

ARCHITECTURE PORTFOLIO
BACHELOR PROJECT

REIMAGINING THE MAIN

STREET HUB

ANTONIYA YANEVA
FESSLER/DRAHOTOVA STUDIO
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ARCHIP

ARCHITECTURAL
INSTITUTE
IN PRAGUE

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01

BRIEF

The brief of the semester is to imagine and design visions for how will Prague look like in 2150.

What will the heritage of the future look like? By exploring the past and imagining the future we will get an idea what to do today. The semester approach is based on city maps exploring and generating projects for the year 2150 based on the assumption that population will double, and society change (technological innovations, globalization, environmental concerns etc.)

02

RESEARCH

HOUSING ESTATES-CITY SCALE MAP

HISTORY

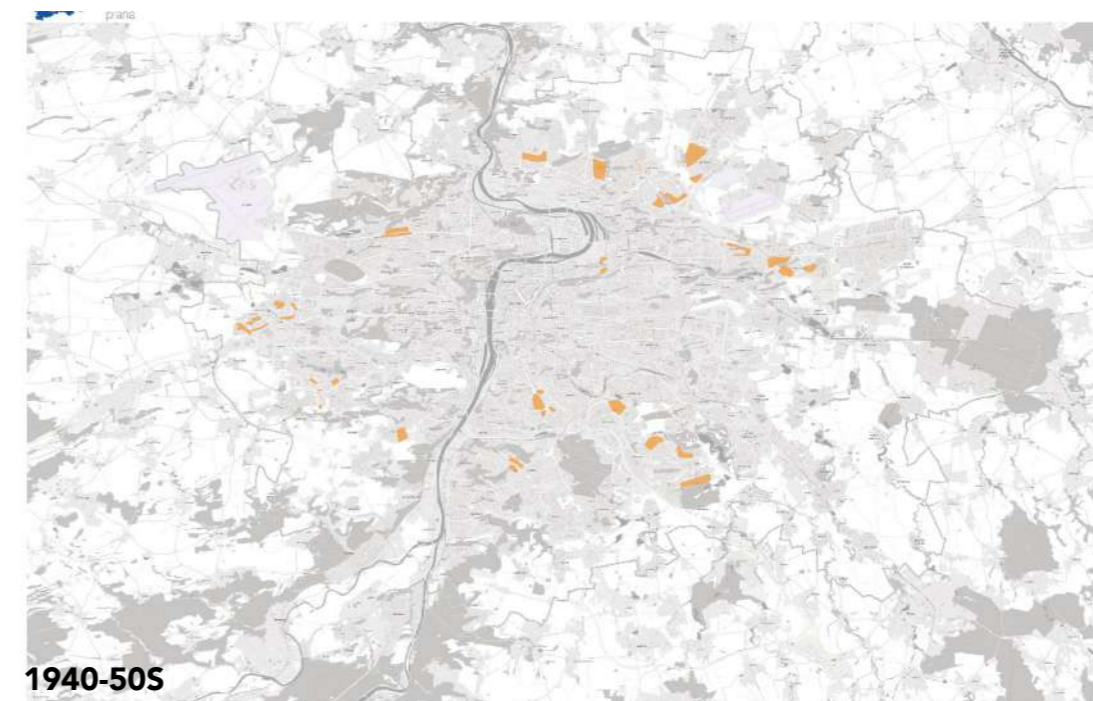
Panel estates in Prague have a fascinating history intertwined with the city's urban development during the communist era. Following World War II, Prague faced a housing crisis, leading to the construction of large-scale housing projects in the 40-50s to accommodate the growing population. The term "panelák" refers to the prefabricated concrete panel buildings that became synonymous with mass housing construction in the post-war era. The construction of panelák housing estates in Prague was heavily influenced by Soviet urban planning principles and architectural models. The Soviet Union championed prefabricated construction techniques as a cost-effective and efficient means of rapidly addressing housing shortages in urban areas.

Panelák housing estates were built using prefabricated concrete panels manufactured in centralized factories. These standardized panels were then assembled on-site to construct multi-story apartment buildings with repetitive floor plans. This mass production approach enabled the rapid construction of large housing complexes to accommodate growing urban populations. The design of panelák housing estates prioritized functionality and efficiency over architectural aesthetics. The buildings typically featured uniform facades, minimal ornamentation, and simple geometric forms. The interiors were characterized by compact, standardized apartments with basic amenities.

Many of these estates face challenges related to aging infrastructure, maintenance issues, and social stigma. Efforts are underway to revitalize and modernize these neighborhoods while preserving their historical significance and fostering sustainable urban development.

These estates, such as Jižní Město (South City) and Severní Město (North City), reshaped Prague's skyline and provided housing for thousands. Later faced criticism for their uniformity, lack of architectural diversity and ideology of communist leaders.

In Prague there are a lot of housing estates that have marked their trace on the city scale map which shapes the identity of the city together with the existing brownfields. Estates have continued to grow since their first traces which advocated for change and a search for how to deal with them. The world we live in today is changing fast, there are a lot of technological innovations and new building styles which makes estates outdated and their expiration date can be seen in the near future at least for a very big part of them.



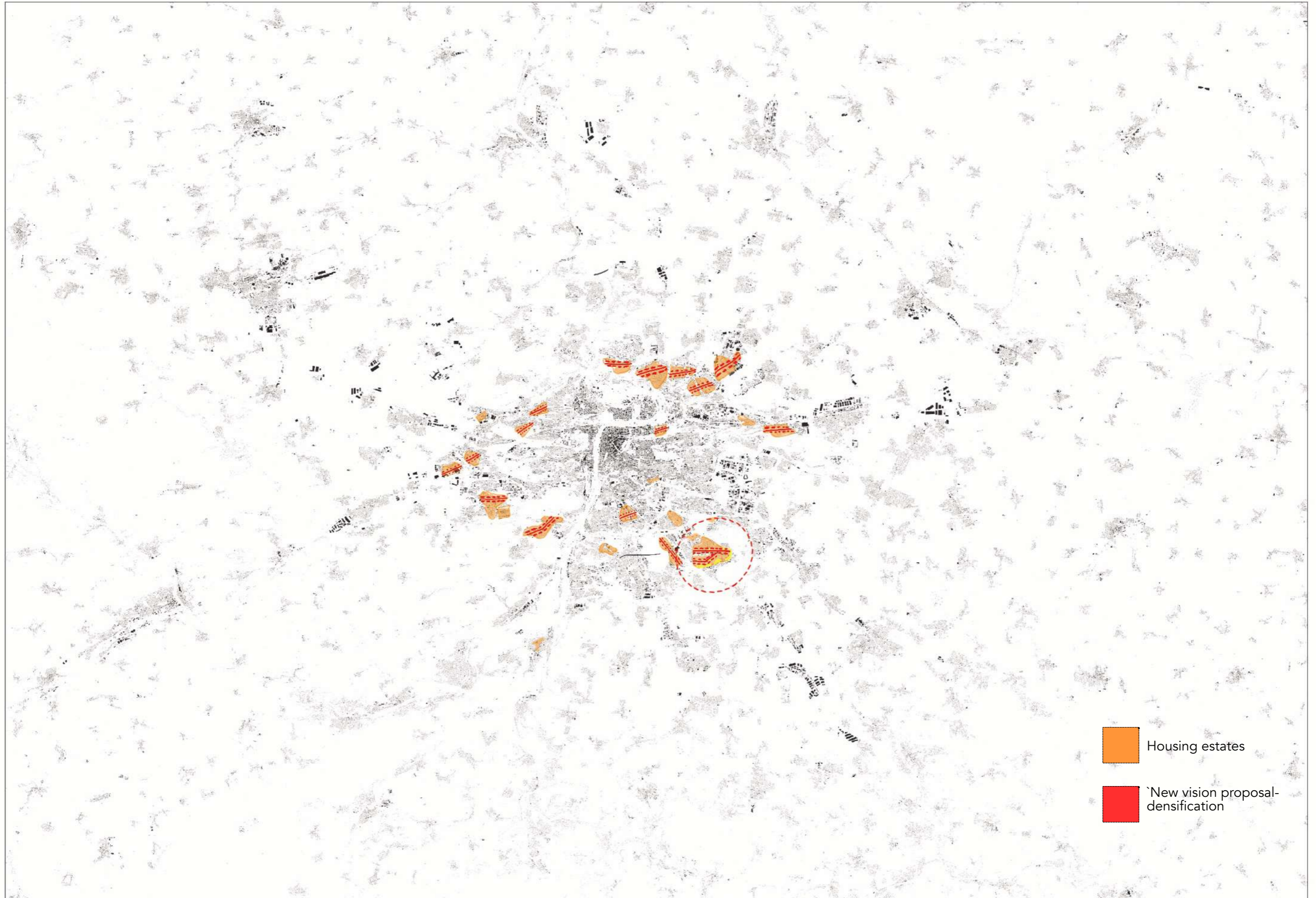
1940-50S



1970-80S



2024



INSPIRATION

The initial inspiration for the project started from looking at art works and the one that is chosen for this project is "The Labyrinth" by Osnat fine arts. From this painting I wanted to symbolise and define axis, define patterns, right angles and use geometric shapes as in the painting. In order to preserve the heritage of the site the shapes of the buildings are derived from the already existing structures and following the lines of the geometry.

Interpretation of colors and shapes such as rectangles and squares inspired me to represent those elements in the project through my own representation and reinterpretation of the art.

The goal is to define clean and clear axis as the interconnectedness of the geometry as well as different elements that will be shown by the different colors. The blend of colors also symbolises the many functions and public spaces that I would like to offer that will blend together and become one whole new environment

There are three different urban elements that have been highlighted using similar colors as in the painting. Those are street axis definition as a center point for movement, street edges with buildings serving as a gateway to the city and central element in the middle.



Osnat Fine Art- "The Labyrinth"

SITE LOCATION

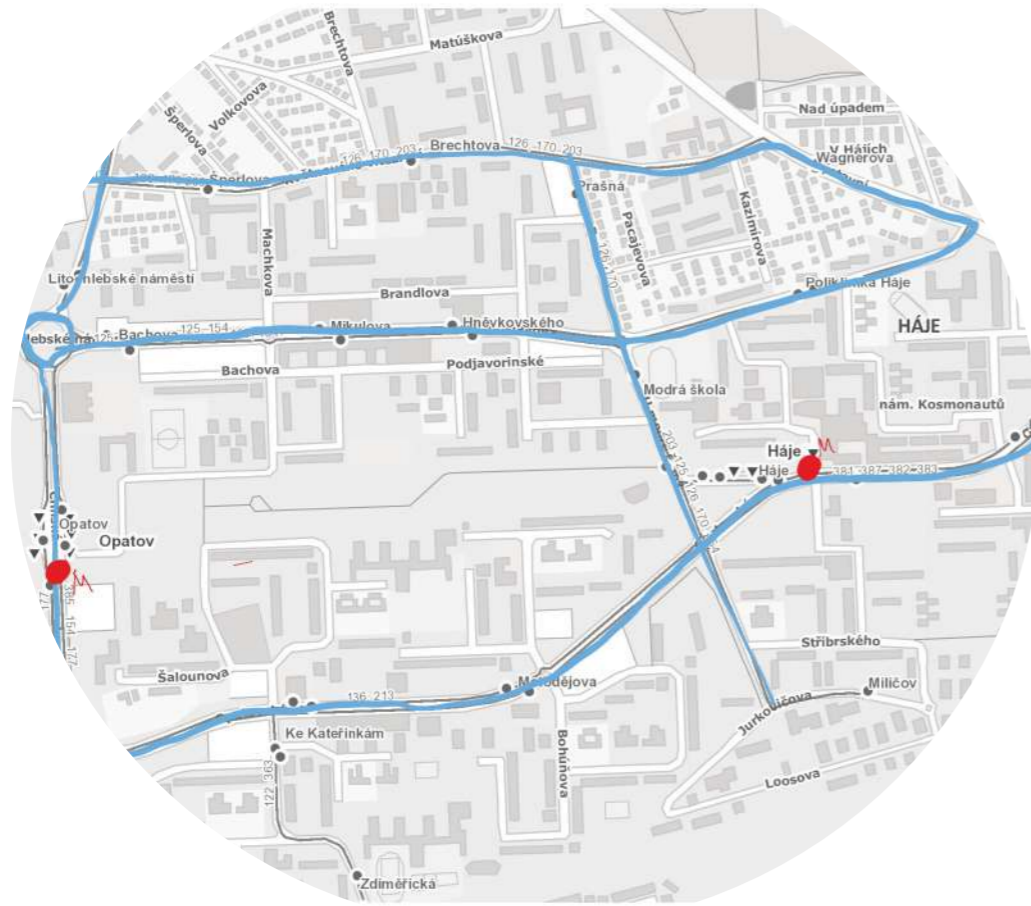
The project focuses on the housing estates in Prague and proposes a vision for how they will look like in the future as currently there are many empty and unused spaces in between. The main idea started from looking back in the history, how they developed and grew until now and people's perception about them. The project is located in Prague in the housing estate Jizni Mesto, Chodov district. It is one of the oldest housing estates in the city and has a lot of potential to serve as an example how all of the estates in Prague can be reimaged.

After analysis of the site, I found out that there are a lot of abandoned, unused and empty green areas that are not used in any specific way. There are no public spaces for people to gather and spend time together rather than they have simple green lawns in front of them. Those empty areas also create a sense of unsafety and loneliness on the site where people miss different building typologies as well as developed parks, playgrounds and other amenities.

An additional issue to that is that on the current schwarzplan the main street axis are not visible which is vital to be visible as it serves as a main source of connection with other places. Therefore the focus of this projects is to identify those street axis to meet together, outline the beginning and ending of the street and create a vibrant new hub for the residents and creating a starting point of futtee development with demolishing only the currently destroyed or abandoned buildings. The main focus of the street densification is to double the density on the site in order to fight with the overpopulation in the future.

