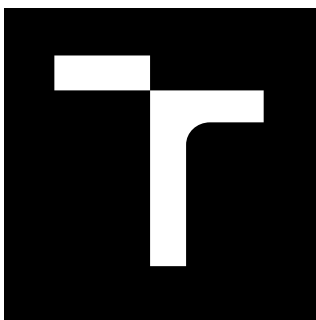


BRNO UNIVERSITY OF TECHNOLOGY
Faculty of Architecture

BACHELOR'S THESIS

Brno, 2023

Vít Kučerovský



BRNO UNIVERSITY OF TECHNOLOGY

VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

FACULTY OF ARCHITECTURE

FAKULTA ARCHITEKTURY

DEPARTMENT OF SPATIAL DESIGN

ÚSTAV PROSTOROVÉ TVORBY

BIBLIOVERSE - MULTIFUNCTIONAL BUILDING WITH LIBRARY

BIBLIOVERSE - MULTIFUNKČNÍ OBJEKT S KNIHOVNOU

BACHELOR'S THESIS

BAKALÁŘSKÁ PRÁCE

AUTHOR

AUTOR PRÁCE

Vít Kučerovský

SUPERVISOR

VEDOUCÍ PRÁCE

Mag. arch. Oleksii Bykov

BRNO 2023

Assignment Bachelor's Thesis

Project no.: FA-BAK0032/2022
Department: Department of Spatial Design
Student: **Vít Kučerovský**
Study programme: Architecture and urban design
Field of study: Architecture
Supervisor: **Mag. arch. Oleksii Bykov**
Academic year: 2022/23

Title of Bachelor's Thesis:

Biblioverse – Multifunctional building with library

Bachelor's Thesis:

Library – institution with long tradition and changing significance according to the historical era and culture. Bibliothēkē originally simply meant „a place to store written documents“ or a „collection of books“ – hence phonothek (records collection), pinakothek (pictures collection), etc. The largest and the most famous library of the ancient world was a part of so called Musaeum, which was a state funded research institution concentrating the most profound minds of its time such as Archimedes and Euclid. In Ancient Rome library was part of the emperor baths, which made it open cultural institution donated by the ruler to his peoples. In the middle ages the library had become a part of the ecclesiastical complexes and later private book collections represented wealth of powerful elites. Modern public libraries are opened institutions reflecting on contemporary demand for general access to education and information... The aim of the project will be an architectural proposal of a multifunctional object with library, which reflects the significance of the institution for the 21. century. Building will be located in Staré Brno and will be dealing with spatial situation of two connected empty lots at Pekařská street 88 and Sladová street 6, which are results of planned but unrealized tramline. Currently the strip of the land is owned by the City of Brno.

Graphics scope :

The student should show a new approach to designing libraries as specific spaces that do more than just store books. The project should symbolise the trend towards cultural spaces that foster community development, growth and learning through adaptable architecture that is deeply connected to the surrounding area.

Scope of graphic works:

Situation plan 1:500

Floor plans 1:200 including rooms with explications

Sections 1:200

Characteristic views and sections 1:200

Perspective / Axonometry of the exterior,
Perspective / axonometry of the interior
Building detail – section through the facade 1:25 with the construction components explained (roof, ceilings – floors, outer shell, foundation of the building)
Axonometric diagram of supporting structures
Model 1:500

List of literature:

Jiří Cejpek, Dějiny knihoven a knihovnictví, Praha 2002.

Michael Kubo – Ramon Prat, Seattle Public Library, OMA/LMN, Barcelona 2005.

Karel Kuča, Brno: vývoj města, předměstí a připojených vesnic, Praha, 2000.

Ernst Neufert, Navrhování staveb: zásady, normy, předpisy o zařízeních, stavbě, vybavení, nárocích na prostor, prostorových vztazích, rozměrech budov, prostorech, vybavení, přístrojích z hlediska člověka jako měřítko a cíle, Praha, 2000.

William W. Sannwald, Checklist of Library Building Design Considerations, Chicago 2009.

Ken Worpole, Contemporary library architecture : a planning and design guide, London – New York 2013.

Jana Tichá (ed), Architektura a globalizace, Praha 2013.

William J. Mitchell , e-topia: život ve městě trochu jinak, Praha 2005.

Date of project specification Bachelor's Thesis: 6.2.2023

the deadline for submission for the Bachelor's Thesis: 2.5.2023

Bachelor's Thesis is submitted in the scope determined by the project supervisor; in addition, one B1 exhibition panel and Bachelor's Thesis in electronic form are submitted.

Vít Kučerovský
student

Mag. arch. Oleksii Bykov
project supervisor

doc. Ing. arch. Jiří Palacký, Ph.D.
head of the institute

In Brno dated 6.2.2023

Ing. arch. Radek Suchánek,
Ph.D.
Dean

Annotation

Public Corridor Library

Concept of the project is based on the typology of corridor and return to its more meaningful use rather than just a transitional space. As Rem Koolhaas defines the architectural corridor as a means of connecting spaces and creating a sense of progression within a building, he notes that the corridor is often overlooked in architectural design, but it plays a crucial role in movement and providing visual connections between different areas. Koolhaas also emphasizes the potential for corridors to become dynamic spaces in their own right, capable of fostering social interaction and accommodating a range of activities. Overall, his writing underscores the importance of considering the corridor as an important element of architectural design, rather than simply a transitional space.

