

# MIX/MATCH PRAGUE

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# BRNO UNIVERSITY OF TECHNOLOGY

VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

## FACULTY OF ARCHITECTURE

FAKULTA ARCHITEKTURY

## DEPARTMENT OF DESIGN

ÚSTAV NAVRHOVÁNÍ

## MIX/MATCH

MIX/MATCH

## BACHELOR'S THESIS

BAKALÁŘSKÁ PRÁCE

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**BRNO 2024**



## Assignment Bachelor's Thesis

Project no.: FA-BAK0058/2023  
Department: Department of Design  
Student: **Leana Terkawi**  
Study programme: Architecture and Urban Design  
Field of study: no specialisation (till 2022)  
Supervisor: **MArch Ryan Manton**  
Academic year: 2023/24

### Title of Bachelor's Thesis:

Mix/Match

### Bachelor's Thesis:

"Mixed use is what cities are all about. If you don't have mixed-use, you don't have cities." Joseph Rykwert

Where do you live and how do you live? Cities including Prague and Brno are experiencing a housing crisis – not enough housing, not enough options, and increasing rents. Although most cities need more conventional housing for families, there is a large percentage of people in which flexible, temporary housing may be ideal. Students, graduates, young professionals, visiting workers, and tourists all need a place to call home, just not one that is permanent or expensive. At the same time, bringing these people together in one place can create connections between different professions, cultures, and ages and create a talent hotbed for a city. Providing people who do not need permanent housing with an alternative, helps to free up conventional housing for those who do. Cities need a range of housing options for different needs and new models of housing can fill the gaps that exist – how can we mix up housing to include other amenities, and match it with people who need it?

The bachelor thesis will envision an innovative, mixed-use housing solution in Prague providing a temporary, flexible, affordable, and enjoyable place to live, connected to regional transport. Co-living was a popular term for an old concept before the pandemic, what has changed since then, and how can the idea be re-launched for the decade ahead? Bringing a range of people together from different fields, we will have a broad conversation regarding the needs of the city together with the realistic viability of our ideas. Looking at pan-European examples – we will examine, evaluate, and propose new solutions that both challenge the norm whilst at the same time being pragmatic with our outcomes. The site for this thesis is based in Prague near Hlavní Nadrazi station – located on Kunětická in Prague 2, the site sits between railway lines, Riegrovy Sady Park, a large villa, and a recent residential development. The site itself contains a building hosting various businesses and a tennis club.

### Graphics scope :

The main goal of the bachelor thesis is an individual assignment to develop an architectural



concept for the given site that works with the urban context – the outcome should be a mixed-use building in which most of its space (approximately 75%) is dedicated to residential use. The other parts of the building can be devoted to whatever use you consider to be required at the site. The proposal should include a new-build building and may include plans for demolition or integration of the existing building on the site. The proposed building should consist of three storeys in addition to a basement and depending on your analysis of the site could either utilize the existing building footprint or use the adjacent space where the tennis courts are located, if you wish to relocate or integrate them.

#### 1. URBAN CONTEXT

Clearly arranged location plan documenting the connections of the designed building to the urban structure of the locality (scale, 1:5000).

#### 2. ARCHITECTURAL DESIGN

Standard set of drawings that correspond with architectural design (study): site plan; floor plans of all levels; sections – at least two; elevations of all facades; spatial design (perspectives, visualizations...) (scale according to the character of the assignment – 1:100; 1:200...).

#### 3. INTERIOR

Individual design of a selected detail including materials (scale – 1:50; 1:20; 1:10 according to the character of the assignment).

#### 4. STRUCTURAL-TECHNICAL DESIGN

o Cross-section through the proposed building in the scale 1:100 (or 1:50). The drawing will represent the foundation of the building, connection to the terrain, protection from the weather and elements, structural arrangement of the building, and roofing. The main structures will have specified the assemblies (namely the assembly of the floor on the terrain, above unheated storey, assembly of roof skin, and external and basement walls...). The cross-section will contain the annotation of volumes, the legend of materials and basic dimensions.  
(As defined by the supervisor – the cross-section of the construction detail in the scale 1:10 (1:5) complemented with technical description.)

o Schematic axonometric visualisation of the load-bearing structure of the designed building including material solution.

#### 5. REPORT

o Introductory information – identification of the building.

o Author's report in scope of 2 standard pages.

o Technical report (basic information characterising the development and its future operation; overview of the initial data and materials and the compliance with them; justification of the design goals; design conception; architectural concept of the design; comprehensive technical report). In the technical description, students will provide structural design, supply with energies, technical equipment of the building, and will justify the structural and architectural design, will evaluate the building in terms of sustainable development, and will estimate the total building costs of the building.

#### 6. PHYSICAL MODEL

#### List of literature:

All Together Now: The co-living and co-working revolution (ISBN: 9781648960277)

Architecture in Context: Contemporary Design Solutions Based on Environmental, Social and Cultural Identities (ISBN: 9788416851720)

Building and Dwelling: Ethics for the City (ISBN: 978-0713998757)

Housing Atlas: Europe - 20th Century (ISBN: 9781848225879)

Living Over the Store: Architecture and Local Urban Life (ISBN: 9780415783170)

Mixed-Use Development Handbook (ISBN: 9780874208887)

Social Value in Architecture (ISBN: 9781119576440)

Together by Design: The Art and Architecture of Communal Living (ISBN: 9781648960277)

**Date of project specification Bachelor's Thesis: 5.2.2024**  
**the deadline for submission for the Bachelor's Thesis: 6.5.2024**

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.

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Leana Terkawi  
student

MArch Ryan Manton  
project supervisor

Ing. arch. Vít&zslav Nový  
head of the institute  
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In Brno dated 5.2.2024

Ing. arch. Radek Suchánek,  
Ph.D.  
Dean

## Anotation

This bachelor's thesis focuses on designing a mixed-use building in Prague 2, Vinohrady, leveraging the site's dual slopes and scenic views. It currently houses a tennis club, office building, and bar within a barrier-enclosed area. The thesis excludes consideration of the electricity charging facility.

Research highlights prevailing building typologies and socioeconomic factors, emphasizing the housing crisis and its causes, including divestment of municipal apartments and real estate speculation.

To address housing affordability and foster community living, the thesis proposes a co-living approach inspired by the communal ethos of the existing tennis club. The design prioritizes sustainability and community engagement through shared spaces and eco-friendly features.

Overall, the thesis advocates for an inclusive and sustainable community hub, catering to the needs of families and young adults while preserving green spaces and promoting biodiversity.

## Key words

Mixed-use building, Praha 2, Vinohrady, community, co-living approach, sustainability, families, children, tennis club

## Basic information

The focus of my bachelor's thesis entails the design of a mixed-use building, incorporating residential accommodations along with various supplementary functions. The site is situated along the street of Italská, Kunětická, Španělská and Lichnická in Prague 2, Vinohrady. The location exhibits a dual slope, each with a gradient of 3 meters, offering remarkable vistas overlooking the main train station and the historic cityscape of Prague. Presently, the site serves as a tennis club comprising four courts, an office building, a bar named "Puma Place," and an electricity charging facility. The entire premises are enclosed by a barrier, rendering it inaccessible to the general public. My aim is to create affordable housing for families and young adults, create a sense of community, bring more life to the area with incorporating functions such as: café, office spaces, tennis club, shop, rentable open spaces for after school hobbies, children playground and gym.

## Analysis

Upon thorough examination of the site, I observed the existing building typologies. Nearby structures predominantly cater to affluent clientele, presumably targeting foreign investors. Furthermore, the locality boasts a vibrant atmosphere, characterized by the presence of numerous kindergartens, primary schools, and an economics university, contributing to a refreshing ambiance due to abundant greenery. Adjacent to my site, to the west, lies Riegrovy sady park, where I witnessed children playing and adults picnicking while admiring the cityscape.

In the process of selecting the housing type, I delved into news articles discussing the housing crisis in Prague. Analysis conducted by Praha-mesto pro lidi revealed that a significant portion of Prague's population, up to a quarter, expends over 40% of their income on housing expenses. Additionally, research conducted by Platforma pro sociální bydlení highlighted families with children under the age of 18 as the most affected demographic group in terms of housing needs.

Curiosity led me to inquire about the underlying reasons for the housing shortage in Prague. It emerged that the city and its districts divested a majority of municipal apartments, relinquishing their ability to influence market apartment prices. Furthermore, the sale of sizable land plots and real estate by city districts curtailed the potential for future municipal apartment construction. Additionally, the influx of domestic and foreign investors has fueled the phenomenon of online platforms for short-term accommodations, amplifying real estate investments' allure with augmented rental incomes. Regrettably, political reluctance to confront these issues head-on, exemplified by the pending legislation on social housing, exacerbates the situation.

In light of these findings, I have concluded on the approach for my project: to target families and young adults with moderate incomes and develop affordable, sustainable housing solutions.

## Design

### Transport

The proposed building will not exert any significant impact on existing traffic conditions, owing to its provision of subterranean parking facilities. This infrastructure will afford exclusive parking access to residents while additionally accommodating supplementary parking spaces for visitors and employees of adjacent establishments..

### Public space of surrounding

The public space surrounding my building will be fully accessible to the public. The tennis club was integrated into the project by relocating it to the northern side of the building and reducing the number of courts to two, considering its seasonal usage, thus maximizing space utilization. To capitalize on the landscape's topography, two stadium seating areas overlooking the cityscape and tennis courts were incorporated, alongside amenities such as a playground for children and an outdoor gym. All amenities that the building and its land will be accessible with a paved pedestrian path.

### Operational Solution

The concept was developed with a focus on catering to the needs of families and fostering a sense of community within the premises of the site.

The ground floor of the building A (northern side of site) will facilitate a café, deemed conducive to fostering vitality within the vicinity. Additionally, a shop, tennis club and office space were deemed appropriate additions. Where as the ground floor of building B (western side of site) will include a community kitchen for residents of the two buildings with vistas overlooking the cityscape, a playroom for kids and two open spaces for after school hobbies. In between the two buildings is an entry passage to the site and a coworking-laundry room. The two structures will be connected with a roof garden which will be used for community gardening and an opportunity to enjoy the beauty of cities scenery.

Additionally, I incorporated a clothing room giving a possibility for clothing giveaway between its residents.

The upper floors above the ground floor will be dedicated for living facilitating 32 apartments. The height of each buildings will reach 4 floors.

## Design

### Constructional Solution

The load bearing structure is made of a wall system of aerated concrete Porfix PDK P2 440. The outdoor corridors are supported with reinforced concrete square-cross-section 200x200 mm. Columns in the underground are also made of reinforced concrete however, they have a rectangle-cross-section measuring 300x400, 500x400 mm. Foundations are constructed of foundation strips and column footings below non-freezing depth.

### Architectural Solution

The most prominent feature of my buildings is the outdoor corridors, adorned with shared balconies, which extend along the northern side of Building A, infusing vibrancy into the tranquil ambience of Kunětická Street. Similarly, on the eastern side of Building B, these corridors overlook the courtyard, offering panoramic views of the cityscape. These outdoor corridors serve not only as vertical conduits for inter-floor communication but also facilitate social interaction among residents, fostering a closer-knit community.

After carefully observing the neighboring structures facades adjacent to my site, I have made a deliberate choice in selecting materials that harmonize with the locality while also demonstrating environmental mindfulness. For the facades, I have opted for a beige cement finish, echoing the earthy tones prevalent in the area. Dark green window frames, and railings have been chosen to evoke the verdant landscapes of Vinohrady. Additionally, wooden facade panels have been incorporated into the ground floors, drawing inspiration from the surrounding trees. These material selections not only pay homage to the natural elements but also serve to delineate private, shared, and public amenities within the buildings.