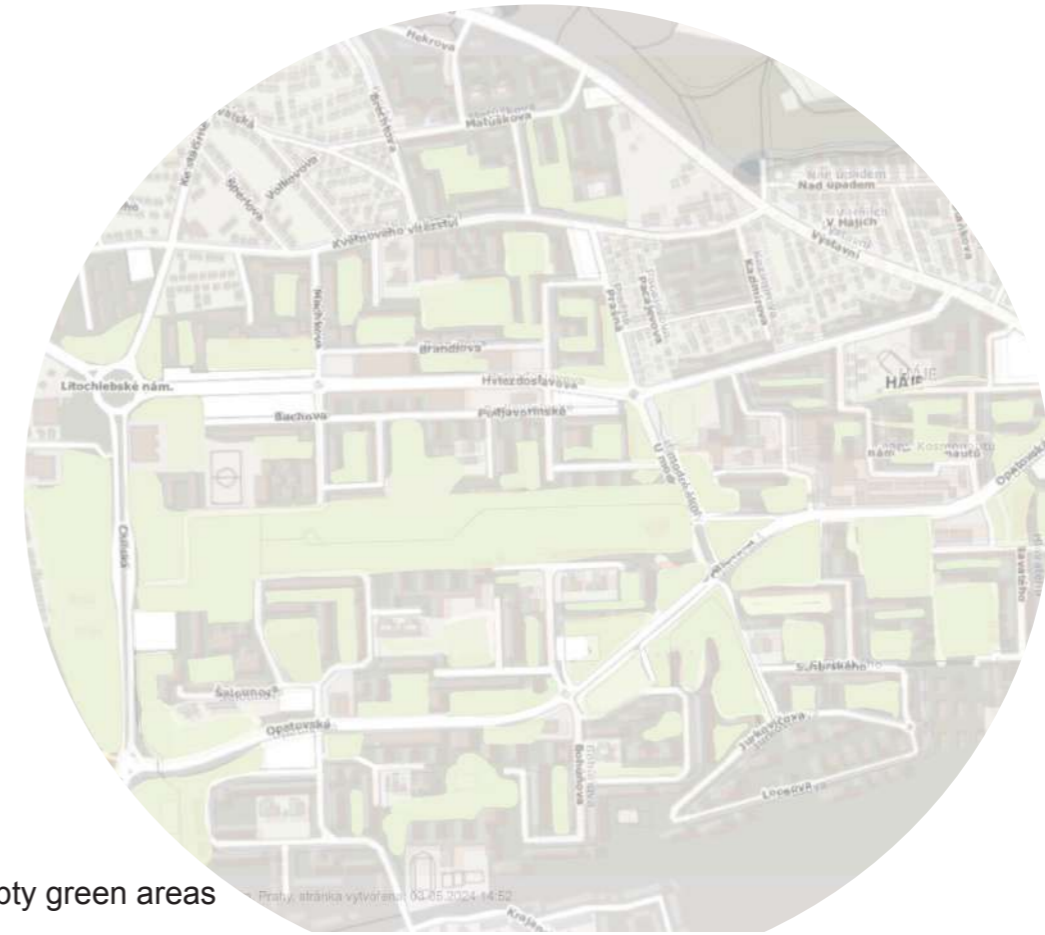


SITE ANALYSIS



Transportation

- Bus lines
- Metro



Empty green areas

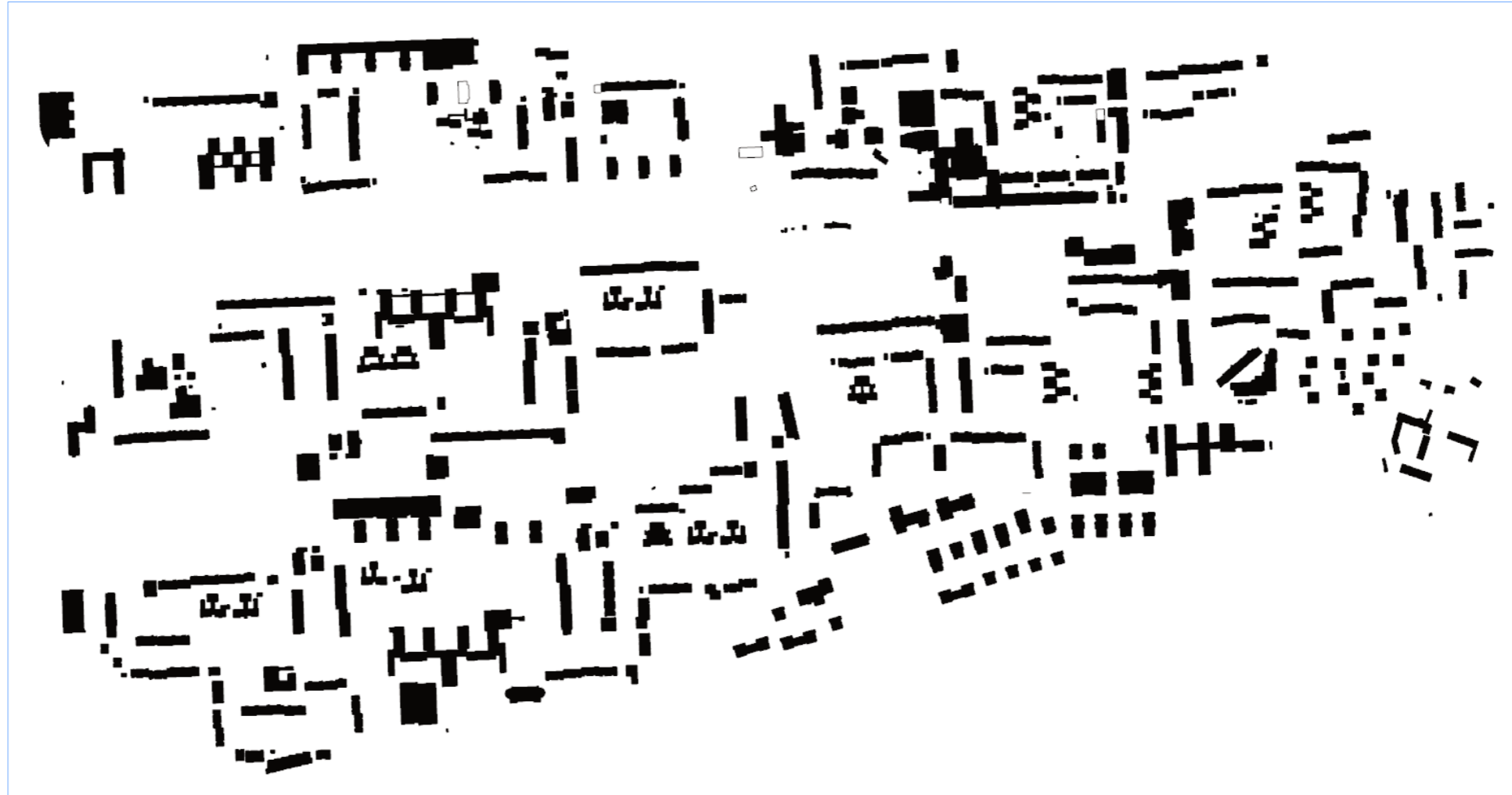


Education Institutions



Street connections




CURRENT SCHWARZPLAN



NEW SCHWARZPLAN

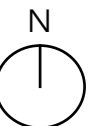
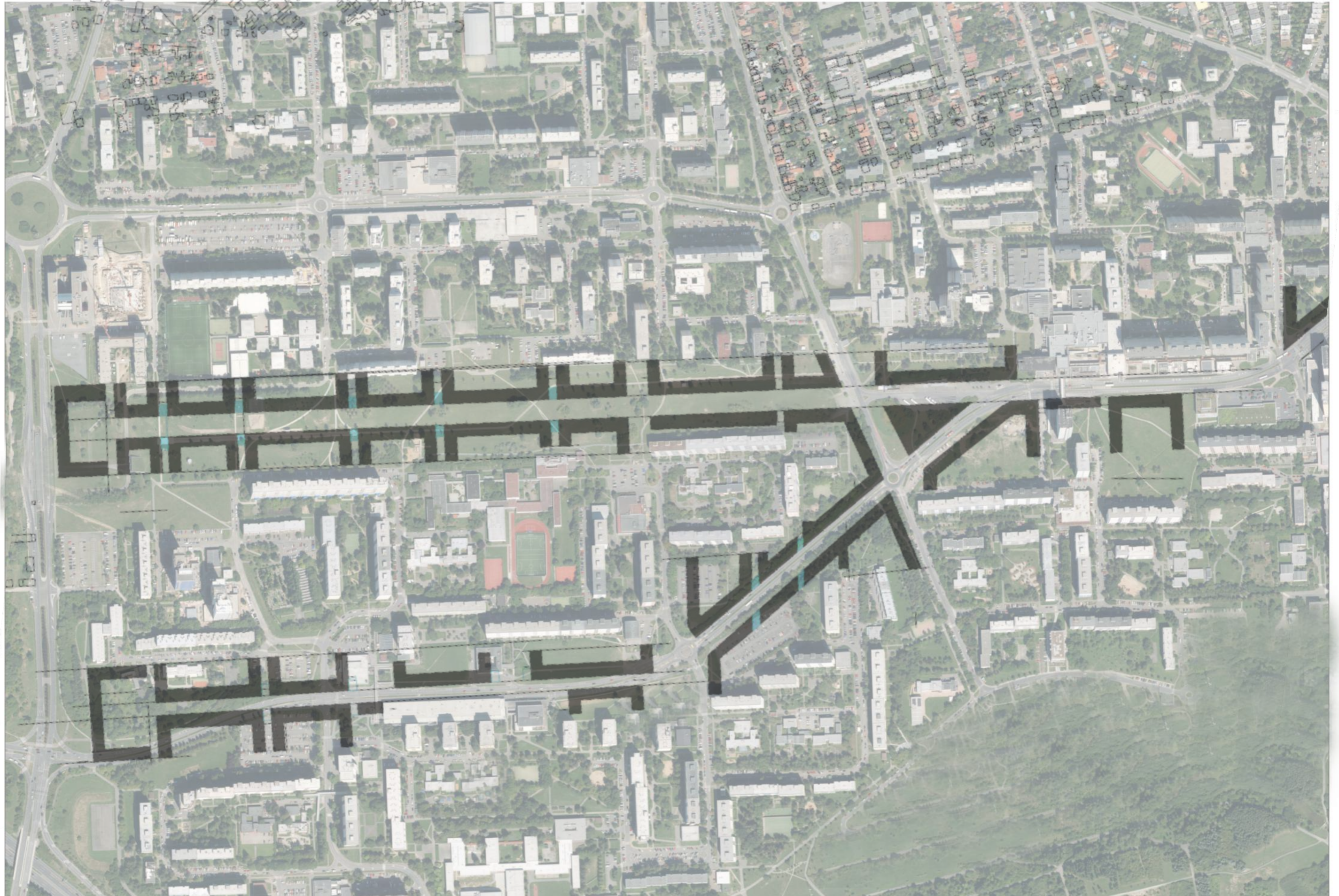




-  EXISTING AREA- 697 000sq.m
-  NEW BUILD UP AREA-1 400 000sq.m
-  REMOVED AREA-103 000sq.m

1:7500 

NEW SITE PLAN



03

CONCEPT

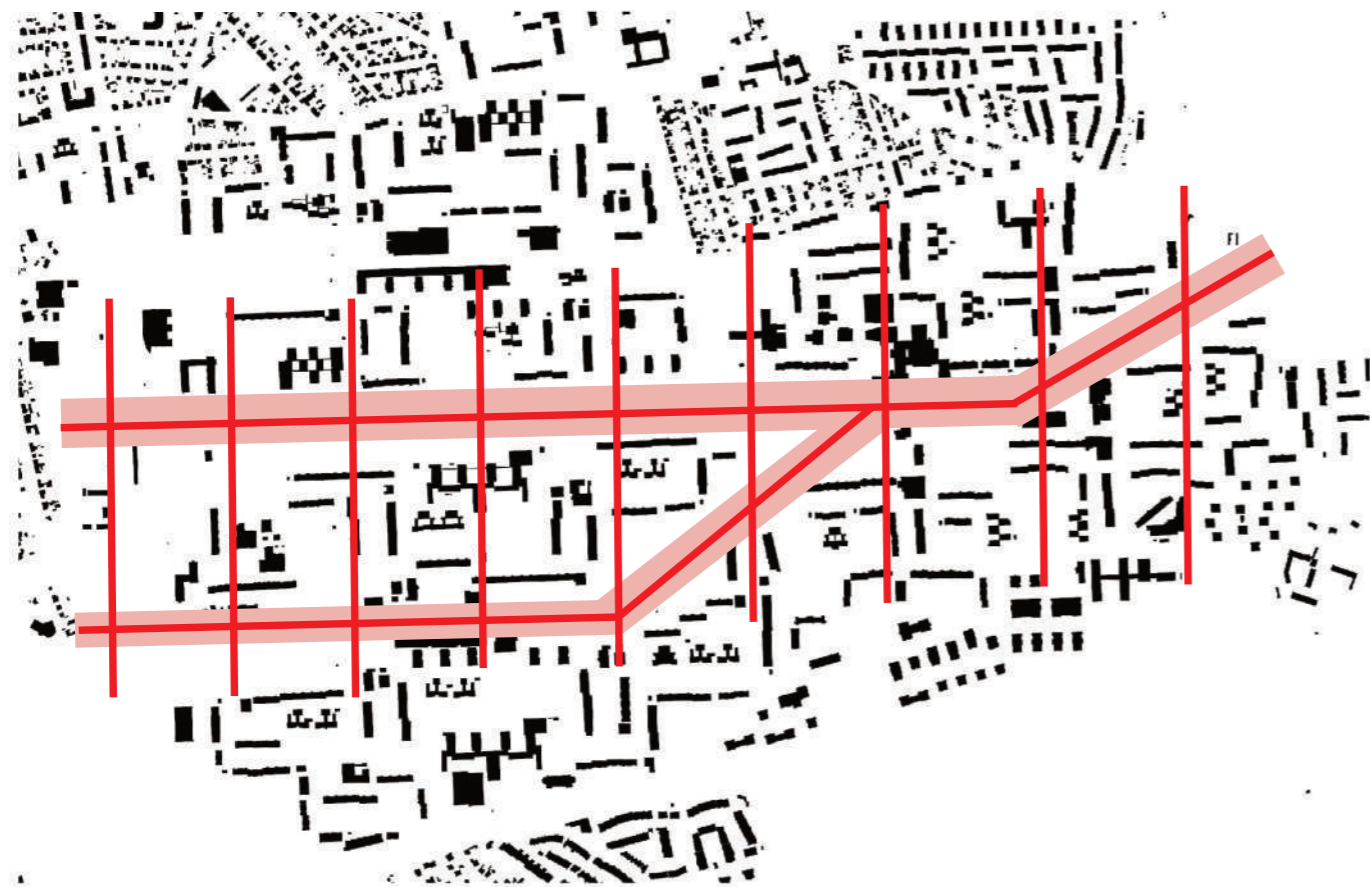
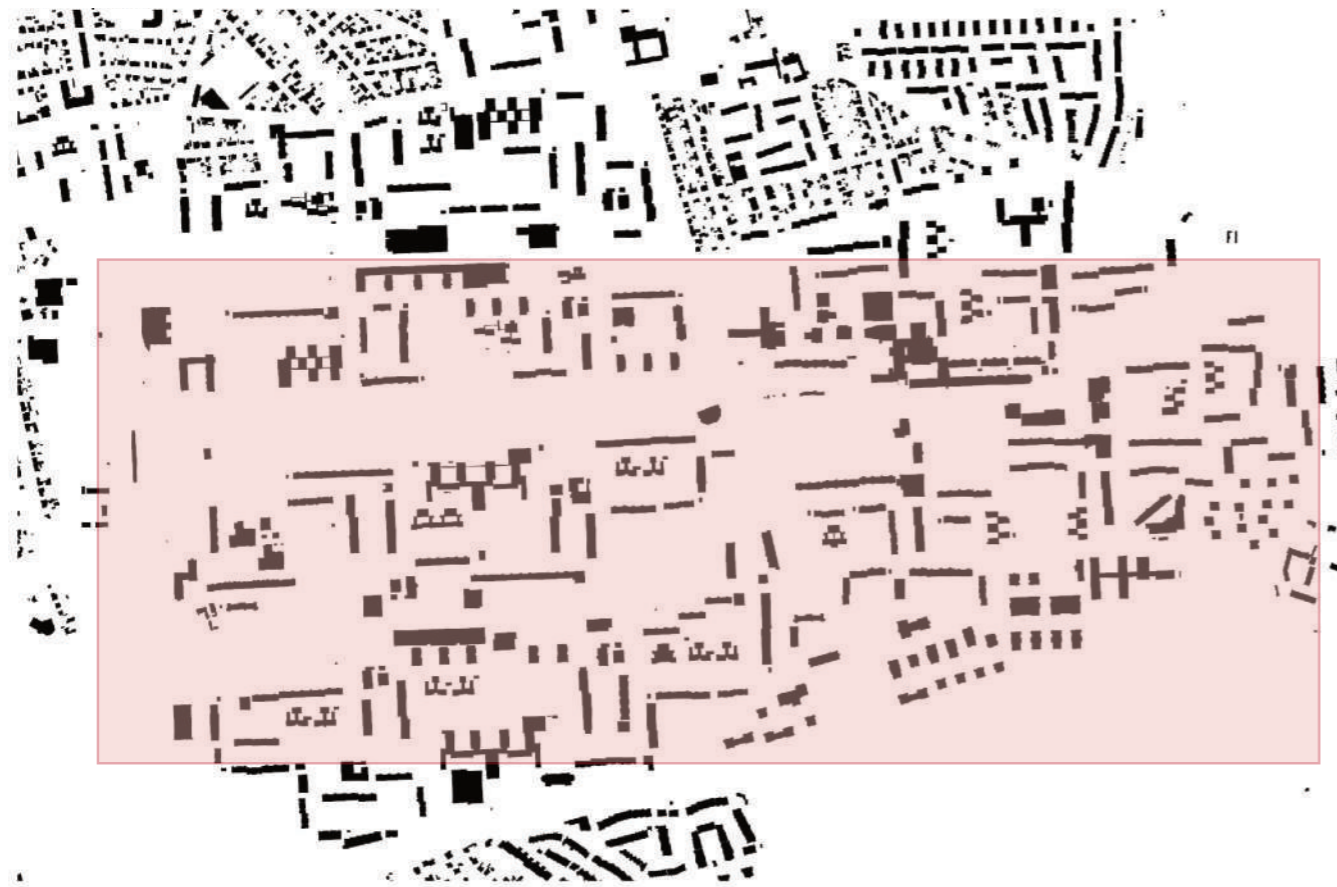
Traces of History, Imaginations of Tomorrow

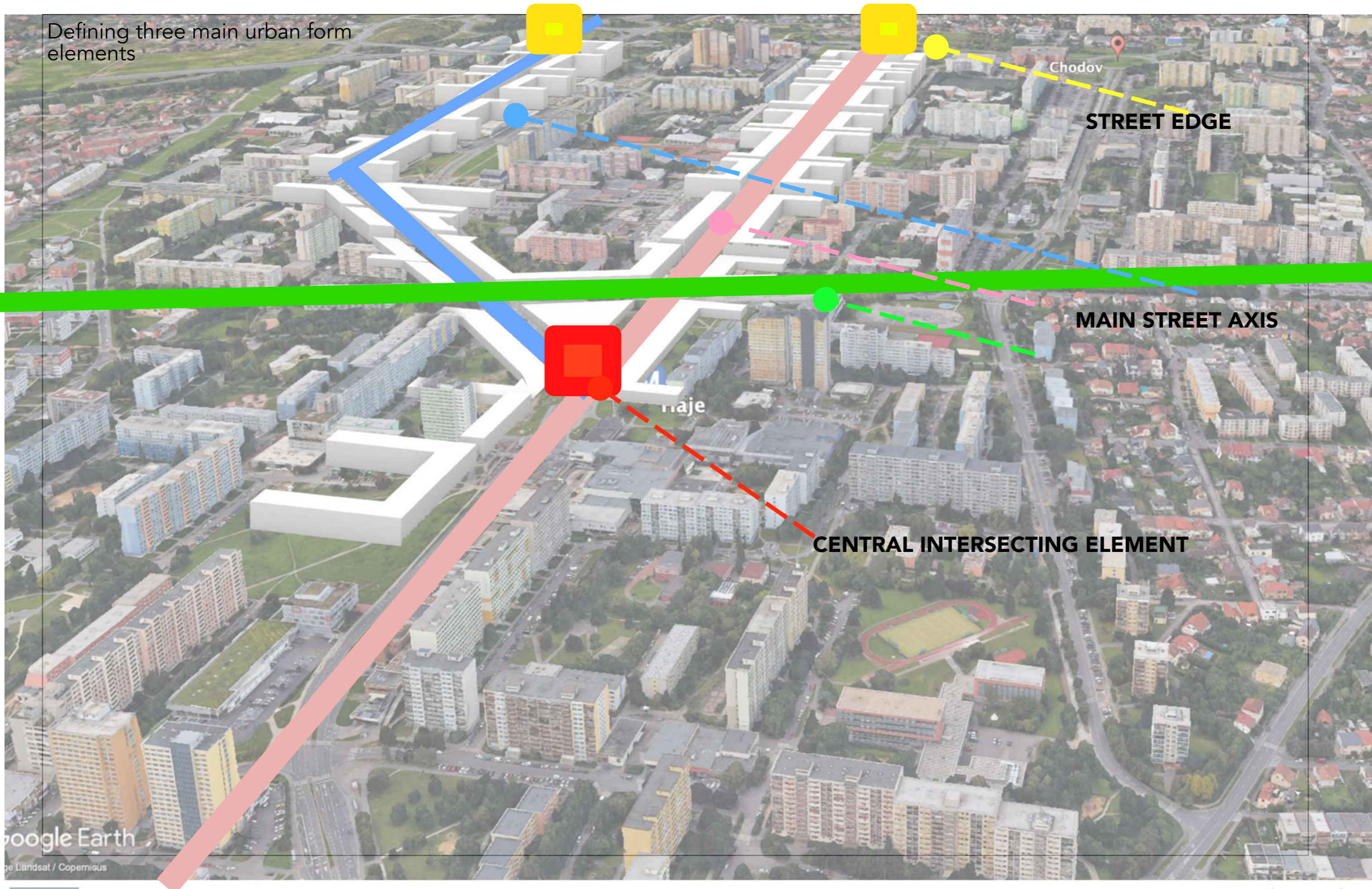
The project is focused on the panel housing estate Jizni mesto which is one of the oldest in Prague. On an urban scale there was a strategy that has been developed to create a grid how the area can be densified and fight with the overpopulation in the future. The scheme is to densify the main street axis and outline the currently not visible street on the Schwarzplan and turn it into a main boulevard hub which are currently missing, and this will contribute to attracting more people to the site and those cold, concrete estates. The first step started by placing a very long building on top of the existing structure which then divided in smaller buildings thus generating the urban master plan. The grid is generated following the lines of the already existing building creating passages in between single buildings to allow access from one side to the other. Inspired from the geometrical art paintings there are three main urban elements that have been defined through the grid- centre element of importance as crossing of all lines, end points that serve as a gateway to the city and definition of the main street axis that were invisible before. Also, the shapes of the new buildings are either square or rectangle keeping the geometry of the site, preserving its heritage but at the same time proposing a new structure for the future.

In order to emphasize the importance of the end points of the street and its finish, the buildings at the corners are the highest and gradually decrease towards the central building. As this is a visionary projects, it can be assumed that many of the housing estates have their expiration date to be soon therefore on my new urban plan some of those possible buildings have been deleted due to being too small, unused or destroyed. This step also contributes to preventing urban sprawl of housing estates starting demolition from the edges and shrinking it to the middle. It is possible that even more buildings will disappear by the year 2150 so this is the time when the main street boulevard will become the most important place for interaction, communication, living and recreation and will set the base for further development in a more positive, sustainable and modern way. This boulevard is additionally inspired from main city boulevards in Prague such as Wenceslas Square or other around the world as it will offer not only residential spaces but commercial and communal areas that will bond people together, make them spend more time together and enhance the importance of public spaces as well in neighborhoods because in housing estates this is something which is missing-to bring people together.

