

Budapest University of Technology and Economics //
Faculty of Architecture //
Department of Urban Planning and Design //

Spring 2024

Architectural Study

“Equality Center”

Diploma Work

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EB2VW8

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01 // Introduction

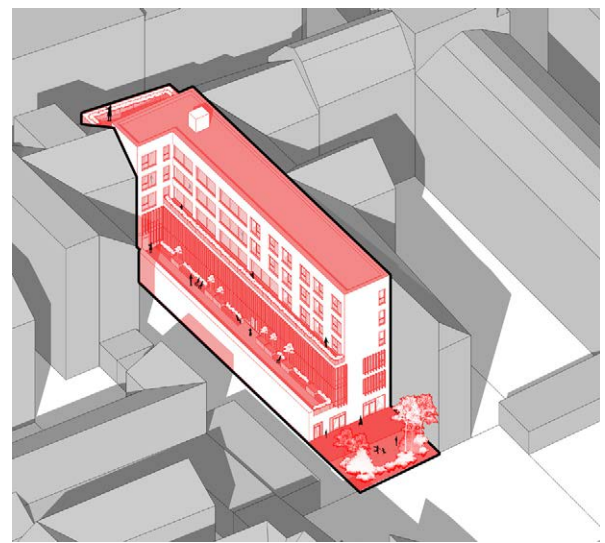
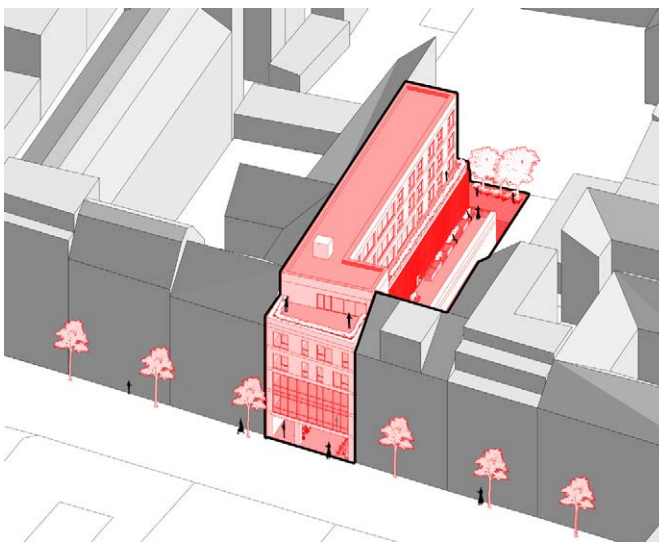
Function: Equality Center

Project Site: József u. 39, 1084, Budapest, Hungary

Plot Area: 855,5 m²

Architectural Description

The aim of the Equality Center is to bring together organizations and individuals from minority groups or those fighting for human rights in Budapest in various ways. For this reason, the project hosts different functions in itself. The project is proposed on a vacant lot at 39 Jozsef Street, which is currently used as a parking lot. The ground floor of this 5-story proposal welcomes visitors and functions as both a café and a foyer. Public meetings and events are held in the multipurpose hall. The 1st floor of the project is designed as flexible coworking spaces to provide the workspace needed for organizations and individuals to work on their projects. On the 2nd floor there is a small public library. In this library, visitors can access the center's archive, follow magazines, use the internet. There are also meeting rooms where groups can get together. The 3rd floor serves as a health clinic. Here visitors can have free consultations with psychologists. The aim is to facilitate the accessibility of mental health. Also on this floor, visitors can be tested for infectious diseases anonymously and free of charge. Accessibility to health services is also facilitated here. The 4th and 5th floors of the building are designed for temporary accommodation. The housing crisis in Budapest is growing every day. Young people who have recently moved to the city, people who have been discriminated against for various reasons and people who have been expelled from their homes can apply to this center and stay here temporarily. Activists from out of town can also stay here. The basement of the building serves as technical rooms and warehouses, but also as an exhibition space. Here local artists are given open space and their works are exhibited.



The forms of the neighboring buildings were influential in the formation of the form. The building rises to coincide with the neighbor on the eastern parcel and respects the garden of the neighbor on the western parcel and has applied an inward movement on the western façade. In this way, the daylight that the neighbor to the west will receive will not be interrupted, and the interior spaces of the project will be provided with maximum efficiency in the afternoon sunlight. The terracing on the first floor and 3rd floor adds greenery to the facade and provides people with access to open space. Likewise, the retreat on the street façade on the 5th floor provides open space for the people staying here and harmonizes with the street silhouette.

The entrance to the building is divided into two. One of them works as the main entrance while the other one works as a secondary entrance. The secondary entrance is also the fire escape route of the building. After the public activities in the building are finished, the main entrance is closed and the secondary entrance only works. Access to floors other than the 4th and 5th floors is also restricted in the circulation area. In this way, people staying in this building can access their rooms even at night.

02 // Thesis

Architecture can facilitate the creation of a comfortable, welcoming and uniting space for its users. This theme seeks a solution to the need for marginalized groups affirming spaces. These spaces are necessary for a minority community that are vastly underrepresented. The outcome will be a facility that will provide education, health and community centered spaces for all those within the marginalized communities and allies. Spaces are intended to be used widely in the community as the demand for gathering and community spaces increase. The outcome will result in a more welcoming and inclusive city for the embrace of diversity and dignity.

“By establishing a stimulating environment that **educates, unites, and inspires** people in a community, architecture can bring people together.”

Supporting Premises

Encouraging everyone to occupy a pleasant, well-designed space will bring communities together.

Urban neighborhoods and marginalized communities will gain from a wider variety of meeting places.

Justification

A community has a need to come together. People of all kinds can be educated and brought together through educational and social outreach made possible by equality centers. In a neighborhood or community of peers, allies, and adversaries, this understanding helps blur differences and fosters a higher level of understanding and interaction.

This kind of community outreach will make it possible for a facility to welcome all people. It will act as a meeting place for neighborhood associations, nonprofit organizations, and different kinds of events. These kinds of community spaces are necessary to support increased cultural diversity and to enable people and the environments in which they live to develop via understanding and connection.

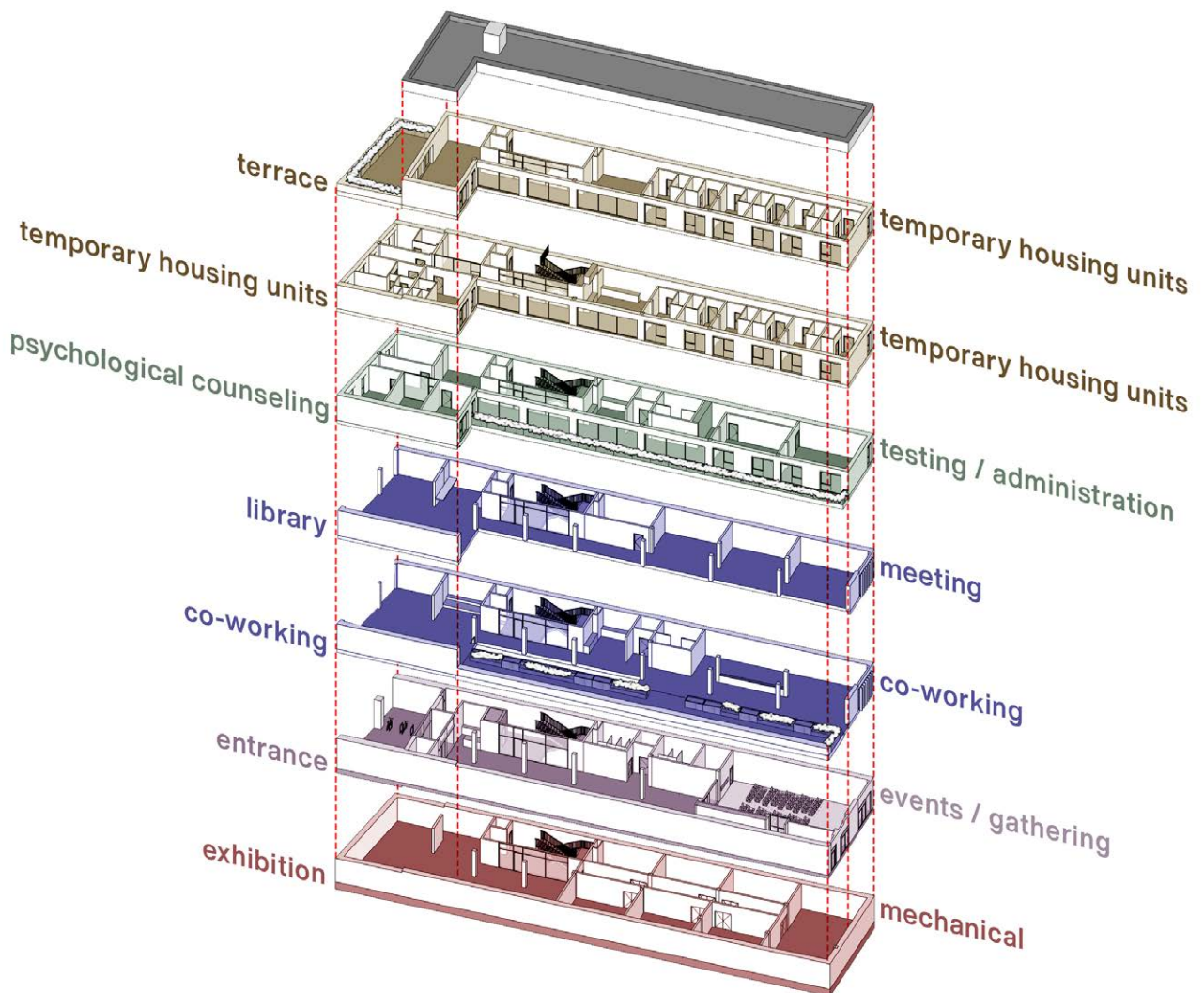
Communities want to seek out further connections with each other. Building social networks and support groups are an essential tool in ones acceptance for themselves and thus places that value in the spaces they occupy. This becomes a drive to build a more open and visible community lead to new public spaces.



