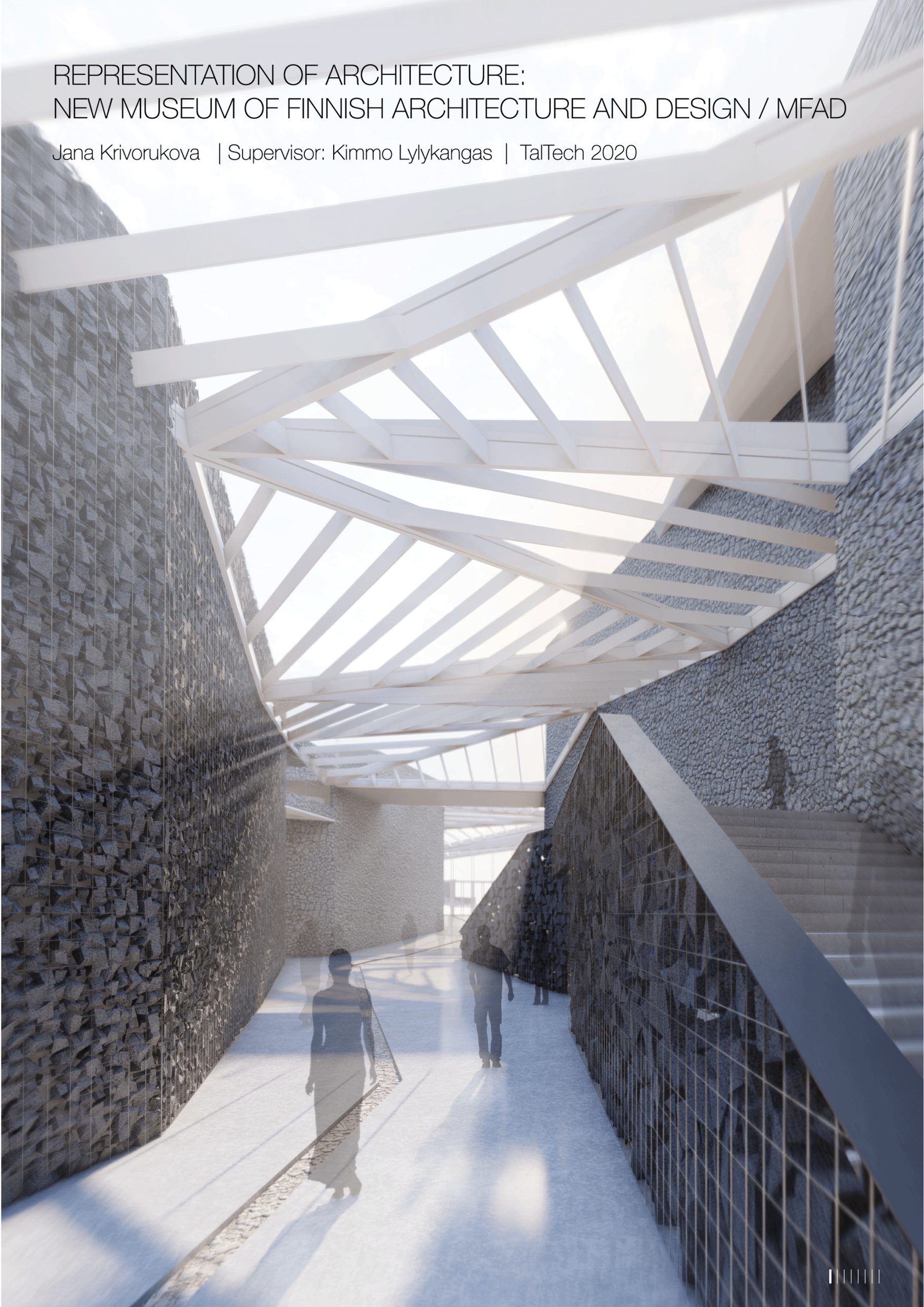
REPRESENTATION OF ARCHITECTURE:
NEW MUSEUM OF FINNISH ARCHITECTURE AND DESIGN / MFAD

Jana Krivorukova | Supervisor: Kimmo Lylykangas | TalTech 2020



TALLINN UNIVERSITY OF TECHNOLOGY
SCHOOL OF ENGINEERING
Department of Civil Engineering and Architecture

REPRESENTATION OF ARCHITECTURE:
NEW MUSEUM OF FINNISH ARCHITECTURE AND DESIGN / MFAD

Arhitektuuri esitamise viisid:
Soome Arhitektuuri ja Disaini Muuseum

MASTER THESIS

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Tallinn 2020

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ABSTRACT

Since the first museum institution had appeared, the selection of items to be collected and exhibited has reflected the values and priorities of the cultural interests of the age. The appearance and rapid development of architecture museums from the middle of the 20th century to the present day indicate the growing interest of a broader audience in the discipline. The broad audience began to interact more with architectural processes, due to which museums of architecture have become a mediator between professionals and other people and also have forcefully democratized architectural discipline. This, in turn, influenced the general perception of architecture in society and detected new opportunities for demonstration, reflection, and controversy on the topic of architecture.

The objective of the theoretical part of this Master's Thesis is to understand the role architectural museums play at present, to analyze ways architecture could be represented and identify methods to reproduce the experience of architecture.

In an attempt to define such an institution as a museum of architecture, it becomes clear that the approach successfully applied to all other museums, whether it is a museum of fine or applied art, history, or even science, can not be applied to the museum of architecture. The inappropriateness of the traditional approach arises from the difficulty of determining what exactly is the subject to be exhibited in the museum of architecture. It is evident that the most explicit and direct embodiment of architecture building - cannot be directly exhibited in the museum and needs to be represented, i.e., transformed into a form that conveys the features that are considered essential. During this transformation, one or another inherent feature of the architecture, whether it is scale, material, context, or even dimension, is always lost. It turns out that the architecture museum does not reproduce architecture itself, but its ideas, interpretations, or architectural phenomena in one form or another.

At the same time, it would be incorrect to argue that a visitor of a museum of architecture is provided with no means to experience architecture at all, but the degree of the depth and quality of the experience depends on the methods chosen for exhibiting the architecture. Despite the various approaches in museum architecture, the museum building itself is never only a container for exhibiting collected items of reproduction, but also another - and perhaps the most direct - experience of architecture.

In order to have a better understanding of the means to reproduce the museum visitors the experience of the architecture, three existing architectural museums have been examined and analyzed. Both

the methods for exhibiting the architecture and the role of museum buildings were studied.

The second, practical part of the Master's Thesis, contains a proposal for the new building of the Museum of Finnish Architecture and Design in Helsinki based on the theoretical part of the thesis on the one hand, and the report on the possibility of establishing such a museum in Helsinki and the concept report for the future museum published by Ministry of Education and Culture of Finland on the other hand.

The territory allotted for the new museum is part of South Harbour of Helsinki (Eteläsatama) between Olympia terminal and Old Market Hall. The site was selected by an expert committee. The mayor of Helsinki supports the project and has announced that the city is committed to partially fund the museum if also state funding is allocated for the project. At the beginning of June 2020, the government of Finland decided to allocate 60 million euros to the museum project.

Since at the time of writing this work, neither the exact size of the site nor the room program for the new Museum has yet been defined, the author relies on the results of the conducted analysis of the urban environment in determining the boundaries of the site. The proposal is taking into account existing problems with the traffic and lack of high-quality public space on the site. For developing a room program for the new building, the author utilizes the room program created for the architecture competition of ARMI building, which was intended to contain very similar functions than the new museum. Finally, the general concept of the building is a synthesis of the author's aspirations to create a museum building that serves as an instrument of reproduction of the past and present in architecture, providing museum visitors with as authentic experiences of architecture as possible, and fulfilling all expectations considering the contemporary world-class Museum of Architecture and Design Finland deserves.

CONTENTS

INTRODUCTION

The problem statement

Concerning typology museum of architecture belongs to museums and galleries. However, it is fundamentally different from a typical layout of an art museum, since the subject to be presented – architecture – requires a distinctive approach to exhibiting. Architecture, which is considered as one of the forms of art, actually stands apart from it. In contrast to most of the visual arts, architecture is three-dimensional and always functional. Nevertheless, being exhibited within a museum, architecture loses its functional component, approximating purely visual forms of art, but not becoming them. Therefore, the traditional practices used in exhibiting fine art cease to work when it comes to architecture.

Combining elements of architecture and exhibition practices, architectural exhibition does not entirely belong to any of them, being an independent discipline. Despite its relatively short history, the practice of exhibiting architecture has been significantly advanced in its methods, from pictorial presentations of drawings as paintings and scaled models as sculptures, to experimental installations, which can interact with the visitors and make them become an 'accomplice.' [1] However, the organization of an architectural exhibition is still a non-trivial task for curators, since there is no universal approach. This problem is also indicated by the fact that the organizers of architectural exhibitions are still mostly architects themselves. Only a few years ago, first programs related to architectural communication, where it is possible to get some knowledge on the topic of curating an architectural exhibition, appeared. [2] Besides, theoretical material on this topic is still not enough to talk about an architectural exhibition as a formed discipline and still needs to be explored.

In this context, it is become difficult to formulate requirements for a room intended for exhibiting architecture. Dietmar Steiner has concluded that there is no such thing as a museum of architecture, since institutes involved in exhibiting architecture appear in all possible shapes and sizes. Most of them are still performed only as a part of art museums, while independent architecture museums occupy historical buildings initially built for other purposes, so they often do not provide an appropriate place for exhibiting architecture. Only a

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[1] Development of the history of museums of the architecture described in chapter 1. Historical overview

[2] Except for impermanent short sessions and workshops on the topic of curating architecture exhibitions, there is a 1-year postgraduate program in Università Iuav di Venezia opened in 2017 and 9-month Curatorial Internship Program in Canadian Center for Architecture appeared in 2018

few museums occupy buildings designed with the purpose of exhibiting architecture.[1]

Methodology and the elements of the thesis

The theoretical part of this thesis is dedicated to the investigation by deconstruction and classification of the process of gaining architectural experience to figure out the possibilities of reproducing this experience within the museum. Besides, in chapter 4, there is a case-study of 3 existing museums of architecture – Estonian Museum of Architecture, Swedish Centre for Architecture and Design (ArkDes), and Bauhaus Museum Dessau – which are examined on the interaction of the exhibition and museum space, and the possibility of producing architectural experience within their walls.

The objective of the practical part of the thesis is to produce the design for a new Museum of Finnish Architecture and Design in the city of Helsinki includes proper exhibition space, library, shopping facilities, administration part, and space for architectural workshops. Following the tactics adopted the theatrical practice with their 'objectives' and 'super-objectives,' the super-objective of the proposal is to make future visitors to be involved in the process of interacting with the architecture of the museum and gain unique spatial experience.

Since the purpose of the practical part is to propose a design for the museum, in the theoretical part of the thesis, the study is limited only to those practices that can be reproduced within museums and do not touch on open-air museums, international fairs, expos, and other places architecture could be exhibited.

Another critical remark concerning the main focus of the thesis is its focus on the study of the process of getting an architectural experience. In contrast, other aspects related to the museum of architecture, such as collection, preservation, and exhibiting of architectural heritage, pedagogical functions, popularization of architecture, are excluded.

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[1] Those are CCA DAC and Bauhaus Museum Dessau. CCA is located in a building designed by Peter Rose, Phyllis Lambert, and Erol Argun was opened in 1989 (www.cca.qc.ca), DAC 'lives' at BLOX designed by OMA in 2018. (www.dac.dk), and Bauhaus Museum Dessau moved to their new building designed by Addenda Architects in 2019 (www.bauhaus-dessau.de)

I PART. THEORY

1 Historical overview

1.1 Past of architecture museum

In contrast to the history of art museums, the history of architecture museums as an independent institution is relatively young. The first museum specializing in architecture was the Museum of the USSR Academy of Architecture at the Donskoi Monastery, which opened in 1934, and is today known as The Schusev State Museum of Architecture (www.muar.ru). However, the prerequisites for the creation of this kind of museum appeared much earlier.

Many existing architecture museums originated from private collections of the 18th century. Holders were architects, who used collected items with training purposes, or as references in their professional practice. Collections included architectural drawings, sketches, models, original fragments, plaster casts, and other representations of classical monuments as well as drawings of architects themselves as an act of creating architecture (Figueiredo, 2014, p. 23). The criterion for choosing collectibles was the artistic component of the graphics, and the architect was considered as an artist (Steiner, 2009, p.56).

One of the most significant examples of architectural collectors was Sir John Soane (1753-1837), who rebuilt his house at Lincoln's Inn Fields into a museum and exposed there collected architecture plaster casts, antique fragments, paintings, and drawings of architects whom he admired. Soane designed his house as a great work of art itself, and as a place that would provide a rich learning environment for architectural students at the same time (Lambert, 1999, p. 308). This museum is described as the 'domestic prototype of architecture museums' by John Harris (Figueiredo, 2014, p. 30). An essential characteristic of this museum was that the objects in the collection were cataloged, and the accessibility to the collection become partly public - it was granted to students and amateurs of the field of art and architecture.

The reason why collectors made their private collections publicly available was their ambitious desire to enhance the taste of the public and develop the discipline. Both objects on display and methods of their presentations were carefully determined to give the public the only way for interpretation, leaving no room for criticism, alternative reading, and, as a consequence, development (Figueiredo, 2014, p. 33).

With upheaval in society at the turn of the 18th and 19th centuries, the concept of museums was reconsidered. Museums had ceased to be completely private socially exclusive space for the high class and became a partly open platform for public education, 'in which the rough and raucous

might learn to civilize themselves by modeling their conduct on the middle-class codes of behavior to which museum attendance would expose them' (Bennett, 1995, p. 39). Along with an increase in the degree of accessibility, the methods of collecting and exhibiting also were changed: 'collections were rearranged in accordance with the principle of representativeness rather than that of rarity' (italics in the original) (Bennett, ibid).

The so-called era of the Encyclopedic Museums was originated from the idea to collect all the knowledge accumulated by humankind in one place commenced. The most representative of this type of museum was the Louvre, opened in 1793 'as a place for bringing together monuments of all the sciences and arts as well as the leading public educational institutions' (Nora, 1996, p.278). According to the initial plan, one of the Louvre galleries was supposed to be dedicated to architecture. However, it was not included in the Louvre exhibition, which became an impetus for the institutionalization of the architecture museum (Damisch, 2001, p. 54).

Several architects in Paris attempted to establish an independent museum of architecture at the beginning of the 19th century. The closest to today's architecture museum was the Musée d'architecture under the École d'architecture of the Institute de France after integration of its collection with a set of 745 scale models of architecture monuments collected by Louis-Francois Cassas. The resulting exposition became as well didactic as representative. Furthermore, thanks to the Cassas strategy, the exhibition attracted a much wider audience, going beyond the professional circle. He refused to exhibit building plans, sections, and elevations, which requires a particular skill for understanding. Instead of this, he constrained only on exhibiting picturesque paintings and models made on the same scale. The exposition covered interests of 3 different groups being enough didactic to each of them: architectural students, practicing architects, and the general public. In this form, the exposition lasted until 1829, after which architecture castings and fragments were allocated to different galleries, and models to libraries.

After that, for another 100 years, architecture was exhibited only as part of the exhibition of art museums. This required architecture to abandon its essence and obey the rules that applied to exhibit paintings and sculptures. Henry Urbach describing "Modern Architecture: International Exhibition" exhibition held in MoMa in 1932, wrote: 'In this and many other ways, architectural projects were sublimated to conventions of exhibiting art in order to enter the modern museum' (Urbach, 2010, p. 13). The public is already accustomed to treat art particular way, so architectural objects "must have seemed at odds with the Beaux-Arts galleries they occupied' (Urbach, ibid). Thus, architectural drawings were presented in the form of picturesque

and attractive pictures, and models were mounted to pedestals and looked more like sculptures than buildings.

However, there was another direction of architecture representation development, which took the form of propaganda in modernism. The Industrial revolution entailed development in science, technology, and art, as well as significant changes in society. The fast growth of the urban population required the restructuring of cities and new forms of living. That caused the development of urban planning as a discipline and made architects propose new typologies and scenarios of living space. Those were presented through a series of manifests and exhibitions, such as The Great Exhibition, City Beautiful movement, Werkbund exhibitions, and others, which 'released the architecture collection from the constraints of a purely art historical perspective. The architecture exhibition itself became an architecture project' (Steiner, 2009, p. 58). The next step was establishing an independent museum specialized in architecture with its storage for archive and proper exhibition spaces for mediation.

Thus, the first wave of establishing architecture museums has begun: The Schusev State Museum of Architecture in Moskow (firstly known as the Museum of the USSR Academy of Architecture at the Donskoi Monastery) appeared in 1934, then after the Second World War were the Museum of Finnish Architecture in 1956, Swedish Museum of Architecture in 1962, and Hungarian Museum of Architecture in 1968. The emergence of a large number of museums was motivated by the perception to preserve cultural heritage, part of which was destroyed during the two World wars.

In the 70s, the rethinking if architecture as a discipline and its significant role in society took place once again. Architecture became an independent part of the cultural industry, which is accompanied by several important events in the architectural field. In essence, an international confederation of architectural museums (ICAM) was founded in 1979, architecture separated from the Venice Biennale and became an independent Venice Biennale of Architecture in 1980, and began the second wave of establishing architectural museums and centers. The speed of creating new institutions specialized in architecture could be traced based on the number of organizations being a member of ICAM. The first International Conference of Architectural Museums (ICAM1) attended 36 delegates from 25 institutions in 15 countries. After 30 years in 2009, the membership included 135 institutions (Giral, 2009, p. 8). In 2020 this number reached 141 international members (www.icam-web.org).

The emergence of a large number of architecture museums was promoted by the increased interest of the public in the very subject of architecture. Indirectly, the success of Frank Gehry's building for the Guggenheim Museum in Bilbao, which is often described as 'the building that made architecture famous,' influenced this significantly.

The economic achievements and success in revitalizing the dying Spanish city have served as an inspiring example for many other peripheral cities trying to compete with the world's leading centers. Trying to repeat the so-called 'Bilbao effect,' it was the architecture and the authoritative name of famous architects that began to be used to promote cities, and several iconic museum buildings from star-architects have appeared (Dean, 2009, p. 131). In other words, the emphasis on the architectural component in a new stage in the development of museums, if it did not give a single landmark museum of architecture, in any case, made architecture popular among the masses and allowed it to become, as they say, mainstream. Until today, interest in architecture has not waned, which is also confirmed by the intention to build a new building for museums of architecture and design in Helsinki and thus allow them to develop further.

1.2 Architecture museum today

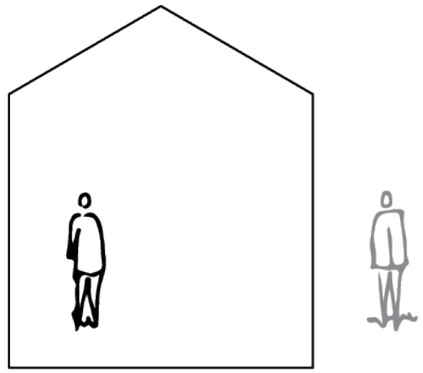
Today the architecture museum has become more popular than ever before due to several development trends in museums' activities:

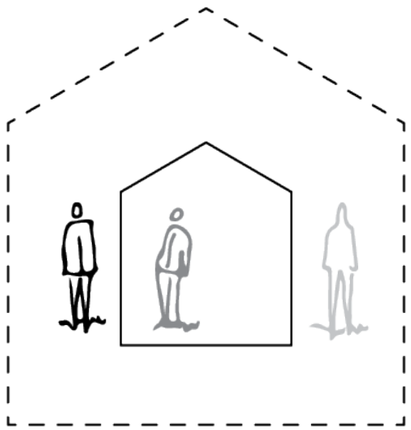
- extension and complexity of the museums' services
- changes in the concept of the visitor from a passive consumer of cultural content to an active creator of it
- a higher degree of audience accessibility to archives and materials due to their digitalization
- expansion of presence in virtual space
- tighter collaboration with a variety of institutions on other fields

Architecture museums have taken a role that goes beyond the sole representation of the heritage of the past and the achievements of the present. Due to focusing on a broader audience, they are now striving to become 'a meeting place at the intersection of public, professional, political, cultural, educational and social interests, as well as that of an approachable platform for debates and activities' (Rahoult, 2011, p.16). People from the most varied segments of society have got a convenient platform to interact, which could be effectively used for evolving the discipline itself as well as developing other fields on which architecture has an impact. Acting as a mediator between the city, specialists in the field of architecture, the private sector and people, architecture museums can take an essential position in the process of sustainable development of a city or an entire state, which would take into account the interests of all segments of the population at once.

The importance of the intermediary role of the architecture museum today is also confirmed by research aimed at developing a new definition of the museums the 21st century, which are carried out by a specially created Committee for Museum Definition, Prospects and Potentials (MDPP) which operates under the auspices of International Council of Museums (Jette, 2019, p. 5). The study report explicitly states that museums, among other things, are also political institutions in the service of the people. In other words, museums do not just have such an opportunity but are called upon to become a platform for stimulating active debate regarding the pressing problems of society (Jette, 2019, p. 7). In order to effectively act as an intermediary between different stakeholders, not only mission and policy of the museum has to support that vision, but also its physical space should facilitate the involvement of different demographic groups and provide 'safe space to discuss contentious issues' ("Rethinking Relationships," 2017).

Figure 1. Museum in the past and muuseum today museum today





Despite the attempts of museums to become equally attractive for demographic groups, this has not still being achieved. According to the committee's report, the audience of museums remains uneven due to the inability of museums to go beyond

economic, social, and cultural barriers. In an attempt to overcome these barriers, museums continue to look for ways to attract a new audience, which may be difficult due to the inability of museum complexes to accept this new audience and satisfy all its needs (Jette, 2019, p. 8).

The concept of the visitor also has been changed. From a passive consumer of materials and information provided by the museum, visitors became active participants in the creation of new content. More and more mediation programs are appearing, 'that promote public participation in the architecture cultural heritage and the designed environment, the documentation and interpretation of contemporary trends in architecture' (Steiner, 2009, p.61). To achieve this, museums increase the availability of archival materials by digitalizing them and giving them access through the Internet. Thus, the boundaries between the public and the museum became more transparent since it becomes possible to experience an exhibition without a personal presence.

Museums also reach out to a younger audience. In collaboration with educational institutions, separate programs are being developed for students of both schools and universities. This strategy further strengthens the position of architecture museums as cultural lighthouses in the long term.

2 Reproducing the spatial experience of architecture

This chapter of the thesis explores the importance of the physical aspect and personal presence in the experience of architecture and then discusses the set of ways in which architecture could be experienced. Starting from experiencing through the final embodiment of architecture – building – several methods from physical spatial representation to two-dimensional performances are examined in terms of the entirety of the experience gained, as well as applicatory for use within the museum.

The second part of the chapter is devoted to those properties and values that architecture takes after it enters the museum. The issue of losing its nature, being exhibited, or vice versa acquiring a new level of mediation, being only a representation, not' real' architecture, is deliberated.

3 The importance of existential experience

It would be too obvious to affirm that since architecture is a three-dimensional form of art, then it has to be experienced only through spatial practice. As will be seen in subsequent chapters of the thesis, there is a whole range of different methods that make it possible to quite fully sense and feel the architecture, its final embodiment in a building, as well as the process of its creation.

The rapid development of new media allows accessing a large part of the information about architecture without the need for a physical presence in the museum. Therefore, before proceeding with the analysis of architectural experience and ways to obtain it, it is necessary to establish the advantages, if any, of the existential sense over the experience of a purely visual nature obtained using two-dimensional representations

As Walter Benjamin noted, the 'mode of perception' of people depends on the 'entire mode of existence' and changes with it (Benjamin, 1939, p. 21). With the invention of photography, and then video, humanity has the opportunity to quickly and unlimitedly create two-dimensional reproductions of things. An endless stream of information made the world flat because the desire for 'masses to' get closer 'to things' (Benjamin, 1939, p. 22) and the advantages of technological reproductions over the human eye finally approved 'the hegemony of vision' (Pallasmaa, 2012, p. 24).

Nevertheless, the problem is that being satisfied only with the practice of visual experience gaining, a person ceases to use other feelings of gaining experience, losing the ability to empathize and. Moreover, according to Pallasmaa, 'instead of inviting a sensory intimacy, contemporary works of art frequently signal a distancing rejection of sensuous curiosity and pleasure. These works speak to the intellect and to the conceptualizing capacities instead of addressing the senses, and the undifferentiated realized responses' (Pallasmaa, 2012, p. 35) and ultimately led to emotional devastation.