After the development of the urban plan a focus is placed on a specific building along the street which is developed in architectural detail. The building focus is on the edge where it marks the end of the street as a bracket and serves as a gateway to this street line. It is also set as a principle that defines all the building shapes created and their program. The building offers three different programs- a big, spacious library on the ground, a small cafe on the other side, office spaces with an open floor plan where they can arranged based on the workers and residential spaces for all the other floors above with different sizes of apartments according to peoples needs. In the middle of the building above the entrance gate there is a common glazed, chilled area where the resident can hangout, communicate or simply enjoy views towards both side of the city. On one side of the street there is park with water pond and greenery as a public space. The overall structure utilizes sustainable building strategies and materials minimizing harmful impacts to the atmosphere. There are two facades with green balconies to differentiate the entrance to the are, green roof and photovoltaic panels improving thermal comfort, well-being of residents and overall aesthetic of the building. This architectural project proposes a transformative approach to densify housing estates by reimagining the Main Street axis as a central organizing principle. Emphasizing the revitalization of neglected areas within these estates, the proposal centers around the creation of a vibrant Main Street hub boulevard characterized by mixed-use buildings, public spaces, and lush greenery. By infusing these once desolate spaces with vitality and functionality, the aim is to enhance the quality of life for residents while attracting visitors from the city core to the periphery.

CONCEPT GRID





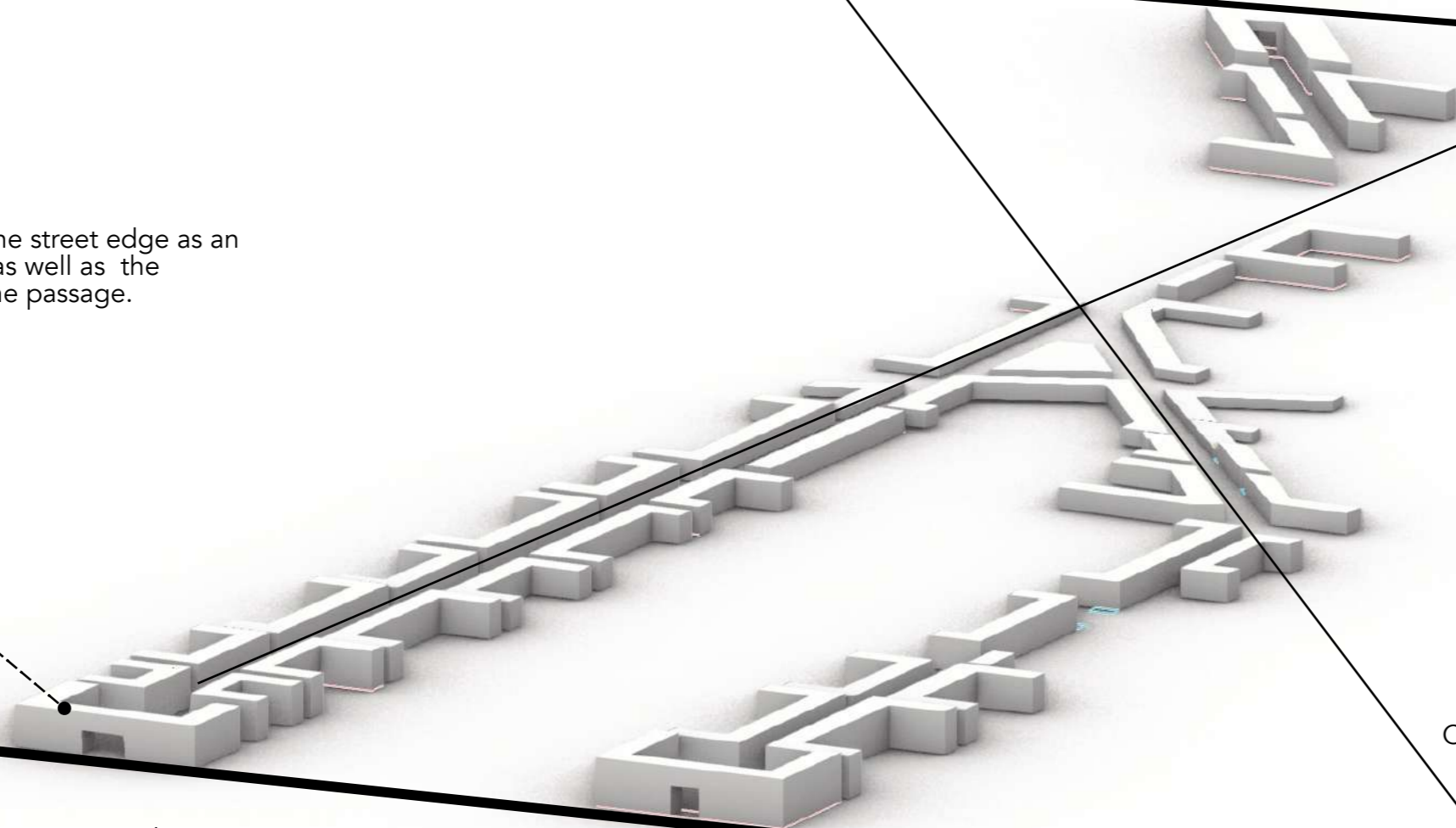
STREET VIEW AND FOCUS BUILDING



BUILDING FOCUS

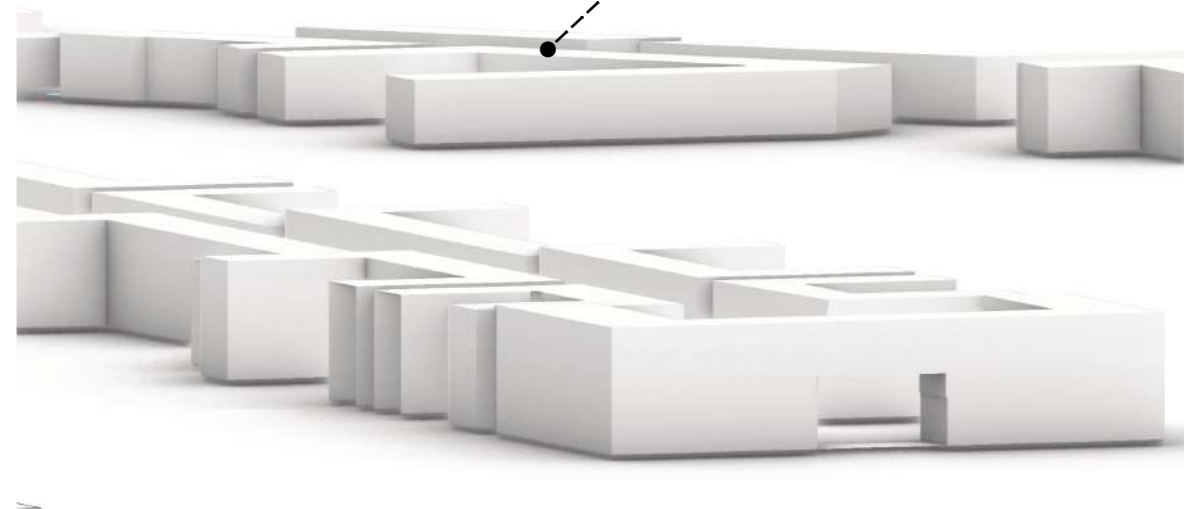
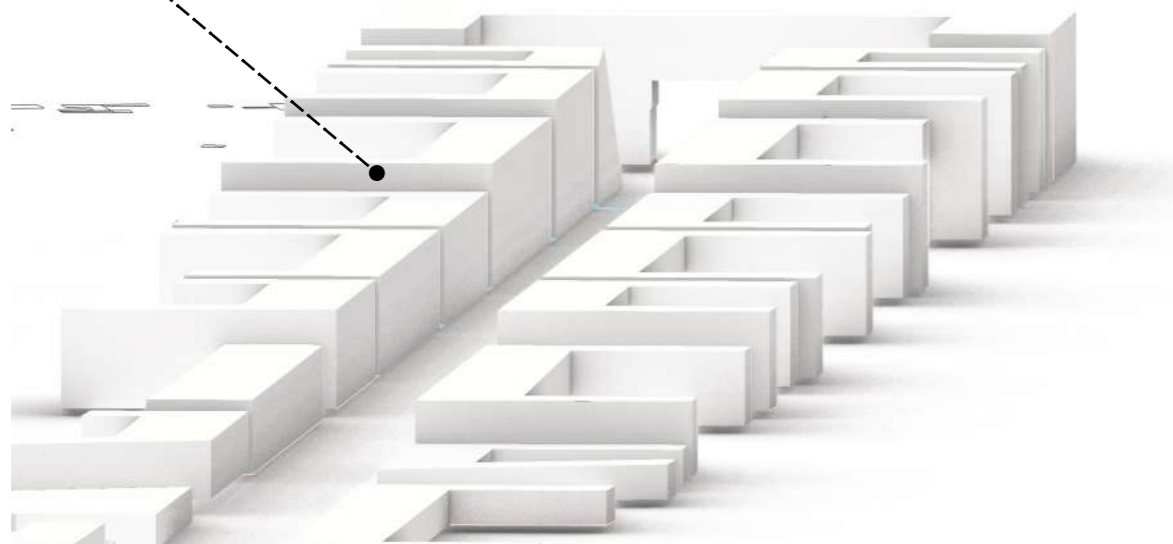
URBAN CONCEPT AND ARCHITECTURE BUILDING FOCUS

Focus is placed on the building on the street edge as an important mark of defining the end as well as the entering to the boulevard through the passage.

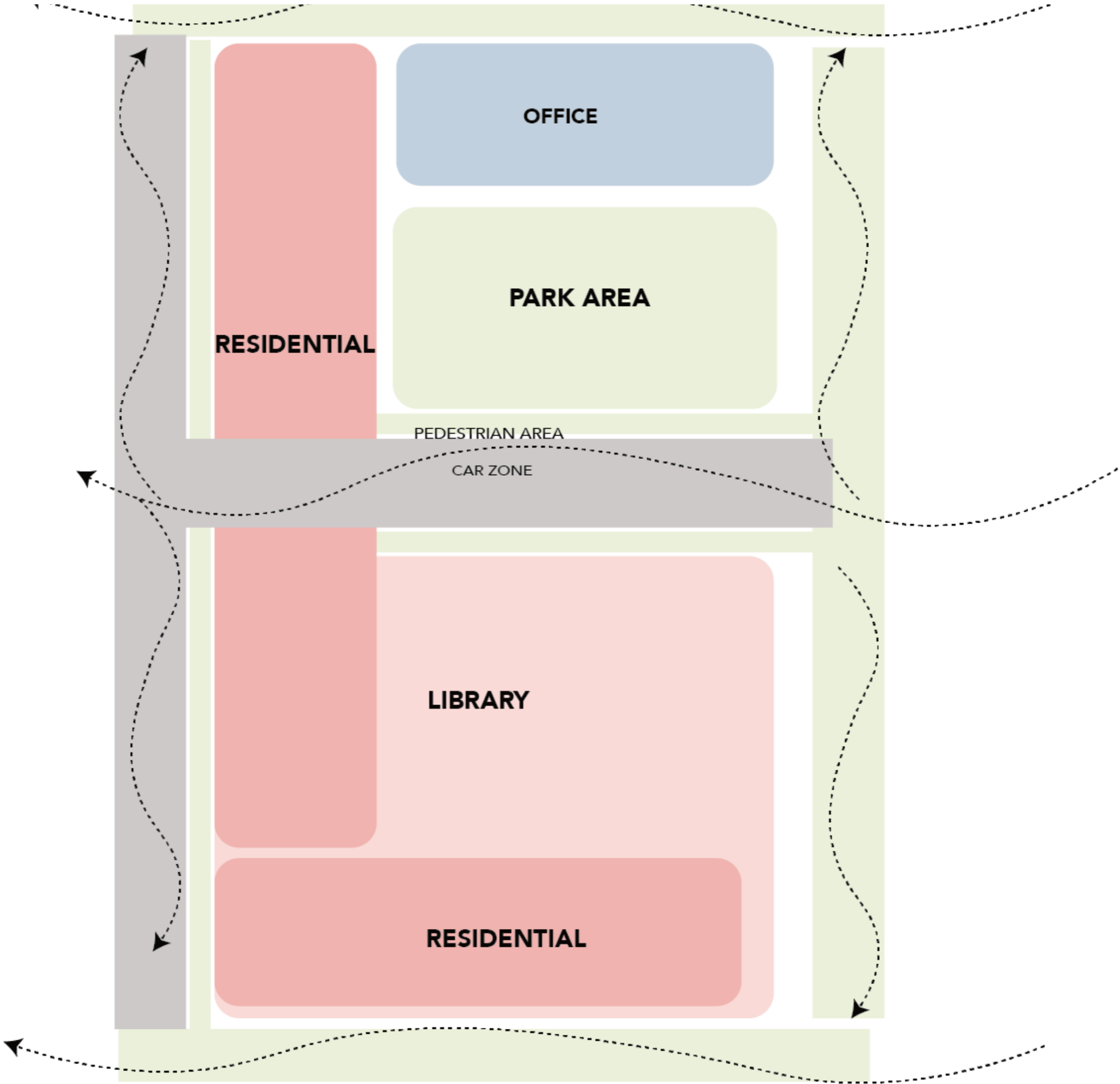


Closer view from the side on the left and passage

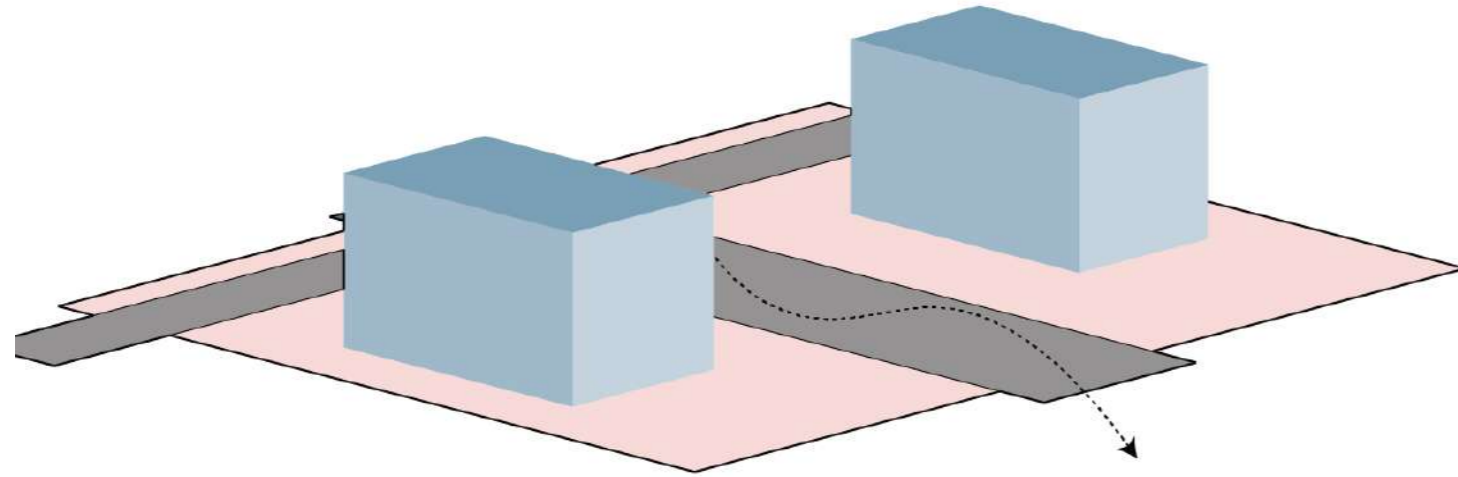
View of the boulevard/street structure represing the main street hub