03 // Needs of the Project

Equality Center should focus on providing different functions within each other while creating a welcoming atmosphere for all. The ground floor housing the events is the most public area within the project, providing an open and welcoming space while creating a connection with the street. Co-working areas should be flexible to respond to different needs and groups. These spaces should benefit from the natural sunlight and ventilation as much as possible. More private functions such as counseling and temporary housings should be placed on higher floors. 3rd floor housing the counseling rooms should have direct connection to the outside. The temporary housings should be reached via different entrances due to the other functions will not be working at night. Each room should provide good sunlight and ventilation for the well-being of the residents.

04 // Program



The program of the project mainly focuses on 4 functions: community gatherings, co-working, counseling and temporary housing. Each of these functions also provide related sub-functions.

1. Temporary Housing

Temporary housing provides a safe place for individuals facing immediate crises, such as homelessness or domestic violence. Access to temporary housing helps preserve the basic human dignity. It ensures access to safety, privacy, sanitation and hygiene.

2. Psychological and Health Counseling

Psychological counseling services are a vital aspect of providing comprehensive support to individuals from marginalized communities. These services address the specific mental health challenges that may arise from experiences of discrimination, prejudice, and social exclusion. By offering a safe and affirming space, counseling helps individuals cope with the emotional impact of discrimination, navigate issues related to identity and intersectionality, and develop resilience.

Members of marginalized communities often might face disparities in healthcare access and may encounter unique health challenges related to systemic inequalities. These services address specific health concerns, promotes preventive care, and offers guidance on navigating healthcare systems. By integrating health counseling services, equality centers can empower individuals to make informed decisions about their health and work towards reducing health disparities within these communities. This comprehensive approach aligns with the overarching goal of creating equitable and accessible healthcare for all.

3. Co-working

Education and working together serves as a powerful tool in breaking down barriers to equal opportunities, providing individuals with the tools to advocate for their rights. Training programs offered by equality centers often focus on promoting awareness, understanding, and inclusivity to challenge stereotypes and prejudices by offering workshops, seminars, and educational resources. These programmes bring together people from different ages and profession groups, train activists and social service workers.

4. Community Gathering

By providing a platform for cultural activities, including art exhibitions, performances, chats, workshops etc. these centers create opportunities for individuals to connect, share experiences, and build strong social networks. This sense of community is vital for combating feelings of isolation and enhancing a collective spirit of resilience. By embracing cultural diversity and facilitating social interactions, equality centers not only reinforce a sense of belonging but also strengthen the bonds that contribute to a more united and empowered community.

Supporting functions include an exhibition area for new and upcoming artists to showcase their works, mechanical rooms and administration offices for the managing of the building. Meeting rooms for small groups to work separately, an archive and small library with computers to provide access to the related literature and internet.

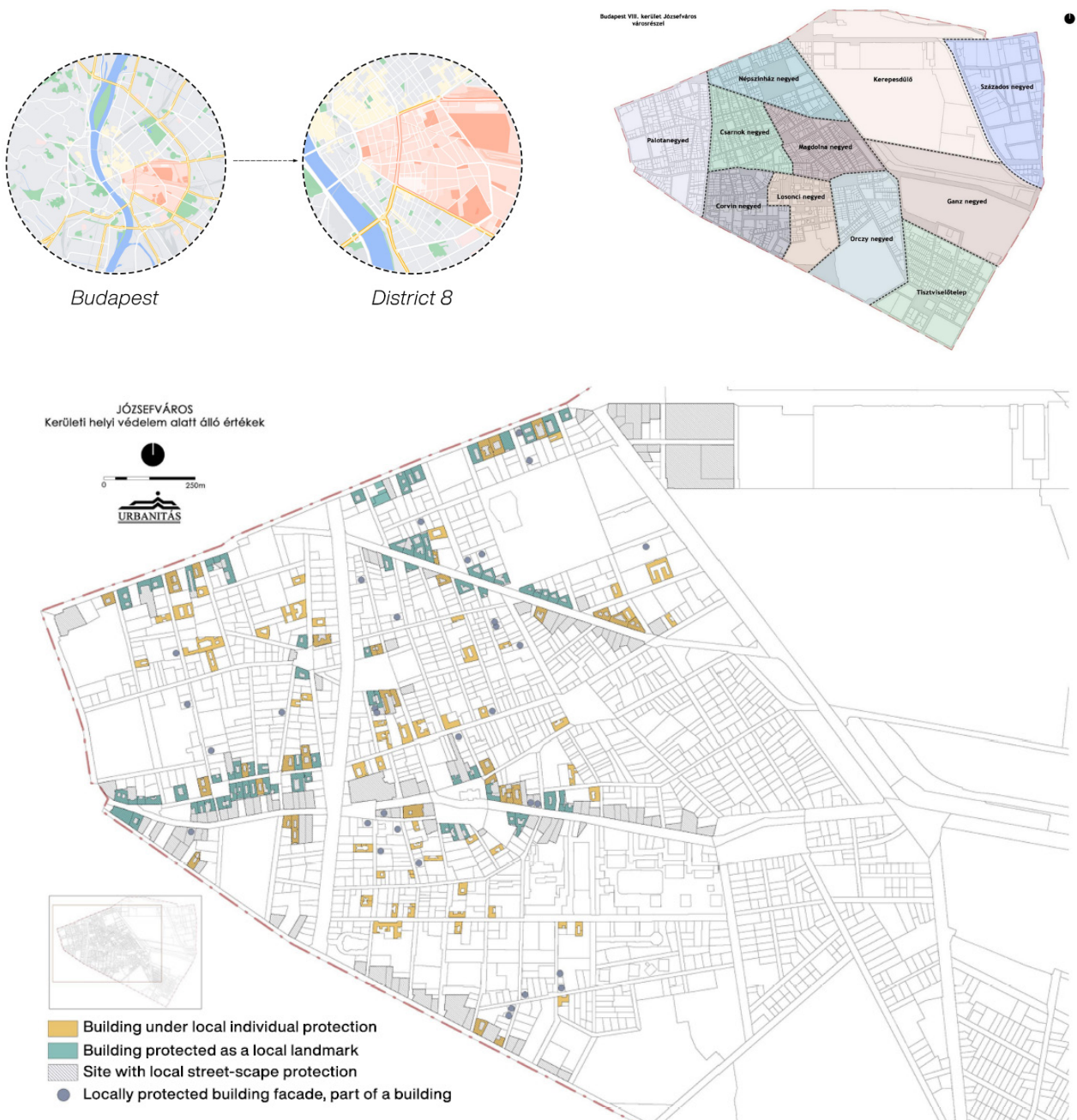
FLOOR	FUNCTION	COUNT	AREA (m ²)	TOTAL AREA (m ²)	HEADROOM (m)	VOLUME (m ³)
BASEMENT	HEATING PLANT	1	27,5	27,5	3,2	88
	CORRIDOR	1	44,5	44,5	3,2	142,4
	STORAGE	1	85,5	85,5	3,2	273,6
	STORAGE	2	28,4	56,8	3,2	181,76
	STORAGE	2	40	80	3,2	256,00
	STORAGE	1	37,1	37,1	3,2	118,72
	EXHIBITION SPACE	1	220	220	3,2	704,00
	CIRCULATION HALL	1	35	35	3,2	112,00
GROUND FLOOR	ENTRANCE HALL	1	257	257	3,6	925,2
	STORAGE CAFE	1	5,2	5,2	3,6	18,72
	CONTROL R.	1	11,3	11,3	3,6	40,68
	MULTI-PURPOSE R.	1	135	135	3,6	486,00
	WC DISABLED	1	4,8	4,8	3,6	17,28
	WC MEN	1	17	17	3,6	61,20
	WC WOMEN	1	17	17	3,6	61,20
	AIRLOCK	1	11,7	11,7	3,6	42,12
FIRST FLOOR	CIRCULATION HALL	1	52	52	3,6	187,20
	COWORKING 1	1	135	135	3,2	432
	COWORKING 2	1	150	150	3,2	480
	WC	1	17	17	3,2	54,40
	KITCHENETTE	1	18	18	3,2	57,60
	WC DISABLED	1	4,8	4,8	3,2	15,36
	CIRCULATION HALL	1	35	35	3,2	112,00
	CORRIDOR	1	50	50	3,2	160,00
SECOND FLOOR	CIRCULATION HALL	1	35	35	3,2	112
	CORRIDOR	1	82,3	82,3	3,2	263,36
	LIBRARY	1	135	135	3,2	432
	ARCHIVE	1	26,7	26,7	3,2	85,44
	MEETING ROOM	3	28	84	3,2	268,8
THIRD FLOOR	CIRCULATION HALL	1	35	35	3,2	112
	CORRIDOR	1	96	96	3,2	307,2
	COUNSELING R.	2	22	44	3,2	140,8
	COUNSELING R.	1	21	21	3,2	67,2
	GROUP COUNSELING	1	21,2	21,2	3,2	67,84
	EXAMINATION ROOM	1	34,5	34,5	3,2	110,40
	KITCHENETTE	1	18	18	3,2	57,60
	WC	1	17	17	3,2	54,40
	WC DISABLED	1	4,8	4,8	3,2	15,36
	OFFICE	1	46	46	3,2	147,20
FOURTH FLOOR	RECEPTION	1	21	21	3,2	67,20
	CIRCULATION HALL	1	35	35	3,2	112
	LAUNDRY R.	1	21,1	21,1	3,2	67,52
	HOUSING	1	21,3	21,3	3,2	68,16
	HOUSING	1	34	34	3,2	108,8
	HOUSING	2	28,1	56,2	3,2	179,84
	CORRIDOR	1	96,2	96,2	3,2	307,84
	KITCHEN	1	18	18	3,2	57,6
FIFTH FLOOR	HOUSING	6	16,6	99,6	3,2	318,72
	CIRCULATION HALL	1	35	35	3,2	112
	CORRIDOR	1	73,6	73,6	3,2	235,52
	HOUSING	6	16,6	99,6	4,2	418,32
	COMMON SPACE	1	62	62	5,2	322,4