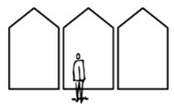
Unlike the visual art, which has always been two-dimensional, architecture was initially perceived in two ways – 'by use and by perception' (Benjamin, 1939, p.21) or in other words by touch and by gaze. Pallasmaa prefers to go beyond these two feelings and extends the concept of architectural perception to multi-sensory experience:' qualities of space, matter and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton and muscle. ... Instead of mere vision, or the five classical senses, architecture involves several realms of sensory experience which interact and fuse into each other.' (Pallasmaa 2012, p. 41)

Berkeley also took up the position that vision needs the help of a touch, which provides people 'with the sensations of 'solidity,' 'resistance,' and 'protrusion,' in order to be able to 'perceive' something as distant or spatially distinct from the viewer. ... Sight detached from touch could not 'have any idea of distance, outness, or profundity, nor consequently, of space or body' (Berkeley, 1993, p. 100). Based on these statements, it is possible to conclude that, as long as the main field of architecture is manipulation with space, it is not enough to limit oneself with the only two-dimensional representations, if the primary purpose is to experience architecture.

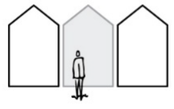
3.1 Classification of architectural experience

The critical issue in the matter of architectural exhibitions is the inability to exhibit real buildings in their natural environment and natural size. Thus, one has to appeal to the idea and experience of architecture. In the case of an attempt to reproduce the intention of architecture within the museum, it becomes essential to understand how exactly it is possible to obtain architectural experience in general. Here a method of differentiation and classification is used to examine every case separately. Instances of possible interaction with architecture, its parts or embodiments, are divided into levels, starting from the most evident – interaction with real building in real condition, and ending with the most further from physiological experience – interaction with different kinds of representations.

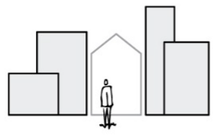
Figure 2. Classification of architectural experience ▶



1st level: original building



2nd level: original building with altered function



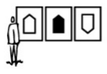
3rd level: original building with altered context

4th level: life-size replica

5th level: digital replca

6th level: installation

7th level: scale model



8th level: 2D representation

3.1.1 1st level: Experience of an authentic building used for its intended purpose

Although architecture is one of the forms of art, it has several features that distinguish it from visual arts. Firstly, architecture is three-dimensional, which implies spatial interaction with architectural objects. Secondly, architecture always serves some function, which in turn implies the possibility of getting experience through utilization. Personal presence and interaction with the purpose of use allow people to gain architectural experience in both spatial and functional aspects in the most natural way.

Böhme introduces the concept of atmosphere, arguing that it affects the perception of architecture. In order to evaluate space shaped by the architecture, physical presence and participation are needed. Except for the atmosphere, other components of the space, such as scale, shape, or structure, could be investigated through other methods of architectural representation – models, plans, and drawings. However, the atmosphere requires a personal presence, by which the 'mood is attuned to the nature of a space' (Böhme, 2005, 402). By developing Böhme's idea, the concept of the atmosphere could be extended to the concept of context. The context, in turn, includes the environment, other people, and time. This context, whether it is recognized by a person or performs as background, has decisive meaning when it comes to exhibiting architecture: being exhibited architecture appears out of the natural context, which stimulates another type of experience and will be discussed further.

In the process of personal interaction with the architecture, the body becomes a central point of perception. Pallasmaa writes: 'The body and movements are in constant interaction with the environment; the world and the self inform and redefine each other constantly' (Pallasmaa, 2012, 44). He reveals this idea through examples of simple interactions of the body with elements of a building that are familiar to everyone: every taken step measures the distance; the process of pressing the handle and pushing the door makes it possible to feel the weight of the door. Correlation of oneself with the surrounding objects and elements of the building helps to aware of space, shape, and scale (Pallasmaa, ibid). Projecting the metaphor of the human body is one of the fundamental ways of investigating the world, and this also could be applied to architecture. Bloomer and Moore pointed out that it is encoded even in language. Usage of such words as "heartland," "facade," "front," and "back" proves that people determine the direction and arrangement of objects in space, considering the body as a starting point (Jencks, 1979, p. 52).

Even though the human body is the origin of multi-sensory experience, its capabilities are limited. Through the touch, it is possible to feel the material,

but not understand the structure. Staying in front of the building, it is not possible to get the image nor about the back façade nor interior without going there personally, which is not always possible. Furthermore, the building is always a final product of the architecture and does not provide sufficient information about the processes of creating architecture. This knowledge can be obtained on other levels, discussed below.

If to consider the practice of gaining experience from interaction with a real building in the context of a museum, it becomes clear that the museum building itself could provide such an experience given that it has been initially designed to become a museum.

3.1.2 2nd level: Experience of an authentic building used for the altered purpose

This level experience intersects with the experience from the previous level in the matter of possibility to get a personal experience. However, here architectural experience could be distorted due to the backtrack from the primary function of the building and exploitation for new purposes. Alteration of function happens if the need for the original usage disappears, but the building itself is still serviceable, or it has some value, considered as a cultural heritage, and has to be preserved. In this case, keeping the external context, the internal context of the building has changed, which affects the interaction with the building and then experience. Distortion of the experience becomes too evident if the building is not able to fulfill all the requirements of the new function without changing its structure or design.

It is worth noting that the significant part of museums of architecture is located within historical buildings initially designed for other purposes. There are some cases when the historical context only adds value to the museum and makes the architectural experience even more precious, as it is in the case of the Estonian Museum of Architecture, which is described in chapter 4.2. However, there are also cases where the desire to preserve the historical context dominates and imposes certain restrictions on the way the building could be utilized, so it becomes impossible to fulfill some needs. The current building of the Museum of Finnish Architecture is an excellent example of mismatching of the initial typology of the building and current use.

Historic house museums and artist studio museums create a separate category of buildings with changed functions. Those buildings become embodied in stone illustration of someone's life and considered in that context.

In Finland, there are several buildings, connected with the life and work of the architect Alvar Aalto: Villa Aalto in Munkkiniemi, which was his home, the Muuratsalo Experimental House - architect's

summer house, his studio – Studio Aalto, and, finally, his museum. Such historic house museums ceasing being used for their initial purpose become just frames for displayed objects that once belonged to inhabitants' and now have adopted the status of artifacts. On the one hand, such a deliberate limitation of the functional value may seem insulting for the architecture, on the other hand, the new status of cultural heritage prevents it from being destroyed by the inexorable passage of time. Moreover, complete with the objects on display, it is possible to recreate the atmosphere and spirit of a certain period of history. Reconstruction of the atmosphere of the history can not reach the same degree of authenticity with taking the same objects out from the context of space they had been used and exhibiting them within a museum: no matter how realistic will be decorations at there, it will be closer to stage design than the reproduction of the atmosphere of the past era.

3.1.3 3rd level: Experience of building moved from its original location

Buildings that have retained their shape, but replaced from their original context like in case of open-air museums. The original function of that kind of building changes as well. In extreme cases, they become non-exploited, and even visitors 'are not permitted to visit buildings deemed too fragile.' Thus, there is no other function except to be the only visual symbol of their time, according to Damisch (Damisch, 2001, p. 59).

At the same time, material evidence of technologies that have long ceased to be used is acquiring sacred significance, especially today, in the era of 'our rootless society.' (Choay, 1992, p. 167). In other words, open-air museums are becoming the last bastions of the architecture of the past, where it is possible to obtain the relevant architectural experience directly, and not just through stories and pictures in archives.

An example of this type of museum is the Seurasaari Open-Air Museum in Helsinki.

3.1.4 4th level: Experience of full-scale replication of a non-existing building or part of it

Although in an essay titled "A Very Special Museum" Damish's criticism that being exhibited architecture loses its 'projectile sense' (Damish, 2001, p. 62) and risks' becoming frozen in time' (Arrhenius, 2014, p. 22) was appealed to architectural museums, precisely full-scale replicas are perhaps the most vivid example of conserved architecture. However, such buildings as the Parthenon in Nashville being no more than an imitation still could provide an experience lost in history in the case of buildings ruined centuries ago (Mager, 2016, p. 2). According to Piranesi, buildings' replications can also be

considered 'not in terms of parody, but as kind of paradigmatic' (Damish, 2001, p. 59).

It can also become an act of scientific study of architecture, as was in the case of *Musée de l'ordre dorique* in Paris in 1802, when Legrand and Molinos, although they did not copy a specific building, reproduced all the main principles of the Doric order with high accuracy (Mead, 1991, p. 204*).*

3.1.5 5th level: Virtual experience of life-size digital visualization

Before continuing the research about the nature of the architectural experience that can be obtained through technologies of new media, it is necessary to make a small retreat from the topic and describe events taking place all around the world at the moment this thesis is being written. This retreat is about the situation of worldwide isolation due to the COVID-19 pandemic. Since all public places and institutions, including museums, were forced to close their doors to visitors, the surge in popularity of virtual exhibitions has appeared. The majority of these exhibitions are in the format of pre-recorded video or the format of real-time video conferences. However, one project had presented at the Tallinn Architecture Biennale just a few months before isolation started attracts attention with its potential to become not just another alternative tool for communication between the public and the museum, but to make a communication revolution that might change people's lifestyle, like it was after inventions of the phone, and then the Internet.

The project called The Venn Room has an idea of meeting people and spending their time together in a virtual space based on the projection of peoples' real houses. In other words, using virtual reality technology, it is possible to exist in a visually different space moving physically within a real home at the same time (Lesmes & Hellberg, 2019).

Creators of The Venn Room Lara Lesmes and Fredrik Hellberg also draw attention to the fact that virtual architecture in their project takes sizes and distances of real-world objects as a reference, which in turn are determined by dimensions of the human body. For instance, the height of a staircase riser or a doorway that people can pass through, the size of a bed to make it comfortable to use. In other words, real-world architecture 'will be to the experience of virtual space what the body is to the physical experience of architecture' (Lesmes & Hellberg, 2019).

Even though the graphic capabilities of such technologies still do not allow us to doubt the unreality of virtual objects, the spatial sense of space in virtual reality seems quite natural. The feeling of presence, movement, height, and even fall is already perceptible in the virtual world because it is based not only on sight but also on the physical movement of the body. Every single motion made in

the real-world is duplicated in virtual space at a speed that makes the brain perceive this illusion of movement and respond the same as it was a real experience.

Figure 3. The Venn Room. Installation at Tallinn Architecture Biennale.

The only thing that now distinguishes the spatial experience of the virtual world from the real one is the impossibility to smell and touch objects. This new combination of sensory organs involved in the

process of perception, when people have the possibility of moving in space, but can not touch objects, has appeared only now and requires additional study. Neither Pallasmaa nor other scholarly philosophers and theorists to whom he refers in his work entitled "The Eyes of the Skin: Architecture and the Senses," for obvious reasons, consider such a concept of architectural experience.

However, new media technologies will inevitably continue to evolve and expand opportunities for interaction and perception in virtual reality in the future. Even with the current level of development, they provide enough opportunities to create a unique architectural experience that is not available in the real world, which makes them promising tools both for the virtual reconstruction of destroyed buildings and for use in the context of laboratory-type exhibitions.

3.1.6 6th level: Experience of architectural installation

Aaron Betsky, in his interview with Aaron Levy and William Menking about architecture exhibitions at the Venice Biennale, argued that architecture is not building because buildings are just 'the most complete ways in which architecture can appear.' However, some other ways also can identify architecture. Moreover, they do not have to end up looking like a real building. According to Betsky, a direct representation of the building is not necessary to recreate an architectural experience (Betsky in Levy & Menking, 2010, p. 144).

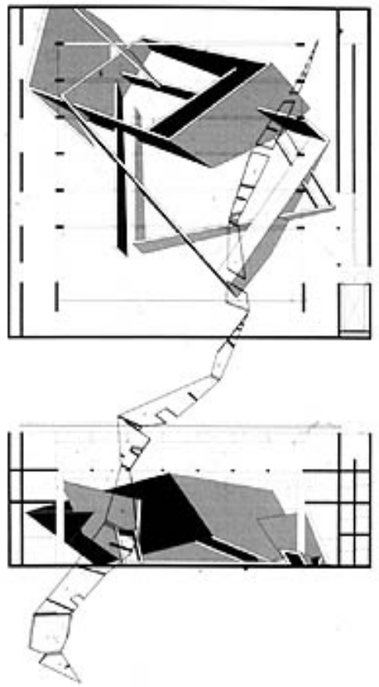
What remains of architecture, if its material embodiment in the form of buildings, as well as functionality, will be eliminated? This 'surplus,' as Böhme calls it, which remains in an architecture devoid of function, is the very atmosphere that appears in the process of manipulating space (Böhme, 2005, p. 398). In addition to spatial organization, the atmosphere is also complemented by sounds, smells, light and colors, surface textures. Everything that can be perceived by the senses and merging into the consciousness helps to generate 'an indivisible complex of impressions' (Pallasmaa, 2012, p. 48)

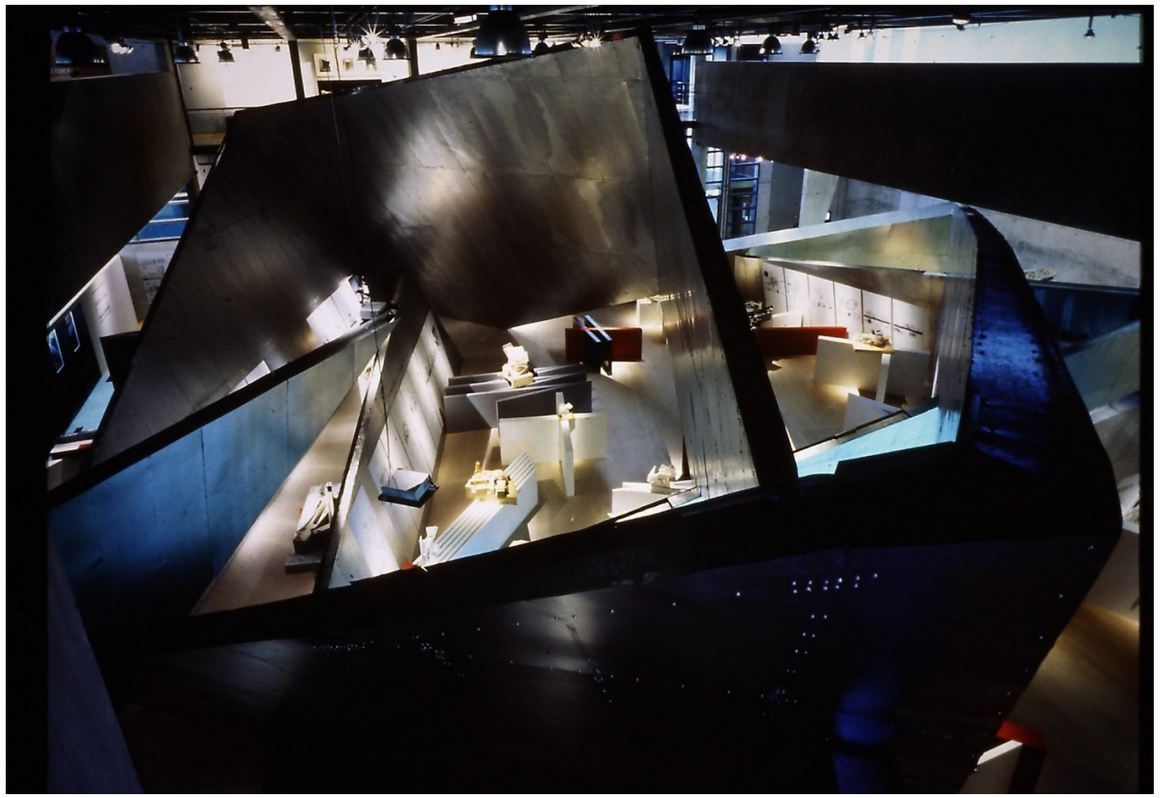
All this leads us to the following form of architectural experience - installation, which does not have the utilitarian functions of the building. Moreover, installation is often far from the real building in the aspect of its structure and appearance. However, at the same time, installation still manipulates the space, involves the visitor in physical interaction, and thus provides an opportunity to utterly impossible in the everyday life experience of architecture.

Installations usually do not represent buildings, but they manipulate space, which gives them the status of an alternative form of architecture. Furthermore, this form has its advantages over the more familiar form in the form of buildings: devoid of conventions and rules that function dictates inevitably, installations are much freer to choose a structure, forms, and materials. Thanks to this, the installation becomes an excellent tool for architectural experiments.

As an example that illustrates a point was Daniel Libeskind's installation Beyond the Wall, 26.36 ° at the NAi in 1997. The architect intended to make "the public co-participate in a scheme by following an imaginative and nonlinear path in order to experience "the other side": "the substance" of hope and the proof of what remains invisible in space." (www.libeskind.com)

Figure 4. NAi exhibition design Plan, section and unfolded walls





Passing through a spiral labyrinth with a total area of 1800 square meters, the walls of which were covered with sheet steel (Bouman, 1997), continually changing in size and tilt angles, visitors had an opportunity to get a unique sensual experience, like which it would be difficult to reproduce outside the museum in a real architectural project.

This method of communication and application of architectural experience could become universal and understandable to everyone at the level of sensory perceptions and emotions since the installation does not require the visitor to read architecture through its 2D representation, which always requires a certain level of knowledge about the topic. Analyzing this aspect of the versatility and expressive potential of Libeskind's work, Carson Chan criticized the attempt by the curator of the exhibition

◀ *Figure 5. Daniel Libeskind: Beyond the Wall 26.36°*

Kristin Feireiss to make the new format more familiar to the habitual audience of the museum by supplementing the installation with traditional architectural representations - drawings and models from the architect's studio. This gesture destroyed the original intention to influence the audience only through physical and spatial experience and turned the installation into an 'instrument of scenography — his moving metals slabs serving as the supporting armature for framed drawings.' (Chan, 2010).

What matters here is the fact that after Libeskind's exhibition, due to its democracy and versatility in providing spatial architectural experience, as well as due to the almost limitless possibilities for an architectural experiment, installations have become one of the most effective tools in museum practice.

3.1.7 7th level: Experience of scaled models (both physical and virtual)

Even though in this classification of representations of architectural experience, scale models are located at the almost last level, they play a significant role in transmitting information about buildings and their structures. Scale models were used in architectural practice long before the appearance of museums. Just recall the architectural competition for the design of the dome for Santa Maria del Fiore in Florence, which was held in the 14th century.

During that competition, two models of competing architects with a height of 15 feet (approx. 4.5 meters) and a length of 30 feet (approx. 9 meters) were presented to the public, who had to give their estimation for the design. The scale of models allowed people to interact with models spatially and to study them (Baechler, 2012, p. 7). Of course, the experience that was provided by the scale model was significantly different from the experience that provided dome after it was built. However, this is still spatial manipulation, albeit in a reduced size, which is many times greater than any two-dimensional representation of architecture.

Until today, models do not give up their positions on the issue of representing architecture. Scaled replicas of buildings are widely used both in museums and architectural bureaus due to their ability to make people understand architecture from just one sight.

Thanks to new media, the physical version of the scale model is moving to the virtual space. Models made using CAD and BIM software features allow people to investigate not only the exterior of the building but also to clearly show all structural elements and technical systems hidden behind the surfaces. Those extended models could be used not only for purely illustrative purposes but also in the process of learning and understanding more deeply the internal processes and technical aspects of architecture.

3.1.8 8th level: Experience of 2D representations

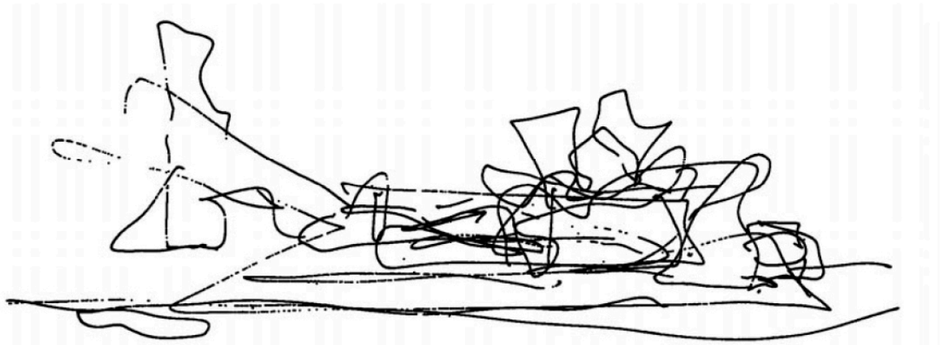
The last and the least representative in terms of architectural experience method, which, however, is still used most widely within a museum, is a two-dimensional representation in the form of photographs, plans, and drawings.

Since two-dimensional representations are in the last place in this classification, an erroneous impression of its insignificance and worthlessness in the context of the representation of architecture can be created.

However, returning to the definition of Aaron Betsky that architecture is not only buildings but also everything connected with them, it becomes clear the inevitability of using 2-dimensional representations due to lack of more successful alternatives continued until today. From the very beginning, the architect has been working with a three-dimensional space. However, two-dimensional representations from expressive sketches to detailed plans and sections become a tool for transmitting information about unbuilt architecture. Today, with the development of BIM technologies and the ability to immediately present a project as a three-dimensional virtual model on the screen, which can be viewed from any angle and helps to understand the spatial relationships of elements of the space, the need for two-dimensional methods of representation is becoming less, although it does not disappear completely. As long as two-dimensional drawings continue to be used in the process of creating architecture, they also deserve their place at the architectural exhibition, even though it is something that 'only nerds like us understand,' as Aaron Betsky accurately expressed in his interview (Betsky in Levy & Menking, 2010, p. 144). Indeed, architectural drawings may not be self-explanatory and not engaging for a wide audience; however, attracting only untrained broad masses has never been a priority for architectural museums. Somewhat, this has become a trend only in the last few years, however even this orientation of museums towards expanding the audience does not set them the task of rejecting a narrower circle of professionals involved in the field. With several levels of perception depth, the exhibition only wins and gains even higher value for a comprehensive understanding of architecture.

Figure 6. Frank O. Gehry sketch of Guggenheim Museum Bilbao, Spain ▶

Figure 7. The Finnish Pavilion ▶



As the curator Maristella Casciato noted, the starting point of the exhibitions was never the object itself, but rather "its history, context, materiality, reception," which in the context of the museum can be represented only in the form of texts, illustrations, and photographs. As for photographs representing architecture, it is worth paying attention to the fact that it always carries an additional level of information about the vision of architecture in the eyes of the author of the photograph. That is, this is no longer an independent product, but a creative combination of the work of the architect who designed the building and the photographer who captured this building from a certain distance and angle at a certain point in time and lighting. The importance of a photographer's intention is very clearly seen in the photography of Finnish Pavilion by Alvar Aalto at the 1939 World's Fair in New York made by Ezra Stoller, who succeed to capture not only the architecture but also the atmosphere of the post-war architecture of the time.[1] That is, in the case of a photograph, despite its limited opportunities and purely visual impact, with sufficient skill of the photographer, it is possible to recreate the necessary impression and a specific representation of the architectural experience, even without the participation of other senses.

However, as it was mentioned above, photography contains two different approaches - the architect's idea and the photographer's interpretation, which may not always match. Thus, in contrast to the photography, illustrations produced by the architect are more critical, as they express the architect's intentions without intermediaries. Through graphic materials, the architect can focus on those details that most accurately express his intentions. Often in the methods that architects use to present their projects, the personality of the architect, his position, and philosophy are reflected. That is why the most primitive sketches that have come out of the hands of the architect are of particular value in the context of the representation of architecture since with just a few expressive dashes it is possible to convey the atmosphere and the central message of a single architectural object much more accurately and more deeply. In the case of design, but not ever build proposals, the graphics and other data produced by the architect become the only opportunity to experience that architecture.

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[1] *https://de.phaidon.com/agenda/architecture/articles/2019/october/07/ezra-stoller-s-modern-america-the-finnish-pavilion/ (5.05.2020)*

Discussion

After analyzing the architectural experience of each level, it became evident that none of them can provide a 100% understanding of architecture and covers only one or several aspects of the discipline. By combining different levels and methods, we can approach the ideal perception and understanding of architecture, which is valuable in itself as an experience but also contributes to the development of the discipline itself.