### Energetic concept

The concept of the structure aspires to eliminate the cost of heating and cooling. The structure is designed to envision be a zero energy building with the great insulating properties. Generating, reusing and storing its own energy by incorporating its solar panels on the roof of the building.

Heating is solved by incorporating heat pumps and electric boilers.

### Balance

Total land area...6011 m<sup>2</sup>

Built up area...1110 m<sup>2</sup>

Parking spots... 39

Estimated price...aprox. 55 million czech crowns.

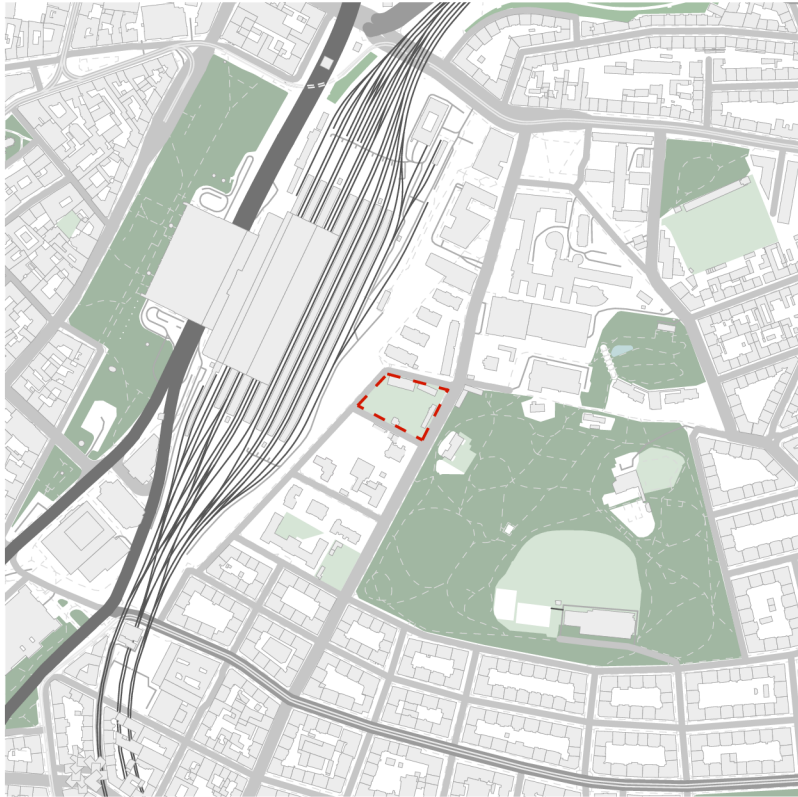
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Exploded Axonometry of Load Bearing Construction
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Vizualisations
Interiors
Recourses
Thanks



1:10000





1:5000



Legend

— site

CREATIVE ANALYSIS

## Photo Analysis

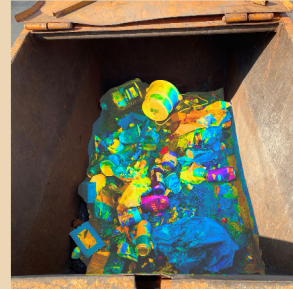


This photoessay captures three aspects that brought my attention whilst being there.

One obvious one is the views on the city. I tried to capture it from different spots, at site and near it. I wanted to view what can a person standing at the site see and what can a person walking by see.



## Photo Analysis



The second aspect of interest is a view we tend to dislike and perhaps act like we don't see it, it's trash. I saw it often there. Also the lack of recycling bins was disappointing. Part of the site was actually a dump for all sorts of trash.

## Photo Analysis



Finally, I focused on the materials found at the site. As I would like to approach this project focusing on designing sustainably with a positive footprint I find it important to capture that to inspire future progress of my project

## Mind map



In this mental map I tried to capture the atmosphere of the area and its key features I noticed whilst visiting the site.

In Vinohrady time gently flows

contrasting the city's hurried throes

air feels fresh

green defines character, a verdant mesh

train station stands, a clear divide,

city buzz on one side, calm on the other side

from study café to university hall

students cross amid the city's calls

children play holding hands with glee

in Vinohrady, happy and free



Většina Pražanů považuje za hlavní problém metropole nedostatek bytů a vysoké ceny bydlení, čtvrtina dotázaných pak dopravu. Vyplyvá to z průzkumu největšího českého rezidenčního stavitele Central Group.

Videa drží zhruba 60 % bytového fondu města, Praha jen zhruba 5 %.

Jak může být spokojeni, když to nefunguje, není dostatek bytů a lidé mají stále velmi nízkou důvěru v politiky a úředníky, že něco změní. Když si požádáte o změnu územního plánu ze zeleně na stavební pozemek, tak se na vás navíc objevou aktivisté, kteří vás ukamují a překřídí. Prakticky to nebe vyhrát," dodala Udženija.

Pražané podle studie dýchají mimořádně jedovatý vzduch. Výzkum na dvaceti místech v Praze naměřil v ovzduší až čtyřikrát vyšší koncentraci jedovatého oxidu dusičitého, než doporučuje Světová zdravotnická organizace. Neviditelné částice mohou být příčinou výskytu astmatu a v některých případech mohou být dokonce příčinou rakoviny. Podle výzkumníků znečištěné ovzduší zabije ročně více než 500 Pražanů.

Řešení: nedostupnost bydlení by kromě zrychlení schvalovacích procesů významně pomohlo i jakékoliv zmírnění daňové zátěže spojené s byty, tedy například snížení DPH z 15 na 10 procent. Jen to by kupujícím ušetřilo u průměrného bytu v Praze kolem 300 tisíc korun.

Hlavní město v současné době eviduje na svém území zhruba 700 tisíc bytových jednotek. Z toho 95 %, tedy 658 tisíc bytů, je v soukromém vlastnictví. Jen 3 %, celkem 24 tisíc bytů, jsou svěřena městským částem a 1 %, asi 7 tisíc bytů, spravuje hlavní město.

Mezi nejhorší místa patří

Pižetická ulice na Smíchově, roh Sokolské a Ječné ulice a Roh radlické a Klíčovovy ulice. Normy platné v Česku přesáhlo měření na 14 z 20 stanic. Z hlediska koncentrace oxidu dusíku v ovzduší je na tom Praha nejhůře z celé republiky, kvůli porušování předpisů dokonce s Prahou vede od roku 2016 aktivní řízení Evropská komise.

Až čtvrtina pražských domácností podle dokumentu dává na bydlení víc než 40 procent příjmu. V Praze je podle ní 160.000 lidí ohrožených ztrátou bydlení.

Děti samotné představují téměř 40 procent ze všech osob v bytové nouzi v Praze.

Udženija na příkladu Prahy 2, kde je starostkou, demonstruje, že cesta k tomu, aby byla situace s bydlením ze strany městské části uspokojivě řešena, je možná. „Podářilo se nám bez skandálů uskutečnit privatizaci, přičemž jsme si pohlídlí, aby nedocházelo ani ke spekulacím, ani k přeprodeji privatizovaných bytů. Některé byty držíme dostupné jako byty sociální. Takto poskytovat byty vybraným profesím, seniorům, mladým rodinám a samoživitelkám není žádné nefunkční sociální inženýrství, naopak to u nás vedlo k tomu, že Praha 2 není vyhledávaná a vyprázdňovaná a jde o prosperující rezidenční čtvrť," uvedla Udženija.

Za posledních deset let byla v Praze povolena výstavba 39 tisíc bytů, tedy necelé čtyři tisíce ročně. Třeba v Praze 1a Praze 2 nedostal žádný nový bytový dům.

Stát dnes získává na daních z průměrného nového pražského bytu zhruba milion korun samosprávy ale téměř nic.

1/ Město a městské části se zbavily většiny obecních bytů a ztratily tím možnost ovlivňovat ceny bytů na trhu a jeho celkové směřování.

2/ Město, městské části nebo stát prodaly i velké pozemky a nemovitosti, kde by se mohly budovat nové obecní byty v budoucnosti.

3/ Byty v Praze se staly novou investiční modlou zahraničních a tuzemských spekulantů, kteří posledních dvacet let ve velkém skupují byty hlavně v lukrativních lokalitách.

4/ Nástup investorů urychlil i fenomén online platforme krátkodobého ubytování, jež investice do nemovitostí dělají ještě lukrativnější vyššími příjmy z pronájmů.

5/ Neochota politiků postavit se k těmto problémům čelem, například zákon o sociálním bydlení se chystá, ale nebude hotov dříve než v roce 2025.

Praha se v rámci Evropy řadí mezi města, kde je situace s ovzduším nejhorší. Je to způsobeno tím, že zde není zavazena žádná míra zohlednění zdražení v Praze stále jezdí velmi staré diesely, které jsou z hlediska emisí ty nejhorší. Lze říct, že 5 % nejstaršího vozového parku je zodpovědné za 30-40 % celkového znečištění ovzduší.

Hospodářská komora nechala vypracovat a ze kterého vyplývá, že nejvíce jsou Pražané nespokojeni s vysokými cenami jak nemovitostí, tak pronájmů a nedostupností bytů. Jakkoliv lidé v hlavním

Nedostatek bytů a s tím související vysoké ceny bydlení vnímá jako hlavní problém Prahy i veřejnost, konkrétně 63 procent lidí. Skoro 26 procent



CONCEPT

Create a strong community

Design affordable living for families and young couples.

Establish a building that will have a positive footprint on the city and climate

Will have maintain and enhance its greenery than it has creating a continuous connection between riegrovy sady and the greenery infront of the site

Tennis courts will be reduced as it is being used only 4 months a year

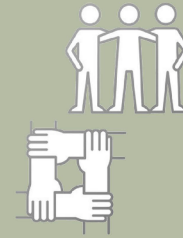
The building will consist of 75 % housing and 25% of public functions like, tennis club, a coffee shop, a shop, an office and renting spaces used for after school activities



# Co-living

In contemplating methods to establish affordable housing options for families while fostering a communal atmosphere, I arrived at the conclusion that co-living represents the most conducive approach to realizing my vision. Co-living prioritizes the cultivation of community, social interaction, and the equitable utilization of shared resources among its residents. Such environments frequently engender a profound sense of belonging, collaborative spirit, and reciprocal support among inhabitants.