05 // Site

Site Context

Budapest's 8th district is one of the most central districts of the city. People of all ages, genders, ethnic backgrounds, and socioeconomic levels live and visit this district. This creates an ideal environment for this Equality Center.

The District 8 is also one of the cultural and artistic center of Budapest. There are many museums, galleries, theaters here. This allows for Equality Center to appeal to people from all different cultures and perspectives. Many marginalized also lives here which allows the center to reach and organize events and programs for its target group.

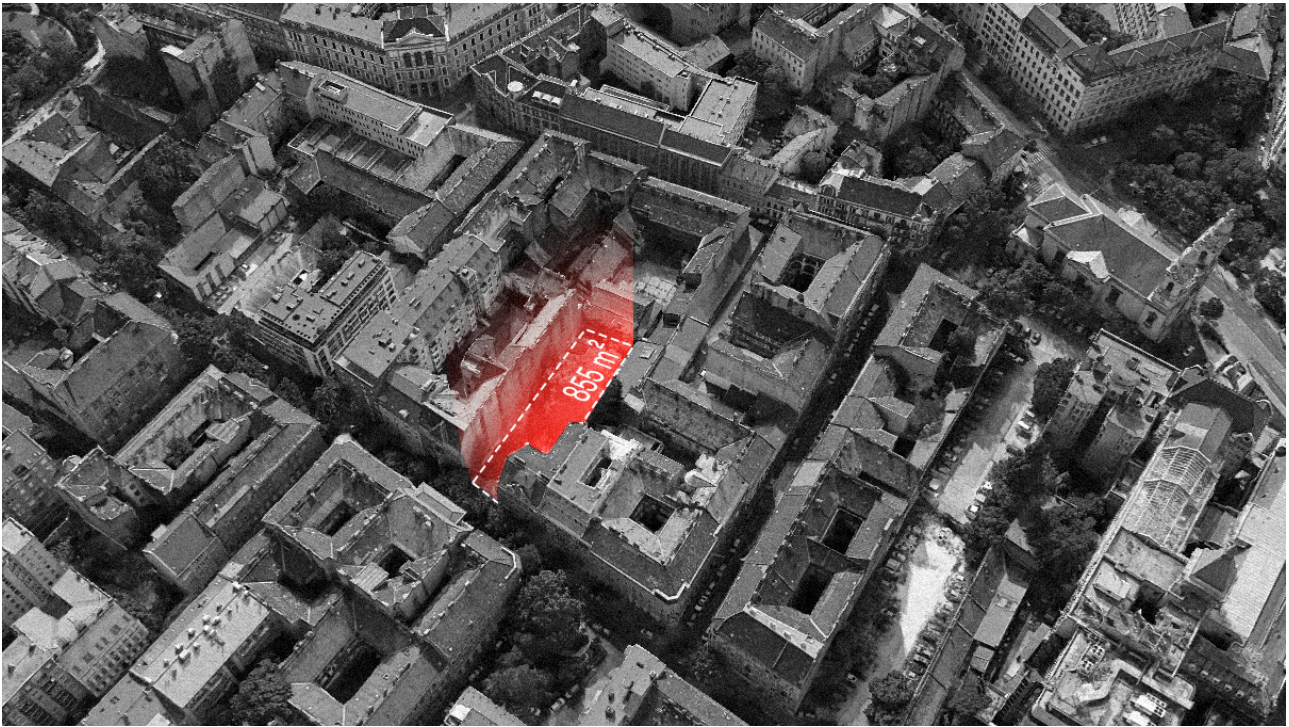




The proposed Equality Center can work together with the existing meeting points with related functions or purposes shown in the figure above.



The site is currently empty and serves as a car park. The neighboring parcel on Tavaszmező Street is known as the “Roman Parliament” but it is also currently empty. The proposed Equality Center offers a future use of this building as well.



Aerial view of the plot.



Current situation of the plot used as carparking.

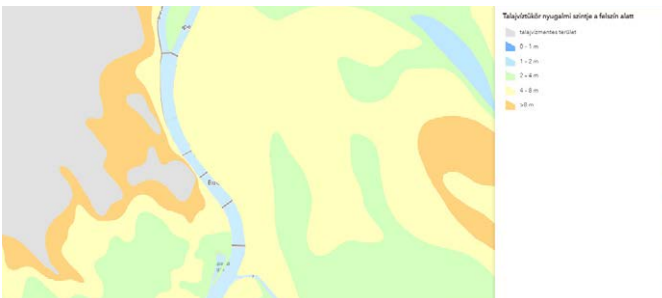
06 // Site Features

6.1. Topography



Project plot is situated in Budapest's District VIII, an area characterized by its flat topography, approximately 103-104 meters above sea level. *source: <https://en-gb.topographic-map.com/>*

6.2. Soil Water

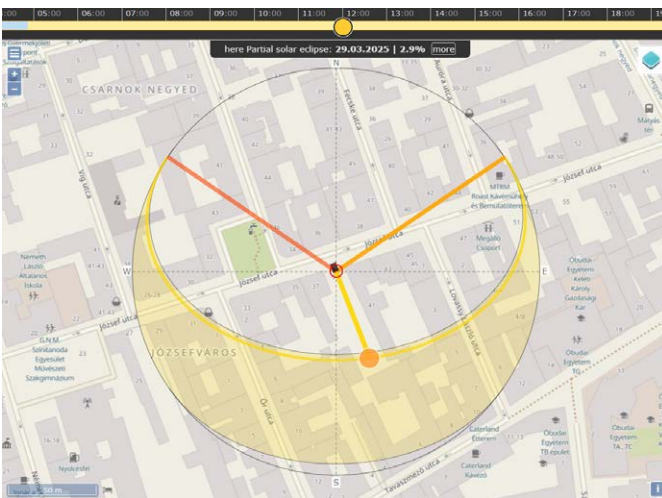


Resting level of the groundwater table below the surface: Depth 2 - 4 m

Soil layers under the ground level:

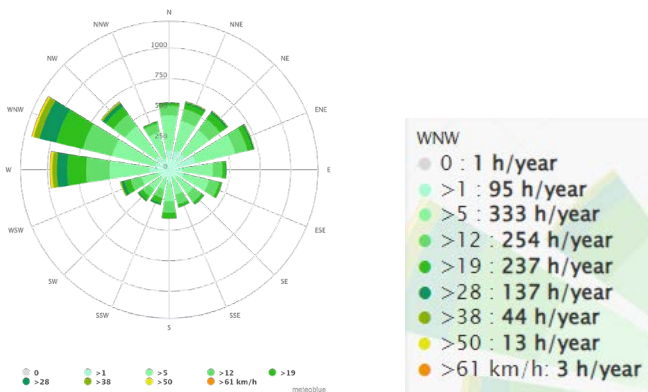
- Approximately 3,0 – 3,5 m heterogenic upfill soil.
- 7,5 – 8,0 m of fine sand, sandy silt, sandy gravel with different layer depth clay under these up to bedrock.
- Soil water level: appr. 3,5 – 4,0 m under ground-level. *source: mbfsz.gov.hu*

6.3. Sun Path



Along the standard sun path of Central Europe, the plot experiences long daylight hours on the summer solstice, when the sun rises at 4:45 AM and sets at 8:45 PM. The winter solstice has less daylight, with sunrise occurring at 7:30 AM and sunset occurring at 4:00 PM. The summer sun's high arc in the sky provides an abundance of natural light, but the winter sun's lower arc necessitates building design that maximizes daylight exposure.

