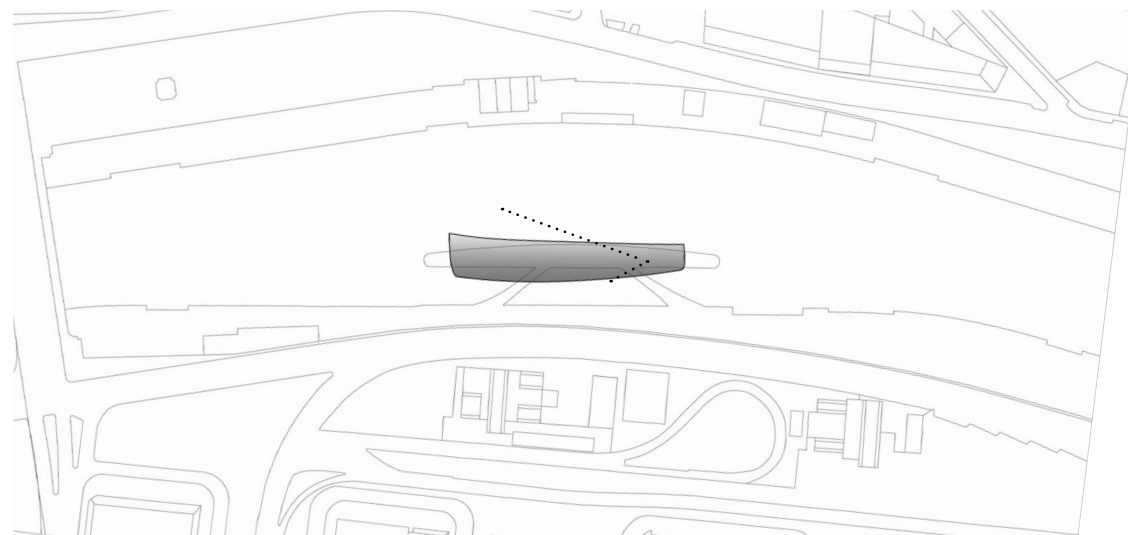




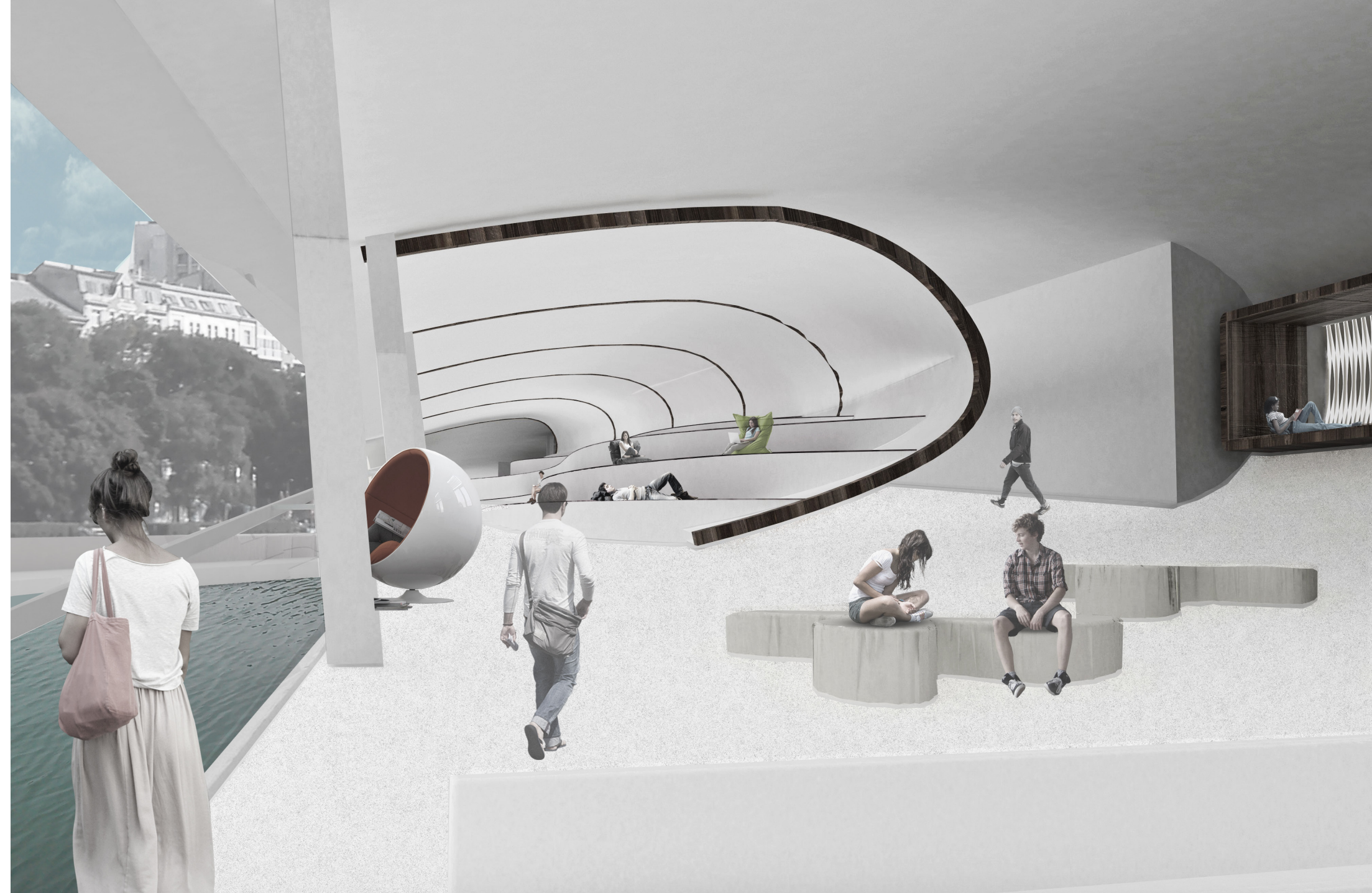