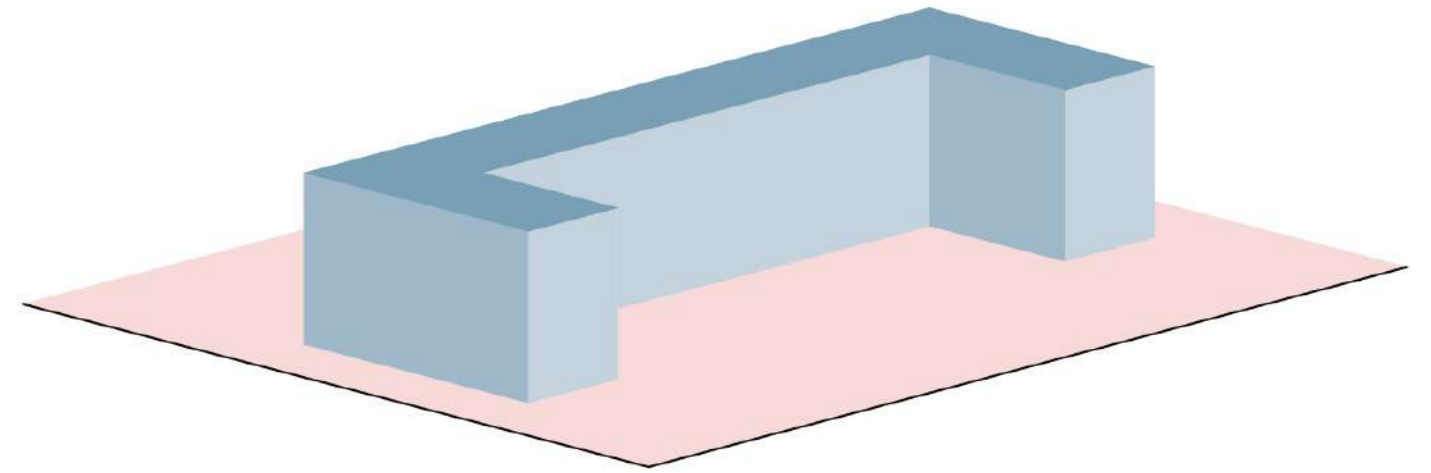
ZONING DIAGRAM



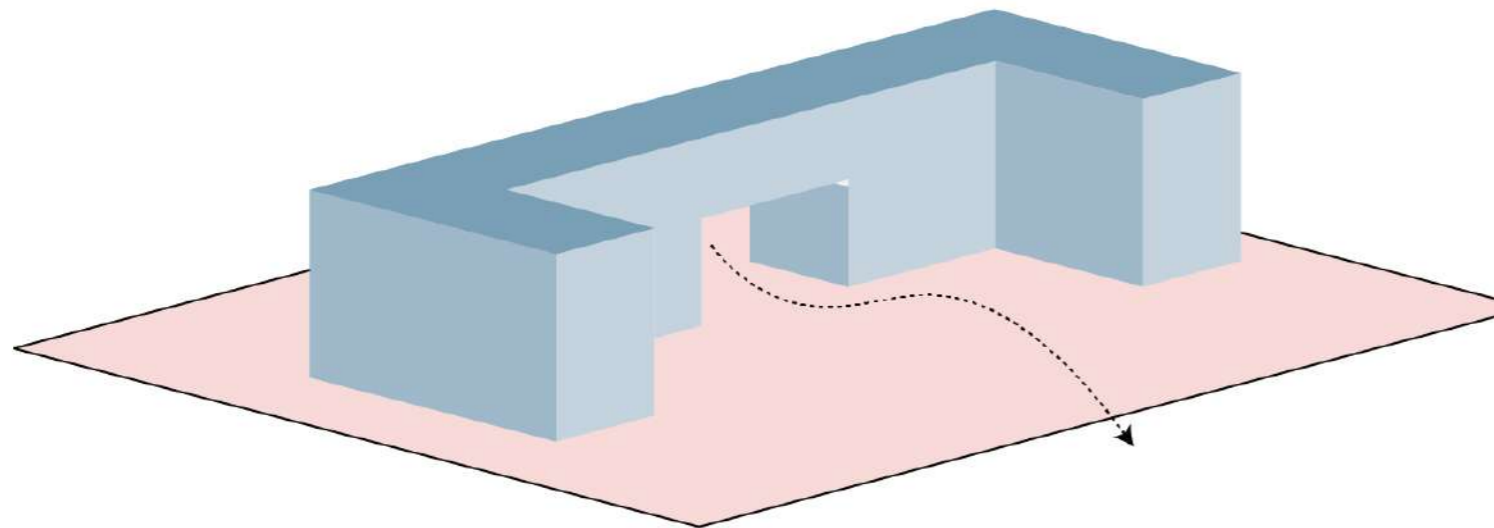
CONCEPT DIAGRAM BUILDING



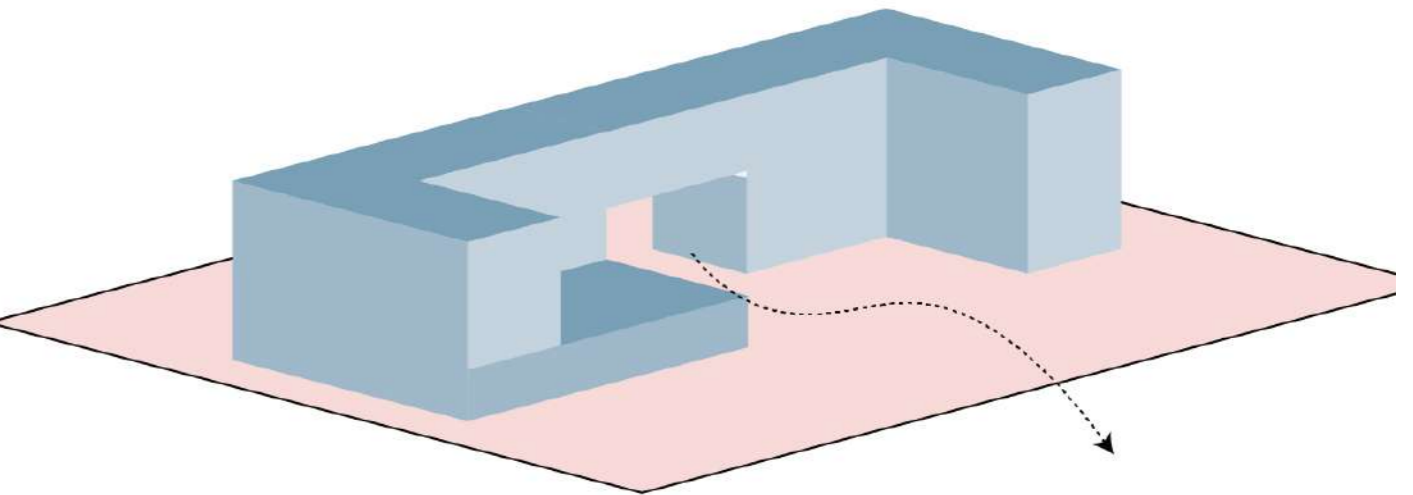
DEFINING THE STREET AXIS



BRIDGING THE TWO-STREET EDGE

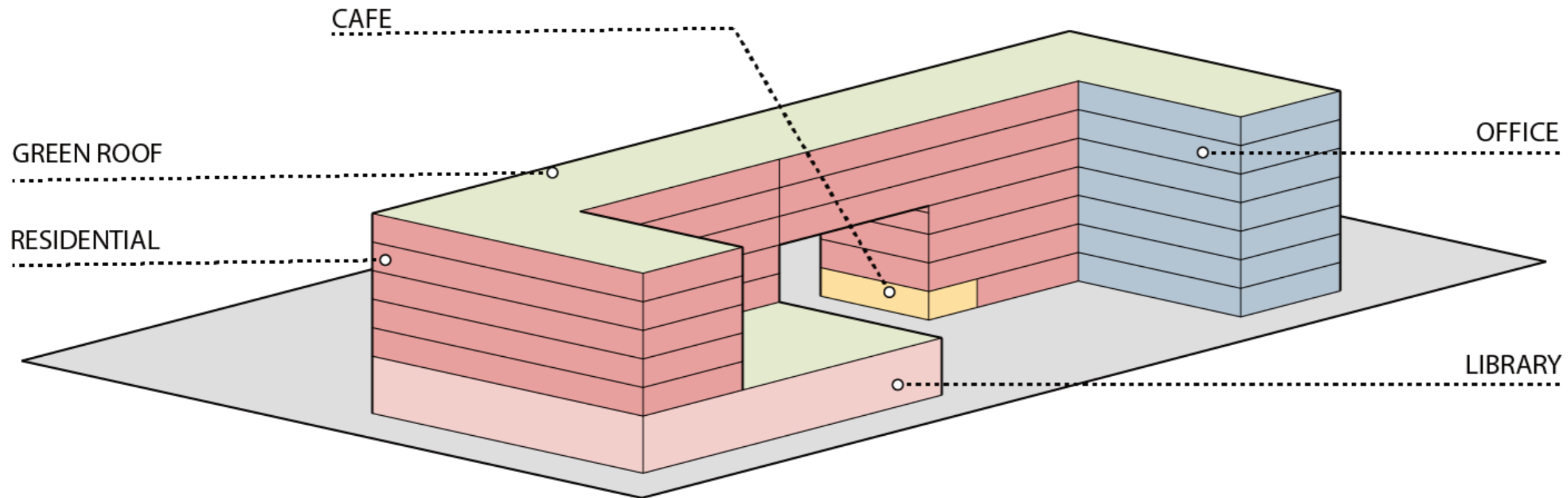


PASSAGE THROUGH THE BUILDING TO THE MAIN STREET



EXTRUDING GROUND FLOOR INTO LIBRARY

USERS AND PROGRAMME



Total residents-450

Library capacity- 200

- **Community Engagement:** Opportunities for social interaction and community engagement.
- **Work-Life Balance:** flexible office spaces within the building where people can focus on their work without distractions, as well as communal areas to unwind and socialize after hours.
- **Access to Amenities:** convenience and accessibility to amenities such as the library for reading, research, and leisure.
- **Green Spaces and Sustainability:** access to green spaces within the building, such as rooftop gardens or landscaped courtyards, where they can connect with nature and engage in eco-friendly activities.
- **Safety and Well-being-**monitored controlled in and out the building ensuring safety and comfort of residents and visitors



VISITORS



FAMILIES

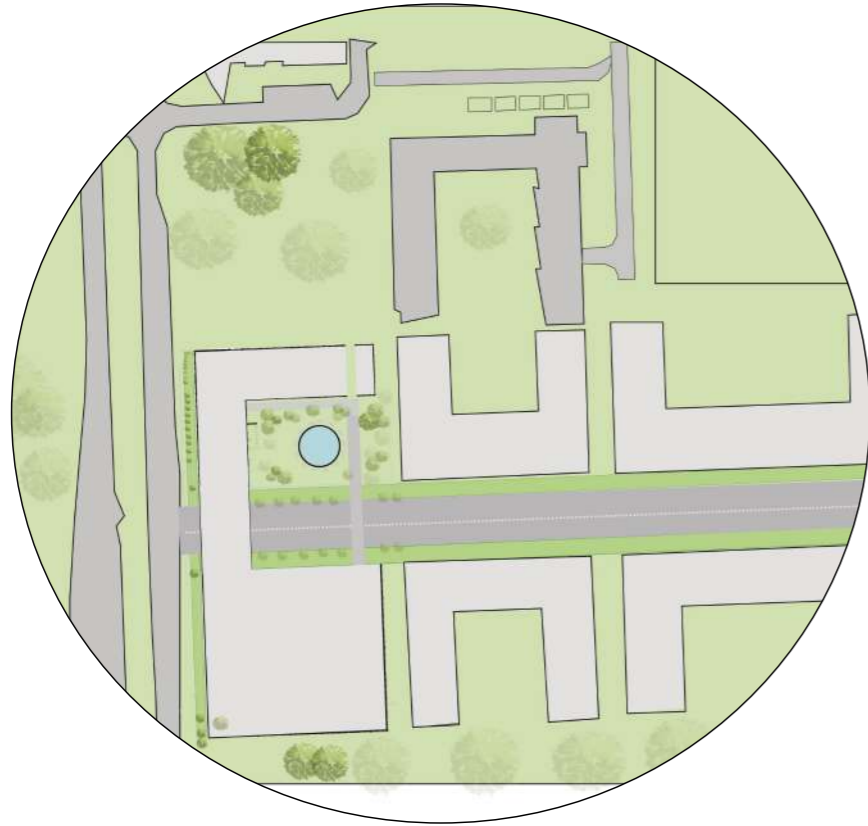


WORKERS AND STAFF MEMBERS, LIBRARIANS



RESIDENTS

SUPERPOWERS



Building location is on the end of the street as an important urban element point from where the boulevard starts to develop.



Green balconies on the east and west facade marking the end of the street as well as enhancing thermal comfort, aesthetics and air quality.



Big library on the ground floor in double height featuring study and reading places for students, researchers and visitors

04

TECHNICAL
DRAWINGS

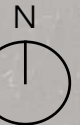
SITE PLAN-ROOF



Scale 1:1000



FLOOR -1 PARKING
1:500



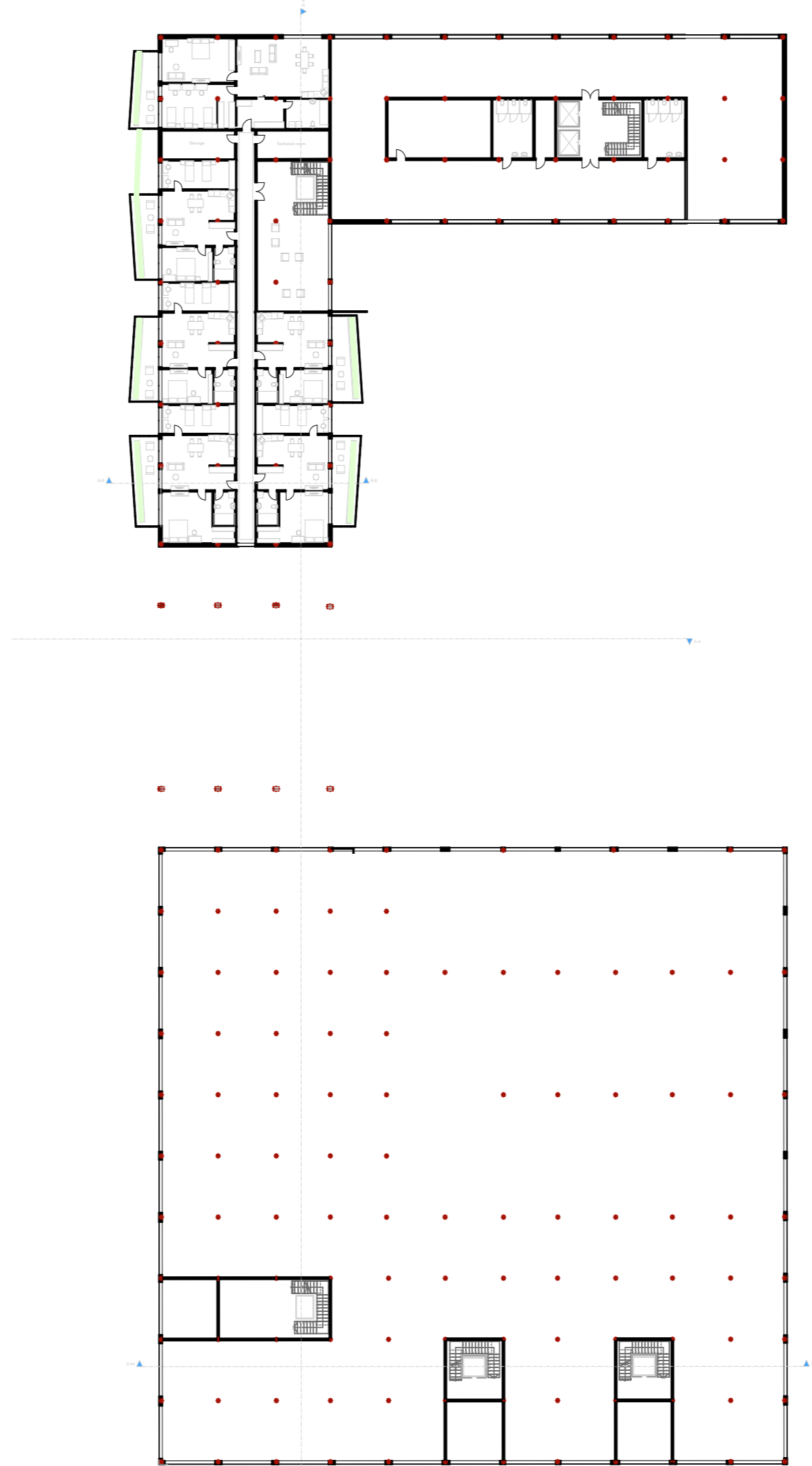
GROUND FLOOR PLAN



- 1. Library
- 2. Residential
- 3. Cafe
- 4. Office
- 5. Park area
- 6. Parking entrance
- 7. Passage

FIRST FLOOR PLAN

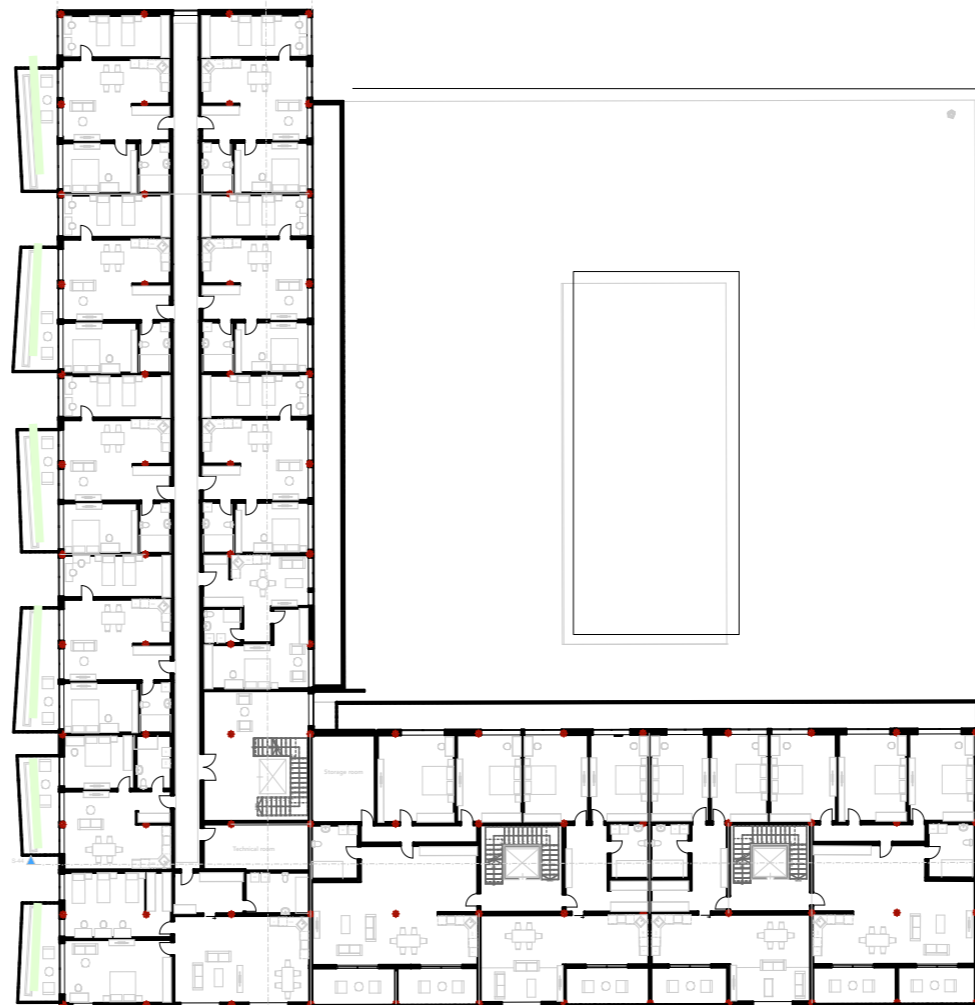
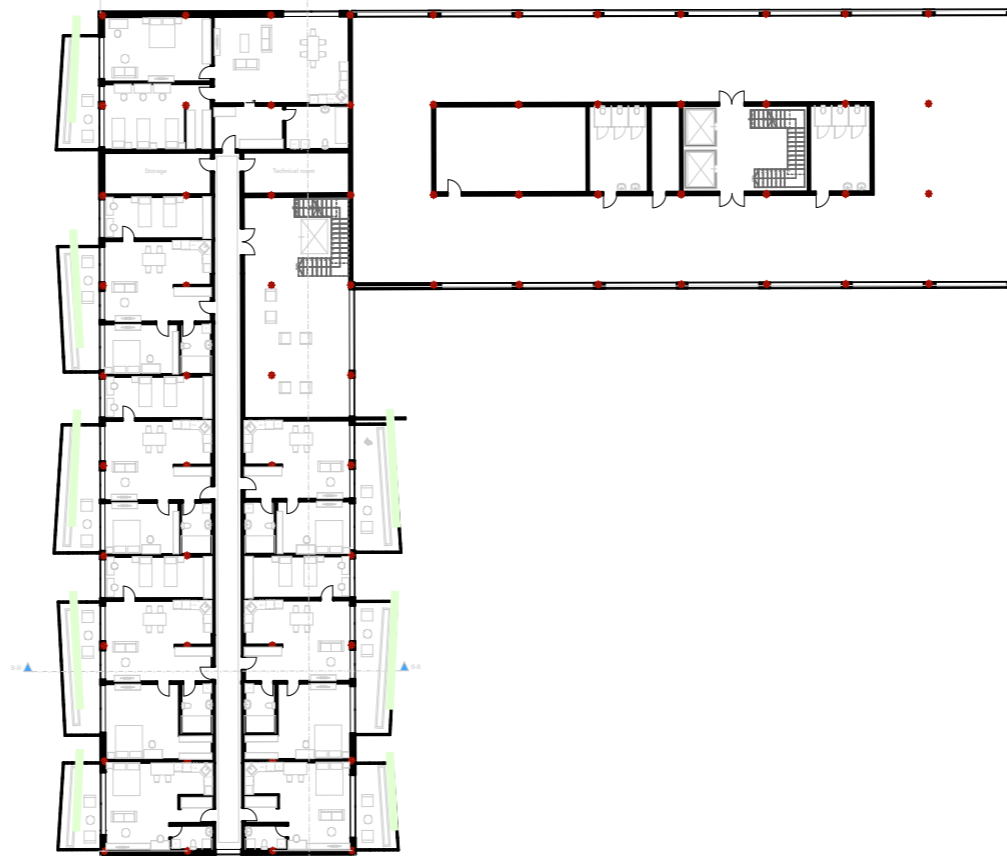
1:500



