

**POST-WAR HOUSING:
REUSE TO REBUILT
UKRAINE**



BRNO UNIVERSITY OF TECHNOLOGY

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POST-WAR HOUSING: REUSE TO REBUILT UKRAINE

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MASTER'S THESIS

DIPLOMOVÁ PRÁCE

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Assignment Master's Thesis

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Post-war housing: reuse to rebuilt Ukraine

Master's Thesis:

Since 24 February 2022 Ukraine is suffering from brutal attacks from Russia. This illegal and unprovoked invasion is destroying cities, infrastructure, heritage, people's life, but not their hope in a bright future. Even though the war is still going on, the topic of rebuilding Ukraine is already among the most important discussions. As soon as this country goes back to peaceful life, it will need a fast and efficient strategy. There are no doubts that rebuilding Ukraine will be a challenge for many generations. However, we are the generation that has to set a beginning of this process. The diploma project will focus on the design proposals for the post-war affordable housing. The challenge of the project is to design new affordable housing for people by reusing the existing architecture and construction materials. Another important task is to create a sense of a safe integrated community with the tool of architecture. The site for this project is located in Truskavets, western Ukraine.

Graphics scope :

Aim of the project: architectural study

The aim of the project is to contribute to the future rebuilding process of the country by offering a recovery plan for affordable housing. The project should include the local context and follow the European principles of sustainable architecture.

I. Introductory data, analysis

- Theoretical analysis of the problem;
- Theoretical analysis of the international experience in post-war reconstruction, with a strong focus on residential settlements;
- Analysis of the specific site, architecture, demographics (before war, current situation and after-war precast);
- Analysis of current proposals for reconstruction of Ukraine;
- Definition and basic principles of affordable housing, models of housing in Ukraine;

II. Documentation of the designed area

- Analysis of the condition of the architecture and infrastructure in the chosen location before the war (1:1000/1:5000);
 - Site plans (drawings 1:1000,...): basic space organization, functional specification, traffic – operational specification;
 - Analytical and comparative drawings presenting the conditions before, during and after the design intervention and use of the existing structures.
 - Floor building plans (1:100, 1:200,...) documenting the basic functional and operational layout;
 - Important section drawings (1:50, 1:100, 1:200,...);
- Axonometric Drawing (exterior and interior);
- Details of a facade section of the building in the scale (1:20, 1:50);
 - 3D visualizations and sketches representing key design parts;
 - Text description of the design/project principles, basic urban economy overview (tables).

III. Physical models

- Urban layout model (1:500/1:1000).
- Model of the proposal in scale 1:100/ 1:200

The documentation of the project will be assembled in the printed booklet and presentation poster(s). The documentation will also be available in digital form. Scales are given as assumed values, they can be changed as needed.

List of literature:

- “Rebuilding Ukraine: How the EU Should Support Ukraine’s Reconstruction and Recovery” by Julian Bergmann Iulian Romanyshyn, June 2022;
- “Infrastructure and the rebuilt city after the Second World War” Papers from a workshop held at Birmingham City University, March 2013, Edited by Peter J Larkham;
- Relevant conferences and public discussions ;
- “Housing for All: Building Catalogue” by Paul Andreas, Karen Jung, Peter Cachola Schmal;
- Building Regulations and Building Code of Ukraine;
- “Cities under siege” by Stephen Graham.

Date of project specification Master's Thesis: 13.2.2023

the deadline for submission for the Master's Thesis: 9.5.2023

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

Bc. Olivia Dimitrisina student	Zuzanna Irena Mielczarek, MSc project supervisor	head of the institute
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In Brno dated 13.2.2023	Ing. arch. Radek Suchánek, Ph.D. Dean
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I hereby declare, that I am the sole author and composer of my thesis and that no other sources or learning aids, other than those listed, have been used. Furthermore, I declare that I have acknowledged the work of others by providing detailed references of said work. I also hereby declare that my thesis has not been prepared for another examination or assignment, either in its entirety or excerpts thereof

Dimitrisina Olivia

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PART I

RESEARCH INTRODUCTORY DATA ANALYSIS

INTRODUCTION

«What is important in our project of rebuilding Ukraine? The task is not only to physically restore houses, apartments, bridges and roads, businesses and social infrastructure that were destroyed by Russian troops. Now it is a historic moment. The moment when we can once and for all solve many old problems of the entire environment in our lives,»

President Volodymyr Zelenskyy
April 16, 2022

Since 24 February 2022 Ukraine has suffered from brutal attacks from Russia. This illegal and unprovoked invasion is destroying cities, infrastructure, heritage, people's life, but not their hope for a bright future. Even though the war is still going on, the topic of rebuilding Ukraine is already among the most important discussions. As soon as this country goes back to peaceful life, it will need a fast and efficient strategy. There are no doubts that rebuilding Ukraine will be a challenge for many generations. However, we are the generation that has to set a beginning of this process.

The diploma project focuses on the design proposals for the post-war affordable housing. The challenge of the project is to design new affordable housing for people by reusing the existing architecture and construction materials. Another important task is to create a sense of a safe integrated community with the tool of architecture. The aim of the project is to contribute to the future rebuilding process of the country by offering a recovery plan for affordable housing.

THEORETICAL ANALYSIS OF THE PROBLEM

2

The war has started 9 years ago

On 27 February 2014, following the Revolution of Dignity, an unknown armed group of people, later nicknamed the «green men», seized the building of the Government of Crimea and the Council of Ministers of Crimea, placing Russian flags there. On the same day, local authorities made a decision to hold a «referendum» which took place on March 16. The referendum was not recognised neither by Ukraine nor any other democratic country. However, on 18 March Russian president Vladimir Putin signed the agreement on the annexation of Crimea to Russia.

At the same time, in the Donbas region (Eastern part of Ukraine) a similar scenario took place. An unknown group of people took by storm the government building of the Donetsk region. During April 2014 the pro-Russia separatists from the East of the country tried to proclaim every big city as a separated republic after organising the illegal referendum.

Although Russia has always denied involvement in these actions, their troops were identified. Despite the illegal proclamation of Donetsk and Lugansk People's Republics (DPR and LPR), more violent and brutal fights had started. As a result, it turned into the Donbas War with many changes in territorial control and no lasting peace.

Beginning of 2021, Russia built a large military camp along the border with Ukraine. The president Vladimir Putin, continued to deny the intention to attack Ukraine. However, on 21 February 2022 he officially signed the document that recognises DPR and LPR as independent republics. Three days later, on 24 February at 5 a.m. The Russian army invaded the territory of Ukraine and called these actions «special military operation».

Since then, Ukraine is going through a lot of human losses and infrastructural damages. Some locations were turned into ruins, some human lives into ashes.

CURRENT SITUATION IN UKRAINE

Russia's military actions had a big impact on Ukraine's economy. The economical report during the war shows that around 53% of the country's GDP used to be generated by the territories that are affected by war. It may lead to a decrease in economy by 34,5 % by the end of April 2023.

A very indepth report on Ukraine's economy during war was made by the KPMG -Ukraine organisation («Post-war Reconstruction of Economy: Case Studies»). A few important numbers on damages and losses of the country from this report are represented below to a better understanding of the current situation.

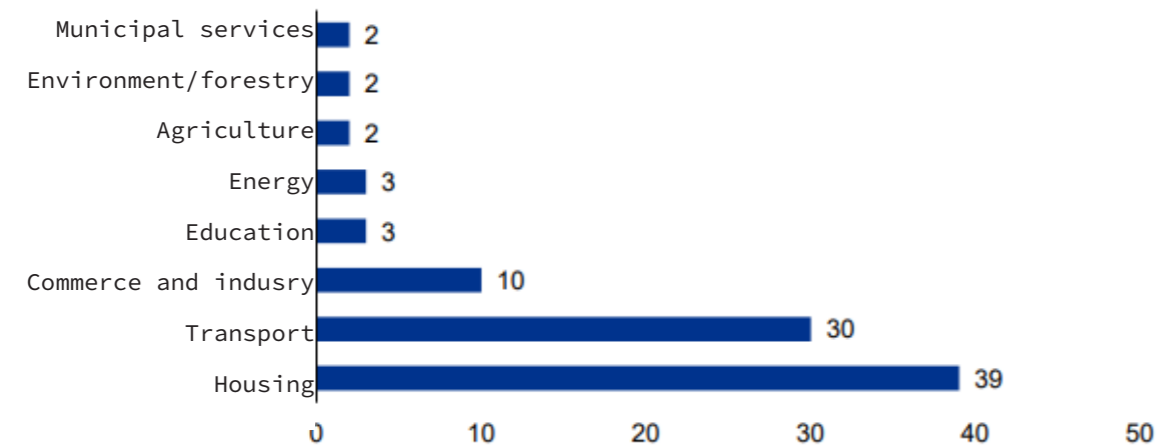


Figure 1: Estimated damages in Ukraine by sectors (US\$ billion), as of June 1, 2022
SOURCE: KPMG-Ukraine report, «Post-war Reconstruction of Economy: Case Studies»,2022.

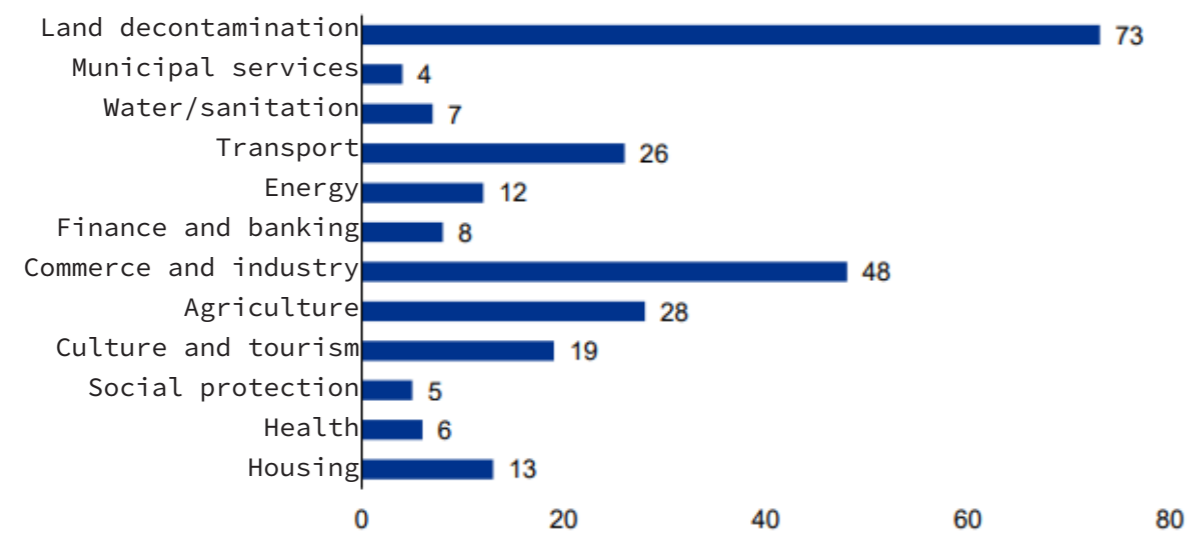


Figure 2: Estimated losses in Ukraine by sectors (US\$ billion), as of June 1, 2022
SOURCE: KPMG-Ukraine report, «Post-war Reconstruction of Economy: Case Studies»,2022.

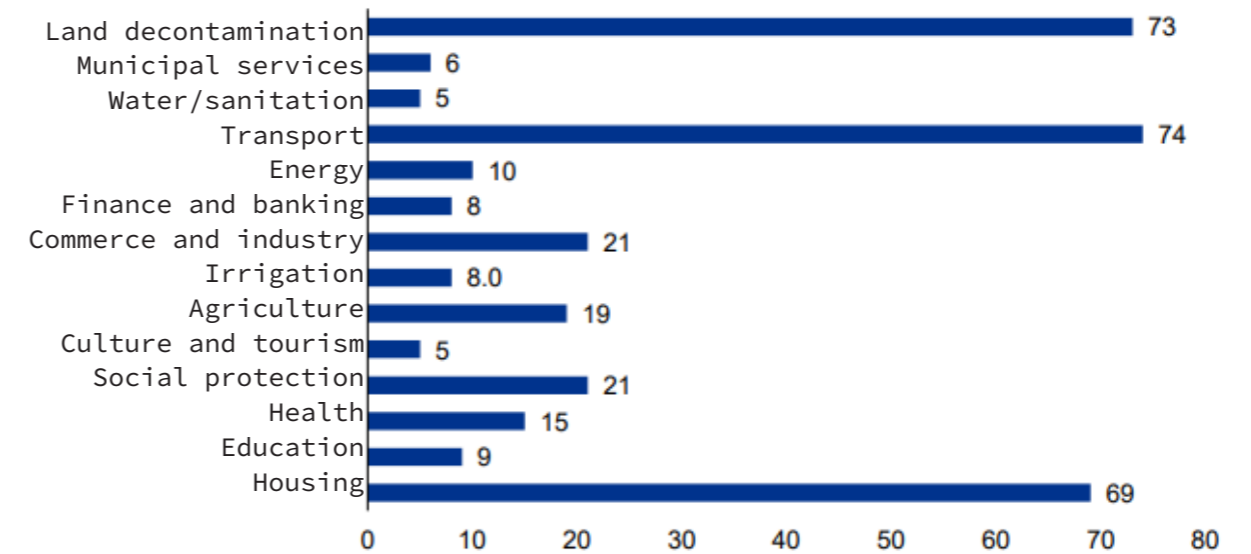
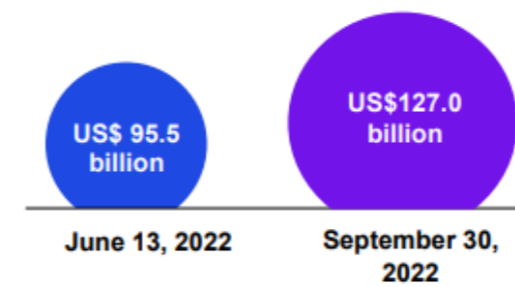


Figure 1: Estimated needs in Ukraine by sectors (US\$ billion), as of June 1, 2022
SOURCE: KPMG-Ukraine report, «Post-war Reconstruction of Economy: Case Studies»,2022.



«• Housing had the maximum share in the total volume of damaged and destroyed infrastructure.

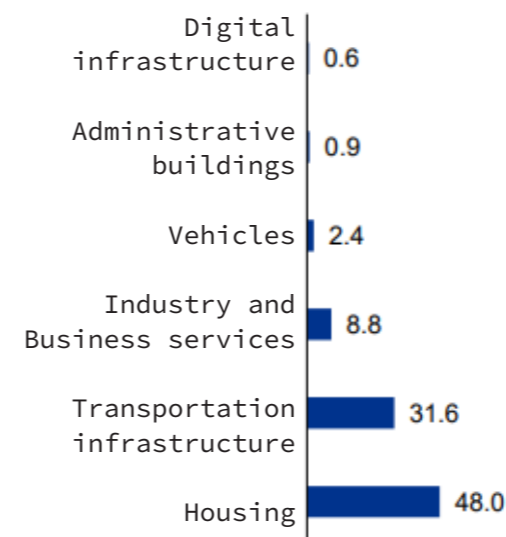
• Approximately 129,900 residential buildings were destroyed and damaged, of which 114,700 were private houses and 15,100 were apartment buildings.

• The cost associated with recovering damaged assets was estimated to be at least US\$185 billion.

• In terms of transportation infrastructure, roads and civilian airports were impacted the most.

- Damages to roads and civilian airports were estimated at US\$25.4 billion and US\$2.0 billion respectively.

• Also, approximately 24,000 kilometres stretch of roads were estimated to have been damaged by the Russian forces.»



Source: KPMG-Ukraine report, «Post-war Reconstruction of Economy: Case Studies»,2022.

After the war started there was created an online platform (https://maps.greenpeace.org/maps/gpcee/ukraine_damage_2022/) where all the ruined or damaged buildings are registered. As long as the war continues, the number of ruins will be updated. At the moment of analysing the current situation of architecture and infrastructure of Ukraine (21.02.2023) there are 11 532 objects destroyed/damaged. Also here we can find the number of objects that are restored or in the process of restoration (for the same date there are 1 329 objects). The same source informs us that the government needs approximately 2 279 323 346 USD to rebuild objects registered on the map. Even though the war is still going on, the recovery plan has already begun. State institutions and volunteering organizations are collaborating to bring life back to every inhabitant.



Image 1



Image 2



Image 3



Image 4



Image 5



Image 6



Image 7



Image 8

Source of images:

1. Kiril Tymoshenko, 23 May 2022, for www.the-village.com.ua;
2. Yurii Bilak, 24 December 2022, for [KyivPost](http://KyivPost.com);
3. Oleksandr Ratushniak, November 7, 2022;
4. Emilio Morenatti/Associated Press, April 30, 2022;
5. Brendan Hoffman for Mercy Corps, 2014;
6. Emilio Morenatti, April 22, 2022;
7. Wendell Steavenson, July 28, 2022;
8. Mariupol, Ukraine April 13, 2022. (Reuters)

POPULATION DISPLACEMENT IN UKRAINE 2014–2023

Population displacement as a phenomenon.

«Refugees – people who have fled war, violence, conflict or persecution and have crossed an international border to find safety in another country.»

The UN Refugee Agency

«Internally displaced people (IDPs) – people who have not crossed a border to find safety. They stay within their own country and remain under the protection of its government»

The UN Refugee Agency

Also as it was described in the scientific paper “Settlements in a war-torn zone. The case of Bosnia and Herzegovina” by Tigran Hasic and Andrew W. Roberts:

**“people who are fleeing from their past and
hiding from their present”¹**

1. Hasic, T., 2004. Reconstruction planning in post-conflict zones: Bosnia and Herzegovina and the international community, Sweden: KTH Royal Institute of Technology.

Macro-regions and the cities located there for a better understanding of the geographical context

Macro-regions	Oblasts, autonomous regions, cities
West	Chernivtsi Oblast, Lviv Oblast, Ivano-Frankivsk Oblast, Khmelnytskyi Oblast, Rivne Oblast, Ternopil Oblast, Volyn Oblast, Zakarpattia Oblast
Centre	Cherkasy Oblast, Kirovohrad Oblast, Poltava Oblast, Vinnytsia Oblast
North	Zhytomyr Oblast, Kyiv Oblast, Chernihiv Oblast, Sumy Oblast
South	Crimea, Sevastopol City, Odesa Oblast, Kherson Oblast, Mykolaiv Oblast
East	Dnipropetrovsk Oblast, Donetsk Oblast, Kharkiv Oblast, Luhansk Oblast, Zaporizhzhia Oblast
Kyiv city	Kyiv city

Source of the table: Joint EUAA, IOM and OECD Report, 28.01.2022, *Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations*,

Population displacement in Ukraine in 2014

As of July 2, 2014, after the beginning of a so called “Anti-terrorist Operation” from the dangerous regions (also known as ATO) were displaced 27,000 inhabitants.¹

Later in September the UN Refugee Agency reported that the number of internally displaced people rose to 275,695. 257,000 IDPs were coming from the Donbas region and almost 18,000 from Crimea.

As of 28 November, 2014 Ukraine’s State Emergency Service identified 490,046 IDP’s and 236,772 applications for refugee status and temporary asylum abroad.²

The majority of internally displaced people stay in the regions close to the dangerous areas. Most of them found safety in such regions as Kharkiv, Donetsk and Luhansk (those parts that were under Ukrainian government control), Zaporizhzhia, Dnipropetrovsk and Kyiv. Others moved to the left part of the river Dnipro (Western part of the country). As of 28 November, the number of IDPs included 27% children, 20% seniors/disabled and 66% were women. As of 27 October, local authorities declared that around 135,000 displaced people went back to their initial residence. However, the real number was always difficult to specify.²

1. Anon., 2014. From ATO region were displaced 27 thousands of inhabitants. Espresso. Available at: https://espresso.tv/news/2014/07/02/iz_zony_ato_vidseleno_ponad_27_tysyach_hromadyan [Accessed March 10, 2023]. *original language - ukrainian*.
2. Anon., 2023. Ukraine Refugee Situation. Operational data portal: Ukraine refugee situation. Available at: <https://data2.unhcr.org/en/situations/ukraine> [Accessed March 10, 2023].

Population displacement in between 2015 and 2021

During the next 7 years the number of IDPs increased but the awareness about the war in the East of the country decreased. As of March 2015, the Ministry of Social Policy of Ukraine and UNHCR Kyiv declared that 1,177,748 ukrainians had found a temporary residence around the country and around 766,632 people fled to other countries.¹

Till July 2015 the total IDPs number raised till 1,391,200. For the next few years the increase of the displaced people was less visible. By 2017 Ukrainian Government registered around 200,000 more IDPs to the general number.²

Between 2018 and 2021 some ukrainians found their new home and decided to stay in the safe area of the country. The opposite decision was made by the other group of IDPs who decided to move back to their permanent residence. According to a social survey made in 2019, 23% of IDP were willing to go back to their hometown after the end of the war, 18% were considering both options and 34% decided to stay in the area that had not been affected by war. Others found hard to answer. The conclusion of the survey was “the longer the war takes in Donbas, the less people are willing to return back home”. As a result the number of the displaced population by August 31, 2021 was equal to 1,470,234.³



Author of the picture: Sergei Grits, February 26, 2022

1. , O.C.H.A., 2015. Ukraine: Overview of population displacement;
2. AAnon., 2017. How many IDPs are living in different regions of Ukraine?. Available at: <https://www.wordandaction.org/#:~:text=Word%20and%20Action%2C%20Inc.%20is,sexual%20abuse%20prevention%20and%20treatment.> [Accessed May 8, 2023];
3. Anon., 2019. The longer the war in Donbass stays, the less IDPs wants to come back to their houses. Available at: <https://svoi.city/> [Accessed March 20, 2023].e longer the war in Donbass stays, the less IDPs wants to come back to their houses»,

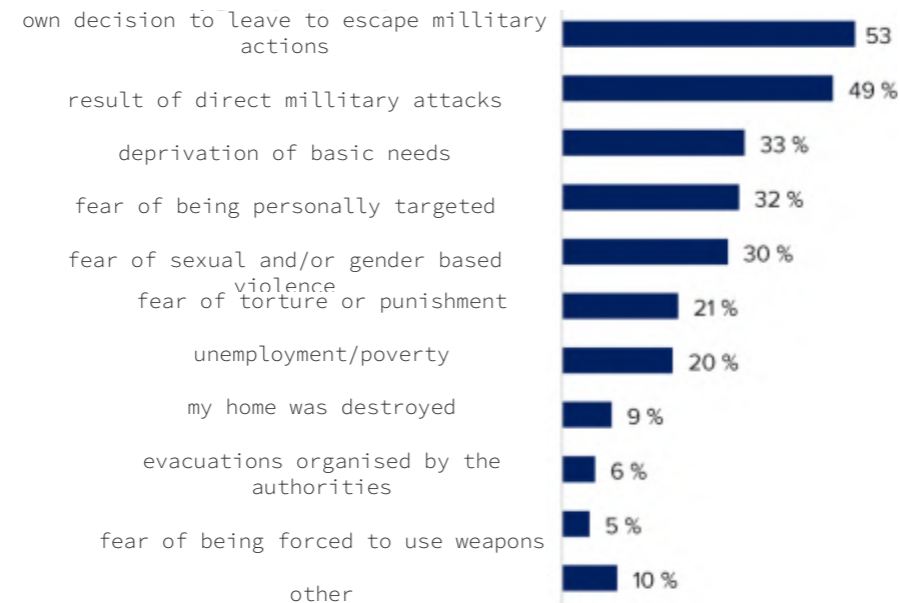
Population displacement in between 2015 and 2021

The next wave of forced displacement came after February 24, 2022. This time the number of Ukrainians who left their residence due to insecurity was equal with 7 million persons (16% of the population of Ukraine). By August 2022 the majority of IDPs were female. A third of them was chronically ill, and a quarter persons had disabilities.¹

Unlikely, an essential part of Ukrainians were forced to change their residence for the second time. Those people who run from the war in 2014 to the closest region, were forced to move even further. Because of the unpredictable changes of events, many Ukrainians were forced to flee the country and to find a shelter abroad. However, almost half of the refugees by February 2023 went back to their country and settled down in a safer region.

“According to the UNHCR, there were around 12.3 million exits from Ukraine between 24 February and 6 September 2022, of which at least 9.2 million were into the four neighboring EU Member States. At the same time, there were also around 5.6 million entries into Ukraine from abroad (both from EU Member States plus Belarus, the Russian Federation and Moldova). These also include back-and-forth movements. Within Ukraine, a further 7 million persons have been internally displaced”¹

In March 2022 SAM-UKR Survey made an analysis on the reasons people fled Ukraine. The main reason appeared to be escaping the possible military actions (53%) or because of military attacks followed at a distance (49%). Also were mentioned the deprivation of basic needs and fear of being personally targeted, violence, torture or punishment, unemployment, poverty, lost of home, fear of being forced to use weapons and others.



Source of the diagram: SAM-UKR Survey, 2022 , *Reasons to leave Ukraine*

From those who left:

«I believe that I left the country on time, I understood that my relatives could not stand it there. Constant transition to the basement from the 10th floor. The elevators were not working. It was very difficult for the children. We had to leave.»¹

«I am from Donetsk region, and this is my second war. In 2014, I fled with three children. In 2022, I fled with my daughter (two sons are already adults) (...) I am in shock, I feel there is no help.»¹

«It's very hard to leave your home, but also to look at the eyes of children full of fear from explosions, it's terrible, this «is something you never wish to anyone.»¹



A resident stands with her dog next to a destroyed building after a bombing in a neighborhood in Kyiv, Ukraine.
Photo by Rodrigo Abd/AP
Source: www.law.com

1. , E.U.A.A., , I.O.M. & , O.E.C.D., 28 October 2022AD. Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations Joint EUAA, IOM and OECD Report., IOM.

1. , E.U.A.A., , I.O.M. & , O.E.C.D., 28 October 2022AD. Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations Joint EUAA, IOM and OECD Report., IOM.

8 rounds of movements between March and August 2022

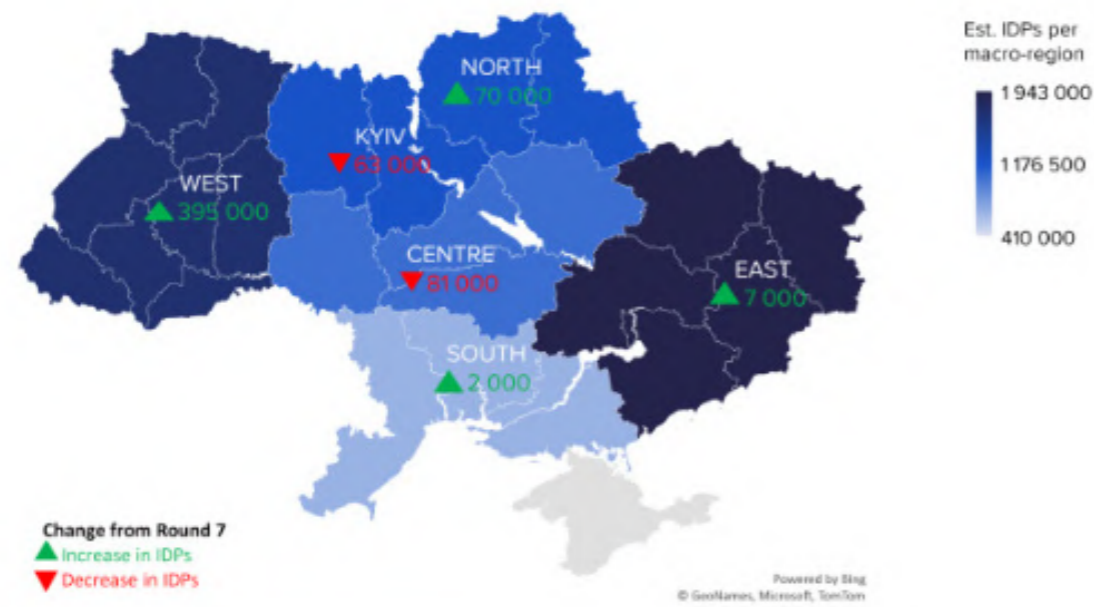
Between March and August 2022 there were 8 rounds of movements of IDPs (source: IOM General Population Survey)

The dynamic movement of the population differed around the country, especially between the East and the West compared with the North and South. The main origin of IDPs still remained the East of the country. Those who were not directly affected by war changed their place to a closer region. While those who experienced the cruelty of war were more likely to change their residence to a further region.

All of these movements had a big influence on the demographics of Ukraine. At the beginning of the war the proportion of genders among IDPs was almost equal (54% male and 46% female). Another important characteristic of the displaced population was their age, physical/mental condition and personal status.



Estimated number of IDPs between March–August 2022
Source: IDM General Population Survey



Source of the map: Screenshot from Joint EUAA, IOM and OECD Report, 28.01.2022, *Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations,*

During the war the number of IDPs has been changing in different regions of the country. At the beginning the West, the Centre and the East parts of the country experienced an increase of the displaced population. The Centre of Ukraine had a small increase of IDPs in the first three rounds of displacement. After that the population decreased. The same situation happened in the North of the country. People were slowly moving to the South. However, it was not an important destination because of a short distance to the battlefield. A total opposite image is visible between the South and the West parts during 8 rounds of displacement. After the Ukrainian army started to liberate more territory, people were willing to go back to their regions. Despite all of the risks of being under the Russian occupation, most IDPs remain displaced within their regions. For example, in the Eastern part of Ukraine almost 40% of IDPs had been living in the same part of the country before the war. In the North 65% of IDPs moved within their macro-region and in the South this number is equal to 38%.



