Making the Restoration Project More Comprehensive and Participatory: Integrating Modernist Heritage into a Metro Station. A White City Case Study

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in cover

Honigmann House, visualisation by the author.

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Alla mia nonna

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Abstract:

The work investigates how the contemporary comprehensive approach to cultural heritage can be applied in the specific field of building restoration, with the aim of raising the public awareness to the importance of such process for the preservation of built heritage. The comprehensive approach in this case focuses on the insertion of public engagement as well as digital tools to the process. While public engagement reinforces the connection of the heritage to the local community, a common goal detected also in recent professional doctrines, digital heritage tools enhance the interaction between the public and the heritage, as well as making the process more efficient and profound to restoration experts.

The analysis conducted in this work converges into the elaboration of an architectural project combining restoration, adaptive reuse, and transit-oriented contemporary design .

The site of the project is Tel Aviv, known as the largest concentration in the world of international style buildings. The bold expression of the Bauhaus movement on the built heritage in Tel Aviv has led UNESCO to declare parts of it, called The White City, as a world heritage site for displaying modernist heritage and its unique construction culture.

A critical analysis method used in this work is the case study approach, potentially giving insights to be implemented in the final project of the work .

Example for such case studies were metro stations into which museal spaces were integrated, as well as Liebling Haus, a modernist building in Tel Aviv where its restoration integrated public participation through opening the building' site during the restoration process for various public activities.

Finally, the synthesis of the analysis conducted in this work is demonstrated in the project integrating Honigmann House to the future Magen David metro station.

The modernist building of Honigmann House, has a unique history of being part of the first expansion of the city in its early years. Formerly being designed as an eclectic style building, the building tells the story of a city changing its architectural identity. Nonetheless, the building is currently planned to be demolished to become a small open square hosting the entrance of the future Magen David metro station to be built in the next decade.

The project offers an alternative for demolition, through a comprehensive project inspired by the analysis conducted throughout this work. In the proposal, Honigmann House is to be renovated through adequate degradation treatment after years of mismanagement, while the public is integrated in the process through various activities and engagement in the decision-making process for the building's reuse. Simultaneously, the design of a new metro station in interacting with the modernist building through a partial demolition for the insertion of a new volume to function as the entrance to the new metro station.

Ultimately, both structures are connected not only physically by the insertion of the new volume, but also functionally through a continuous museum on the restoration process of the building, designed in the spirit of the digital heritage approach, scattered throughout the spaces of both structures.

Keywords:

Restoration, Adaptive Reuse, Modernist Heritage, Bauhaus, Transit-Oriented Design, Participatory Approach, Digital Heritage

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N.B
The appendix consists of full-page architectural drawings and visualisations presented as individual A3 horizontal or A4 vertical sheets, arranged in a booklet format. The booklet follows its own sheet numbering system (index indicated on the first page of the appendix) and is therefore excluded from the thesis pagination in order to preserve the layout of its sheets.

Introduction

One of the most accredited and widely shared global definition of cultural heritage, relating specifically to architecture, is contained in article 1 of UNESCO 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage as:

> Groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science[1]

The origins of the heritage concept are closely linked to the emergence of archaeology, which can be defined as the study of past human life and activities through the examination of physical remains[2]. From the 18th century onward, archaeological excavations began to be performed, uncovering artifacts that served as evidence on human and natural history. When those artifacts were found, there was an immediate need to protect the findings to ensure their integrity for future scientific and educational purposes.

In the 19th century, heritage evolved into a broader public concern, particularly in France, where objects and monuments of national importance began to be officially safeguarded, with a similar scope of transmitting their significance in an authentic way.
Since then, with the establishment of international organizations and the formation of various charters and conventions, the concept of heritage has expanded to include the built environment. The heritage preservation of the built environment was directed to buildings which hold a significance, either from their architectural characteristics, the construction culture which they represent, or their associations with significant events or figures.

The question of what is restoration is a topic widely discussed amongst scholars since the 19h century. Antoine Chrysostome Quatremère de Quincy (1755-1849), a French theorist and historian, defined restoration as «the reconstruction of damaged and missing parts of a thing (statue or architecture), whether due to age or other accidents»[3]. Throughout the years, more theories have been investigating this topic and comparing its definition as it has been continuously developing according to the changing society. A more modern definition of restoration can be given by the Italian architect Mario della Costa (1929-2025):

> Restoration is an operation that uses technical-scientific means that can be used compatibly with the conservation purposes of the architectural heritage. In other

[1] UNESCO, *Convention Concerning the Protection of the World Cultural and Natural Heritage*, adopted 16 November 1972, accessed October 29, 2025. https://whc.unesco.org/en/conventiontext/.
[2] *Archaeology*, Encyclopedia Britannica. https://www.britannica.com/science/archaeology.
[3] Antoine Chrysostome Quatremère De Quincy, *Dictionnaire historique d'architecture,* 1832.

> words, it is the complex of interventions aimed at guaranteeing the temporal continuity of the cultural heritage within the framework of a correct historical-critical methodology[4].

Therefore, it can be claimed that restoration is a fundamental process to reach an integrity of significant built environment constructed in the past, for ensuring the preservation of its values so they can be transmitted to both present and future generations.

The restoration of a building begins with preliminary analysis which includes various steps such as studying the history of the building and its transformations, proposing methods to address it, and determining the future function of the building. Each of these steps requires careful decision-making to balance authenticity with contemporary use, ensuring both sustainability and truthful representation of the building's heritage values.
Therefore, the restoration process can be viewed as a continuous act of balance - between maintaining the building's physical and cultural integrity for future generations and at the same time adapting it to current needs for ensuring its sustainability.