29/66

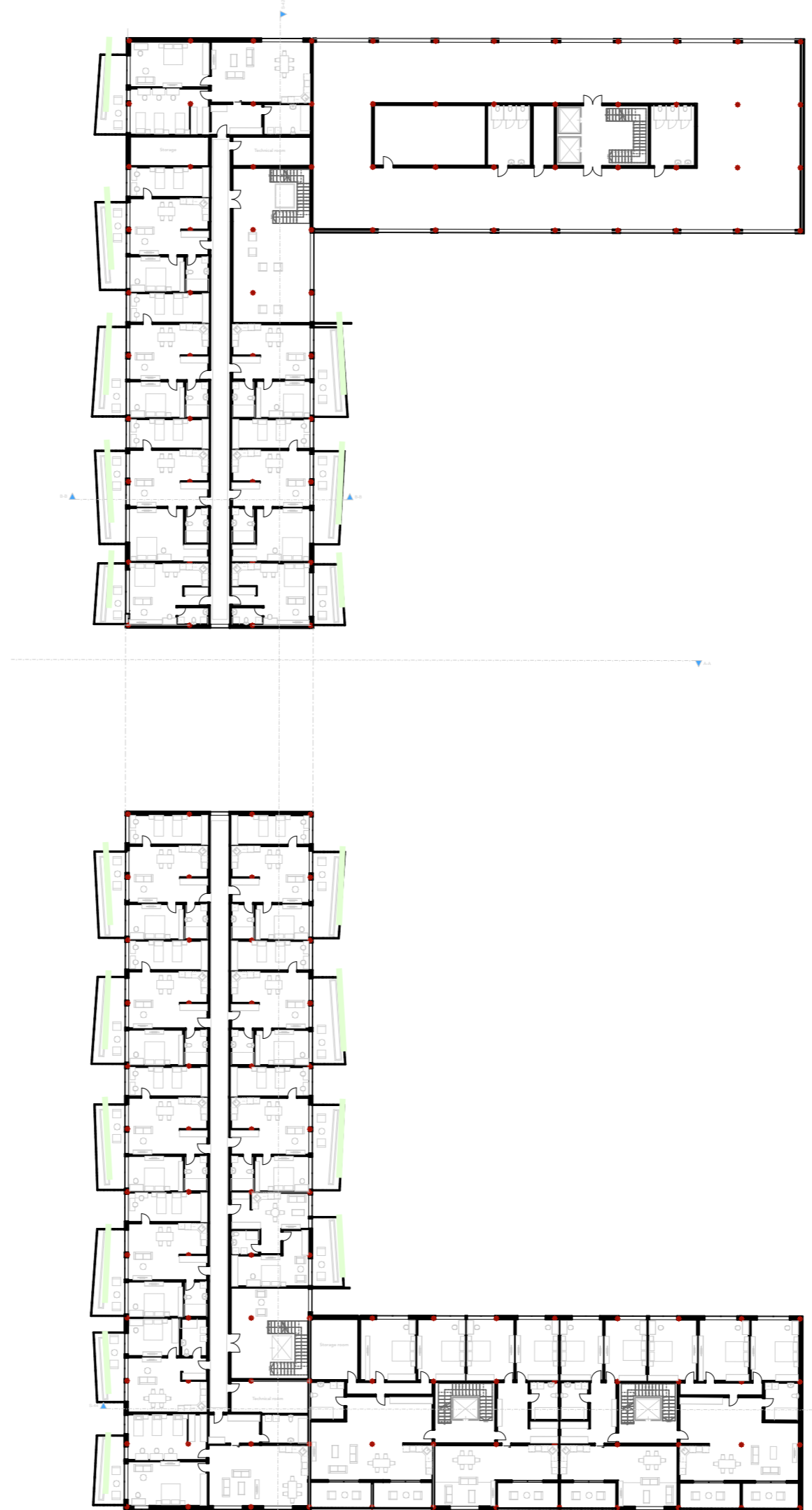
SECOND FLOOR PLAN

1:500



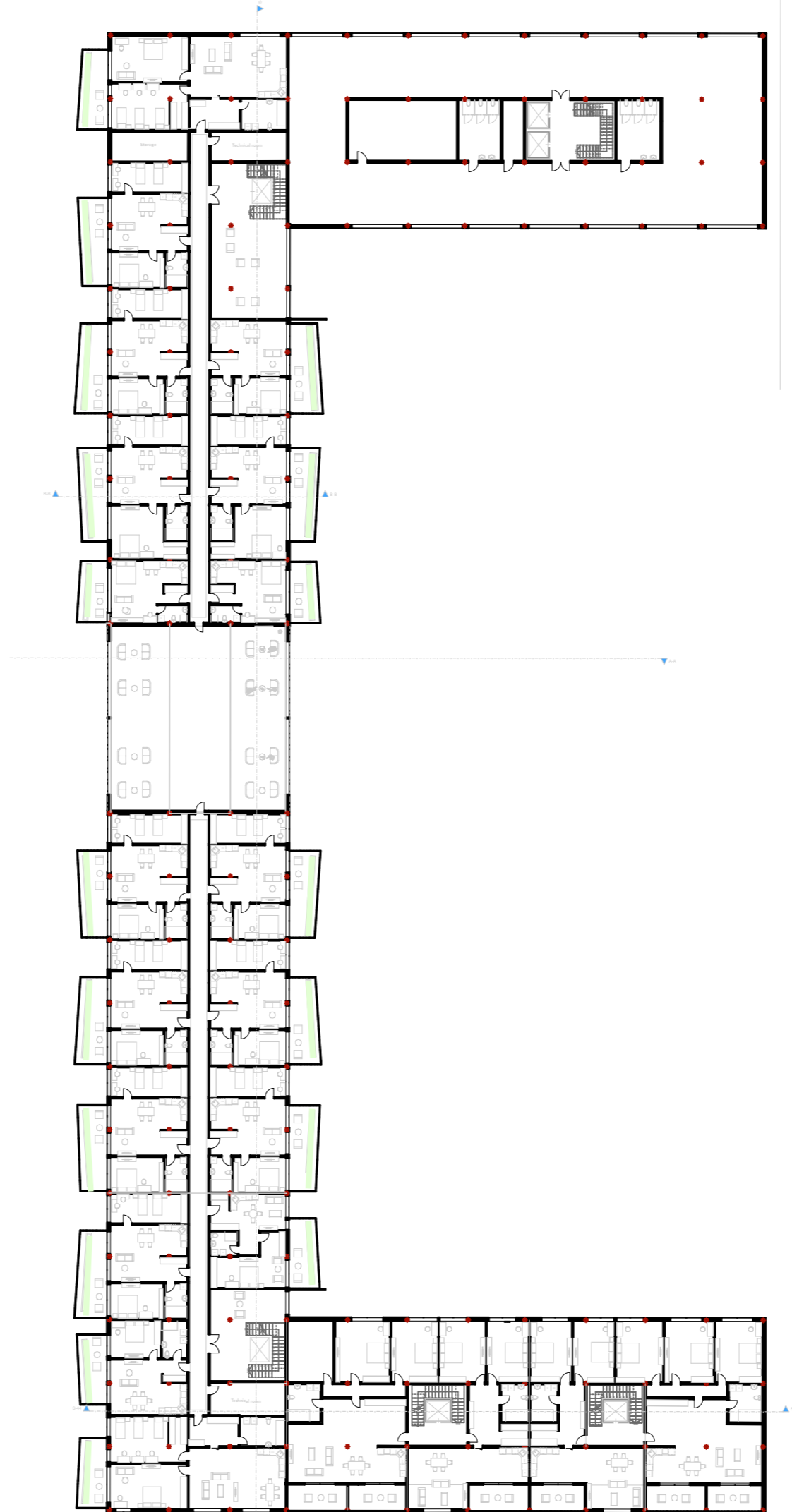
30/66

THIRD FLOOR PLAN
1:500



31/66

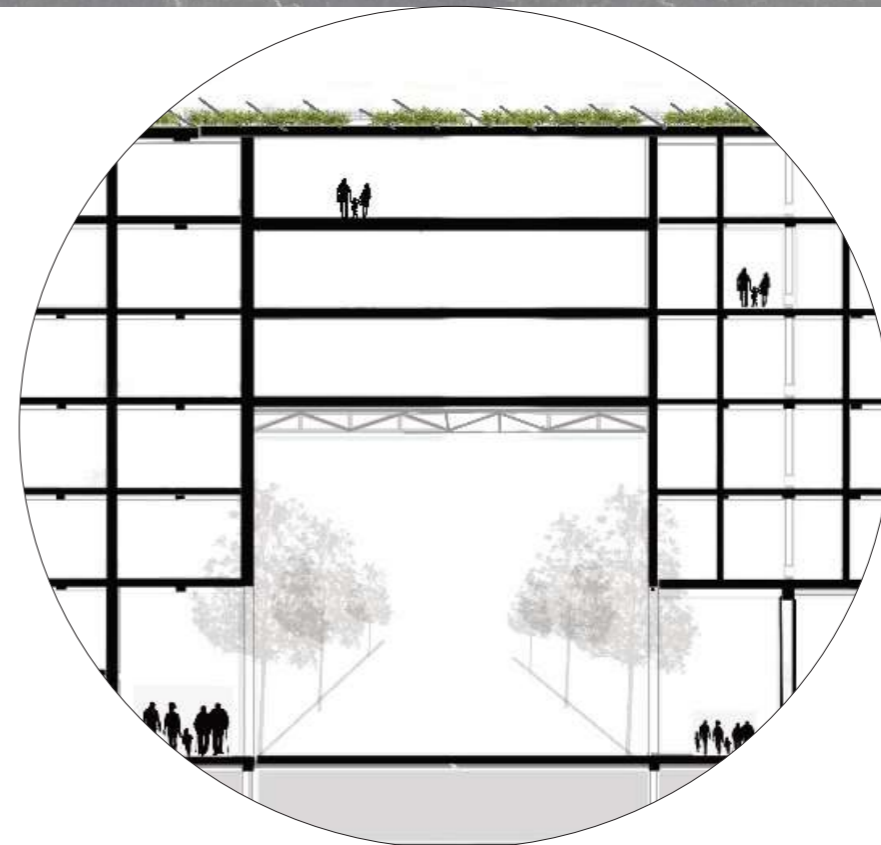
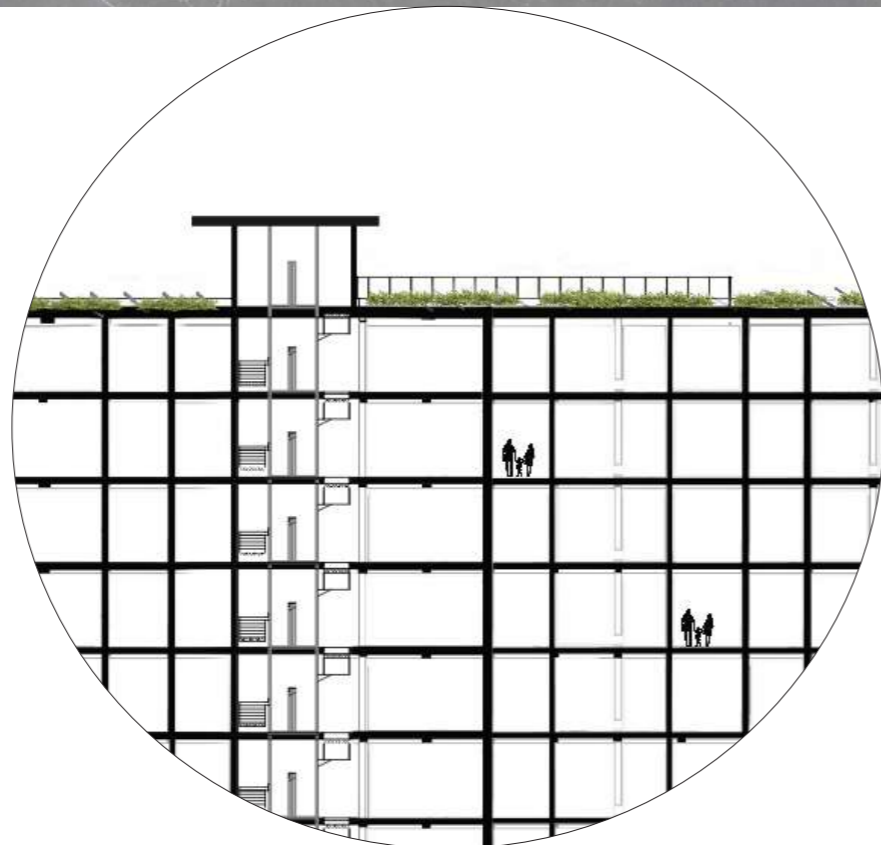
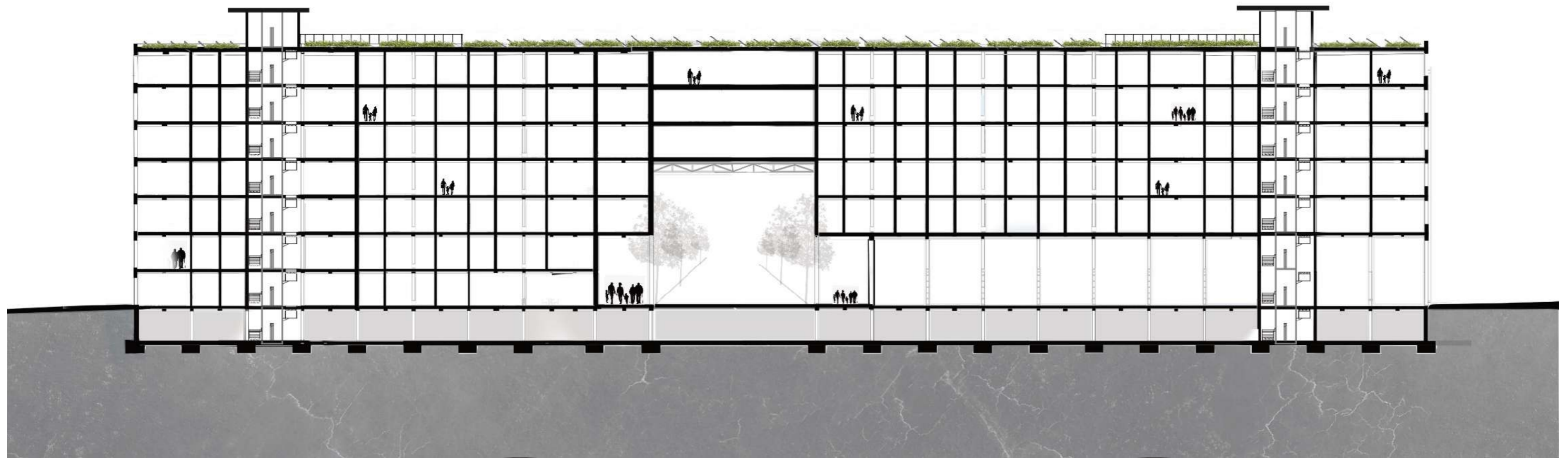
FLOOR LEVELS 4-6
1:500