Figure «Share of IDP households with vulnerable members
Source of diagram: Screenshot from Joint EUAA, IOM and OECD Report, 28.01.2022, *Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations,*
Source of data: IOM General Population survey

In June and July there was a decrease in mobility among the internally displaced population. Most IDPs were planning to move back to their places in the nearest future (77%). Only 10% of IDPs did not want to return back and were willing to settle down in the new location. Others stayed undecided about their decisions regarding the after-war residency

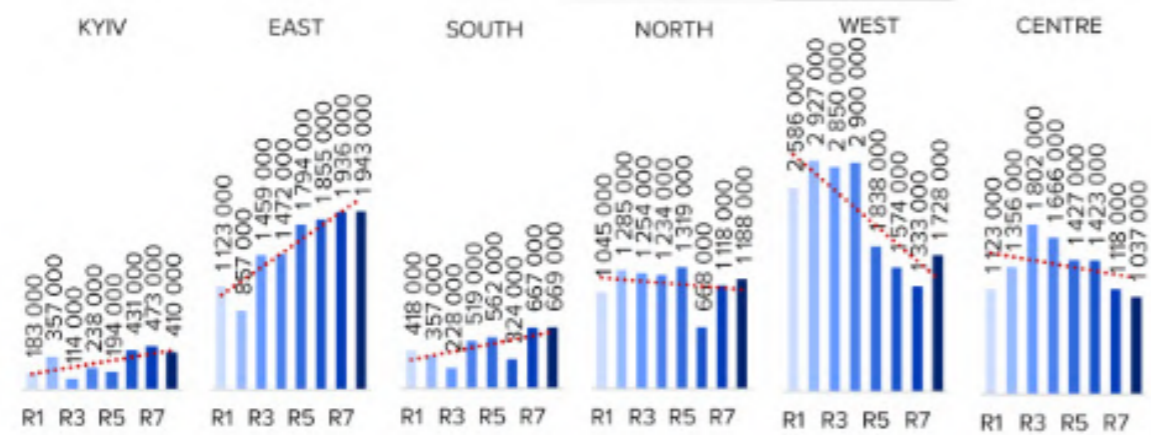


Figure «Estimated IDP presence per macro-region from March to August 2022
 Source of diagram: Screenshot from Joint EUAA, IOM and OECD Report, 28.01.2022, *Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations*,
 Source of data: IOM General Population survey

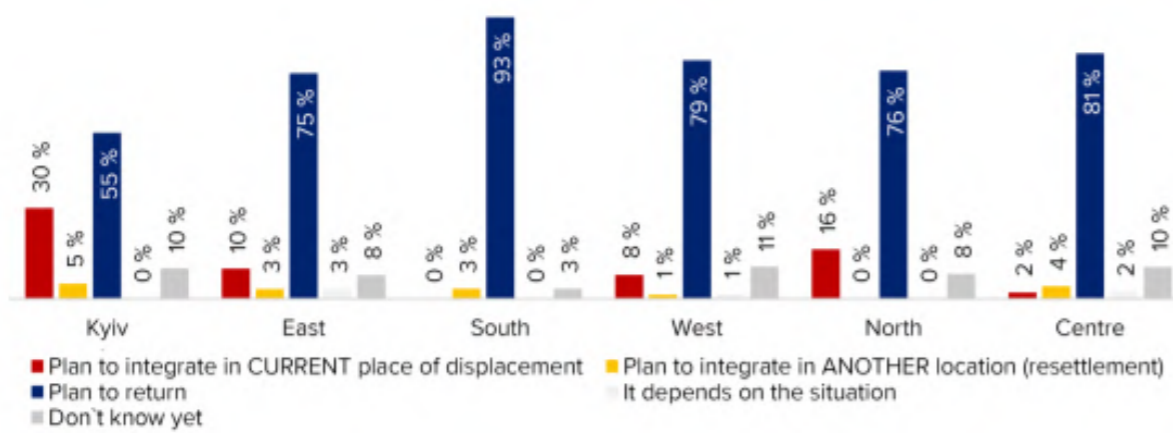


Figure «IDPs long-term movement and integration intentions by macro-region
 Source of diagram: Screenshot from Joint EUAA, IOM and OECD Report, 28.01.2022, *Forced displacement from and within Ukraine: Profiles, experiences, and aspirations of affected populations*,
 Source of data: IOM General Population survey

All this data has shown that a war can create significant changes inside a country. Countless families are being separated now because of the Russian invasion. However, when the war will be over, all these people will reach their families to reunite. In this case we would see **4 scenarios that people may choose for their future.**

**INTERNATIONAL
EXPERIENCE
IN POST-WAR
RECONSTRUCTION**

WHERE SHOULD WE LOOK?
BOSNIA AND HERZEGOVINA
WARSAW
ROTTERDAM

BOSNIA AND HERZEGOVINA

Conflict duration: 1992–1995 (4 years)
Number of internally and externally displaced: 2 mln.

Since the beginning of the 20th century, the world has seen 35 military conflicts where the biggest one still remains World War I and II. Unfortunately, the population has not learned the most important lesson after World War II – no war ever again. Because every military action against a peaceful population brings only harm and ruins. By 2022 the UNHCR has registered all around the globe 32.5 million refugees. It is the biggest refugee crisis in history. The number for internally displaced people is even bigger – 59.1 million. However, every war had an end which led to the further rebuilding process.

Even though the war in Ukraine is still going on, the discussions about the rebuilding process have already begun. Taking into consideration the experiences in rebuilding post-war cities around the globe, Ukraine can overcome all the tragical consequences much faster. It also gives a chance to avoid the mistakes that were done before.

The war in Bosnia and Herzegovina was an international armed conflict. It started after the country decided to separate from Yugoslavia and become an independent country. The war initially started as a military conflict between the Yugoslavian army and Bosnia. Later on it turned into a war between Muslims, Croats and Serbs. When the time to rebuild the country finally came, Bosnia found itself with 40% of unemployment, an informal (gray) economy sector and the socialism legacy. During socialism the government was running the business, but after the war people expected the international community to provide them help and rebuild the economy. The international NGOs were doing the main part of the housing reconstruction during 8 years. In the meantime, local institutions were passively watching how the work was done. These factors became huge obstacles on the way of the reconstruction process.

When it comes to spatial planning, the initial idea was to follow the concept of “the urban village”. Even though it was present for many years in Bosnia and Herzegovina, it was never fully implemented and carried out. A neighborhood connected with working and public spaces would create a sustainable urban community. It was important to create social space between the residential areas. The key of the concept was to keep it local and small. The small scale of architecture and informal economic activities like family business had to play a crucial role in the reconstruction process. Another important idea to keep in mind was the diversity of those communities. In order to create a collaborative community and country in general, people had to connect. However, in such a multicultural country as Bosnia and Herzegovina it was one of the biggest challenges after war.

Even though the war ended 28 years ago, the country is still dealing with the consequences. Solving a problem of ethnic polarisation is probably one of the most difficult tasks that we can face in a post war period. During the Civil war there was a clear division of population by origin. More than one million people were displaced (mainly forced to change their residence) within BiH. Bosnian Muslims occupied the houses of Serbs and Serbs occupied the houses of Muslims. Meanwhile Croats took the western Herzegovina. It created a mechanism to separate nationalities not only through the war, but also geographically. Unfortunately, even after the war had ended, this issue could not be solved. The international community was insisting on returning the minority back to the regions where they originally came from. that would mean to bring back the diversity of nationalities around the country. On the other hand, the Serb entity was willing to accept back only IDPs of Serb origin and Bosnian Muslims from abroad were coming back where their majority was. After all, the absence of electricity, water or infrastructure was not the main obstacle for the displaced people to return back, but rather the demographic deviation.

In 1999 was established **The Housing Verification and Monitoring Unit (HVM)** in order to improve the housing reconstruction process and property law. The main goal was to encourage people to return back to their original places.

Another mistake in the reconstruction process was made by prioritising the construction process driven by engineering decisions rather than by social or economic values. As a result, in 1997 was created a **Return and Reconstruction Task Force (RRTF)** in order to coordinate all the reconstruction processes, inexperienced NGOs and donors.

The successful policies that were implemented:

- “return axes” - aimed to study the connections between the places where IDPs were coming from and where they returned to.¹
- “three Ss” (space, security, sustainability) - integrating the principles of sustainability into the reconstruction process.¹
- “spontaneous return policy” - allowed to finance spontaneous returns of IDPs from a house that they occupied during the war to the one where they used to live before. The donors used to call this strategy also as “Reconstruct two houses for the price of one”.¹



Photo: Wikimedia Commons/dodmedia.osd.mil

It is very important to learn not only from the positive experience of a post-war reconstruction, but also from the mistakes that were made. We can find few cases where BiH could improve their housing reconstruction projects:

Beneficiary selection: being able to clearly determine people who genuinely want to come back to the places where they lived before the war. Sometimes houses were rebuilt for those who had no intention to move back and also for some families that already owned a house somewhere else within the country.

Coordination: the lack of collaboration between institutions and donors led to a deceleration of the general housing program.

Joined-up policy making: Bosnians took for granted the funding because of the international indecisiveness on how to finance the post-war reconstruction.

To conclude the experience of Bosnia and Herzegovina we can say that the housing reconstruction process is more than a process of putting bricks together and covering it with a roof. It must be a collaborative process between local and international initiatives while rebuilding the infrastructure, supporting local context, providing educational, cultural and health facilities.

1. Povrženic, A., 16-18 September 2004AD. Housing reconstruction in Bosnia: field realities. Conference report «Conference Report», House: loss, refuge and belonging (Conference Report), p.all.

2. Williams, R., 2004. Post-conflict property restitution in Croatia and Bosnia and Herzegovina: legal rationale and practical implementation. Norway: Refugee Studies Center.

WARSAW AFTER THE SECOND WORLD WAR

The reconstruction process of Warsaw started right after the end of the Second World War and lasted till the 1970s. The loss of the city's architecture at that time was considered around **84%**. Almost 90% of the industrial infrastructure and 72% of residential buildings were damaged. However, the conceptual projects on rebuilding Warsaw had been done at the beginning of the war in 1939. Local architects and urbanists saw an opportunity not only to rebuild the city but also to fix the mistakes that were done before the war. Inhabitants of Warsaw used to complain about the uneffective transportation system, lack of greenery and public spaces, and unacceptable living conditions in the housing districts. At the same time, there was only one financial support at the beginning of the reconstruction process - **the Social Warsaw Rebuilding Fund (S.F.O.S.)**

After the War Warsaw had two scenarios for its future:

1/Moving the capital of Poland to Łódź (a city that was almost untouched by war) and keeping Warsaw as it was as a military memorial for the next generations.

2/To rebuild Warsaw from ashes.

Yet the citizens of Warsaw were not ready to leave their city. They choose to rebuild it at any cost. Starting in 1945 a lot of people moved to Warsaw in order to raise the city from ruins.

During the post-war period in Warsaw we can identify few important decisions that were made in order to rebuilt the city:

- involving local residents: even though the main building process was realised by the professionals, the local community was also involved. People used to clean the city streets from rubble and trash. Also they were repairing houses that did not required professional interventions;

- working with archives: to recreate the existing architecture before the war architects were working with old plans, paintings and literature. They used a collection of paintings of an Italian landscape painter Bernardo Bellotto (1722-1780);

- reuse the rubble: all the rubble was recycled and reused for new buildings. Even the details from the old facades that were found among the ruins were reused for the new architecture;

- city's ownership: all the territories that were considered as part of Warsaw before the WWII became city's property;

- expanding the city: more and more people were moving to Warsaw to start their life there. As a result, the capital needed a new city plan that would provide more residential areas and better infrastructure. Also in 1951 a new town called Rembertow was established close to Warsaw. Nowadays it is a district of Warsaw;

- replanning houses: many residential buildings were planned according to the new building codes. However, public buildings were recreated by its original old plans;

“One of the philosophers calculated that Varsovians inhaled four bricks each year at that time. One must love one's city in order to rebuild it at the cost of one's own breathing. It is perhaps for this reason that, from the battlefield of rubble and ruins, Warsaw became once more the old Warsaw, eternal Warsaw ...”

Leopold Tyrmand

The ruins of Warsaw, Poland after a sustained German attack during World War II
Source: edition.cnn.com



Rotterdam A total direction towards modern rebuilding

Duration of reconstruction: 1940–1970
Level of ruination: 258 ha of ruins

Rotterdam is a great example for cities that were almost/completely destroyed after a military conflict. It is a case where the city can be rebuilt from scratch only when citizens, architects and government collaborate.

The process of elaborating a new rebuilding plan started on the fourth day after the first bombing of Rotterdam. The local government was afraid that the nazis regime would come and overtake the leadership on the building process of the town. The chief architect of that time had an important task - to choose which buildings were worth saving and where to build from scratch. At the same time he respected the local architectural style of buildings, but also improved the infrastructure system by making the roads larger. The reconstruction plan was finished and approved in 1941 and exhibited in a local museum. However, the plan was not realised due to the war and changed after by local developers.

A few years later, in 1944, a new rebuilding plan was adopted. It was called "the basic plan" and had many differences with the first plan. The most important difference that was introduced in the Basic Plan was separation of functions within Rotterdam. Every district was supposed to have its own function: residential, administrative, commercial etc. The city center had commercial, working and entertainment functions. Residential districts were mainly situated on the outskirts. The Basic Plan was presented on May 28, 1946, with a slogan

"Rotterdam, roll up your sleeves. We have a lot of work ahead."

The rebuilding plan of Rotterdam solved not only architectural and infrastructure issues, but also the supply of food products. After the city was attacked by Germans, the inhabitants needed to find a source of food products. As a result, every landowner was obliged to grow some kind of vegetables, fruits or grains. The local agricultural committee created a plan of growing food products in parks, city squares and on every piece of free land. In 1942 almost 50 ha of land was used for agricultural purposes.

The local government was highly involved in the housing schemes. The entire process of rebuilding was run by housing corporations, town and city councils. New projects of social housing were partially financed by the local government which created the possibility to offer living units for a lower price. However, in practice along with positive consequences, it also brought some negative. When this policy was re-analysed in 1997, the newly created districts appeared to be the poor and dangerous areas of the city. Because of the low-income households that were predominating, those neighborhoods were missing some sense of safety and variety. After that was made a decision to bring people with different financial income by mixing the typology of housing. This approach was aimed to create a more positive and diverse society.¹



1. Source: article -I.C.0M.0S.N., 2003. THE NETHERLANDS Post-war Housing Schemes: Heritage at Risk 2002/2003.

At the end of the 1960s the euphoria and enthusiasm for rebuilding the city as fast as possible started to drop down. There appeared more room for criticism and skepticism regarding the quality of the new build districts. Citizens saw the new city centre as a place without context, personality and taste. After that a new phase of rebuilding Rotterdam started.

Nowadays, Rotterdam keeps changing based on the needs of its inhabitants. New requirements of the modern world drive the city to keep updating the architecture and urban life by revitalising the industrial area, creating new parks and public spaces, changing from monofunction to multifunction etc.

A Dutch scientist, Stefan Courperus, who is studying city policing and planning of the 1920s-1970s in the Netherlands gave advice for the rebuilding process in Ukraine:

“First, the architects and authorities need to ensure that the temporary housing doesn’t become permanent. As I said, it will lead to stigmatization of the people living there. Second, they should create inclusive projects and involve the residents in the design process.”¹

1.Source : Bird in Flight online magazine, Interview witty Stefan Courperus by Kateryna Kozlova, 11 May, 2022

**CURRENT PROPOSALS
FOR RECONSTRUCTION
OF UKRAINE**

**RISE UKRAINE
FIRST PARIS REPORT
THE MODERN MARSHALL PLAN**

Housing before the war

The housing policy of Ukraine is relatively new. It was created right after the collapse of the Soviet Union. In 1992 the new government of the independent Ukraine started to offer for free ownership of the houses/living units where people used to live at that moment. Such a decision was made in order to support the population during the financial crises. However, the massive privatisation of land led to a shortage of the housing stock in public property. According to the data from 2013 the state was owning only 6% of housing. By 2018 Ukraine had more than 90% of housing in private property. Ukraine was also lacking a systematic organised approach in providing residential units to its citizens. There are many departments and funds that are supposed to provide subsidised living units. However, when it comes to actions the entire system is not working as organised as it should. During the last 30 years only 50,000 families were provided with new residential units.

An essential part of residential buildings in Ukraine was built during the Soviet Union period. As for 2018, 89% of housing was built till 1990. Residential buildings that exceeded 30 years of service were in an unsatisfactory technical condition and did not respond to modern requirements of energy efficiency, which causes significant energy consumption. Nevertheless, the help that could be received from the government to insulate buildings for a better energy efficiency is not covering all the costs.

Another problem comes from the renting policy. Partially the price for rent is regulated by the Civilian Code of Ukraine and the Article 47 of the Constitution of Ukraine. At the same time some restrictions for the price range do not exist. It is decided by the owners of the living unit. Often they avoid paying the taxes by not declaring the official requested price for rent.

Proposal for rebuilding strategy of Ukraine from RISE Ukraine Coalition.



“RISE UA is a coalition of Ukrainian and international public organizations, initiatives, state institutions and activists who support our Principles for Ukraine’s Reconstruction and Modernization through constructive dialogue with the authorities and international partners.”¹

RISE UA was one of the first coalitions that were established after 24 February. It has a strong vision for the future of Ukraine that they wrote about in the discussion paper from 29 November 2022. The main components of the recovery of Ukraine, as they mentioned, should be: **transparency, accountability, integrity, efficiency.**

RISE UA suggested **10 principles of the reconstruction process of Ukraine.**

1. Ukrainian ownership, international and public control.

The same principle we can follow in the Modern Marshall Plan for Ukraine. It is very clear that the reconstruction should be mainly done by Ukrainians. No one cares more about the future than those who almost lost it. However, as a country in a crisis after a military invasion, it will be hard to see the mistakes that could be made during the process. Here is the reason why the entire process should be also controlled by international professionals, investors, public etc.

2. Build Back Better

Quite often the invaded country has a chance “to make this time everything right”. Rebuilding Ukraine does not mean only a fast process of getting back what was destroyed. It also means to update the systems that were not good or modern enough. Bringing to a next level industrial, social, cultural, financial, technological aspects of the country can lead the country to a completely new level.

1. Anon., 29 November, 2022AD. Discussion paper, Institutional Architecture of Ukraine’s Recovery: Proposal by Rise Ukraine, Rise Ukraine.

3. Transparency and accountability

The rebuilding process must be transparent and accountable. The public should have access to every proposal, change, funds, contractors or information that is related to the recovery of Ukraine.

4. Competition and efficiency

It is important to create a competition between the suppliers of goods, workers, services, organisations etc. In this case the quality of the realised projects will rise.

5. Constancy

“The development process must take into account realistic, achievable modern environmental standards and principles that meet EU requirements and the UN Sustainable Development Goals.”¹

6. Coordination

The international and local help that Ukraine will receive must be coordinated through an electronic reconstruction management system to ensure efficient work and transparency.

7. Equity and inclusiveness

Everything that will be planned and designed after war should take into consideration all the groups of users. Barrier free private and public spaces is an important goal for every project. Also we should take into account the opinion of the future users and collaborate with them along the way.

8. Publications and use of open data

The international and local help that Ukraine will receive must be coordinated through an electronic reconstruction management system to ensure efficient work and transparency.

. Anon., 29 November, 2022AD. Discussion paper, Institutional Architecture of Ukraine's Recovery: Proposal by Rise Ukraine, Rise Ukraine.

9. Continuing reforms

Ukraine has a long way to recover its political, social, economical and infrastructure system. There will be not only one or two reforms, but dozens. The country should be ready to implement all of them.

10. Zero tolerance for corruption

Ukraine has suffered for many years from a corrupted system. However, there is no space for corruption in the future. To build a better future the system should be transparent with the highest ethical standards.

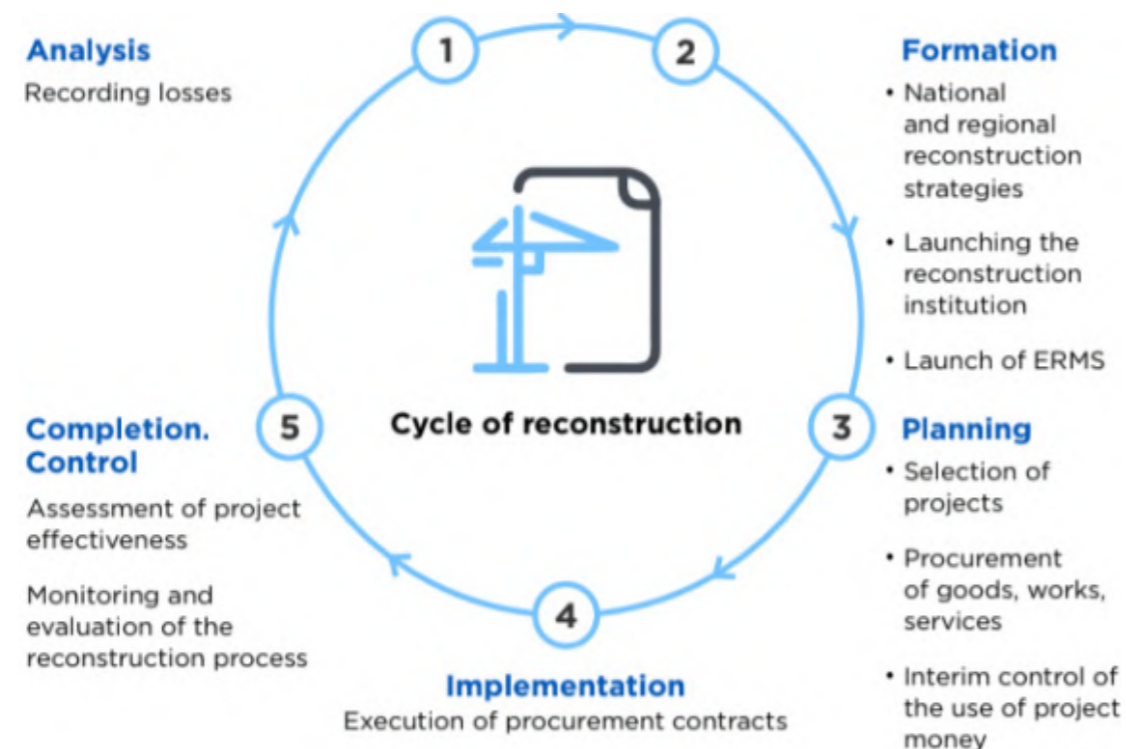
RISE Ukraine also offered a proposal for the reconstruction system of architecture. They called it the “Cycle of reconstruction”. The main idea is to take the principle of creating a basic architectural project on the level of reconstruction of the entire country. First steps would be analysis of the current situation and international experience. The next step is to create national and regional reconstruction strategies, institutions and organisations who will supervise the process. The third phase is called “planning”. Here comes the planning process of rebuilding/recovery and selection of the best projects. After the planning phase we can move to the implementation (4th Phase). The last phase would be about completion and control. As it was mentioned before, it is important to supervise the designing process, use of funds and final decisions on the project to keep the transparency.

. Anon., 29 November, 2022AD. Discussion paper, Institutional Architecture of Ukraine's Recovery: Proposal by Rise Ukraine, Rise Ukraine.

A MODERN MARSHALL PLAN FOR UKRAINE

Seven Lessons from History to Deliver Hope

by Heather A. Conley



Source : Institutional Architecture of Ukraine's Recovery: Proposals by RISE Ukraine, discussion paper as of Nov.29,2022

After the World War II faced a large number of new challenges. Natural and man-made catastrophes put the economy of Europe at a huge risk of falling apart and giving a chance for socialist ideology to spread deeper into people's minds. Communist-organised strikes put the postwar governments of democratic countries at risk. Under these circumstances the Secretary of State Geroge C.Marshall's leadership, US state Department experts came with planned actions to support financial recovery of Europe. As a result, on June 5, 1947, the Marshall Plan was introduced to the public. After 4 years the first results were already visible. The prewar growth was exceeded in 16 countries and their economy started the modernisation process. Unfortunately, today almost the same countries are going through the same phase and challenges. Only this time, the most affected country is Ukraine. The biggest military conflict since WWII brought a new wave of immigration and an economic aftershock.

After long discussions on the rebuilding process of Ukraine, a proposal was brought up on the table - A Modern Marshall Plan for Ukraine. The idea was to take the principles of the original Marshall Plan and to advance it to the existing needs and conditions. Recently Germany's Chancellor Olaf Scholz said that "the reconstruction package for Ukraine will be bigger than the Marshall Plan" and will "require the entire global community to develop reasonable solutions."

"Such calls for new Marshall Plans—for Ukraine or elsewhere—reflect the policy need for something big. However, the reality of the implementation needed to secure the scale, the scope, and the remarkable outcomes of the original plan tend to diminish and often dissipate these calls over time. This must be avoided when designing a modern Marshall Plan for Ukraine for there are vitally important lessons from the history of the first one that should inform the design and implementation of a modern version"

says Heather A. Conley in the paper "A modern Marshal Plan for Ukraine. Seven lessons from history to deliver hope."¹

1. A. Conley, H., 2022. A Modern Marshall Plan for Ukraine: Seven Lessons from History to Deliver Hope, GMF.

First Paris Report

“REBUILDING UKRAINE: PRINCIPLES AND POLICIES”

Another proposal of rebuilding strategy for Ukraine comes from the Centre for economic policy research (First Paris Report “Rebuilding Ukraine: Principles and policies”). The First Paris Report gives a strategy how to rebuilt Ukraine once the war is over. It is a well developed report with principles and strategies for many aspects of the future of Ukraine (from economics, infrastructure, education, politics and aids). As it was mentioned in the documen, “The recommendations have a clear leitmotif: reconstruction is not about rebuilding Ukraine to the pre-war state; it is about a deep modernisation of the country.”¹

When it comes to rebuilding housing, the authors raises the issue whether such process should be done by private firms with a better experience or state units. In both cases there is a big risk of corruption. However, the risk of descrimination is bigger in case with private building companies. Another key decision will be between individual housing construction (wich will allow more flexibility for every owner of the house) or contrary planned huge developments (the advantage is in scale economies).

The housing policy is devided in two parts:
-the immediate housing;
-the intermediate and long-term construction.

Due to a difference in economical aspects and demographics between cities/towns, there should be implemented a specific approach for every location. In some locations on the East, that were strongly affected by military actions, will be hard to apply the principle or “rebuilding the old and abandoned”. At the same time this strategy could better work on the Western part of the country where many IDPs decided to stay even after the war is over. Reusing the existing abandoned architecture as housing for IDPs can cost about 25% of building units from scratch and could be done very quickly. There are many commercial and residential buildings (hotels, sanatoriums, detached wooden cabins, summer camps etc) that could be used as new living units for Ukrainians. On the other side, those building usually are not well-prepared for the cold period of the year. However, installing a new heating system and facade insulation will be much cheaper than building completely new projects

The author of this paper also outlines seven lessons(rules) that we have to follow in the rebuilding process of Ukraine in order not to make the same mistakes as in the past.

Lesson 1:

“Hope Is Powerful, So Plan for Ukraine’s Reconstruction and Economic Recovery Now”¹

Lesson 2:

“Build Strong and Enduring Bipartisan Public and Congressional Support”¹

Lesson 3:

“Ukraine Must Lead Its Reconstruction and Recovery, but Donors Must Agree to and Monitor the Plan”¹

Lesson 4:

“Ensure a Transparent Reform Continuum, from Humanitarian Relief to Macroeconomic Support to Reconstruction and Long-term Modernization”¹

Lesson 5:

“The Marshall Plan Was Driven by the Goal of European Economic Integration”¹

Lesson 6:

“Develop a Time-limited National and International Donor Coordination Mechanism with Notable Talents”¹

Lesson 7:

“This Time, Do Not Neglect Engaging Civil Society and Cities.”¹

1. A. Conley, H., 2022. A Modern Marshall Plan for Ukraine: Seven Lessons from History to Deliver Hope, GMF.

1. Gorodnichenko, Y., Weder di Mauro, B. & Sologoub, I., 2022. Rebuilding Ukraine: Principles and policies, CEPR PRESS: Centre for economic policy research.

CEPR also comes with a proposal of voucher programmes and land privatisation.

Voucher programme:

“Those whose housing units have been destroyed should receive a voucher to either spend on building materials and construction costs on their land, to buy an existing or newly built government or private unit anywhere in Ukraine, or to rent over a period of years. The simplest plan would be to offer a single voucher programme for destroyed units, whether single-family homes or flats. The voucher could be a household-specific deposit in designated banks that can be spent on certain categories of goods (analogous to the COVID scheme) over a period of years. The general size of vouchers should be based on the pre-war value of what they owned previously, but may need to be proportionately larger, given higher costs of construction in the future.²⁹ While in principle vouchers could be viewed as simple compensation for lost property to be spent on anything, the state and aid agencies that will fund much of voucher cost may want to constrain aid money to be devoted to reconstruction.”

Freedom to chose:

“... those who had single-family homes are to return to their land and receive grants to rebuild. One idea is for people working with contractors to self-build on their own land as soon as the situation permits. This legislation offers an individual choice of what size unit to build initially and when to enlarge. Alternatives include the state contracting to rebuild entire city blocks of single-family attached or detached homes, which would likely involve a ‘one size and type fits all’ approach. Another possibility is for private developers to assemble land and build new units for sale... Regardless, a voucher programme would provide the funds for people to have the choice to rebuild, buy a state-built unit, buy a privately built unit, or buy an existing, surviving unit anywhere in Ukraine.”

The authors also thought about the land that has no purpose after war. This refers to the land that used to have some residential flats, commercial building, vacant or farming purpose, but was destroyed by Russian attacks and is not included in future development plan of the government. Such land is suggested to be auctioned. People with voucher could use it to buy the land and build on their own a new house. Developers may also take part in the auction. They could buy few parcels of land and realise a large-scale development. An additional option to the auction strategy is suggested to sold is as freehold. For some specific period of time (say 99 years) the land is going to be used by the buyer, but after the government should review the rights on this land.

1. Gorodnichenko, Y., Weder di Mauro, B. & Sologoub, I., 2022. Rebuilding Ukraine: Principles and policies, CEPR PRESS: Centre for economic policy research.

CEPR commented about the modular housing in their document. The authors agree that modular housing offers a fast and low cost realisation of the housing. It can provide a large number of new shelters for DPIs or locals who want to return back to their original residency. However, they support this method particularly for short-term use. It should not be used longer than a certain period of time (for instance, one year). Ignoring this fact may lead to appearance of isolated, low-quality districts with high level of crime. Offering a short term solution may help those who are working on rebuilding their houses.

THE UNSUCCESSFUL EXPERIENCE OF TEMPORARY MODULAR HOUSING

As it was mentioned before, the war started in 2014 and in the same year Ukraine faced the IDPs' crisis. At that time, in 7 cities of Ukraine were built as temporary modular housing settlements. This construction process was supported by the German state company GIZ. The temporary housing was supposed to provide living units for a period not longer than 3 years. However, many people kept living there till 2022. One of the biggest problems of such experience appeared to be social isolation of the inhabitants. Some of the settlements were situated far from other settlements and did not have access to public transportation. Besides, modular housing was built from construction materials that were not the best option for long-term use.

The prefabricated system of rebuilding the country is also considered by CEPR as an effective option. It can provide a less expensive and faster solution for permanent housing. Nevertheless, Ukrainians had experience with "prefab" architecture and most of the time it was an unpleasant one. Even though this technology has advanced since the Soviet period, it will be challenging to convince citizens about its effectiveness.



An existing settlement of temporary housing built for people displaced from Crimea and Donbas since 2014. Source: Balbek Bureau

4 CASES SCENARIO FOR IDPs AFTER WAR

After studying the existing literature and conferences on Rebuilding of Ukraine, I want to outline 4 possible decisions that displaced people may make after the war ends.