During the examination of the site, I encountered the online presence of a local tennis club, which notably epitomizes a strong sense of community. This establishment not only facilitates tennis matches for both children and adults but also hosts diverse social events such as live music performances, bake sales, and thrift shopping gatherings. However, these events are currently restricted to a four-month duration annually. I aspire to integrate similar community-oriented initiatives into my residential mix use development.



sence of community

safety and security



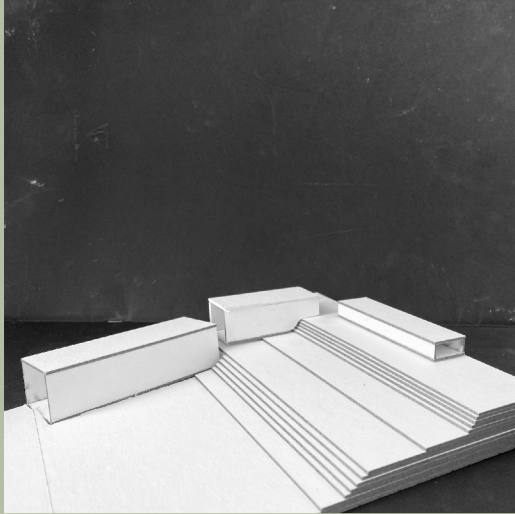
lower cost of living

environmental benefits

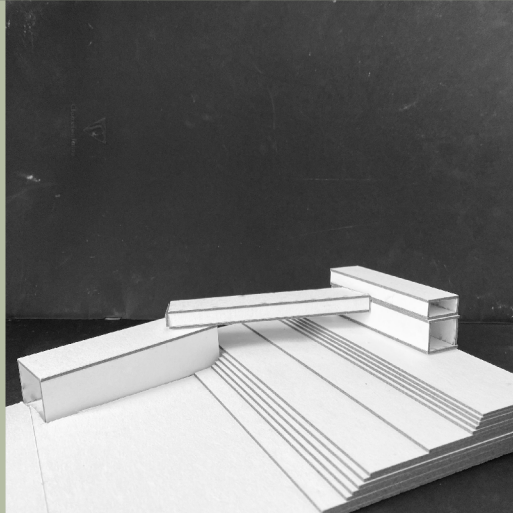
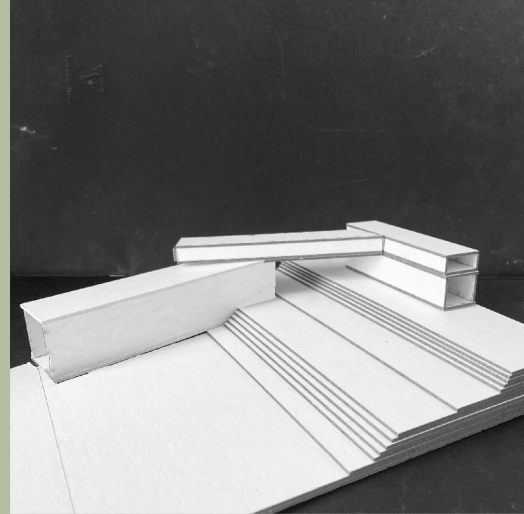




The form was devised by situating the volumes in alignment with the existing buildings. Given the absence of vitality within these areas, biodiversity is consequently lacking.