Our human civilization is often divided historically into eras, often also called ages, each defined by its dominant characteristics. Our contemporary era is often called the information age, or more commonly the digital age, which may be defined as a period characterized by the rapid expansion of information technology and the Internet, fundamentally changing how individuals' access and share information[5].

This technological advancement witnessed in the contemporary age provides new opportunities to promote disciplines such as heritage and restoration, making them more inclusive, accessible, and participatory.

This principle forms the foundation guiding this thesis: exploring, through research and case studies examinations, how to use tools and knowledge available to us today, such as the intersection between heritage and the digital age, expressed in the newly developed digital heritage approach, can make the restoration process to be more comprehensive by being communicative and integrated into the design, as well as participative by encouraging a public engagement both during and after the process.
One might ask why the restoration process needs to be more comprehensive and participatory, given that its primary goal is to protect built heritage. The answer to this possible statement is dual.

The first answer to the question above is that many disciplines today, even if they were considered well-functioning

[4] MARIO DELLA COSTA, *Note sul restauro architettonico e ambientale*, Cluva università, 1988.
[5] TYLER BISCONTINI, *Information Age (Digital Age)*, EBSCO Research Starters, https://www.ebsco.com/research-starters/information-technology/information-age-digital-age.

before, are evolving for integrating with the new digital tools as well as for corresponding with current trends. In the Information Age, one can say the boundaries between various disciplines have become increasingly fluid.

Knowledge, once confined more exclusively to experts, is now reachable to the wide public, the only obstacle remains is the willingness of the public to acquire that information. In order to engage the public with a knowledge of a certain discipline, it needs to be communicative and preferably also participatory in order to enable a deeper public connection and understanding.

The second answer is related to the general lack of public interest in restoration projects. Many people view restoration as a gentrified process, transforming accessible buildings into exclusive, luxury properties after their restoration. A reinforcement to this claim can be the trend of new use of restored buildings as luxurious residential or boutique hotels, while possible reasoning to this claim can be the high cost of the restoration, an investment which the property owner wishes to compensate for by increased profits.

The problem discussed above is particularly evident in Tel Aviv, the city containing the largest concentration of Bauhaus architecture in the world[6].

Established in 1909 as a Jewish expansion of Jaffa, Tel Aviv became during the 1930s an urban expression of the Bauhaus movement. Jewish architects who had immigrated to Mandatory Palestine from Germany and other European countries due to the threat of Nazism, brought with them modernist ideals, implementing them in their design of International Style buildings, designated to accommodate the city's rapid urban growth and housing demand.
Already a century afterwards, the modernist aesthetic had become so deeply rooted in the city's identity that even earlier eclectic buildings were redesigned in order to match its new modernist architectural language.

The following years of the city were not simple for the Bauhaus architecture of Tel Aviv as the modernist buildings began to suffer from degradation. The values of those buildings were at risk of disappearing, not only because of the degradation but also due to misuse of its users modifying both the internal and external aspect of the building. In addition, the complex legal framework, which does not promote protection of modernist heritage, increased the risk of demolition favoring development of new construction, as the city continuously expanded and subsequently suffered from an increasing housing crisis.

[6] UNESCO World Heritage Centre, *White City of Tel-Aviv - the Modern Movement*, Advisory Body Evaluation No. 1096 (January 28, 2002), https://web.archive.org/web/20080409004015/http://whc.unesco.org/archive/advisory_body_evaluation/1096.pdf.

A turning point can be marked in 2003, as UNESCO declared as a world heritage site the 'White City'. This common terminology was given to some areas in Tel Aviv characterized by a large concentration of international style buildings, which sufficiently showcase their modernist characteristics, particularly their iconic façades made of white plaster finishing layer (which have since their construction became yellow due to discoloration caused by climatic conditions and passage of time).

Nevertheless, many other international style buildings, which demonstrate the Bauhaus movement no less than other buildings of the same category, were not included in the borders of the world heritage site by UNESCO and thus remained without sufficient legislative protection.

One such case in Tel Aviv is the Honigmann House, originally an eclectic-style building constructed in 1922 by architect Yehuda Stempler, then remodeled into the International Style by the architect Genia Averbuch in 1937. Seems to be that because of the fact it is not "born" as Bauhaus but changed into it later on, as many other buildings in the city, and because of its loss of value due to numerous alterations over time, the building was not considered sufficient to be included in the White City heritage site by UNESCO.

As stated before, excluding an international style building from the White City heritage site, leaves it unprotected from decisions which can further endanger the safeguarding of its values, or, in worse cases, such as with Honigmann House, its demolition.
Currently, Honigmann House, that by its architectural characteristics can be considered as an example of modernist heritage building, is destined to be demolished for the favor of constructing an open space surrounding the entrance to the new Magen-David metro station, scheduled to be opened in 2032.

This thesis proposes an alternative to the scheduled demolition, by a project combining both a new metro station and an adaptive reuse for Hongimann House, which includes within it a comprehensive restoration ensuring its profitability and sustainability over time, with a partial demolition for an insertion of a new volume integrated into the underground metro station. Thus, the building will be majorly conserved while receiving a new function of an entrance to the metro station, giving an alibi to cancel its demolition.