1/The ones who come back

Those are people who will chose to come back to their original place of residence. They may move back into their house in case it was not destroyed by Russian troops or chose to build a new one from scratch in the same place.

2/The ones who come closer

People who lost their home, are considering moving to another location, but it should be close to the previous one (same region as befor war)

3/The ones who stay

Moving from one location to another and starting from scratch is a big challenge for many of people. Those who went through this once (twice or more) may not be ready to do this again even after the end of the war. During one year since Russia invaded Ukraine, many families found a new home and became a part of a new community. Under this circumstances they may decide to stay instead of moving back to their original residence.

4/The ones who never come back

This group of people fled the country during the war period and will consider to stay abroad for many different reasons.

For each type of group Ukraine should be ready to offer a strategy and help. The first three groups will need help from the government in order to find themselves a house and to be integrated in the local society. In the fourth case, Ukraine should be ready to replace people who decided to continue their life abroad.

This project is focused on the third case scenario when IDPs decide to stay where they found safety during the war within Ukrainian borders. Some parents and young adults found job, seniours were integrated in a new community, kids started to attend local kindergartens and schools etc. People were integrated into the local social system in general. Another reason why they will not go back - postwar traumas. For some of them it will be painful to live surrounded by memories. They will rather chose to stay as far as possible and never come back in order to avoid the risk of another invasion.

**BASIC
PRINCIPLES
OF HOUSING**

**What?
When?
How?
Who?
Why?**

What? When? How? Who? Why?

What?

“social housing” – houses and flats that are owned by local government or by other organizations that do not make a profit, and that are rented to people who have low incomes.

Cambridge Dictionary

When?

Social housing typology appeared at the end of the 19th century as a result of a housing crises around Europe (connected with the modernisation and urbanisation movement of that time). The massive movement of people from smaller settlements to bigger cities provoked the appearance of more criminal cases and new diseases. Under this circumstances, the new strategy of providing leaving units was introduced to society. After the end of the WWII, the popularity of social housing raised as never before. Local municipalities saw it as an opportunity to rebuild the post-war housing and solve the existing at that time economical crisis. However, after the economical crisis in the 70s, the affordable housing program is not that well financed in many countries around the globe. There are still some foundations that hepl to create more affordable units in every country in Europe, but it still does not meet the needs of the whole population.

Who?

In every country the requirements for getting an affordable apartment are different. In some cases it may be designed for refugees, young adults, people with low income, victims of domestic violence, racial or sexual abuse, etc. In Ukraine only people from in need can get a living unit in social housing (like IDPs, orphans, disable people). While in other countries this list can be much longer. In Vienna for example a social housing can get any inhabitant that has the income lower than the highest number.

How?

In different countries the principle of social housing works different but the main idea is the same. Its aim is to provide affordable living units for people in need. The owner of the house may be a private organisation, the local administration, NGOsm cooperatives, public organisations etc. In any case, the owner is not making any profite out of the rent that the inhabitants pay. In case there is some profit, it should be spend on the needs of the house (such as repairing) or building a new affordable housing. In some countries, private organisations are getting subsidies from the government in case they decide to built a social house. Another way of support from the government is when the developer(builder) is not paying the taxes for renting the land. Also they may receive a site in an attractive district, but under the condition that 25% (or other number) of the flats will be social housing.

Why?

We need social housing in order to help people who can not afford the normal market price for rent. In case they will not receive any help from the government or organisations they will end up on streets and the local administration will have to solve the issue with homelessness. By providing affordable housing the government also invest in the economy of the country since people are willing to work more when they feel being supported.

Types of affordable housing:

Supportive housing

It is a permanent housing for people who need help and support daily. Usually, this type of housing is offered for older people, people with dissabilities, addictions etc.

Emergency housing

Is a temporary form of housing that provides shelter for people who are fleeing violence or abuse or lost their ouse completely.

Private market purpose-built rental housing

Housing that has rental purpose and the owner could be a person or a private company. the price for rent is also decided by the owner based on the local housing market.

Non-profit housing

Long term rental housing for people with low or medium income. It can be owned by the province, municipality, community group. The tenants can pay the rent as much as they can afford or the lowest price in the existing housing market. Such housing do not make any profit from tenants.

Homeownership

Becoming a homeowner of an affordable house/apartment may also be an opportunity in some countries.

Secondary suits

It is a type of affordable housing in private market. This units are offered on the same land/building as the owner's place. Usually it is in a basement, on an upper floor, above a garage, or detached from the home.

Cooperative housing

Housing that is offered to people with low or moderate income. Residents contribute on maintaining the building and the cooperative.

Transitional housing

Offers a temporary housing between the emergency and permanent stage (for a specified time period).

Does Ukraine have AFFORDABLE HOUSING?

There is a governmental foundation for temporary housing that has a similar principle as for social/affordable housing. However, such housing is rarely found around the country. There is no source where we can find the number of social housing that exist at the moment in Ukraine. As for January 2021, there were registered in total 3095 so called social apartments. In Kyiv were registered only 72 apartments when its population is equal with 2.950,702 (in January 2022). The number of affordable housing in Ukraine is extremely small because the government does not provide finances for building such housing. The main responsibility to provide inhabitants with living units carries the local administration. On the local level the financial income is even lower.

What can be done now?

There are few steps that were suggested by **CEDOS** in the article **“What is social housing and how does (doesn’t) it work in Ukraine?”**:

- to involve more the government in the social housing development;
- create one general system where people that need affordable housing could register. Also to register there already existing affordable housing. In this way we could see the number of living units that are needed at the moment;
- combine the fund of social housing and the fund of temporary housing in one general fund for social housing;
- check the existing requirements of getting an affordable living unit and make sure it does not create any inequalities between candidates.
- create independent communal organisations on the local level;
- create and adopt a strategy for social housing development;
- create and adopt a new concept of housing policy.

CO-HATY Ivano-Frankivsk

After Russia started the full scale invasion, Ukrainians immediately reacted and united in order to help each other. On 22 March a group of architects and specialists in this field united to help IDPs to find a safe temporary house. An urban laboratory from Ivano-Frankivsk initiated the project «Co-Haty». Later on, a group of professionals started to create a new «home» for those who needed. They have a great experience in collaborating with local administration, involving IDPs in creative process of building their own living space etc.

Their approach towards social affordable housing is very sustainable. They succeeded to combine aesthetics and affordability in every project. One of their projects was recently completed in Kamnets-Podilsk. It is an abandoned dormitory. However, nowadays it has a capacity to fit 250 IDPs and by the end of May this house should be full with IDPs.

In case if this project, the building was abandoned for almost 20 years and needed a big investment in renovation. However, it still costed much cheaper and climate-friendly. Inside the building people share a common kitchen and a bathroom, laundry and living space where they can interact.



Source of the picture: www.metabolab.space

PART II

DESIGN

DOCUMENTATION OF THE
DESIGNED AREA

INTRODUCTION OF THE LOCAL CONTEXT

TRUSKAVETS

TRUSKAVETS - a town located in the Western part of Ukraine (Lviv oblast) near the border with Poland. The closest city to Truskavets is Drohobych (30 minutes by car). The town has approximately 28, 287 inhabitants. The total area of Truskavets is 8 km². Because of its mineral springs, the town is considered one of the best resorts in Ukraine.

The history of the town started under the Polish Crown. For the first time it was mentioned in 1469 in a diary of a Polish doctor Wojciech Oczko. After 1722 Truskavets became a part of Austria. This was also the period of big urban and architectural transformations of the town. After the Polish-Ukrainian War and the Polish-Soviet War, the town went back to the Polish land. After the Red Army invaded Poland, Truskavets became a sanatorium for soldiers. Between 1940-1944 this area was occupied by the German army. From 1945 the Soviet regime came back and made changes in local architecture by ruining the old Austrian architecture and building socialist architecture. After the collapse of the Soviet Union, Truskavets remained a part of Ukraine. Since then the town is developing in all aspects.



Truskavets is connected with the closest cities by public transportation such as bus or train. Some destinations can be reached only by car.

There are 84 km to the most turistical ciy in the Western part of the country. It takes 2 hours by train or bus to reach Lviv. Drohobych is the closest city for Truckavets which is located on a distance of 11 km (20 minutes by car ans 30 minutes by bus).

Truskavets is also very close to the Carpathian mountains. There is a National Park called Skolivski Beskydy that can be reached in 40 minutes by car.



**LOCAL CONTEXT THROUGH
ARCHITECTURE**



REASONS WHY WE SHOULD REUSE OLD EXISTING ABANDONED ARCHITECTURE

Sustainable

Saving the historical heritage

Cost-effectiveness:Infrastructuree.

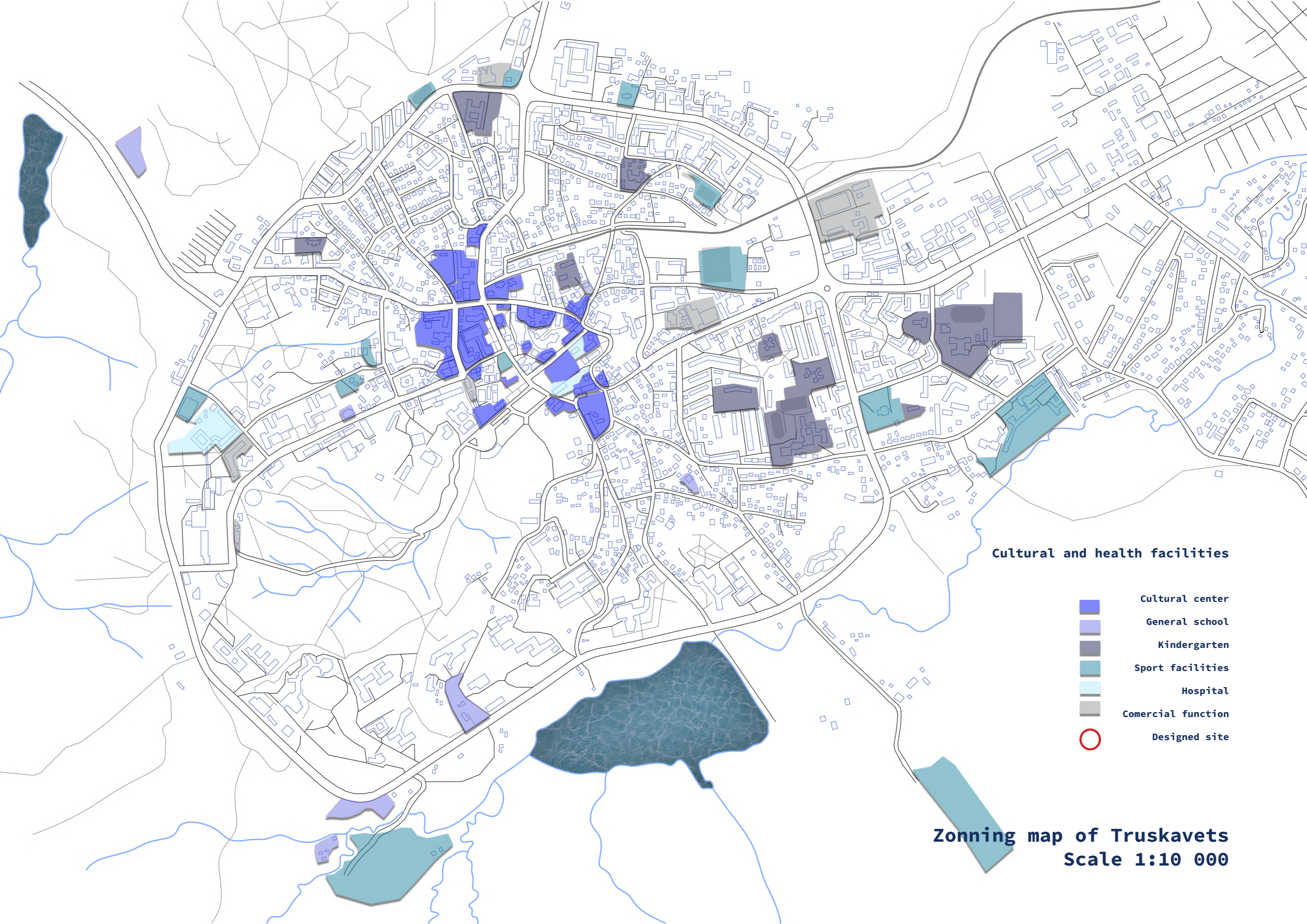
Aesthetic appeal

Job creation








Adaptive reuse

Urban revitalization

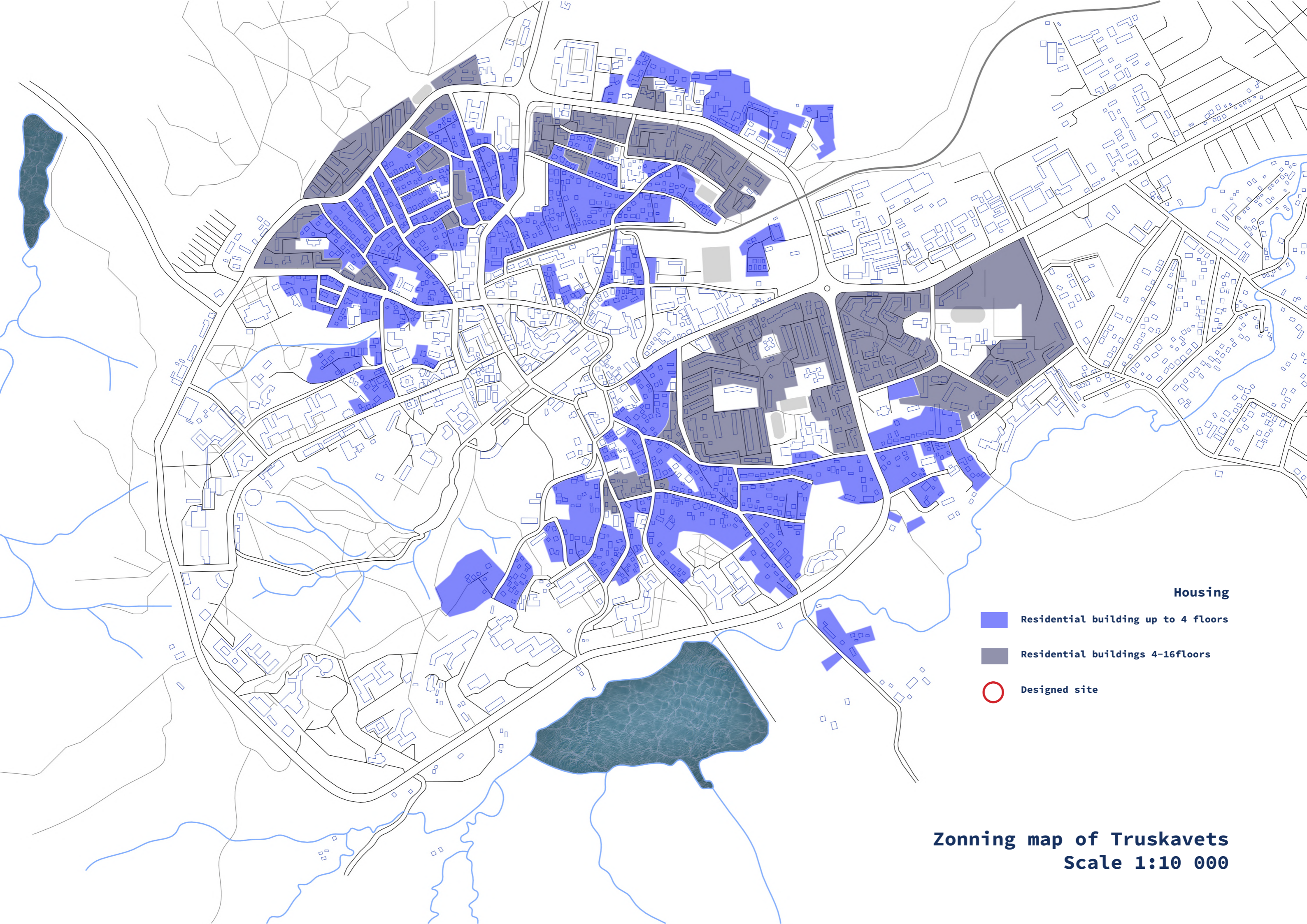




Cultural and health facilities

-  Cultural center
-  General school
-  Kindergarten
-  Sport facilities
-  Hospital
-  Comercial function
-  Designed site

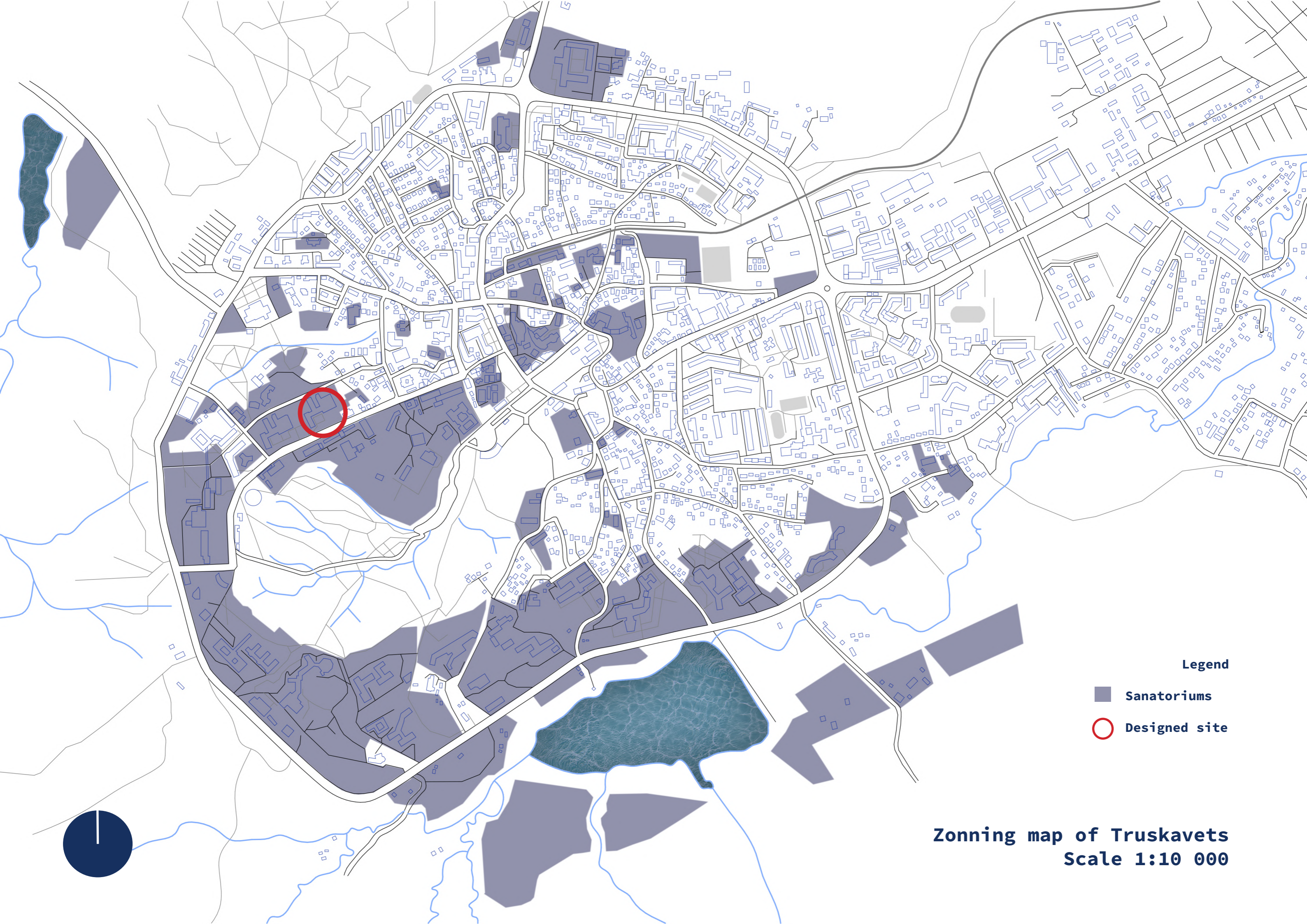
Zonning map of Truskavets
Scale 1:10 000



Housing

- Residential building up to 4 floors
- Residential buildings 4-16floors
- Designed site

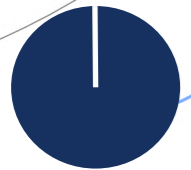
**Zonning map of Truskavets
Scale 1:10 000**



Legend

-  Sanatoriums
-  Designed site

**Zonning map of Truskavets
Scale 1:10 000**



HOUSING IN NUMBERS

The total number of squar metres(thousands)of housing in Truskavets up to 01.01.2018				
YEAR	2013	2014	2015	2018
Squar metres	495.8	507.1	504.0	615.7

The number of squar metres of housing per one inhabitant in Truskavets up to 01.01.2018				
YEAR	2013	2014	2015	2018
Squar metres	22.9	24.5	24.6	30.4

SOURCE: «The development strategy of the Truskavets subregion till 2028», Olexandr Sophyi and Olexandr Voloshynckyi, 2018, pag. 50-51.

SOCIAL INFRASTRUCTURE

PRE-SCHOOL educational centers (kindergarten)		
Number of educational center	The capacity of the institution	The number of kids who attend
#2	205	24
#4	102	17
#5	103	23
#6	218	22
#7	110	20

General schools		
Number of educational center	The capacity of the institution	The number of kids who attend
General school 1	729	744
General school 2	730	766
General school 3	900	514

SOURCE: «The development strategy of the Truskavets subregion till 2028», Olexandr Sophyi and Olexandr Voloshynckyi, 2018, pag.56.

CULTURAL CENTERS

The total number of CULTURAL CENTERS in Truskavets up to 01.01.2018				
YEAR	2013	2014	2015	2018
AMOUNT	13	10	11	10

The total number of libraries in Truskavets up to 01.01.2018				
YEAR	2013	2014	2015	2018
AMOUNT	19	18	15	11

SPORT FACILITIES in Truskavets up to 01.01.2018				
YEAR	2013	2014	2015	2018
STADIUMS	0	0	0	0
FOOTBALL COURT	4	4	4	4
OUTDOOR GYM	13	13	13	13
SWIMMING POOL	1	1	1	1
INDOOR GYM	11	11	11	11

SOURCE: «The development strategy of the Truskavets subregion till 2028», Olexandr Sophyi and Olexandr Voloshynckyi, 2018, pag. 59-60.

SWOT ANALYSES OF TRUSKAVETS

STRENGTH

1. Unique mineral sources;
2. A well-known health-resort centre;
3. Well developed infrastructure and large spectrum of touristic and health-care facilities;
4. Close situated to the Ukrainian mountains and the border with EU;
5. Good connection with the cultural center of Ukraine - Lviv;
6. Better air quality compared with other regions of Ukraine.
7. Rich cultural heritage.

WEAKNESSES

1. Truskavets does not have clearly specified borders;
2. Uncontrolled construction process;
3. Risk of wasting local natural resources;
4. Abandoned architecture;
5. High energy waste;
6. Insufficient level of English;
7. Insufficient amount of public and working spaces for the inhabitants;
8. Undeveloped cultural centres for different ages;
9. The lack of a general marketing program for the city.

1. New connecting highway with Lviv;
2. Developing the program of new renewable energy sources;
3. Increasing the level of tourists and visitors;
4. Abandoned architecture that can be renovated for new purposes.

1. Unstable economical situation of the country;
2. Increase of taxes;
3. Continuation of military action in the Eastern part of Ukraine;
4. Corruption and inflation;
5. Insufficient financial support from the government.

OPPORTUNITIES

THREATS



Author of the picture Oksana Tkachenki, January 2023, Truskavets.

SOURCE: «The development strategy of the Truskavets subregion till 2028», Olexandr Sophyi and Olexandr Voloshynkyi, 2018, pag.56.

**TRUSKAVETS
DURING
THE WAR**

A small town that welcomed
thousands of IDPs

TRUSKAVETS DURING THE WAR (since 24.02.2022)

After the war has started Truskavets has changed its purpose as a city - from a resort to a shelter for IDPs. In an interview for a local news paper the mayor of Truskavets Andrii Kulichynskyi mentioned that 20 thousands of IDPs has found a temporary home since the 24 February 2022. This number is almost equal with the number of the citizens of Truskavets.

In the first day of the war there was established a humanitarian centre. It was focused on few directions: to collect the donations that were needed for the Ukrainian army, providing temporary shelter for IDPs, preparing first aid kits, weaving camouflage nets, etc. Some new comers spent just few nights in Truskavets as a transition point for their final destination.

Truskavets has always had a big capacity to host newcomers. Before the war this town was welcoming around 40 thousands people. Truskavets has around 200 touristic facilities including hotels, resorts, villas, hostels, etc. There are around 20 000 of inhabitants and around 10% of them are working in healthcare sector.



Author of the image - Yulia Pidloha
Source: suspilne.media

1. Anon., Holiday during the war time: What does Truskavets can offer to tourists. Available at: https://lb.ua/society/2022/08/28/527575_vidpochinok_viynu_shcho_proponuie.html [Accessed February 9, 2023].

Interview with the mayor Andrii Kulichynskyi



The most important ideas from the interview¹:

- Truskavets during the war will focus on 3 main categories of visitors: the regular tourists that used to come here every year, the patients with post-Covid syndrom. rehabilitation of Ukrainian soldiers.
- Most of the sanatoriums have bomb shelters which provides safety in case of emergency. Also there are street cameras that provides security. Besides that, there was established a voluntary territorial defence unit.
- The number of temporary inhabitants has dropped in the las weeks since some people are going back to their original regions. However, a part of them are still staying in Truskavets (even people from the regions that are not under attacks nowadays). Truskavets has around 30-40% of permanent inhabitants more than it used to have before the war.
- The prices for accommodation and basic needs of inhabitants has not changed since the begining of the war. The local administration, as well as the business owners, realise how difficult is to have any financial income for IDPs.
- All the families can find a school or kindergarten for their kids.
- Public transportation is also not overloaded since more inhabitants moved in.

1. SOURCE: tvoemisto.tv, interview with the mayor Andrii Kulchynskyi, Available at https://tvoemisto.tv/exclusive/nashi_dveri_zavzhdy_vidkryti_yak_u_truskavtsi_gotuyutsya_pryymaty_vidpochyvayuchyh__intervyu_iz_merom_133665.html [Accessed February 9, 2023]

What does Truskavets can offer after the war ends?

Truskavets has always been known as a city with well developed health care facilities and natural resources. During the time when Ukraine was a part of Soviet Union this region was developed even more. This was the time when local architecture faced a new wave of experiments and growth.

The buildings of new sanatoriums became bigger and higher. For example the sanatorium Yantar, Rubin and Almaz, Moldova and others stand among other buildings because of their size and architecture compared with other older examples of local architecture.

The architect of two sanatoriums «Yantar» and «Rubin» was Ihor Mezentshev. He was a Ukrainian Soviet architect, painter, graphic artist and teacher; member of the Union of Architects of Ukraine since 1969. In general he designed 7 sanatoriums in Truskavets in 70s. For all of his projects there he made similar architectural decisions such as glassed facades for staircases, long uninterrupted facades. An important aspect of the local architecture was the green area and large outdoor social space in front of the building. Without any doubts, these criteria were followed in the project of the «Rubin» sanatorium.

Unfortunately, since 2015 these two buildings are abandoned due to violations of the law by the owners of the buildings. However, during the war time it created an opportunity for the local municipality to privatise it and reuse as social housing for IDPs.



What does the local administration say?

ЕВАКУАЦІЯ.СІТУ

ЖИТЛО

👁 825 02 листопада 2022 17:19

У закинутих санаторіях Трускавця облаштують житло для переселенців

Санаторії "Янтар" та "Рубін" у Трускавці облаштують для переселенців. Вони були законсервовані близько 8 років.

Про це [повідомляє](#) Інтерфакс-Україна з посиланням на юридична фірму Integrates. Вона виступає консультантом Трускавецької міської громади за цим проектом.

Санаторії Трускавця модернізують для переселенців

У санаторіях облаштують для евакуйованих:

- помешкання,
- їдальні,
- соціальні центри.

Загальна площа реконструкції – близько 32 тисяч квадратних метрів. Проект реалізують на основі державно-приватного партнерства, щоб інтегрувати переселенців в життя регіону.

Санаторії "Рубін" та "Янтар" збудували у Трускавці у 1980-их роках. У 2014 році їх законсервували.

While searching for abandoned architecture that could be reused as social housing, I found many articles about the two sanatoriums in Truskavets that local municipality wants to reuse as housing for IDPs. One of the articles in its original form (as a screenshot) I included on the opposite page.

Translation from Ukrainian to English:

Abandoned sanatoriums in Truskavets will be used as housing for IDPs.

Sanatorium «Yantar» and «Rubin» will be rebuilt for IDPs. These buildings were abandoned for almost 8 years. It was announced by ІнтерфаксУкраїна with a link to a law company «Integretis». This company acts as a consultant to the city council on this project.

Sanatoriums of Truskavets will be upgraded for IDPs

These two buildings will provide for displaced people:

- housing units;
- canteens;
- social centers.