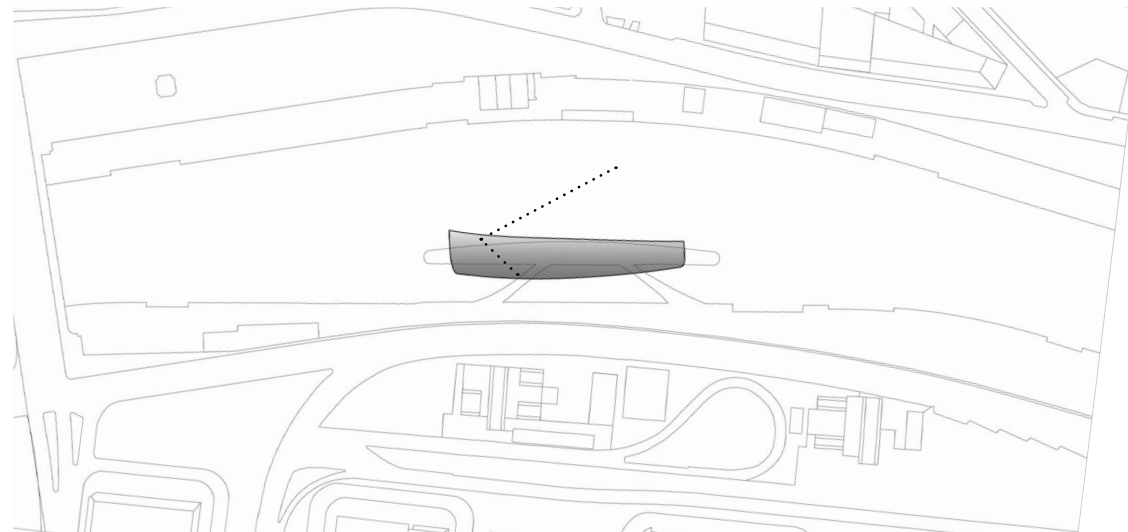




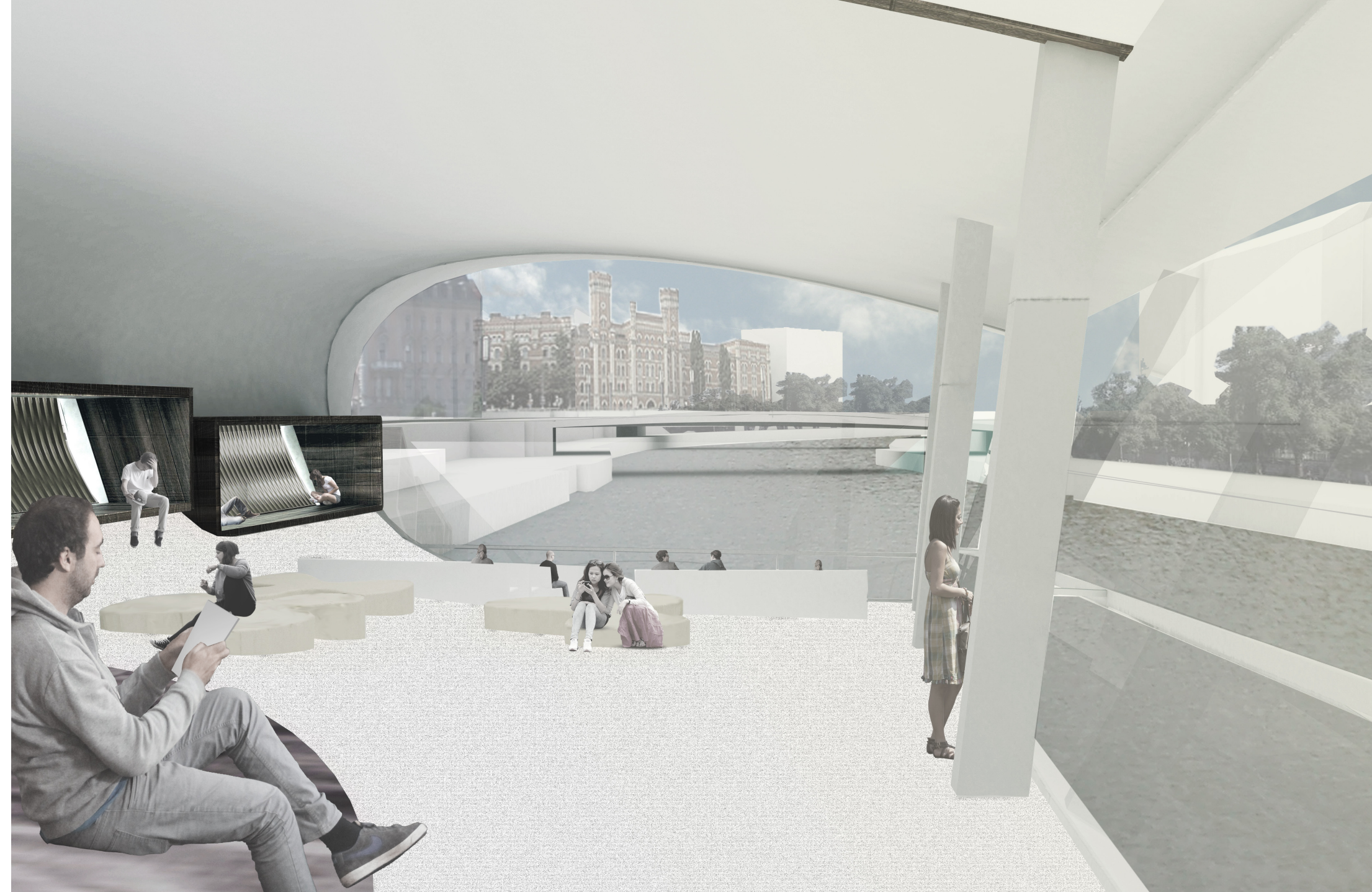