32/66

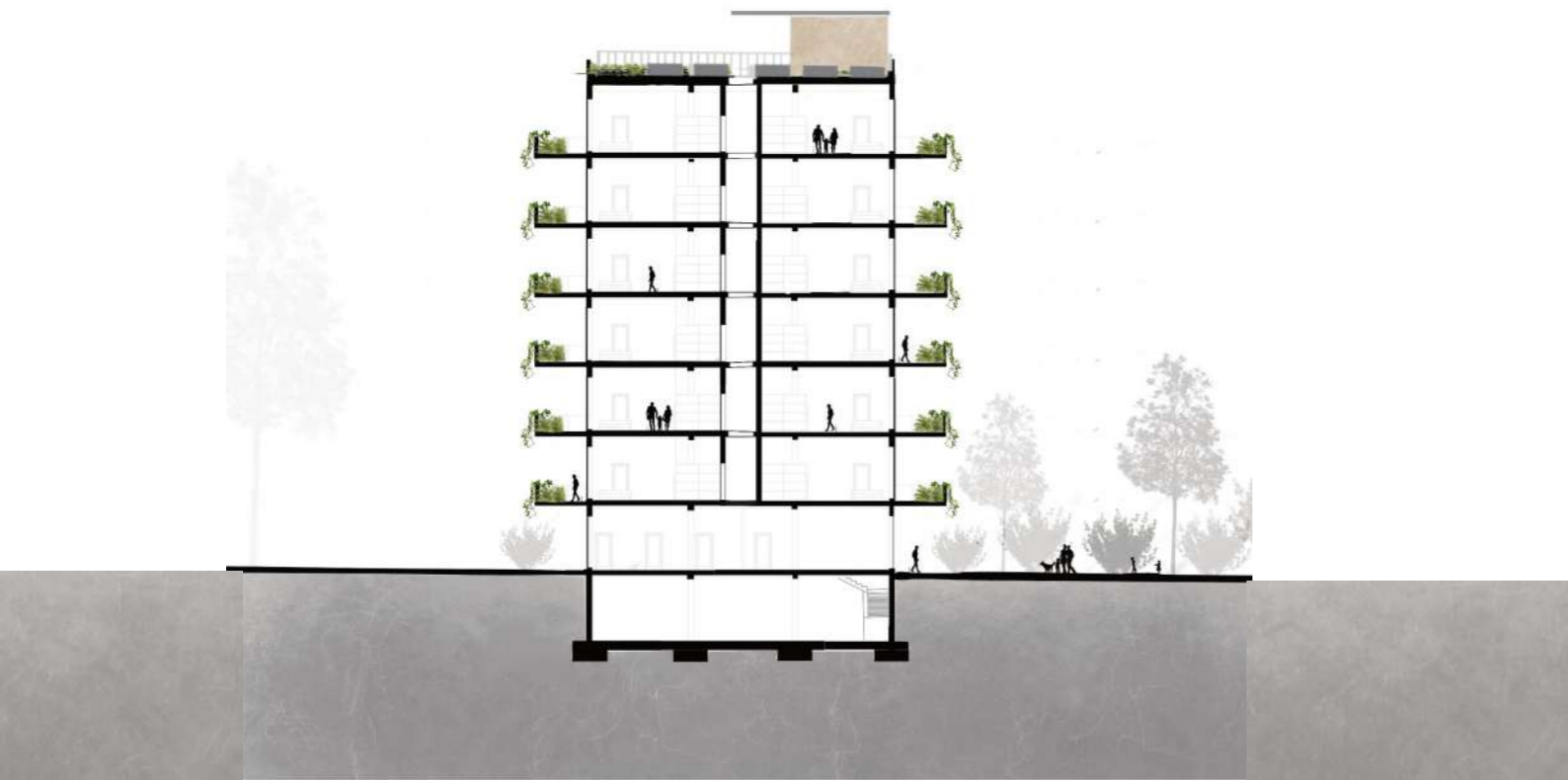
SECTION A-A

1:400



SECTION B-B

1:400



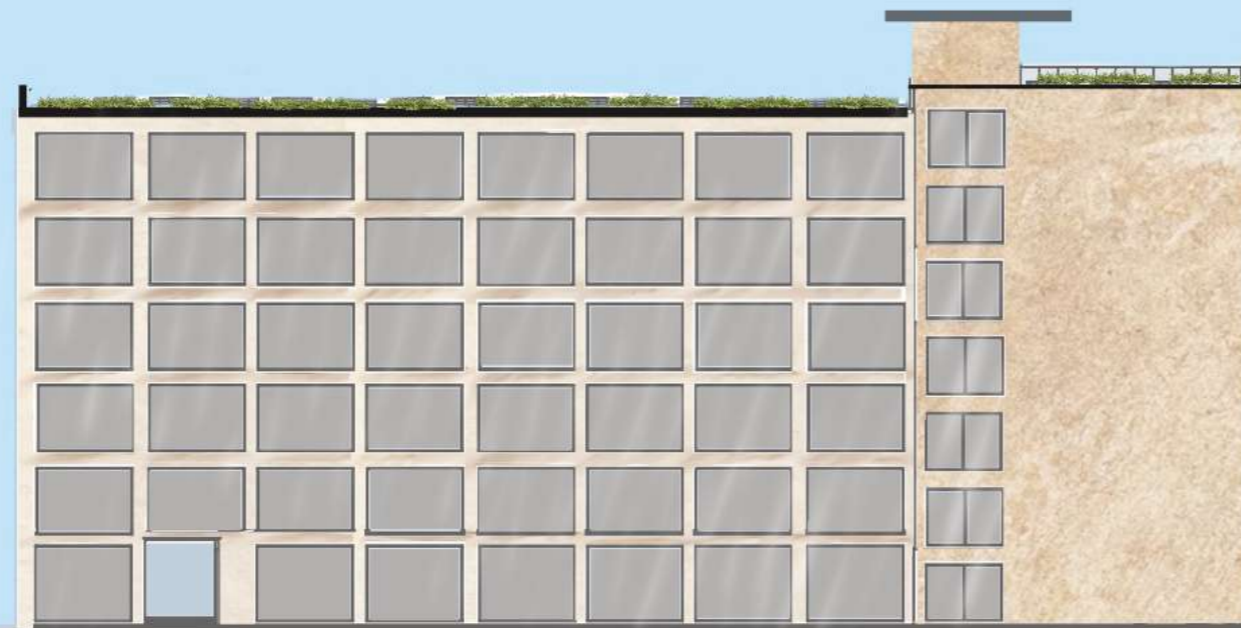
SECTION C-C

1:400



ELEVATION NORTH

1:400



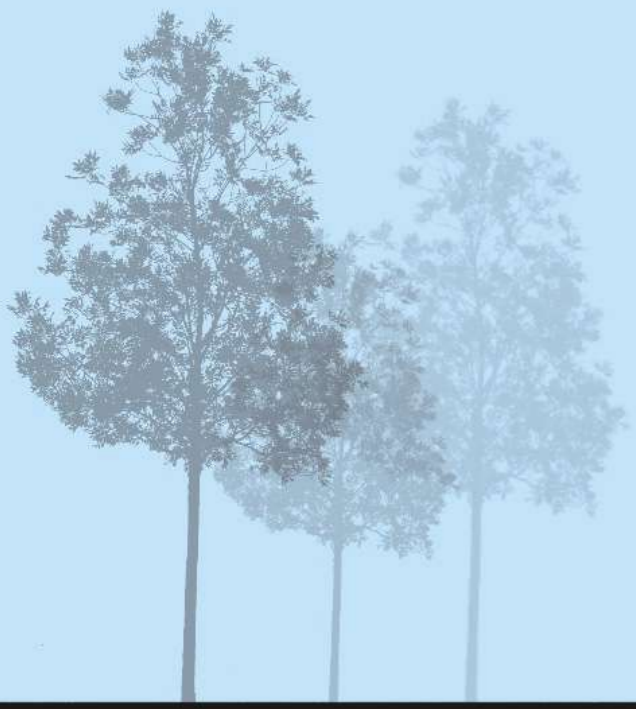
ELEVATION EAST
1:400



ELEVATIONS WEST
1:400



ELEVATION SOUTH
1:400



EXPLODED AXONOMETRY

OFFICE

GREEN ROOF

RESIDENTIAL UNITS
150sq.m and 200sq.m

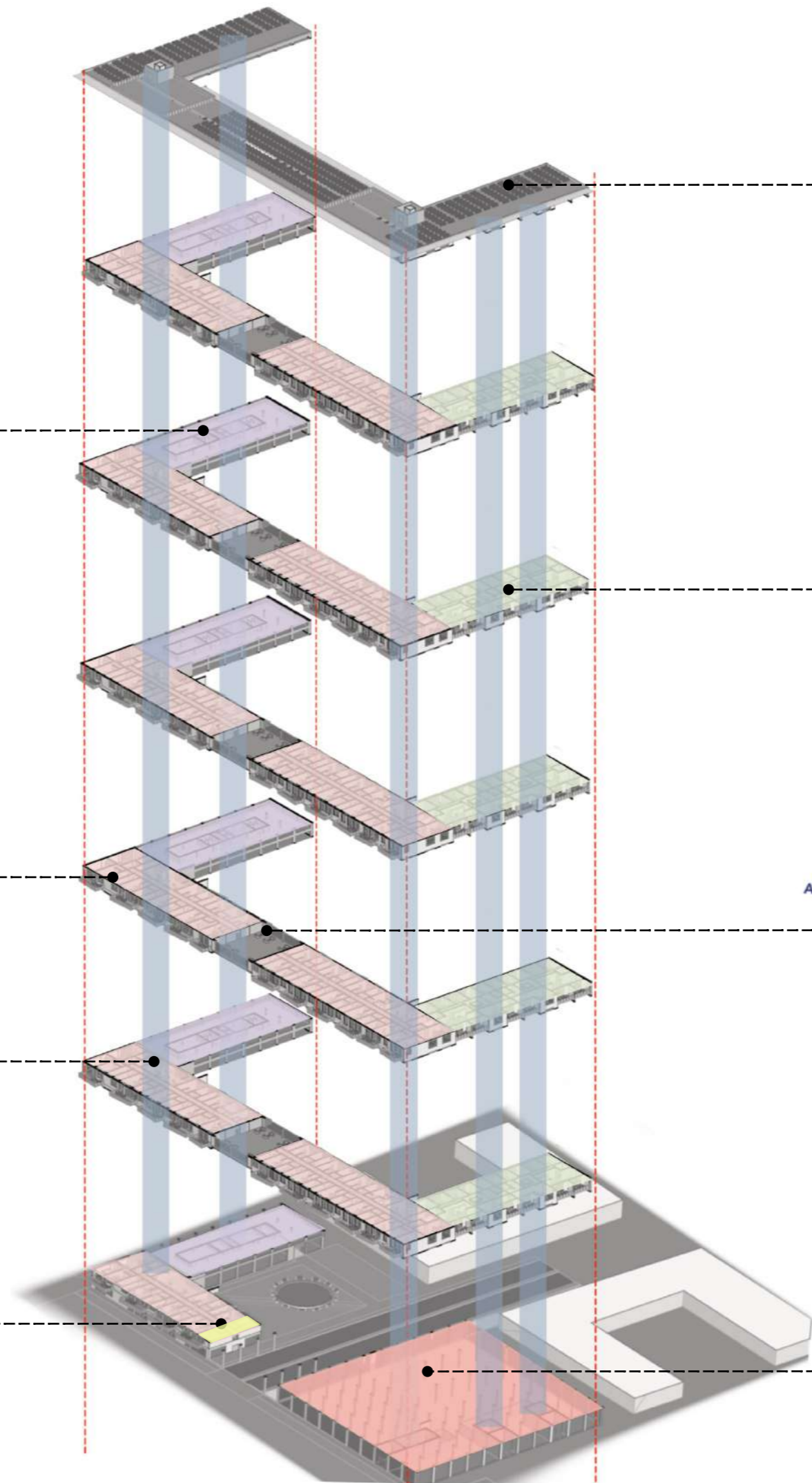
RESIDENTIAL UNITS
40s.m and 70sq.m

COMMON CHILL ZONE

VERTICAL CONNECTIONS
Stairs and lifts

CAFE

LIBRARY



MATERIALS AND SUSTAINABLE STRATEGIES



RECYCLED RC



MASONRY



INSULATION



LIME PLASTER



SHADING



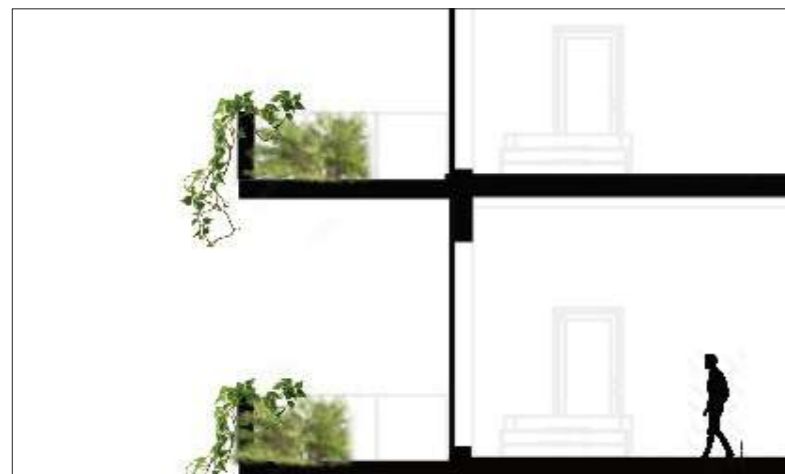
TRIPLE-GLAZED WINDOWS



WATER RECYCLING



POND AND PARK AREA



GREEN BALCONIES

GREEN ROOF AND SOLAR PANELS



05

VISUALS

EXTERIOR FRONT



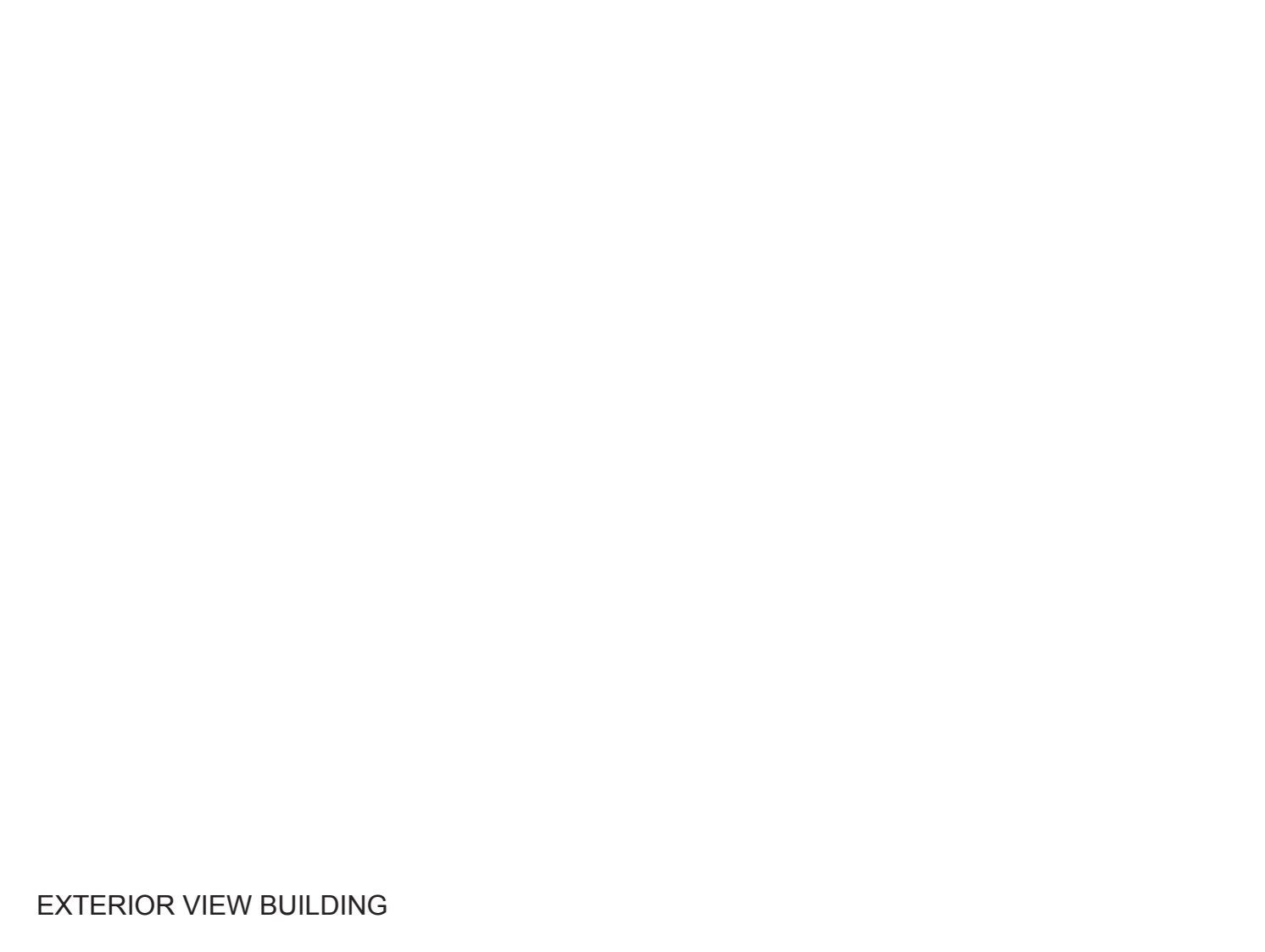
EXTERIOR VIEW PARK



EXTERIOR VIEW LIBRARY







EXTERIOR VIEW BUILDING



WINDOW VIEW FROM CHILL ZONE ABOVE GATE



AXONOMETRY



PHYSICAL MODEL URBAN SCALE

1:5000



PHYSICAL MODEL BUILDING

1:200



06

TECHNICAL
DETAILS

ROOF-FACADE DETAIL

1:10

Solar panels PV-Novotegra mounting installation system

C-rail

Module support

Mounting screw

Flushing-metal plate

Gravel

Vegetation

Soil-growing medium

Substrate plate

Filter fabric

Drainage

Protective layer

Waterproof membrane

Cement+sand screed

Separation foil

Thermal insulation

VCL

RC Concrete slab+RC concrete beam

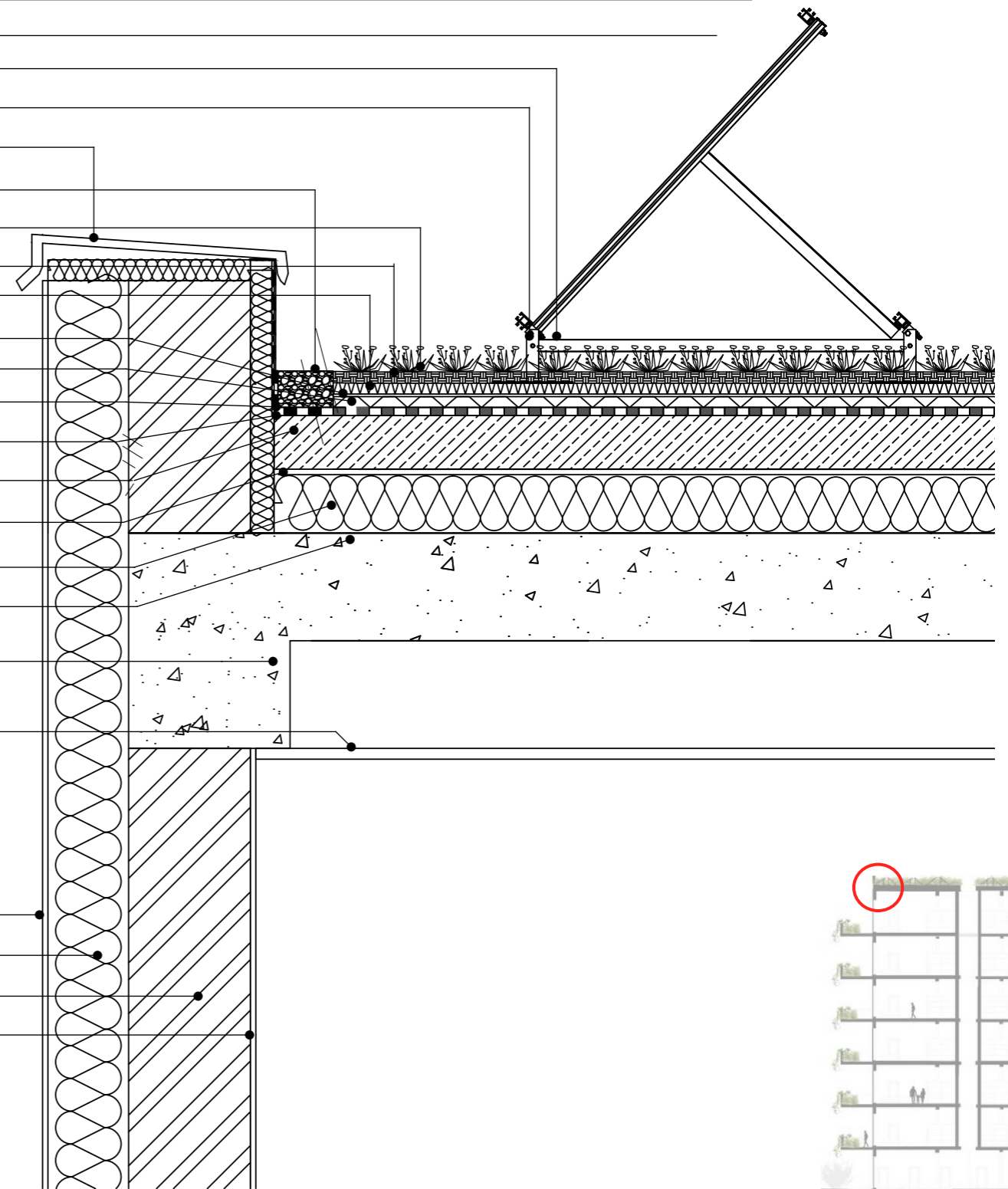
Gypsum plasterboard ceiling

Exterior lime plaster

Thermal sheep wool insulation

Masonry

Interior plaster



WINDOW DETAIL

1:10

Flower pot
Vegetation
Soil-growing medium
Drainage
Gravel

Glass panel railing

Triple glazed window panels

Aluminum frame

Sealed strip

Vapor barrier

Rigid insulation under sill

Floor finish

Thermal insulation

RC concrete

Schöck Isokorb concrete to concrete thermal bridge joint

Gypsum plasterboard ceiling

Exterior lime plaster

Thermal sheep wool insulation

Masonry

Interior plaster



BASEMENT AND GROUND FLOOR DETAIL

1:20

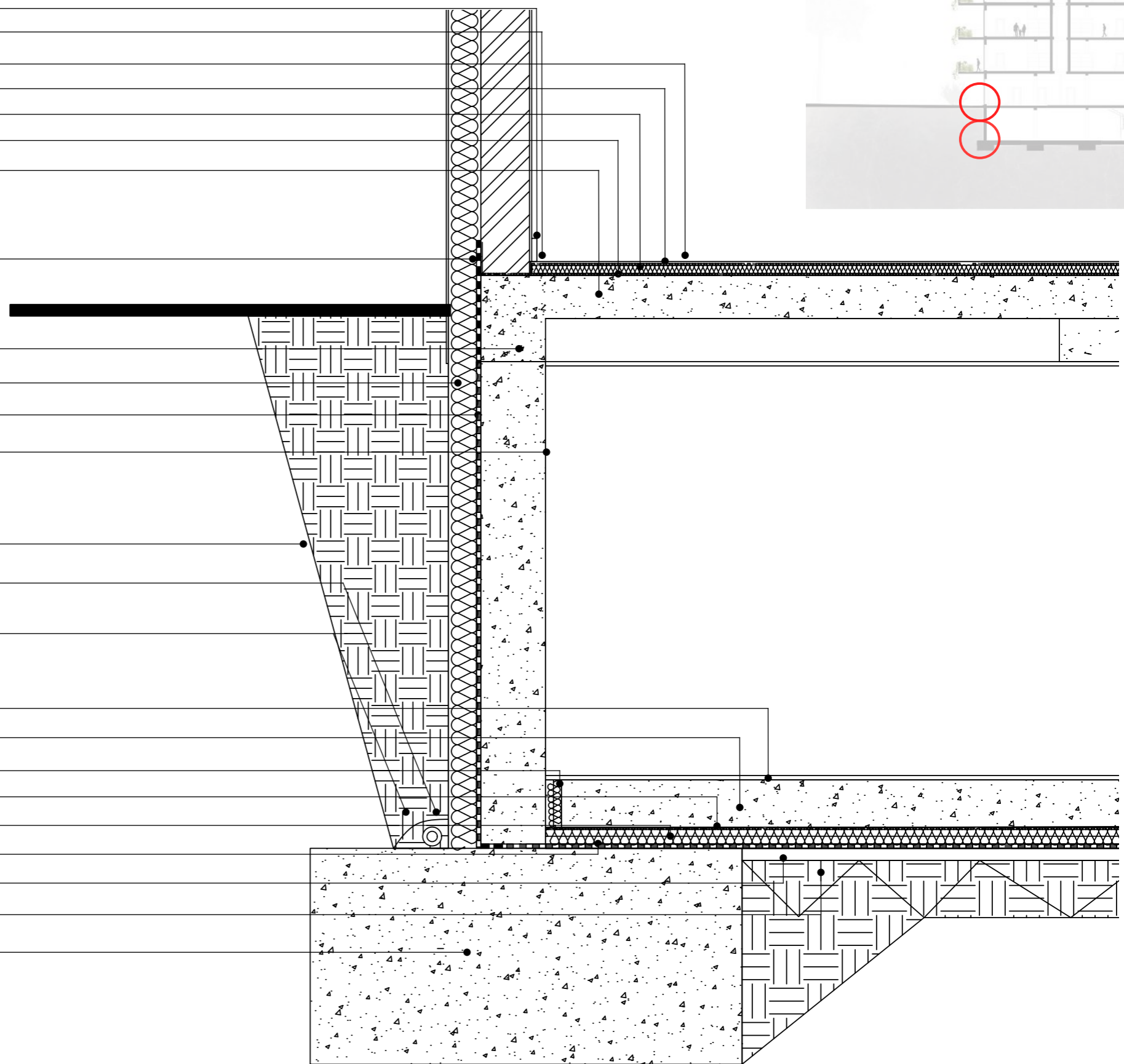
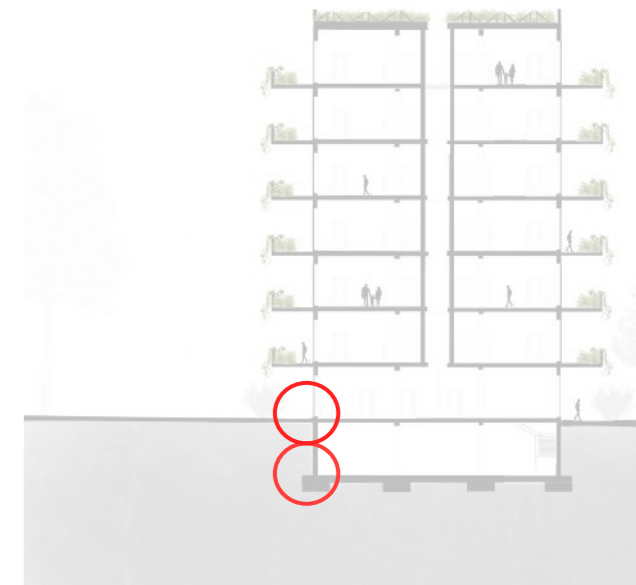
- Corner profile
- Edge insulation
- Floor finish
- VCL
- Insulation
- DPM
- Concrete slab

DPM 150mm above Ground level

- Concrete wall
- Thermal insulation
- DPM
- Interior finish

- Soil
- Drainage pipe
- Filter fabric

- Floor finish
- Concrete slab
- Edge insulations
- VCL
- Thermal insulation
- DPM
- Blinding
- Hardcore
- RC Pad footing



CONSTRUCTION DIAGRAM

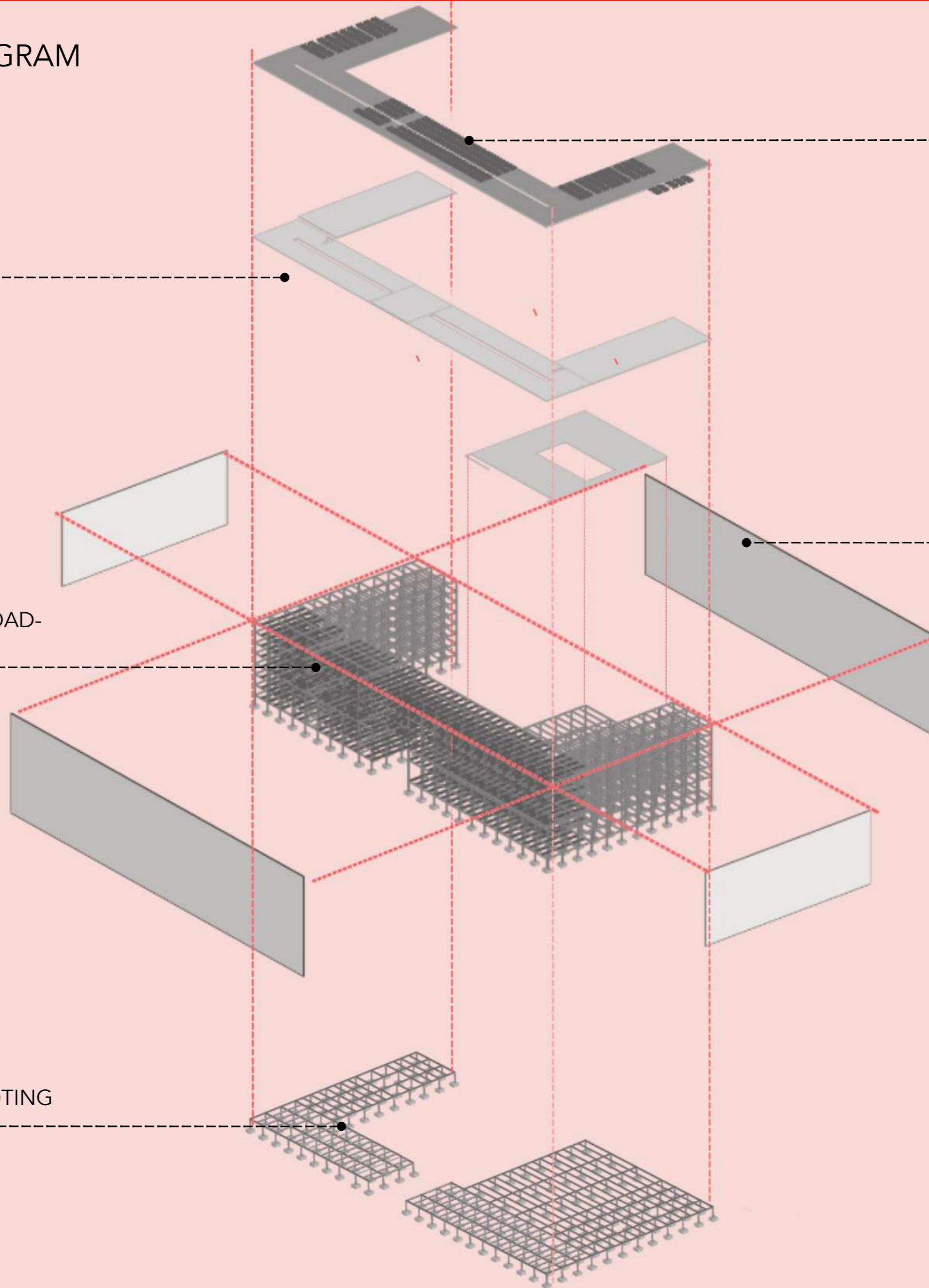
RC CONCRETE SLAB

GREEN ROOF

RC COLUMN AND BEAM LOAD-BEARING STRUCTURE

MASONRY WALLS

RC CONCRETE PAD FOOTING



07

TECHNICAL
REPORT

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2.5 Accessibility

3. Structure of the building

3.1 The frame

3.1.1 Substructure

3.1.2 Superstructure

4. Building technology

4.1 Water supply and sewage

4.2 HVAC

4.3 Energy

5. Sustainability

5.1 Orientation

5.2 Daylight and sunlight

5.3 Greenery

5.4 Materials

6. Conclusion

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1. Brief

What will the heritage of the future look like? By exploring the past and imagining the future we will get an idea what to do today. The semester approach is based on city maps exploring and generating projects for the year 2150 based on the assumption that population will double, and society change (technological innovations, globalization, environmental concerns etc.)

1.1 History

Panel estates in Prague have a fascinating history intertwined with the city's urban development during the communist era. Following World War II, Prague faced a housing crisis, leading to the construction of large-scale housing projects in the 40-50s to accommodate the growing population. Inspired by Soviet architectural principles, panel estates emerged as a solution, characterized by prefabricated concrete panels assembled to create high-rise residential buildings. These estates, such as Jižní Město (South City) and Severní Město (North City), reshaped Prague's skyline and provided housing for thousands. Later faced criticism for their uniformity, lack of architectural diversity and ideology of communist leaders.

1.2 Concept/Vision

The project focuses on the housing estates in Prague and proposes a vision for how they will look like in the future as currently there are many empty and unutilized spaces in between. The main idea started from looking back in the history, how they developed and grew until now and people's perception about them. The project is located in Prague in the housing estate Jizni Mesto, Chodov district.

This architectural project proposes a transformative approach to densify housing estates by reimagining the Main Street axis as a central organizing principle. Emphasizing the revitalization of neglected areas within these estates, the proposal centers around the creation of a vibrant Main Street hub boulevard characterized by mixed-use buildings, public spaces, and lush greenery. By infusing these once desolate spaces with vitality and functionality, the aim is to enhance the quality of life for residents while attracting visitors from the city core to the periphery.

Through strategic urban interventions, I seek to catalyze positive changes in the urban fabric, fostering a sense of community, connectivity, and livability for all. This project represents a holistic approach to urban regeneration, harnessing the power of design to breathe new life into forgotten spaces and shape more sustainable, inclusive, and dynamic urban environments while preserving the heritage of the city of Prague.

1.3 Urban and architectural proposal

The project is focused on the panel housing estate Jizni mesto which is one of the oldest in Prague. A strategy has been developed to create a grid how the area can be densified and fight with the overpopulation in the future. The scheme is to densify the main street axis and outline the currently not visible street on the schwarz plan and turn it into a main boulevard hub which are currently missing, and this will contribute to attracting more people to the site and those cold, concrete estates. The project is inspired by geometric art paintings ("The Labyrinth" by Oспен Fine Art) where there are colors, geometric shapes and different axis intertwined with each other. The proposed grid suggests 3 main urban elements of focus-closing points as the end of the street, central elements intersected and definition of main streets axis that were not visible before.

In order to emphasize the importance of the end points of the street and its finish, the buildings at the corners are the highest and gradually decrease towards the central building. As this is a visionary projects, it can be assumed that many of the housing estates have their expiration date to be soon therefore on my new urban plan some of those possible buildings have been deleted due to being too small, unused or destroyed. This step also contributes to preventing urban sprawl of housing estates starting demolition from the edges and shrinking it to the middle. It is possible that even more buildings will disappear by the year 2150 so this is the time when the main street boulevard will become the most important place for interaction, communication, living and recreation and will set the base for further development in a more positive, sustainable and modern way.