The design proposal of the project for the new metro station and the existing modernist heritage building treat them as a single organism, with the new metro entrance volume to function as a connector between the two structures. The unity between the two structures is expressed not only spatially but also functionally. Honigmann House is designated to function as a museum-commercial building, while Magen David Metro Station, is designated to function as a

museum-station. Thus, Honigmann House can be perceived as the natural continuity of Magen David Metro Station and vice versa.

The design of Magen David metro station as an integration of transit and museum spaces was implemented after an analysis of similar cases. An example for such is a metro station in Rome integrated with ruins from the Roman Empire, showcasing a symbiotic relationship between the two built forms – the ruins remain in their natural place while receiving a cultural recognition by the metro station, which manages to function normally alongside a delicate artifact.

Thanks to the proposed design approach of integrating two functions which are similar by target users yet distinct in character, one of public transit space and the other of public museum space, the project transforms everyday mobility into an opportunity for cultural engagement.

The museum, focusing on promoting the modernist heritage of the city as well as educating on the restoration process of the building, is scattered along the spaces of both Magen David Metro Station and Honigmann House, rather than being centralized into a sole dedicated area. In addition, the museum is characterized by an intense use of digital means such as touch screens, for which a specific user interface has been designed, in the spirit of the digital heritage approach.

Various decisions regarding the integration of the restoration process in the new design of the building, as well as participation of the public in the restoration process, is inspired by a conducted case study analysis of Liebling Haus – an International Style building close to Hongimann House, functioning today as conservation center.

In addition to research study and case-study analysis, the narrative presented in this work, particularly relating to the study of the restoration framework in Tel Aviv and the implementation of participatory approach in practice, is elaborated thanks to the kind contribution of experts in the restoration field.
These experts have kindly shared their knowledge during interviews conducted during August 2024 in Tel Aviv. The interviews were focused on the professional experience of the experts in the restoration field, specifically in the context of Tel Aviv, as well as their perspective on the future of the field, relating to possible integration with public participation, and possible challenges the preservation of local built heritage may face with the emerging need of construction development in the city.

Amongst the interviewees are architects such as Nitza Metzger-Szmuk, a renown conservation architect in Tel Aviv which contributed to the preservation and documentation of the built heritage in the city[7].

[7] MAYAAN HOFFMAN, *Nitza Metzger-Szmuk's discovery of The White City in Tel Aviv-Jaffa*, EMET PRIZE, The Jerusalem Report, April 2018.

An example for her cultural contribution is leading the city's nomination file for UNESCO's world heritage sites list, which was accepted. During the interview, Szmuk have shared from her perspective on the current Israeli restoration framework as well as on the possible future state of the built heritage in the city of Tel Aviv.

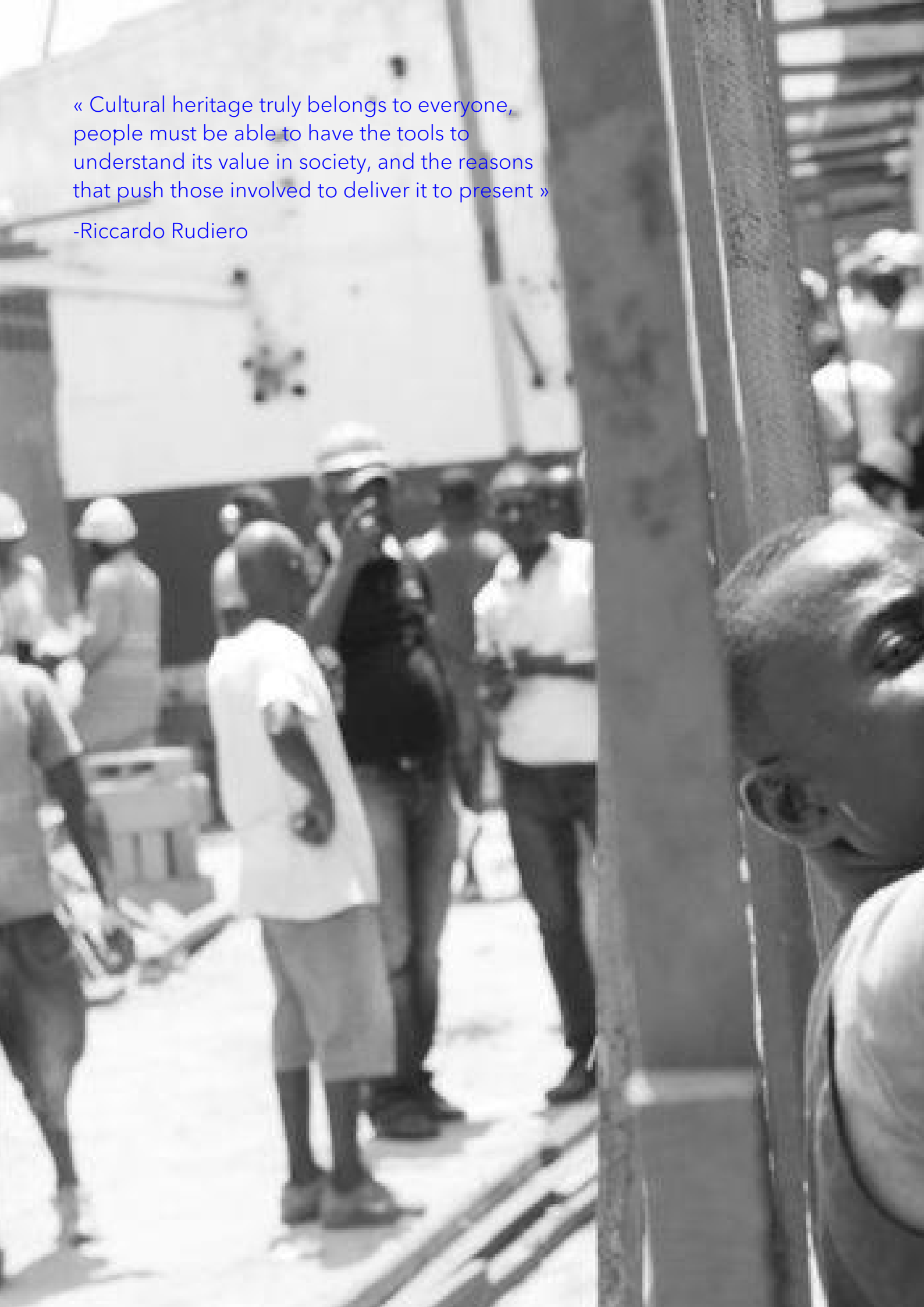
In addition, Yariv Mandel, a conservation architect and owner of an architectural firm in Tel Aviv, which overseed various restoration works throughout Israel, has shared from his experience in the field both from the perspective of engaging with the authorities as well as from the perspective of including the local community in the process.