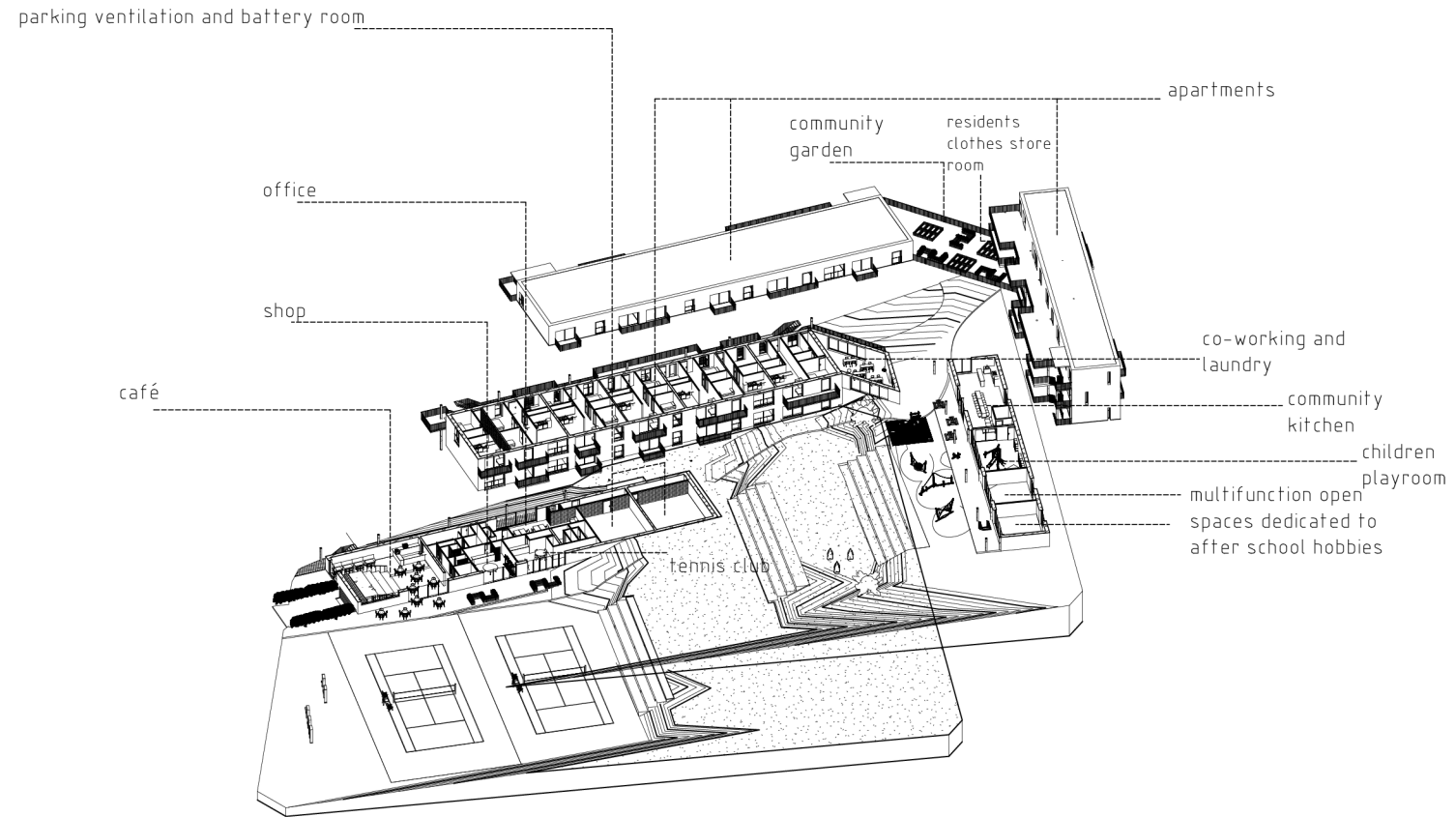


Today's existing form

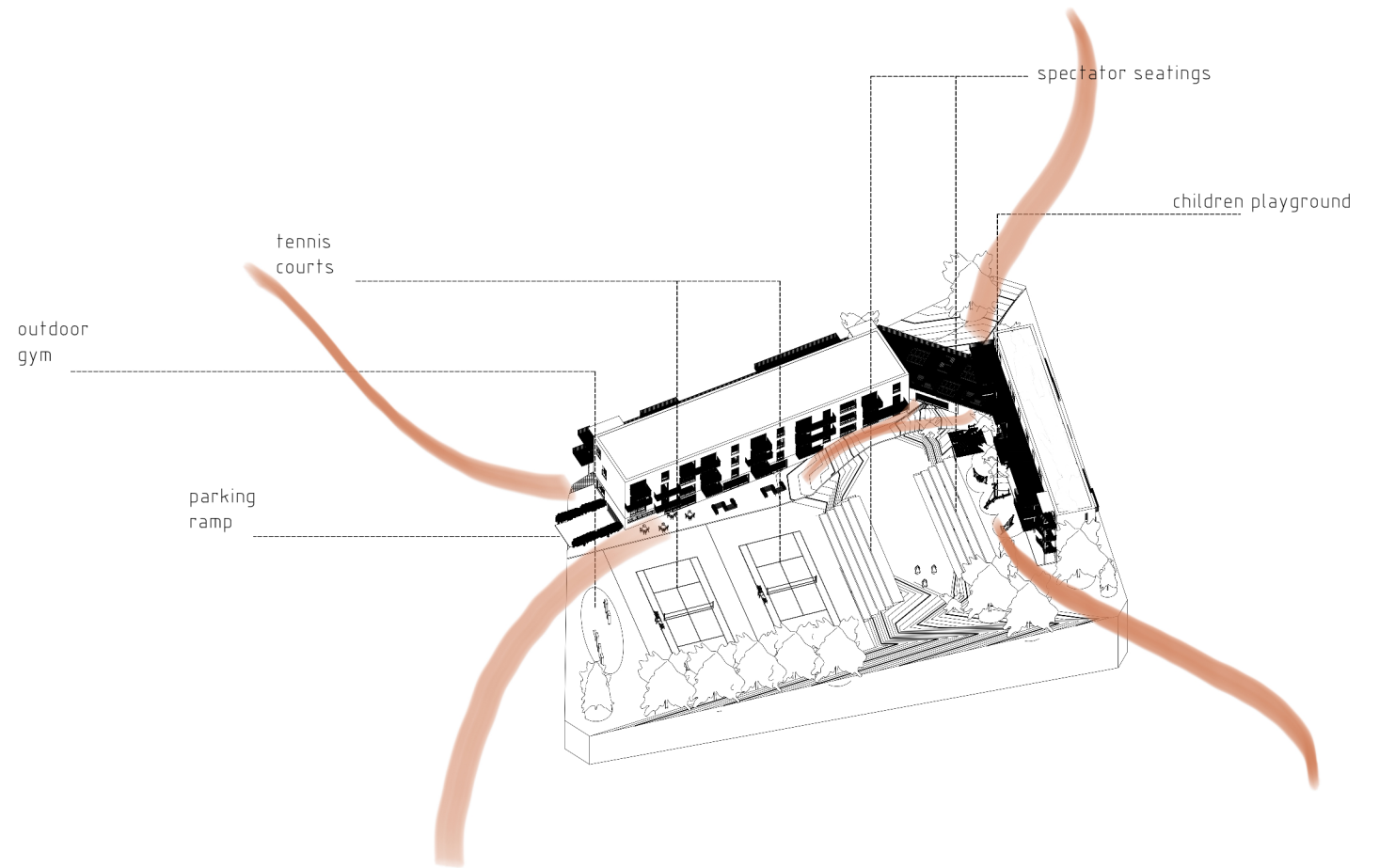


proposed form

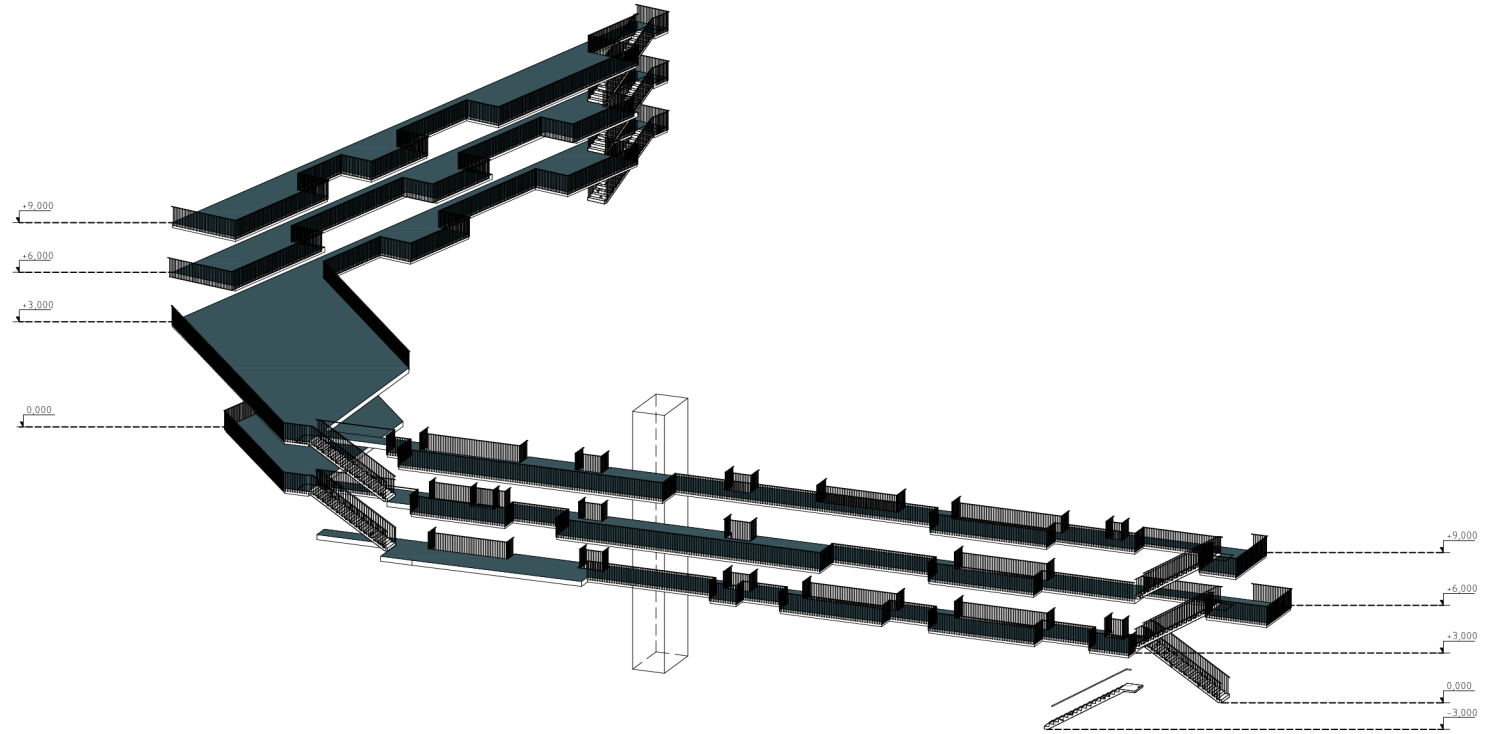
# Building Program



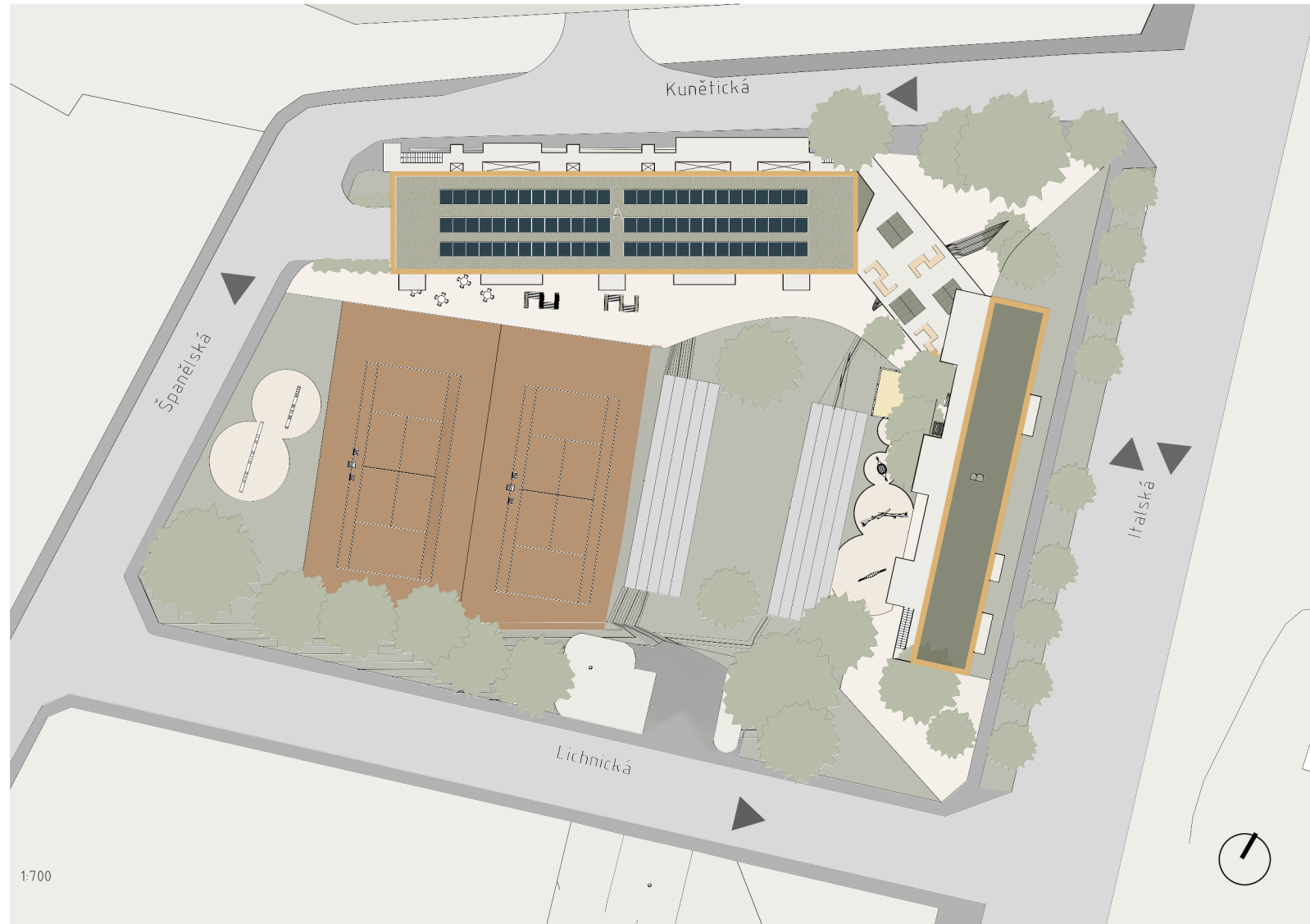
# Landscape Program



# Vertical communication



# Site plan

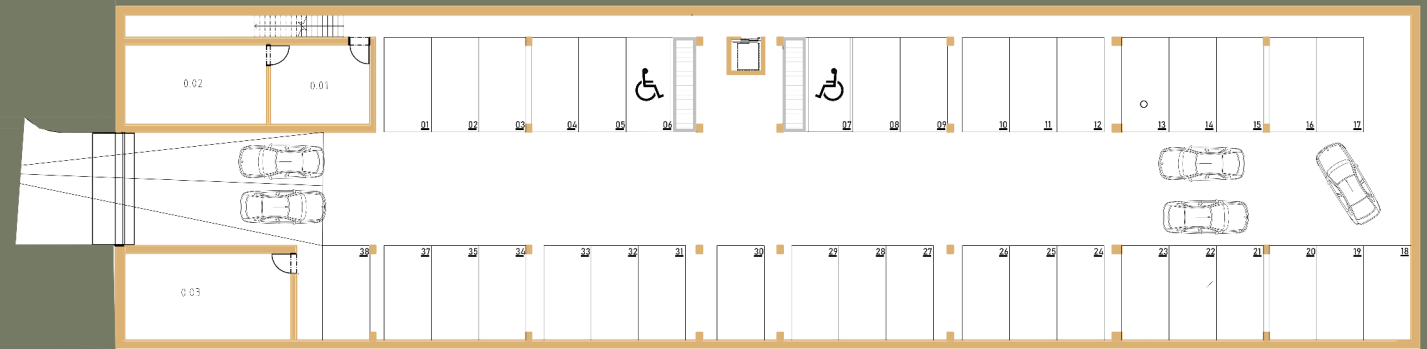


A  
BUILDING

# Underground Parking

## Legend of the rooms

- 0.01 Stroller storage room 22 m<sup>2</sup>
- 0.02 Storage room 31 m<sup>2</sup>
- 0.03 Bicycle storage room 40 m<sup>2</sup>



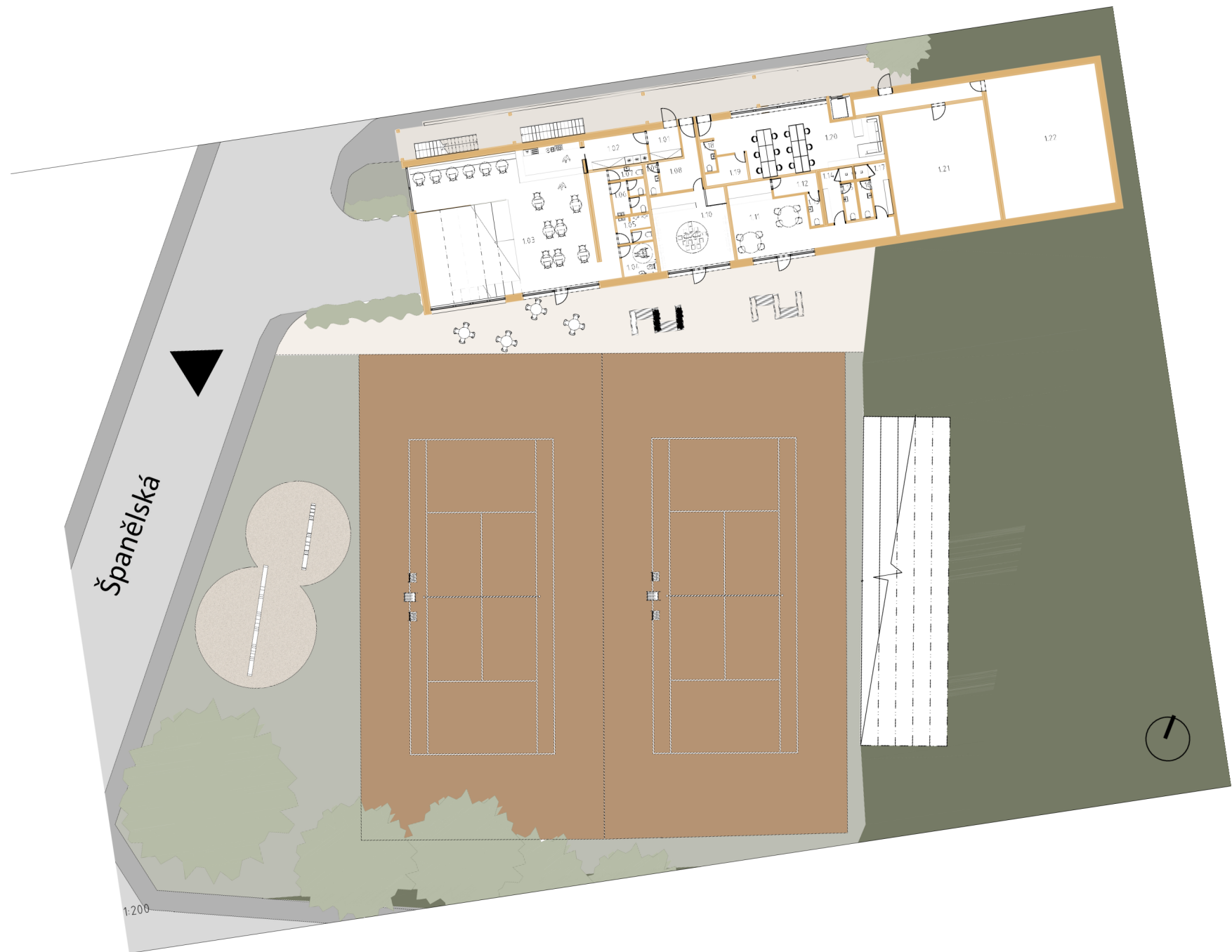
1:200



# First Floor

## Legend of the rooms

1.01	employee entrance and changing room	11 m <sup>2</sup>
1.02	café storage room	6 m <sup>2</sup>
1.03	café	14.0 m <sup>2</sup>
1.04	disabled toilet	6 m <sup>2</sup>
1.05	mens toilet	5 m <sup>2</sup>
1.06	womans toilet	7 m <sup>2</sup>
1.07	employee toilet	2 m <sup>2</sup>
1.08	employee entrance and storage	10 m <sup>2</sup>
1.09	employee toilet	2 m <sup>2</sup>
1.10	shop	32 m <sup>2</sup>
1.11	tennis club	39 m <sup>2</sup>
1.12	storage room	5 m <sup>2</sup>
1.13	employee toilet	2 m <sup>2</sup>
1.14	mens changing room	7 m <sup>2</sup>
1.15	mens toilet	2 m <sup>2</sup>
1.16	womens changing room	7 m <sup>2</sup>
1.17	womens toilet	2 m <sup>2</sup>
1.18	staff toilet	2 m <sup>2</sup>
1.19	printing room/storage	5 m <sup>2</sup>
1.20	office space	52 m <sup>2</sup>
1.21	ventilation room	71 m <sup>2</sup>
1.22	battery room	90 m <sup>2</sup>