The proposal consists of three separate buildings connected with a pedestrian path. Two buildings fill the structure of the block and one main library building is placed in between them. Form of the plan of the main building is based on the tweening of the two edge buildings and is reflecting their geometrical relation. Main idea of creating a barrier free pedestrian path across the whole site and thus connecting the two bordering streets is realized by a series of communications such as ramps, stairs and elevator. Program of the site and its buildings is symmetrically spreading from the middle, where the main library building stands. Emphasizing the spread of the knowledge from the library through culture into the city and allowing regular pedestrians to experience it. Two edge buildings serve as basic structures providing shelter and infrastructure for operating different programs and facilities such as cafe, theater, performing events, exhibitions, lectures etc. Main library building is an enclosed building with different spaces for studying, working, absorbing information and community meetings.

Statement

I declare that the work submitted is my original work, which I have produced independently.

Acknowledgement

I would like to thank my advisor Oleksii Bykov for his guidance and valuable help in the preparation of this thesis. Furthermore Jan Kristek, Zdeněk Vejpustek, Monika Petříčková, Jaroslav Sedlák, and Radek Toman for their very beneficial consultations. Jana Řehořová, Marek Frait, Ivana Guzová, Radim Koutný, Ondra Válek, Anna Jelínková, Dominika Štefková, Klarisa Ach-Hübner, Oskar Madro, Kateřina Novotná and Johana Dostálová for their help and hunger throughout the semester.

Urban solution

The site is situated on Staré Brno connecting two urban gaps, one facing Pekařská street and the other facing Sladová street forming its irregular shape. Sladová is calm dead-end steep street in contrast to Pekařská, which is accessible also through public transport. The western side of the block is facing Úvoz street.

Site is considered as a pedestrian friendly and welcoming public space which works as a connection between Pekařská and Sladová and as an attractive public corridor space with a library and multifunctional spaces. This open corridor concept is used as a main strategy in the design of the project.

The plot is forming a public landmark between important public places: Mendel Square, Hospital u svaté Anny, Špilberk castle with park and Žlutý Kopec and is designed to serve as an intersection point and attractor for pedestrians moving between these places.

Program solution

Program of the site and its buildings is symmetrically spreading from the middle, where the main library building is. Emphasizing the spread of the knowledge from the library through culture into the city and allowing regular pedestrians to experience it. Two edge buildings serve as basic structures providing shelter and infrastructure for operating different programs and facilities such as cafe, theater, performing events, exhibitions, lectures etc. Main library building is an enclosed building with different spaces for studying, working, absorbing information and community meetings.

Construction solution

Entrance building is solved as an unclosed CLT frame structure with a green roof on a CLT roof slab. It is founded on reinforced concrete foundation plate.

The main building is solved as a massive CLT frame structure with reinforced concrete foundations, green roofs, partly walkable wooden roof and thermal insulated facade. The CLT frames are admittedly intersecting and creating an unpredictable grid and shapes. The amount of columns is forming an irregular open space with a hint of corridor. Northern part of the building is partly under the ground and it is made of reinforced concrete holding the pressure from the northern hill.

The Sladová gap fill building is an unclosed CLT frame structure with green roof on a CLT roof slab. It is founded on reinforced concrete foundations.

Architectural solution

Proposal consists of three separate buildings connected with a pedestrian path. Two buildings fill the structure of the block and one main library building is placed in between them. Form of the plan of the main building is based on the tweening of the two edge buildings and is reflecting their geometrical relation. Main idea of creating a barrier free pedestrian path across the whole site and thus connecting the two bordering streets is realized by a series of communications such as ramps, stairs and elevator.

Pavilion filling the gap on Pekařská street is an unclosed structure serving as a shelter and entrance gate into the inner block where the library is. It can also flexibly serve different programs such as exhibitions, performances and small scale cultural events.

Main library is a single storey enclosed building creating with its form an open corridor space through its whole length. The form is derived from blending of the two urban gap fills which are facing on one side Pekařská street and on the other Sladová street. Northern part of the building is found under the ground. On the northern part there is also one storey unclosed structure in addition as a second floor on top of the main building. This space is also flexible in program and can serve as a cafe and working space.

Building filling the gap on Sladová street is an unclosed structure serving as a shelter and entrance gate into the inner block. It can also flexibly serve different programs such as exhibitions, performances and small scale cultural events. On the lower floor is a barrier free ramp providing access and connection of Sladová street and library.