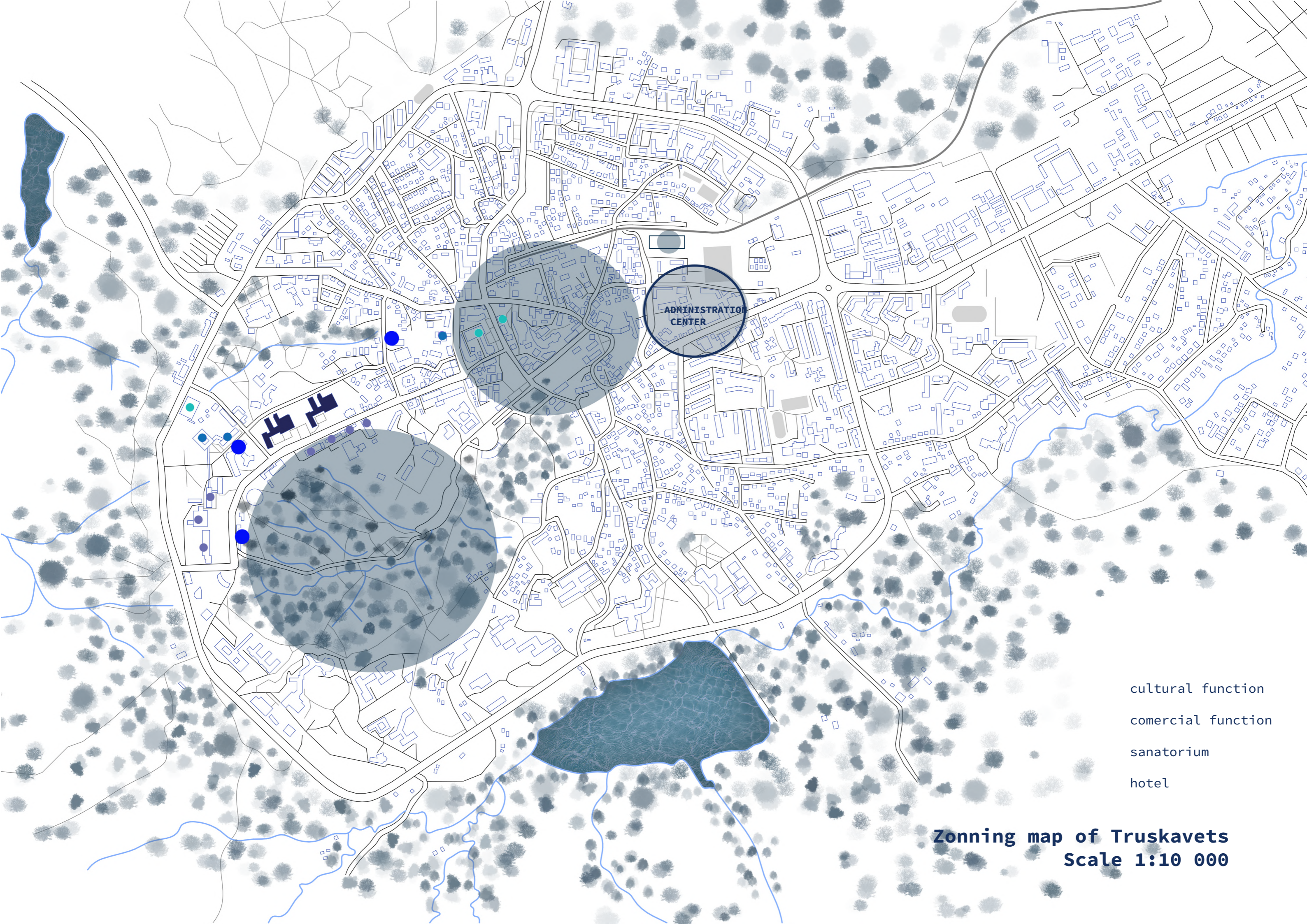
The overall area of reconstruction is around 32 000 m². The project is being implemented on the basis of public-private partnership to integrate IDPs into the life of the region. Sanatoriums «Yantar» and «Rubin» were built around 80s last century and are abandoned since 2014.

Picture taken on 6 March 2023 by Olivia Dimitrisina



**EXISTING
CONDITION OF
THE DESIGNED
BUILDING**

How it was
Surrounding area
Site visiting
Structure and Functions



ADMINISTRATION
CENTER

- cultural function
- comercial function
- sanatorium
- hotel

Zonning map of Truskavets
Scale 1:10 000

SWOT Analyses of the chosen building and its surrounding area

STRENGTH

1. Unique natural environment;
2. Situated close to the town center and administration offices of Truskavets;
3. Walkable distance to the biggest park of the town;
4. Historical value of the building;
5. Accessible for pedestrians and cars;
6. Big area for new housing units;
7. Monumental architecture;
8. Load bearing structure of the building gives opportunity for flexible replanning.

WEAKNESSES

1. Abandoned architecture that needs financial investments for renovation;
2. Poor division of functions on the site;
3. Some parts of the building can not be fixed and should be replaced with the new one;
4. Some places around the site can not be accessed by people on wheelchairs.
5. Mixed architectural styles around the site. Mostly predominating the buildings from the beginning of 21 century.
6. Abandoned unfinished construction sites in the same area.

1. Providing new housing units for IDPs;
2. Saving the local architectural heritage from 1980s;
3. Opportunity to develop the local economy by bringing new inhabitants;
4. Supporting the social housing movement;
5. Connecting new inhabitants with the locals through social events and common spaces.

OPPORTUNITIES

THREATS

1. Unpredictable amount of IDPs who will decide to stay in Truskavets after the end of the war (less or more than it may be expected);
2. Touristical cities can not provide a stable financial income for the inhabitants.
3. Overloading the infrastructure of the town.

During the site visit...

During the site visit I was able to get a better understanding of the existing condition of the building. I could also experience the accessibility of the site from all of the directions possible. In addition to that, I could identify the existing greenery in order to keep it during the design process. Even though the architectural aspects of the building got worse during years, people still enjoy walking around this area. Another important sanatoriums such as «Almaz» and «Kristal» are located in a walkable distance. It also takes around 10 minutes walk to get to the cultural center of Truskavets where most of the tourists are spending their time. It takes 2 minutes to get to the closest supermarket and the hospital. There are few unfinished buildings around the site. Some of them might be finished after the war and some of them will become another example of abandoned architecture of the town. However, all of them have potential to be reused for the local needs.

SITE PICTURES



taken on 6 March 2023 by Olivia Dimitrisina



taken on 6 March 2023 by Olivia Dimitrisina



taken on 6 March 2023 by Olivia Dimitrisina



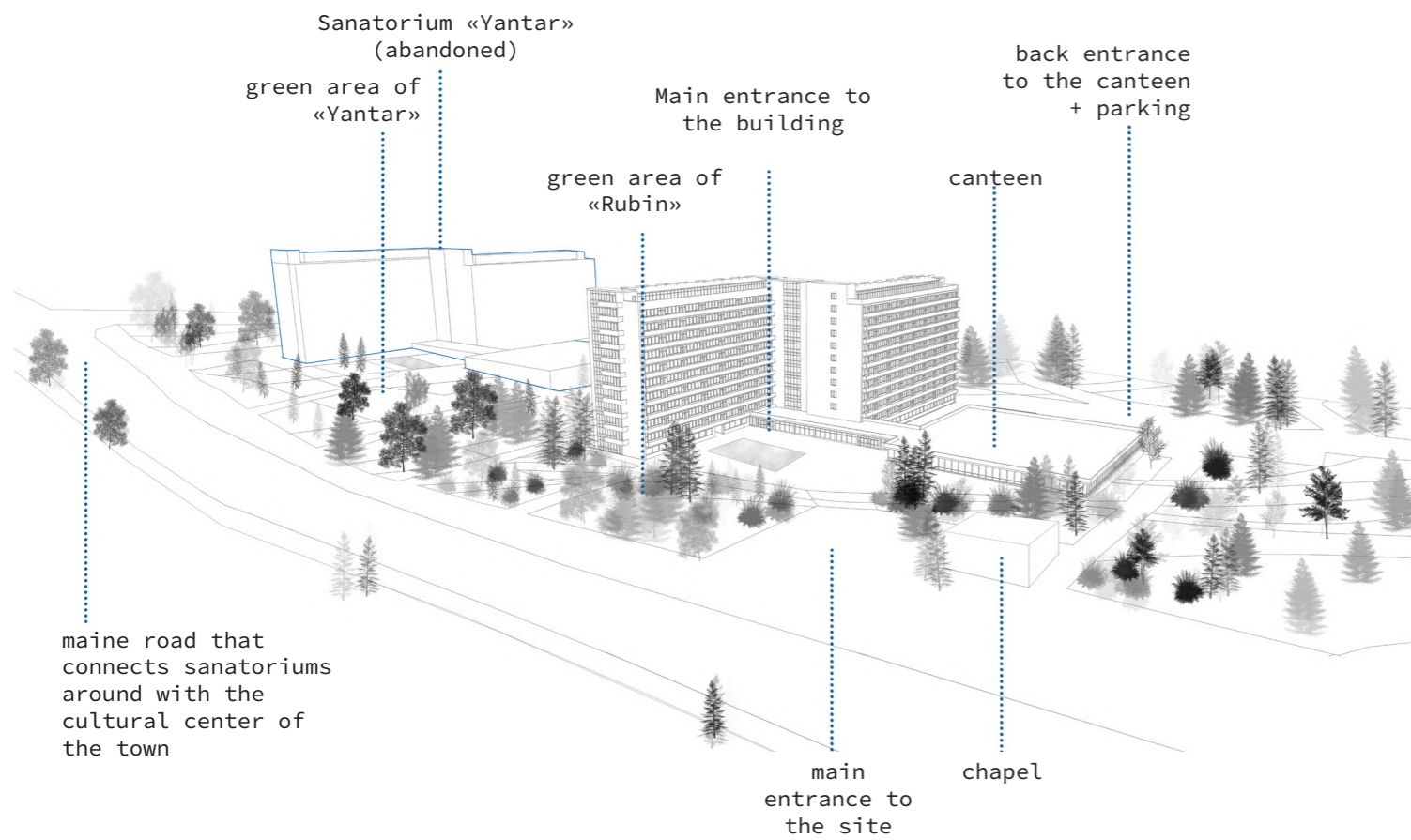
The condition of the building today.

Even though the construction of the building was finished in 1982, after 41 years the building still stands almost in the same condition. The load bearing structure of the building seems to be in a adequate condition. However, it will be needed to do a more professional survey of the building before its renovation.

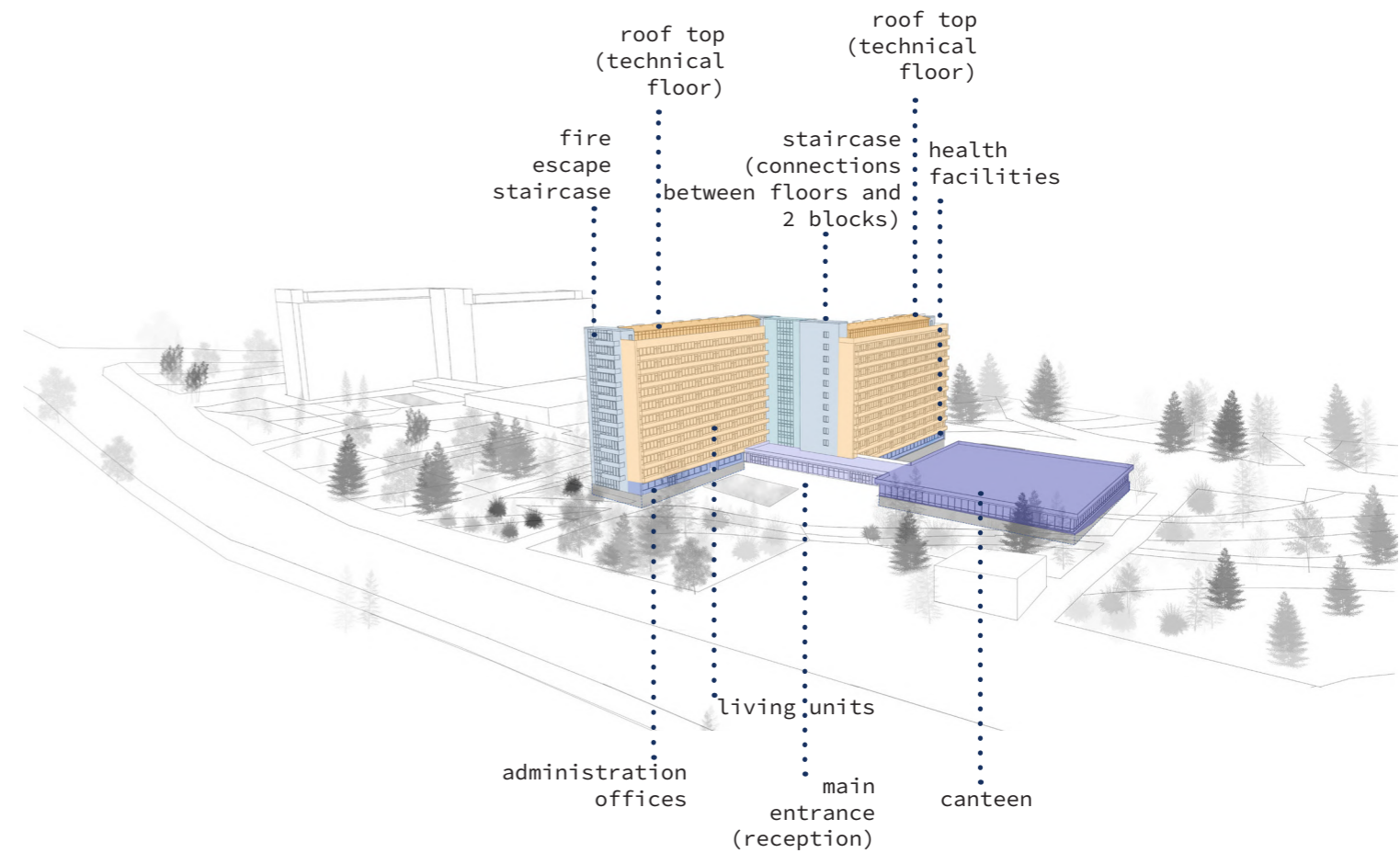
When it comes to the doors and windows of the building, inevitable it has to be replaced. I could see that some of the windows in the living units were replaced by time because it started to fall apart. The mosaic on the facades stays in the same condition as it used to. Considering the fact that this type of mosaic is an important detail of the architectural style of the building, I decided right on the site that it needs to be used reused in the future design of the building.

All the pictures of the interior taken from <https://www.turpravda.com/ua/truskavec/>

FUNCTIONAL DIAGRAM OF THE EXISTING SITE

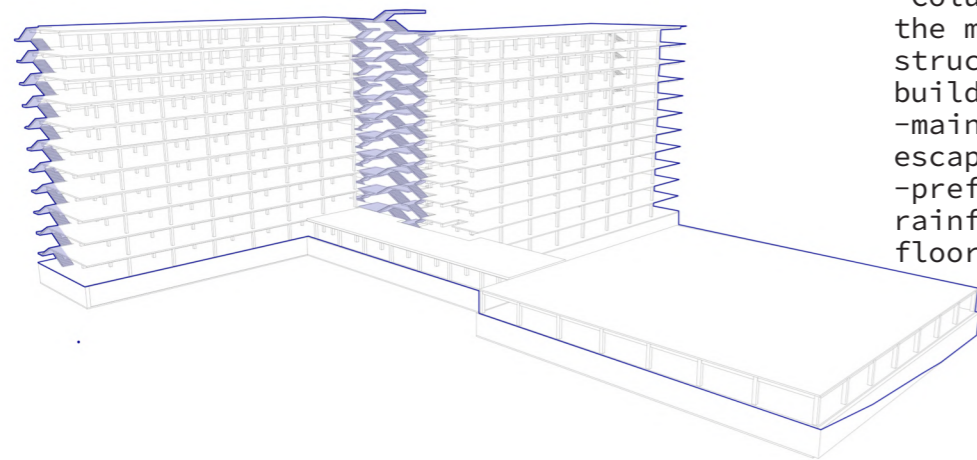


FUNCTIONAL DIAGRAM OF THE BUILDING

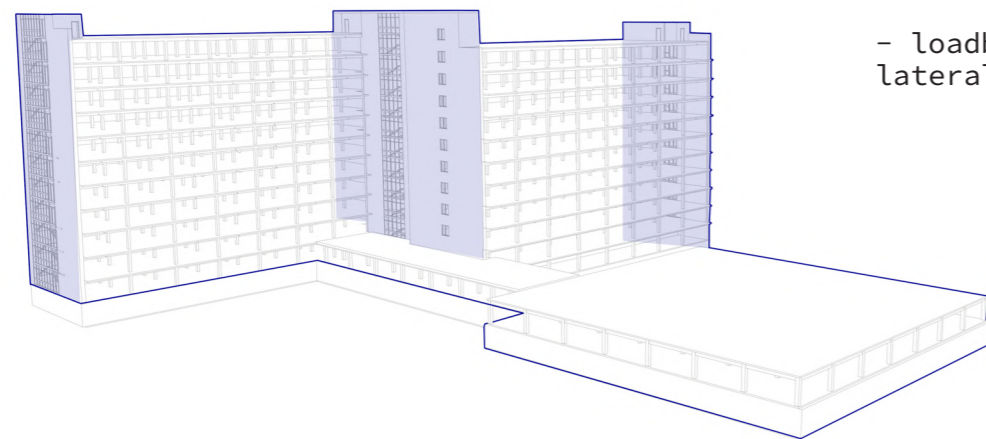




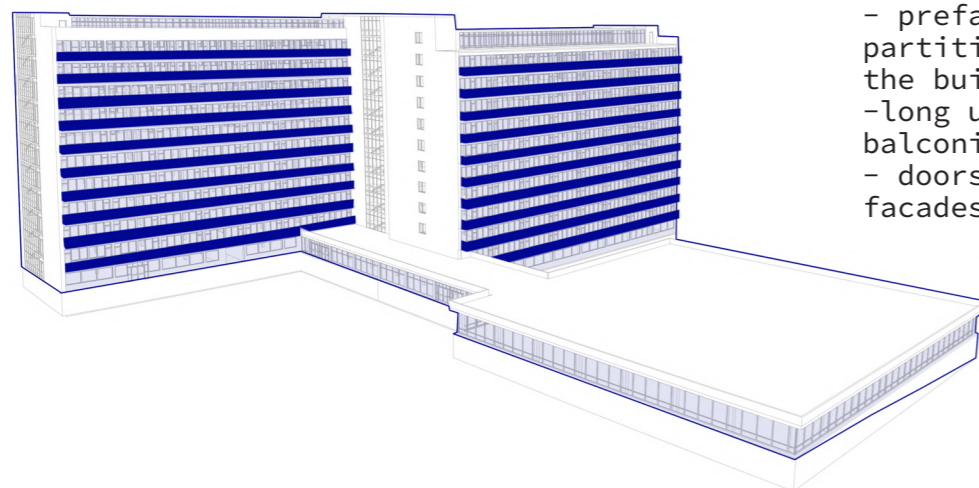
EXISTING STRUCTURE OF THE BUILDING



- Columns and beams as the main loadbearing structure of the buildings
- main staircase + fire escape staircase
- prefabricated reinforced concrete floor

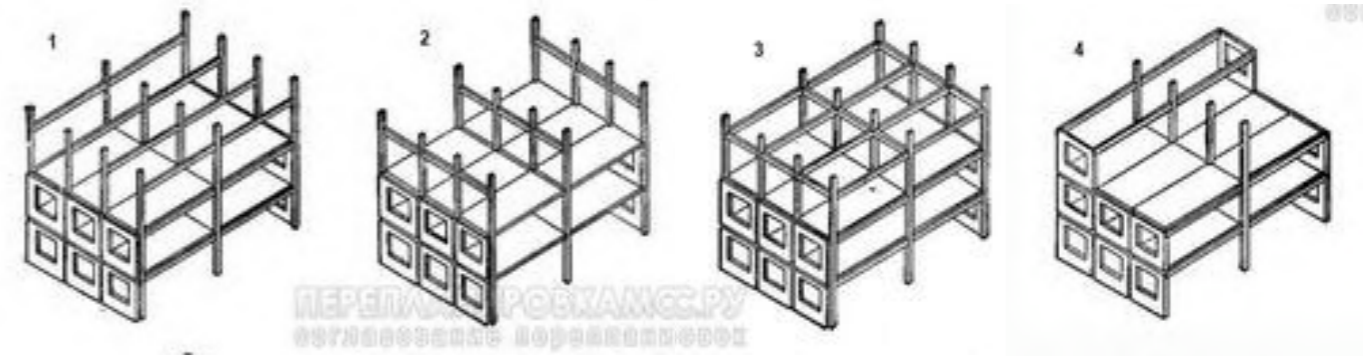


- loadbearing external lateral walls



- prefabricated partition walls inside the building
- long uninterrupted balconies 1m width
- doors and windows on facades

BUILDING TECHNOLOGY OF SIMILAR ARCHITECTURE



Source of the diagrams: https://www.pereplanirovkamos.ru/panelnyy-dom.html?utm_referrer=https%3A%2F%2Fwww.google.com%2F
 Author of the article Serghei Vladimisitucu

The buildings of sanatorium «Rubin» and «Yantar» is an example of a panel residential building. A panel residential house is a residential building that has a construction set from reinforced concrete slabs prefabricated in a factory.

Prefabricated panel houses have been constructed for several decades. Over this time, the methods of industrial house building have changed and new requirements for the construction of typical houses have appeared. Therefore, Stalinkas, Khrushchevkas, Brezhnevkas and modern panel houses have their specific characteristics.

There are two main types of panel houses: frame and non-frame.

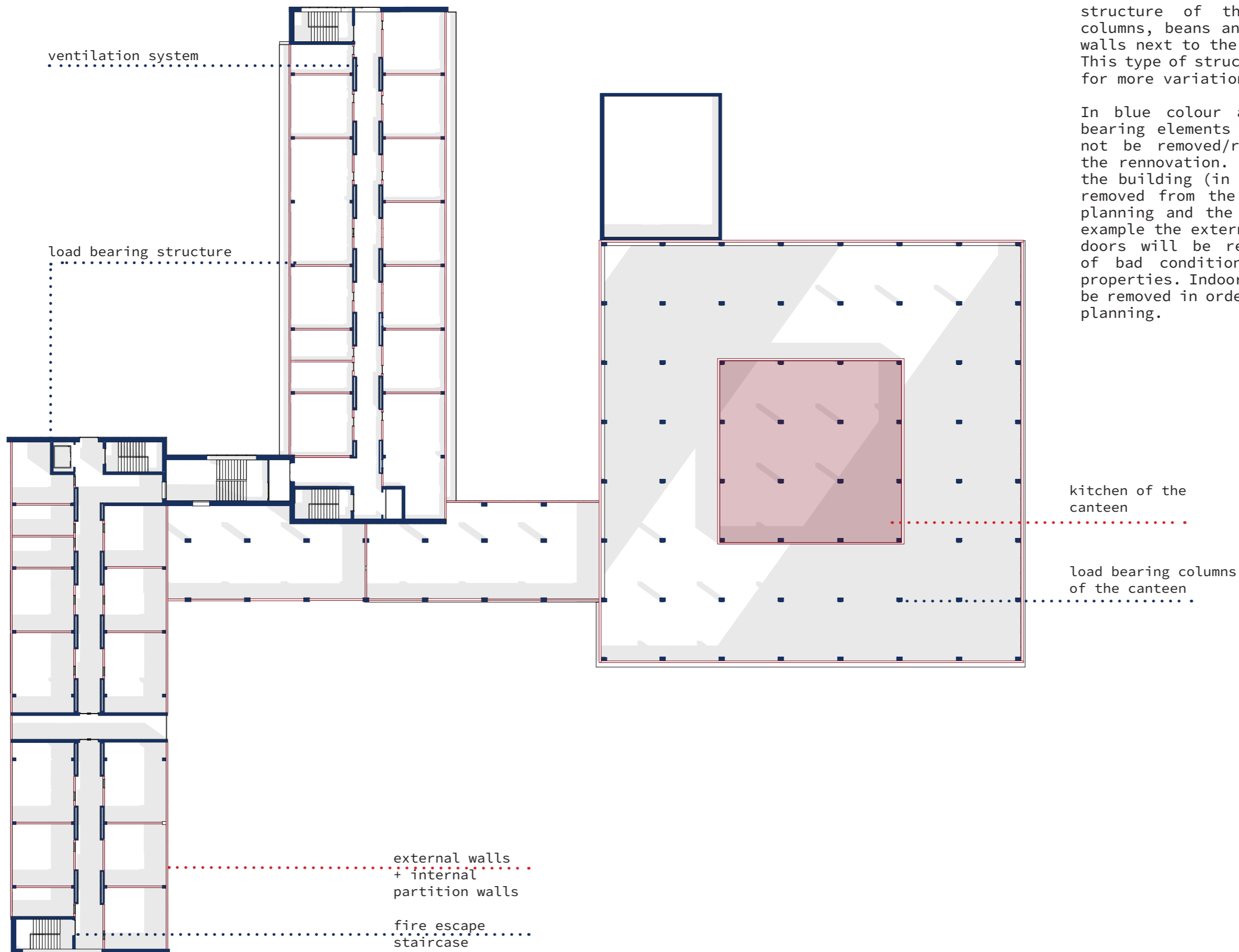
Buildings constructed with a frame constructive scheme may be:

- longitudinal (image 1);
- transverse (image 2);
- spatial (image 3);
- mixed organisation of beams + external load bearing walls (image 4).

In frame-panel buildings, the load-bearing structures are the internal columns and beams, and the wall panels perform only the enclosing (separating) functions.

In this project the loadbearing structure of the building consist of internal columns, beams and two external walls from the side of fire escape stairs. The canteen next to the sanatorium has only columns and beams as a loadbearing structure. All the interior partition walls were prefabricated at the factory and instaled on the site. External walls of the front and back facades are mainly glasseed. At the time when this building was finished, it lacked thermal insulation of facades and also windows and doors, which probably led to significant heat loss.

This should factor should be considered during the design process of the project.



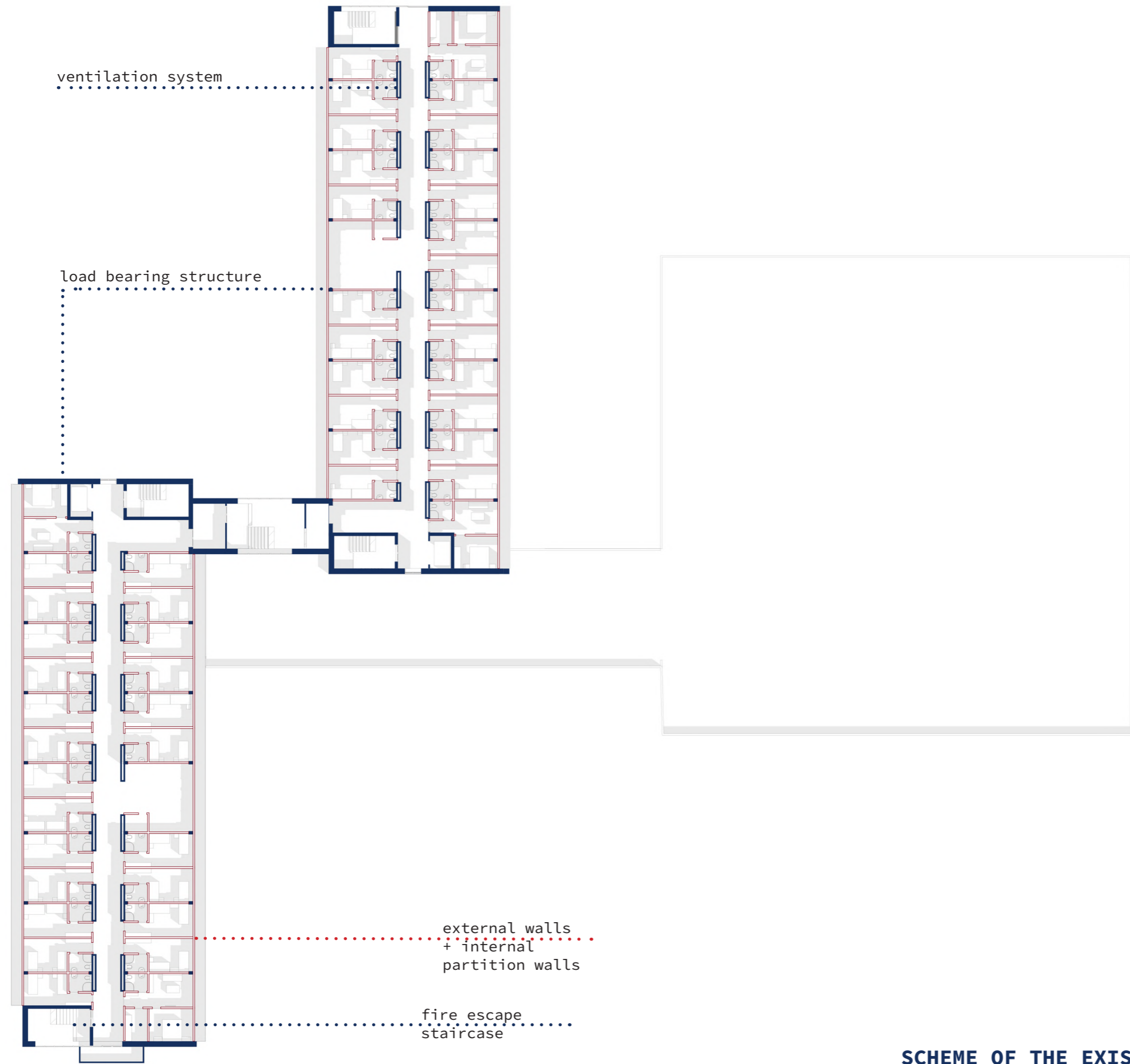
As it was mentioned before, the load bearing structure of the building consists of columns, beams and 4 external load bearing walls next to the fire escape staircase. This type of structure creates opportunities for more variations of planning.

In blue colour are represented the load bearing elements of the building that can not be removed/replaced/demolished during the renovation. All the other elements of the building (in red line) are going to be removed from the building due to the new planning and the bad condition of it. For example the external walls with windows and doors will be removed everywhere because of bad condition and thermal insulation properties. Indoor partition walls will also be removed in order to create a better space planning.