6.4. Wind Analysis



Prevailing wind direction on the site is north west and west.

6.5. Climate

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	-0.5 °C (31.1)	1 °C (33.9)	5.7 °C (42.2)	11.7 °C (53.1)	16.4 °C (61.6)	20.2 °C (68.4)	22.1 °C (71.8)	21.7 °C (71.1)	16.7 °C (62.1)	11.3 °C (52.4)	6 °C (42.8)	0.6 °C (33.1)
Min. Temperature °C (°F)	-3.4 °C (25.8)	-2.8 °C (27)	0.9 °C (33.6)	6.3 °C (43.3)	11.1 °C (52)	15 °C (59.1)	17 °C (62.6)	16.6 °C (61.9)	12.3 °C (54.1)	7.4 °C (45.3)	3 °C (37.3)	-2.1 °C (28.2)
Max. Temperature °C (°F)	2.6 °C (36.7)	4.9 °C (40.9)	10.4 °C (50.7)	16.7 °C (62.1)	21.1 °C (70)	24.8 °C (76.6)	26.7 °C (80.1)	26.4 °C (79.6)	21.2 °C (70.1)	15.6 °C (60)	9.4 °C (48.8)	3.5 °C (38.3)
Precipitation / Rainfall mm (in)	40 (1.6)	38 (1.5)	44 (1.7)	50 (2)	70 (2.8)	72 (2.8)	71 (2.8)	59 (2.3)	60 (2.4)	54 (2.1)	55 (2.2)	48 (1.9)
Humidity	81%	78%	70%	62%	64%	62%	61%	62%	67%	75%	82%	83%
Rainy days	8	8	8	9	12	10	10	8	8	8	9	9

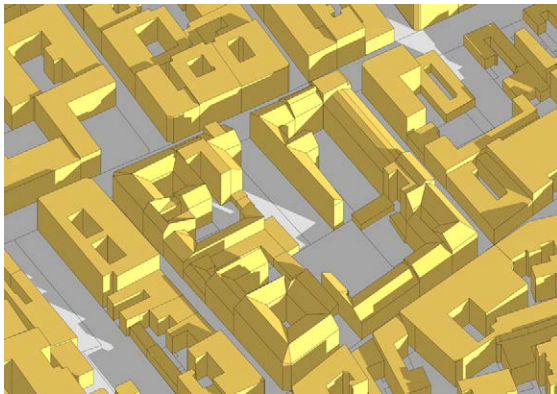
Autumn: Mild climate, gradually decreasing temperatures. September sees average temperatures ranging from 12°C to 22°C, while October brings cooler temperatures ranging from 7°C to 17°C. November marks the onset of winter, with temperatures dropping further to an average range of 2°C to 9°C.

Winter: From December to February, Budapest experiences cold temperatures and occasional snowfall. Average temperatures range from -1°C to 4°C, with January being the coldest month.

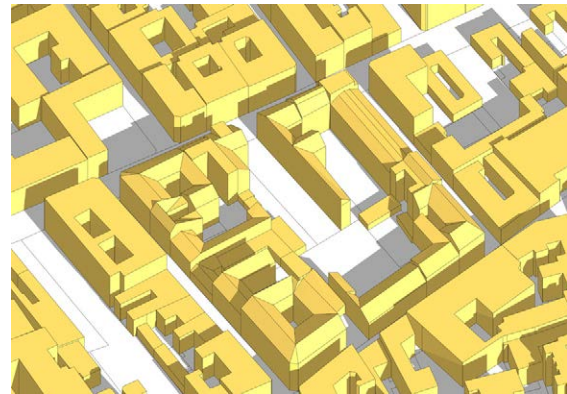
Spring: From March to May, the city begins to emerge from the winter chill, and temperatures gradually increase. March starts off cool, with average temperatures ranging from 2°C to 11°C. As the season progresses, April sees milder temperatures, ranging from 7°C to 16°C, and by May, Budapest experiences warm weather with average temperatures ranging from 12°C to 21°C.

Summer: Experiencing warm and sunny weather. From June to August, Budapest experiences a hot climate. Average temperatures range from 17°C to 28°C, with July and August being the warmest months.