After the development of the urban plan a focus is placed on a specific building along the street which is developed in architectural detail. The building focus is on the edge where it marks the end of the street as a bracket and serves as a gateway to this street line. It is also set as a principle that defines all the building shapes created and their program.

2. Characteristics of the building

2.1 Purpose

Purpose of the building is to provide individual and different sized residential spaces to the residents, each with their individual green balcony, flexible office spaces for workers where they can focus on their work as well as communal areas to socialize. Additionally, study spaces for students featuring a library on ground level, opportunities for social interaction and community engagement, public green spaces enhancing connection with nature and eco-friendly activities. The main idea is to create a vibrant street hub full of different kinds of building typologies and foster movement and livability to the space making use of the existing building footprints thus preserving the heritage of the site and proposing something new for the future.

2.2 Building data

Developed Area 5600 sq.m
Build up volume 125 160m³
Parking 4448 sq.m
Total floor area 27 177 sq.m
Number of floors 7
Coordinates (50.0284436, 14.5096222)

2.3 Building Typology

The building is divided into three main typologies making it a mixed-use building. On the right side there is a big library covering the ground area. Above are residential spaces spread along a L-shape and on the left side there are office spaces with an open-floor plan layout.

2.4 Users

Residential Tenants: Families and individuals
Library Patrons: students, researchers and public
Office Workers: employed professionals or entrepreneurs.
Visitors and Guests: customers and community members
Staff and Management

2.5 Accessibility

The site is accessible by public transportation with metro line C and several bus lines. Also, with private transportation vehicles.

3. Structure

3.1 The Frame

3.1.1 Substructure

The substructure of the building refers to the structural elements below ground level, including the foundation and basement. Pad foundations are used to support individual columns. Each column of the building is supported by a pad foundation, which is a shallow concrete footing designed to distribute the load from the column over a larger area of soil. The pad foundations are located at strategic points where columns are situated, transferring the loads from the superstructure to the underlying soil.

The basement of the building is constructed below ground level, providing additional space for parking. Insulation materials are installed within the basement walls and floors to improve thermal efficiency and reduce heat loss. Damp-proof membranes are installed on the exterior surfaces of the basement walls to prevent water infiltration and moisture issues. These membranes act as a barrier against water penetration, protecting the basement from groundwater leakage and moisture access. In the context of the substructure, monolithic concrete members include basement walls, floor slabs, and foundation elements. These members are constructed to provide structural integrity, durability, and resistance to soil pressures and groundwater.

3.2.2 Superstructure

The superstructure design of the building is characterized by a reinforced concrete framework, featuring columns and beams cast in place to form a load-bearing structure. This system provides exceptional strength and stability to support the building's various levels and loads. Infilling the spaces between the structural elements are masonry walls, which incorporate sheep wool insulation. This insulation material offers excellent thermal properties, enhancing the building's energy efficiency and providing occupants with a comfortable indoor environment.

Metal tie bars or anchors are embedded into the masonry wall during construction. These tie bars are then connected to the structural elements of the concrete frame, such as columns and beams, to securely anchor the wall to the frame.

Floors

The floors of the building utilize lightweight concrete, creating a durable yet lightweight structure. These floating floors contribute to the overall efficiency of the building while maintaining structural integrity.

Roof

Atop the building, a flat green roof structure is implemented, offering numerous environmental benefits such as improved insulation, stormwater management, and biodiversity enhancement.

Facade

The east and west facades of the building feature cantilevered green balconies, which not only serve as functional outdoor spaces but also contribute to the building's aesthetic appeal and environmental sustainability. These balconies provide opportunities for residents to connect with nature while also promoting natural ventilation and shading. The exterior façade is covered in beige lime plaster.

Windows and doors

Triple-glazed windows are installed throughout the building to minimize heat loss, reduce noise transmission, and optimize natural daylighting while minimizing solar heat gain and glare. Also, flush doors made of MDF (medium-density fiberboard) with a smooth surface

Circulation

Stairs and lifts (in total 5 sets), strategically positioned within the building, serve as both functional elements and structural stiffeners, ensuring stability and facilitating vertical circulation. Notably, the columns are intentionally left partly visible in the interior, emphasizing their importance and presence while contributing to the building's aesthetic character. Stud partition walls discreetly hide cables and pipes, maintaining a clean and uncluttered interior, while suspended ceilings elegantly hang from the beams, adding depth and dimension to the spaces below.

The design prioritizes flexibility, allowing for adaptable interior layouts, while embracing sustainability to create a harmonious living environment.

4. Building technology

4.1 Water supply and sewage

The building is connected to a local water source that provides the clean, potable water for drinking, cooking etc. A hot water tank in the technical room supplies hot water. The rainwater is collected in a tank underground, then accumulated and used for watering the plants and flushing toilets.

Greywater is also collected, filtered, and reused for non-potable purposes. Smart metering and monitoring systems track water usage, identify leaks, and optimize water management strategies. Blackwater goes directly to the sewage system.

4.2 HVAC

Heating and cooling

The building is both heated and cooled by air source heat pumps (ASHP). It extracts heat from the outdoor air in heating season and releases heat outdoors during cooling season. The pump is powered by renewable energy from the photovoltaic panels on the roof.

Natural Ventilation

The building features strategically placed openings to facilitate airflow based on layout, size, location, and orientation fostering cross-ventilation and maximized airflow.

Mechanical ventilation

Ventilation in the building is provided by two AHUs (Air-heating unit) located on both sides of the roof. It is connected to every room with supply and extract system with an outside connection. Lift shafts require mechanical ventilation systems to maintain air quality and prevent the buildup of odors, humidity, and pollutants. Ventilation fans are installed at the top of the lift shaft or in adjacent spaces to exhaust stale air and introduce fresh air into the shaft.