- preserved walls
- demolished walls

**SCHEME OF THE EXISTING STRUCTURE OF THE BUILDING
SCALE 1:400**

- preserved walls
- demolished walls



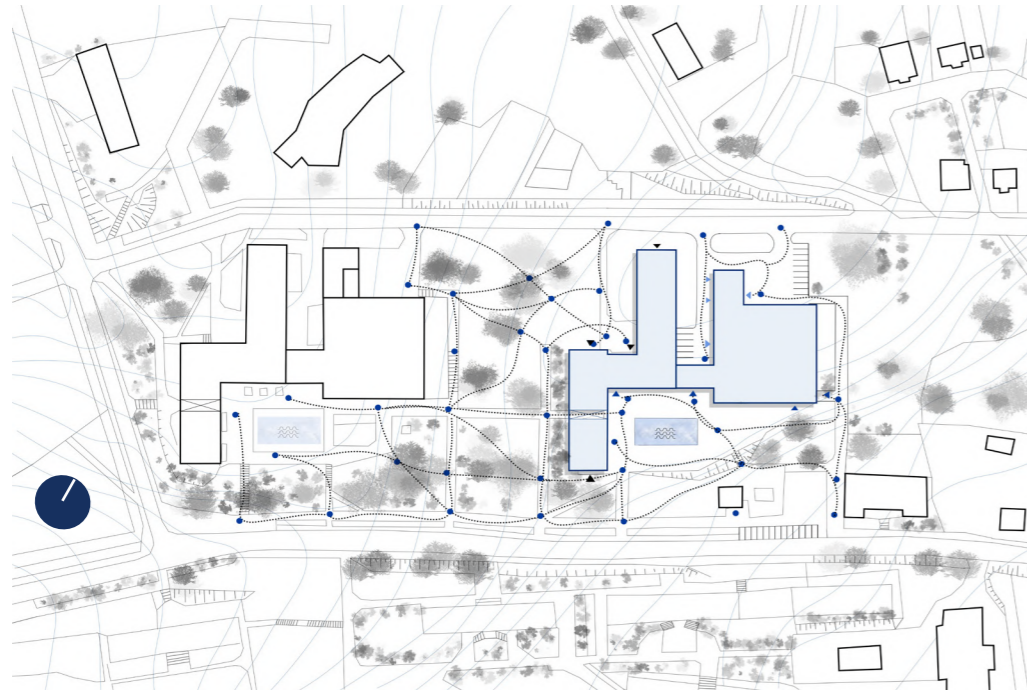
**SCHEME OF THE EXISTING STRUCTURE OF THE BUILDING
1ST FLOOR
SCALE 1:400**

(all the residential floors have the same planning from 1st till 10th floor)

**REDESIGN
REPLAN
REUSE**

How it can be

REORGANISING THE SITE



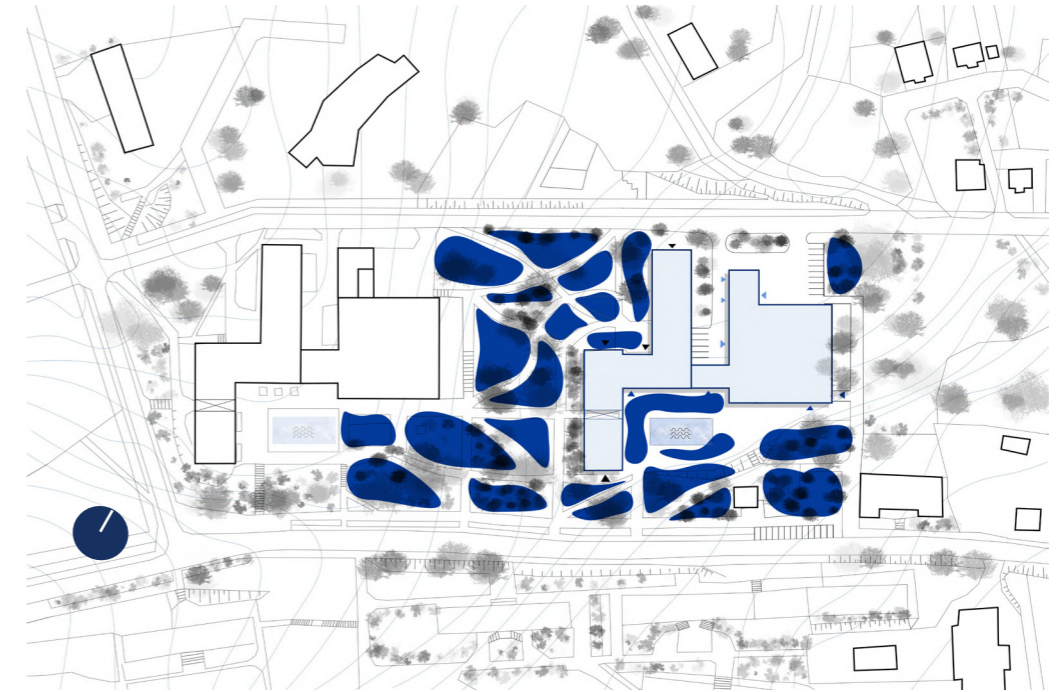
STEP 1

Step one include defining all the possible ways of pedestrian movement on the site. We can predict wich way a person may take to reach any spot in the surrounding area. In this way we can create pedestrian paths and see how much free space we have left for other functions.



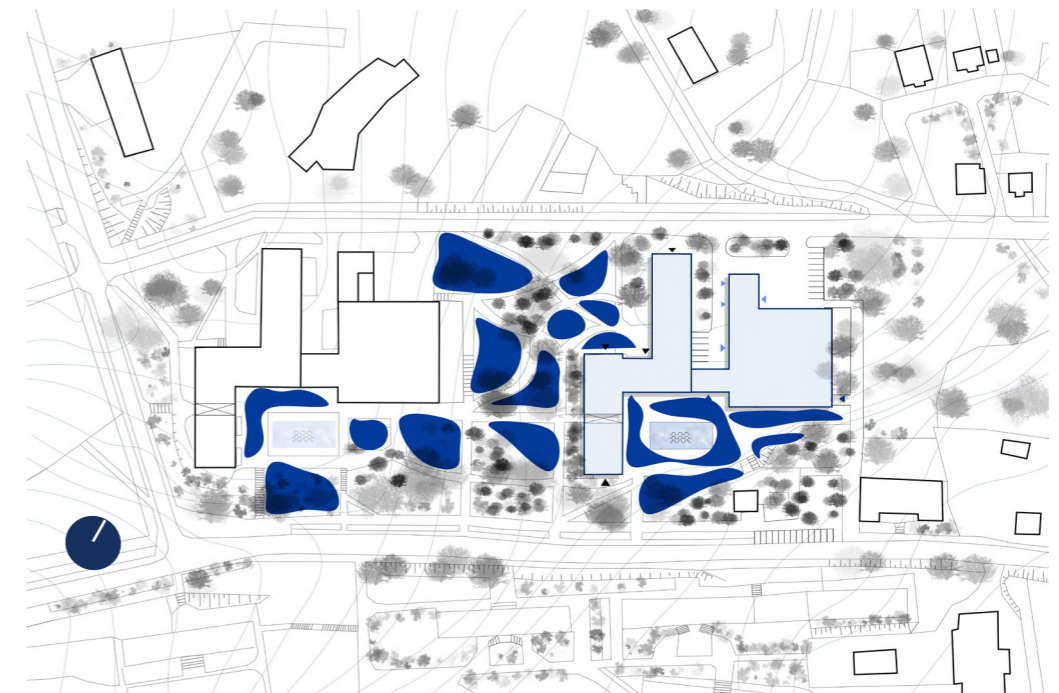
STEP 2

On the second step of the site planning I was defining the car movement around the site and if there is a need for additional parking spaces. As a result, there will be 3 parking spaces around the site. The first one can be acceded from the back facade of the buildings. This parking space will be used by the workers and visitors of the indoor market and car sharing system of the inhabitants. The second and third parking space is going to be used for temporary parking in front of the building from the main street side.



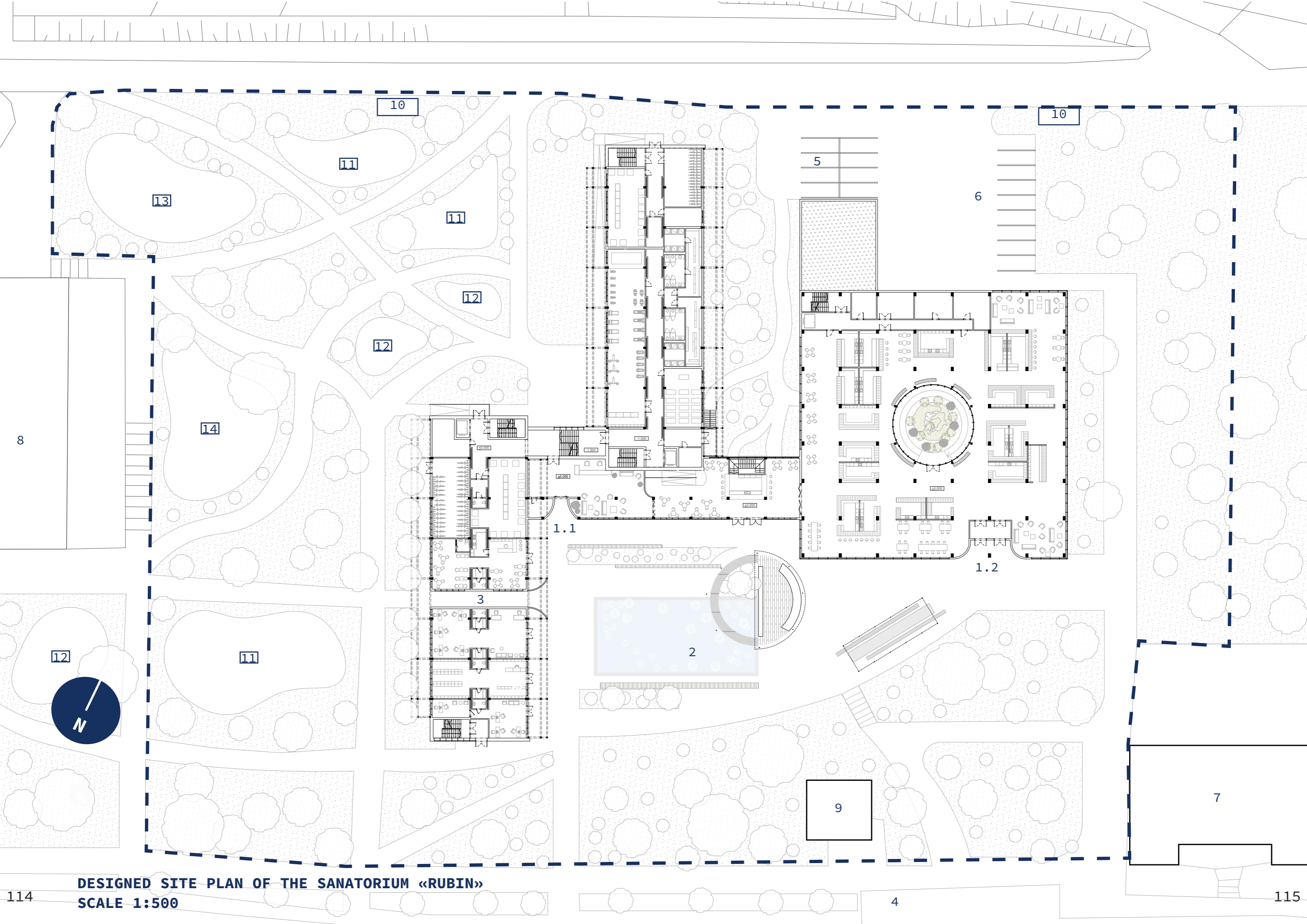
STEP 3

Step three is about indentifying the free space around the site and analysing the possible functions of this free space.



STEP 4

In order not to create an overcrowded area with too many functions, few of the earlier identify free space will consist only from greenery. Other spaces will turn into public/semi-public space.



DESIGNED SITE PLAN OF THE SANATORIUM «RUBIN»
SCALE 1:500

ANNOTATIONS FOR THE SITE PLAN OF THE SANATORIUM «RUBIN»

Specification of the area:

- 1.1 Entrance to the residential units;
- 1.2 Entrance to the indoor market place;
2. Public square;
3. Passage;
4. Parking space from the main road;
5. Parking space for car shering of the residentes;
6. Parking space for workers in the indoor market;
7. Existing neighbouring architecture;
8. The building of the sanatorium «Yantar»;
9. Existing chapel;
- 10.Boxes for trash bins;
- 11.Playground;
- 12.Public space (BBQ zone);
- 13.Outdoor gym;
- 14.Dog walikng area;

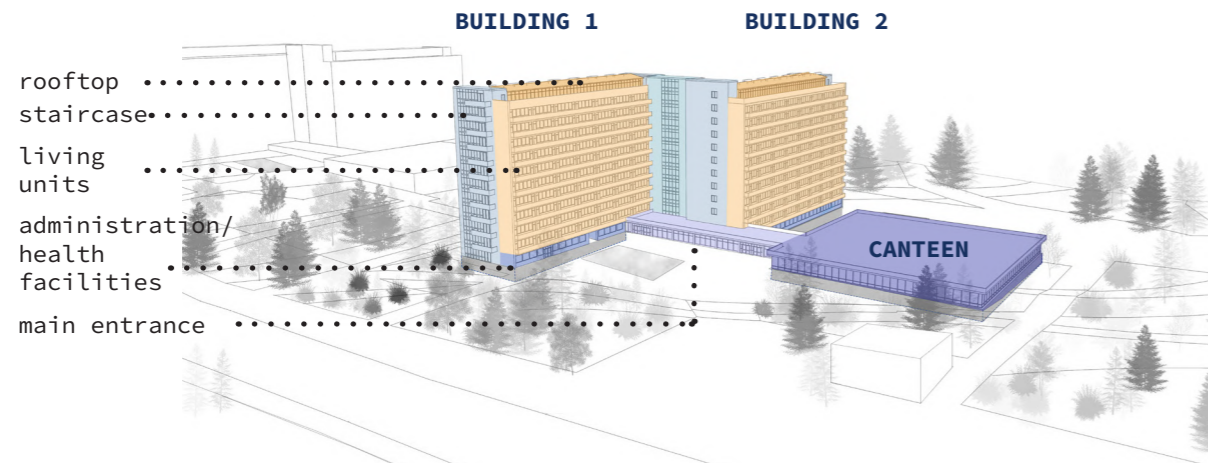
Areas:	m ²	%
1. Designed residential building	2109	10
2. Designed indoor market	2038	10
3. Pavement	7590	34
4. Greenery	10126	20
5. Total area	21863	100

ANNOTATIONS:

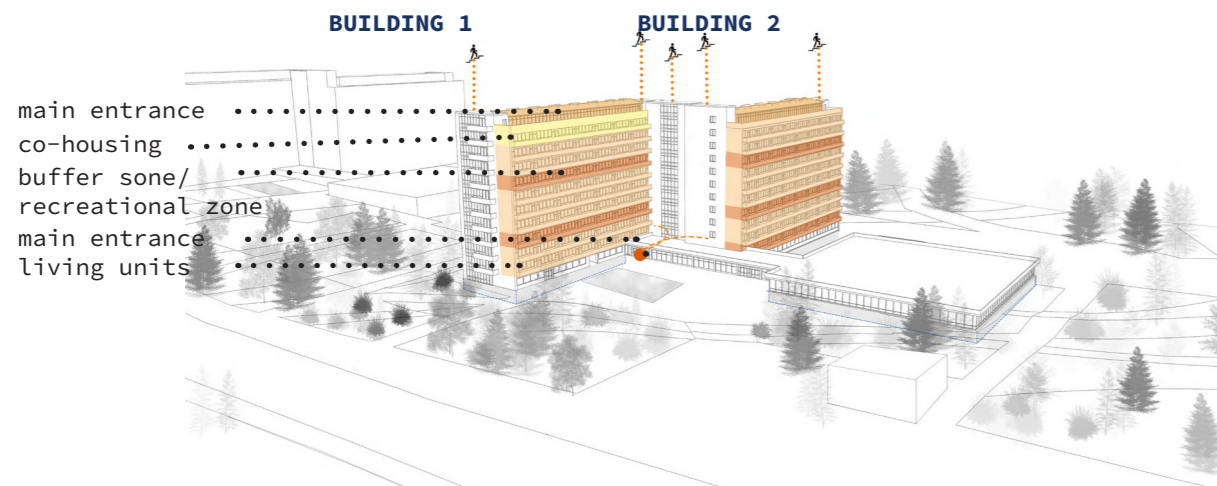
Existing site plan has no fixed devision between two sanatoriums -
«Rubin» and «Yantar».

*Site contour is marked as 

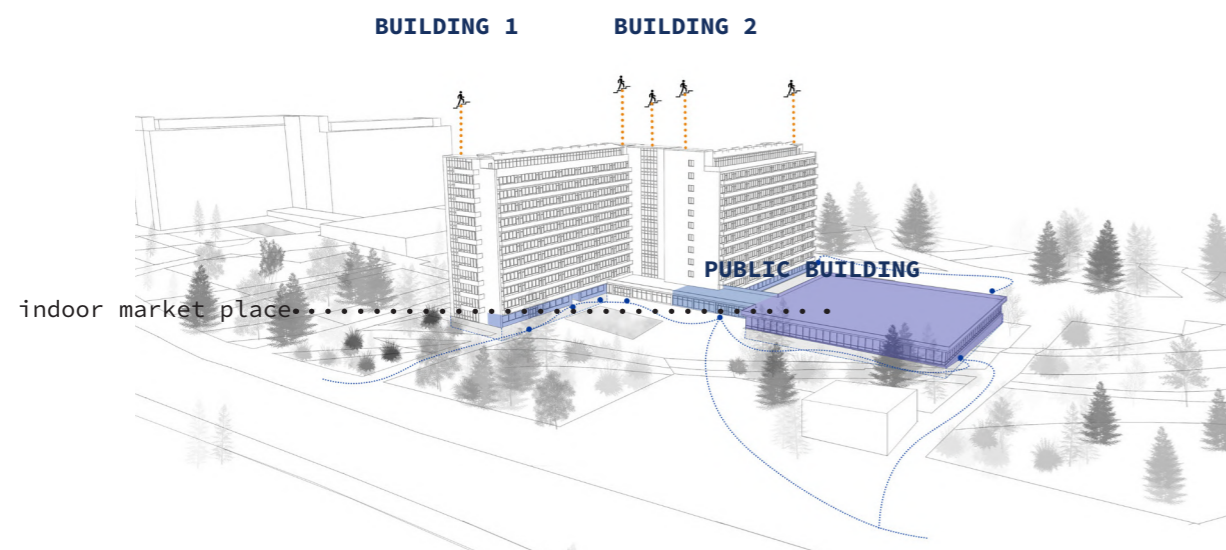
EXISTING FUNCTIONAL DIAGRAM OF THE BUILDING



FUNCTIONAL DIAGRAM OF THE SOCIAL HOUSING PRIVAT AND SEMI-PRIVAT SPACE(NEW)



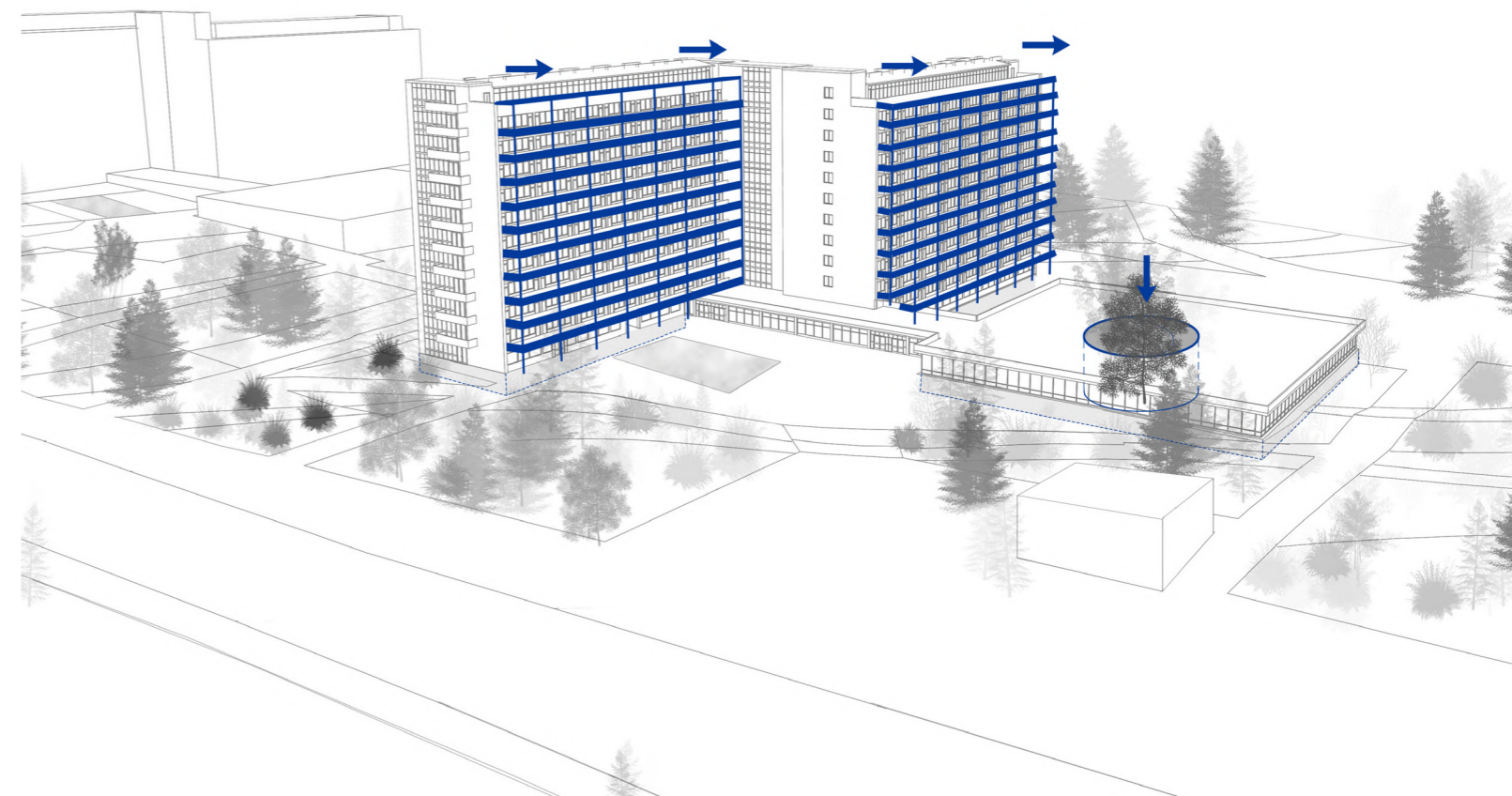
FUNCTIONAL DIAGRAM OF THE SOCIAL HOUSING PUBLIC SPACE



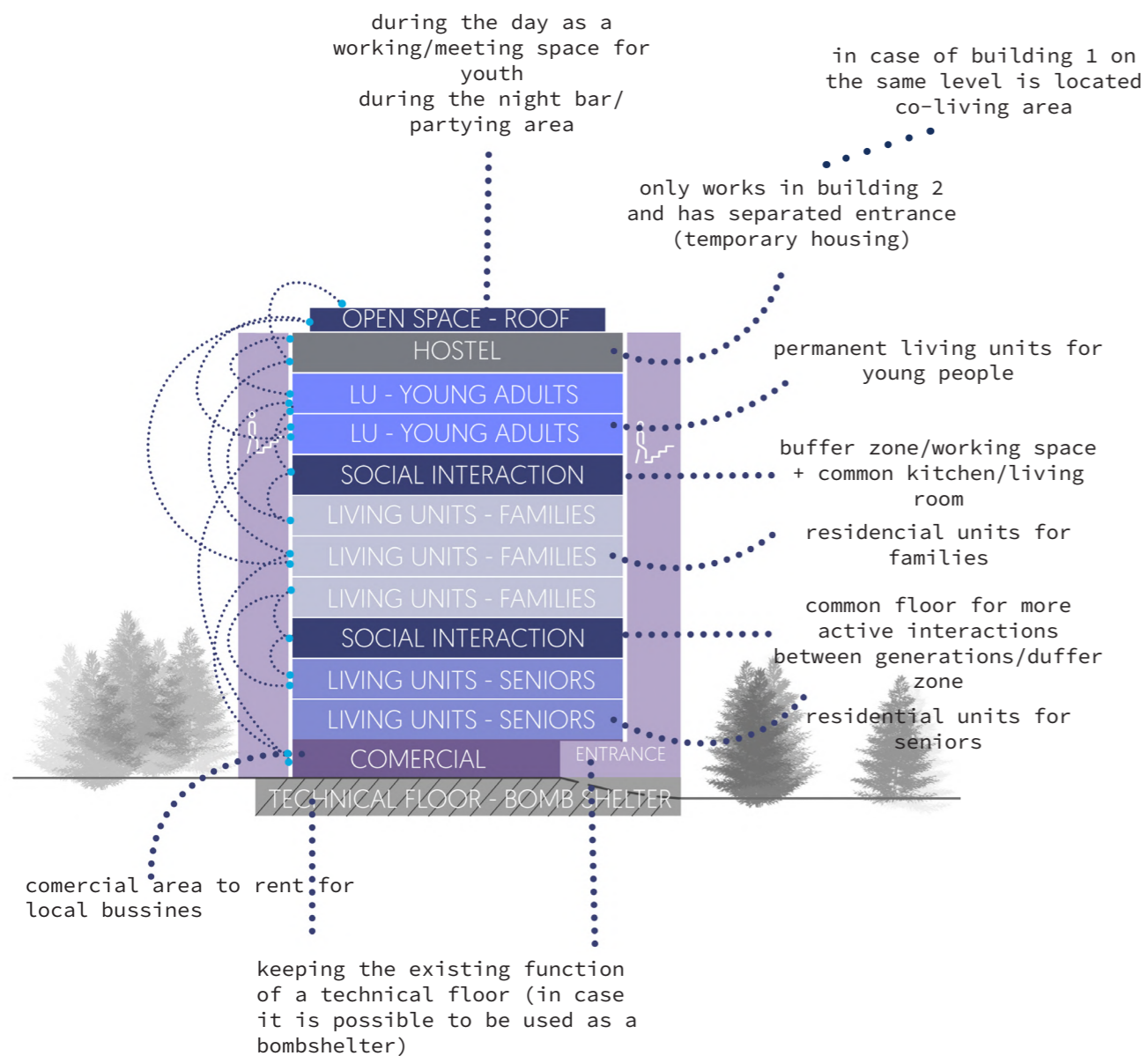
During the site visit I found out that the condition of the balconies are not satisfied for the future use. A decision to replace the existing balconies with a new independent structure was made. This new structure should be built from columns and beams as a separated structure that will be attached to the existing building in order not to overload it with additional weight. Also the new balconies will be larger and will provide more options for the design part. Moreover, it will give additional space for the new inhabitants to meet their neighbours or to extend their living spaces.

Some architectural interventions will be made in the building of the canteen too. Since this building has one floor situated partially under the ground, it was decided to create an atrium in the middle of both floors to bring more light to the underground floor.

ARCHITECTURAL INTERVENTIONS DURING THE DESIGN PROCESS



DETAILED FUNCTIONAL DIAGRAM BUILDING 1 and 2



SUSTAINABLE SOLUTIONS OF THE PROJECT:

When it comes to sustainability in architecture, the first most sustainable way of building is renovation. Without any doubts, renovation of an old abandoned building that still has a good load-bearing capacity will reduce the CO2 emission during the building process. Besides that this project includes few non-architectural and architectural decisions that make it even more sustainable. These are:

- car sharing

New inhabitants of the building may nor be able to afford a private car and in such case a car sharing system for the entire building may change the lifestyle of the people around.

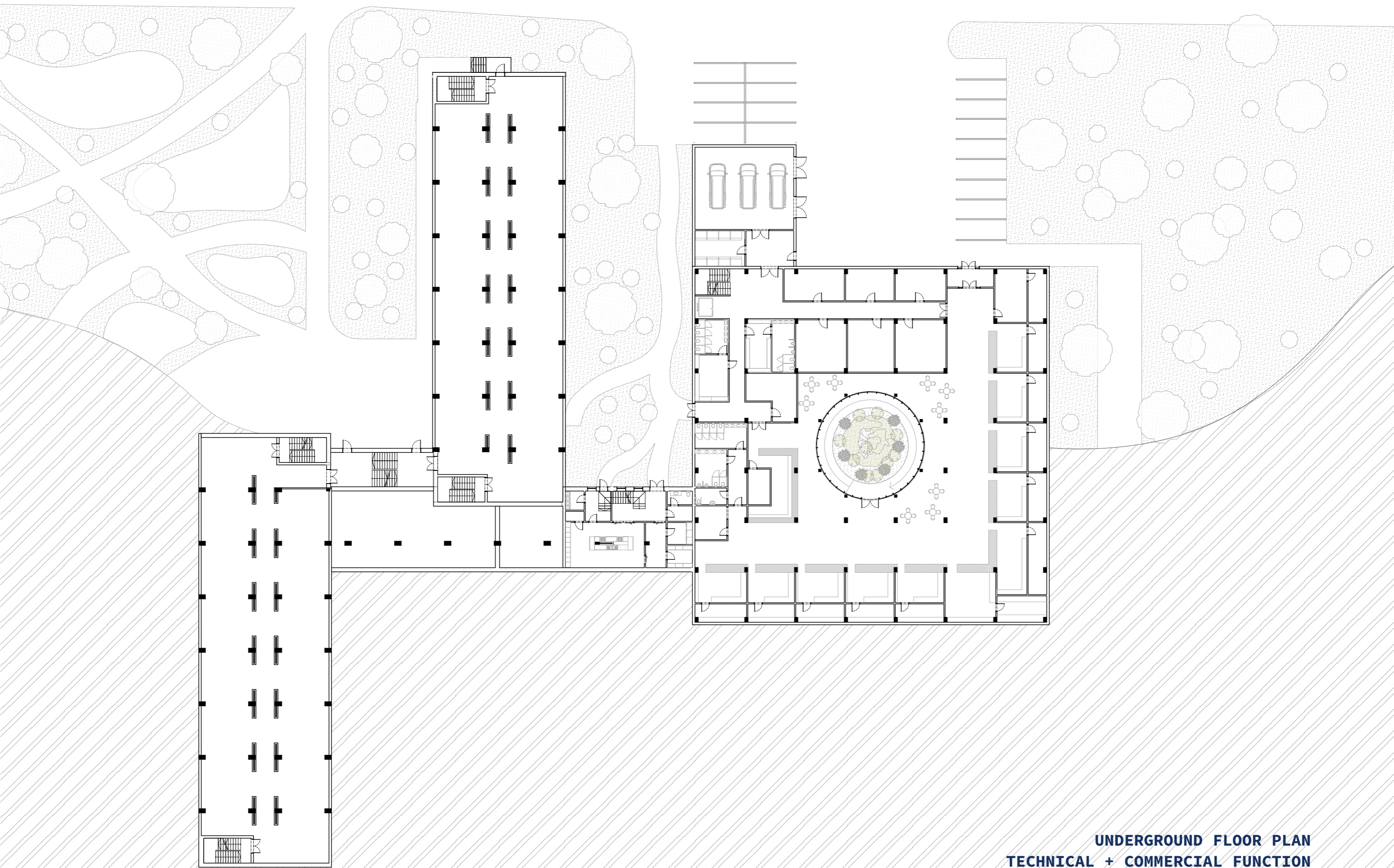
- **reusing the existing non-loadbearing partition walls** that will not be needed in the renovation process. It may not be a common decision in Ukraine si far, but it is a technology that is spreading around the construction industry. The cement that was extracted from the existing structure can be used for pavement around the building or also for the particion walls inside the building. The only condition that should be folowed is to not use it for load baring structure.

-common laundry room

By giving the inhabitants one specfic area for they laundry we can reduce the consumption of water and increase the awarness about sustainable life-style.