# Second Floor

## Legend of the rooms

2.01	apartment type A	85 m <sup>2</sup>
2.02	apartment type A	85 m <sup>2</sup>
2.03	apartment type A	85 m <sup>2</sup>
2.04	apartment type B	70 m <sup>2</sup>
2.05	apartment type C	45 m <sup>2</sup>
2.06	apartment type A	85 m <sup>2</sup>
2.07	outdoor corridor	111 m <sup>2</sup>
2.08	storage/tech. room	9 m <sup>2</sup>



# Third Floor

## Legend of the rooms

3.01	apartment type A	85 m <sup>2</sup>
3.02	apartment type C	45 m <sup>2</sup>
3.03	apartment type A	85 m <sup>2</sup>
3.04	apartment type A	85 m <sup>2</sup>
3.05	apartment type B	70 m <sup>2</sup>
3.06	apartment type C	45 m <sup>2</sup>
3.07	apartment type C	45 m <sup>2</sup>
3.08	guest room 1	14 m <sup>2</sup>
3.09	shared guest bathroom	6 m <sup>2</sup>
3.10	guest room 2	14 m <sup>2</sup>
3.11	outdoor corridor	161 m <sup>2</sup>
3.12	storage/tech. room	9 m <sup>2</sup>



# Fourth Floor

## Legend of the rooms

4.01	apartment type A	85 m <sup>2</sup>
4.02	apartment type C	45 m <sup>2</sup>
4.03	apartment type A	85 m <sup>2</sup>
4.04	apartment type A	85 m <sup>2</sup>
4.05	apartment type B	70 m <sup>2</sup>
4.06	apartment type C	45 m <sup>2</sup>
4.07	apartment type A	85 m <sup>2</sup>
4.08	outdoor corridor	133 m <sup>2</sup>
4.09	storage/tech. room	9 m <sup>2</sup>



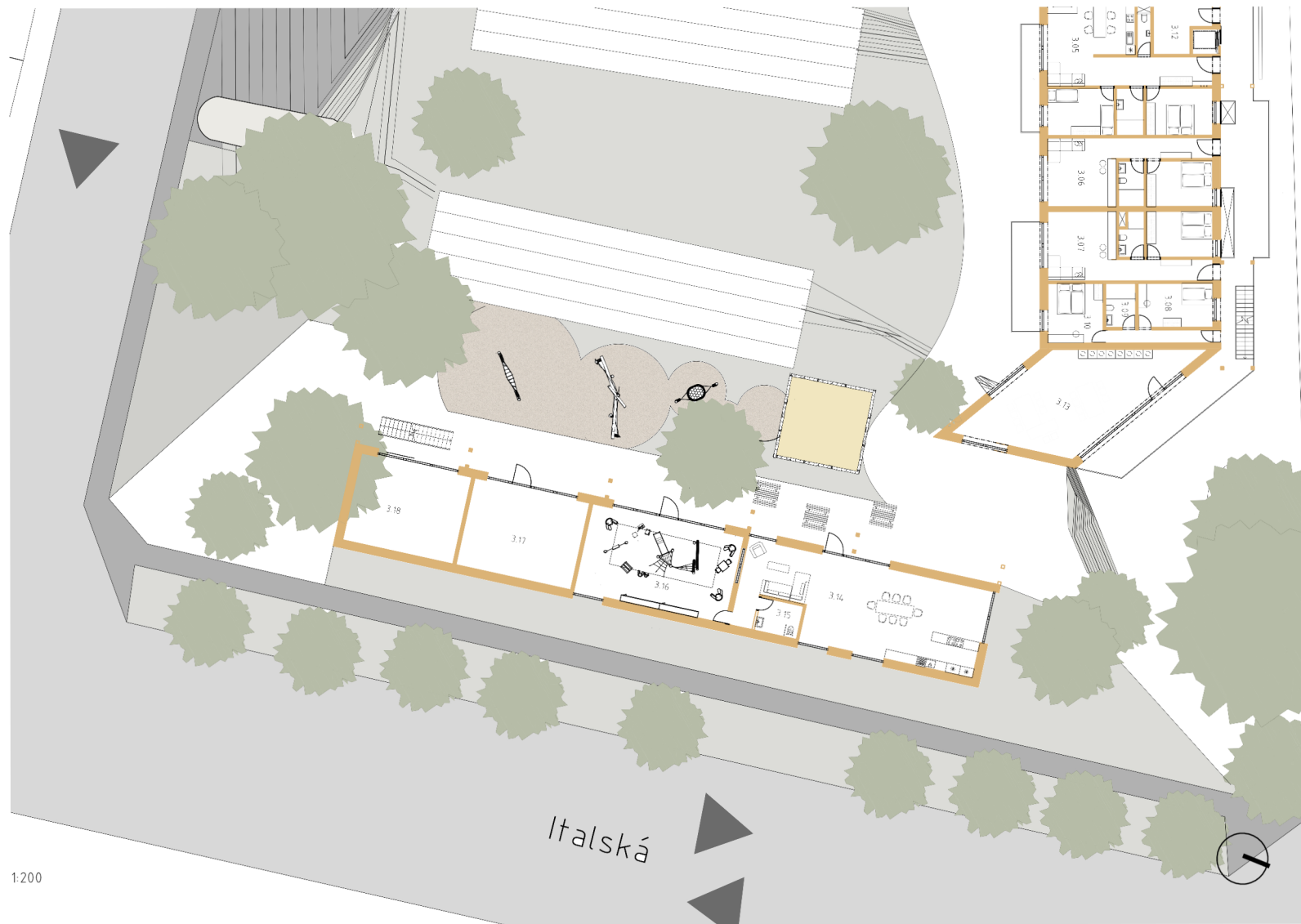
B

BUILDING

# First Floor

## Legend of the rooms

3.13	laundry and coworking room	63 m <sup>2</sup>
3.14	community kitchen	85 m <sup>2</sup>
3.15	toilet	6 m <sup>2</sup>
3.16	childrens playroom	57 m <sup>2</sup>
3.17	rentable open space 1	43 m <sup>2</sup>
3.18	rentable open space 2	42 m <sup>2</sup>



# Second Floor

## Legend of the rooms

- 4.10 community garden 196 m<sup>2</sup>
- 4.11 clothes store room 26 m<sup>2</sup>
- 4.12 apartment type D 50 m<sup>2</sup>
- 4.13 apartment type D 50 m<sup>2</sup>
- 4.14 apartment type D 50 m<sup>2</sup>
- 4.15 apartment type D 50 m<sup>2</sup>
- 4.16 outdoor corridor 95 m<sup>2</sup>



# Third Floor

## Legend of the rooms

5.01	apartment type D	50 m <sup>2</sup>
5.02	apartment type E	75 m <sup>2</sup>
5.03	apartment type D	50 m <sup>2</sup>
5.04	apartment type D	50 m <sup>2</sup>
5.05	apartment type E	75 m <sup>2</sup>
5.06	outdoor corridor	108 m <sup>2</sup>

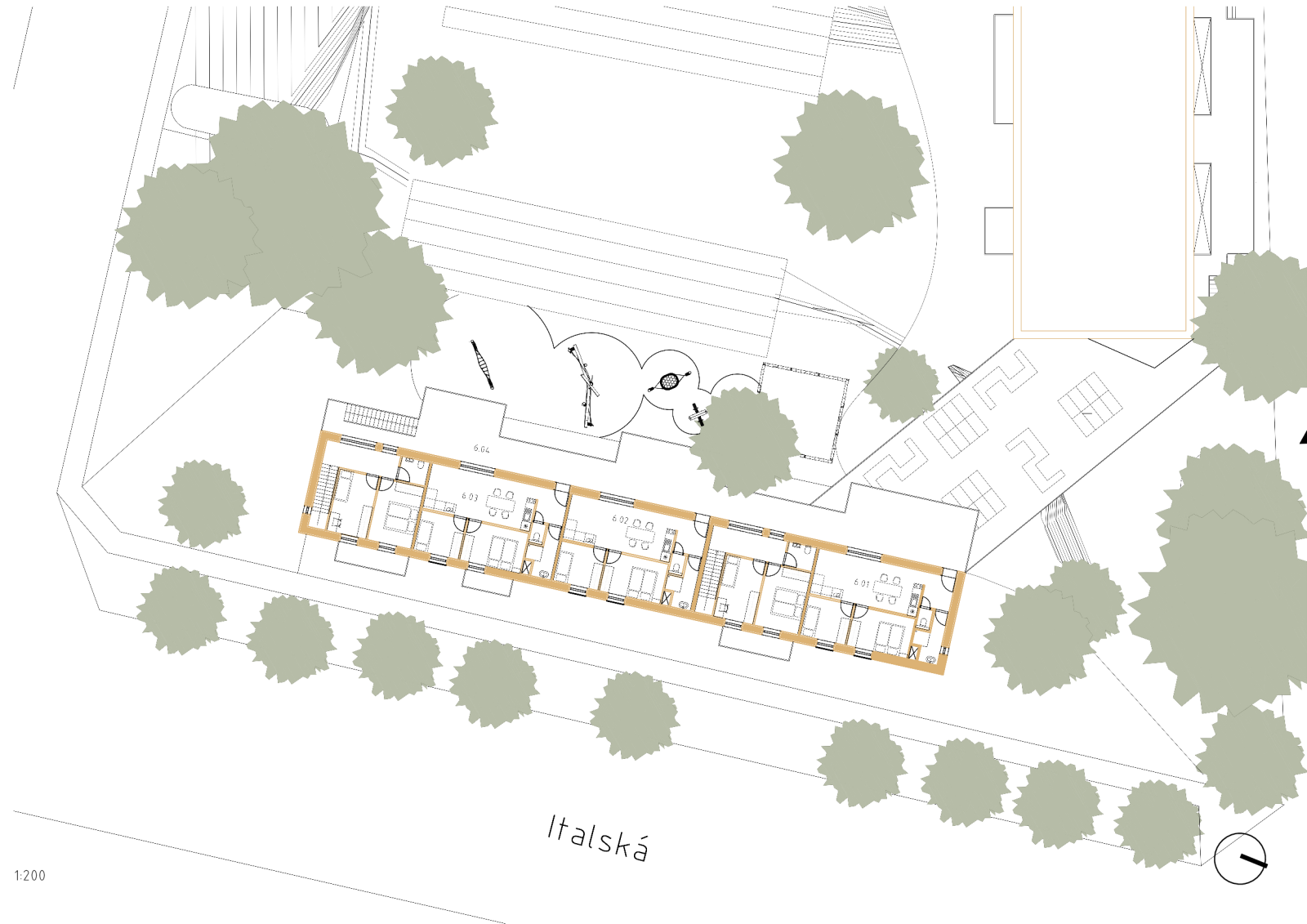




# Fourth Floor

## Legend of the rooms

- 6.01 apartment type D 50 m<sup>2</sup>
- 6.02 apartment type D 50 m<sup>2</sup>
- 6.03 apartment type D 50 m<sup>2</sup>
- 6.04 outdoor corridor 108 m<sup>2</sup>