FLOOR AREA ACCORDING INDIVIDUAL FLOORS:

FIRST FLOOR: 907 M²

SECOND FLOOR: 321 M²

THIRD FLOOR: 54 M²

FOURTH FLOOR: 308 M²

TOTAL FLOOR BALANCE:

GROSS FLOOR AREA: 2430 M²

FLOOR AREA: 1590 M²

LAND AREA: 3378 M²

WIDER RELATIONS



1:2000



SITUATION PLAN

PARKING

SLADOVÁ

ÚVOZ

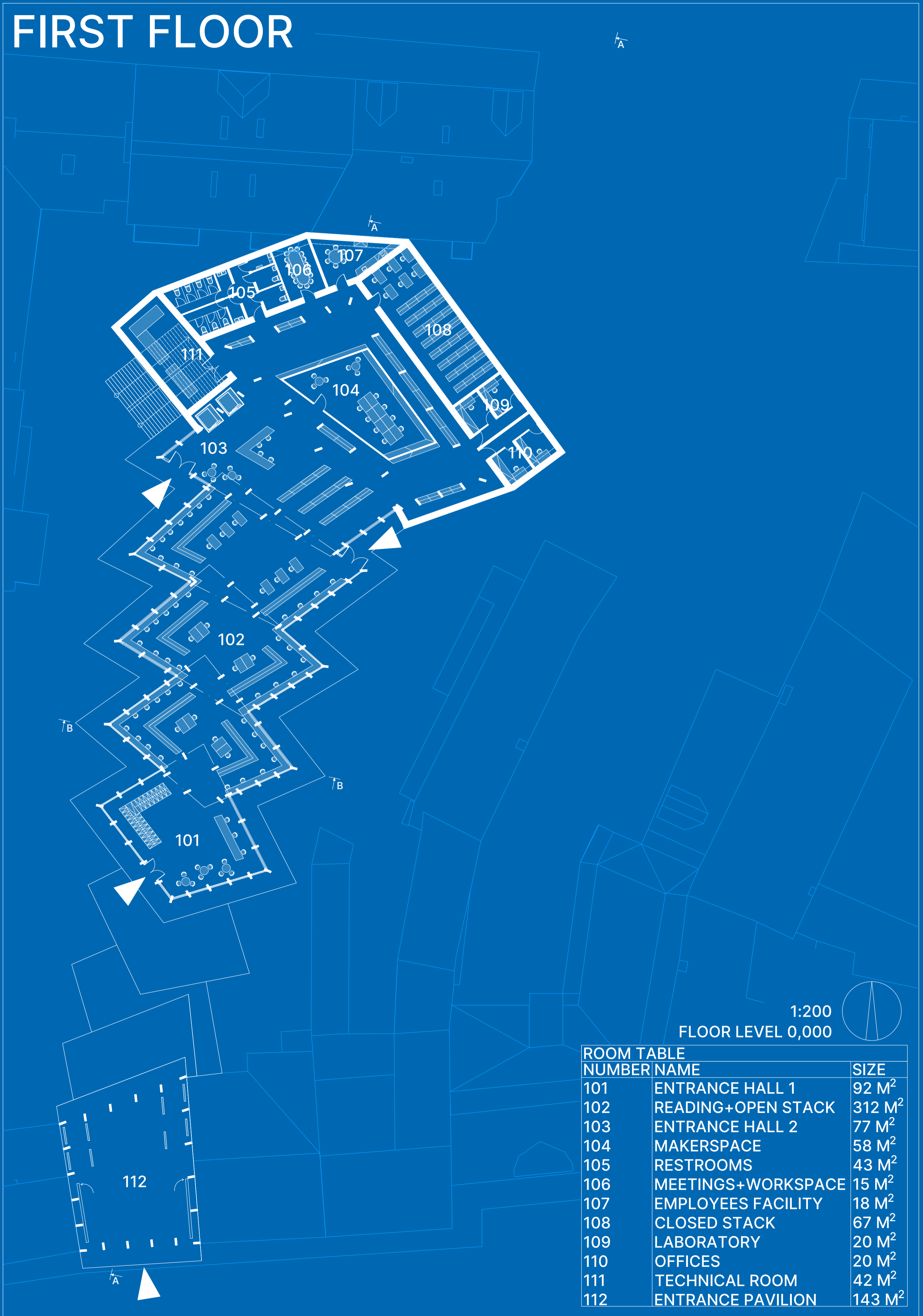
PEKAŘSKÁ

PEKAŘSKÁ

1:500



FIRST FLOOR



1:200

FLOOR LEVEL 0,000



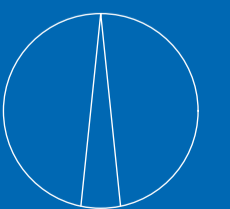
ROOM TABLE		
NUMBER	NAME	SIZE
101	ENTRANCE HALL 1	92 M ²
102	READING+OPEN STACK	312 M ²
103	ENTRANCE HALL 2	77 M ²
104	MAKERSPACE	58 M ²
105	RESTROOMS	43 M ²
106	MEETINGS+WORKSPACE	15 M ²
107	EMPLOYEES FACILITY	18 M ²
108	CLOSED STACK	67 M ²
109	LABORATORY	20 M ²
110	OFFICES	20 M ²
111	TECHNICAL ROOM	42 M ²
112	ENTRANCE PAVILION	143 M ²