-**supporting local production by providing space for selling local goods**

-**involving the future inhabitants of the building in the design process**

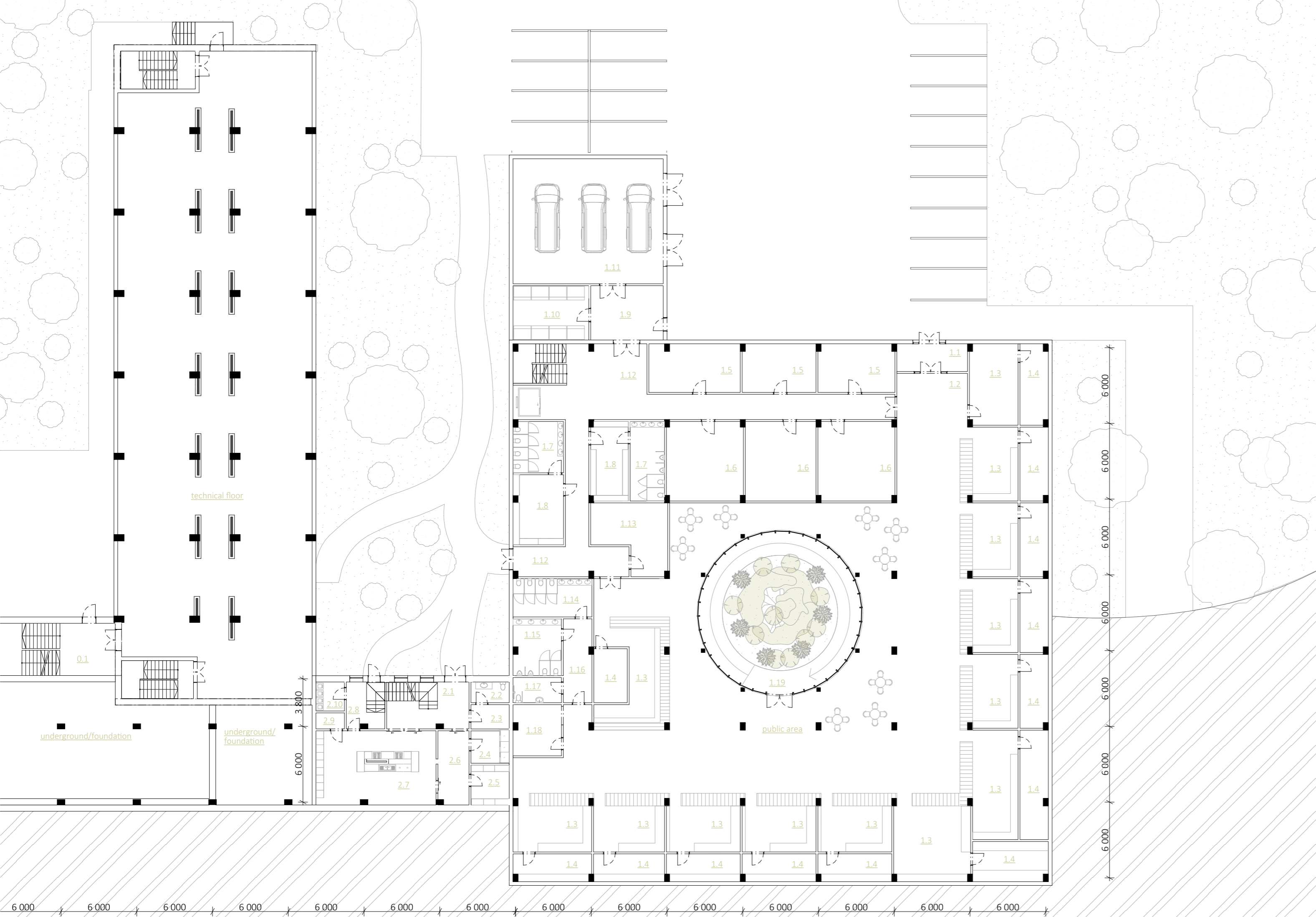


UNDERGROUND FLOOR PLAN
TECHNICAL + COMMERCIAL FUNCTION
SCALE 1:400

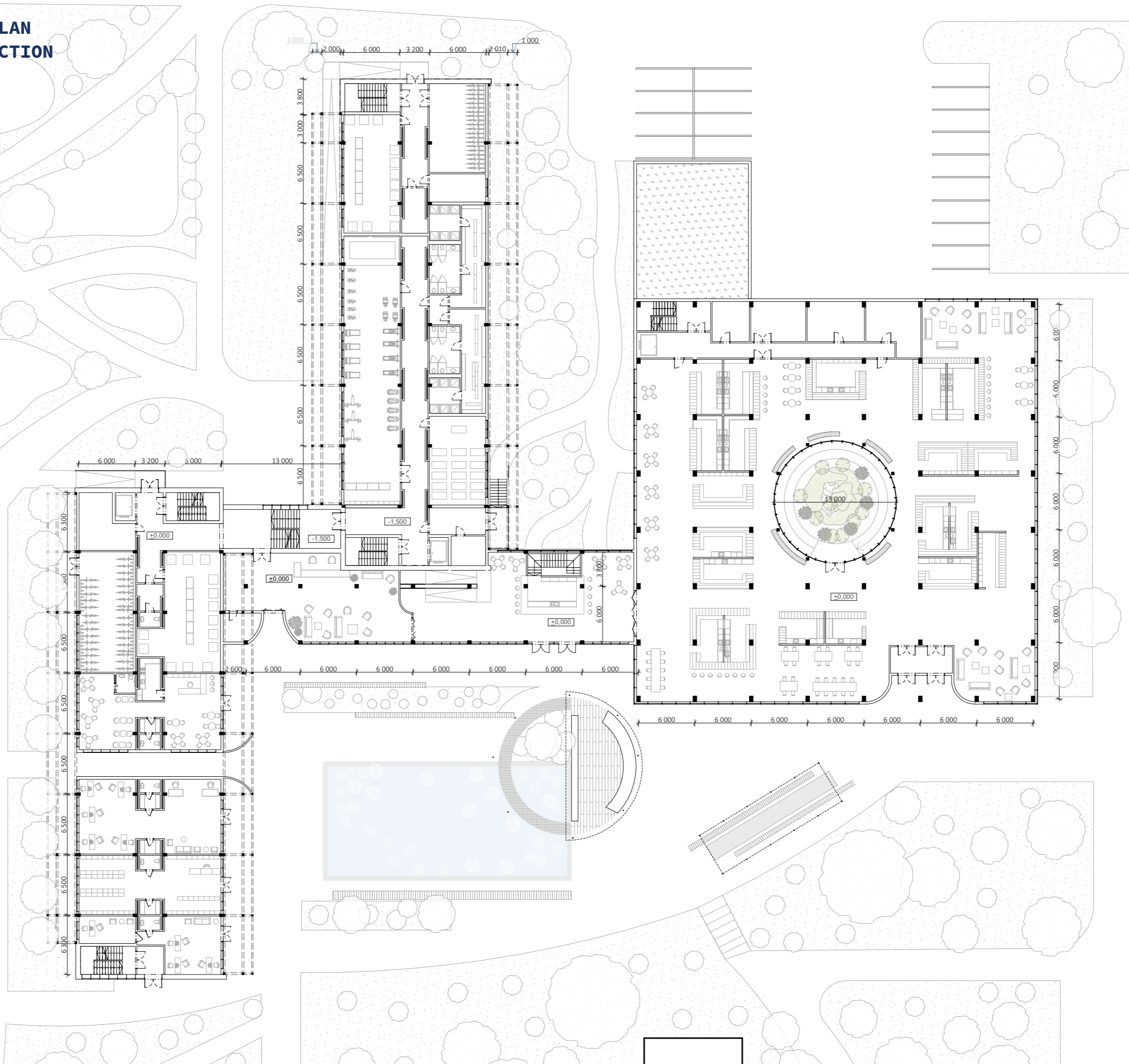
**UNDERGROUND FLOOR PLAN
COMMERCIAL FUNCTION
(INDOOR FOOD MARKET)
SCALE 1:250**

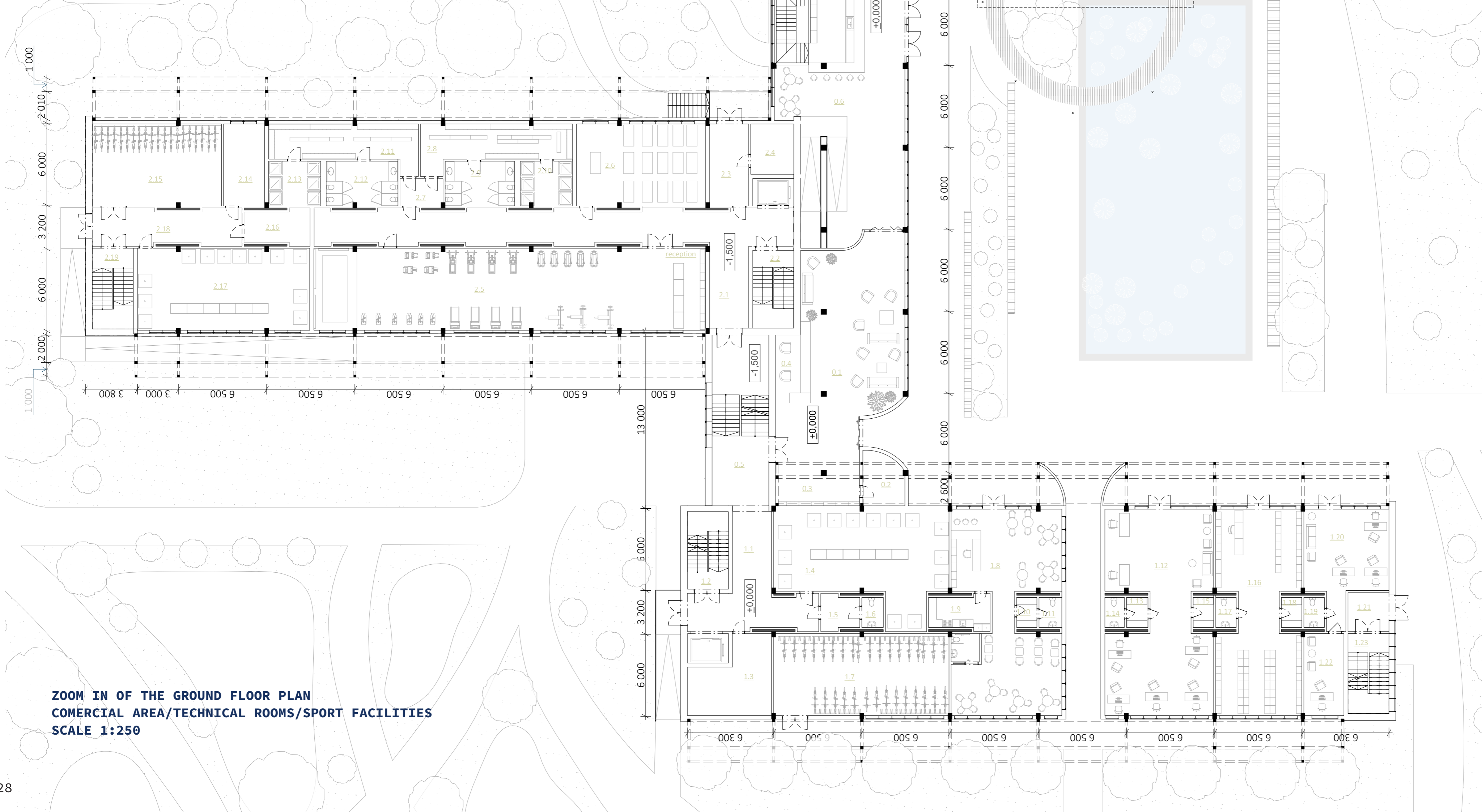
SPECIFICATION OF THE AREA

- 1.1 ENTRANCE
- 1.2 PUBLIC AREA
- 1.3 COMMERCIAL AREA (SHOP)
- 1.4 STORAGE ROOM (PRIVATE USE)
- 1.5 TECHNICAL ROOM (GENERAL USE)
- 1.6 STORAGE ROOM (GENERAL USE)
- 1.7 RESTROOM FOR STUFF
- 1.8 CHANGING ROOM (MALE)
- 1.9 SECOND ENTRANCE (STUFF ONLY)
- 1.10 AREA FOR TRASH BINS
- 1.11 GARAGE
- 1.12 CORRIDOR
- 1.13 TECHNICAL ROOM
- 1.14 RESTROOM FOR VISITORS(FEMALE)
- 1.15 RESTROOM FOR VISITORS
- 1.16 CORRIDOR
- 1.17 RESTROOM FOR DISSABLE PEOPLE
- 1.18 TECHNICAL ROOM
- 2.1 ENTRANCE TO THE KITCHEN
- 2.2 TOILET FOR STUFF
- 2.3 CHANGING ROOM
- 2.4 STORAGE
- 2.5 STORAGE WITH FRIGDES
- 2.6 CORRIDOR
- 2.7 KITCHEN
- 2.8 EXIT
- 2.9 STORAGE
- 2.10 AREA WITH TRASH BINS



**GROUND FLOOR PLAN
COMMERCIAL FUNCTION
SCALE 1:400**





SPECIFICATION OF THE AREA

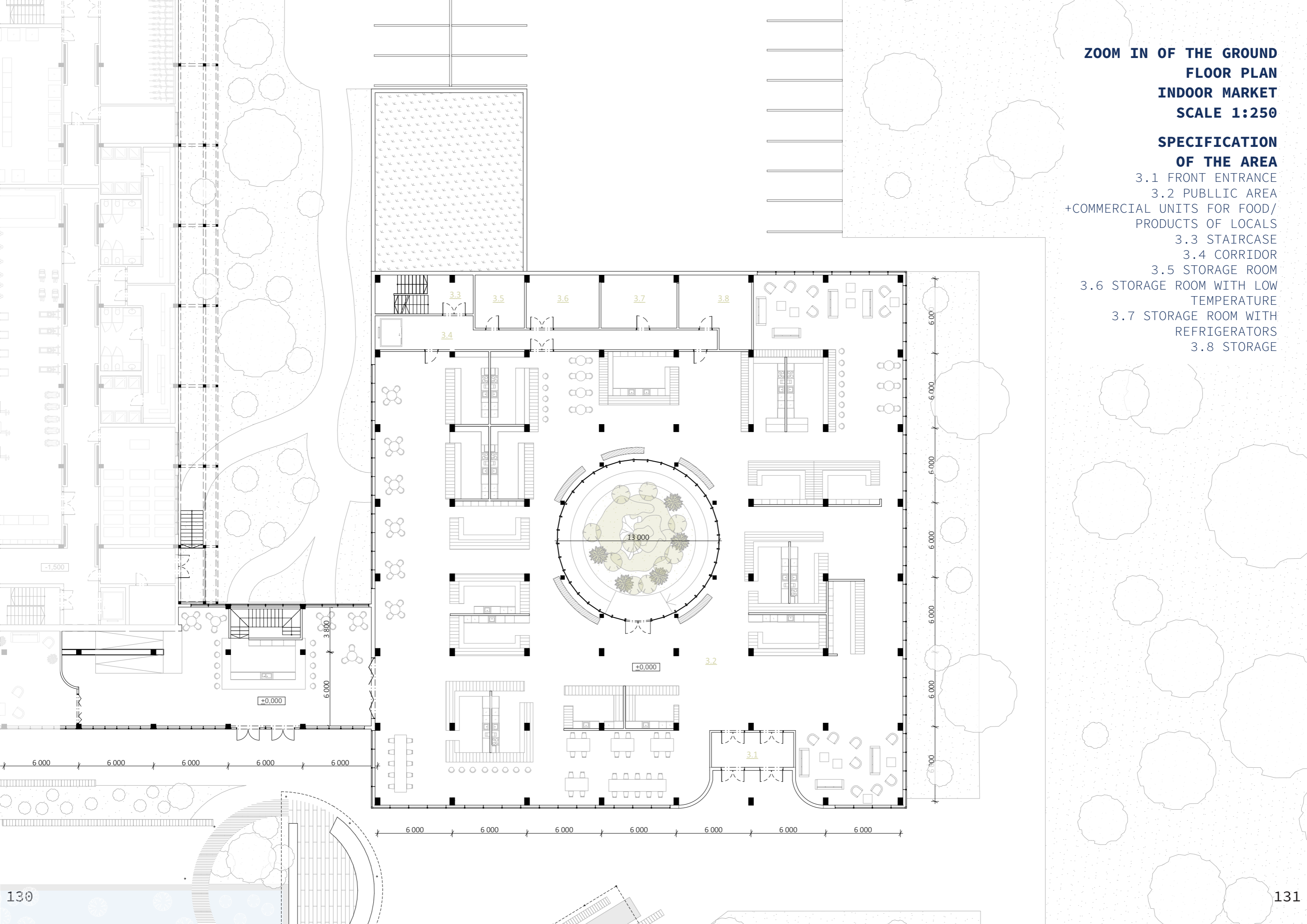
- 0.1 ENTRANCE TO THE BUILDING 1 AND 2
- 0.2 TECHNICAL ROOM
- 0.3 POST BOXES
- 0.4 RECEPTION (TEMPORARY AREA WHERE CAN BE PROVIDED HELP TO IDPS)
- 0.5 MAIN STAIRCASE
- 1.1 CORRIDOR
- 1.2 EVACUATION STAIRCASE
- 1.3 TECHNICAL ROOM
- 1.4 LAUNDRY ROOM
- 1.5 CHANGING ROOM FOR STUFF
- 1.6 RESTROOM FOR STUFF
- 1.7 STORAGE FOR BICYCLES
- 1.8 COMMERCIAL AREA
- 1.9 KITCHEN
- 1.10 WARDROBE
- 1.11 WC
- 1.12 COMMERCIAL AREA
- 1.13 WARDROBE
- 1.14 WC
- 1.15 WARDROBE
- 1.16 COMMERCIAL AREA
- 1.17 WC
- 1.18 WARDROBE
- 1.19 WC
- 1.20 COMMERCIAL FLOOR
- 1.21 EXIT
- 1.22 COMMERCIAL AREA
- 1.23 EVACUATION STAIRCASE
- 2.1 CORRIDOR
- 2.2 EVACUATION STAIRCASE
- 2.3 ENTRANCE
- 2.4 TECHNICAL ROOM
- 2.5 GYM + RECEPTION
- 2.6 GYM
- 2.7 CORRIFOR
- 2.8 CHANGING ROOM (MALE)
- 2.9 WC
- 2.10 SHOWER
- 2.11 CHANGING ROOM (FEMALE)
- 2.12 WC
- 2.13 SHOWER
- 2.14 STORAGE
- 2.15 STORAGE FOR BICYCLES
- 2.16 TECHNICAL ROOM
- 2.17 LAUNDRY ROOM
- 2.18 CORRIDOR
- 2.19 EVACUATION STAIRCASE

**ZOOM IN OF THE GROUND FLOOR PLAN
COMERCIAL AREA/TECHNICAL ROOMS/SPORT FACILITIES
SCALE 1:250**

**ZOOM IN OF THE GROUND
FLOOR PLAN
INDOOR MARKET
SCALE 1:250**

**SPECIFICATION
OF THE AREA**

- 3.1 FRONT ENTRANCE
- 3.2 PUBLIC AREA
- +COMMERCIAL UNITS FOR FOOD/
PRODUCTS OF LOCALS
- 3.3 STAIRCASE
- 3.4 CORRIDOR
- 3.5 STORAGE ROOM
- 3.6 STORAGE ROOM WITH LOW
TEMPERATURE
- 3.7 STORAGE ROOM WITH
REFRIGERATORS
- 3.8 STORAGE



**1ST FLOOR PLAN
RESIDENTIAL FUNCTION (SENIORS' APARTMENTS)
SCALE 1:250**

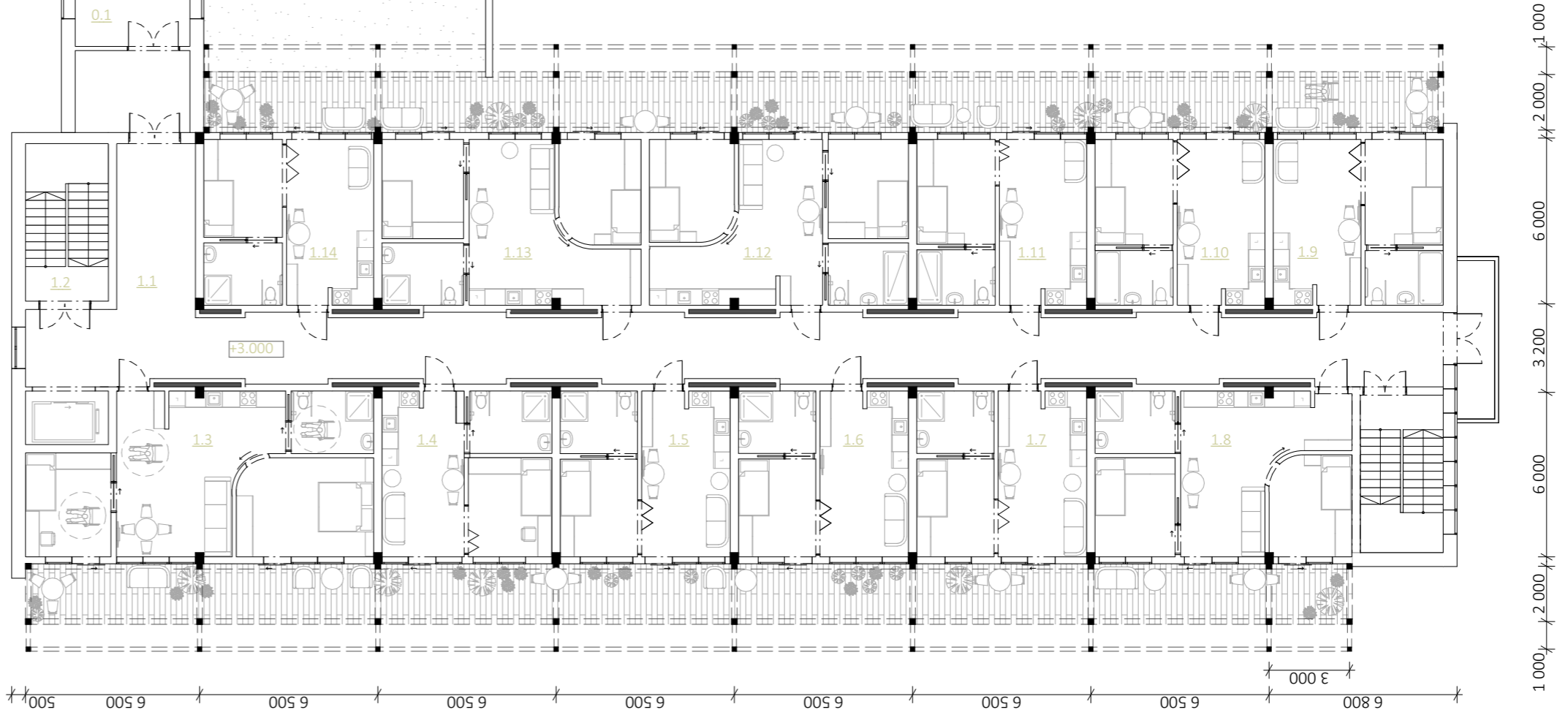
Notes:
Planning of the 1st floor is identical with the 2nd floor

**SPECIFICATION
OF THE AREA
BUILDING 1**

- 0.1 MAIN STAIRCASE
- 1.1 CORRIDOR
- 1.2 EVACUATION STAIRCASE
- 1.3 2-BEDROOM LIVING UNIT
- 1.4 1-BEDROOM LIVING UNIT
- 1.5 1-BEDROOM LIVING UNIT
- 1.6 1-BEDROOM LIVING UNIT
- 1.7 1-BEDROOM LIVING UNIT
- 1.8 2-BEDROOM LIVING UNIT
- 1.9 1-BEDROOM LIVING UNIT
- 1.10 1-BEDROOM LIVING UNIT
- 1.11 1-BEDROOM LIVING UNIT
- 1.12 2-BEDROOM LIVING UNIT
- 1.13 2-BEDROOM LIVING UNIT
- 1.14 1-BEDROOM LIVING UNIT

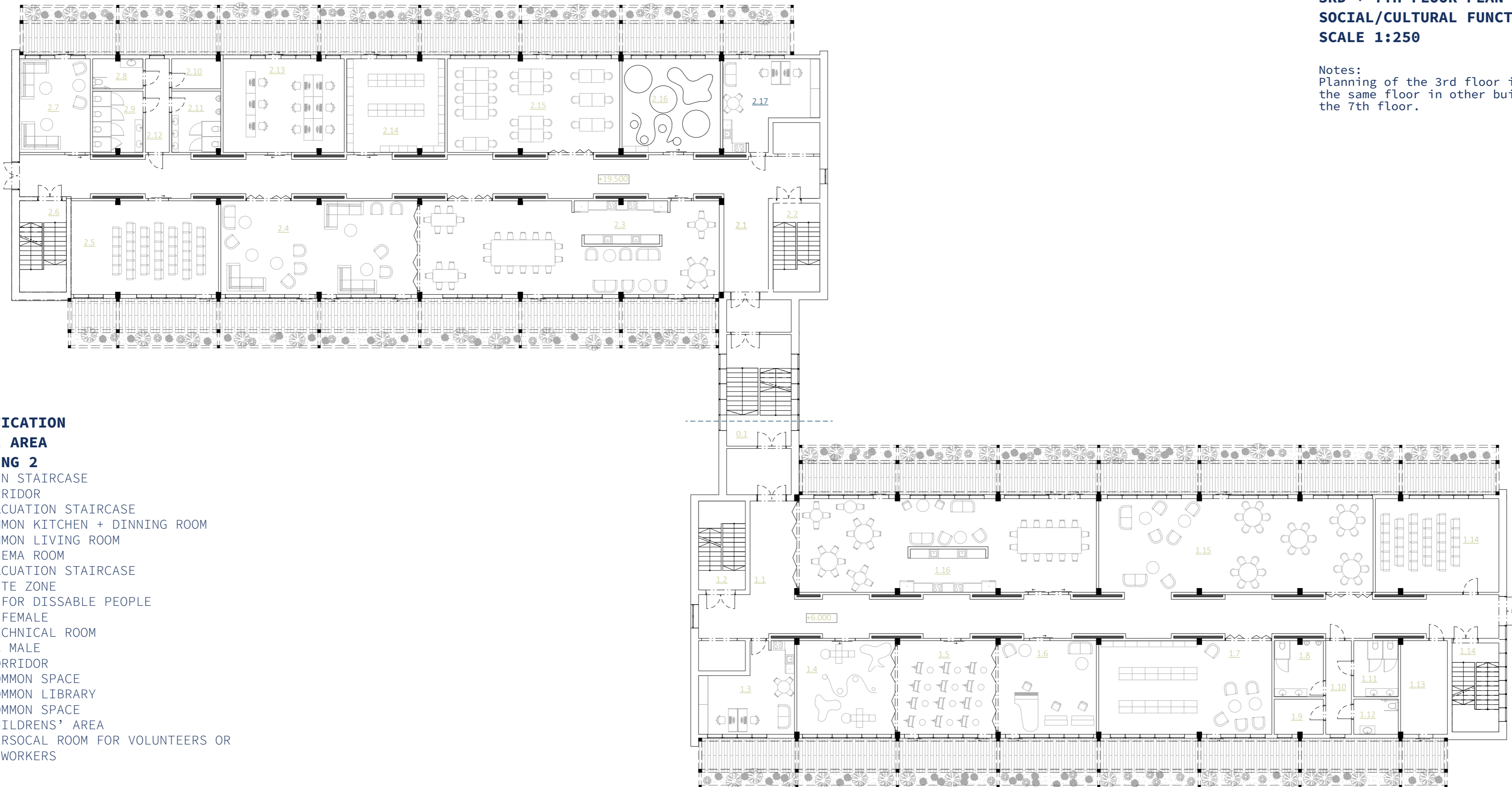
**SPECIFICATION
OF THE AREA
BUILDING 2**

- 0.1 MAIN STAIRCASE
- 2.1 CORRIDOR
- 2.2 EVACUATION STAIRCASE
- 2.3 1-BEDROOM LIVING UNIT
- 2.4 1-BEDROOM LIVING UNIT
- 2.5 1-BEDROOM LIVING UNIT
- 2.6 2-BEDROOM LIVING UNIT
- 2.7 2-BEDROOM LIVING UNIT
- 2.8 EVACUATION STAIRCASE
- 2.9 3-BEDROOM LIVING UNIT
- 2.10 1-BEDROOM LIVING UNIT
- 2.11 1-BEDROOM LIVING UNIT
- 2.12 1-BEDROOM LIVING UNIT
- 2.13 1-BEDROOM LIVING UNIT
- 2.14 2-BEDROOM LIVING UNIT



**3RD + 7TH FLOOR PLAN
SOCIAL/CULTURAL FUNCTION (BUFFER ZONE)
SCALE 1:250**

Notes:
Planning of the 3rd floor in one building is identical with the same floor in other building. Same thing applies for the 7th floor.