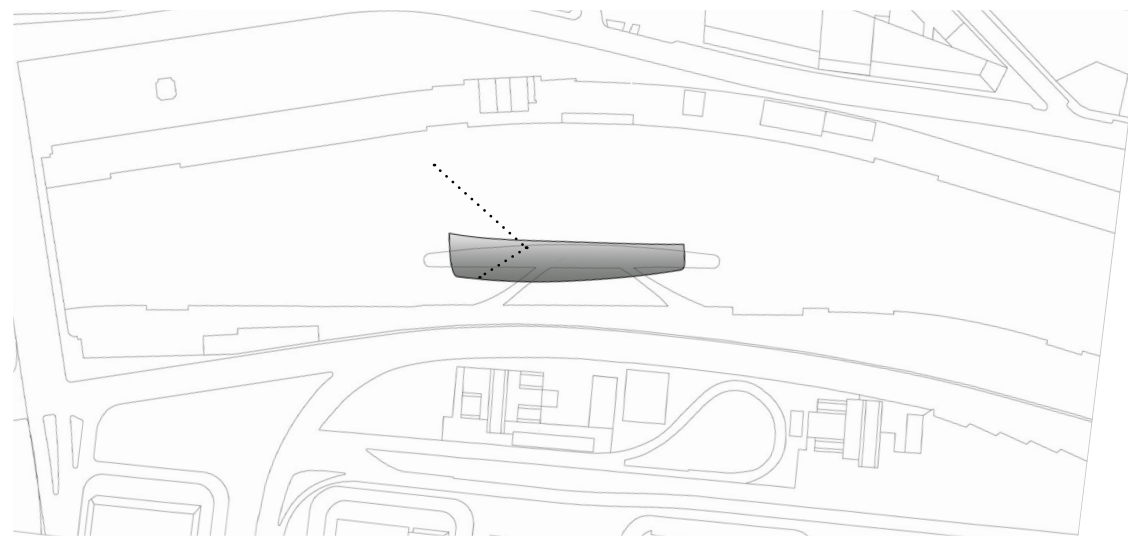


















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