A key interviewee of this work was Sharon Golan, a conservation architect which is the co-founder and program director of Liebling Haus in Tel Aviv. Golan shared from the experience and key decisions regarding the restoration process of Liebling Haus, to be discussed in the fifth chapter, as she was the leading architect of the Israeli team. In addition, the interview revolved around the role of the building today as the White City Centre as well as how it contributes in present and future to the awareness on cultural heritage in the city. This interview has particularly contributed to the elaboration of the proposed restoration and reuse of Honigmann House, to be discussed in the sixth chapter.

Lastly, From the academic field, Dr. Keren Metrany, a lecturer in the architecture department of Tel Aviv University, in which she is responsible on the teaching of restoration, have shared her perspective on the perception of restoration amongst the architecture students in the city, as well as the various obstacles from the authorities which may pose a risk to the future state of the built heritage in the city.

Source: "Frasta School | Repurposing a Rural School Towards a Community Centre for sustainable building cultures," European Heritage Days.

Chapter 1: Understanding Comprehensive and Participatory Approach for Restoration



« Cultural heritage truly belongs to everyone, people must be able to have the tools to understand its value in society, and the reasons that push those involved to deliver it to present »

-Riccardo Rudiero

Source: "Volunteers working day and night to repair the only public school in West Point, Monrovia," UNMEER.

1. *Understanding Comprehensive and Participatory Approach for Restoration*

1.1 Definition and principles

In recent decades, heritage conservation is subject to new challenges due to the new circumstances shaping the contemporary human civilization, which requires re-examining the traditional conventional arguments for the preservation of architectural heritage. Such circumstances to be considered during conservation include globalization, urbanization human migration, social and technological advancement, and the negative impact of climate change[1]. the restoration discipline has expanded beyond the need of safeguarding monumental sites with national or historical values, to embrace a wider spectrum which includes also social, environmental, and a contemporary perception of cultural values.

The expansion of the definition to what heritage includes, has led to the creation of what can be defined as a comprehensive, or holistic, approach to conservation. The latter applies also to building restoration, which the goal of making it comprehensive is characterized by integrating to it various disciplines to ensure the sustainability of the project before, during, and after the process itself. Hence, the contemporary building restoration aims to be dynamic, through allowing the possibility of the project to include more stakeholders, enhancing the focus on the analysis of the building in its past, present and future states, and highlight the management consideration during the process to ensure the sustainability of the built heritage in the long term.

Since the beginning of the 21st century, UNESCO have been giving more consideration to the need to shift the practice of architectural heritage conservation to adapt it to current criticalities. The latter refers to the urban development characterizing many built environments nowadays, where a conflict is rising between the need to preserve the built heritage and the need to foster development of the area to answer the public needs.

As written in the article *The development of the concept or architectural heritage conservation and its inspiration* by Wen Liang, Yahaya Ahmad and Hazrina Mohidin,

> The conservation of architectural heritage is not only about preserving the historical buildings of the past, but also uniting stakeholder groups, identifying architectural heritage, gaining a collective cultural identity, finding a sense of place and civic pride for residents,

[1] Homaira Fayez, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, Buildings 14, no. 8 (2024): 2566, p.20. https://doi.org/10.3390/buildings14082566.

> allowing everyone to appreciate the cultural values of the city today, and creating a cultural identity for future urban planning through this process[2].

The statement above demonstrates the complexity of the comprehensive approach to restoration, as it broadens its fields involved in the process. Nonetheless, the complexity is needed in the current situation, as claimed above, in which various built heritage is facing risk of demolition in favour for new development, if not adapted adequately.
A turning point for the development of the holistic approach to conservation of the built heritage can be marked firstly with the declaration of Amsterdam (1975) and secondly with Washington Charter (1987), serving as a re-definition of the concept of architectural heritage within its urban context.

The holistic approach puts in its centre they key concept of dynamic perception of heritage conservation, from the assumption that the safeguarding mechanism of architectural heritage develops together with the society.
This means the criticalities of heritage, as defined in charters prior to Washington Charter (such as the conventions of Venice Charter and Athens Charter), are not applicable in the context of the society today, and possibly will be subject to additional changes such as re-definition and re-thinking of its scopes in the future[3].
An evolution in the way professionals view heritage in the 21st century, is the shift in focus form physical structure of heritage itself to the meaning that heritage conveys. Such significance is expressed in questions such as why heritage is valued and why it is preserved, which are applicable to objects of heritage proposed not only by states of certain authorities, but also by individuals or societies.