SECOND FLOOR



1:200

FLOOR LEVEL +4,500



ROOM NUMBER	ROOM NAME	ROOM SIZE
201	OPEN SPACE WITH CAFE	321 M ²

THIRD FLOOR

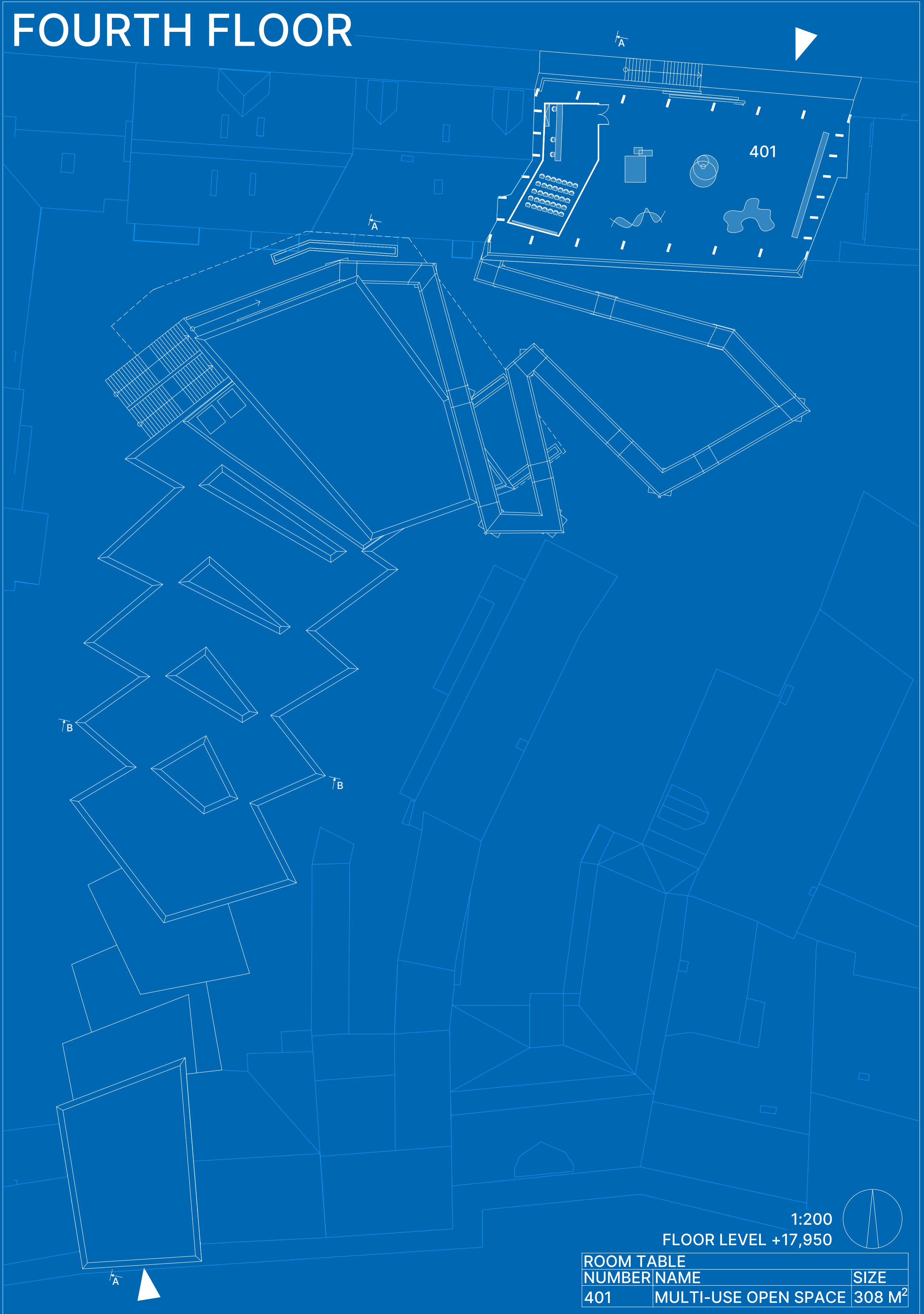


1:200

FLOOR LEVEL +14,350

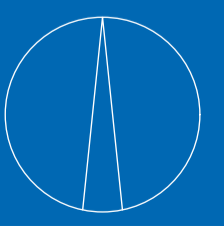
ROOM TABLE		
NUMBER	NAME	SIZE
301	RAMP ENTRANCE	54 M ²

FOURTH FLOOR



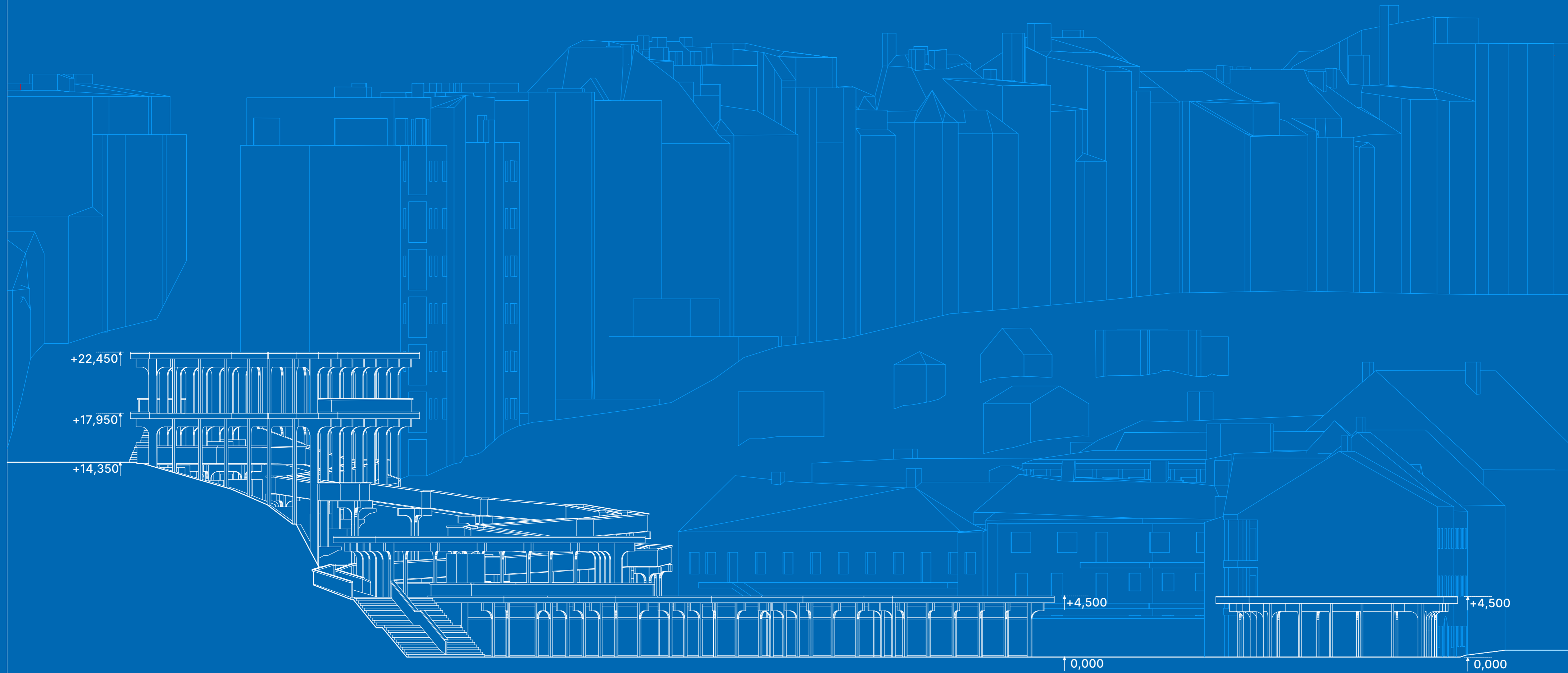
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FLOOR LEVEL +17,950