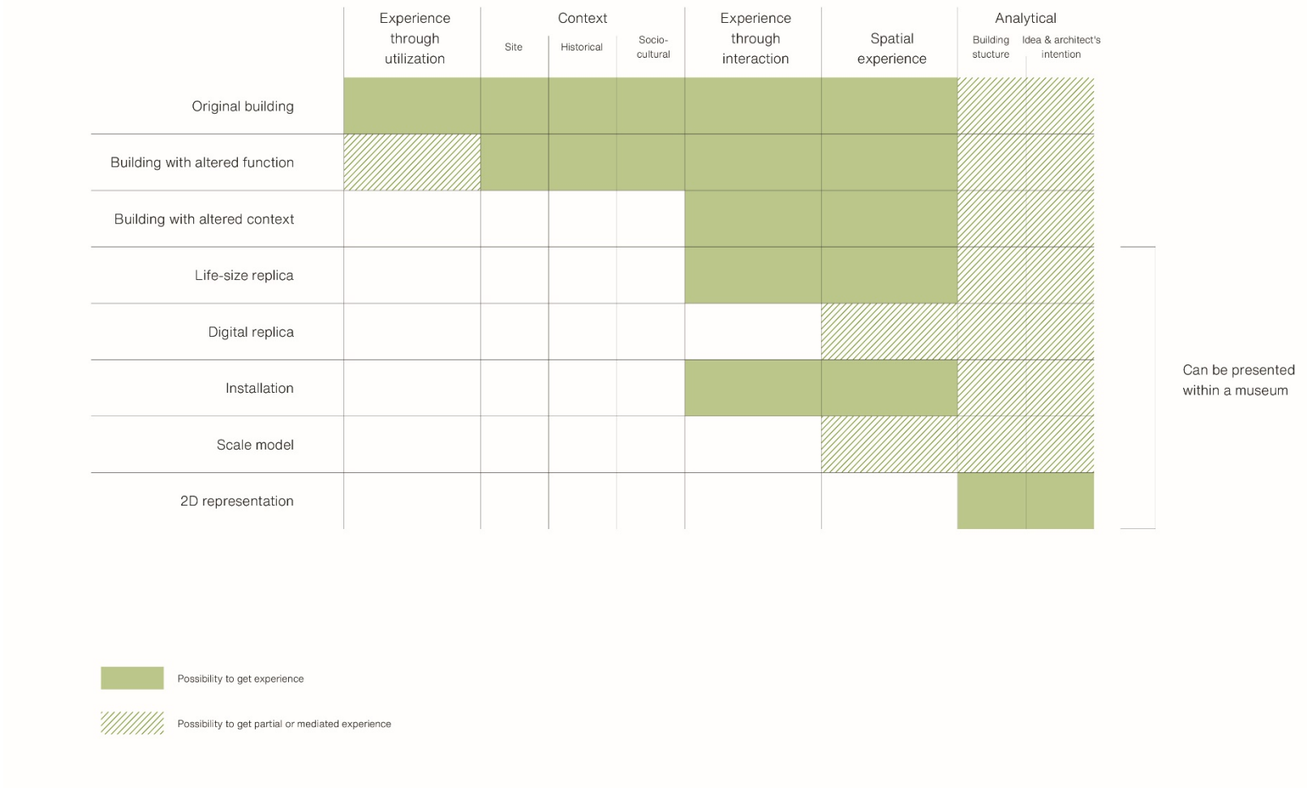
Considering the usage within museums, the first three levels and partially the 4th (reconstruction of part of the building is still possible) cannot be represented, even though they provide the most complete, physically, and sensually expressed experience in architecture.

However, as will be seen in chapter 3.2, the museum does not aim only at representing the architecture and reproducing the architectural experience. In some instances, experimental exhibitions itself become a tool for creating new architecture and developing the discipline.

Besides, the experience of the first levels can be obtained outside the museum, so its banal repetition inside the museum could offend the true meaning of this institution and make its existence useless. The museum helps us understand and interpret the experience gained, even without its exact reproduction.

However, with the movement away from the authentic experience in the direction of less representative methods of perception, the role of institutional agendas and interpretation becomes more significant. On the 8th level of reproducing architectural experience with its two-dimensional representations, architecture is presented exclusively through the representation author's interpretation, whether it be a curator, photographer, or architect himself. Finally, the representation of architecture is not architecture itself, even if the same author is attached to the original object and its representation at any level.

Figure 8. Levels of architectural experience


Experience through utilization
Context
Site
Historical
Socio-cultural
Experience through interaction
Spatial experience
Analytical
Building stucture
Idea & architect's intention
Original building
Building with altered function
Building with altered context
Life-size replica
Digital replica
Installation
Scale model
2D representation
Can be presented within a museum
Possibility to get experience
Possibility to get partial or mediated experience

3.2 Features of architecture on display

After contemplation of the possibilities of obtaining architectural experience, it becomes clear that due to the insufficiency of methods of its representation, it is quite challenging to reproduce the architectural experience even partially inside the museum. Even when it is possible to achieve success in recreating the sensual part of the architectural experience within the museum (for example, through installation), other aspects, such as context and function, remain not involved in the process. In this sense, the question arises: for what museums of architecture are existing? At first glance, the process of exhibiting architecture seems like a process of using crutches. Instead of going and getting the architectural experience from the authentic building, people come to the museum, where architecture, in its most apparent and full-fledged embodiment, cannot be represented. A museum visit can be justified in case of the inability to reach a real object if it is located too far or destroyed or does not exists. In this situation, the museum becomes the place where it is possible to get at least some representation of the desired object. Is there something else that architecture museums could offer besides of deficient representation of existing buildings? As a rule, the loss of something that has initially been inherent in the subject is perceived strictly negatively. However, having studied the matter more deeply, it becomes apparent that the loss of one opens up possibilities for the appearance of another. With the architecture that lost its functionality and the original context after entering the museum, this also happens.

After release from its context, architecture goes to a new level, becoming an object outside the conditions of time, space, and society (Till, 2009, p. 246). This detachment from properties that architecture usually has allows people to see it not as it is, but as it could be – its ideal embodiment. Based on Aristotle's discourse about the difference between historian and poet, it is possible to draw a parallel between authentic architecture and the Aristotelian historian who "relate what has happened" and compare it with museum architecture which appears as a poet who relates "what may happen" (Butcher, 2008, p.11). Moving from the realm of real events to the realm of perspectives and probabilities, it becomes possible to create alternative realities, study them, and then apply in real life. Thus, it is not an architecture that becomes the source for the exhibition, but the exhibition becomes the source of inspiration and the development of architecture.

Considering architectural exhibitions as an integral part of the producing architecture, Kossak calls a certain type of exhibition as a laboratory exhibition (Kossak, 2009, p. 117). This name originates from Russian constructivists, who called their experiments with forms and constructions'

laboratory work.' Their experimental installations were not undertaken as an end itself being anything more than just an experiment. However, they were made with the idea to contribute a solution to some kind of utilitarian task, and then, going beyond the framework of the experimental installation, find their application in real life (Kossak, 2009, p. 124).

Corinna Dean describes the principle of operation of the installation as a continually repeating cycle of searching new architectural forms and then testing and defining their relationship with the audience through the material, scale, and representation (Dean, 2009, p. 129). She adds that the state of searching and experimenting, rather than focusing on the completed form which has already defined in all possible aspects, allows "cope with the complexity and dynamism of the current situation and is thus orientated towards the future" (Dean, 2009, p. 130)

In light of the preceding, it can be concluded that architectural experiments in museums are being made not only for detecting new architectural forms, but instead, they become a process of posing presumable situation, playing various scenarios of its development, and proposing reliable solutions to problems arose during the whole process. Based on a perception of the exhibition as an experimental laboratory, it becomes difficult not to appreciate its importance for the development of architecture, which has always been called upon to propose solutions to problems of society. In the context of the 21st century, when society itself became an active participant in discussions about social issues, the role of the museum as an intermediary between specialists and the masses becomes even more critical.

3.3 Museum's space as a context

Exploring the representation of the architecture within museums, it should not stay forgotten, that in addition to reproducing of architectural experience, there is a second side of the issue, namely the museum and its space, in which architecture appears being exposed and with which it inevitably enters into spatial relationships. Even outside the museum, architecture has never been perceived separately from the environmental context. After entering the museum and being exposed, architecture acquires a new context in the form of a museum space.

Before entering the exhibition space and touching with the subject of the exhibit, the visitor inevitably encounters the exterior and entrance of the museum building, which affects perception and begins to form an impression even before the person begins to watch the exhibition. Perception of the museum's entrance as a preamble for the exhibition is indicated in a study report titled "Talking to Oneself:

Diaries of Museum Visits," which explores in detail various aspects of the experience gained during the process of visiting the museum: "Sometimes the entrance [of the museum] is seen as part of the aesthetic experience" (Leinhardt, Tittle & Knutson, 2000, p. 11). Knowing this feature of the perception of the museum, some of them deliberately weave the story of the museum's building into an extensive tour. A vivid example is the guided tour at the Guggenheim Museum Bilbao, which begin from the building's description, including the history of its creation, explanation of the architectural concept and delineation of the location of exhibition halls, which helps the visitor to perceive objects in the museum not just as a set of two- or three-dimensional artifacts, but as a full-fledged spatial practice. (Seligmann, 2009).

Depending on what spatial relationships exhibition objects generate with the museum space, it can be perceived as an integral part of the exhibition, as a neutral background or frame for artifacts, or as an obstacle that comes into conflict with exhibits and destroys the atmosphere and message of the entire exhibition. Based on the diaries of museum visitors, the conflict between the exhibition and its space, as well as their mutually beneficial symbiosis, is felt quite clearly by visitors (Leinhardt, Tittle & Knutson, 2000, p. 12). However, what is here called conflict does not always have to be strictly negative: a sharp contrast or confrontation between objects on display and their surroundings, on the contrary, escalates perception and can make the experience even more profound. On this basis, it could be concluded that the presence of its character in the space of the museum is preferable to a solely neutral, suitable for any exhibition and faceless environment.

However, in the study of diaries of museum visitors, there was no case where the character of the building turned out to be so expressive that the architecture of the museum prevailed over the exhibits, completely eclipsing them. Thus the primary function of the museum - exhibiting objects and gaining experience from the objects exhibited - was not fulfilled or was presented in a distorted form. Reading the analytical description of guided tours at the Guggenheim Museum Bilbao by Ari Seligmann, one can come to this conclusion. A detailed description of the architecture of the building in an enthusiastic laudatory tone that precedes the tour ends with an ironic remark: 'when you go back inside don't forget to look at the exhibits,' which makes visitors understand that the main object of the collection is the museum itself (Seligmann, 2009, p. 82).

In conclusion, it is worth saying that there is no significant difference between eclipsing the exhibits, entering into cooperation, or conflict with them – the subsequence will be the achievement of the new level of spatial perception due to the strong character of the museum environment. In the context

of the museum of architecture, when the building itself becomes the only source of the first-level experience (see chapter 2.2.1), its architecture and the spatial experience that it gives become extremely important and require special attention.

4 Case study: analyzing the impact of museum architecture

For the architectural analysis within the framework of the case study, three museums were selected and investigated from the point of applicability of the museum space for exhibiting architecture, the ability to provide the opportunity to gain rich architectural experience, and the way the museum environment interacts with the objects on display.

To obtain an overall result, the origin and location of the museum, its relationship with the surrounding urban environment, layout, and typology of the interior space, as well as the type of exhibitions hosted, have been analyzed. The resulting scenarios for the use of museum space are then applied in designed museum's exhibition halls to test the viability of the developed solution and suggest how the designed building will cope with the functions of representing architecture and architectural experience in real conditions.

According to their primary function, chosen for case-study museums are independent architecture museums (or a combination of architecture and design museums) that are not part of art or national museum.

The Estonian Museum of Architecture was chosen as the first object of analysis. An interview with its employees was conducted to determine the needs of the modern architecture museum and, based on this information, adjust the room program of the proposal presented in the second part of the thesis. Besides, the Estonian Museum of Architecture is one of the most successful examples of architectural museums located in a historic building. Due to its layout, which is initially convenient for spatial manipulations, the building not only allows it to cope effectively with the main task of exhibiting architectural artifacts and installations but also due to its historical context, contributes to creating a unique atmosphere and deepening the architectural experience.

The second object for analysis is the Swedish Center for Architecture and Design (ArkDes). This museum's exhibition halls are located in two Navy's old drill hall preserved from the beginning of the 19th century, while the remaining rooms are housed in extension designed by the Spanish architect Rafael Moneo and finished in 1997. In the case of the ArkDes building, the architect's strategy deserves special attention, because developing the concept for the new building, he was able to choose the location for the museum by himself. Instead of creating a spectacular architecture based on contact with the sea, Moneo chose a strategy based on respect, mutual understanding, and integration of new entities with the existing architectural heritage.

The Bauhaus Museum Dessau was chosen as the last building for analysis because this museum is is an example of a brand new building designed with the original goal of exhibiting objects of design and architecture. The building was completed in 2019, allowing exploring a modern approach to the design and use of museum spaces.

4.1 Estonian Museum of architecture

Collection: 37 700 artefacts[1]
Focus: national
Exhibition area: 1200 m^2 (40%)
Total area: 2700 m^2

4.1.1 The origin

The Estonian Museum of Architecture was founded on January 1, 1991, to collect, preserve, and research the Estonian architectural heritage of the 20th century and inform the public about the history and development of Estonian architecture. The museum is housed in the Rotermann Salt Storage, built-in 1908, which is a remarkable example of the industrial architecture of the time.

The central part of the museum's archive is made up of architectural and urban planning drawings, construction projects, photographs, models, and related materials. The collection is based on plans and projects from the archives of the State Construction Committee of the Estonian SSR, transferred to the National Institute for Design of Cultural Monuments in order to establish a museum. In total, the archive contains about 20,000 photographs, 12,500 drawings, more than 200 architectural models, as well as several furniture and individual works of art. The museum's library contains about 5,000 books and publications on the theory and history of Estonian architecture.

Today, the work of the museum is aimed at both professionals and tourists and schoolchildren. The museum hosts both personal exhibitions of architects and exhibitions of various historical periods, hosts an architectural school, and also has its library and a constant publicist activity.

4.1.2 Location and history of the building

The Estonian Museum of Architecture is located on the edge of the culture-historical quarter called Rotermann City on the way between the city center and the Port of Tallinn. The quarter's development began in the 19th century when the first industrial enterprises were built on the former bastion belt territory between Mere Boulevard and Hobujaama St - The Chr. A. Rotermann Mill and the Rosen Distillery. By the beginning of the 20th century, the small area had developed into a thriving industrial quarter. The building of the salt warehouse, which now houses the museum, was built in 1908 by the project of the Baltic-German engineer Ernst Boustedti and, to this

[1] the data about the size of the collection is taken from the museum's website, and does not match the data provided by ICAM

day, is considered one of unique surviving limestone structures in Estonia. (EAM, n.d.)

Unfortunately, the period of world wars and the Soviet occupation left the quarter in desolation, and many buildings were destroyed. Only in 2001, the restoration and restructuring of the quarter began, and by now, it has turned into a modern, actively functioning environment with a high level of architectural quality.

This historical and architectural background of the museum building and the entire quarter gives additional value and attractiveness when visiting on the one hand, on the other hand, one cannot fail to note the fact that the museum building stands separately cut away by Ahtri Street. In addition to this, streams of people moving in the direction harbor - city center, in most cases, move either along Hobujaama Street or Mere Boulevard, leaving the museum building aside. However, even looking at Roseni Street, which leads to the museum, it is seen that building is located perpendicularly to the road, and the progression towards the entrance becomes unobvious. Moreover, even if there is a vast space in front of the entrance that can be used as a museum's plaza, it is currently merely a grassed hill with no additional attractions. All this makes it challenging to engage a new audience that is not specifically interested in visiting an architectural museum.

4.1.3 Building layout and character of exhibitions

The building was initially built to be used as a salt warehouse: bales of salt were stored in a vaulted basement, and imported salt was processed on the ground floor, which was the only floor available. Before using the building as an exhibition hall, it was reconstructed by architects Ülo Peil and Taso Mähar (Urbel & Peil architecture bureau). The main hall of the building was divided into several levels. On the ground floor of the building, there is a permanent exhibition hall with scale models dedicated to Estonian architecture displayed, museum shop, library, and study room for architecture school with a children's playground on top of it. Some of the buildings presented at the permanent exhibition in the form of scale models and drawings are located near the museum. Therefore, on the way to or from the museum, visitors inevitably encounter some of them, and the architectural experience gained during the exhibition gets a supplementation in the form of an original building in its original context. This complex interaction with the representation of architecture at different levels in a short period makes it possible to look at architecture from a new perspective and gain a more profound and more varied architectural experience.

On the 1st floor, it is located for temporary exhibitions. This hall is 3.5 meters net high and has no supporting columns, which gives absolute freedom in choosing a layout for the arrangement of exhibits.

On the 3rd floor, directly above the exhibition hall by two narrow aisles connected by two bridges, a semi-open gallery hangs under the very arch of the gable roof.

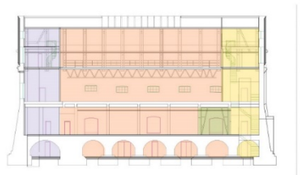
The vaulted stone cellar is used for a permanent interactive exhibition aimed at a wider audience.

As a rule, exhibitions held in a museum are divided by floors and do not touch each other, which gives them the freedom to visit only one exhibition of interest or the entire museum.

As only dividing slabs were added during the redevelopment of the building, and all other materials and structures were preserved in their original form and also on display, this creates an additional spectrum of sensations and adds another layer of experience, deepening the architectural experience of each exhibition held at the museum.

Figure 9. Estonian Museum of architecture building layout and character of exhibitions ▶

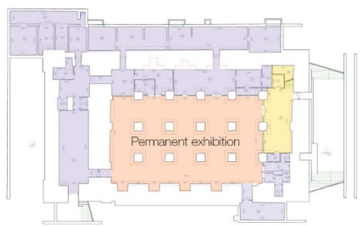
Section



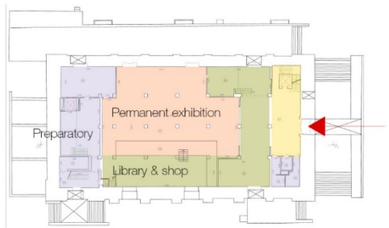
Northeast elevation

Northeast elevation

Underground floor



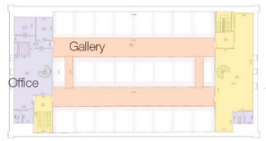
Ground floor



First floor

Exhibition space
Public services
Connections
Service spaces

Second floor



Loft extention

However, if the historical layer of the building plays a decisive role in terms of interaction with the visitor and the influence on the resulting architectural experience, then in terms of utilitarian premises serving the exhibition and ensuring the museum's functioning, some problems have appeared.

During the interview with museum workers, the problem of a lack of additional service premises, such as a more extensive archive, storage facilities, and preparatory workshops, specially equipped premises for the conservation, preservation, and digitalization of artifacts, was clarified. One of the workers told the story of the preparation of the exposition in the framework of the Tallinn Architecture Biennale, 2018, when one of the objects for exhibiting inside the building was a vast plaster cast. In order to bring it to the exhibition room on the first floor, the large window in the archive room was disassembled, which, of course, is not acceptable, given the need to maintain a specific microclimate in the archive to ensure the preservation of artifacts.

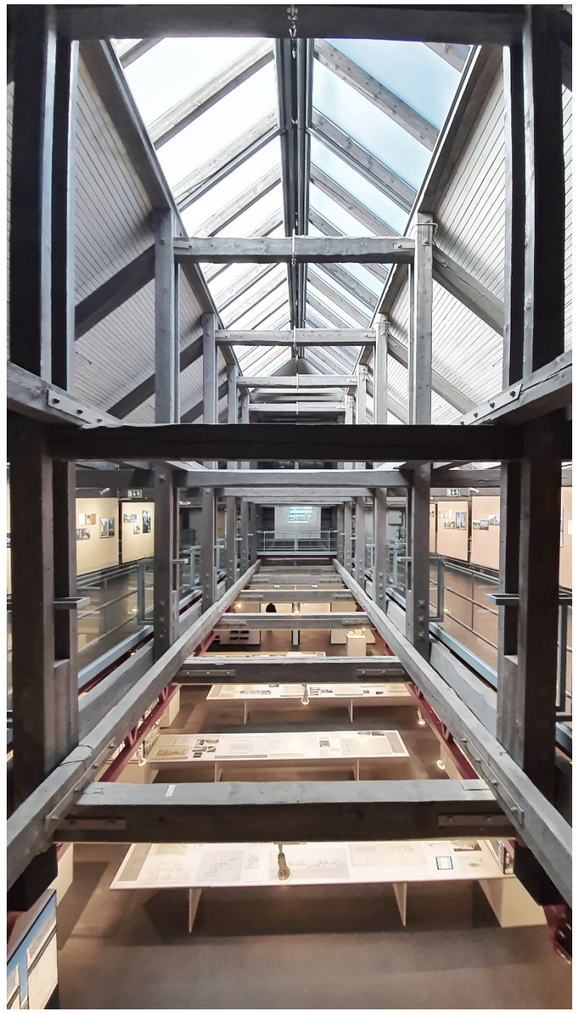
4.1.4 Discussion

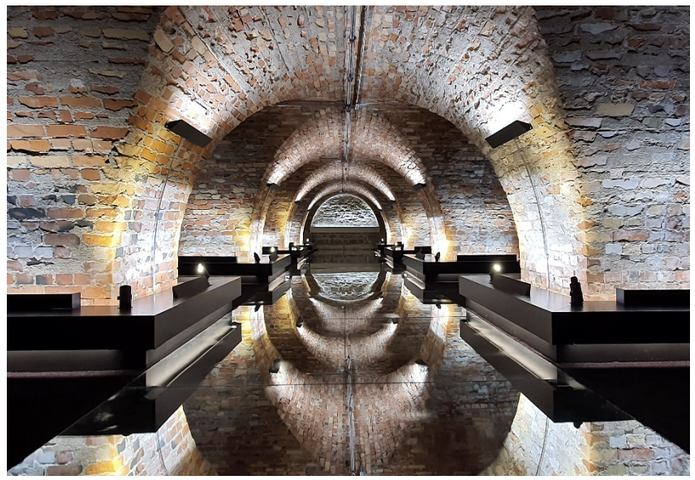
Due to the Estonia Museum of Architecture location and its historical context, gaining an architectural experience begins long before the visitor enters the museum itself, and then continues after leaving it with a new collision with the city. This double interaction with the architecture on different levels helps to broaden the experience by comparing and combining the experience gained from the representation of buildings with the experience gained through direct interaction with the same building in real life. However, having such a secure integration of the exhibited objects with the original architecture of the city, it would be nice to maintain this connection not only in the plane of the historical past but also in the plane of the future tense, providing a platform for experiments and fantasies on the development of urban space, which, of course, is challenging to implement given limited resources of the museum.

Figure 10. Estonian Museum of Architecture. Permanent exhibition (ground floor) ▶

Figure 11. Exhibition hall on the underground floor ▶

Figure 12. Estonian Museum of Architecture. Exhibition hall on the underground floor ▶





4.2 ArkDes

Collection: about 200 000 items presented in the digital library, 24 000 books in the museum's library
Focus: national, international, local
Exhibition space: permanent exhibition - 900 m^2, Boxen pavilion - 156 m^2,

4.2.1 The origin

The history of Swedish Center of Architecture and Design (ArkDes) began in the 1950s when the National Association of Swedish Architects created an archive of photographs to bring information about modern architecture to the general public. Twelve years later, in 1962, they create a museum based on this collection, all with the same goal - to spread information and knowledge about architecture to the general public. The museum was initially housed in the Nautical Chart Department building on Skeppsholmen Island, but in 1990 an architectural competition was held to build a new building for the museum. The winner of the competition was Spanish architect Rafael Moneo, who, instead of constructing a completely new building, offered to use the halls on the island of Skeppsholmen, preserved from the 19th century and initially used by the Swedish Navy for training purposes, as exhibition halls. As a result, 2 of these halls were used as exhibition halls of the museum, and for the cafe, library, and office premises, Moneo designed additional premises, combining all the premises into a single complex of the architectural museum.

4.2.2 Location and exterior

The museum is located on the island of Skeppsholmen, formerly the headquarters of the Swedish Navy. By its structure, the island could be called a separate city, since there were all the necessary resources to fulfill its primary function: shipyards, barracks buildings, ammunition depots, hospitals, churches, workshops, and schools. By the end of the 19th century, the Navy left the island, and, over time, empty buildings began to be occupied by cultural institutions: currently, there are several museums, a theater, an art school located. One of the museums is the Swedish Centre for Architecture and Design, which, together with the Moderna Museet, constitutes a single complex of buildings, although these are two different institutions. The museum's location can be considered very successful, given the unified focus of the nearby buildings.

Both museums - ArkDes and Moderna Museet, as well as many other institutions located on the island - are hosted in buildings that had survived from the middle of the 19th century, when they served the Navy's needs. Thus, visiting ArkDes, the interaction with architecture, and gaining architectural experience begins from the moment when visitors hit the island. The museum complex is integrated into

the historical urban environment without destroying it, but engaging in dialogue with it, enriches the experience gained by adjoining an additional cultural and historical layer. In order to understand the value of this architectural solution, one can draw a parallel with the Guggenheim Bilbao, which was built at the same time but has an opposite approach and concept. The Guggenheim Bilbao, rejecting everything built before it, is an example of a hitherto unseen architecture, treating the building as a sculpture and an independent work of art. The architecture of ArkDes, on the contrary, accepting and respecting the heritage of the past carefully complements it with new volumes, and instead of offering a place where one can be in the spotlight, it offers the visitor a place where one can enjoy the beauty of Stockholm. (Moneo, 1991)

4.2.3 Building layout and character of exhibitions

The ArkDes exhibition halls are hosted in two Navy's old drill halls. These are two spacious hangars, all internal elements of which are painted white so that nothing distracts from the exhibits. Visitors can get to the museum either through the entrance central *avant-corps* or from the side of the Modern Museum.