In the context of the built heritage, a shift of perspective can be noted in recent conventions, considering the conservation of architectural heritage as an essential part of the cultural diversity, which emphasises the importance of culture[4].

A notable document regarding the matter, is the *Recommendations on the Historic Urban Landscape*, highlighting in its content the need to balance between architectural heritage and contemporary need. The document demonstrates, through its recommendations, a comprehensive approach to restoration of the built heritage by stressing the need to

> integrate the whole development of history and culture into each part and area of the conservation, ensure the inheritance and sustainable development of history and culture, treat architectural

[2] WEN LIANG, YAHAYA AHMAD, HAZRINA HAJA BAVAMOHIDIN, *The Development of the Concept of Architectural Heritage Conservation and Its Inspiration*, Built Heritage 7 (2023): 21, cit., p.2. https://doi.org/10.1186/s43238-023-00103-2.
[3] For further information on the Charter, refer to SUSANNA CACCIA GHERARDINI, *The Charter invention. From Athens to Venice: the mythography of monument conservation*, RESTAURO ARCHEOLOGICO: 2, Firenze University Press, 2024, pp.16-23.
[4] WEN LIANG, YAHAYA AHMAD, HAZRINA HAJA BAVAMOHIDIN, *The Development of the Concept of Architectural Heritage Conservation and Its Inspiration*, p.4.

> heritage and urban space as a system, establish identity from the individual to the whole, and strengthen the spirit of the place[5].

It can be deducted from this statement that a possible purpose of a comprehensive approach to architectural conservation is generalising it. In other words, making the architectural heritage not only a concern for a specific built object, but a concern of a culture, whether individual, communal, or national, which this built object is representing. A possible interpretation is that by this conceptual shift, the comprehensive approach is bringing the architectural conservation from the level of the nation to the level of the community.

This claim above is also supported by Homaira Fayez in her article, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, where she affirms:

> cultural heritage is diverse and contextual, meaning that the majority of them do not hold universal values, their values are not intrinsic but relative, and the most sustainable way of heritage conservation is the one carried by the local people[6].

As there is a shift for the perception of heritage from a limited physical definition to broader cultural instances, an additional emerging recognition is for the importance of protecting the intangible heritage, recognized institutionally in the UNESCO's 2003 Convention for the Safeguarding of the Intangible Cultural Heritage[7].

According to UNESCO, Intangible heritage includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts[8].

Possible further research to be undertaken could be on the possible connection between the immaterial intangible heritage and the material architectural heritage. An example for such connection can be a valorization of a tangible built heritage through intangible heritage, demonstrating how the immaterial heritage can be possibly present in a subsequent restoration project of the architectural asset.

Balance, mentioned above, is a key consideration when discussing on making the restoration project to be comprehensive. The concept of heritage conservation is no longer limited to the building but to the entire

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[5] Wen Liang, Yahaya Ahmad, Hazrina Haja Bavamohidin, *The Development of the Concept of Architectural Heritage Conservation and Its Inspiration*, p.5.
[6] Homaira Fayez, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, cit., p.20.
[7] Additionally, the cultural significance of the topic has been discussed in previous charters such as ICOMOS Burra Charter of 1979 and UNESCO Nara Charter of 1994.
[8] UNESCO, *What Is Intangible Cultural Heritage?* Accessed November 11, 2025. https://ich.unesco.org/en/what-is-intangible-heritage-00003.

	Traditional	Current
Definition	Material-based conservation	Conservation of living heritage
Focus	Tangible attributes	Tangible and intangible attributes
Scale	Objects	Including urban context and setting
Status	Material element is immutable	Material element is changeable; the function and culture change continuously

Tab.1 – Evolution from traditional conservation to current conservation. *Source: Illustration by author, information by Wen Liang, Yahaya Ahmad, and Hazrina Haja Bava Mohidin, "The Development of the Concept of Architectural Heritage Conservation and Its Inspiration," Built Heritage 7 (2023): 8, https://doi.org/10.1186/s43238-023-00103-2.*

cultural identity of the are in which the architectural heritage is situated.
This change of concept is demonstrated in the development of architectural heritage conservation to a

specialised science involving architecture, planning, history, archaeology and sociology.
Subsequently, a new main challenge for such comprehensive approach emerges is the balance in the involvement of such disciplines in the restoration project, or in other words, the balance between conservation and development.

Such balance can be viewed as the concept of living heritage, which evolves and adapts according to the development of various disciplines.

The concept of living heritage can be viewed as contradiction to the traditional static definition of it, which favoured a constant definition followed by certain conservation guidelines, for a structured mechanism to be applied in an international level, in the sake of unity and standardisation of the conservation discipline.

As the comprehensive architectural conservation is dynamic and depended on case-specific context of its application, different cities, diverse by their cultural forms, have different approach to the preservation of the built heritage.

Therefore, the article *The development of the concept or architectural heritage conservation and its inspiration*, stresses the importance of the extensive survey as a preliminary step as part of a comprehensive restoration process of a building.

According to the article, the extensive survey, assessing both the heritage values of the subject of restoration as well as the heritage resources in the city, ensures the most efficient conservation by making the conservation project to be integrated with urban development, subsequently making it systemic and strategic[9].

[9] Wen Liang, Yahaya Ahmad, Hazrina Haja Bavamohidin, *The Development of the Concept of Architectural Heritage Conservation and Its Inspiration*, p.7.