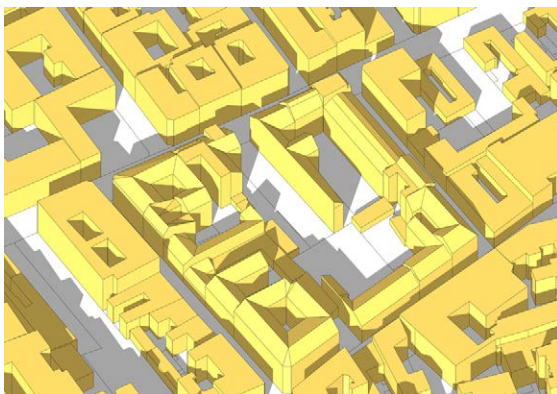
6.6. Shadows



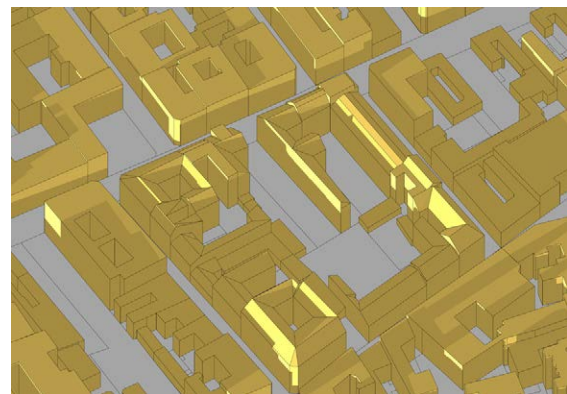
Morning



Noon



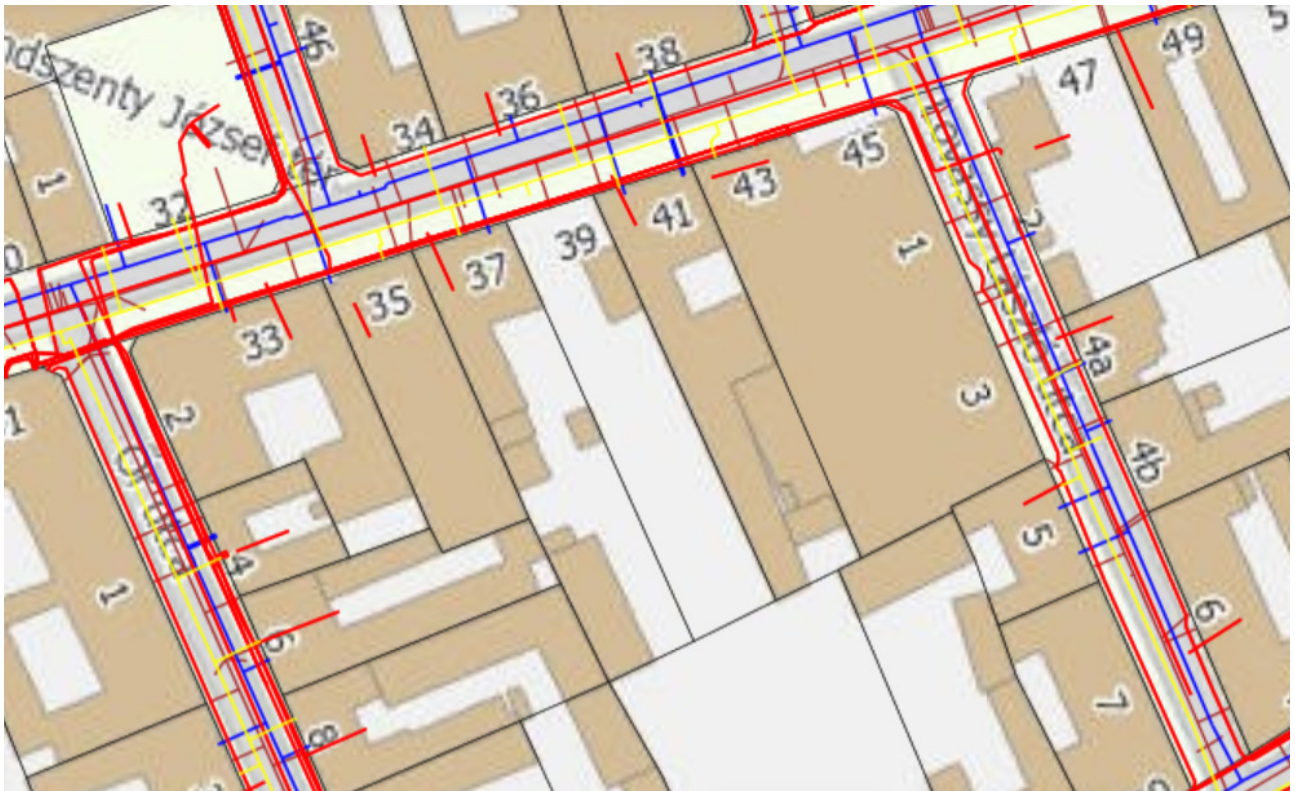
Afternoon



Evening

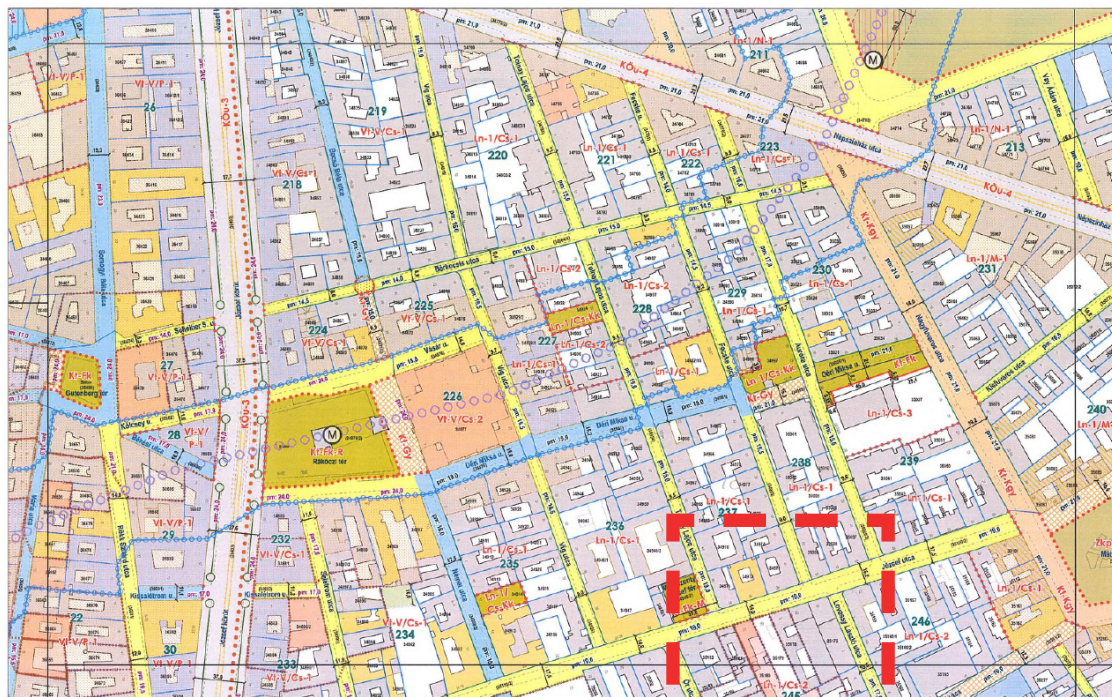
07 // Site Regulations

7.1. Utility Networks



Hírközlés: Communication
 Szénhidrogén: Hydrocarbons
 Távhő: Regional Heating
 Villamos energia: Electricity
 Vízellátás: Water Supply
 Vízvezetés: Drainage

7.2. Zoning

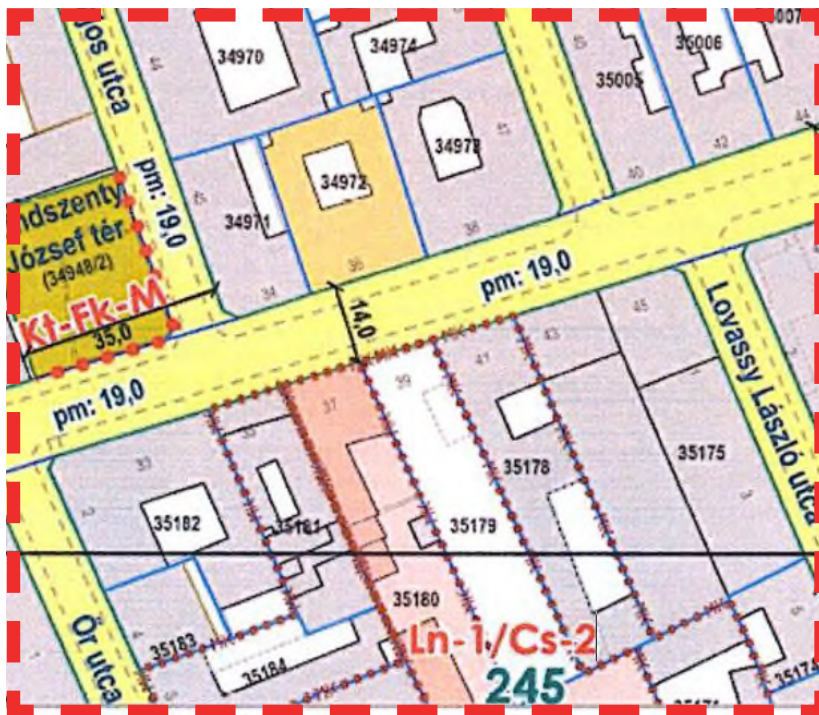


BUDAPEST FŐVÁROS VIII. KERÜLET
 JÓZSEFVÁROS KERÜLETI ÉPÍTÉSI SZABÁLYZATA
 Hatályos: 2024. évi...-től

223. (...) önk. rendelet
 1. m.
 SZABÁLYOZÁSI TERV
 m1:2000

szelvényezés	
1	12 21
2	12 22
3	12 23
4	12 24
5	12 25
6	12 26
7	12 27
8	12 28
9	12 29
10	12 30
11	12 31
12	12 32
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26	12 46
27	12 47
28	12 48
29	12 49
30	12 50

szelvény száma:
5



Attached above and left is the regulatory plan taken from Urbanitas "BUDAPEST CAPITAL VIII. DISTRICT BUILDING REGULATIONS OF JÓZSEFVÁROS" for the purpose of diploma work. As visible on the drawing, the plot belongs to the Ln-1/Cs-2 zone with parcel number 35179.

7.3. Building and Fire Regulations

(According to Budapest Főváros VIII. kerület Józsefvárosi Önkormányzat Képviselő-testületének 45/2023. (XII. 14.) önkormányzati rendelete)

The most important and effective legal regulations that were taken into consideration during the design process of this project were:

1. Fire Regulations: The distance between the neighboring building and the designed project has to be at least 8 meters, if there is no fire wall in between.
2. Building Regulations: The distance from the neighboring parcel and built project should be at least 5 meters but through the consultations with the chief architects 4 meters is also fine. This regulation is explained thoroughly below:

§ 27 Specifications for the enclosed type of construction -

(5) The distance between the building elevations facing the courtyard and the building facades facing the side and rear lot lines, if at least one of the facades contains an opening for a room for permanent occupancy, shall be at least half the height of the opposite lower facade, but not less than 10,0 metres, or 8,5 metres in the case of a public health facility, and shall not be overlooked by any part of the building, except by a lift and access corridor installed subsequently in accordance with paragraph 9. Any other solution may be applied only in the case of an established condition and in consultation with the supporting chief architect. (6) The distance from the site boundary of the façade containing the opening to the permanent accommodation shall be 5 metres, into which no part of the building may project. Other than the above may be used only in the case of an established condition and a supporting Chief Architect's consultation.

§ 32 The distance between buildings shall be

- a) the minimum width of the building shall be determined by the STC or by the regulations for each building zone in their absence
 - aa) the building spacing shall not be less than 10,0 m,
 - ab) if the area is divided into two plots, a strip of at least 5,0 m wide shall be provided on each plot,
 - ac) the façade facing the building envelope shall not be without openings and shall be fire-walled, subject to compliance with the relevant fire regulations.