In 2018, one of the exhibition halls was supplemented with a pavilion called Boxen - a white cube volume with a round central window and a ramp around the perimeter. Boxen is built from a pre-fabricated standard section steel structure, lined with birch plywood and white plasterboard, and covered by a corrugated steel roof. In this way, the design brings a new element of utilitarian architecture to the ample space of the museum, forming a separate exhibition hall for thematic exhibitions. The wrap-around ramp allows visitors to interact with the museum space and, as they climb, look at the exhibits from a new angle. As conceived by the authors of the construction - Dehlin Brattgård Arkitekter - people climbing the ramp should become an integral element of the structure and complement the overall composition. (Dehlin, Brattgård, 2019)

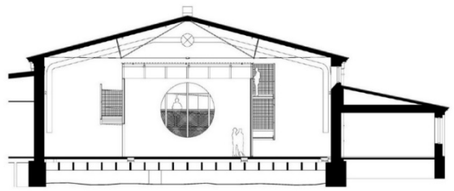
The organization of the museum's permanent exhibition dedicated to the formation and development of Swedish architecture deserves special attention. The exhibition space is equipped with spacious work tables, on which, in addition to building models, there are additional materials on each object. The tables are equipped with additional drawers, table lamps, and comfortable chairs so that visitors can not only skim through the models and drawings of buildings but also sit down and delve into a more detailed study of additional materials, which are also presented here. Such a solution to the exhibition space allows taking into account the interests of several target groups of museum visitors at once. (Grønvold, 2005, p. 24)

At the end of the hall with the permanent exhibition, there is an exit to the library, museum archives, and study rooms, where visitors can delve even deeper into the study of Swedish and world architecture.

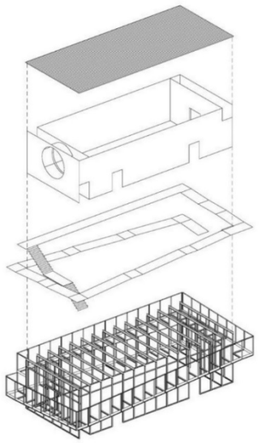
Figure 13. ArkDes building layout and character of exhibitions ▶

Ground floor plan

Section



Boxen details



4.2.4 Discussion

As in the case of the Estonian Museum of Architecture, the visit to Arkdes can provide a unique multi-layered architectural experience that is complemented by both the historical context of the building and the surrounding area. Even though the total area of the museum is not very large, due to the competent work with the internal space, which is divided into hotel exhibition halls, it is possible to create exhibitions that are very different in content and method of interaction with the viewer, enriching his architectural experience.

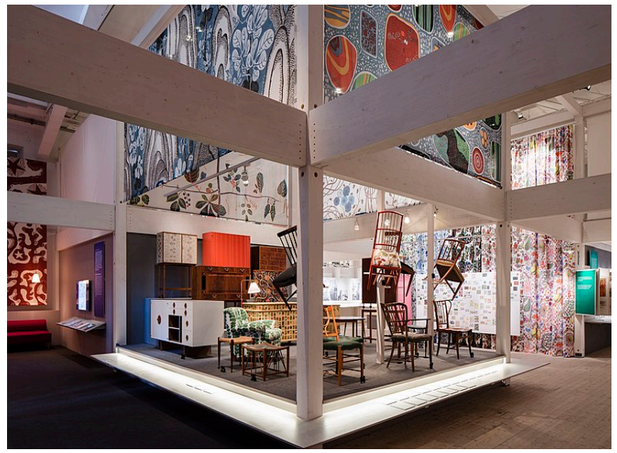
Figure 14. ArkDes permament exibition ▶

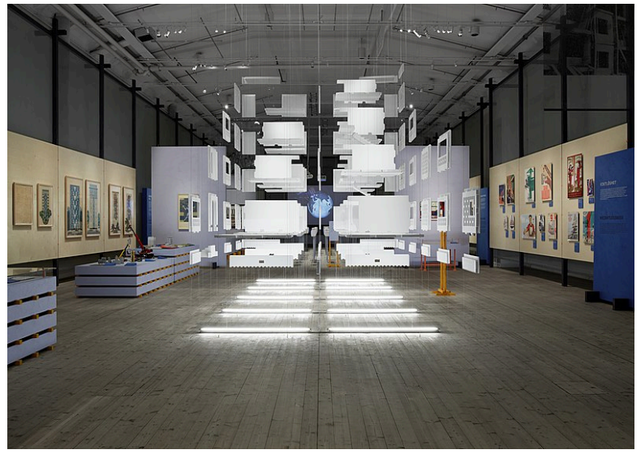
Figure 15. ArkDes permament exibition ▶

Figure 16. Exhibition "Josef Frank: Against Design" ▶

Figure 17. xhibition "Flying Panels: How the concrete panel changed the world" ▶


Upp i vind





4.3 Bauhaus Museum Dessau

Collection: 49 000 artefacts
Focus: local, thematical
Exhibition area: 2100 m^2
Total area: 3500 m^2

4.3.1 The origin

The Bauhaus Museum Dessau a museum dedicated to the Bauhaus design movement. It was run by Bauhaus Dessau Foundation, which currently occupies the historic Bauhaus Dessau building designed by German architect Walter Gropius and firstly functioned as an art school from 1925 to 1933. Since Dessau was one of the leading centers of the Bauhaus movement in the 1920s, there is a prized collection of artifacts saved. Before, it was exhibited in a limited way in the Bauhaus Building, where it was not enough suitable space for displaying artifacts publicly.

In 2015 the Bauhaus Dessau Foundation ran an architectural competition for the new museum building, where 831 design proposals were submitted. Addenda Architects became a winner with their proposal, which, according to the jury, most fully expressed the spirit of the Bauhaus with its strict forms and became the physical embodiment of the manifesto of Mies Van der Rohe "less is more.

The museum was opened in September 2019 – at the year of the 100th anniversary of the Bauhaus.

4.3.2 Location and exterior

The museum is located in the city center on the territory of the city park. In terms of the scale, it lies between the size of a regular building and a city block.

The building volume is clear and straightforward, slightly receding from the historic building line, it suggests a continuation with the urban landscape and become a transition between city and nature. (Ott, 2019)

Transparency of the glass façade allows interaction between the street, museum, and park. Depending on the lighting conditions, the facade reflects the environment to a greater or lesser extent, adjusting to it. The eastern façade, facing Kavalierstrasse, complements the urban space with a reflection of the existing buildings, while the western façade, facing the park, merges with nature through the reflection of greenery. In front of the south facade, there is a small plaza with a fountain used for the museum's outdoor activities, fostering social interaction.

The fifth facade of the building is its green roof, which is an extension of the park and a practical function of collecting rainwater for plants. (González, 2019, p. 1)

The entrances are located from 2 sides of the museum: from the Kavalierstrasse and the park. According to the architect Roberto González, who worked on the project, the moment when someone" enters the building is magical," because suddenly a person is in the middle of "between" -space - space between the city and nature, where "there are no limitations" and "everything seems open, transparent and fluid. " (González, 2019, p. 2)

4.3.3 Building layout and character of exhibitions

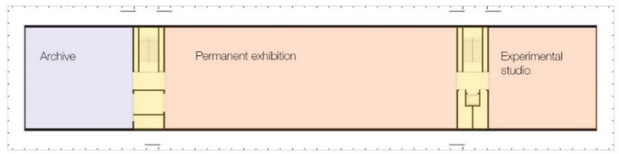
Inside the glass box, there is a so-called Black Box floating 5 meters above the ground – monolithic, hermetic, and column-free 18 by 100 meters volume made by concrete and supported by two staircase blocks located at a distance of 50 meters from each other.

The structure is made according to the technology of bridge construction, thanks to which, besides the two supporting staircase blocks, there are no other pillars on the 1st floor, and the entire space under the Black Box is free and flexible for use in any way following the type of activity or concept of a temporary exhibition. According to Roberto González, this space under the floating Black Box is public, and it could have been left uncovered, but since the museum is located in Northern Europe, it was decided to dress this space in "winter coat made of glass," which created additional space for temporary exhibitions, events, open stage, cafeteria, workshop, and offices. (González, 2019, p. 1) Despite the fact, that, according to its layout, the entire ground floor is an empty room, it is equipped with "pre-display" elements – specifically designed devices such as pedestals, plinths, hinged partition walls, gridded ceiling, and beam structures that could be used for creating an exhibition space with any size and shape. (Ott, 2019)

Since the artifacts presented in the museum's collection are mostly small or middle-sized objects of furniture, interiors, textiles, and applied art, they do not require very large or high ceiling premises, but they still are sensitive to light and temperature conditions of the environment. These requirements became the basis for the exhibition hall concept for the permanent exhibition of the museum, which became a closed Black Box, where micro-climate is taken under control, and artifacts are protected from the daylight. The room for permanent exhibition is an elongated linear hall equipped with a flexible floor-to-ceiling curtain rail system. Curtains, different by materials and colors, divide the room into zones with different atmospheres and moods. These zones are placed on both sides of the central axis. The central axis is assigned for three-dimensional displays and becomes a landmark that does not allow visitors to get lost in a tightly closed dark space without daylight and sets the trajectory of visitors' circulation. (Ibid)

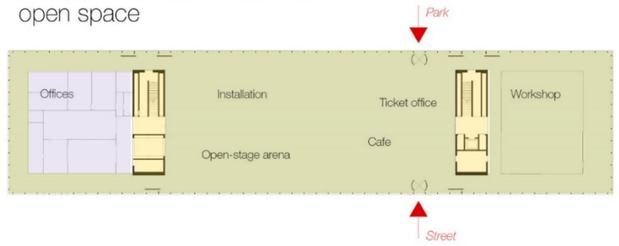
Figure 18. Bauhaus Museum Dessau building layout and character of exhibitions

First floor: Black Box

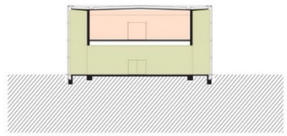


Exhibition space
Public services
Connections
Service spaces

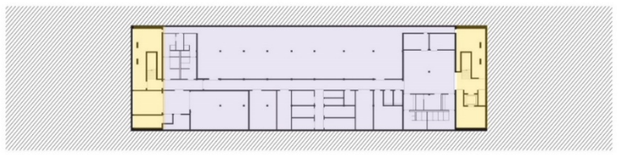
Ground floor: multi-functional open space



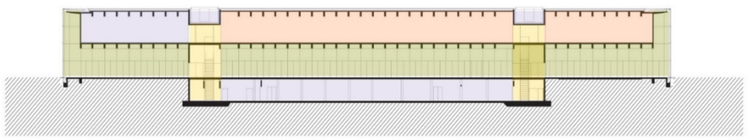
Cross-section



Underground floor



Longitudinal section



As conceived by Addenda Architects, a closed black block hovering over the heads of visitors, where the exhibits are displayed in a rather classical manner, expresses "the legacy of the historic Bauhaus," while the rest of the museum space is given over to experiment and contemporary artistic activities. (González, 2019) (Ute, 2019)

Figure 19. Bauhaus Museum Dessau exteriuor ▶

Figure 20. Bauhaus Museum Dessau interiour ▶

4.3.4 Discussion

Giving an overall assessment of the layout and design of the premises of the Bauhaus Museum Dessau, it could be said that the primary function of preserving and exhibiting objects in a very flexible way is successfully fulfilled. Moreover, the museum building fits perfectly into the urban environment, and thanks to the open ground floor, which provides opportunities for various kinds of activities, it helps to attract the public and make people interact with the building. However, the Black Box with the foreground by its meaning permanent exposition seems to be too isolated from the surrounding context: on the one hand, it is very symbolic and embodies the contemporary age-of-less culture. On the other hand, this black box structure can be reproduced in any other place and be filled with any other content without any connection with the Bauhaus movement or the city of Dessau.


bauhaus museum dessau

II PART. PROJECT

5 Location

The project area is located in the Helsinki Downtown on the territory of the South Harbour (Eteläsatama). Being a connection between the main tourist flow area (Katajanokka – Kauppatori – Senate square – Esplanadi), the Observatory Hill Park, and the Olympia Terminal, the South Harbour becomes an essential element of the Helsinki urban space.

In this project, not only the design of the museum's new building has proposed, but the whole territory between Olympia Terminal and Helsinki City Hall has considered as a part of the project.

The following chapters discuss in detail the formation, current situation, and future perspectives of the harbor area and carry out an architectural analysis of existing buildings on the site.

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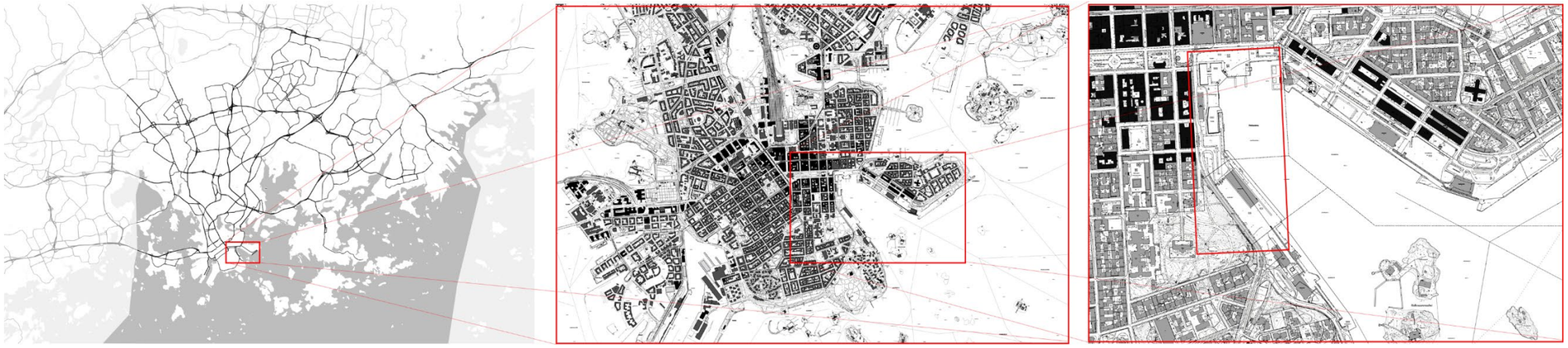
Figure 21. Location scheme



5.1 History of South Harbour, Helsinki

5.1.1 Market Square

Until the 19th century, there was a small muddy Kaupunginlahti bay on the site of the current Market Square (fin. Kauppatori). There were many shore huts, and spall piers used by fishers from neighboring villages for selling their fish to the residents of Helsinki. On the site of the present Pohjoisesplanadi, there was a canal and promenade, behind which the urban settlement began. The market square at that time was the current Senate Square.

In the early 19th century, the center of Helsinki was rebuilt into the capital of the Grand Duchy of Finland, after which the shores of the bay began to fill up and were equipped first with wooden poles and then with stone poles. The old market square was turned into the Senate Square, and a new Market Square was established on the site of the former fishing piers. (Grönholm et al., 2008, p. 14)

In order to build a broad market square and continuous pier, it was necessary to drive much land into the shallow bottoms of the bay, so three basins for small steamships, rowing, and sailing ships were built: Viapori basin at the eastern end (cur. Linnanallas), a Fish basin at the western end (cur. Kolera-allas) and one more basin on the southern part of the harbor for small steamships (cur. Vironallas). In order to connect old and new parts of the city, the western canal was buried, and Esplanadi began to form. (Ibid)

In 1835 'The Stone of The Empress' - an obelisk with bronze globe and the double-headed eagle on it was erected on Kauppatori to commemorate the Empress Alexandra's visit to Helsinki in 1883. The author of the monument is Carl Ludvig Engel. (HAM, n.d.)

5.1.2 Helsinki City Hall

The building of Helsinki City Hall was built in 1833 as the Seurahuone hotel, which was supposed to function as a cultural and entertainment center for high-ranking guests of the capital. The neo-classical building, designed by Carl Ludvig Engel, had business premises on the ground floor, a spacious banquet hall on the second floor, as well as games rooms and 27 guest rooms. In 1896 the Lumi è re brothers arranged Finland's first film showing at this building.

Although the city acquired Seurahuone in 1901 in order to use it as a new city hall, it functioned as a hotel until 1913. During the First World War, there was a naval hospital. The building was renovated several times, and in 1985 Professor Aarno Ruusuvuori designed a new building in the center of the block.

City Hall presently houses the city council's meetings on the 2nd floor in the conference room, and the public can observe the meetings from the gallery. (Helsinki City Hall, 2014)

5.1.3 Old Market Hall

Until the end of the 19th century, all markets in Finland were outdoor marketplaces. However, with the growth of knowledge about food hygiene, the idea of a covered market hall arose and led to the construction of the Finnish first covered market hall in Eteläranta. The building, designed by Gustaf Nyström, was opened in 1889 in front of the Vironallas basin near the Market Square. At the time of opening, there were 120 stalls and six shops in the central gallery, which sold meat, eggs, dairy, and garden products. (Vanha Kauppahalli, n.d.)

The Old Market Hall is still successfully operating as a covered marketplace and become a must-visit place for city guests.

5.1.4 Observatory Hill Park

The history of the hill, which today is called Observatory Hill Park (fin. Tähtitorninvuori), dates back to the Middle Ages when the rocky hill characteristic of Helsinginniemi was used as a guard volcano, from which signal lights warned residents of the city in case of danger coming from the sea. During the reign of Queen Ulrika Eleanor in 1748, a fortress called *Ulrikasborg* was built. (Suolahti, 1972, p. 100) Although the fortress was dismantled during the Finnish War (1808-1809), it played a significant role in the history of Helsinki, because its stones used to help rebuild the city after the Great Fire of 1808 and it also gave the name to the Ullanlinna district. (Tähtitorninvuori, 2018)

When Carl Ludvig Engel developed a new city plan, he appreciated the advantageous location of the hill and intended to build an imperial palace on its top. For that, he stretched the main avenue called Unioninkatu, which connected Esplanadi to the top of the hill. However, in 1827, the former capital Turku was destroyed by fire in 1827, and the urgent need for finding a new place for the Royal Academy (now the University of Helsinki) emerged. Thus, the territory was used for building the university observatory. Carl Ludvig Engel developed the project of the building, and it was built in 1834. (Ibid)

In 1890, in addition to the observatory, a tower for the photographic telescope was designed by Gustav Nistrem. The construction of the tower served as an incentive to create a public park around the observatory.

The hill was a barren predominantly rugged and quarried rock until the Swedish garden architect Knut Forsberg developed a project according to

which the southern slope of the hill had to be terraced and create an amphitheater effect with a view of the southern villas. The project was implemented in 1868. During construction, the entire hill was covered with soil brought by horses in carts.

The next stage was the breakdown of the lush park based on the German model of a city park with winding paths, spacious lawns, and the "terraced terrain and precisely laid arrangements of trees and shrubs" (Ibid). City gardener Svante Olsson developed the city park project in 1889. The layout of the park also included a viewing platform with a great view of the South Harbour.

In 1898, at the viewing platform, the artist Robert Stigell's sculpture "The Shipwrecked" (*fin. Haaksirikkoiset*) was opened. The sculpture was not dedicated to any particular event. The author was merely interested in studying the sculptural dynamics of the depicted objects. The sculpture was cast in bronze in Paris, and the granite pedestal was made in the Finnish city of Hanko. (HAM, n.d.)

The observatory mountain still has a variety of quite rare plant species. There are many flowering shrubs in particular: Lilacs, mock-oranges, shrub roses, Hawthorns, Honeysuckles, and Snowballs. (Tegel, S., Jäppinen, J., n.d.)

Figure 23. Helsinki 1820

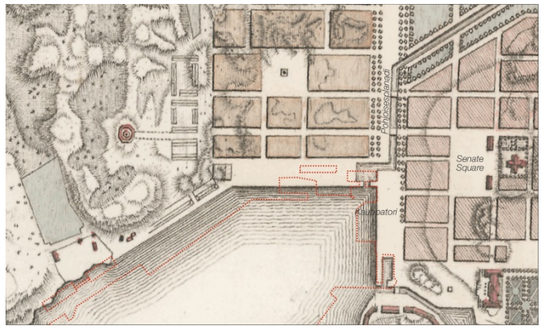


Figure 24. Helsinki 1837

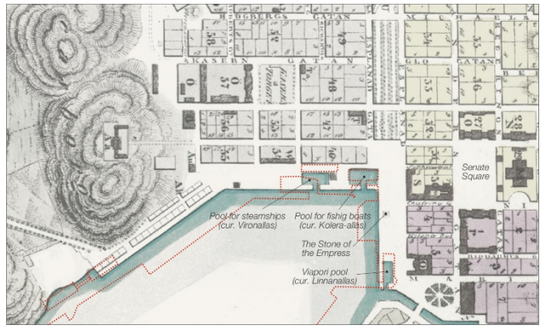


Figure 25. Helsinki 1878

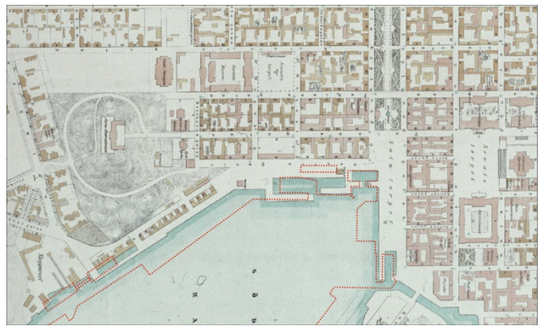
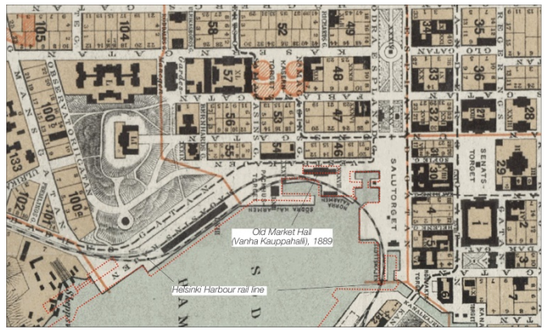


Figure 26. Helsinki 1900



5.1.5 Helsinki Harbour rail line

In the 1890s, there was built the Helsinki Harbour rail line led from the Helsinki Central railway station via the coastline to Katajanokka. In order to build this rail track, Market Square was extended to the sea, and two swinging bridges were built at the square's both ends so trains could reach the mouth of Cholera Basin and Katajanokka Canal. Rails were dismantled by 2009. The remains of the rail line are still preserved in this area.

In 1900, a new Customs and Packing warehouse (Tulli-ja Pakkahuone) was built in Katajanokka. At the same time, the port was deepened, and the south coast was completed. So the southern harbor took its current form. (Grönholm et al., 2008, p. 15)

5.1.6 Olympia Terminal

The Olympia Terminal was designed by architects Aarre Hytönen and Risto-Veikko Luukkonen and built for the Helsinki Olympics in 1952. When the terminal was built, about 90,000 passengers passed through it annually. Today this number reaches more than 1,500,000 passengers a year.

Silja Line started year-round traffic from the Olympic terminal to Stockholm in 1972 and regular traffic to Tallinn in 1995. The terminal and its ferry moorings were repaired in 1989-1990 for larger vessels.

5.1.7 Other buildings

In addition to the buildings described above, a row of buildings along Eteläranta and Pohjoisesplanadi form a dense architectural front, creating a unique atmosphere of the South Harbor. Buildings to the right of the City Hall were built in neo-classical style in the same period from 1815 to 1843. All of them accommodate various government agencies.

A front of buildings beyond the Old Market Hall along Eteläranta were built in a different time: most of them date back to the 19th century, but the Palace Hotel (architect Viljo Revell), and two more modernists buildings were built in 1952 when the Olympics were held. All these buildings carry out commercial functions.

At the very edge of the Observatory Hill Park next to the urban blocks, there is a German Church. It was built in 1864 in the Neo-Gothic style by Harald Bosse and C.J. von Heideken. The building behind the church is owned by The German Evangelical – Lutheran Congregation and houses the German language school and kindergarten. (DELGIF, n.d.)