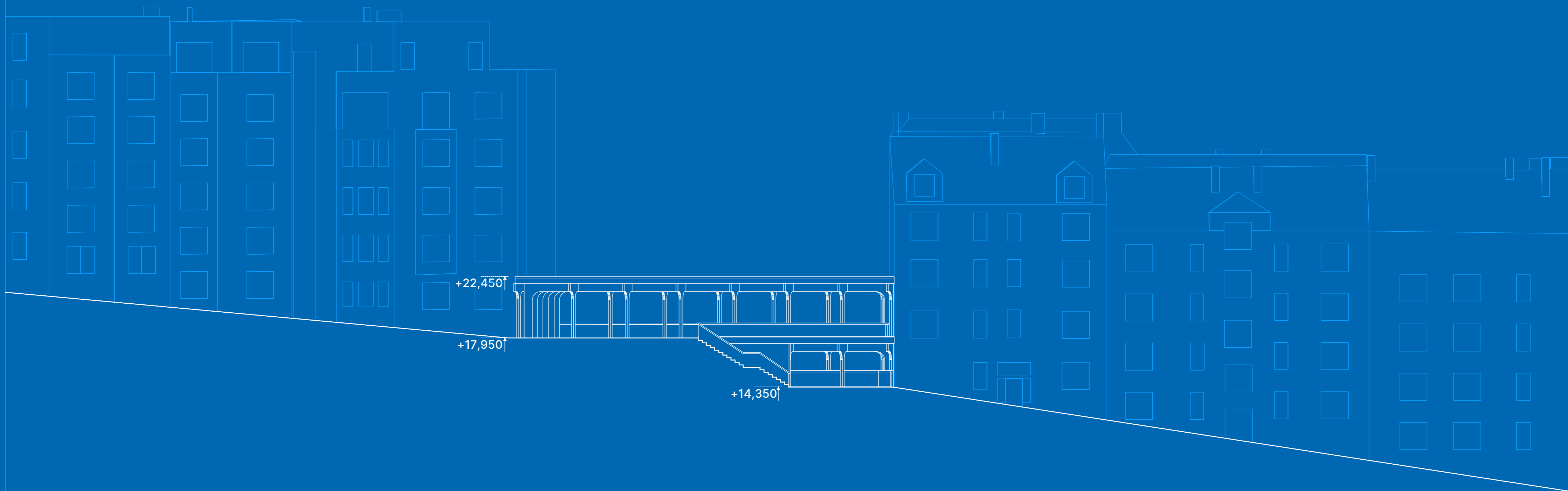


ROOM TABLE		
NUMBER	NAME	SIZE
401	MULTI-USE OPEN SPACE	308 M ²

SOUTH WEST VIEW



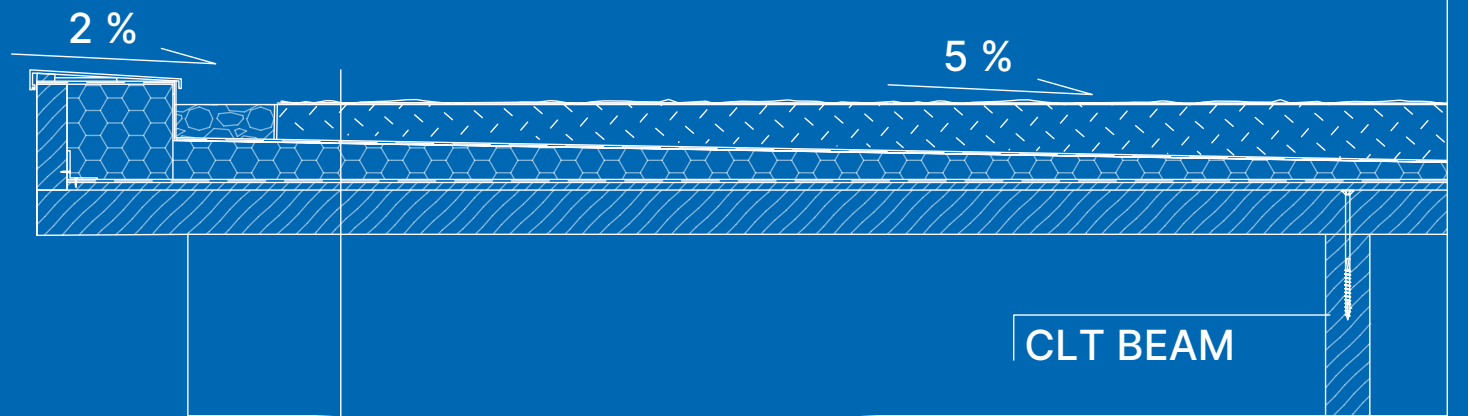
VIEW FROM SLADOVÁ STREET