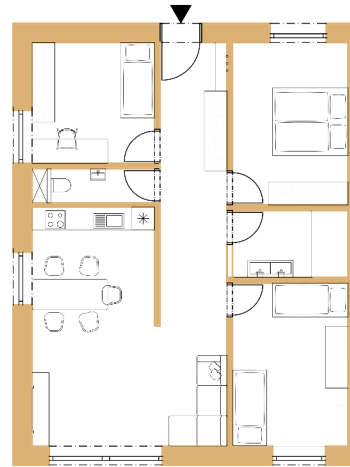




# Housing typologies

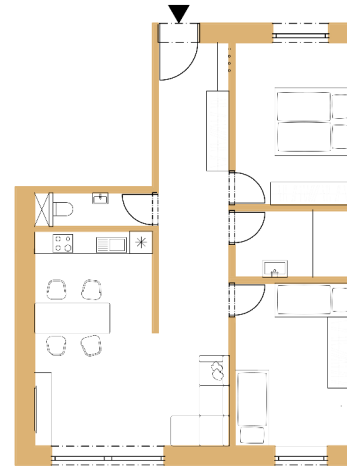
Building A

A



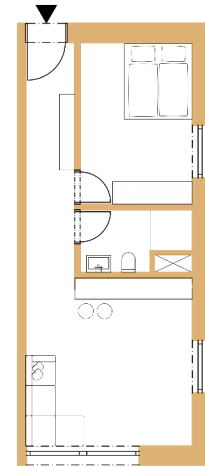
85 m<sup>2</sup> 3 bedroom

B



70 m<sup>2</sup> 2 bedroom

C

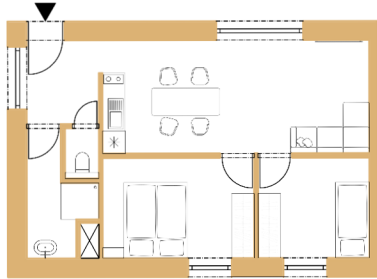


45 m<sup>2</sup> 1 bedroom

# Housing typologies

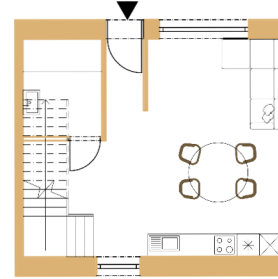
Building B

D

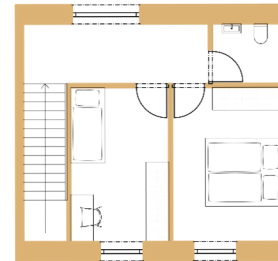


2 bedroom  
50 m<sup>2</sup>

E

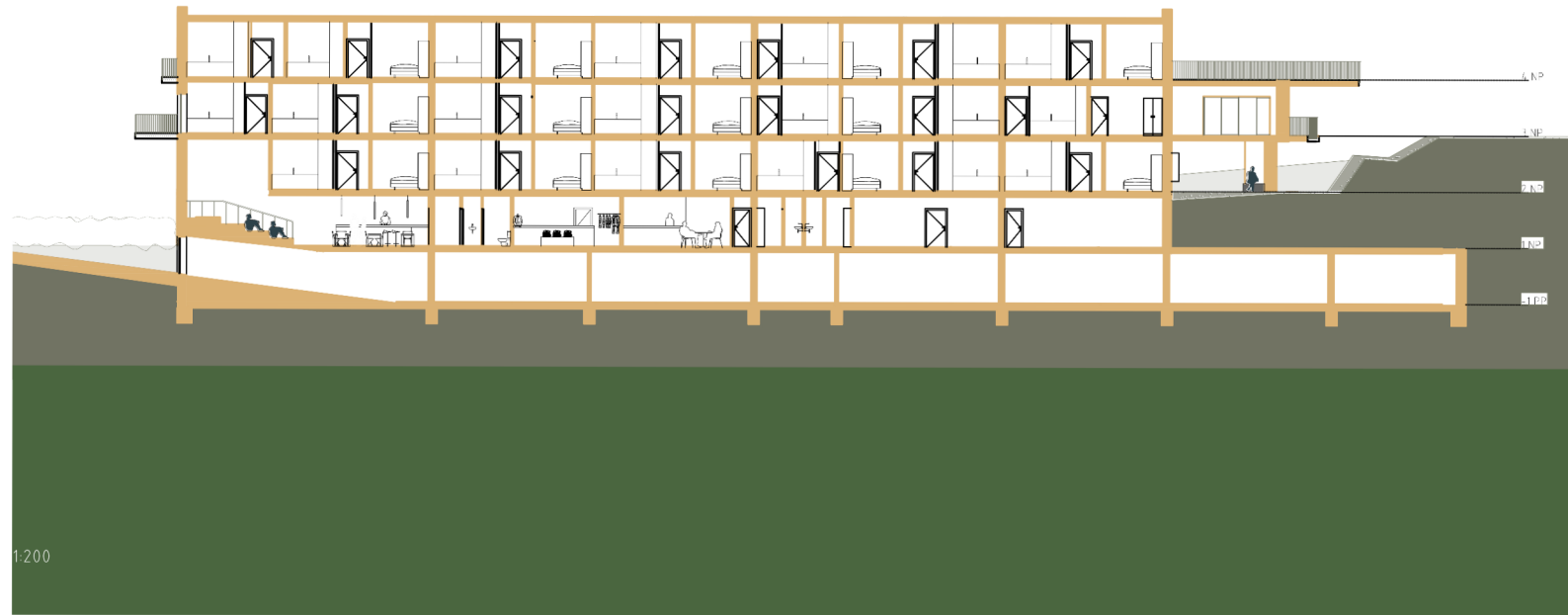
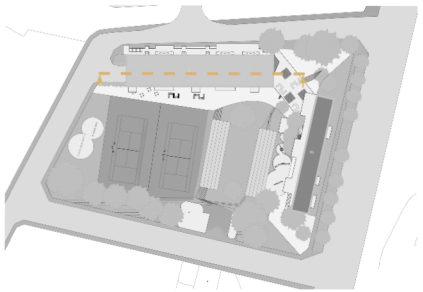


2 bedroom  
75 m<sup>2</sup>



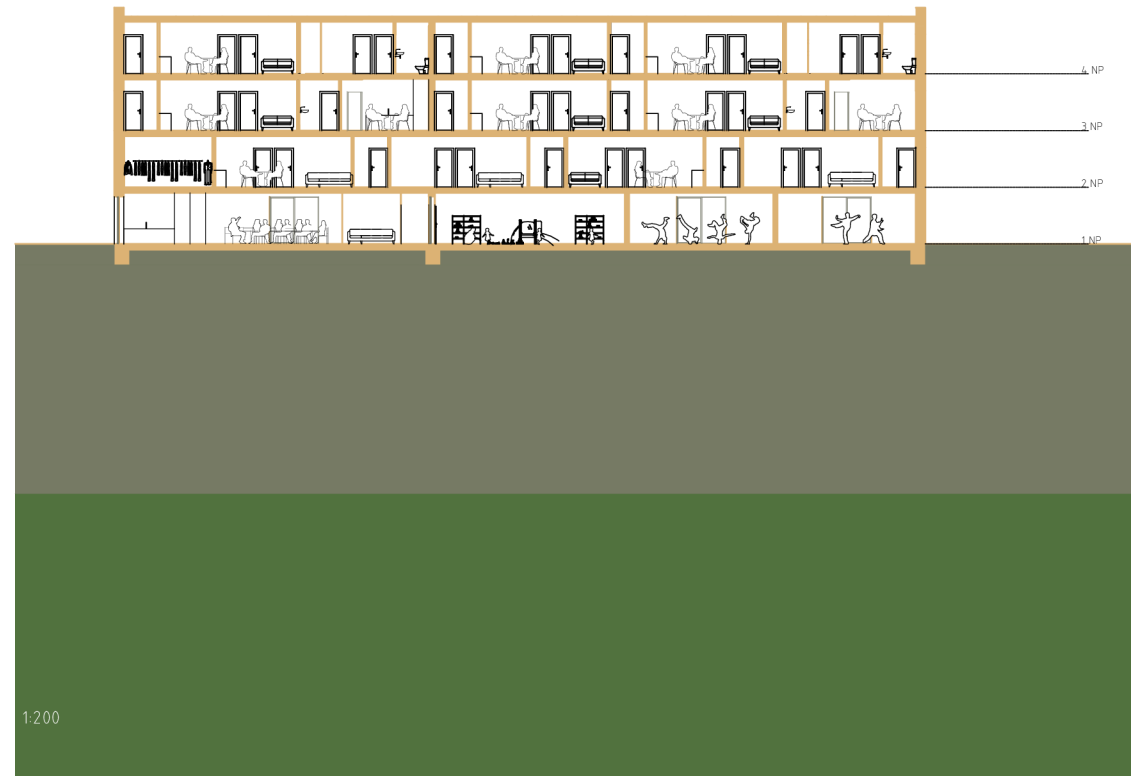
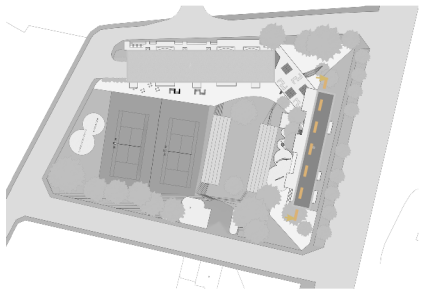
# Horizontal section