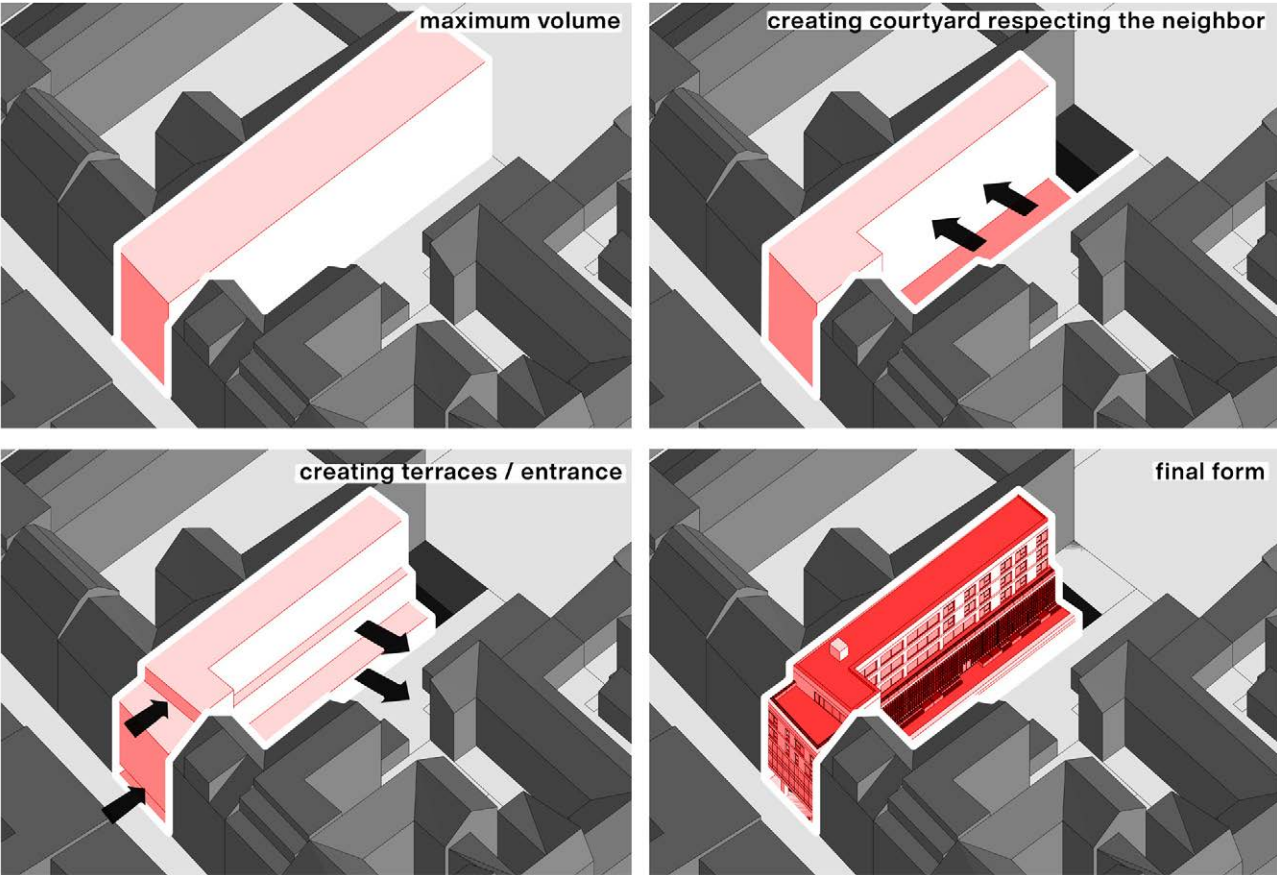


Functional analysis of the surroundings



Public transportation analysis

08 // Form Evolution



09 // Visuals







10 // Structural Solutions

The architectural concepts aims to align with the neighboring buildings forms to respect these plots as well. So the L shape provides an inner courtyard like terrace, this way interior spaces get as much sunlight as possible while the neighboring residential building's sunlight source is not cut as well.

Foundation: 50 cm reinforced concrete raft foundation is the substantial structural element used to support the entire load of the building. A raft foundation, also known as a mat foundation, is a continuous slab that extends over the entire footprint of the structure, distributing the load evenly across a large area. This type of foundation is particularly effective in preventing differential settlement in soils with low bearing capacity. The reinforcement within the concrete provides additional strength and durability, ensuring that the foundation can withstand various loads and stresses. The primary purpose of a raft foundation is to create a stable base that minimizes the risk of subsidence and provides uniform support to the building above, making it suitable for heavy structures or those constructed on soft or uneven ground.

Walls: The 25 cm brick walls with 20 cm mineral wool insulation in the project serve both structural and thermal functions. The brick walls provide robust support and stability to the building, ensuring it can withstand various loads and stresses. The inclusion of 20 cm mineral wool insulation significantly enhances the thermal efficiency of the structure. Mineral wool is an excellent insulator, reducing heat transfer through the walls, which helps maintain a consistent indoor temperature and improves energy efficiency. Additionally, the insulation provides soundproofing benefits and fire resistance, contributing to the overall safety and comfort of the building. The combination of brick and mineral wool creates a durable, efficient, and resilient wall system that supports structural integrity while optimizing thermal performance.

Shear Walls: The 25 cm reinforced concrete shear walls in the project are critical structural elements designed to resist lateral forces such as wind and seismic loads. These walls work by providing rigidity and strength to the building, effectively transferring these lateral forces down to the foundation. Reinforcement within the concrete, typically consisting of steel bars, enhances the shear walls' capacity to handle tensile and compressive stresses, preventing cracks and ensuring stability. The primary purpose of shear walls is to prevent structural deformation and collapse during extreme conditions, thus ensuring the safety and integrity of the building. By incorporating reinforced concrete shear walls, the structure gains enhanced durability and resilience, capable of withstanding significant lateral loads while maintaining its overall stability.

Slabs: The 25 cm reinforced concrete slabs in the project serve as horizontal structural elements, forming floors and ceilings within the building. These slabs work by evenly distributing vertical loads from above to the supporting beams, columns, and walls below. Reinforcement with steel bars is embedded within the concrete to increase its tensile strength and prevent cracking, ensuring the slab can bear significant loads without deformation. The primary purpose of these reinforced concrete slabs is to provide a solid, stable surface for occupants and furnishings while contributing to the overall structural integrity of the building. Additionally, these slabs enhance the building's fire resistance, sound insulation, and thermal mass, improving safety, comfort, and energy efficiency.

Columns: 40 cm x 40 cm reinforced concrete columns in the project are essential vertical structural elements that support the building's loads and transfer them to the foundation. These columns work by carrying compressive loads from the slabs and beams above and channeling them down to the ground. Reinforcement with steel bars within the concrete significantly enhances the columns' ability to withstand both axial and bending stresses, preventing buckling and ensuring durability. The primary purpose of these reinforced concrete columns is to provide strong, reliable support for the building's structure, ensuring stability and safety under various loads. Additionally, they help to resist lateral forces, contributing to the overall rigidity and resilience of the building framework.

Partition Walls: Partition walls are constructed using dry walls. Two layers, thickness 1.25 cm per gypsum board are provided on both sides to satisfy the fire resistance requirements. Mineral wool between panels provides required sound insulation.

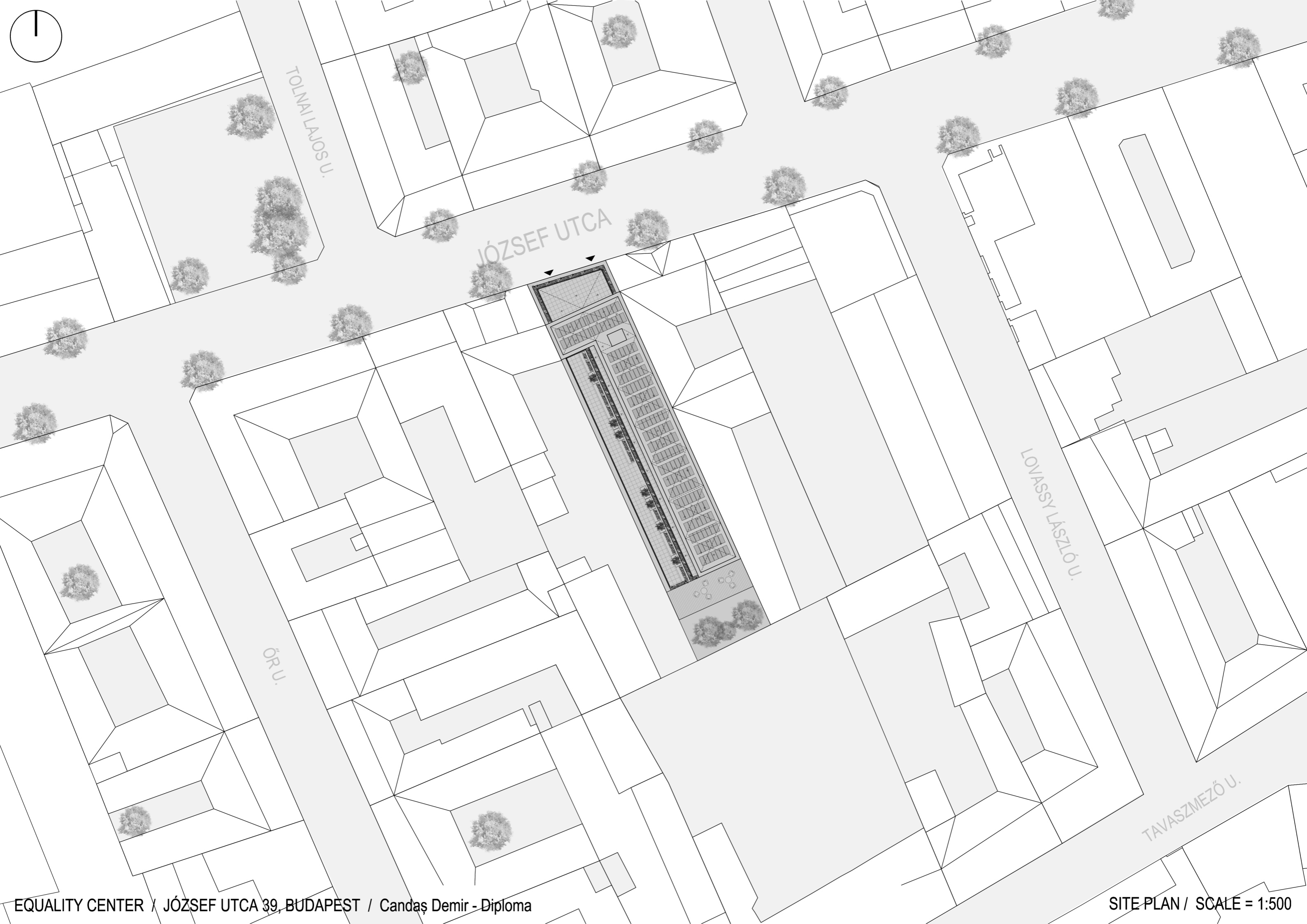
Curtain Wall: The Schüco FW 50+ fire-resistant façade is in accordance with EN 13643-3 and provides 30 minutes of reliable fire resistance, including protecting building roofs and inside areas against fire risks. It meets the requirements of fire resistance classes EI30 and EW30. The segmented construction allow a harmonious façade design throughout with a 50 mm profile face width. The curtain wall façade parts going through double story height on first and second floors mullions are 300mm width to ensure stability against wind forces.