In addition, the article mentioned above proves the comprehensive approach is applicable for the conservation of today, by encouraging the study of it from a holistic perspective, grasping the overall characteristics of the spatial system, which proves the architectural heritage to be inseparable from people's lives[10]. Example to such holistic perspective is the integration of the heritage with other disciplines, such as the analysis of the architectural heritage in the fabric of the existing urban space.

Another aspect of comprehensive approach to restoration is the integration of sustainability and the realization that conserving the built heritage stands together with the same goal of sustainability to reduce the negative human footprint on the planet, as for both disciplines share a common goal: minimal intervention in the built fabric.
Giovanni Carbonara elaborates on this integration in his article *'Sustainability' as a New Parameter in Restoration*:

> In the field of conservation, in addition to the usual and rightful requirements to be met [...], other criteria have been considered for some time now including sustainability, energy efficiency and energy saving, reduction of pollution sources, all of which meet the needs of circular economy, which aims at the least possible consumption of materials and energy. This new sensitivity spontaneously approached the fundamental criterion in restoration known as "minimal intervention"[11].

As said, the choice of conservation can mean also re-use and re-purpose of an existing structure instead of demolishing it. Demolishment can create more material waste, as well as emitting more CO_2 to the atmosphere during the production and construction process of the new structure to be constructed instead of a demolished built heritage.

An example for an initiative showcasing the comprehensive approach through the integration of architectural conservation and environmental sustainability is 'HouseEurope! Power to Renovation'[12], an initiative which advocates for the "Right to Reuse".

The European Citizens initiative sets as an objective making renovation and transformation of existing structure more easy, economically sustainable and socially responsible by giving a new value to structures designated for demolition. The initiative goal is to preserve homes and communities, ensure a fairer and more local building industry, save energy and re-sources, as well as preserve memories and stories.

One of the key components of a successful implementation of the comprehensive approach is an

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[10] Wen Liang, Yahaya Ahmad, Hazrina Haja Bavamohidin, *The Development of the Concept of Architectural Heritage Conservation and Its Inspiration*, p.7.
[11] Giovanni Carbonara, *'Sustainability' as a New Parameter in Restoration,* Recupero e Conservazione: Heritage and Sustainability, Green Building Council Italia, 2021, p.100.
[12] European Commission, *Power to Renovation*, European Citizens' Initiative, no. 2025/000001, registered January 21, 2025. Accessed November 11, 2025.

Fig.1 – Temporary installation of 'HouseEurope!' initiative in "Inequalities", the 24th Triennale in Milan. *Source: Photo by the author, August 14, 2025.*

adequate management, as it holds a key role in reaching a meaningful integration of various disciplines to a restoration project of a built heritage.

According to Homaira Fayez, an appropriate management model for a comprehensive conservation is considering the broad socio-environmental practice, demonstrating the key role of local people through limitation of the power of authorities and experts, to become the factor which helps the public achieving their goals and not deciding for their goals[13].
Furthermore, Riccardo Rudiero claims that the connection of the public to cultural heritage should preliminary be founded through the propagation of knowledge, as wrriten in his book *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*:

> knowledge is indeed basic for protection, and the latter cannot be exercised without a genuine awareness on the part of the broader social layer that holds and is responsible for the heritage[14].

The discussion above aims to give a basis for the definition and the understanding of the comprehensive approach in the context of building restoration projects, it can be claimed that architectural heritage adequately recognized and managed, can

[13] HOMAIRA FAYEZ, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, p.20.
[14] RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, Roma: WriteUp, 2024, cit., p.150.

enhance the quality of both individual people and communities, which are vulnerable to climate environmental changes, as well as social, technological and urban changes.

Additionally, such objective should be achieved with the integration of the public through active participation both in the restoration process itself as well as in the accompanied decision-making. Participative approach in the project raises the awareness of the methodology of the process and hence to its importance. Simultaneously, participative approach in the accompanied decision-making process can raise the functionality of the project in the long-term as well as making it less hostile to public often favouring new development due to lack of knowledge on the potential of conservation to their quality of life.

The comprehensive approach integrates not only the present and the future circumstances of the built heritage, but also encourages a profound understanding of its past, an aspect which was considered importance since its roots of development as a discipline in the 19th century. Such an approach can give a new interpretation to the history architectural heritage from the point of view of values and circumstances related to the specific urban context as well as to the community in which the architectural heritage is situated.

In addition to encourage the education and understanding, some research finds the direct connection of an adequate conservation process to the well-being of the community, also in a psychological way.

An example for those perceptions is the doctoral thesis by Daniele Dabbene, *Reuse of architectural heritage, sustainable development, and well-being. New scenarios for restoration (21st century)*, where cultural heritage is discussed as a resource for the sustainable development and the human well-being[15].

In his doctoral thesis, heritage is recognized as having an «intrinsic value» which can determine positive impact on various levels for the benefit of the community, contributing to satisfying the needs of the individual and increasing their well-being. Based on this vision, cultural heritage is increasingly conceived and valued from a processual perspective and is at the centre of multiple disciplinary crossovers that include health, creativity, innovation, environmental sustainability and social cohesion[16].

This approach for conserving the heritage impacts the public also in a psychological way. Recent studies have found the way the environment (also the built one) is shaped influences the psychological well-being of its inhabitants by provoking a sense of distress[17].