**SPECIFICATION
OF THE AREA**

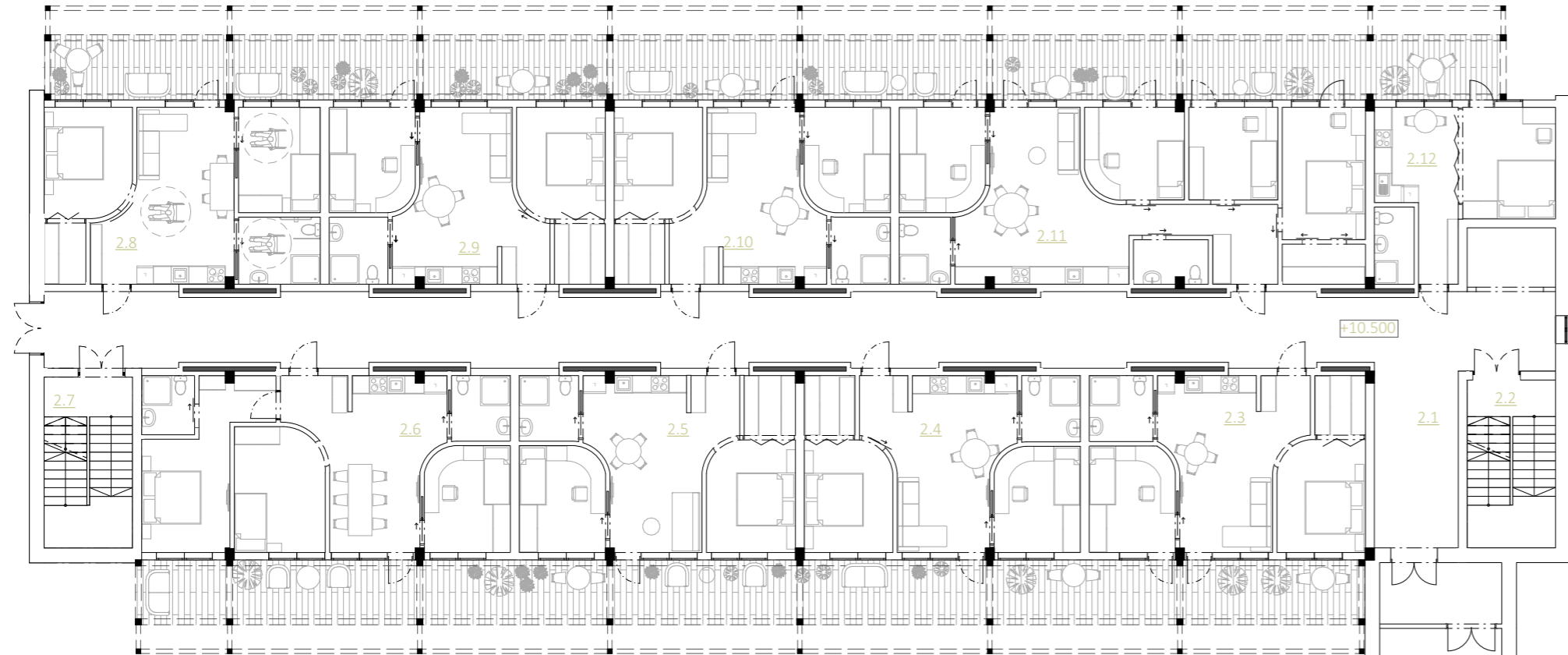
BUILDING 2

- 0.1 MAIN STAIRCASE
- 2.1 CORRIDOR
- 2.2 EVACUATION STAIRCASE
- 2.3 COMMON KITCHEN + DINNING ROOM
- 2.4 COMMON LIVING ROOM
- 2.5 CINEMA ROOM
- 2.6 EVACUATION STAIRCASE
- 2.7 QUIET ZONE
- 2.8 WC FOR DISABLED PEOPLE
- 2.9 WC FEMALE
- 2.10 TECHNICAL ROOM
- 2.11 WC MALE
- 2.12 CORRIDOR
- 2.13 COMMON SPACE
- 2.14 COMMON LIBRARY
- 2.15 COMMON SPACE
- 2.16 CHILDREN'S AREA
- 2.17 PERSONAL ROOM FOR VOLUNTEERS OR SOCIAL WORKERS

**SPECIFICATION
OF THE AREA**

BUILDING 1

- 0.1 MAIN STAIRCASE
- 1.1 CORRIDOR
- 1.2 EVACUATION STAIRCASE
- 1.3 PERSONAL ROOM FOR VOLUNTEERS OR SOCIAL WORKERS
- 1.4 CHILDREN'S AREA
- 1.5 PAINTING ROOM
- 1.6 MUSIC CLASS
- 1.7 COMMON SPACE (SMALL LIBRARY)
- 1.8 WC MALE
- 1.9 TECHNICAL ROOM
- 1.10 CORRIDOR
- 1.11 WC FEMALE
- 1.12 WC FOR DISABLED PEOPLE
- 1.13 TECHNICAL ROOM
- 1.14 EVACUATION STAIRCASE
- 1.14 CINEMA ROOM
- 1.15 COMMON AREA (WORKSHOP SPACE)
- 1.16 COMMON KITCHEN + DINNING AREA



**4TH FLOOR PLAN
RESIDENTIAL FUNCTION (FAMILY APARTMENTS)
SCALE 1:250**

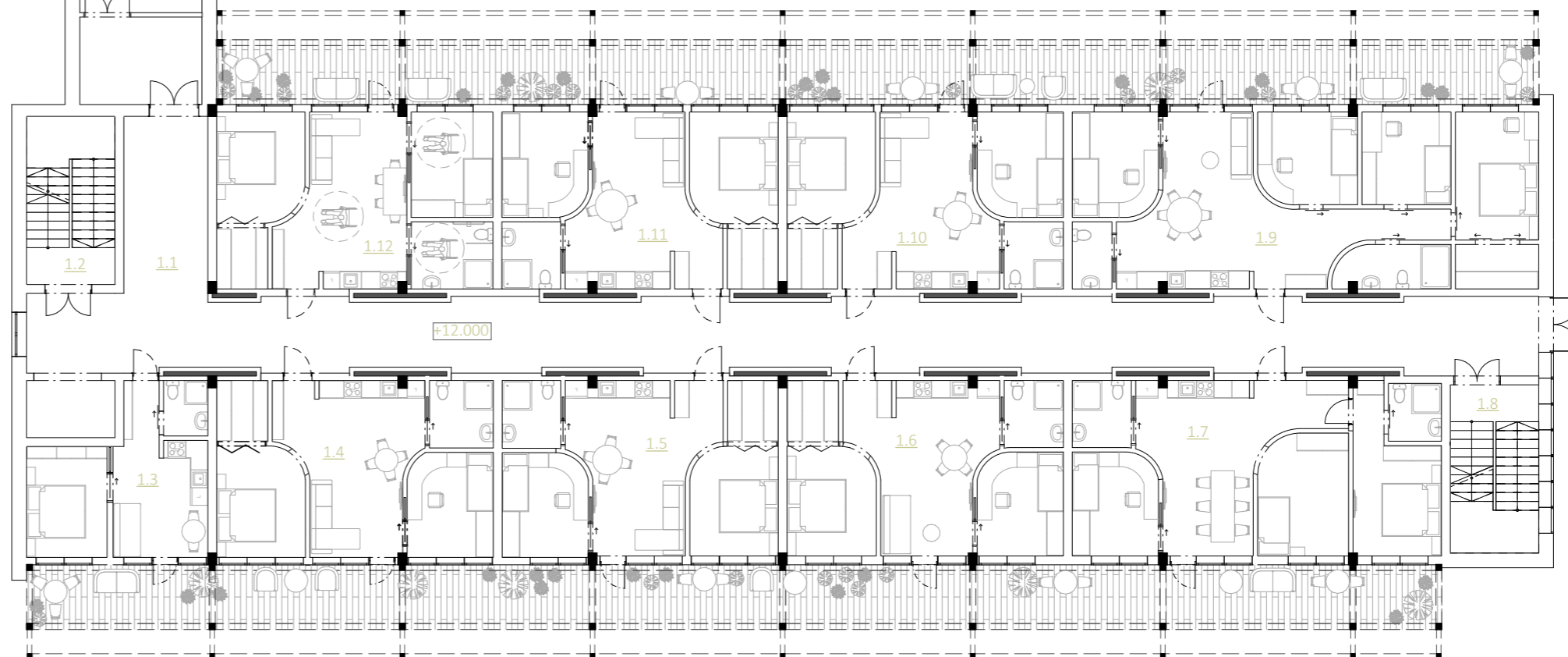
Notes:
Planning of the 4th floor is identical with the 5th and 6th floor.

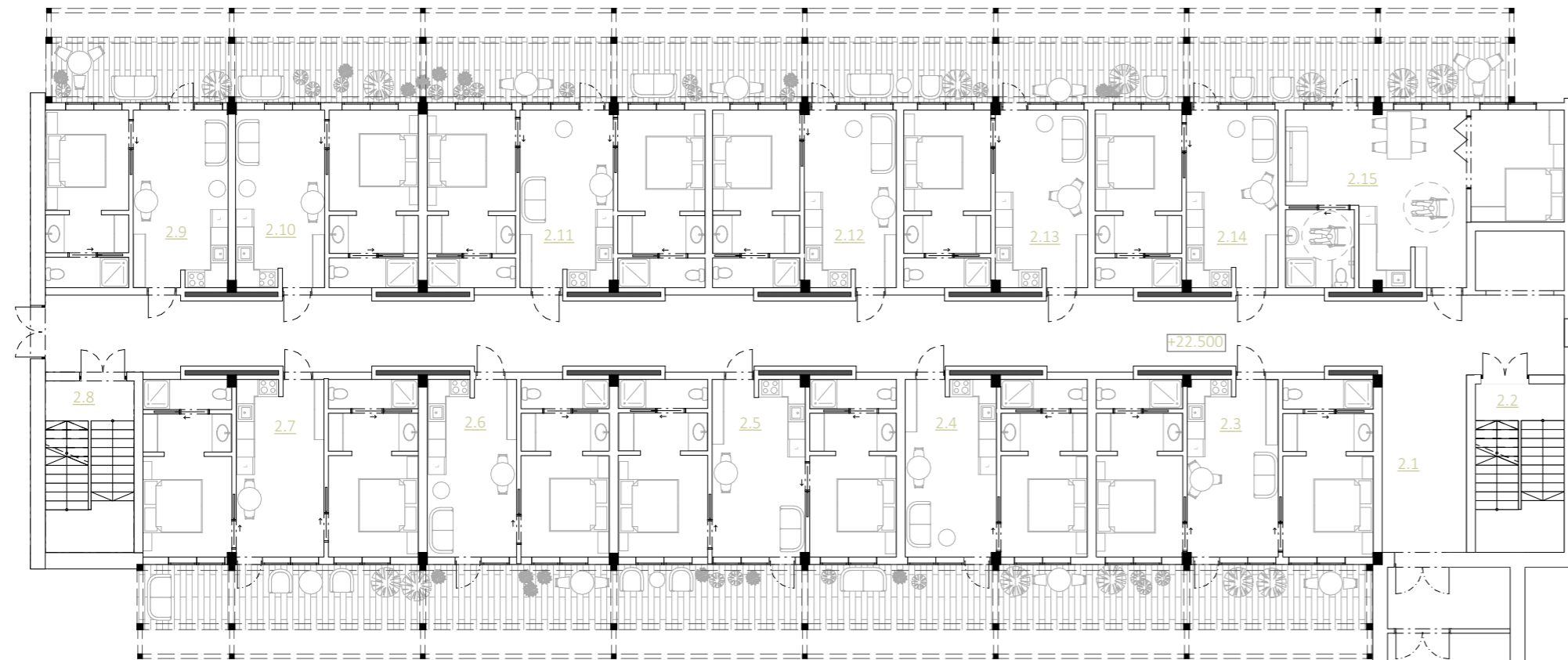
**SPECIFICATION
OF THE AREA
BUILDING 1**

- 0.1 MAIN STAIRCASE
- 1.1 CORRIDOR
- 1.2 EVACUATION STAIRCASE
- 1.3 1-BEDROOM LIVING UNIT
- 1.4 2-BEDROOM LIVING UNIT
- 1.5 2-BEDROOM LIVING UNIT
- 1.6 2-BEDROOM LIVING UNIT
- 1.7 3-BEDROOM LIVING UNIT
- 1.8 4-BEDROOM LIVING UNIT
- 1.9 2-BEDROOM LIVING UNIT
- 1.10 2-BEDROOM LIVING UNIT
- 1.11 2-BEDROOM LIVING UNIT
- 1.12 2-BEDROOM LIVING UNIT

**SPECIFICATION
OF THE AREA
BUILDING 2**

- 0.1 MAIN STAIRCASE
- 2.1 CORRIDOR
- 2.2 EVACUATION STAIRCASE
- 2.3 2-BEDROOM LIVING UNIT
- 2.4 2-BEDROOM LIVING UNIT
- 2.5 2-BEDROOM LIVING UNIT
- 2.6 3-BEDROOM LIVING UNIT
- 2.7 EVACUATION STAIRCASE
- 2.8 2-BEDROOM LIVING UNIT
- 2.9 2-BEDROOM LIVING UNIT
- 2.10 2-BEDROOM LIVING UNIT
- 2.11 4-BEDROOM LIVING UNIT
- 2.12 1-BEDROOM LIVING UNIT





**SPECIFICATION
OF THE AREA
BUILDING 2**

- 0.1 MAIN STAIRCASE
- 2.1 CORRIDOR
- 2.2 EVACUATION STAIRCASE
- 2.3 2-BEDROOM LIVING UNIT
- 2.4 1-BEDROOM LIVING UNIT
- 2.5 2-BEDROOM LIVING UNIT
- 2.6 1-BEDROOM LIVING UNIT
- 2.7 2-BEDROOM LIVING UNIT
- 2.8 EVACUATION STAIRCASE
- 2.9 1-BEDROOM LIVING UNIT
- 2.10 1-BEDROOM LIVING UNIT
- 2.11 1-BEDROOM LIVING UNIT
- 2.12 1-BEDROOM LIVING UNIT
- 2.13 1-BEDROOM LIVING UNIT
- 2.14 1-BEDROOM LIVING UNIT
- 2.15 1-BEDROOM LIVING UNIT ADAPTED FOR DISSABLE PEOPLE

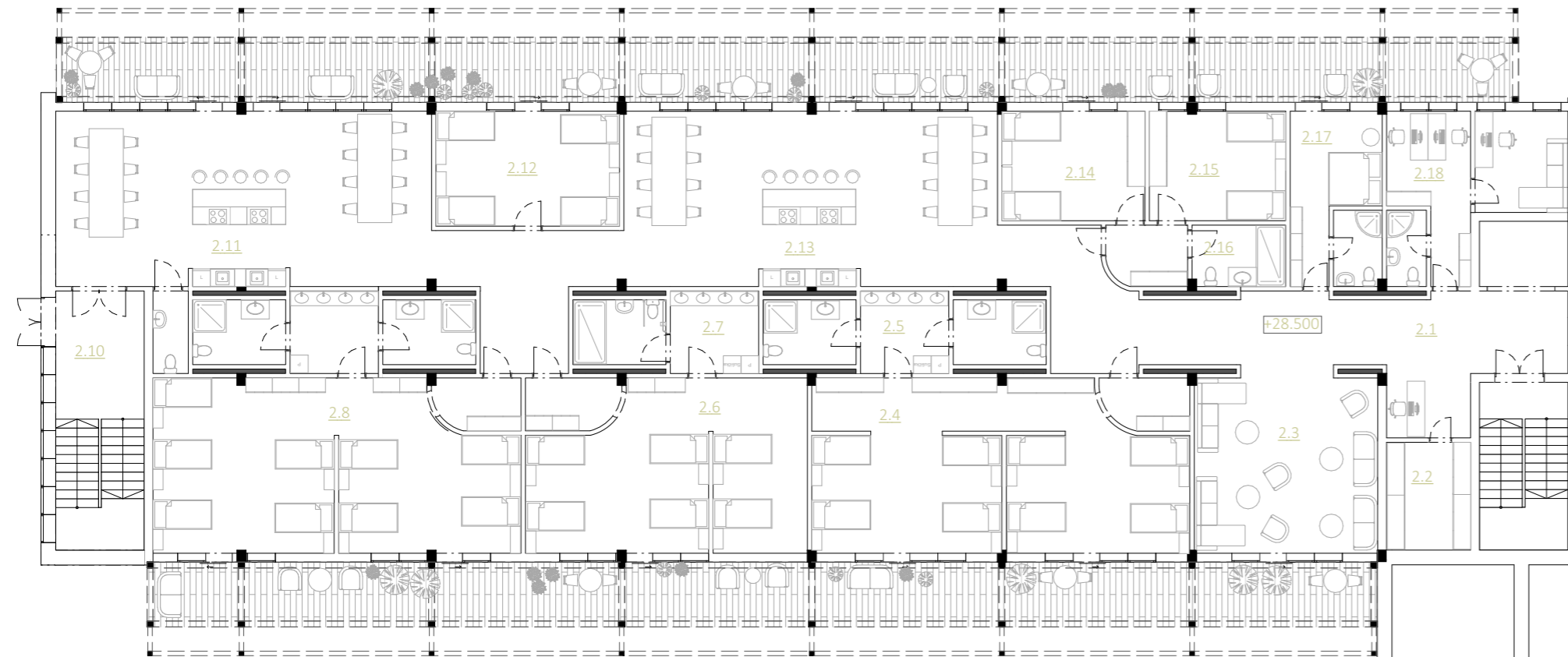
**8TH FLOOR PLAN
RESIDENTIAL FUNCTION (YOUNG ADULTS' APARTMENT)
SCALE 1:250**
Notes:
Planning of the 8th floor is identical with the 9th floor.

**SPECIFICATION
OF THE AREA
BUILDING 1**

- 0.1 MAIN STAIRCASE
- 1.1 CORRIDOR
- 1.2 EVACUATION STAIRCASE
- 1.3 1-BEDROOM LIVING UNIT ADAPTED FOR DISSABLE PEOPLE
- 1.4 1-BEDROOM LIVING UNIT
- 1.5 1-BEDROOM LIVING UNIT
- 1.6 1-BEDROOM LIVING UNIT
- 1.7 2-BEDROOM LIVING UNIT
- 1.8 8-BEDROOM LIVING UNIT
- 1.9 EVACUATION STAIRCASE
- 1.10 2-BEDROOM LIVING UNIT
- 1.11 1-BEDROOM LIVING UNIT
- 1.12 2-BEDROOM LIVING UNIT
- 1.13 1-BEDROOM LIVING UNIT
- 1.14 1-BEDROOM LIVING UNIT
- 1.15 1-BEDROOM LIVING UNIT ADAPTED FOR DISSABLE PEOPLE



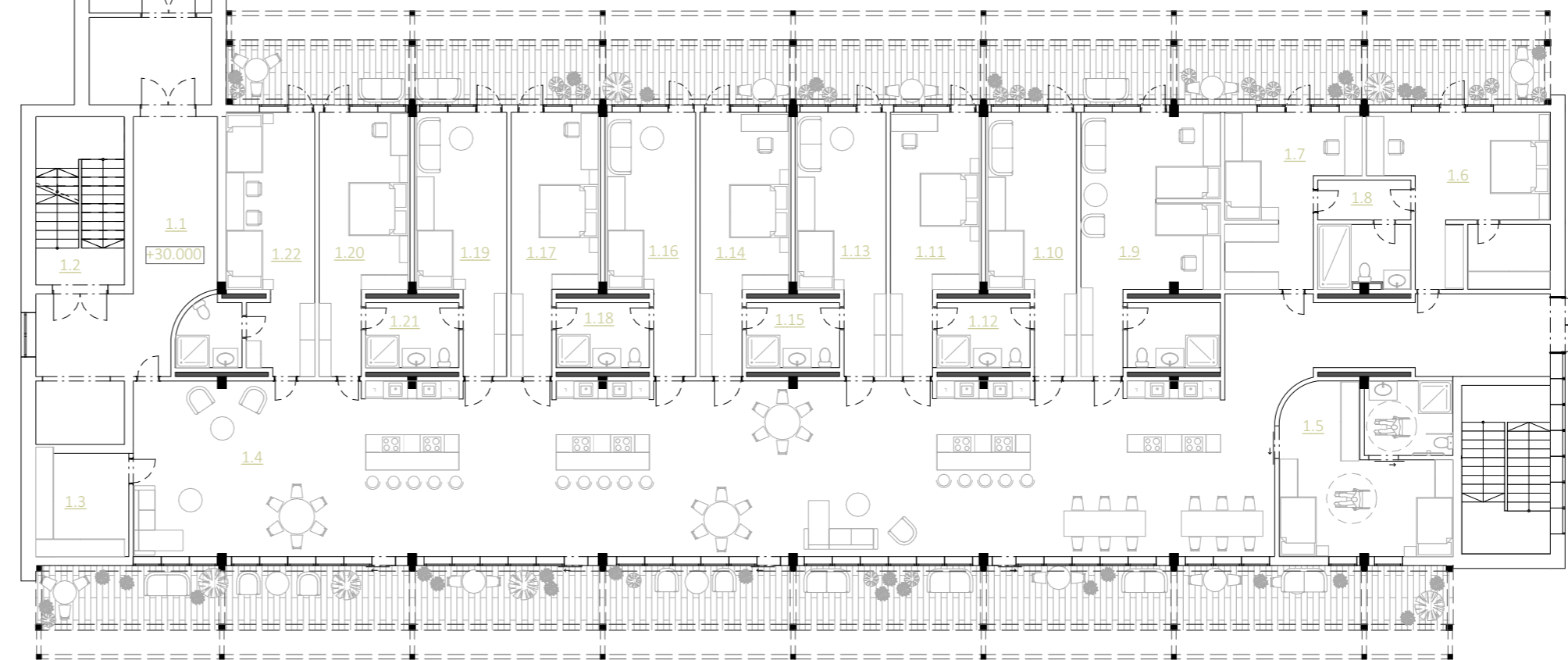
**10TH FLOOR PLAN
RESIDENTIAL FUNCTION (CO-HOUSING + HOSTEL)
SCALE 1:250**



**SPECIFICATION
OF THE AREA**

BUILDING 2 (HOSTEL)

- 0.1 MAIN STAIRCASE
- 2.1 CORRIDOR
- 2.2 LOCKER ROOM
- 2.3 LIVING ROOM
- 2.4 LIVING UNIT 8 BEDS
- 2.5 COMMON BATHROOM
- 2.6 LIVING UNIT 6 BEDS
- 2.7 COMMON BATHROOM
- 2.8 LIVING UNIT 9 BEDS
- 2.9 COMMON BATHROOM
- 2.10 EVACUATION STAIRCASE
- 2.11 COMMON KITCHEN+ DINNING ROOM
- 2.12 LIVING UNIT 4 BEDS
- 2.13 COMMON KITCHEN+ DINNING ROOM
- 2.14 LIVING UNIT 2 BEDS
- 2.15 LIVING UNIT 2 BEDS
- 2.16 COMMON BATHROOM
- 2.17 LIVING UNIT 1 DOUBLE
BED+PRIVATE BATHROOM
- 2.18 PRIVATE SPACE FOR WORKERS OF
THE HOSTEL

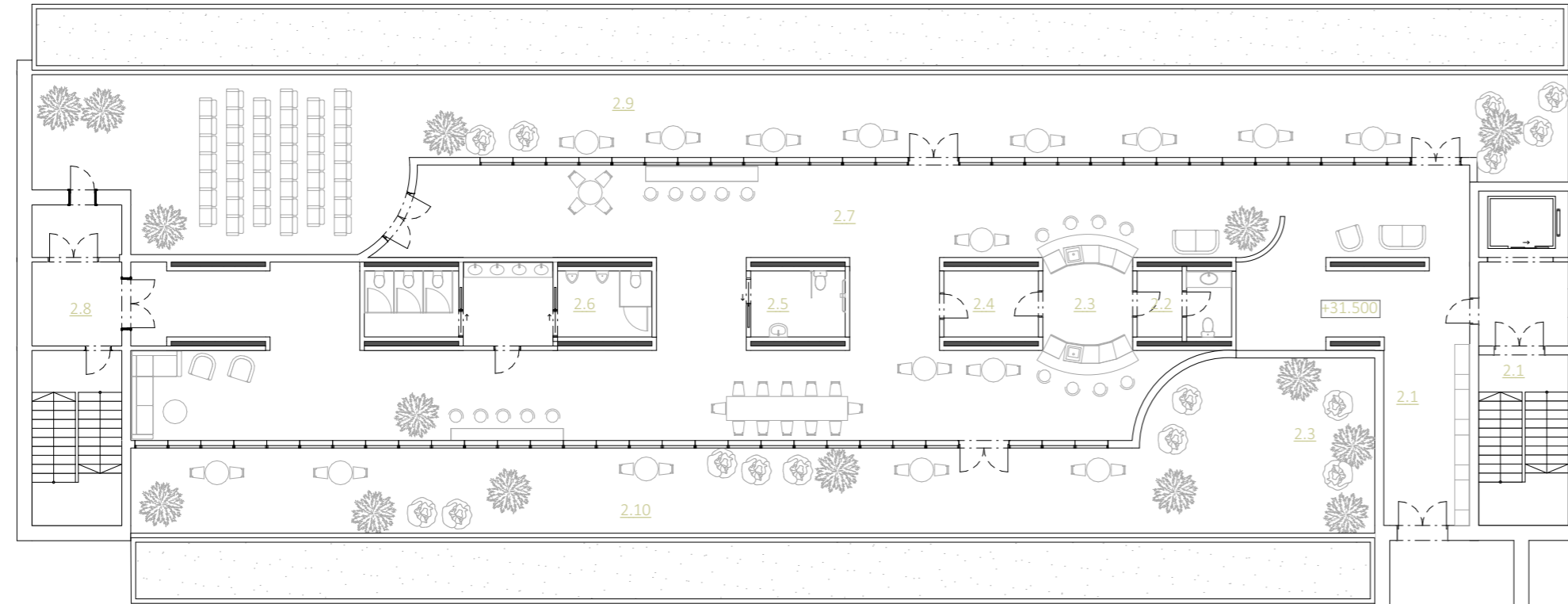


**SPECIFICATION
OF THE AREA
BUILDING 1**

CO-HOUSING AREA

- 0.1 MAIN STAIRCASE
- 1.1 CORRIDOR
- 1.2 EVACUATION STAIRCASE
- 1.3 WARDROBE
- 1.4 COMMON AREA WITH KITCHENS
AND LIVING ROOMS
- 1.5 2-BEDROOM LIVING UNIT
ADAPTED FOR DISSABLE PEOPLE
- 1.6 1-BEDROOM LIVING UNIT
- 1.7 1-BEDROOM LIVING UNIT
- 1.8 COMMON BATHROOM
- 1.9 2-BEDROOM LIVING UNIT +
BATHROOM
- 1.10 1-BEDROOM LIVING UNIT
- 1.11 1-BEDROOM LIVING UNIT
- 1.12 COMMON BATHROOM
- 1.13 1-BEDROOM LIVING UNIT
- 1.14 1-BEDROOM LIVING UNIT
- 1.15 COMMON BATHROOM
- 1.16 1-BEDROOM LIVING UNIT
- 1.17 1-BEDROOM LIVING UNIT
- 1.18 COMMON BATHROOM
- 1.19 1-BEDROOM LIVING UNIT
- 1.20 1-BEDROOM LIVING UNIT
- 1.21 COMMON BATHROOM
- 1.22 2-BEDROOM LIVING UNIT +
BATHROOM

**11TH FLOOR PLAN
SOCIALISING + EVENTS (ROOF TOP)
SCALE 1:250**

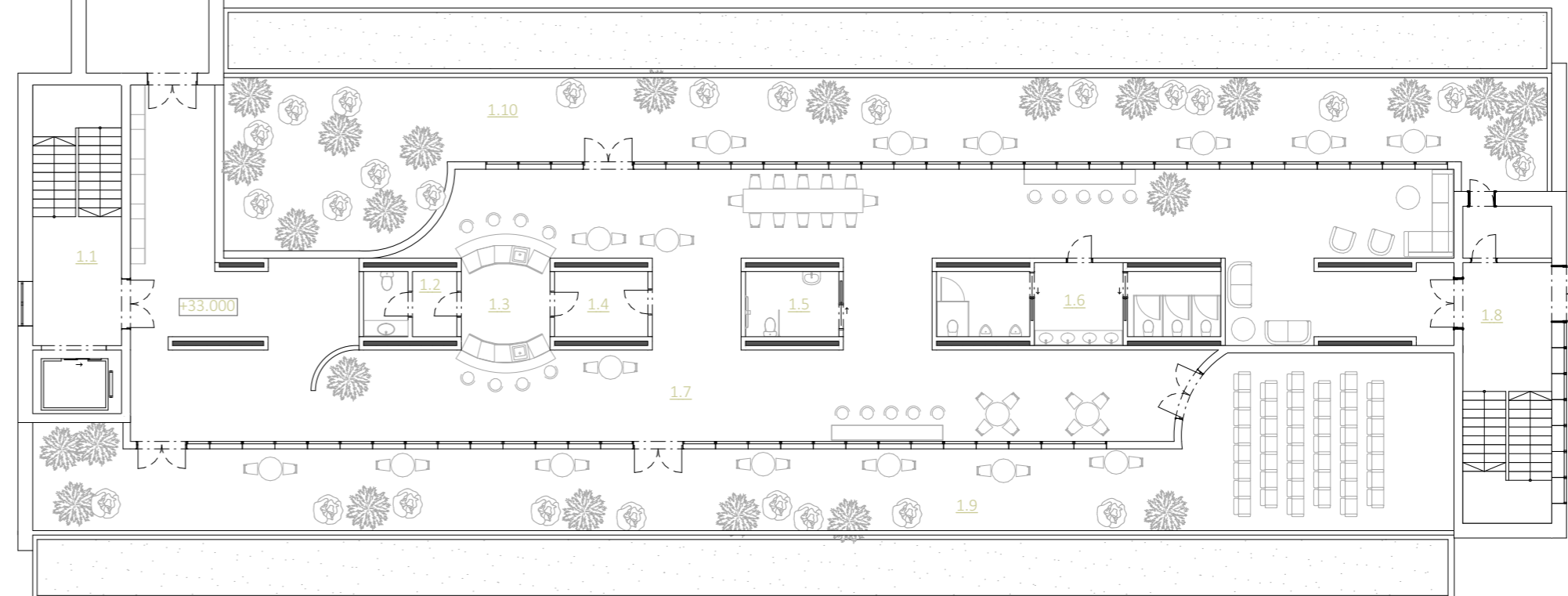


**SPECIFICATION
OF THE AREA
BUILDING 2 (ROOF)**

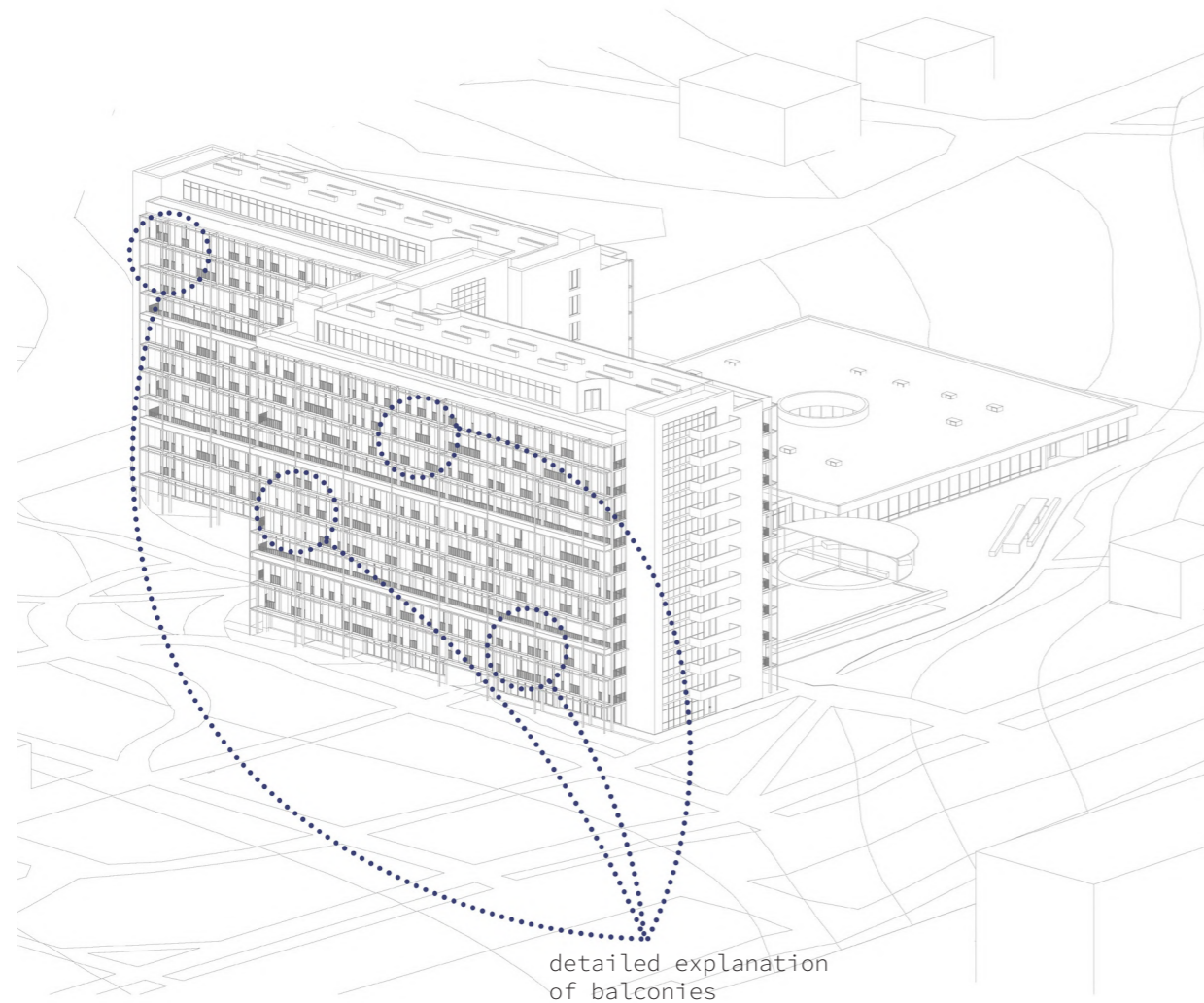
- 0.1 MAIN STAIRCASE
- 1.1 EVACUATION STAIRCASE
- 1.2 WC + WARDROBE FOR WORKERS
- 1.3 BAR AREA
- 1.4 STORAGE
- 1.5 WC FOR DISSABLE PEOPLE
- 1.6 REGULAR WC
- 1.7 COMMON AREA
- 1.8 EVACUATION STAIRCASE
- 1.9 ACCESS TO THE ROOF
- 1.10 ACCESS TO THE ROOF

**SPECIFICATION
OF THE AREA
BUILDING 2 (ROOF)**

- 0.1 MAIN STAIRCASE
- 2.1 CORRIDOR+ EVACUATION STAIRCASE
- 2.2 WC + WARDROBE FOR WORKERS
- 2.3 BAR AREA
- 2.4 WC FOR WORKERS
- 2.5 CHANGING ROOM
- 2.6 BATHROOM FOR DISSABLE PEOPLE
- 2.7 COMMON AREA
- 2.8 EVACUATION STAIRCASE
- 2.9 ACCESS TO THE ROOF
- 2.10 ACCESS TO THE ROOF



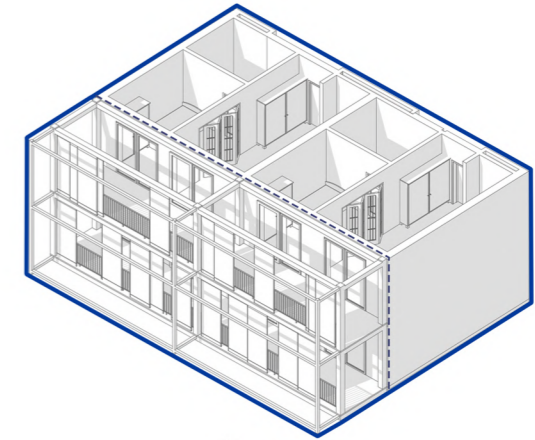
WHAT IS HAPPENING ON THE BALCONIES AND HOW DOES IT WORK?