Building A



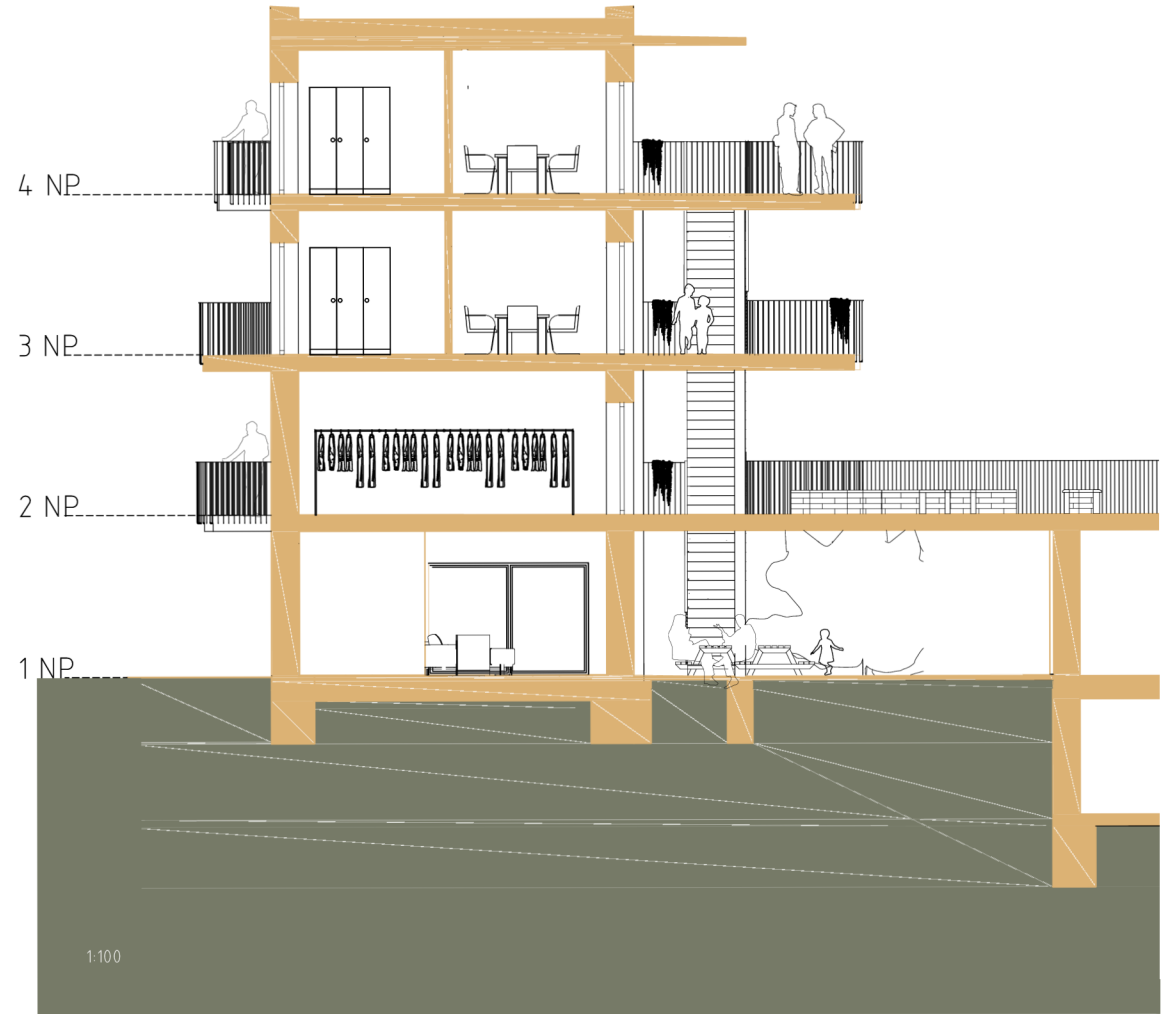
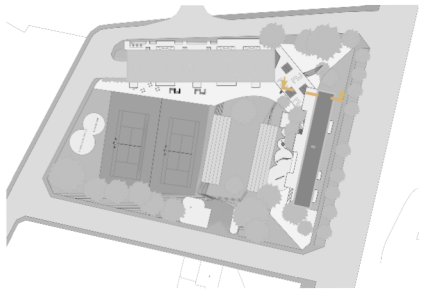
# Horizontal section

Building B

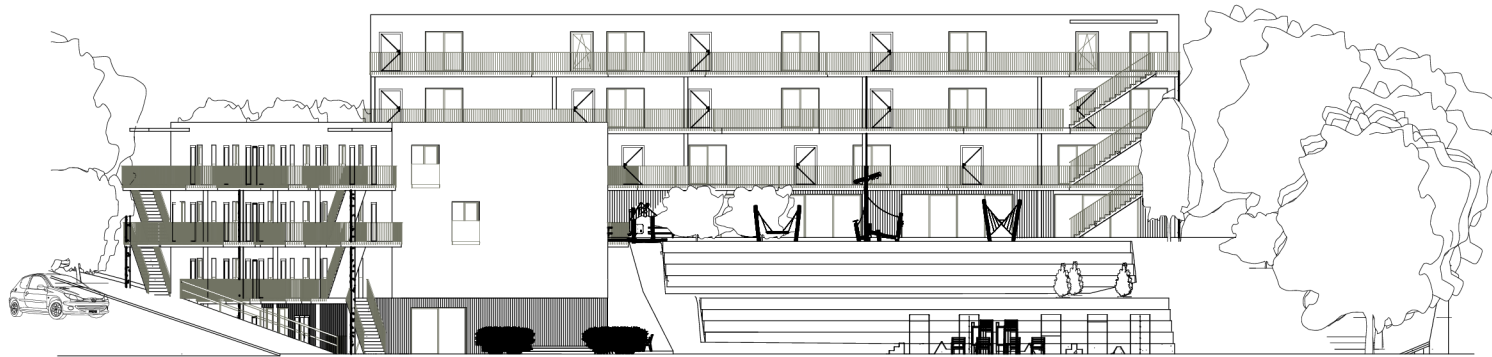


# Cross section

Building B



# Eastern Elevation



# Northern Elevation

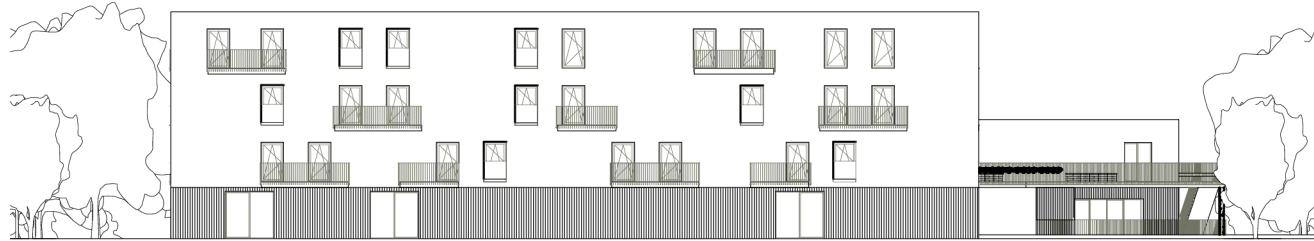


# Southern Elevation

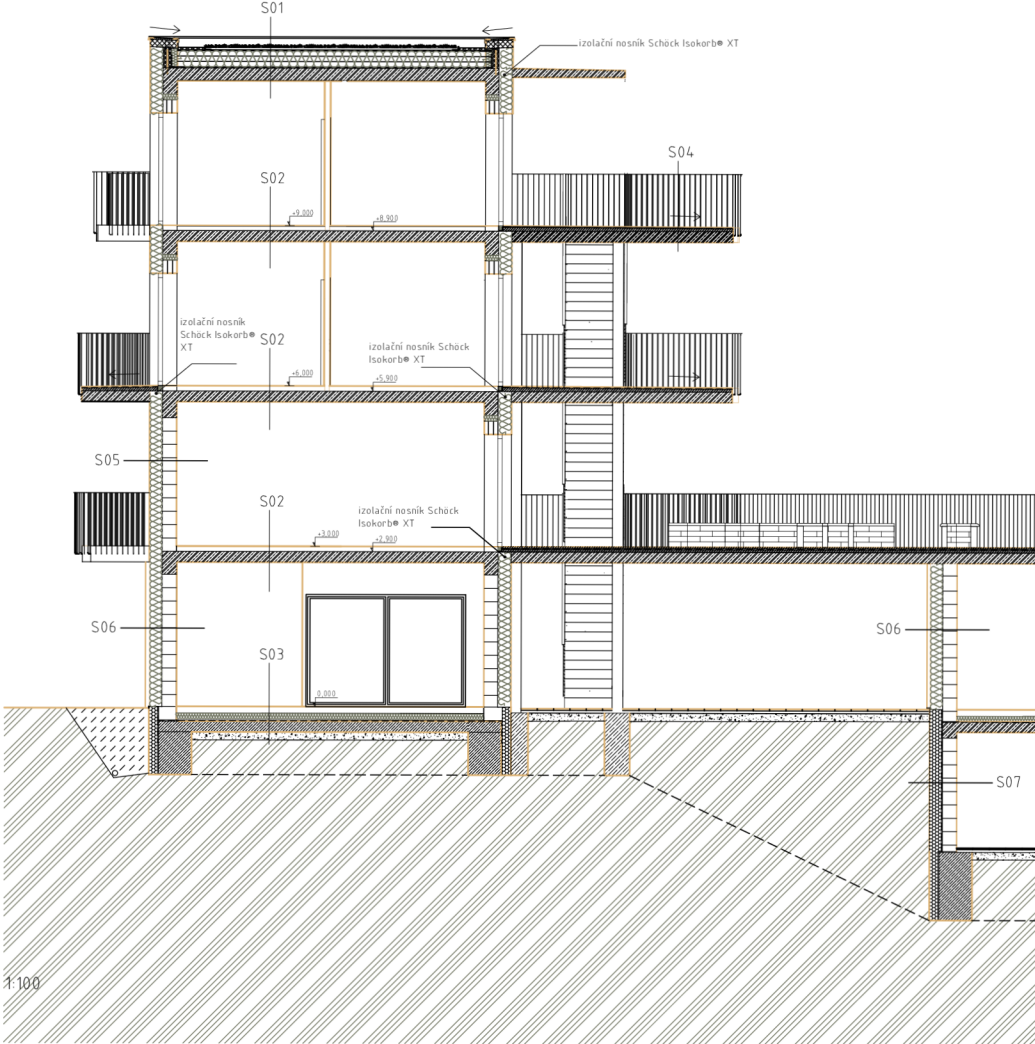
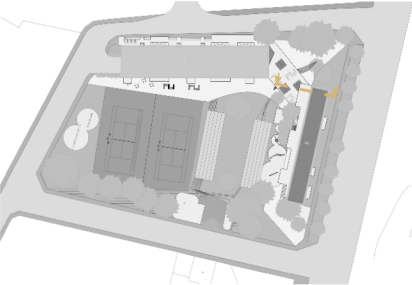




# Western Elevation

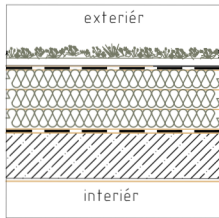


Structural section



# Structural Compositions

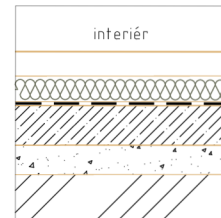
Horizontal



## S01 – zelená plochá střecha

Vegetační vrstva  
 Ochranná vrstva proti prorůstání kořínku  
 Hydroizolace: fólie na bázi TPO/FPO  
 Tepelná izolace ze stabilizovaného pěnového polystyrénu EPS 150 S (2x100 s překrytím spar)  
 Tepelná izolace EPS 150 S  
 Parozábrana (provizorní HI): 1x modifikovaný asfaltový SBS pás se skleněnou vložkou  
 Asfaltový penetrační nátěr  
 Nosná vrstva: železobetonová stropní konstrukce

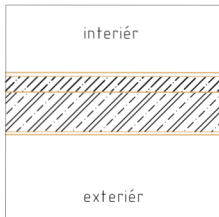
40 mm  
 4 mm  
 50-145 mm  
 150 mm  
 2 mm  
 200 mm



## S03 – podlaha nad terénu

Vynilová podlaha  
 Lepicí tměl  
 Litý cementový potěr  
 Tepelná izolace – EPS 150 S stabil  
 Hydroizolace proti radonu s vložkou ze skleněné tkaniny (standard glastek 40 special mineral + elastek)  
 Penetrační asfaltový nátěr  
 Podkladní beton C 16 / 20 armovaný kari sítí 150x150 Ø6 mm  
 kamená drf – frakce 4/8