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[15] This topic is furtherly analyzed in the book of the same author: DANIELE DABBENE, *Patrimonio architettonico e benessere : nuovi scenari per il restauro nel XXI secolo*, Roma: Writeup books, 2023.
[16] DANIELE DABBENE, *Riuso del patrimonio architettonico, sviluppo sostenibile e benessere: Nuovi scenari per il restauro (XXI secolo)*, PhD diss., Politecnico di Torino, 2023, p.40.
[17] *Ivi*, p.91.

To conclude, the perspectives discussed in this section developed the conservation of heritage in a positive way, while also helping to promote an active dialogue with the public. Nonetheless, the comprehensive approach still faces challenged which can be an obstacle for its implementation in more restoration projects of built heritage around the world.

1.2 Historical context and evolution

The emergence of conservation as a discipline dates to the end of 19th century, when the concept of heritage started to be recognized and developed, and subsequently also guidelines for technical methodologies to ensure the safeguarding of what was considered as an object of significance to be displayed coherently and transmitted to future generations[18].

Since the beginning of 20th centuries, numerous documents, such as Charters, emerged in institutional events such as conventions, with an aim to give a proper definition to heritage and structured guidelines for accepted forms of conservations[19].
Each document demonstrated the spirit of the time in relation to the cultural heritage, characterized by developed definitions which included new forms of recognized heritage, as well as innovative technologies to be introduced to the field of conservation.

During the 20th century, the definition of heritage can be considered objective, according to the regulative internationally recognized documents. Although, recent socio-economical and environmental changes have transformed the definition of heritage to be more subjective, more linked to the conceptual context in which it is in. The common between two distinct periods of heritage definition is the common goal to protect the vulnerable asset, whether tangible or intangible, thanks to an adequate preservation which be achieved through adequate measures such as a comprehensive restoration project in the case of built heritage in the contemporary era.

In the previously mentioned article *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, Homaira Fayez distinguishes the evolution of cultural heritage conceptualization to four main stages[20]:

1. A unique goal to preserve the authenticity and integrity of the material past by experts
2. An additional goal to protect its associated values, with a strong tendency toward conservation of the authentic state of heritage buildings by experts
3. Including in the process the significant socio-economic role of heritage for the community made its conservation a democratic exercise by local people with the help of experts and governments
4. Realizing the environmental benefit of reusing existing resources as well as the integration with the sustainable development of communities through multi-stakeholder engagement in all decision-

[18] For a detailed study of the subject, refer to JUKKA JOKILEHTO, *A History of Architectural Conservation*, Doctoral Thesis, The University of York, September 1986.
[19] For an additional review of the Charters, refer to MARCO DEZZI BARDESCHI, *Storia e Cultura della Tutela: approfondimenti,* Quadrimestraledi cultura, storia e tecniche della conservazione per il Progetto, May 2014, pp.21-57.
[20] HOMAIRA FAYEZ, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, cit., p.1.

making processes (the comprehensive approach).

The development of heritage can be associated with the post-revolutionary Enlightenment rationalism era in the end of the 19th century, as well as with the romanticism movement, which was known by the discovery of aesthetic in ruins in Europe which were left traces of a past built heritage, often from the past Greek and Roman empires[21].

Eugène Emmanuel Viollet-le-Duc (1814-1879) was considered as one of the earliest key figures in the theorisation of restoration, managing many restoration projects from mainly the medieval period of construction. His principles for conservation were based on an approach in which aesthetics of the design were in the top priority, ahead of conserving signs of decay or alterations which were not part of the unique style to which the architect wanted to achieve in the restoration project. A demonstration of his approach can be his addition of new ornamental parts to the building which were not present in time of restoration, with the purpose of achieving a coherent style of the original period of construction[22].

Subsequently, the perception developed towards the end of the 19th century was that restoration means the change of some parts of the building to 'bring it back' to its original state, while anti-restoration was understood as the approach preserving the building in its original design while considering its existing state and historical context. An advocator of the anti-restoration approach was John Ruskin (1819-1900)[23], believing the historical built heritage sites should be minimally intervened and should demonstrate the passage of time through, for instance, preserving several materials degradation such as patina. Ruskin therefore argued that preservation, rather than restoration, was a preferred practice because the latter is equivalent to their destruction[24].

Similar to the approach of John Ruskin was the one presented by its disciple, William Morris (1834-1896), advocating for a deliciated approach which should be reduced for minimum level of interventions. A notable evolvement of the methodology of conservation presented by Morris was his recommendation that if new work was to be done in an old building, it should be in a contemporary style, and all insertions had to be reversible (hence, removed without leaving a trace)[25].

Alois Riegl (1858-1905), considered by some scholars as the father of modern conservation theory, presented a critical shift in the perception of

[21] For a detailed study of the subject, refer to FRANÇOISE CHOAY, *L'allegoria del patrimonio*, Cities and Towns, Officina Edizioni, 1995.
[22] For a detailed study on the architect, refer to EMANUELE ROMEO, *Eugène Emmanuel Viollet-le-Duc: contributi per una rilettura degli scritti e delle opere (1814-2014),* Rome: Writeup books, 2019.
[23] For a detailed study on the theorist, refer to SERENA PESENTI, *Il pensiero di Ruskin nella storia del restauro architettonico: quale eredità per il XXI secolo?* RESTAURO ARCHEOLOGICO: 1, Firenze University Press, 2019, pp.114-121.
[24] HOMAIRA FAYEZ, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, p.5.
[25] *Ivi*, p.6.

heritage. Reigl believed that each monument 'possesses' different abstract values that are part of its identity as an object to be commemorated and subsequently preserved by the society[26].
His theory, specifically the attribution of values to monuments and the distinction between what those values transmit, can be seen as a basis for the modern conservation theory elaborated and developed through various Charters discussed previously.