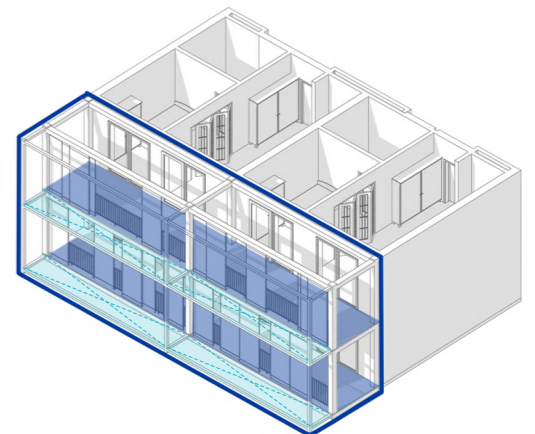
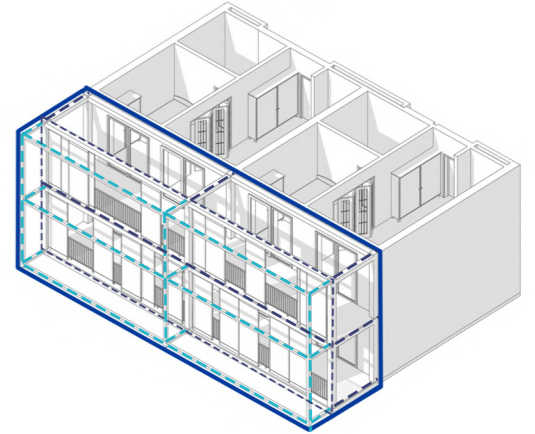
One of the architectural interventions of the project is redesigning the balconies in order to provide more space for the living units and also connect the inhabitants of the building with their closest neighbours. This design option was used many times for other residential builds around the world. It is a very common design decision for renovation projects. Usually, architects will add new balconies to the existing building also to give a better aesthetic look of the existing architecture. One of the most famous reference for such architectural intervention is the building in BORDEAUX, FRANCE renovated by Lacaton & Vassal.

COMPOSITION OF THE BALCONIES

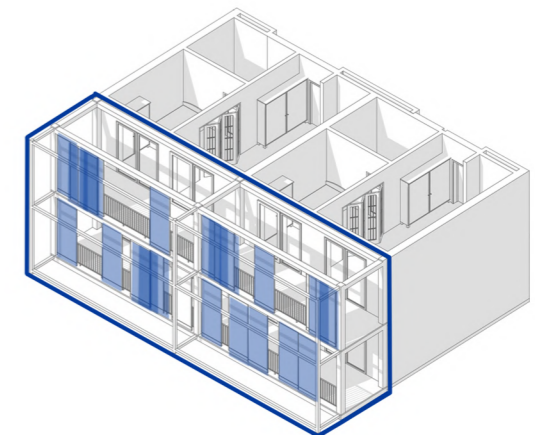
The structure of the balconies consist of load bearing columns and beams from steel and floor covering from wood.



It has a double grid in order to provide a more flexible space planning for the future. First line of the balconies has 2 m. width and is completely covered with wooden floor finishing. Second grid has a width of 1 m. and stays empty as long as new inhabitants will move in.



The final touch of the architectural intervention are shading panels and rails. Shading panels are semi-transparent and can be easily moved to limit the amount of sunlight into the apartment or to bring even more light.



BALCONIES IN UKRAINE A CONFRONTATION BETWEEN ARCHITECTURE AND PEOPLE'S NEEDS

Regular residents of a building may not always agree on the design of their building. Quite often in Ukraine people adapt their living unit through the years due to their needs. When it comes to the adaptation of the building by their owners there is no building regulation that can provide a general instruction for new attached structure to the existing architecture. This is the reason why so many panel buildings have lost their initial visual appearance. There is even a documentary movie called «Enter Through The Balcony» where this phenomenon is explored more deeply.

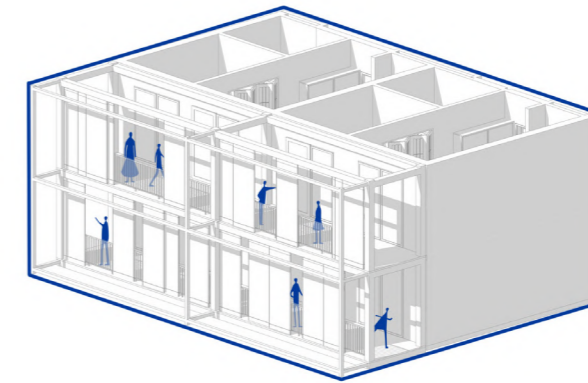
People usually cover their balconies with additional windows or even brick walls in order to make their living space larger. However, at this point a big concern becomes not only the aesthetical aspect of the building, but also the safety of the inhabitants. Some buildings do not have that bearing capacity to resist additional weight and may collapse.

Considering this local aspect, the proposal design gives an opportunity for people to enlarge their living unit if it is needed and to keep the connection between neighbors at the same time.

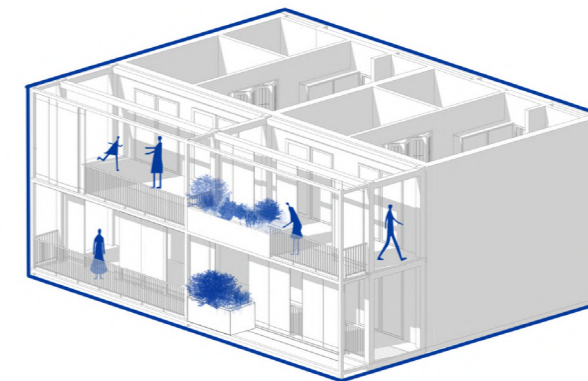
1. source of the picture: scene from the documentary «Enter Through The Balcony».



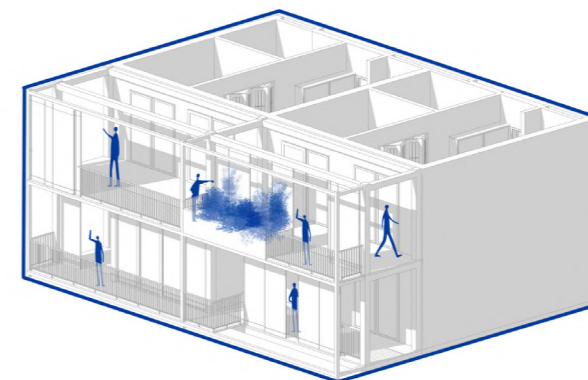
TIMELINE OF THE BALCONIES POSSIBLE SCENARIOS FOR BALCONY ADAPTATION DURING YEARS



2025



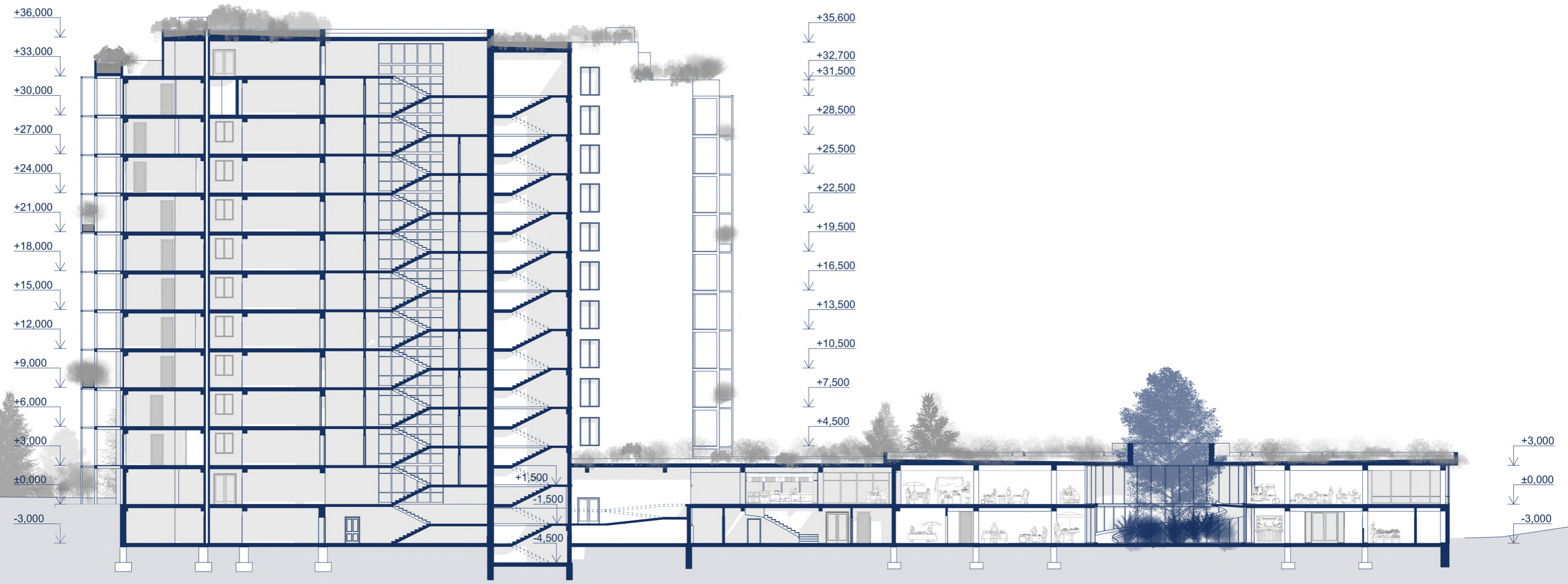
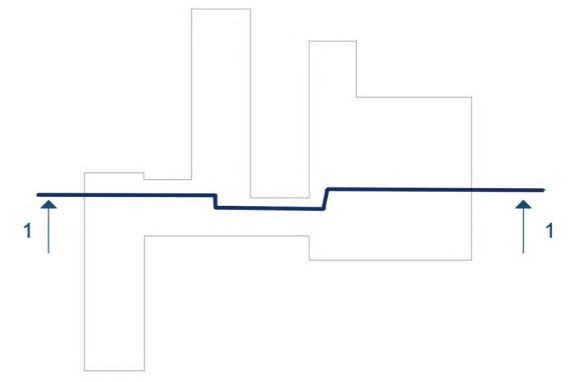
2030



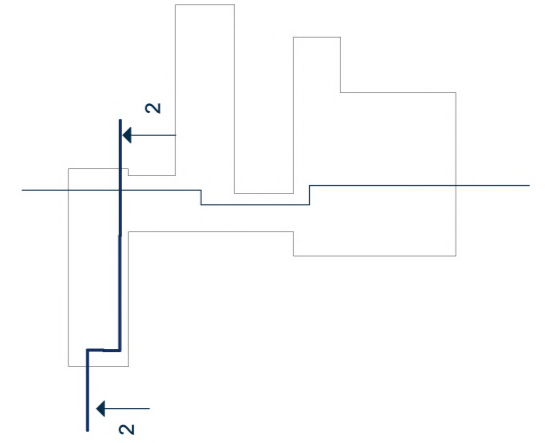
2035

2040...

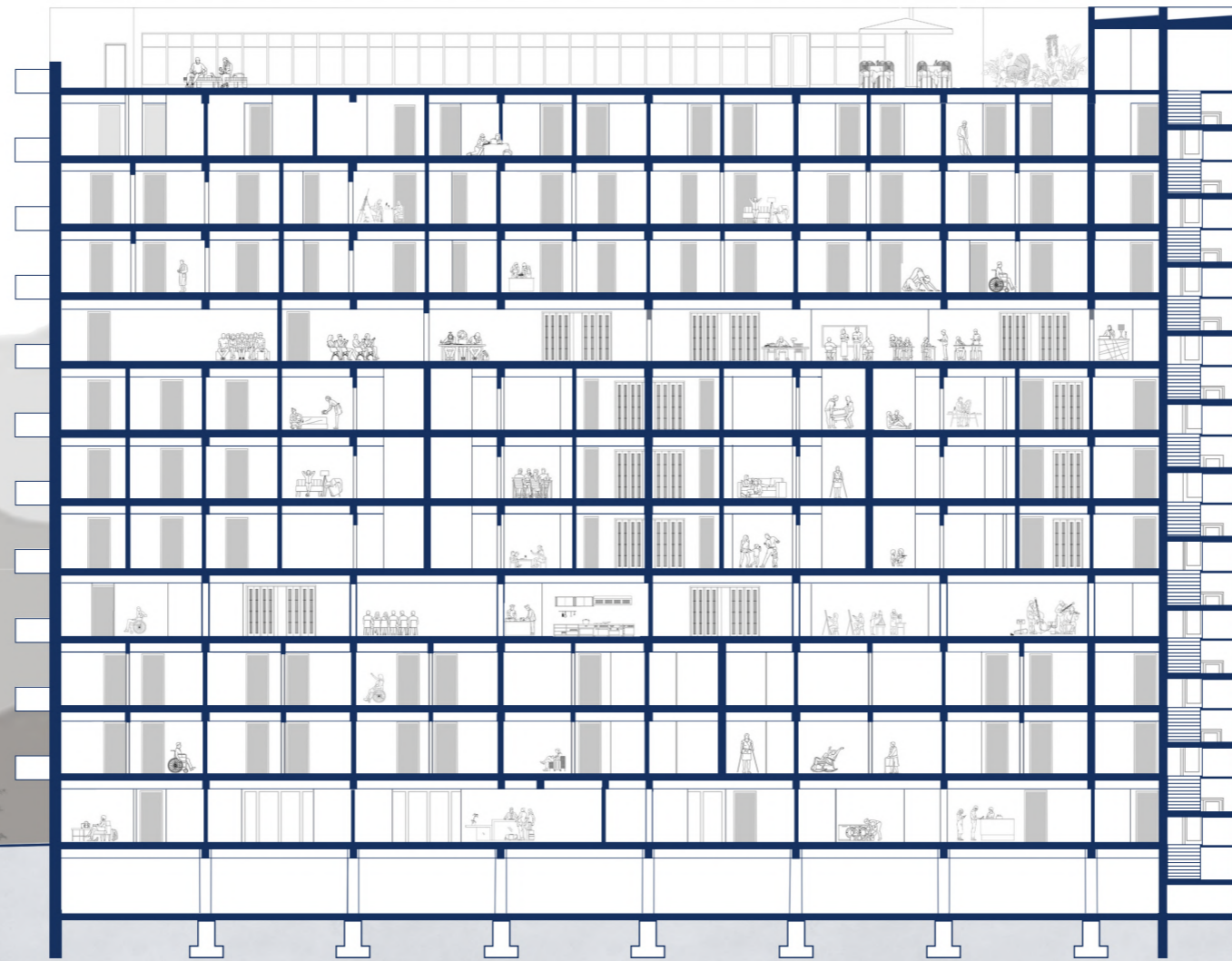
SECTION VIEW 1-1
SCALE 1:300



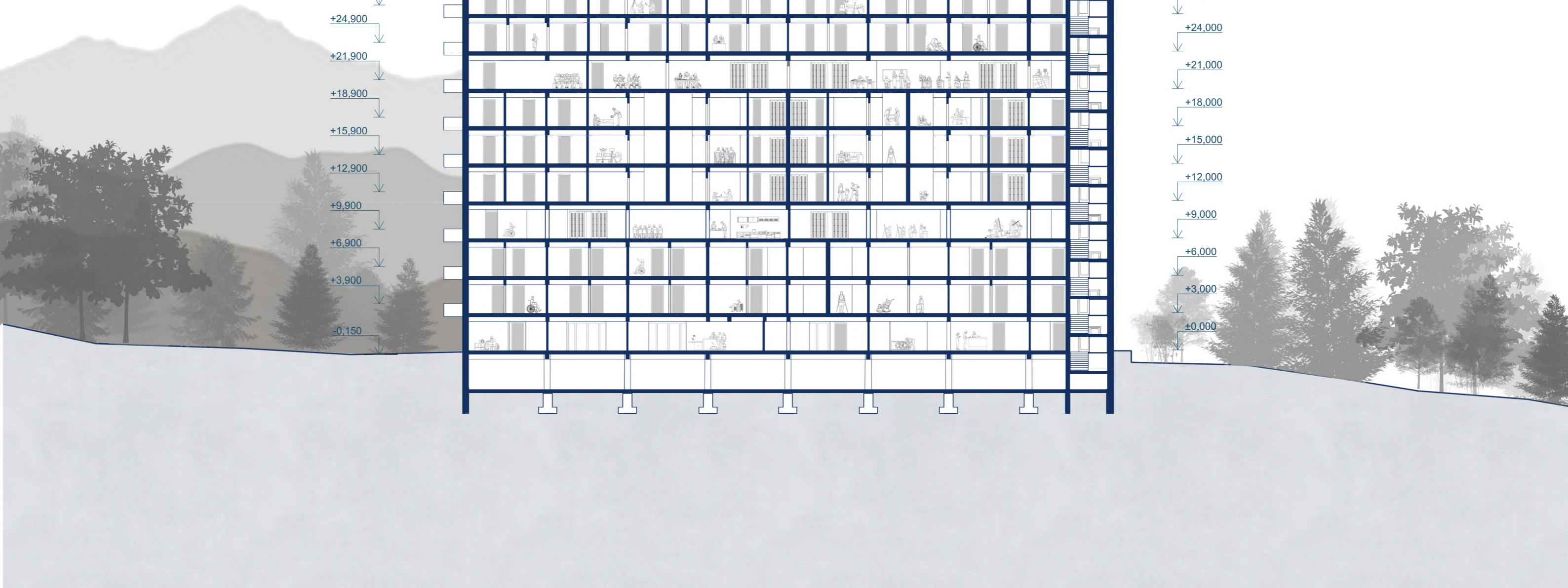
SECTION VIEW 2-2
SCALE 1:300



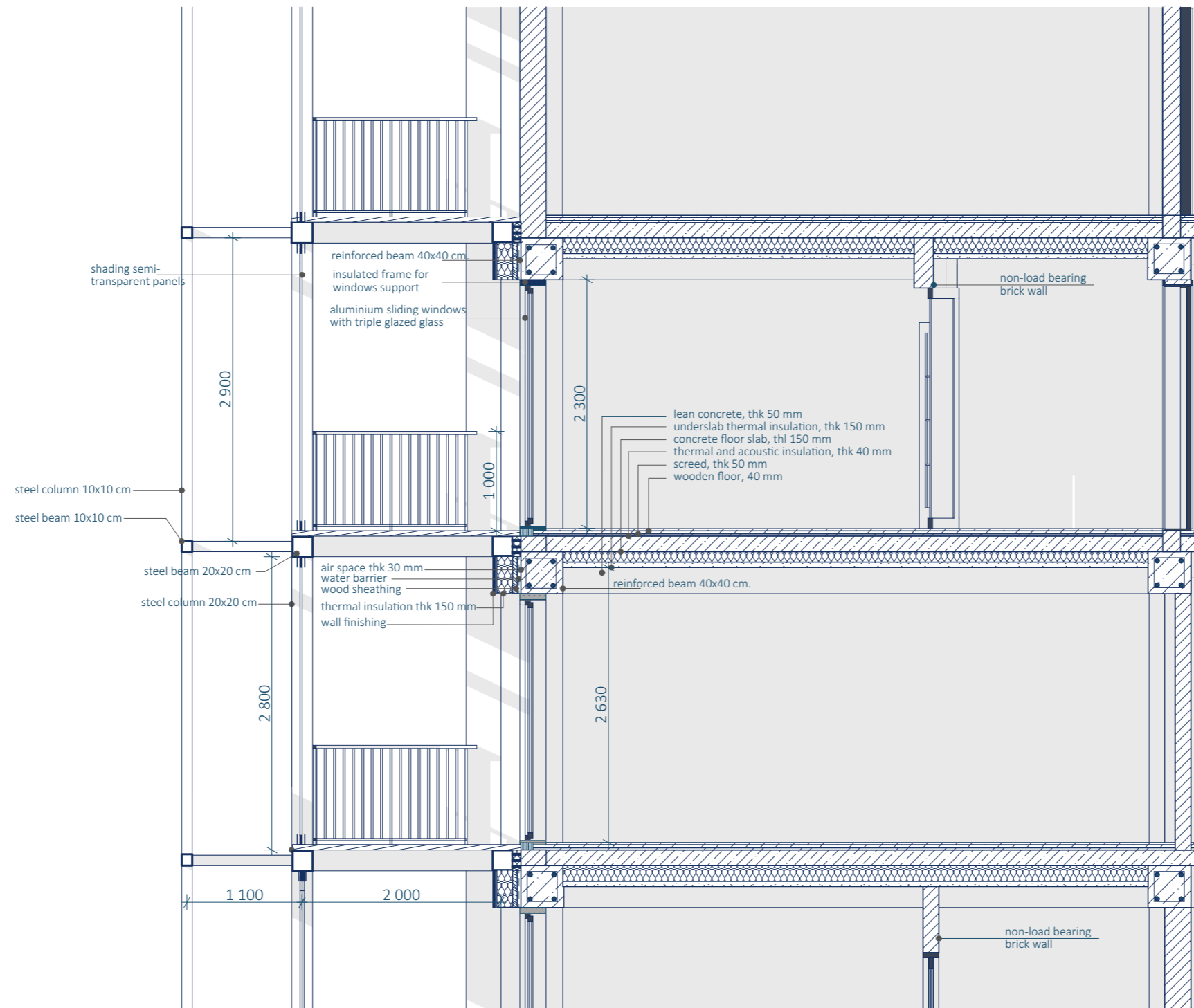
+36,600
+35,500
+33,900
+30,900
+27,900
+24,900
+21,900
+18,900
+15,900
+12,900
+9,900
+6,900
+3,900
-0.150



+36,000
+33,000
+30,000
+27,000
+24,000
+21,000
+18,000
+15,000
+12,000
+9,000
+6,000
+3,000
±0,000



**CONSTRUCTION DETAIL
SECTION VIEW OF THE BALCONY AND
EXTERNAL WALL
SCALE 1:50**



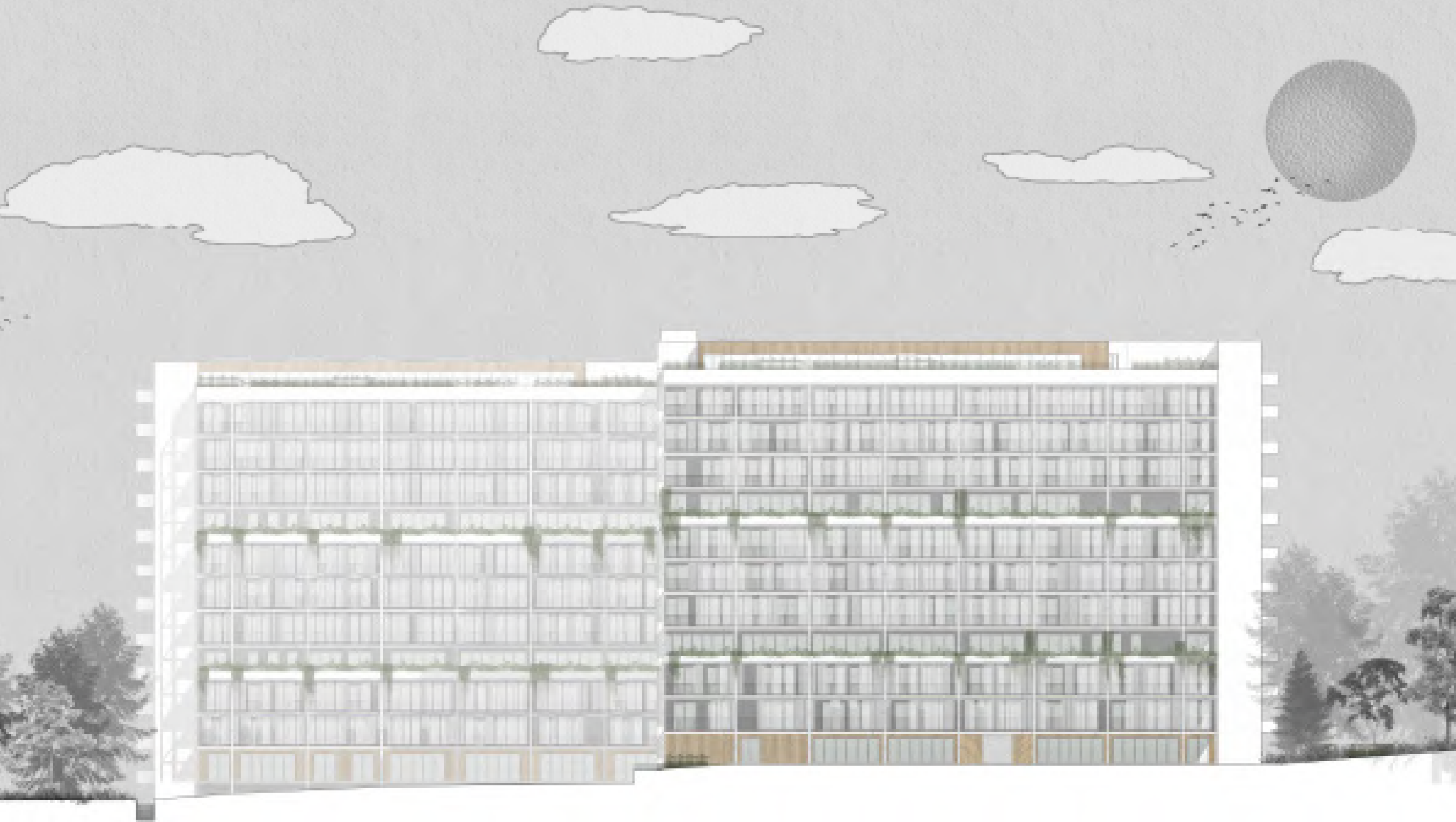
SOUTHERN FACADE
SCALE 1:250



NORTHERN FACADE
SCALE 1:300



WESTERN FACADE
SCALE 1:300



EASTERN FACADE
SCALE 1:300



AXONOMETRIC VIEW FROM ABOVE THE DESIGNED SITE



SOCIAL ASPECT OF THE PROJECT:
VISUALISATION
«LIFE ON THE BALCONIES. SENIORS FLOOR»



SOCIAL ASPECT OF THE PROJECT:
VISUALISATION
«LIFE ON THE BALCONIES. FAMILY FLOOR»





LIST OF LITERATURE:

1. Building Regulations and Building Code of Ukraine
2. “Infrastructure and the rebuilt city after the Second World War” Papers from a workshop held at Birmingham City University, Edited by Peter J Larkham;
3. «Post-war reconstruction: Case studies» by KPMG in Ukraine;
4. «Reconstruction planning in post-conflict zones: Bosnia and Herzegovina and the international community» by Hasic Tigran;
5. Project «Cities after war» accessible at <https://cityafterwar.com.ua/>
6. «A modern Marshal Plan» by Heather A. Conley;
7. «Institutional Architecture of Ukraine’s Recovery» by Rise Ukraine;
8. «Rebuilding Ukraine: Principles and policies» by CEPR;
9. “Rebuilding Ukraine: How the EU Should Support Ukraine’s Reconstruction and Recovery” by Julian Bergmann and Iulian Romanyshyn;
10. «Housing for all: Building Catalogue» by Paul Andreas, Karen Jung, Peter Cachola Schmal;
11. «Cities under siege» by Stephen Graham
12. «New European Bauhaus. Housing Urgency in Ukraine» by Dr.Nataliia Mysak and Prof. Dr. Philip Meuser;
13. «Ukraine and European Green Deal» annual monitoring report;
14. «An album of barrier-free solutions» by Big City Lab.

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