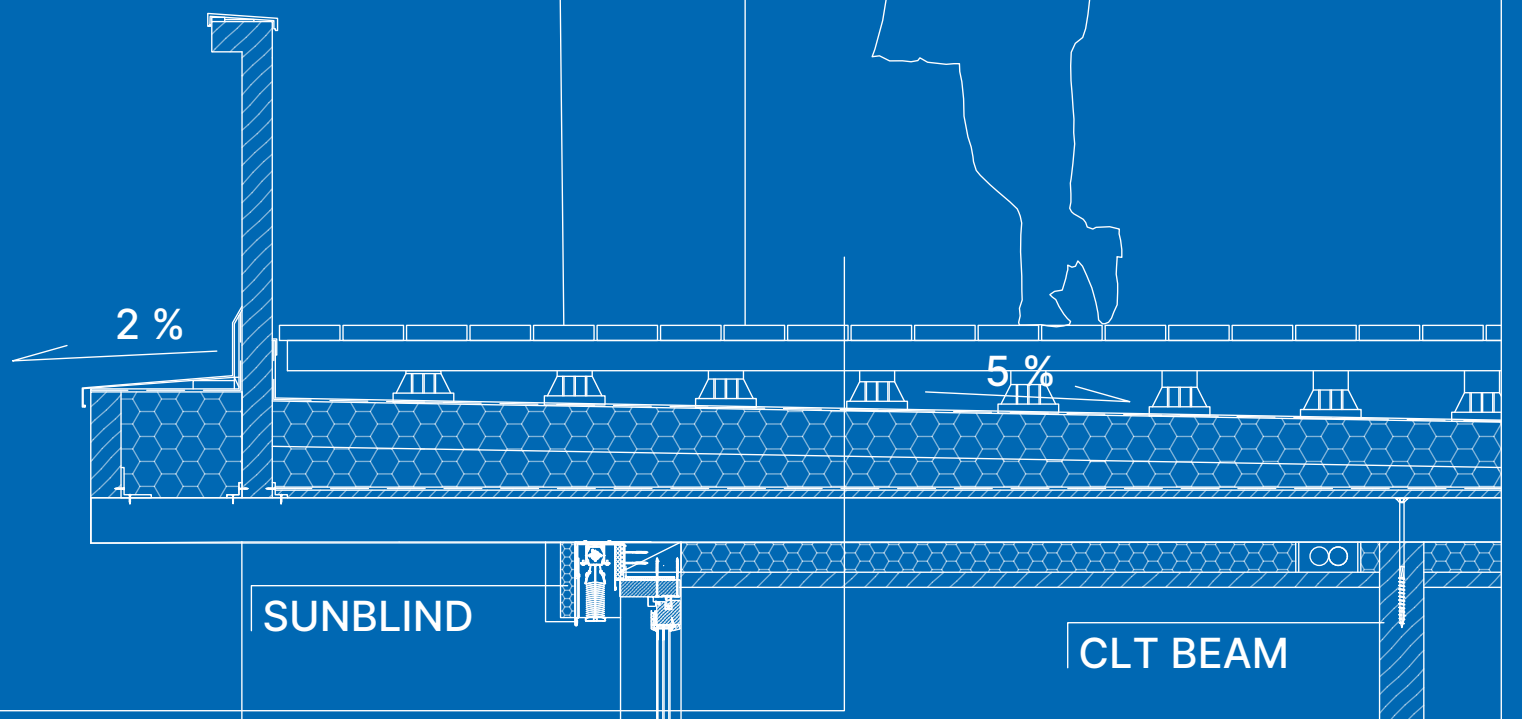
VIEW FROM PEKAŘSKÁ STREET



DETAIL



VEGETATION
ROOF SUBSTRATE
GEOTEXTILE
DRAINAGE LAYER
WATERPROOF TPO FOIL
THERMAL INSULATION EPS
ASPHALT STRIP
OSB BOARD
CLT ROOF STRUCTURE