Mátyás tér

Horváth Mihály tér

Baross u.



TOLNAI LAJOS U.

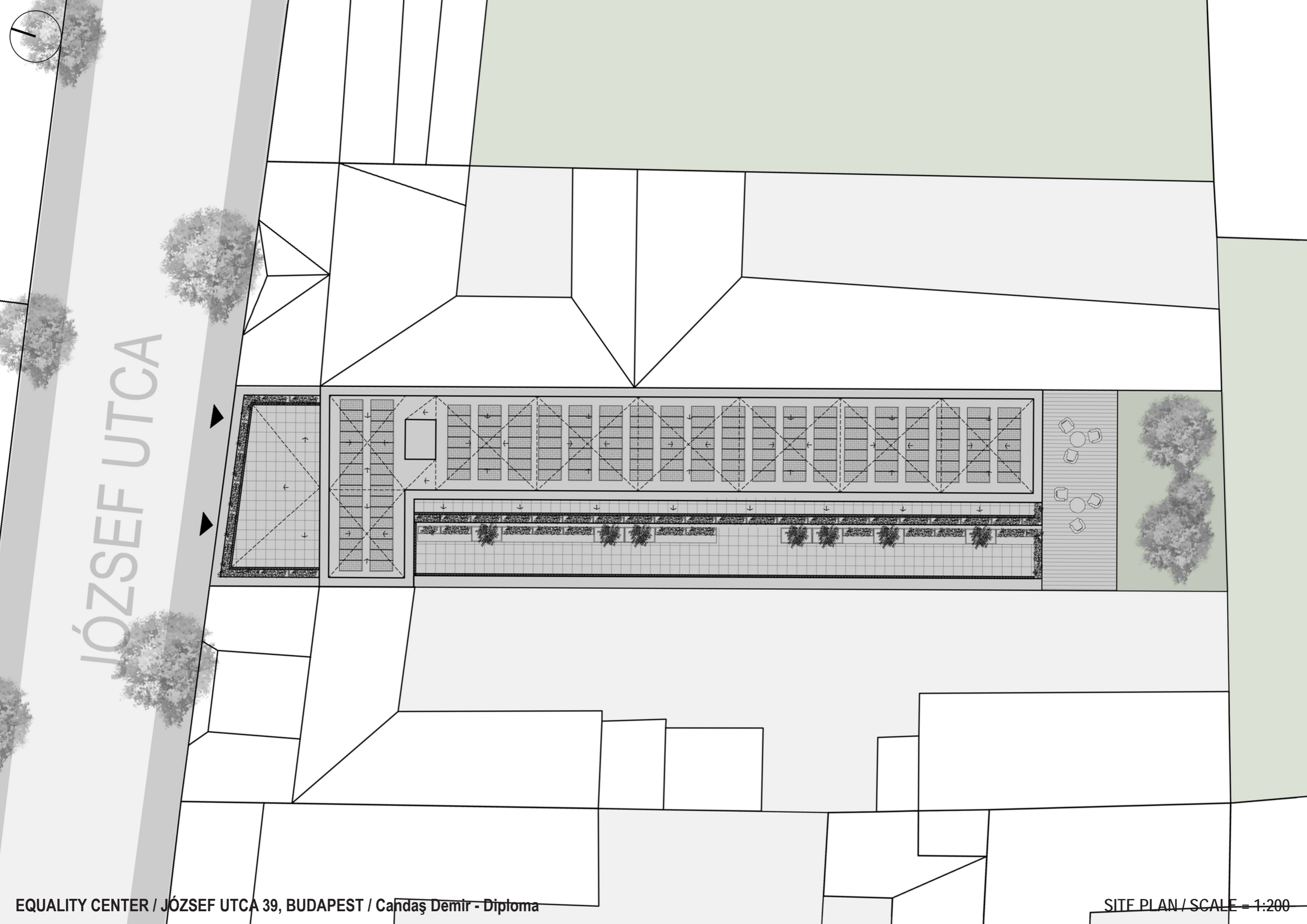
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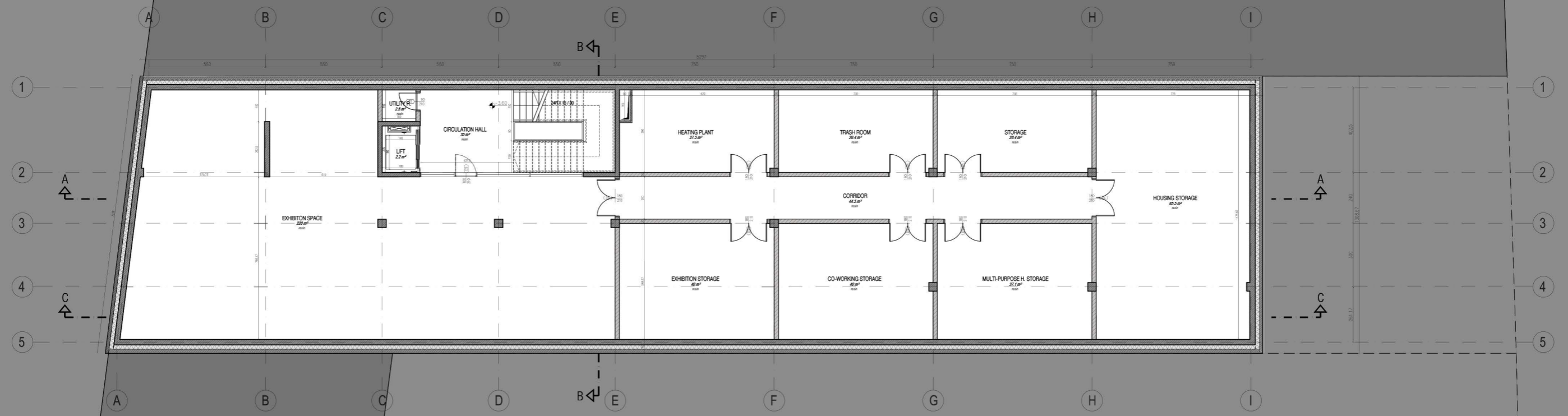
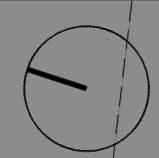
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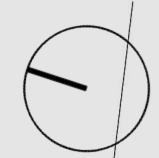
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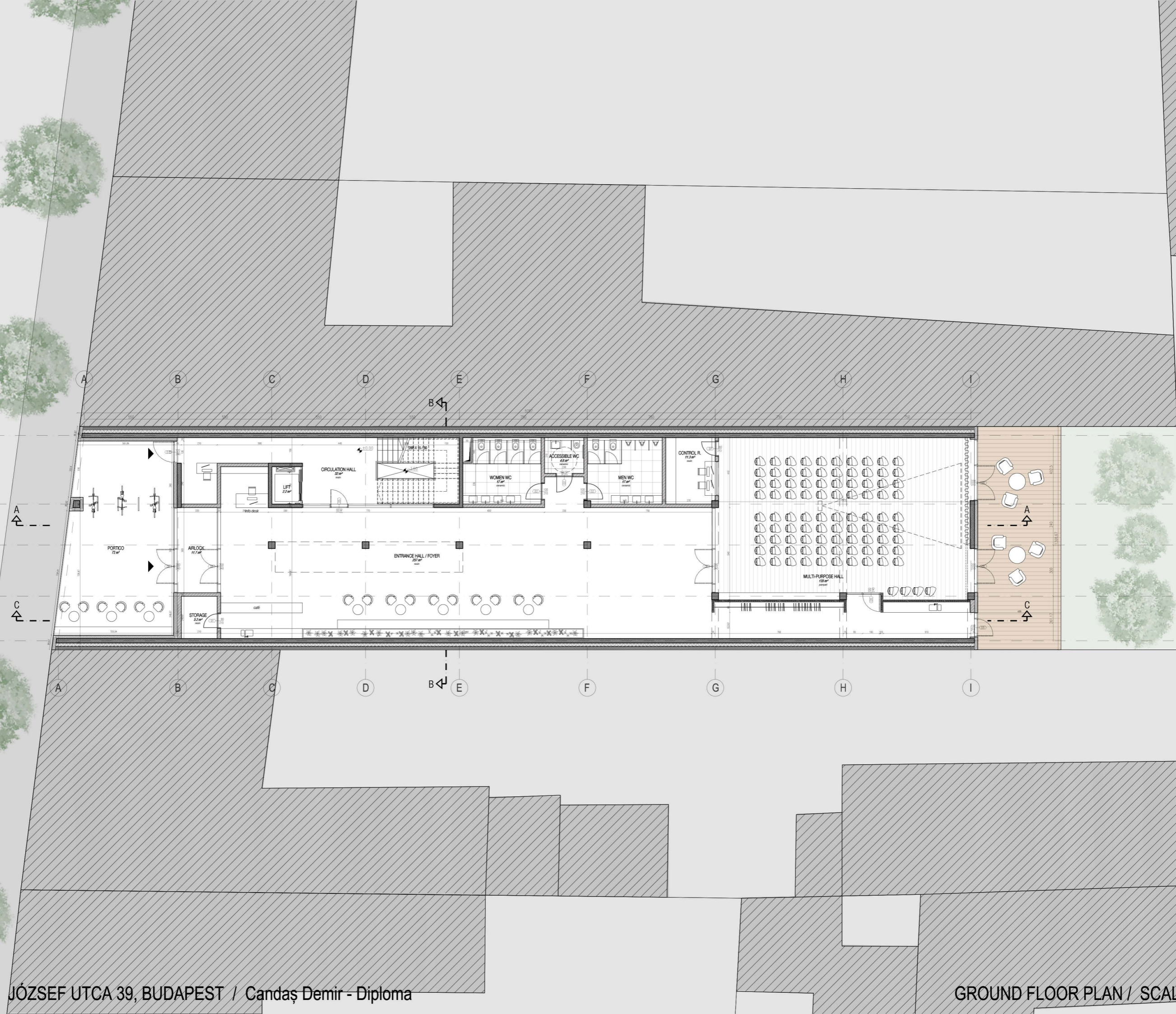