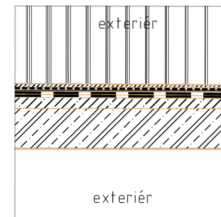
16 mm  
 2 mm  
 68 mm  
 200 mm  
 8 mm  
 200mm  
 150 mm



## S02 – podlaha nad terénu

Vynilová podlaha click EGIBI 16 MM – Jasper oak  
 Steico underfloor pevná kročejová izolační deska  
 Betonová mazanina C 30 + Kari sítí 100/100 Ø6 mm  
 kročejová izolace Polyfon T 3500  
 ŽB stropní konstrukce  
 Vnitřní vápenocementová štuková omítka

15 mm  
 5 mm  
 50 mm  
 35 mm  
 200 mm  
 15 mm



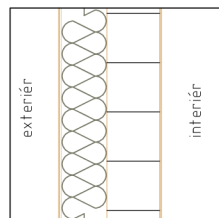
## S04 – podlaha pavlače

litá cementová podlaha  
 PE Folie  
 Geotextilie  
 2x hydroizolace proti vodě  
 Penetrační nátěr  
 Spádová betonová mazanina  
 Železobetoná konzola  
 Fasádní betonová stěrka

20 mm  
 50 mm  
 200 mm  
 5 mm

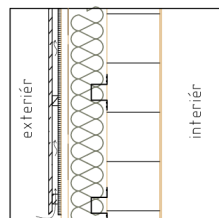
# Structural Compositions

Vertical



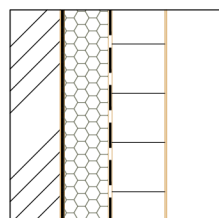
## S02 - Obvodová stěna

Fasádní betonová stěrka  
Novalith MODE penetrace  
Kontaktní zateplovací systém ETICS  
- Lepicí vrstva - tmel  
- EPS 70F  
- Armovací stěrka  
Zdivo Porfix PDK P2-440  
Vnitřní vápenocementová štuková omítka



## S02 - Obvodová stěna s obložním

Fasádní obklad ze sibiřského modřínu  
Vzduchová mezera  
Montážní podkladního roštu z KVH hranolů  
Montážní folie dekten facade  
Laf  
Kontaktní zateplovací systém ETICS  
- Lepicí vrstva - tmel  
- EPS 70F  
- Armovací stěrka  
Dosteba  
Zdivo Porfix PDK P2-440



## S02 - Obvodová stěna pod terémem

Zemina  
Nopová folie  
Výstužná armovací vrstva  
Tepelná izolace XPS lepená  
Lepicí vrstva - tmel  
Hydroizolace - Glastek special  
Penetrační nátěr  
Zdivo Porfix PDK P2-440  
betonová stěrka

# Load Bearing Construction

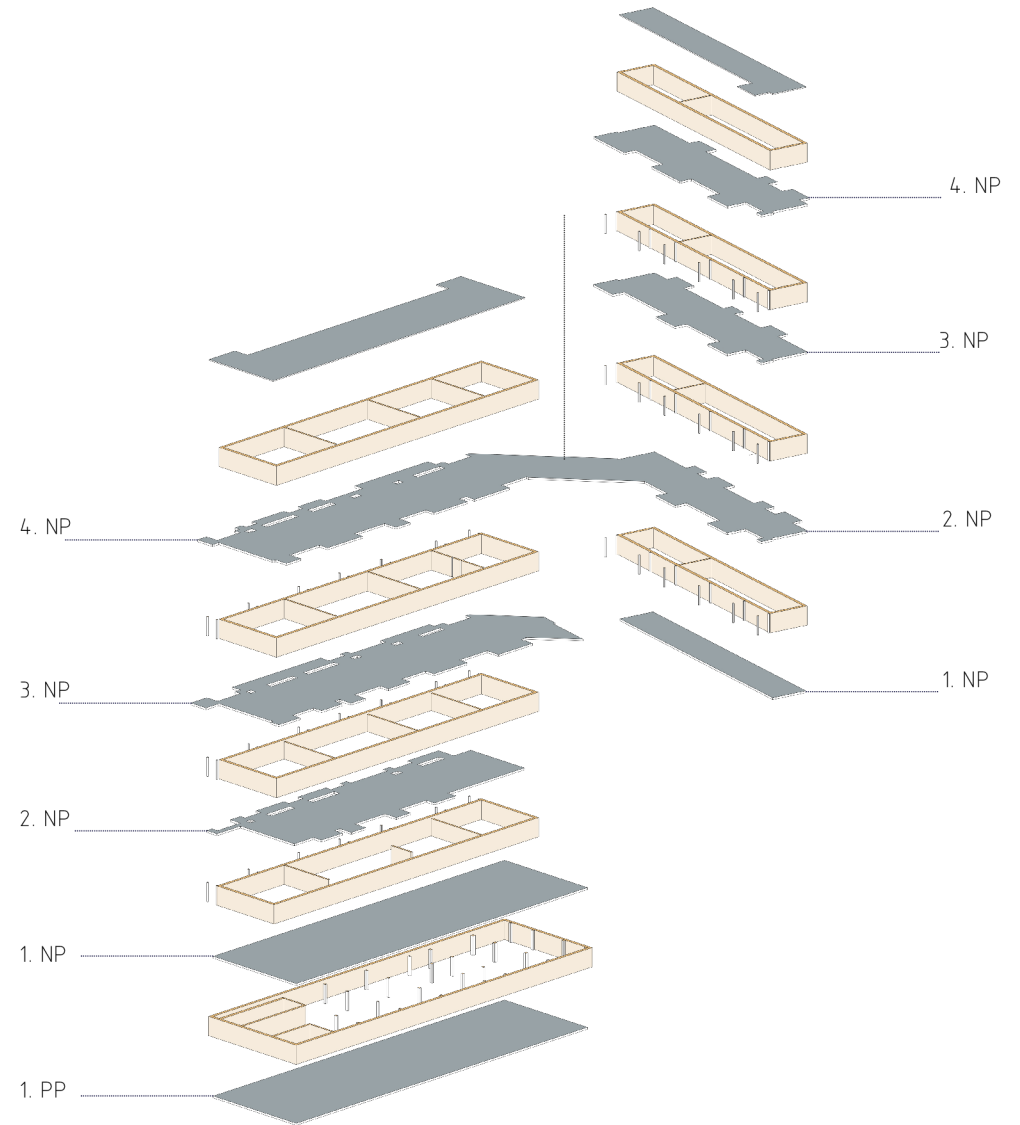
Exploded axonometry

The load bearing structure is made of a wall system of aerated concrete Porfix PDK P2 440.

The outdoor corridors are supported with reinforced concrete square-cross-section 200x200 mm.

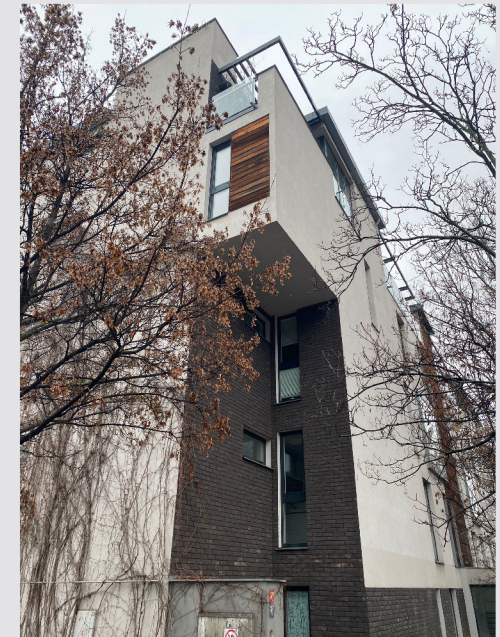
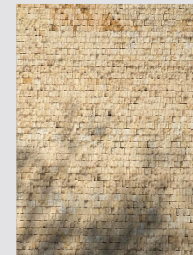
Columns in the underground are also made of reinforced concrete however, they have a rectangle-cross-section measuring 300x400, 500x400 mm.

Foundations are constructed of foundation strips and column footings below non-freezing depth.



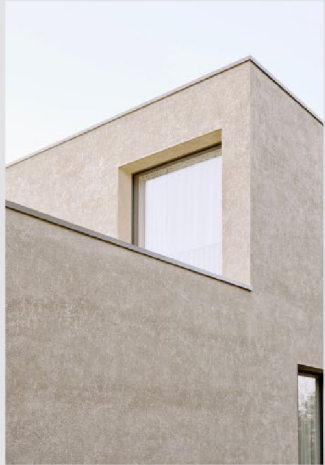
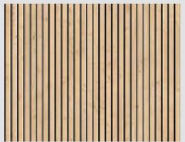
MATERIALITY

# Observation of nearby structures





Materiality and inspiraton



VISUALISATIONS

Courtyard view



Courtyard view



# Building A - Courtyard View



Building A - Outdoor corridor View



Courtyard view





## Building B - Courtyard View







Facade Detail View

Interior - café



# Interior - Apartment D



## Resources

### Norms and declarations

ČSN 734 301 Obytné budovy,  
501/2006 Vyhláška o obecných požadavcích na využívání území,  
268/2009 Vyhláška o technických požadavcích na stavby,  
389/2009 Vyhláška o obecných technických požadavcích zabezpečujících berybariérové užívání staveb,  
ČSN 73 0810 Požární bezpečnost staveb – Společná ustanovení

### Maps

Site map taken from group Analysis by me and Adriana Hauke  
<https://maps.app.goo.gl/5pMT2x4nyLfBuAyx9>

### Literature

Neufert: Navrhování staveb, Stavební zákon,  
Building with a positive footprint by Vincent van der Meulen

### News articles

INFO.CZ | Sehnat dostupné bydlení je v Praze stále větší problém. Klesli jsme na dno, říká Udženi ja

iROZHLAS – spolehlivé a rychlé zprávy

<https://www.praha-mestoprolidi.cz/bydleni/bytova-krize/?fbclid=IwAR3lWllWcb6us-dC-xhgfulG38XQDSOQHA7NGtL2kH8Ta1d9Ei6wgc2zhKSE>

<https://socialnibydeni.org/aktuality/lide-prespali-pred-prazskym-magis-tratem-na-protest-proti-navrhu-novych-pravidel-pridelovani-mestskeho-bytu-nova-pravidla-ohrozi-system-socialniho-bydleni?fbclid=IwAR3bGi2Jow40IPtJivt3LMkcb-FUg9HeihWILQIPReiMFFCW9RB14v0-h8IQ>

[https://praha.camp/magazin/detail/byty-v-praze-kolik-stoji-metr-ctverecni?fbclid=IwAR2AtIE5s4npVg8ftf0iTE1\\_OrtLKplzX49rC0YE96U\\_S11vFUWTLmiPf7A](https://praha.camp/magazin/detail/byty-v-praze-kolik-stoji-metr-ctverecni?fbclid=IwAR2AtIE5s4npVg8ftf0iTE1_OrtLKplzX49rC0YE96U_S11vFUWTLmiPf7A)

<https://socialnibydeni.org/>

## Affidavit

I declare that I have developed the bachelor's thesis on the topic "Mix/Match" independently and have not violated any copy rights. In Brno on May 2nd 2024.

## Thanks

I would like to thank the supervisor of my bachelor thesis, MArch Ryan Manton and Ing. arch. Jan Foretník, Ph.D. for their guidance throughout the bachelor's thesis and also consultant prof. Ing. Josef Chybík CSc. for useful comments, useful advice and dedicated time.