Figure 27. Main attractions

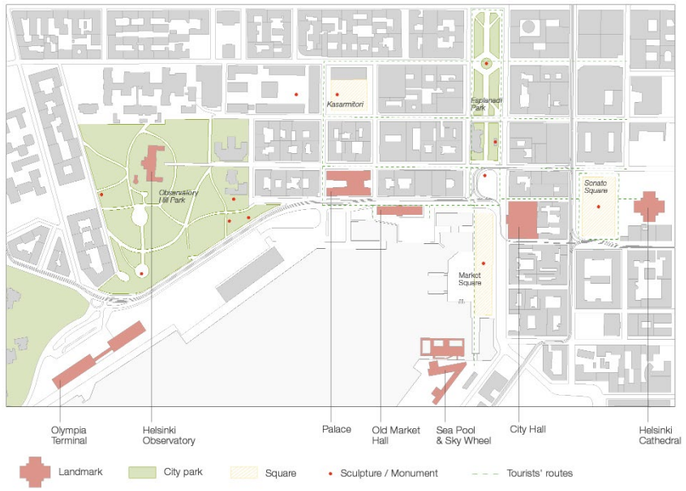


Figure 28. Age of existing buildings

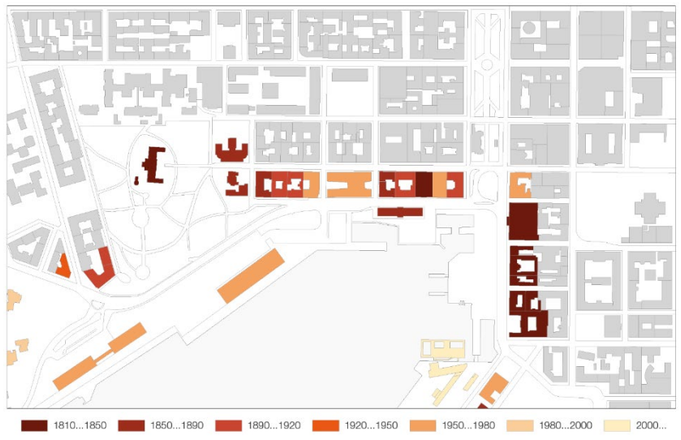


Figure 29. Functions of existing buildings

5.2 Site analysis

5.2.1 Analysis of the current urban situation

Note: Before the quays and berths on the southern coast of Katajanokka and Kauppatori shoreline belonged to the South Harbour, but now Katajanokka is considered as a separate harbor, and Kauppatori does not consider as a harbor area (Eteläsatama ja Katajanokan satama, 01.01.2020). In this thesis, analysis and proposal for future developments cover only South Harbour and Kauppatori territories.

Currently, there are two active terminals left in the South Harbor: Olympia Terminal and Makasiini Terminal (Ktatjanokka terminal is located in Katajanokka Harbour). In addition to the passenger terminal, the Olympia Terminal also houses the Port Of Helsinki Head Office. Makasiini Terminal also has a passenger terminal, but the main activity is focused on cargo fulfillment. (Eteläsatama ja Katajanokan satama, 01.01.2020)

For both activities – passengers and cargo traffic – Olympia Quay is used while Makasiini Quay is out of the exploitation.

Figure 23.

Figure 30. Cargo & water traffic

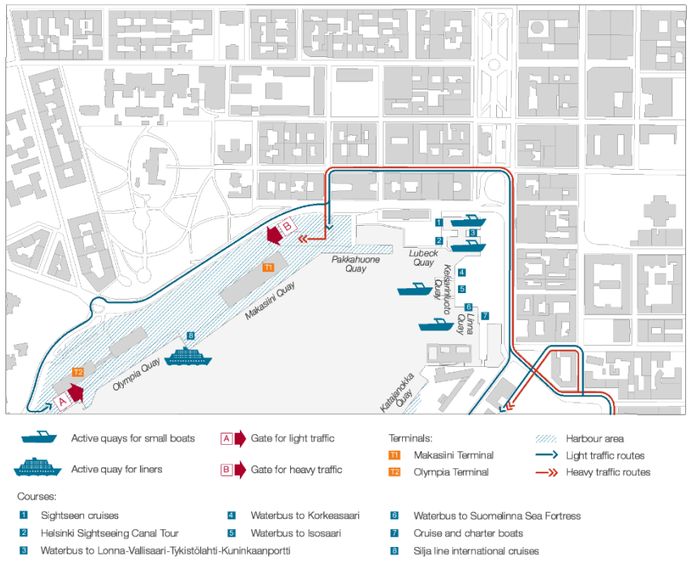


Figure 31. Traffic scheme

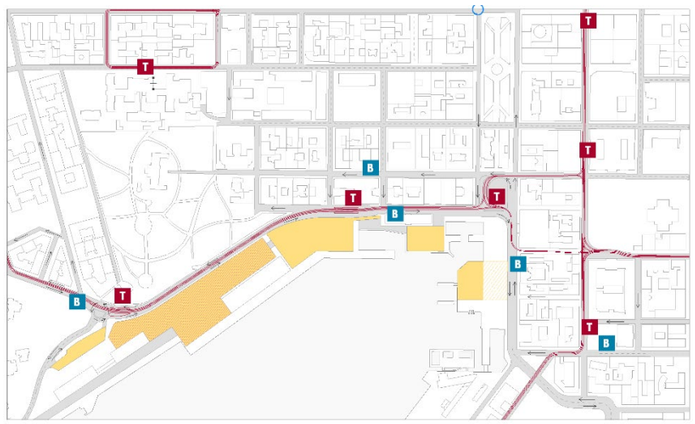
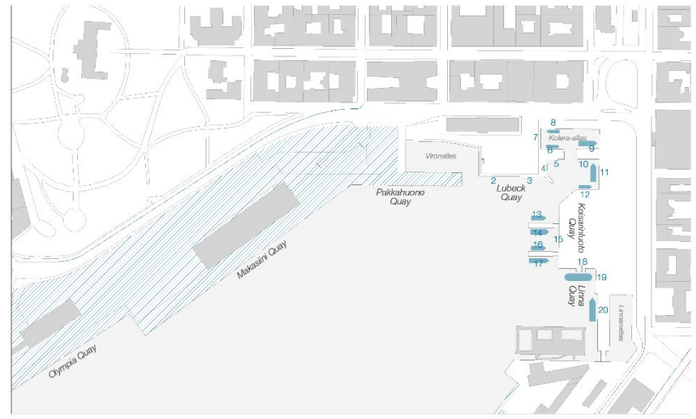


Figure 32. Kauppatori berths



The territory between Olympia Terminal and Makasiini Terminal is used as a parking lot for light and heavy vehicles, as well as a loading bay. That kind of usage impedes the creation of high-quality urban space, friendly both to residents and visitors of the city. The fact that the parking is located in the most vacant place of downtown near to the City Hall, Old Market Hall, and other attractions makes the situation even more catastrophic and requires an alternative solution in order to create a healthy urban environment.

On the Market Square (Kauppatori), there are 20 berths for small boats and ferries that are leased to various companies and carry out sightseeing tours, cruises, and regular transport services to the nearby islands. There is also a small area in Kolera-allas basin reserved for fishing boats serving the market. (Kemppainen, J., Utriainen, M. 2018, p.11)

Combining the functions of a market, safe and comprehensible tourist traffic, passengers' transportation, and servicing fishing vessels in one place is a non-trivial task and, in its current implementation, does not look like a practical solution that can enrich the urban environment without binging chaos into it. The direction of the pedestrian traffic in the Katajanokka – Kauppatori - Esplanadi direction seems logical and well functioning. However, the Old Market Hall stay aside from the main tourists' flow, and having the same function with the market is somewhat detached from it. The second considerable axis – City Hall - Olympia terminal / Observatory Hill Park

(Tähtitorninvuori) – is not apparent enough to attract more people, which makes Olympia terminal and Observatory Hill Park detached from the other attractions presented in the city center.

List of problems on the site

- Not effective use of the most vacant places
- Pedestrian, cyclists and vehicle traffic are not separated enough for safe and comfortable being
- Main attractions of the site are not connected
- Lack of greenery
- The shoreline is accessible only on small length

Figure 33. Cycle paths

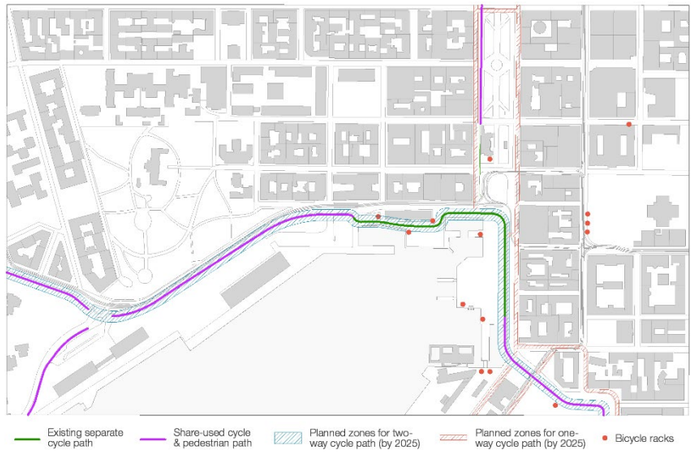


Figure 34. Greenery

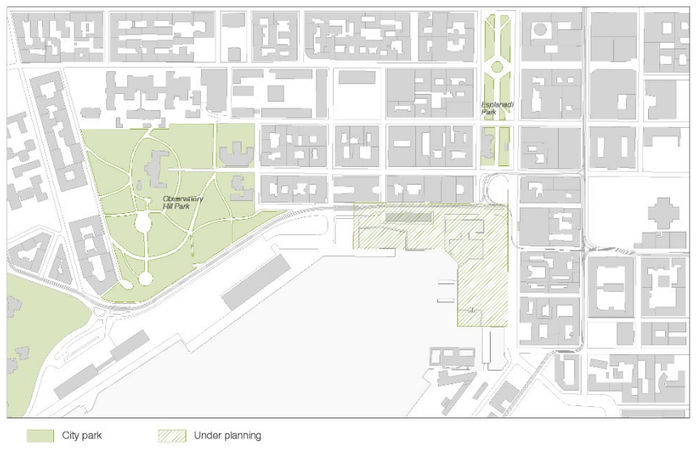


Figure 35. Shoreline

5.2.2 Opportunities for development

The development of port and traffic connections is essential for the well-being of Helsinki. South Harbour has developed together with the city as its essential part, which makes the port an inherent characteristic of the site. The fact that passenger terminals are located so close to the city center is one of the advantages that attract tourists to Helsinki, since arriving in Helsinki by ferry, a person immediately finds himself among main sightseeing. Due to that, the city development program contains the idea of preserving the port and carrying out active passenger traffic in downtown.

The Helsinki Port Development Program 2022 analyzes the possibility of increasing the throughput capacity of various ports of the city, as well as the consequences it might bring. The report says that in the future, South Harbor will be continuously used for passenger ferry traffic and high-speed vessel traffic, as well as for the cruise ships. (Port of Helsinki: Development program 2022, 2012, p. 13) The capacity of the Olympia terminal may be increased, but it is not recommended due to the congestion on the street network near the Kauppatori and Sörnäisten rantatie area. (Ibid, p. 10)

Although current activities of South Harbor has to be preserved, however, the current organization of urban space and the logistics system has obvious shortcomings and cannot be called high-quality urban space with safe and comfortable pedestrian routes.

The most problematic area is the parking lot and loading bay near the Makasiini Terminal, which requires a complex solution that would provide both the possibility of loading operations and pedestrian-friendly environment.

In order to improve the situation in South Harbour, the city authorities have repeatedly made attempts to find good ideas for evolving urban environment. The longest and most fruitful was the Kirjava Satama project. As part of this project, in 2008, a large-scale study of the potential of South Harbour (including Katajanokka) was initiated. The study also included a proposal for harbor re-organizing, which concept was the continuation of the Observatory Hill, bringing the heavy traffic and loading operation under the artificially created landscape and the creation of a multifunctional quarter between Olympia Terminal and Old Market Hall. (Grönholm et al., 2008) Some of the ideas that were presented in the project were embodied, albeit in a slightly modified form — for example, the Allas Sea Pool on Katajanokka.

The next call for collection of ideas for the reorganization of the South Harbour's area was conducted in 2011 when the city of Helsinki announced an international urban planning

competition for the same site. The result of the competition became an extensive and detailed report, which includes all 201 proposals received during the contest. All proposals were divided into three classes, where the Upper-class proposals were evaluated as holistic well-thought-out and potentially feasible solutions, the Middle-class proposals were evaluated as having potential, but containing shortcomings or not inconvenient solutions, and Lower-class proposals were treated as no potential.

The following are the most common advantages and disadvantages encountered in projects that were also taken into account when creating the planning solution for this Masters' thesis project (Kirjava Satama: Jury report, 2012):

Not working solutions:

- did not improve pedestrian and bicycle traffic
- significantly changed the shoreline
- ignored port needs and activities
- proposed mega-structure elements, which does not very fit into the environment
- blocked access to the shoreline
- blocked the view to the sea or from the sea

Right or potential decisions:

- separated heavy traffic from pedestrians and cyclists
- did not change shoreline at all or made the only small changed saving historical outlines
- developed park zones and greenery
- supported the idea of continuously accessible shoreline
- proposed small-scale activities and structures

In 2014 the Solomon R. Guggenheim Foundation launched a competition for the new building for the Guggenheim Museum on the site of the South Harbour between the Olympia terminal and the Old Market Hall. The competition had an enormous resonance in society: about 1715 proposals were received from all over the world (Broomhall, 2015-2016). However, even though the competition was such a tremendous success and the winner was determined, the result provoked an adverse reaction from the Finnish society, interpreting the Guggenheim as a homogenizing multi-national brand (Sorkin, 2015). Moreover, most of the projects for the Guggenheim Helsinki aimed at creating a flashy and unprecedented architecture, completely disregarding the existing cultural, historical, and environmental context, for which they were hardly criticized.

In response to the creation of the Guggenheim Museum in Helsinki, the Next Helsinki project was created. It was a project of collecting another set of

concepts and ideas for creating a new multifunctional urban space in South Harbor (Ibid). The result of this manifest was an indirect effect, coupled with some other reasons, on the cancellation of the decision to build the Guggenheim Museum in Helsinki.

Despite the decision not to build the new museum under the Solomon R. Guggenheim Foundation, in 2018, the Ministry of Education and Culture and the City of Helsinki conducted a study on the possibility of building a world-class Museum of Finnish Architecture and Design in Helsinki. According to the study report, 'Finland deserves a Museum of Architecture and Design that reflects the international significance of its architecture and design' and 'has the opportunity to become profiled around the world as a trendsetter for a new type of Museum of Architecture and Design' (Auvinen et al., 2018).

The second report of March 2019 has already described in more detail the concept of the future museum. (Auvinen et al., 2019) However, despite the apparent intentions of the city authorities to support the project and announce an architectural competition for the new museum in the near future, at the time of writing this thesis, no detailed information about the requirements for the architectural and spatial solution provided.

Therefore, in the course of work on the design of the building, several assumptions were made based on the analysis of conceptually similar projects.

6 Architectural proposal

6.1 Concept

6.1.1 Initial points for a planning proposal

In developing the concept, the following points were taken as a starting point:

As part of the urban space of the South Harbor, the MFAD building has to

- be integrated into the urban environment in terms of light, heavy, cycle and pedestrian traffic
- provide safe and understandable walking opportunities for pedestrians and cyclists
- not to conflict with existing buildings on the site
- not to destroy the environmental, cultural and historical context of South Harbor, but to complement it
- facilitate communication between previously disconnected parts of the harbor (Olympia Terminal & Observatory Hill park - Market Square & Esplanadi)
- support the concept of continuously accessible coastline
- retain the functions of the port (only Olympia Terminal continues to operate)
- naturally separate public areas from the loading bay of the port

6.1.2 Initial points for building design

As a modern Museum of Finnish Architecture and Design, the building has to

- be able to fulfill the essential functions of a museum: collecting, preserving and exhibiting objects of architecture and design
- facilitate effective communication between the visitor and the exhibits
- contribute to the attraction and communication of the audience from different layers and spheres of society
- promote learning, obtaining architectural experience of various levels, interaction with architecture and design through game or experiment, as well as the developing of architecture as a discipline
- liberate architecture and design skills and tools for everyone to use
- possess all the characters of a high-quality public space
- be relevant and be able to adapt to new tasks and functions that may change over time

6.1.3 The origin of the idea

The idea originates, on the one hand, in the history of the formation of South Harbour. On the other hand, it is inspired by the general geological processes that influenced the appearance of the Fennoscandia[1] peninsula.

The project area is located on the east coast of South Harbour between the Observatory Hill and the waterfront. If to take a look at how this area has been formed (see figures 3-6, chap. 1.1 History of South Harbor, p. 22), it might be noticed that along with the development of the city, the eastern part of the hill was cut off in order to build the Laivasillankatu road. As a result, the rocks of the hill have been bared and become a characteristic of the South Harbour landscape.

The architectural concept treats the museum building as a missed continuation of the hill, which is slightly shifted relative to the place of the cut not to block the view of the rocks from the sea.

The building has two parts - two rock formations, which are divided by the so-called "canyon" that generates the central axis of movement inside the building.

Such a concept refers to geological processes that took place approximately 600 million years ago on the territory of the Finnish peninsula: processes during which part of the Baltic shield was raised, which led to the formation of valleys and cavities along which high-speed water flows torn along. That is the reason why deep valleys almost entirely indent the mainland of Finland from the northwest to the southeast direction. (Semenov, 1864)

Metaphorical water flow should become a flow of people in the museum's central passage, who moves in the north-south direction, which coincides with the City Hall – Olympia Terminal direction. Same as the shape of the Finnish valleys are bent, obeyed to the rapid and unpredictable flow of water, the central passage of the museum is continuously changing: taper off and then again expand, slightly change its direction and amaze involving the visitor to become an involuntary participant in obtaining a unique architectural experience.

Figure 36. Small "canyon" in Ullanlinnamäki in Kaivopuisto park. The stairs are human-made.

[1] Fennoscandia or Fennoscandia Peninsula is the geographical peninsula in the north-west of Europe, which comprise Sweden, Norway, mainland Finland, and Karelia.

6.1.4 Building performance

Although the initial task was to design a new building for the Museum of Finnish Architecture and Design, during the work on the project, it became clear that the site chosen for the construction required a more complex solution, excluding a building with only one function. Conducted research of materials about the site and previously developed solutions for the South Harbour (see 1.2.2. Opportunities for development), the decision to expand the room program, complementing it with several educational and commercial premises aimed at providing public services and attracting different target audiences has arrived. This decision is also more in line with the concept developed by the Ministry of Education and Culture, which states that the new museum should expand its functions in order to attract new target groups and provide visitors with an experience that would give rise to insights and arouse interest in topical issues of the city and society. (Auvinen et al., 2019, p. 7) Therefore, the project also focused on accessibility, democracy, as well as providing excellent user experience and involvement.

The designed building is a complex of 2 volumes, separated by a covered passage in the center. The higher volume, located opposite the Observatory Hill along Laivasillankatu Street, contains museum premises - these are exhibition halls of various configurations, which provide the opportunity to carry out both permanent and temporary exhibitions, as well as storage and preparatory premises, equipped enough to make volumetric architectural installations within the museum. The lower volume, stretching along the coastline, is a fully open public space that includes an architectural education center, library, exhibition area for the City Planning Department, and commercial premises such as cafes, restaurants, and shops.

Proposed location of the building on the site and the layout of the premises:

- Clarifies and actualizes the path on direction City Hall – Terminal Olympia, providing the user with a choice of 4 trajectories of movement, differing in their character and quality of spatial experience:
    - Path along Laivasillankatu.
    - Passage through the museum building - through 'Canyon.'
    - Climbing path through the museum rooftop art garden.
    - Walking promenade along the waterfront

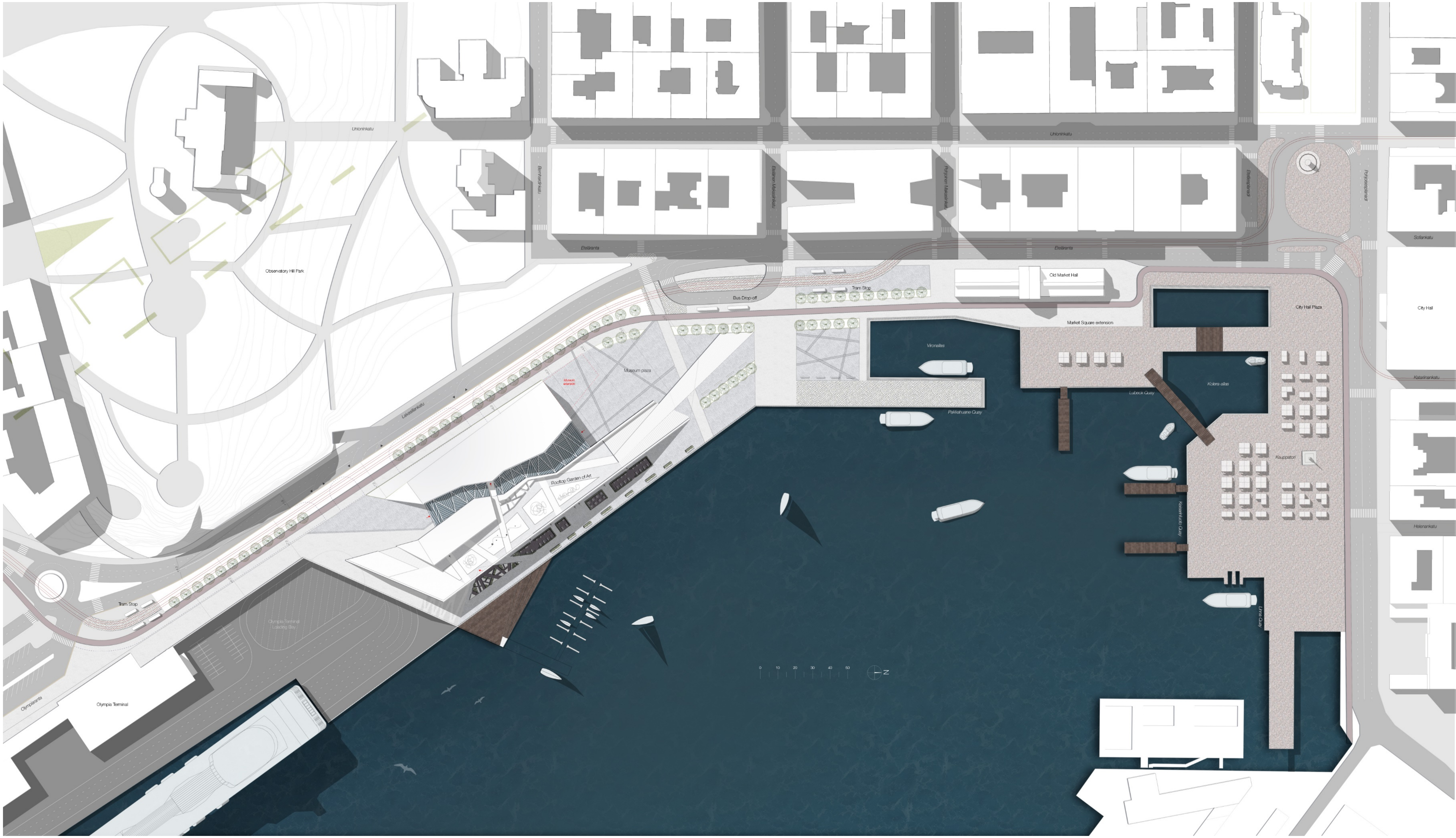
    - Activates the coastline along which commercial premises stretch and provide various services.

- Solves the problem of the coexistence of open public space and a closed port area: leaving the coastline accessible almost along its entire length, the stairs at the end of the promenade naturally take the user up and direct him towards the Olympia Terminal, hiding from sight and preventing them from entering the closed territory port where loading takes place.

- Separates pedestrians and cyclists from light and heavy traffic, taking all service processes associated with transport underground.

- Provides additional observation deck with the panorama of the city

Siteplan



Unioninkatu
Observatory Hill Park
Eteläranta
Old Market Hall
Tram Stop
Bus Drop-off
City Hall Plaza
City Hall
Sofiankatu
Katariinankatu
Market Square extension
Vironallas
Kolera-allas
Lubeck Quay
Pakkahuane Quay
Kauppatori
Museum plaza
Rooftop Garden of Art
Tram Stop
Olympia Terminal
Olympiaranta

6.1.5 Siteplan and outdoor logistics

The proposal provides a planning solution for the site adjacent to the museum building along the coastline, starting from City Hall and ending with the Olympia Terminal.

Since one of the main tasks was to clarify the direction from the City Hall towards the Observatory Hill Park and the Olympia Terminal, the proposed solution suggests reorganizing the system of berths near the Market Square. The reorganization took into account the interests of stakeholders currently operating on the site, the redistribution of functions, and the safe movement of large masses of people. The project involves the partial closure of the Kolera-allas basin by extension of the existing berths, and the construction of a new bridge connecting the Market Square (Kauppatori) with the space in front of the Lubeck Quay. Docks that disappeared due to the closure of the Kolera-allas basin are being redistributed through the construction of new berth on Lubeck Quay ib front of Old Market Hall. The new bridge connecting Kauppatori with the Lubeck Quay is hight enough so that small fishing boats serving the markets can pass under it. The Vironallas basin remains intact; however, a re-allocation of berths along the current Pakkahuone Quay is taking place, which provides the same number of parking docks for water transport as before.