4.3 Energy

Solar PV panels

Solar PV panels located on the roof harness the abundant energy of sunlight to generate clean electricity for the building, reducing reliance on fossil fuels, lowering energy costs,

and mitigating carbon emissions. Additionally, they supply the heat with green renewable energy. They are a cornerstone of sustainable energy systems in buildings and contribute to a more environmentally friendly and resilient energy future.

5. Sustainability

5.1 Orientation

The orientation of the building serves as a strategic element, optimizing natural resources and minimizing environmental impact. Embracing passive design principles, the residential units are situated along the east or west axis, strategically positioned to capitalize on natural daylighting and passive solar heating throughout the day. This orientation not only maximizes occupants' comfort and well-being but also reduces reliance on artificial lighting and heating systems, thus lowering energy consumption and carbon emissions. Residential spaces are also on the north-south side where they can access to both sides thus contributing to a better natural ventilation and less heating issues.

The library, positioned on the ground floor gets access to all sides of the sun. It is completely glazed, and the columns are all exposed creating an open floor plan. This placement ensures a comfortable reading and studying environment for patrons while reducing the need for excessive artificial lighting and cooling.

The office spaces are located along the north-south facade, where they are shielded from direct sunlight on the north, minimizing overheating and glare. This orientation optimizes energy efficiency by reducing the demand for cooling systems while providing a conducive work environment for office occupants and natural ventilation.

5.2 Daylight and sunlight

Optimizing daylight and sunlight penetration throughout the interior spaces is vital. For the residential areas, large windows strategically placed along the east-west orientation flood living spaces with natural light, enhancing occupants' well-being and reducing reliance on artificial lighting during daylight hours. This not only creates a more pleasant living environment but also contributes to energy savings and a lower carbon footprint. Roller blinds and roof overhangs provide shading for all windows in the building.

In the office spaces, careful consideration is given to the placement of windows to maximize daylighting while minimizing glare and solar heat gain. This not only creates a comfortable and productive workspace but also reduces the need for artificial lighting, resulting in energy savings and improved sustainability.

5.3 Greenery

Greenery a core element of the design philosophy, harmonizing with nature while nurturing vibrant communities. Atop of the structure, lush extensive green roof adorned with native flora serve as living ecosystems, insulating interiors, mitigating urban heat, and absorbing carbon dioxide. **Solar PV panels** covering the rooftop harness renewable energy, powering the spaces with clean, sustainable electricity. Balconies cascading with green foliage extend a touch of nature to every residence, fostering a sense of tranquility and connection with the environment. On the ground level, public green space is present with a park adorned with vibrant flora, water pond, and thoughtfully placed benches inviting contemplation and community interaction.

5.4 Materials

Masonry brick walls are utilized for their durability, thermal mass properties, and minimal maintenance requirements, providing robust structural support while contributing to the building's aesthetic appeal. Paired with **sheep wool insulation**, these walls offer superior thermal performance, effectively regulating indoor temperatures, reducing energy consumption for heating and cooling, and creating comfortable living, working, and reading spaces.

Recycled reinforced concrete forms the backbone of the building's structure, comprising floors, columns, and beams. By incorporating recycled materials, we not only reduce demand for resources but also divert waste from landfills, aligning with our commitment to circular economy principles and sustainable construction practices.

Atop the structure, a **green roof** not only enhances the building's aesthetic appeal but also serves as a natural insulator, regulating indoor temperatures, reducing stormwater runoff, and mitigating the urban heat island effect.

The finishing render on the exterior walls plaster is **lime plaster** which is an eco-friendly alternative to traditional cement-based renders. Lime production involves less energy consumption and releases less carbon dioxide into the atmosphere. It is breathable, allowing moisture to evaporate through the walls. This helps regulate indoor humidity levels and prevent moisture-related issues such as mold growth, contributing to better indoor air quality. It adheres well to masonry surfaces and can withstand weathering and aging over time, reducing the need for frequent maintenance and replacements. It is recyclable and biodegradable, making it a sustainable choice at the end of its lifecycle.

6. Conclusion

In conclusion, the project aims to transform the Main Street hub into a vibrant boulevard that caters to people of all ages with diverse activities. By defining the invisible street axis, it'll enhance connectivity and communication while ensuring flexibility for future needs. This revitalization effort not only prevents urban sprawl but also kick-starts housing estate redevelopment, all while preserving Prague's rich cultural heritage. The goal is to create the ultimate destination where everyone can enjoy their time, setting the stage for sustainable urban development well into the future.

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Art Painting-“ The Labyrinth” by Oспен Fine art

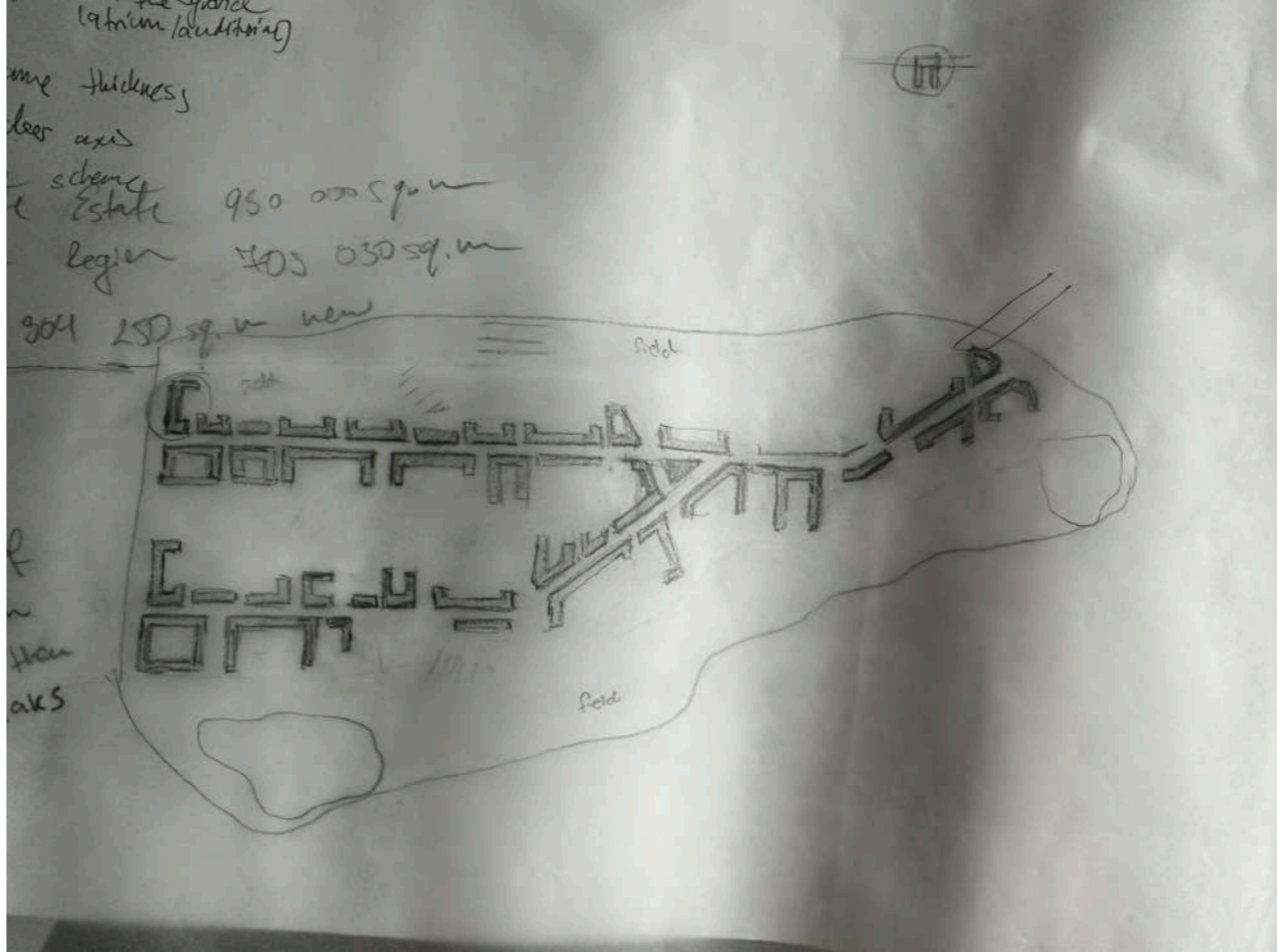
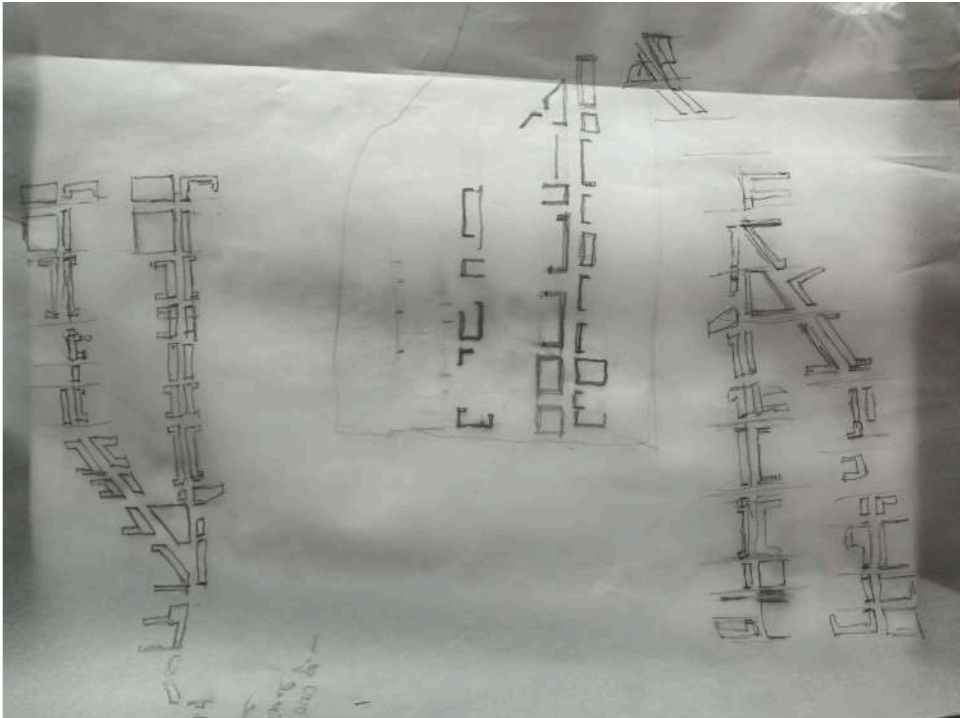
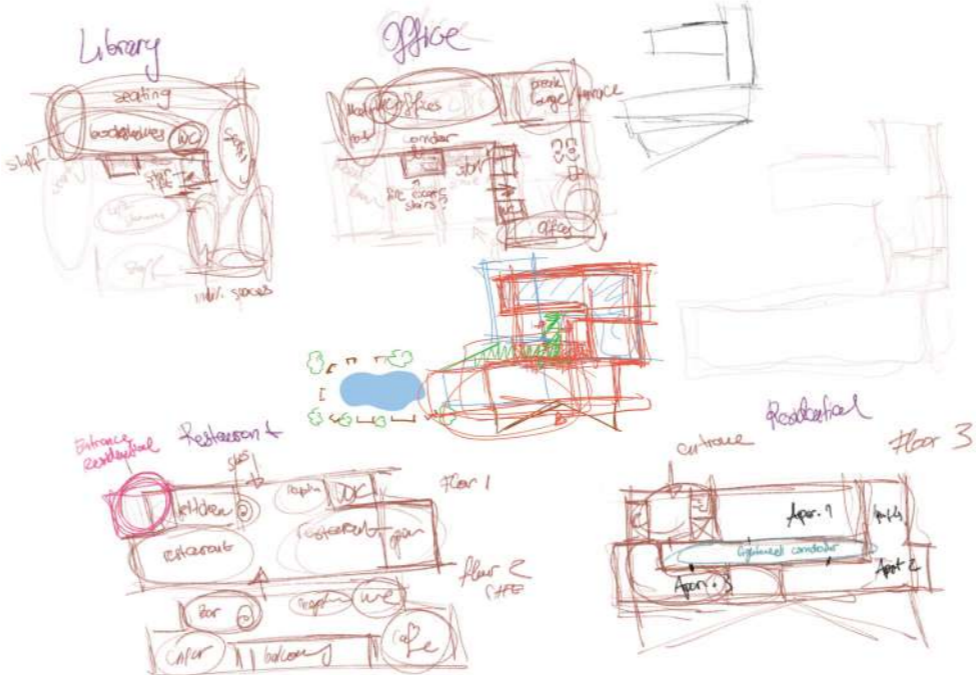
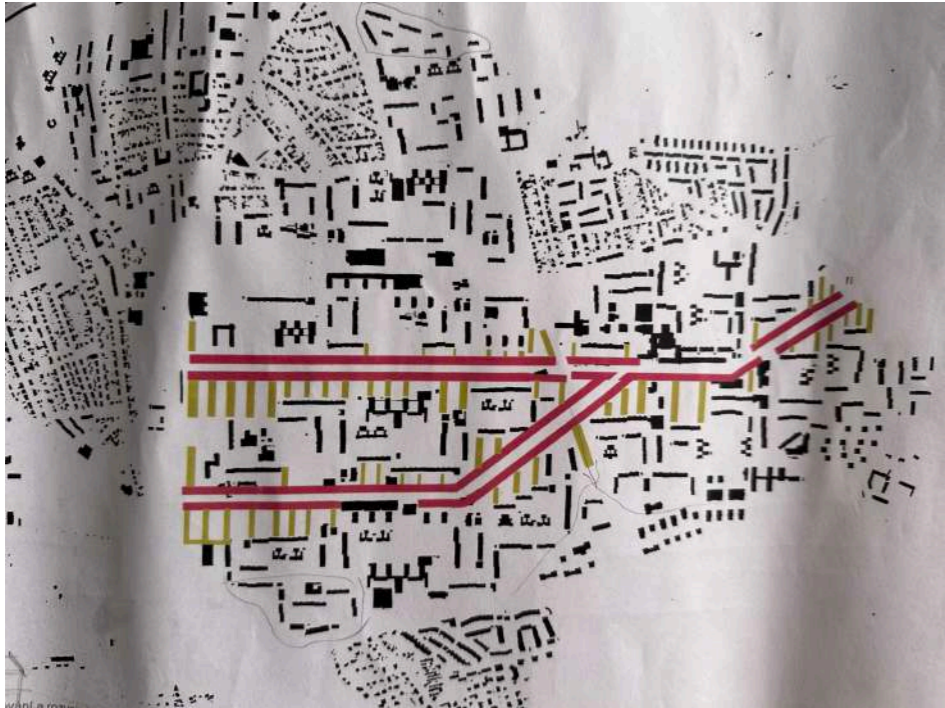
CONCLUSION

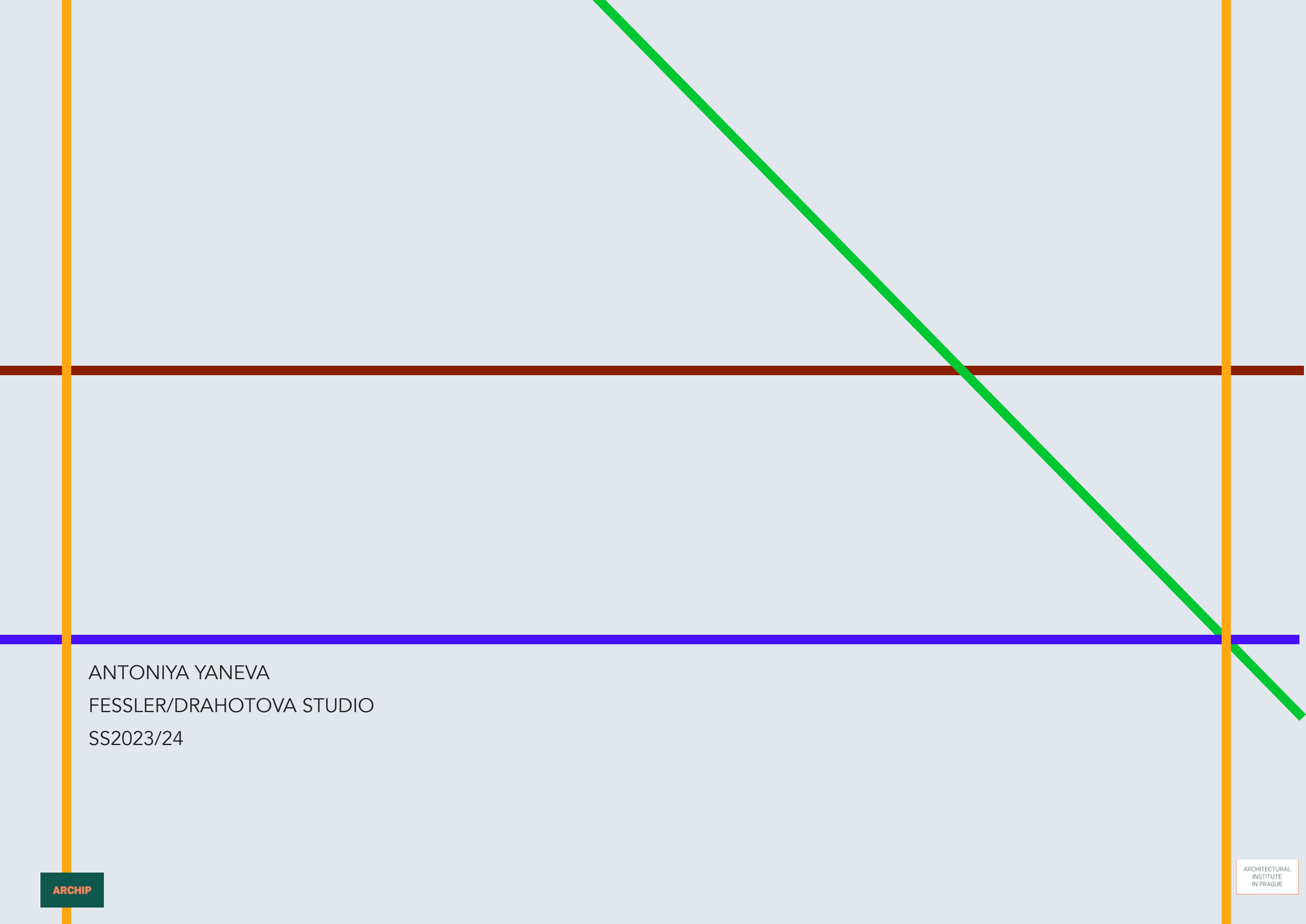
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APPENDIX

SKETCHES
CONCEPT IDEAS
WORKING MODEL

SKETCHES AND CONCEPT IDEAS





ANTONIYA YANEVA
FESSLER/DRAHOTOVA STUDIO
SS2023/24