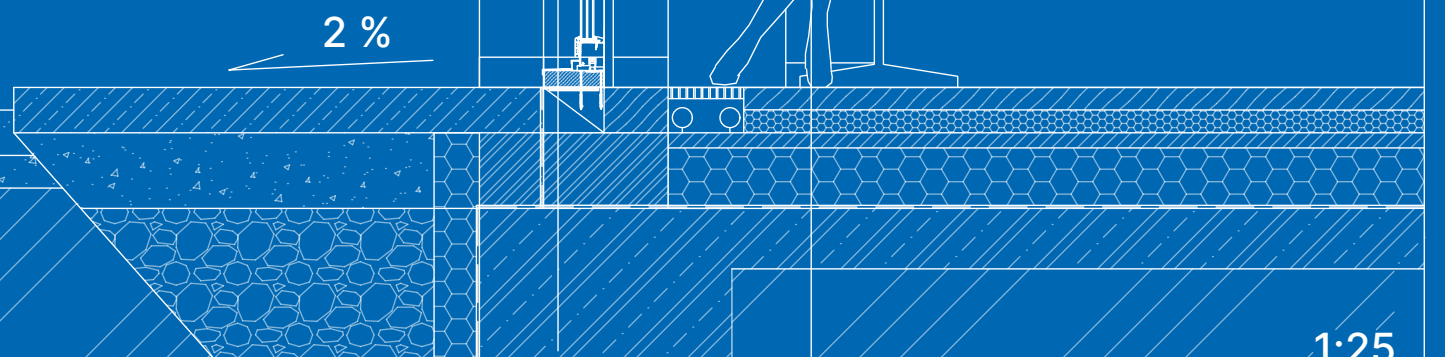


WALKABLE WOODEN TERRACE
WATERPROOF TPO FOIL
THERMAL INSULATION EPS
ASPHALT STRIP
OSB BOARD
CLT ROOF STRUCTURE
THERMAL INSULATION EPS
WOODEN FALSE CEILING