This solution with the partial closure of the Kolera-allas basin allows:

- Connect the Market Square with the Old Market Hall and distribute pedestrian flows, relieving the current narrow connection placed between Kolera-allas and the roadway

- Create a classical fountain square in front of the city hall

- Functionally allocate space by separating the market area from the berths

The next significant change on the site is the transfer of tram tracks from the middle to the side of the road, the relocation of a tram stop near the Old Market Hall, the organization of drop-off parking for tourist buses, the separation of pedestrian and cycle routes, and bringing all parking, maintenance processes and loading operations underground. Such a solution is possible since the ground in different parts of the site has different heights. At the moment, the roadway, together with a narrow sidewalk, gradually rising from +1.8 to +8.3 meters above the sea, while the open area between the roadway and waterline remains unchanged on the +1.8 m height. This solution is not friendly towards pedestrians, as they are caught between the roadway on one side and loading bay on the other side. Besides, when using a tram, users must always

cross the road, and existing refuge islands for the tram stop does not seem wide enough to be safe in case of a large number of users.

In the project, the site is divided into three zones and assumes the following change in ground heights:

1. The first zone is three-lane roadway along Laivasillankatu street: remains at the same level lengthwise museum façade and then rises from +1.8 to 8.3 m (length - 100 meters, slope – 4°)

2. The second zone consists from tram lines, cycle paths, sidewalk, the area in front of the entrance to the museum and the Canyon inside the building: gradually rises from +1.8 to +8.2 m keeping an angle of inclination convenient for lifting – 2...3° (the Canyon inside the building also risess).

3. The third zone is embankment which continually remains at 1.8 m height up to the stairs in the end of museum building that take the users away from the embankment and raise them to a height of +7.0 m

This solution allows:

- Safely separate pedestrian, bicycle and car traffic

- Hide parking lots, museum maintenance operations and port loading operations underground

- Ensure a smooth rise within the normal range, taking into account the interests of people with special needs

Museum plaza view

Laivasillankatu view

Waterfront view

VIEW OF THE MUSEUM PLAZA AND MAIN ENTRANCE

LAIVASILLANKATU VIEW

VATERFRONT VIEW

6.2 Layput and Indoor logistics

6.2.1 Spatial solution

The entire spatial solution of the building is aimed at allowing the visitor to gain an architectural experience even without having to visit the museum's exposition. The main element of the interior solution is a Canyon - a passage covered with a glass roof in the center of the building, dividing it into two parts - a museum and a public one. The Canyon is an internal street protected from the external environment. The constantly changing direction of the Canyon walls, repeatedly changing aisle width, an inclination of the floor as well as a glass roof, divided into polygons that create different shadows - all this involves visitors into a spatial relationship with architecture and gives them unique architectural experience.

Canyon has two extensions at both ends that form lobbies in front of entrances. The entrance directed towards the City Hall is the main one. The is a visitor center with a ticket office, information desk, cloakroom, restrooms, and an entrance to the exhibition spaces.

Towards to the visitor center, there is an entrance to the open exhibition space allocated to the City Planning Department, which could be used as an open forum and a platform for communication between the city council and city residents. Since for the sustainable development of receiving feedback from residents is a prerequisite, the public space on the territory of a museum dedicated to architecture is an excellent opportunity to create a sustainable dialogue and cooperation, in which the future development of the city is going not only by authorities but every resident can take part and suggest alternative solutions.

In addition to the Canyon, the building has an alternative path that connects the main lobby to the library and educational center at the opposite end of the building. Along this axis, which, in contrast to the Canyon, is the embodiment of functional rigor and clarity of form, are various commercial spaces offering the public services. This alternative path ends with a library, which is vertically connected to the educational center on the lower level (seaside level) and the office for museum workers on the upper level. This vertical connection allows access to both the seaside promenade and the roof.

Inclined slabs, a combination of floors on different levels and elevation differences allow not only to distribute functions across levels but also to fit into the structure of the building premises that require an immense height, for example, an auditorium, which is located on an "island" between the Canyon and the alternative path.

On the lower level, in addition to the educational center, which includes rooms for architecture and design workshops, climate-controlled rooms for the preservation and conservation of artifacts, maintenance service premises with a separate entrance for workers to the parking lot. On the same level, along the embankment overlooking the opposite side of the South Harbour and Katajanokka, restaurants and small studios are stretched out in a row activating the shoreline.

Museum library

6.2.2 Room program

ARMI Center

In 2001 there was an idea to assemble the national organizations in the field of architecture, building, and design and bring them into one building offered the necessary conditions for a new kind of collaboration. The idea was called the ARMI (arkkitehtuurin, rakentamisen ja muotoilun informaatiokeskus) project – the project of information center for architecture, building, and design.

In order to achieve this goal, participating organizations held an architectural competition for the building for the ARMI project.

The competition objectives and requirements for the ARMI center design are quite similar to the objectives and ideas for the new Museum of Finnish Architecture and Design (MFAD)' The entrants were asked to devise a building that meets high standards,' provides innovative environment facilitated new types of activities and interactions on the one hand. On the other hand,' the building had to contribute to the creation of balanced urban space within the context of the existing group of buildings' (Armi, 2002).

The site for the project was a part of Katajanokka island on the opposite side of Eteläsatama harbor exact over against the Old Market Hall. Now, this site is used as a public space, and there is located open-air pool, public sauna, Ferris wheel (SkyWheel), some cafes, shops, and restaurants. The milieu context and issues related to the nearness and impact of historical center needed to be resolved in the ARMI project are the same with issues that appeared in the project of the MFAD.

For the competition, there was provided a list of necessary premises. That list was developed, taking into account the ARMI project objectives and all participating organizations, which required their exhibition and working spaces. The full list of the ARMI project member organizations and revised room program is presented below. The amended room program takes into account the difference between the total area of planned buildings, the difference between participating organizations, and the difference between the main idea and purposes of the ARMI center and the MFAD.

As the room program for the new museum project is not public information, this amended room program is used in this project as a basis for the project of MFAD.

List of organizations participated in the ARMI project:

- Museum of Finnish Architecture (SRM / MFA)
- Design Forum Finland & Finnish Society of Crafts and Design (DFF)
- Building Information Foundations (RTS)
- City of Helsinki
- Association of Finnish Architects (SAFA)
- Association of Finnish Civil Engineers (RIL)
- Association of Designers Ornamo
- Association of Graphic Design Grafia

List of organizations for which spaces in the new Museum of Finnish Architecture and Design are provided:

- Museum of Finnish Architecture (SRM / MFA)
- Design Museum, Helsinki
- Design Forum Finland & Finnish Society of Crafts and Design (DFF)
- City of Helsinki
- Association of Finnish Architects (SAFA) (partly: only showrooms, exhibition spaces)

Comparison of projects

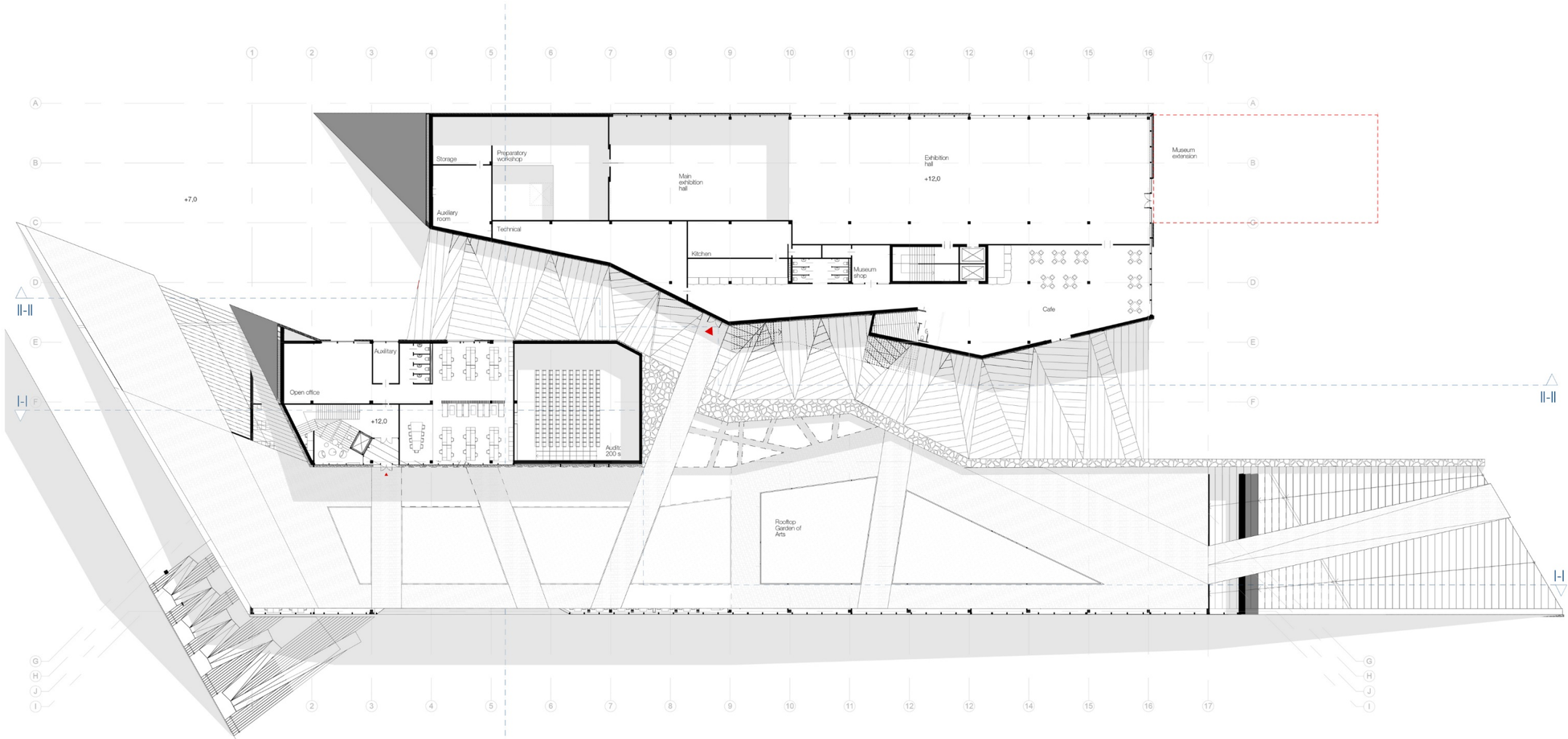
	ARMI center	**MFAD**
Total area	12 375 m^2	< 9 000 m^2
Number of participating organizations	8	5
Building type	Information center	Museum

6.2.3 Room program

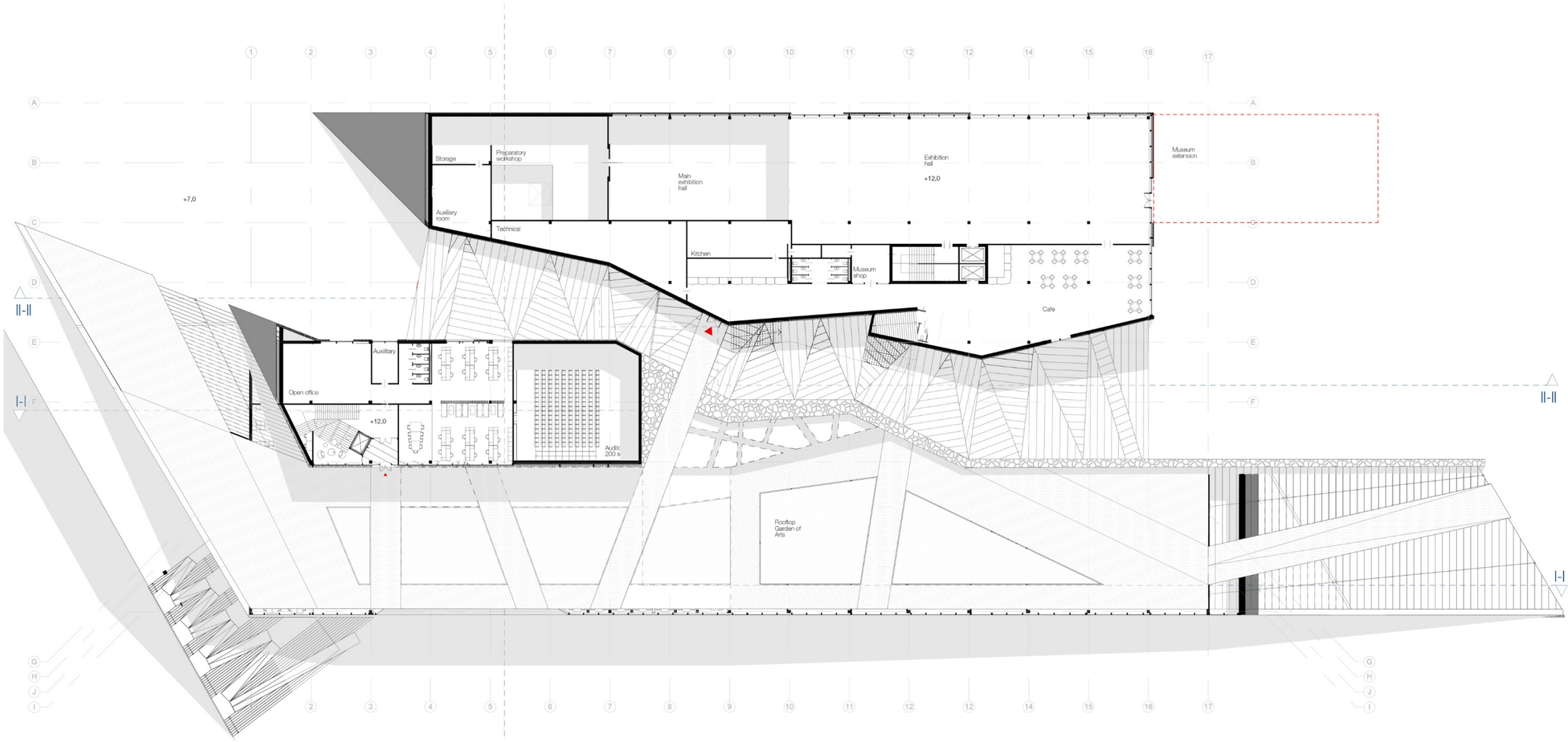
The room program is presented in Appendix 1. Room program.

Port: loading bay
Parking for museum vorkers
Maintenance storage
Warehouse
Preparatory workshop
Loading area
Maintenance storage
Parking for museum visitors
Cloack room
Wooden workshop
Waste collection
Waste center
Air Condition
Photo studio
Storage
Model Workshop
Cleaning center
Property control
Technical
Storage
Dry storage
Cold storage
Waste
Digitalization room
Storage
Architecture Workshop
Server room
Auxiliary
Auxiliary
Auxiliary
Auxiliary
Post and dublication center
Design Workshop
Kitchen
Restaurant
Preservation laboratory
Seminar room
+1,8
Service
Service
City planning department (extension)
Service
II-II
I-I
I-I
II-II

Ground floor


Storage
Preparatory workshop
Main exhibition hall
Exhibition hall
+12,0
Museum extension
+7,0
Auxiliary room
Technical
Kitchen
Museum shop
Cafe
II-II
I-I
Auxiliary
Open office
+12,0
Audit. 200 s.
Rooftop Garden of Arts

First floor



Second floor

6.2.4 Exhibition halls

The exhibition halls of the museum are divided into two floors. Considering that the new building should contain two separate institutes - the Museum of Architecture and the Museum of Design, the most logical is to distribute the museums by floors, but this is not the only possible option.

The main exhibition space has a span of 14 meters between the columns and is partially divided by a horizontal ceiling into two levels with a net height from the floor to the suspended ceiling structure of 4 meters, partially left without additional horizontal ceilings and passes through both floors of the building, allowing large-scale installations. This part of the exhibition hall is directly connected to the preparatory workshop, which has the same height and the necessary equipment for the installation of architectural installations. The connection passes through an opening in the wall, closed by partitions on runners, which can be opened using a particular mechanism, and then the preparatory workshop becomes an extension of the exhibition hall, and the installation can be easily moved without the need for additional assembly in the exhibition hall itself.

The layout of the exhibition hall is open. However, the ceiling structure has a 2x2 m grid rail system with pre-display elements such as hinged partition walls, floor-to-ceiling curtains, pedestals and plinths, which makes it easy to erect vertical partitions of any configuration, taking into account the size of the grid system.

The exterior walls of the main hall are made of a glass curtain wall, which in some places is covered by the Gabion wall, which reduces the amount of incoming daylight, and also creates exciting shadows that can become part of the exhibition. Thanks to the decision to leave the exterior walls semi-transparent, the connection with the city is maintained, and it does not make feel visitors lost in an anonymous place.

There is also a closed gallery adjacent to the main exhibition hall, where daylight does not penetrate and the internal climate of which can be controlled more precisely. This solution allows the objects that are sensitive to environmental conditions to be displayed as well.

Near the gallery, there are restrooms, maintenance premises, staircase, and an elevator that brings visitors to the upper floor. Even though the staircase occupies the same span as the staircase leading from the parking lot to the visitor center, those two staircases are separated, and only visitors who bought tickets and entered exhibition space can use this connection. Other visitors have to use the grand staircase located in the Canyon to get to the

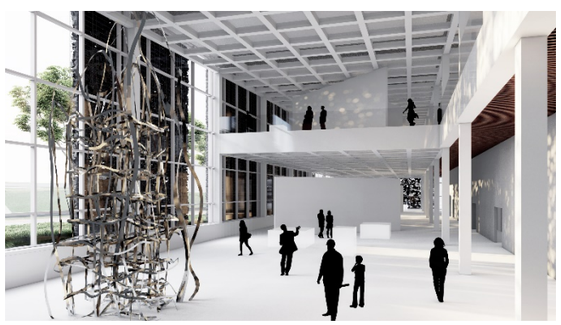
cafeteria on the 2nd floor, from where they can continue their journey to the roof through a bridge thrown in the narrowest part of the Canyon.

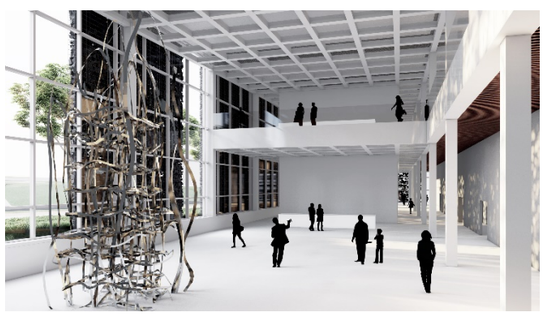
When developing an alternative trajectory for the movement of visitors around the space of the exhibition hall, one more opportunity for additional communication between the contents of the museum and the urban space outside it was identified. Moving upwards through the exhibition space, the visitors end their journey in a cafeteria on the 2nd floor with a panoramic view of the center of Helsinki. Thus, the exposition, which tells about the past of Finnish architecture and design, naturally finds its continuation in the form of original buildings existing today and possibly changing in the future. Thus, Helsinki itself becomes part of the museum's exposition and enriches the architectural experience gained.

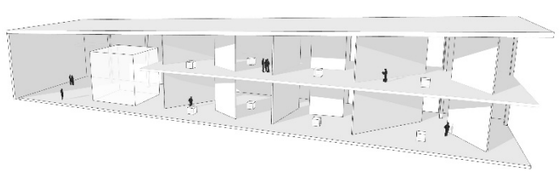
In addition to ending the exhibit by going out to the cafeteria, the exhibit can be continued with the changing element described in the next chapter.

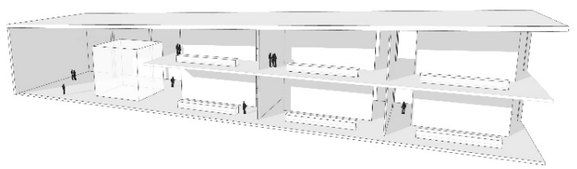
Figure 37. Exhibition layout variations p.53 ▶

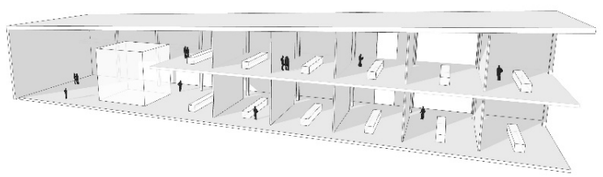
Figure 38. Exhibition layout variations p.52 ▶

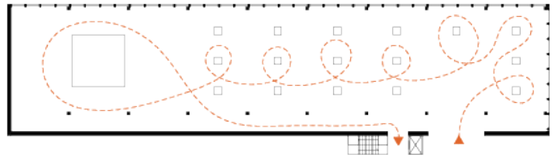


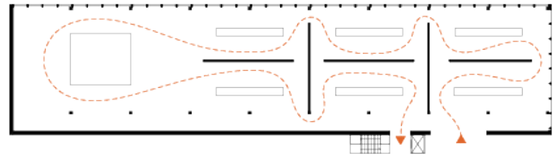


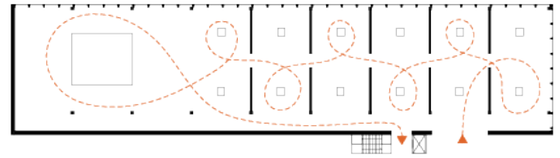


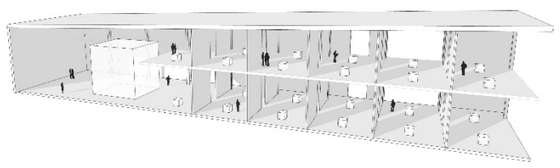


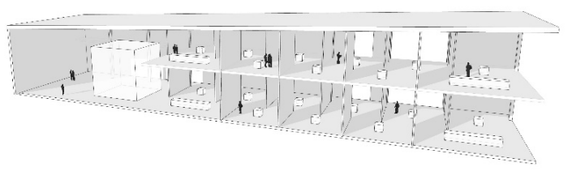


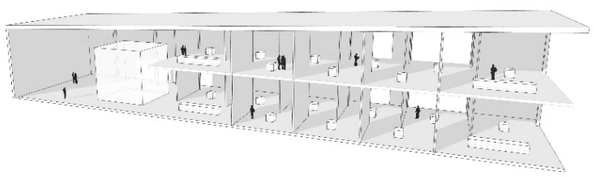












6.2.5 Museum extension

Working on the concept of the future museum, one of the basic statements was taken from the changed view to the architecture as a product created by an architect. If earlier, an architectural object was considered a complete and perfect creation of an architect, then focusing on the experience of interaction between the user and architecture that continues after the construction of the building, it becomes evident that this user becomes the author and creator on a par with the architect. (MacLeod, 2005, p. 11, 20.) If to develop this concept further, it becomes clear that there is no complete and unchanged in time architecture exist in the world, so it would be logical to give materialization to such changes on the territory of the museum. This is how the idea of expanding the museum was born as a continually changing element, which must be rebuilt every five years by one of the representatives of the Finnish school of architects.

This changing element is a progressive form of architectural installation, which, along with the installation, can be experimental and less practical than the real architecture. However, in contrast to the installation, which does not have a utilitarian function, it should still perform the function of expanding the museum area.

The location of this changing element is also symbolic - opposite the city council, which creates an additional connection and dialogue between architecture, which is designed to embody the needs and needs of society in a physical form, and the city council, designed to respond and find a solution to these needs.

7 Constructions and materials

The main load-bearing structure of the building is a metal frame structure consisting of composite columns with a cross-section of 375x375 mm with a step of 8 meters. Wider spans are provided for exhibition halls, library, and auditorium, where spans are 16 and 14 meters. The load-bearing beam structures are steel profile HE 700B in places with an increased span and steel profile HE 300B in places with a standard column pitch.

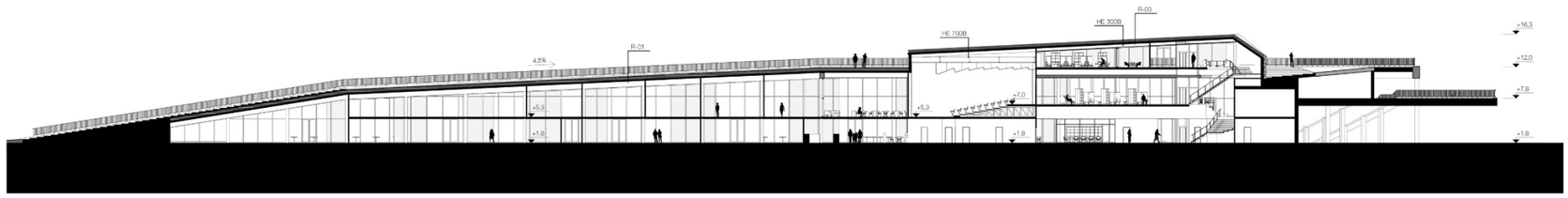
The wall structure is made of Autoclaved aerated concrete (AAC) blocks 375 mm wide, which allows erecting self-bearing walls without the need for additional insulation. The structure of the wall, made in this way, is strong enough to distribute the load from the Gabion wall as well, while the load from the horizontal slabs is taken over by the metal frame structure.