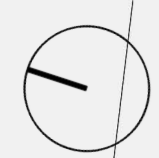


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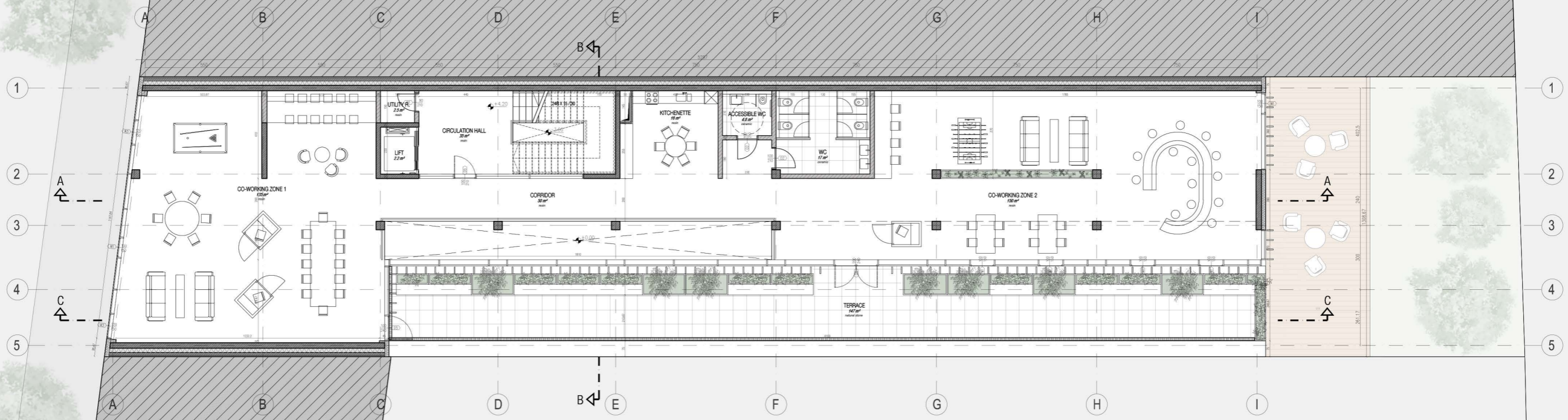
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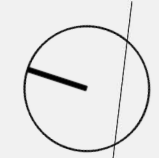


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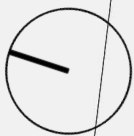
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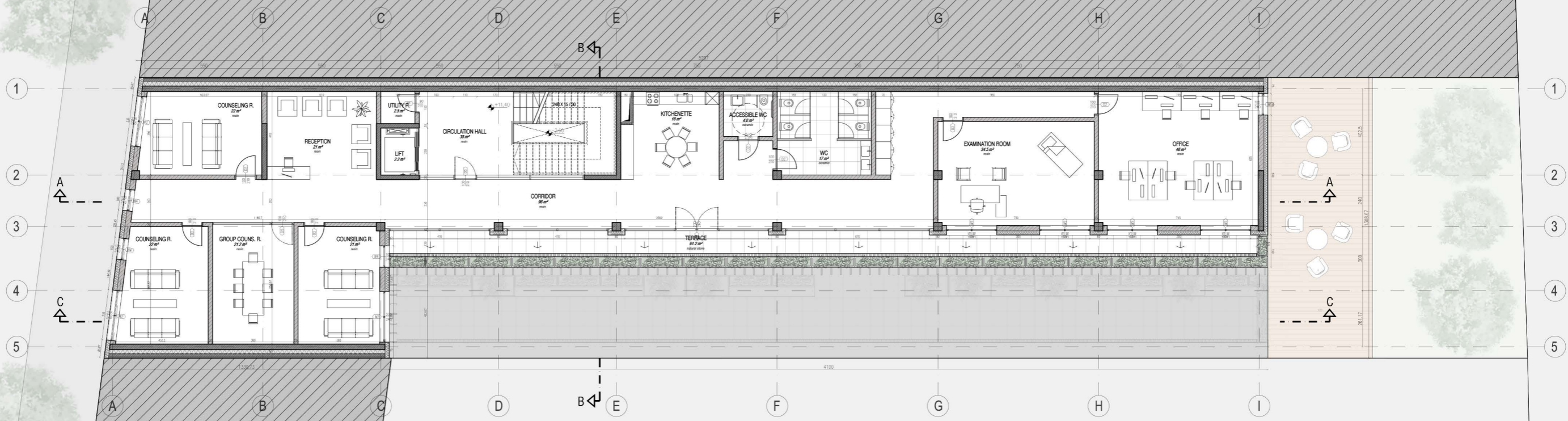


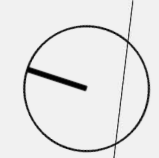
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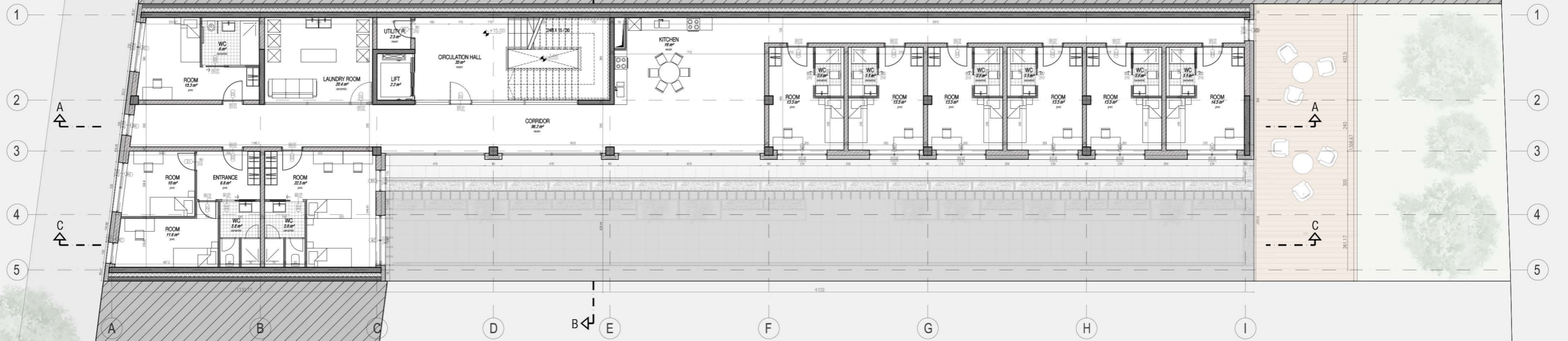


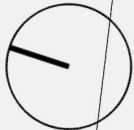
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