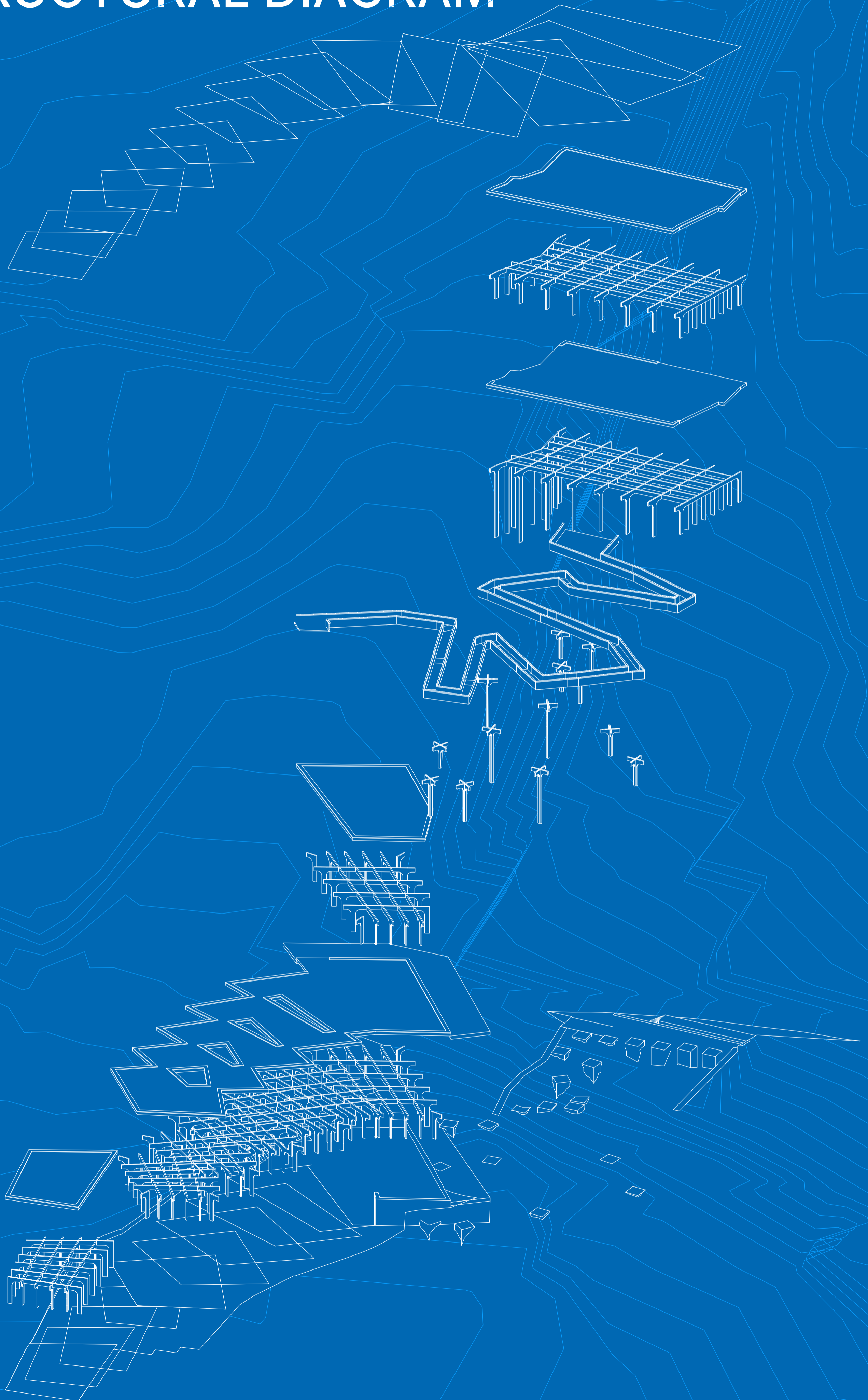
TRIPLE GLASS
INSULATED
FACADE

WOODEN FLOOR
ACOUSTIC INSULATION
FLOOR HEATING
THERMAL INSULATION EPS
WATERPROOF TPO FOIL
REINFORCED CONCRETE
NATURAL SOIL

CONCRETE PAVEMENT
STEEL FACADE PROFILE
REINFORCED CONCRETE
REINFORCED FOUNDATION



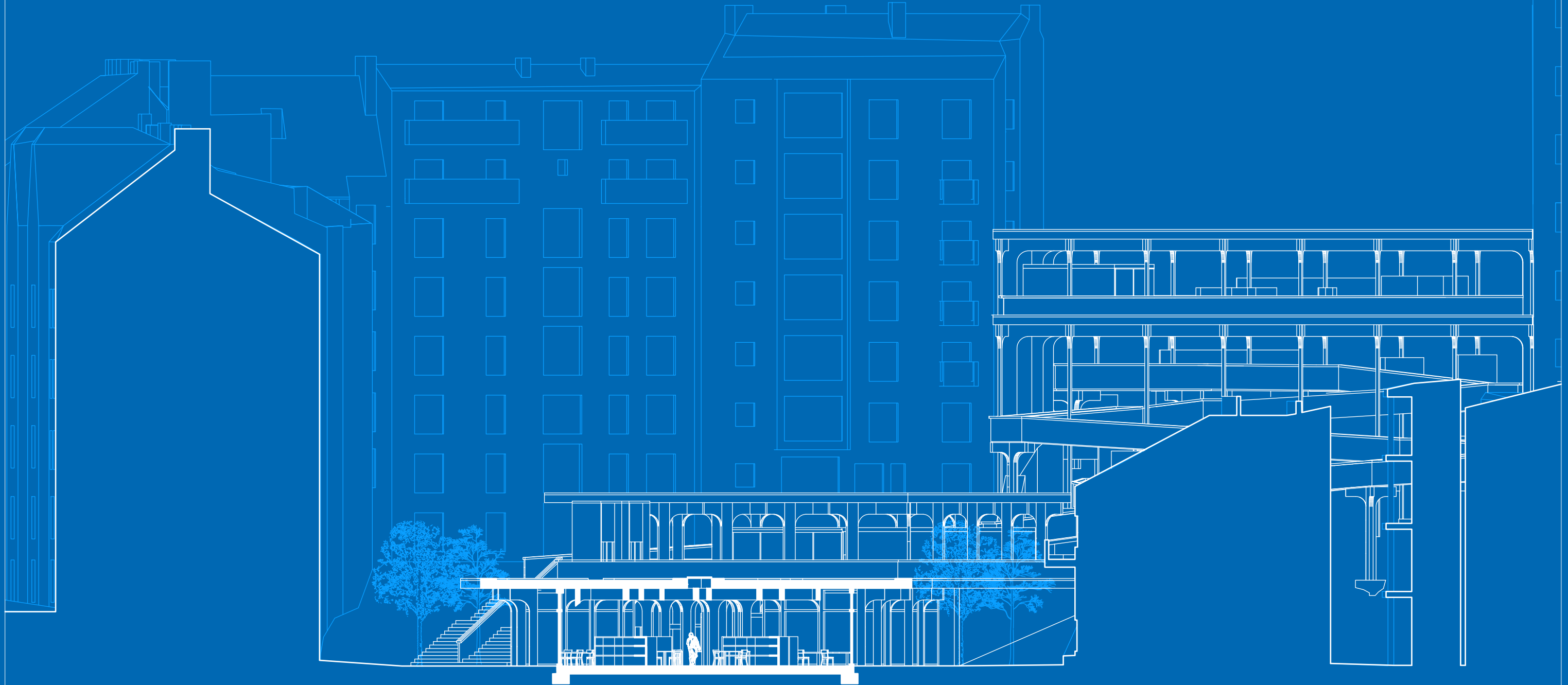
STRUCTURAL DIAGRAM



SECTION A-A



SECTION B-B



1:200





PUBLIC CORRIDOR LIBRARY