The ceilings are made of monolithic reinforced concrete of 250 mm thick.

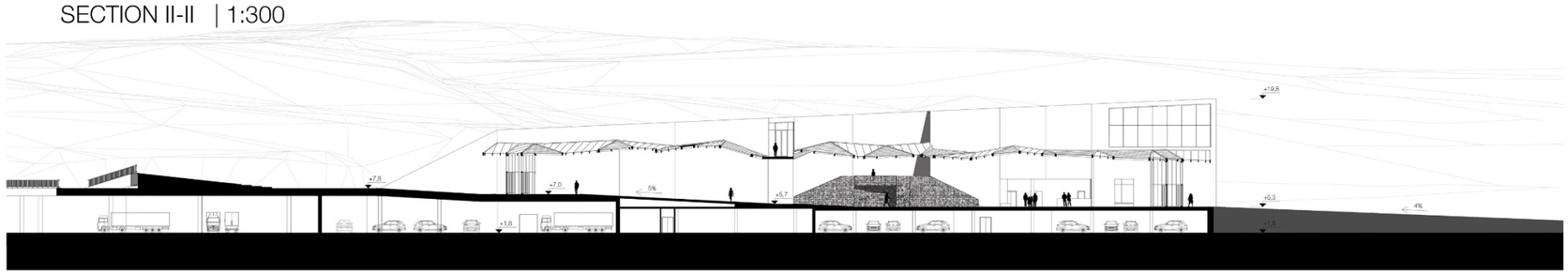
The Gabion wall system used for the main cover for the façade has two different configurations with 150 and 300 mm thick.

The interior walls of the exhibition space are neutrally plastered to create an environment that can be easily adapted to the changing concept of temporary exhibitions. In the public part of the museum, commercial blocks, as well as classrooms of the educational center, are made of glass, and in the interior of the library, wood is the primary finishing material to create a comfortable atmosphere and microclimate for study processes.

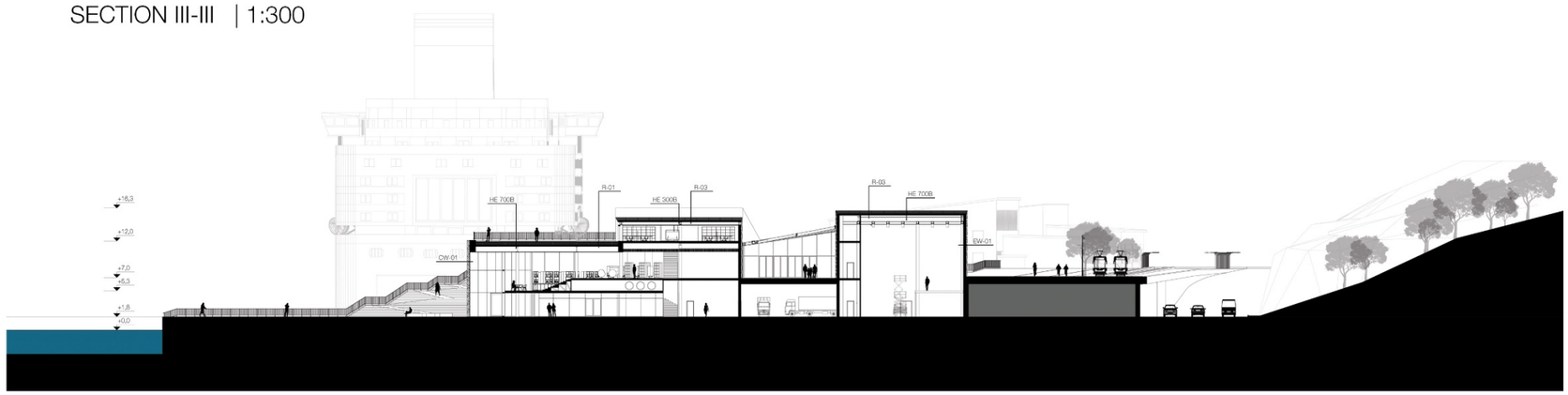
SECTION I-I | 1:300



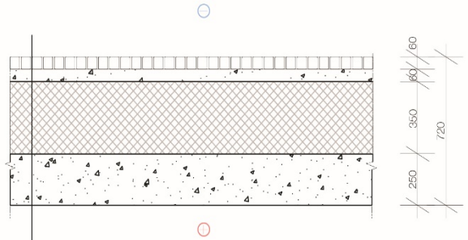
SECTION II-II | 1:300



SECTION III-III | 1:300



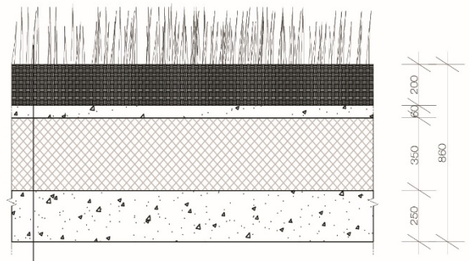
Walkable part of the roof



R-01 720 mm

Pavement	60...80 mm
Reinforced concrete C20/25, mesh 5-150 B500K	60mm
Filter fabric	
Insulation XPS 50kg/m^3	350 mm
Hydroisolation	
Reinforced concrete C30/37	250 mm
Interior finishing	

Walkable part of the roof with grass

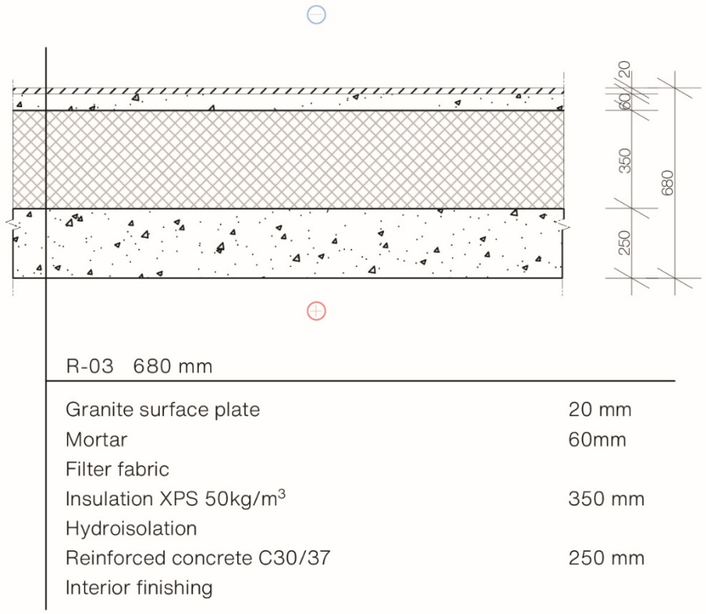


R-02 860 mm

Soil	200 mm
Reinforced concrete C20/25, mesh 5-150 B500K	60mm
Filter fabric	
Insulation XPS 50kg/m^3	350 mm
Hydroisolation	
Reinforced concrete C30/37	250 mm
Interior finishing	

Figure 39. Walkable part of the roof, walkable part of the roof with grass construction

Roof



R-03 680 mm	
Granite surface plate	20 mm
Mortar	60mm
Filter fabric	
Insulation XPS 50kg/m^3	350 mm
Hydroisolation	
Reinforced concrete C30/37	250 mm
Interior finishing	

Figure 40. Roof construction.

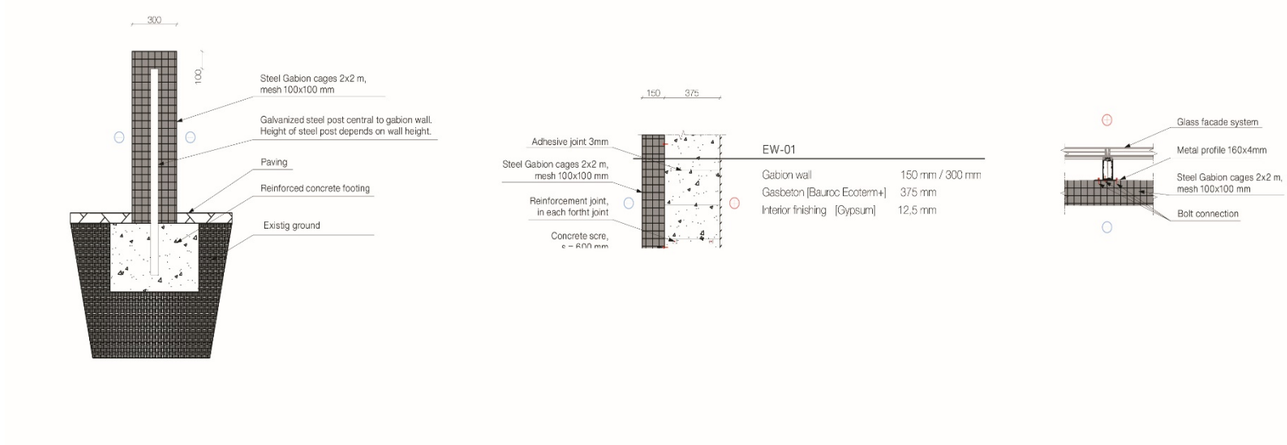


Figure 41. Independent Gabion, Exteriour wall, Gabion adjoined to the curtain wall construction

7.1 The concept of the facade

The idea to make the external facade of the museum building using the gabion system came from the desire to use natural stone, which is widespread in traditional Finnish architecture, but give it a new form of application.

When speaking about Finnish architecture, it is customary to emphasize the use of wood as the most common material. However, natural stone has an ancient and broad scope of application. Initially, the stone was not used so widely due to the hardness of local rocks, which were quite challenging to process. Among the Scandinavian countries, not Finland, but Sweden was the first to begin the development and use of natural stone, which later spread to neighboring countries.

It is believed that buildings made of stone began to appear in Finland in the 13th century after the establishment of Swedish rule. The stone was used in the construction of castles, fortresses, and churches. Examples of medieval stone buildings that have survived to this day are, for example, Turku Castle (13th century), Häme Castle (13th century), St. Olaf's Church in Jomala (13th century), Raseborg Castle (14th century), St. Mary's Church in Turku (15th century) and others.

In the 19th century, significant changes took place in the technology of using natural stone in the construction of buildings. In 1893, the geologist Jakob Johannes Sederholm together with the engineer Hugo Blankett, mapped the country's granite deposits and established in 1900 the company Finska Stenindustri ('Finnish Stone Industry'), which was rapidly growing into the country's largest natural stone producer. To stimulate sales, he invited several architects to collaborate to use granite in their projects. Soon, gray granite, widespread in national architecture, became associated with the Finnish people and personified its sober and serious character. (Seelow, 2017)

Many historical buildings in Helsinki that have survived to this day have natural stone and granite cladding. Considering also the concept of the museum as a symbolic continuation of Observatory Hill, the choice of stone as a material for the facade became obvious. Usage of the Gabion wall system with different width of blocks, it is possible to combine fragments of natural stone of different sizes, combining larger pieces with small pebbles in size and creating a unique texture of the facade, where the stone is presented in its natural raw form.

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APPENDICES

1. Room program

Positions marked in gray are present in the ARMI project but removed from the room program for the MFAD.

Room name	Area m^2	Qty	Total m^2	Commentaries
SHOWROOMS / SRM				
Permanent exhibitions	800	1	800	
Changing exhibitions	200	1	200	
Gallery	85	1	85	
orientation	25	1	25	
SHOWROOMS / DFF				
Permanent exhibitions	250	1	250	
Changing samples	350	1	350	
Gallery	100	1	100	
SHOWROOMS / RTS				
Building Supplies Exhibition	190	1	190	
SHOWROOMS / CITY				
City Planning Department	485	1	485	
Surveillance / Office	15	1	15	
City Art Museum	150	1	150	
Surveillance / Office	25	1	25	
Stock	25	1	25	
SHOWROOMS / TRANSITIONAL SHOWING UNIT				
Unit for permanent and temporary exhibitions	550	1	550	
SHOWROOMS / SAFA				
Current Gallery	35	1	35	
SHOWROOMS / ORNAMO				
Exhibit	100	1	100	
Current Gallery	30	1	30	
SHOWROOMS / GRAPHICS				
Current Gallery	16	1	16	
INFORMATION SERVICE				
Newsletters, magazines	83	1	83	
Monitors	30	1	30	
Information specialists	30	1	30	
LECTURE AND DEMONSTRATION SPACE				
Auditorium with 200 seats	250	1	250	
Projector Room	10	1	10	
booths	5	1	5	
Seminar rooms	60	1	60	
Seminar rooms	25	1	25	
Multi-function DEF	100	1	100	
Children's Architecture Workshop SRM	60	1	60	
SHOP FACILITIES				
Store	250	1	250	
Store	150	1	150	
Office	30	1	30	
Stock	20	1	20	
RESTAURANT FACILITIES				
restaurant halls	180	1	180	
Production of kitchen	80	1	80	
Hostess	6	1	6	
cold store	3	3	9	
dry Storage	5	2	10	
waste Room	7	1	7	
waste Room	3	1	3	
Cafe	135	1	135	
distribution Kitchen	15	1	15	
dry Storage	10	1	10	
Public toilet	6	1	6	
Checkroom	6	1	6	
LOBBY AND PUBLIC SERVICE SPACES				

Lobby facilities	240	1	240
Checkroom	80	1	80
Information	20	1	20
Switchboard	15	1	15
Office Room	20	1	20
Accessory Warehouse	10	1	10
First Aid Room	10	1	10
Audience WC, disabled	6	3	18
Public toilets	20	2	40
Public toilets	11	2	22
STAFF PREMISES / SRM			
museum Director	15	1	15
The Secretary-release journalist	15	1	15
offices	15	3	45
open-plan spaces	90	1	90
Conference rooms	30	1	30
Local Warehouse	10	1	10
Facilities	10	1	10
STAFF PREMISES / DFF			
Managing director	20	1	20
offices	15	13	195
open-plan spaces	8	4	32
reference library	20	1	20
Picture archive	15	1	15
Conference rooms	30	1	30
Conference rooms	15	1	15
Local Stocks	15	2	30
Facilities	15	1	15
STAFF PREMISES / RTS			
Workrooms / Management	20	3	60
offices	10	9	90
open-plan spaces	8	3	24
Conference rooms	25	1	25
Conference rooms	15	1	15
Office Supplies Stocks	10	2	20
Facilities	10	1	10
STAFF PREMISES / SAFA			
offices	10	19	190
open-plan spaces	10	4	40
Conference rooms	25	1	25
Conference rooms	15	3	45
Staff Café / Meeting Room	25	1	25
Local Stocks	10	3	30
Facilities	10	1	10
STAFF PREMISES / RIL			
offices	15	15	225
Conference rooms	20	2	40
Club	35	1	35
Local Warehouse	20	1	20
offices	20	1	20
Lobby / Lounge	40	1	40
STAFF PREMISES / ORNAMO			
offices	15	1	15
offices	10	3	30
open-plan spaces	8	4	32
Conference rooms	10	2	20
Local Warehouse	10	2	20
Facilities	5	1	5
STAFF PREMISES / GRAPHICS			
offices	15	1	15
offices	25	1	25
Conference rooms	20	1	20
Local Warehouse	10	1	10
CENTER FOR CONSTRUCTION TECHNOLOGY			
offices	25	2	50
Local Warehouse	10	1	10
			0
ARMI SERVICE → MFAD			0
Managing director	15	1	15
offices	15	2	30
offices	10	1	10
IT-support	25	1	25

SAFA will not have their own office in the MFAD building, but they could have an exhibition space and/or their showrooms.

Space allotted to the ARMI center service remains in the same area but reassigned for MFAD service

transport Office	15	1	15
Local Warehouse	15	1	15
AUXILIARY PREMISES FOR WORKSHOPS			
Lobby and customer service	20	3	60
Checkroom	10	3	30
Toilet room	10	3	30
Staff cafe / break room	65	1	65
WORKSHOP AND STORAGE			
Wooden workshop	60	1	60
Model workshop	25	1	25
Kehystystila	20	1	20
material Storage	15	1	15
Post and duplication center	45	1	45
Exhibition Warehouses / SRM	90	1	90
Exhibition Stores / DFF	100	1	100
Exhibition Warehouses / RTS	44	1	44
Exhibition Warehouses / SAFA	20	1	20
Exhibition Warehouses / RTK	50	1	50
Exhibition Warehouses / ORNAMO	30	1	30
Central Warehouses / DFF	50	1	50
Central Warehouses / RTS	20	1	20
Central Warehouses / SAFA	20	1	20
Central Warehouses / RIL	50	1	50
Central warehouses / ORNAMO	20	1	20
Central Warehouses / GRAPHICS	20	1	20
Central Warehouse / Restaurant	20	1	20
PERSONAL SOCIAL FACILITIES			
Washing and shower facilities	20	2	40
toilet	3	2	6
Dressing Rooms	30	2	60
Property management social facilities	8	2	16
Rest rooms	8	2	16
smoking room	10	1	10
Chamber	30	1	30
Dressing room	8	2	16
washroom	10	1	10
steam room	8	1	8
Toilet room	3	2	6
BUILDING MAINTENANCE AND TECHNOLOGY			
cleaning Center	30	1	30
cleaning Rooms	3	8	24
waste Center	60	1	60
Waste collection	2	6	12
Property Control room	25	1	25
maintenance Storage	40	1	40
Lighting and AV equipment storage	20	1	20
server Status	15	1	15
PREFERRED TECHNICAL SPACE			
Traffic mode, wide, drop metal	200	9	1800
Air condition	760	1	760
Technique	10	2	20
Technical status	35	2	70
Departmental traffic	20	20	400
entrance hall	14	2	28
THE CELLAR AND 1 FLOOR			
Storage	180	1	180
Storage	15	1	15
garage	360	1	360

The total area for this position will be revised according to the design of MFAD

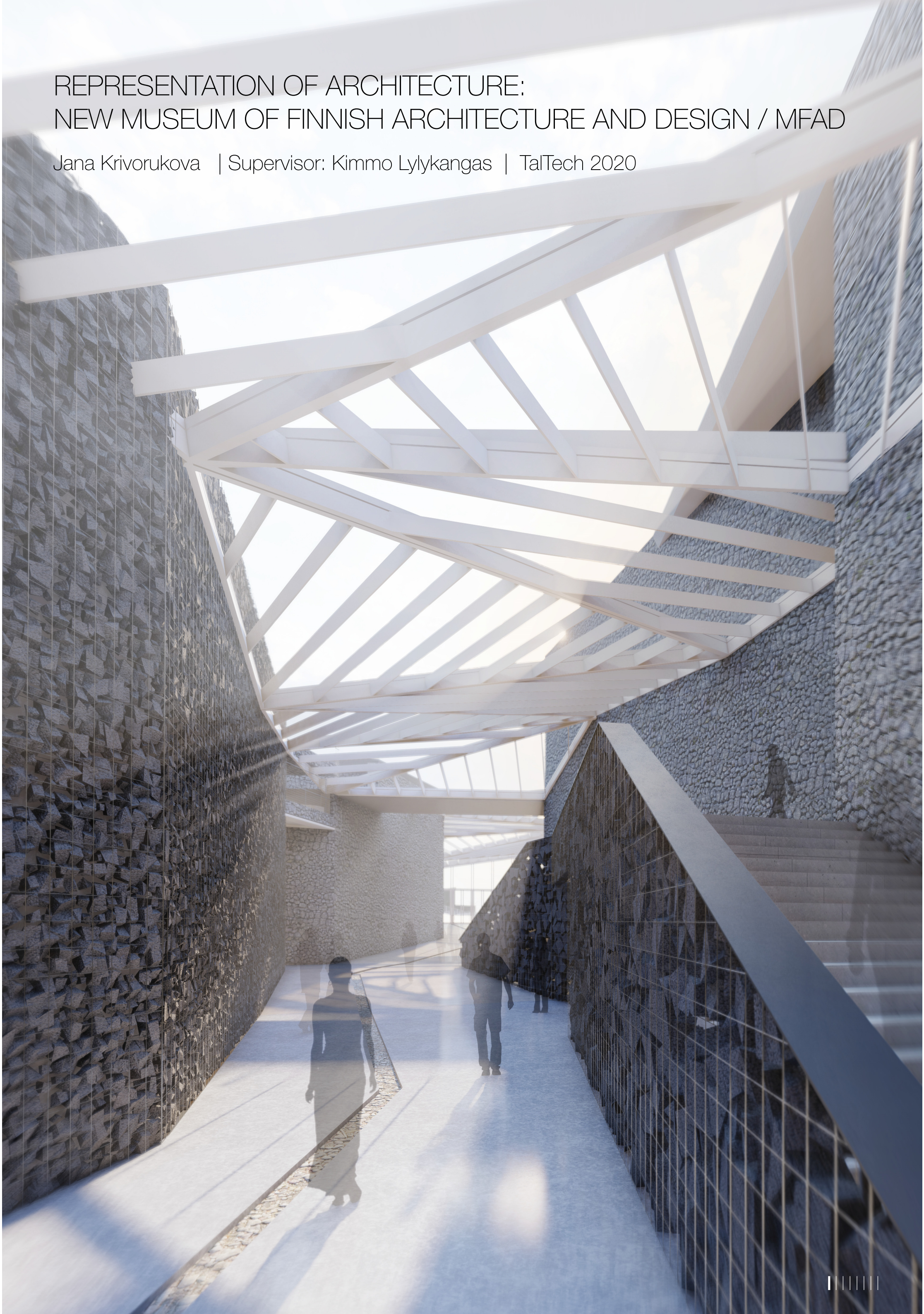
Source: Arkkitehtuurin, *Rakentamisen ja Muotoilun Informaatiokeskuksen hankesuunnitelma* 1.6.2002, OSA B, LIITTEET.

FIGURES

GRAPHICAL MATERIAL

REPRESENTATION OF ARCHITECTURE:
NEW MUSEUM OF FINNISH ARCHITECTURE AND DESIGN / MFAD

Jana Krivorukova | Supervisor: Kimmo Lylykangas | TalTech 2020



SITEPLAN SOLUTION

The project area is located in Helsinki on the east coast of South Harbour between the Observatory Hill and the waterfront. If to take a look at how this area has been formed , it might be noticed that along with the development of the city, the eastern part of the hill was cut off in order to build the Laivasillankatu road. As a result, the rocks of the hill have been bared and become a characteristic of the South Harbour landscape.

The architectural concept treats the museum building as a missed continuation of the hill, which is slightly shifted relative to the place of the cut not to block the view of the rocks from the sea.

One of the main tasks for site proposal was to clarify the direction from the City Hall towards the Observatory Hl Park and the Olympia Terminal. The proposed solution suggests reorganizing the system of berths near the Market Square, partial closure of the Kolera-allas basin, and the construction of a new bridge connecting the Market Square (Kauppatori) with the space in front of the Lubeck Quay.

Another changes on the site are transfer of tram tracks from the middle to the side of the Eteläranta and Laivasillankatu roads, relocation of a tram stops, organizatior of drop-off parking for tourist buses, separation of pedestrian and cycle routes, and bringing all parking and heavy traffic underground.

The new museum building, which is located on the site of Makasiini Terminal, divides the area into different zones allowing using 1 of 4 suggested paths:

1. sidewalk along Laivasillankatu street
2. passage through museum building - through Canyon
3. climbing path through the museum Rooftop Garden of Arts
4. walking promenade along the waterfront

The proposal allows to:

Connect the Market Squere with the Old Market Hall and distribute pedestrian flows, releving the current narrow connection placed between Kolera-alas and the roadway;
Create a classical fountain square in front of the city hall;
Functionally allocate space by separating the market area from the berths;
Safely separate pedestrian, bicycle and car traffic;
Hide parking lots, museum maintenance operations and port loading operations underground;
Ensure a smooth rise within the normal range, taking into account the interests of people with special needs.

REPRESENTATION OF ARCHITECTURE:
NEW MUSEUM OF FINNISH ARCHITECTURE AND DESIGN / MFAD

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MAIN ENTRANCE AND LAIVASILLANKATU SIDEWALK

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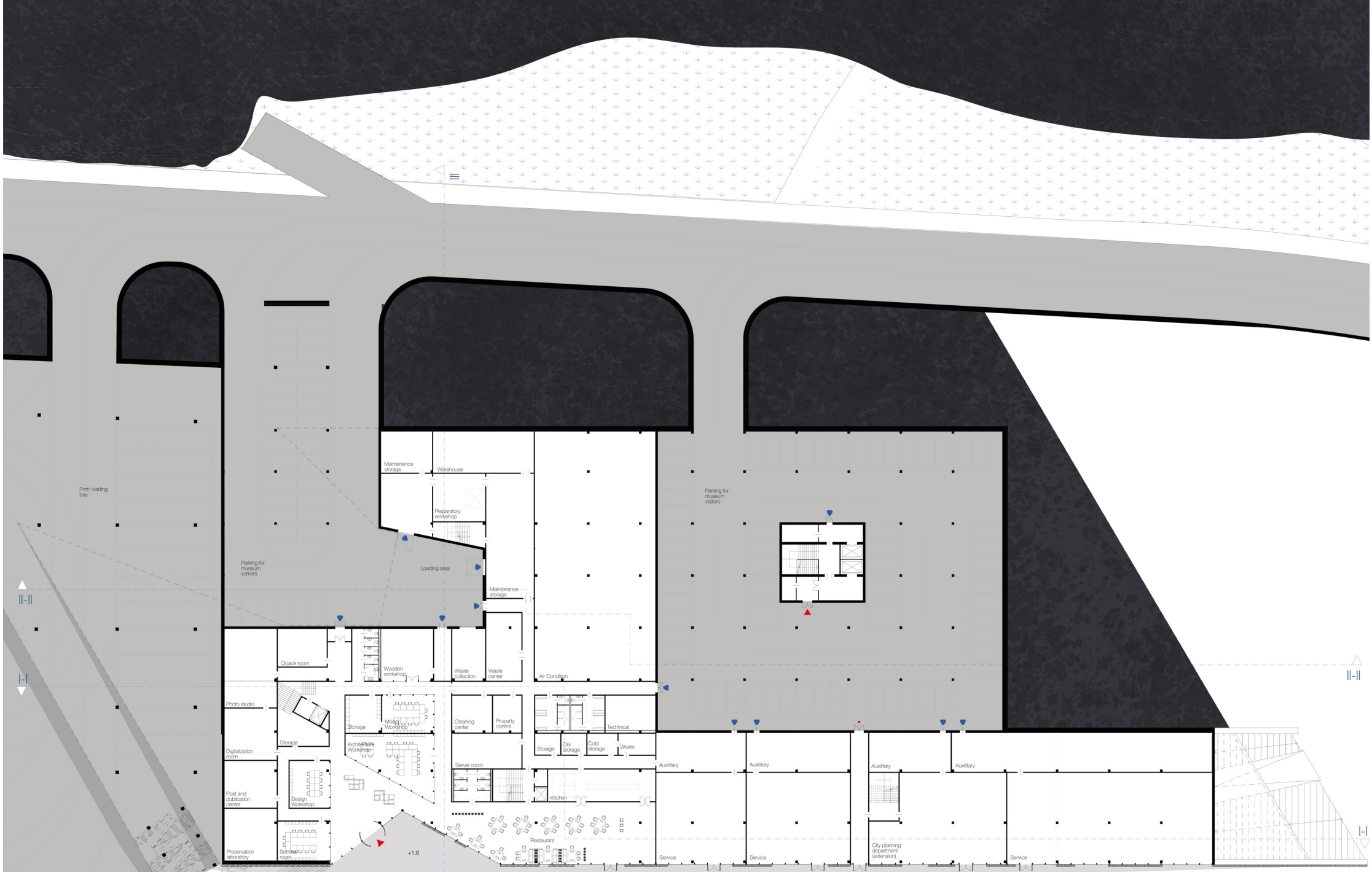

GROUND FLOOR | 1:300

LAIVASILLANKATU VIEW

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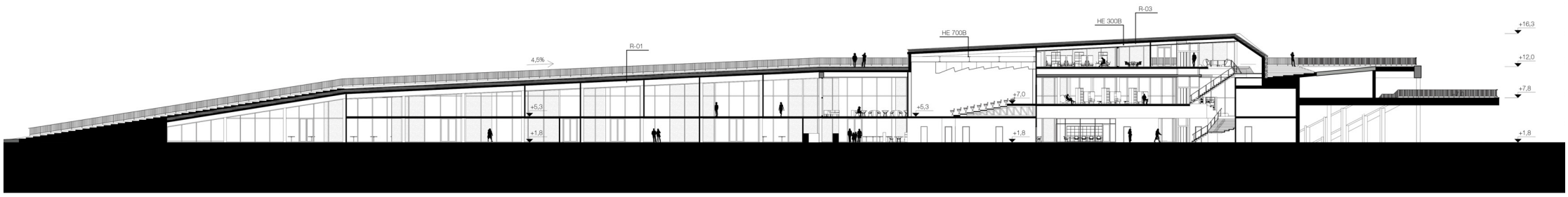
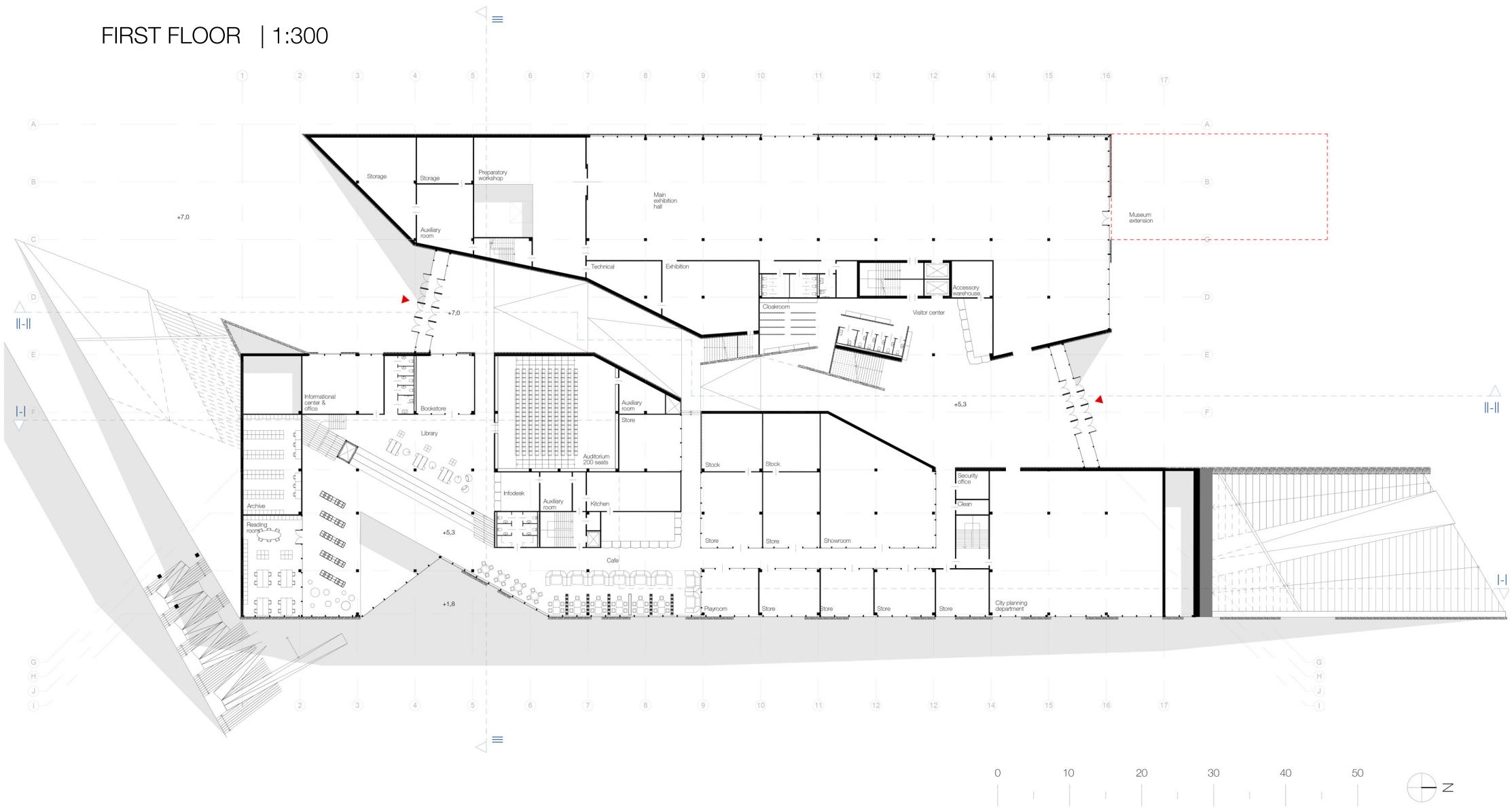
SECTION I-I | 1:300



FIRST FLOOR | 1:300



VATERFRONT VIEW

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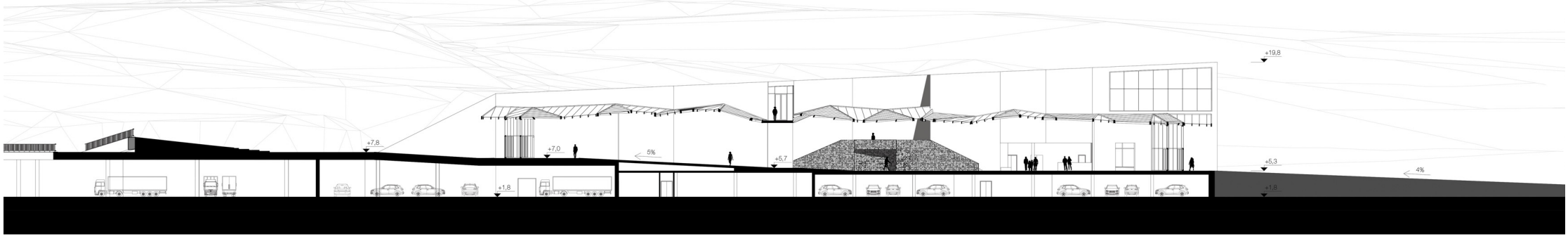
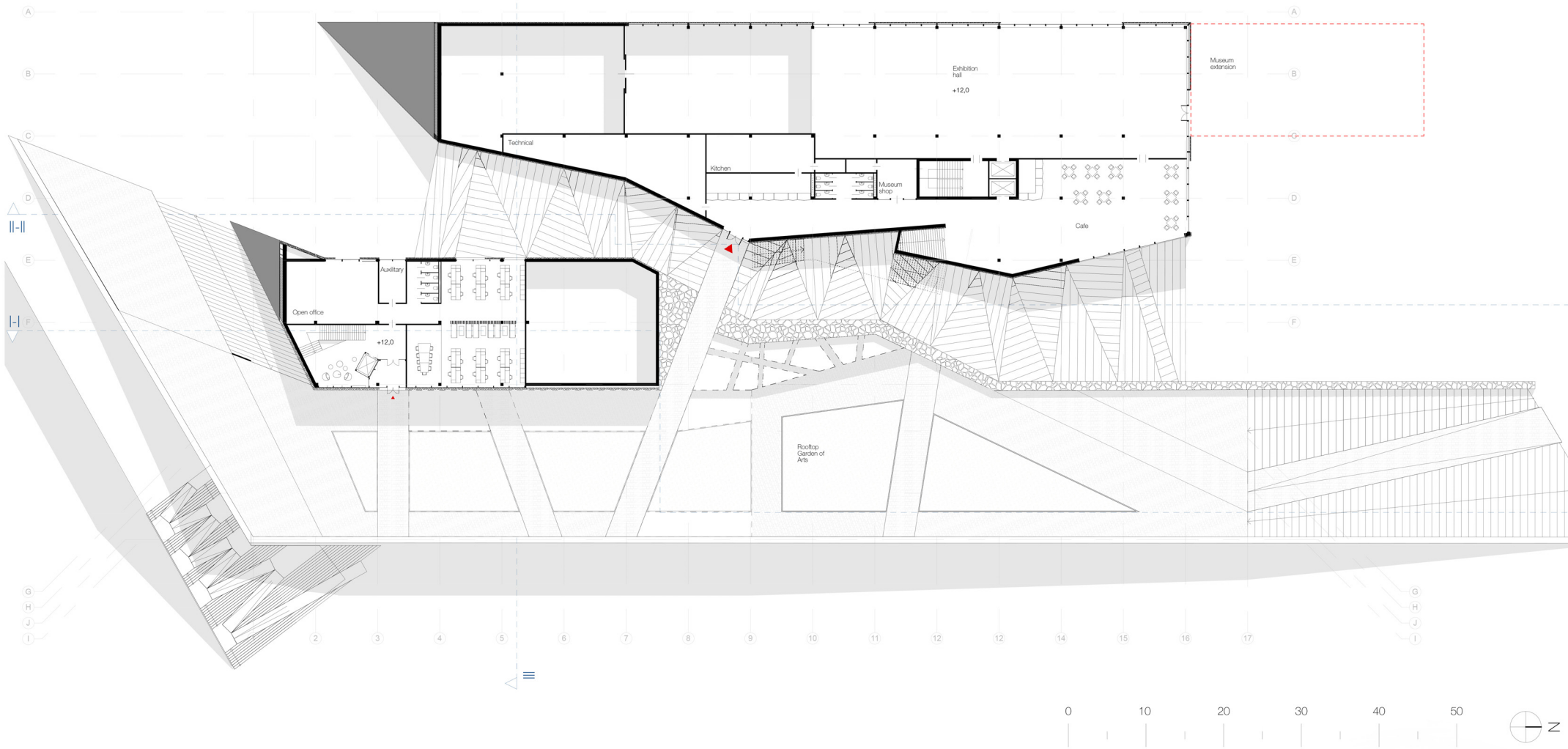
SECTION II-II | 1:300



SECOND FLOOR | 1:300



VIEW OF THE MUSEUM PLAZA AND MAIN ENTRANCE

REPRESENTATION OF ARCHITECTURE:
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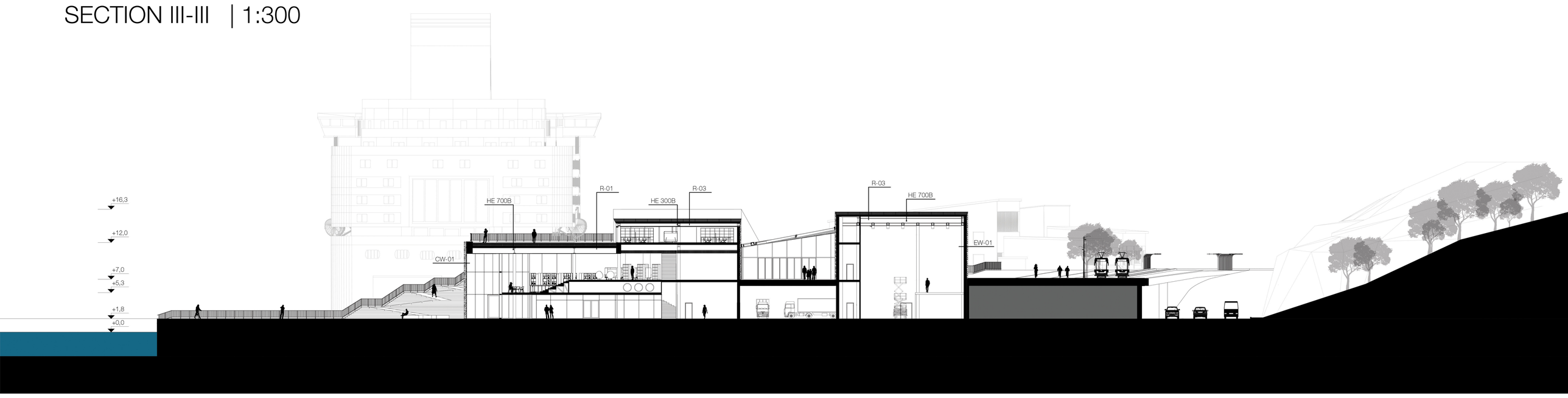
SECTION III-III | 1:300

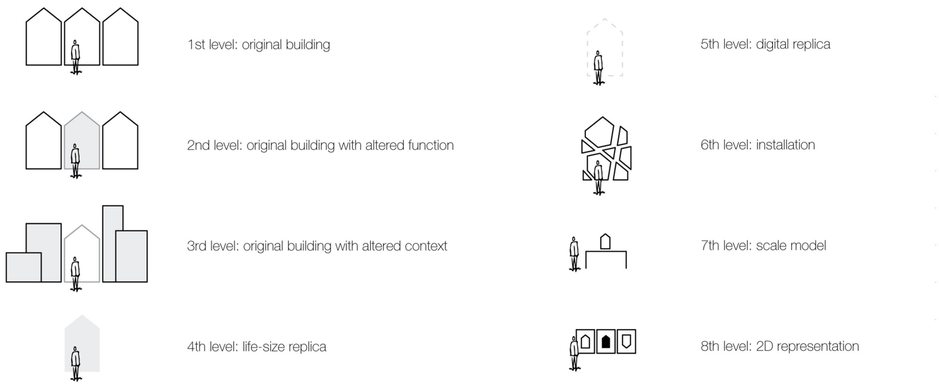


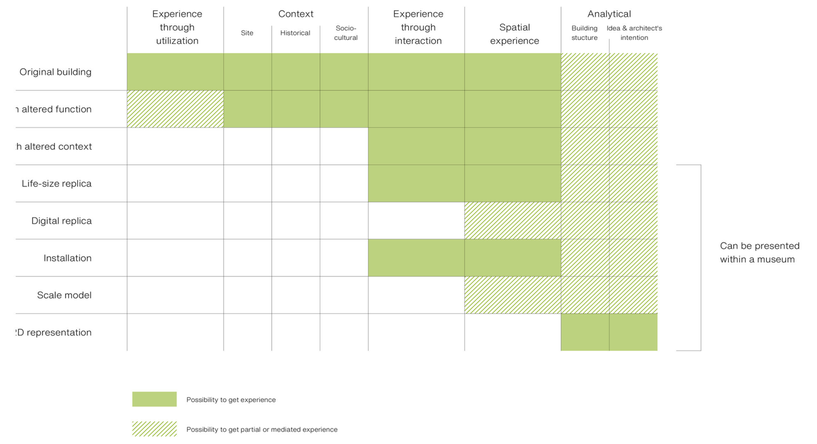
Method of representation of architecture

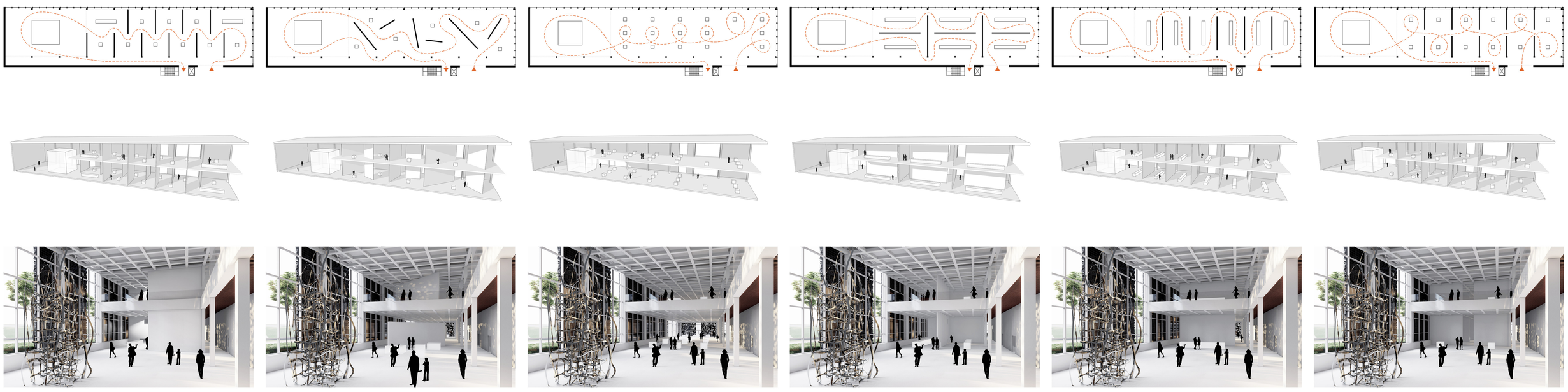
The critical issue in the matter of architectural exhibitions is the inability to exhibit real buildings in their natural environment and natural size. However, there are several levels on which architecture could be experienced. Choosing one or the other method of representation of architecture, it is possible to experience architecture quite versatile. The critical issue of this project is to find the proper design for museum space that could help architecture be experienced more deeply by the visitor.

Exhibition halls layout

The layout of the exhibition hall is open. However, the ceiling structure has a 2x2 m grid rail system with pre-display elements such as hinged partition walls, floor-to-ceiling curtains, pedestals and plinths, which makes it easy to erect vertical partitions of any configuration, taking into account the size of the grid system.







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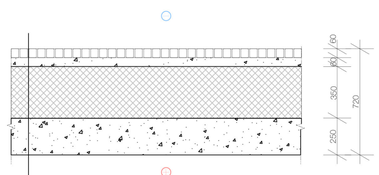
Museum extension

Today the architecture museum has taken a role that goes beyond the sole representation of the heritage of the past and the achievements of the present. Due to focusing on a broader audience, it became a meeting place at the intersection of the public with different backgrounds and interests, which made the museum an approachable platform for debates and activities.

In addition to the changing role of the museum in society, the role of the architect as an only author also has changed. If earlier, an architectural object was considered a complete and perfect creation of an architect, then focusing on the experience of interaction between the user and architecture that continues after the construction of the building, it becomes evident that this user becomes the author and creator on a par with the architect.

The concept of continually lasting and developing architecture, which never can be complete the idea of changed continuously part of the museum, is presented in the project. This changing part is a progressive form of architectural installation, which, along with the installation, can be experimental and less practical than the real architecture. However, in contrast to the installation, which does not have a utilitarian function, it should still perform the function of expanding the museum area.

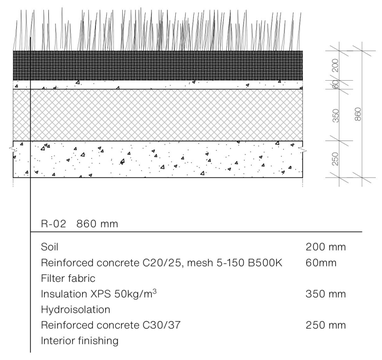
Walkable part of the roof



R-01 720 mm

Pavement	60...80 mm
Reinforced concrete C20/25, mesh 5-150 B500K	60mm
Filter fabric	
Insulation XPS 50kg/m^3	350 mm
Hydroisolation	
Reinforced concrete C30/37	250 mm
Interior finishing	

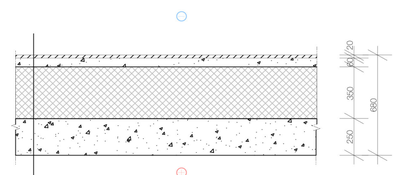
Walkable part of the roof with grass



R-02 860 mm

Soil	200 mm
Reinforced concrete C20/25, mesh 5-150 B500K	60mm
Filter fabric	
Insulation XPS 50kg/m^3	350 mm
Hydroisolation	
Reinforced concrete C30/37	250 mm
Interior finishing	

Roof



R-03 680 mm

Granite surface plate	20 mm
Mortar	60mm
Filter fabric	
Insulation XPS 50kg/m^3	350 mm
Hydroisolation	
Reinforced concrete C30/37	250 mm
Interior finishing	

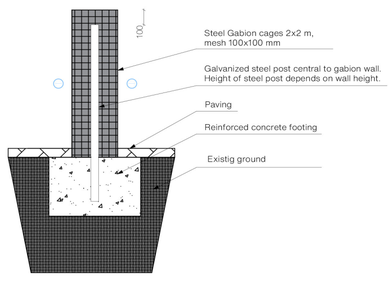
Constructions and materials

The main load-bearing structure of the building is a metal frame structure consisting of composite columns with a cross-section of 375x375 mm with a step of 8 meters. Wider spans are provided for exhibition halls, library, and auditorium, where spans are 16 and 14 meters. The load-bearing beam structures are steel profile HE 700B in places with an increased span and steel profile HE 300B in places with a standard column pitch.

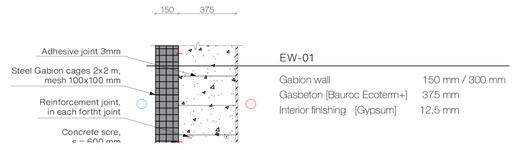
The wall structure is made of Autoclaved aerated concrete (AAC) blocks 375 mm wide, which allows erecting self-bearing walls without the need for additional insulation. The structure of the wall, made in this way, is strong enough to distribute the load from the Gabion wall as well, while the load from the horizontal slabs is taken over by the metal frame structure.

The idea to make the external facade of the museum building using the gabion system came from the desire to use natural stone, which is widespread in traditional Finnish architecture, but give it a new form of application.

Independent Gabion 150 / 300 / 500 mm



Exterior wall



EW-01

Gabion wall	150 mm / 300 mm
Gasbeton [Bauroc Ecoterm+]	375 mm
Interior finishing [Gypsum]	12,5 mm

Gabion adjoined to the curtain wall