The 20th century can be marked with the re-definition of heritage and conservation as more of a thinking process rather than scientific.

A milestone for the development of conservation was the establishment for international institutions such as UNESCO, ICOMOS and ICCROM, for the promotion, regulation and theorization of the cultural heritage. One of the key contributions of international organizations was the formation of Charters, as mentioned before, to function as key documents guiding the professional field on the definitions and methodologies evolving in the disciplines according to the fast-developing society.

The first notable document discussing preservation as a scientific discipline, presented in the beginning of this chapter, is Athens Charter in 1931, elaborated as part of The First International Congress of Architects and Technicians of Historic Monuments, held in the city from which the charter's name is driven[27].

A specific development of the theorization of heritage presented in Athens Charter was its recommendation on the use of all the resources at the disposal of modern technique, especially of reinforced concrete[28]. Nonetheless, the charter stated the importance of preserving the aspect and character of the restored monument.

In 1964, Venice Charter redefined the concept of historic monument as:

> Not only the single architectural work but also the urban or rural setting in which is found the evidence of a particular civilization, a significant development or a historic event. This applies not only to great works of art but also to more modest works of the past which have acquired cultural significance with the passing of time[29].

In addition, Venice Charter contradicts Viollet le-Duc's approach on aesthetical unity in restoration works, through elimination of past additions to the built heritage to achieve the architectural style building's original

[26] For a detailed study on the historian, refer to SANDRO SCARROCCHIA, *Oltre la storia dell'arte. Alois Riegl, protagonista della cultura Viennese*, Marinotti, 2006.
[27] For further information on the Charter, refer to SUSANNA CACCIA GHERARDINI, *The Charter invention. From Athens to Venice: the mythography of monument conservation*, RESTAURO ARCHEOLOGICO: 2, Firenze University Press, 2024, pp.16-23.
[28] ICOMOS, *The Athens Charter for the Restoration of Historic Monuments*, 1931. Accessed November 14, 2025. https://upa-bua-arch.be/en/profession/le-cadre-professionnel-des-architectes/athens-charter-1931.
[29] INTERNATIONAL COUNCIL ON MONUMENTS AND SITES (ICOMOS), *The Venice Charter for the Conservation and Restoration of Monuments and Sites*, 1964, cit., art.1. Accessed November 14, 2025. https://www.icomos.org/en/167-the-venice-charter-for-the-conservation-and-restoration-of-monuments-and-sites.

state. Instead, the charter demands that the valid contributions of all periods to the building of a monument must be respected, since unity of style is not the aim of a restoration[30].

The Burra Charter, drafted by Australia ICOMOS in 1979, can be marked as the beginning of the evolution of the comprehensive approach to the conservation discipline, by giving a social dimension through expanding definitions of several key terms. It can be deducted from the charter that:

> the concept of "significance" demonstrates the value that people assign to the heritage; "place" includes not only the physical fabric of a monument or site but also embraces the setting, use, and intellectual properties pertaining to it instead of "monuments and sites", which looks only to the physical characteristics of heritage[31].

A support to this narrative is presented in the Nara Document on Authenticity drafted in Japan in 1994, as part of the imitative of international organization to include non-Western point of views on cultural heritage. The document's intention was to legitimize intangible cultural tradition and marked the transition from a belief in universal international absolutes to a relative and contextual judgment of heritage assets[32]. In other words, the document transmitted the focus from the physical history to the comprehensive understanding of cultural heritage, whether physical or not, giving more attention to the specific cultural context. It can be claimed that Nara Document has formed the basis to the comprehensive approach to conservation to be developed intensively in the following decade to the elaboration period of this document.

Followed by statements such as ones presented in Nara Document, the 21st was characterized by the including in the definition of cultural heritage also intangible forms of heritage such as traditions, languages, music, and other social components, accompanied by a general centralization of heritage as an asset of communities and not only nations. Along with the expansion on the definition of heritage to non-physical assets, the 21st century was characterized by the discussion on how the sustainable development (both technological and holistic) can be integrated into cultural heritage. For this need, Budapest Declaration on World Heritage was drafted, highlighting the need to ensure an appropriate balance between three components of the comprehensive approach presented in this chapter: conservation, sustainability and development, from the aim of improving, through this balance and appropriate activities, the quality of life in various communities.

It should be noted that sustainability in this context of Budapest Declaration has a double meaning, as presented previously in the chapter. First, as promoting conservation through the reasoning that re-use of the same

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[30] ICOMOS, *The Venice Charter for the Conservation and Restoration of Monuments and Sites*, art.11.
[31] Homaira Fayez, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, p.11.
[32] *Ibid.*

structure through adaptations assist more to the environment rather than demolishing and re-constructing. Second, as promoting conservation through the reasoning that it can obtain, in addition to the preserved historical value, an economical value which will remain for the long-term, potentially enriching tourism and, through an adequate design and management, create more jobs.

In the 21st century, culture heritage, with its comprehensive aim, is leaning towards its integration with information technology. The current digital tools may help to the experts with the process through its various phases such as site documentation, analysis and management. Examples of such tools may be Building Information Modelling (BIM), photogrammetry and Virtual Reality, to be furtherly discussed in the fourth chapter of this work.

UNESCO Charter on the Preservation of Digital Heritage of 2003, discussing not only the definition and potential views of it, but also indicates the importance of safeguarding it with caution, similar to the way physical objects of heritage are being preserved. The charter stresses that:

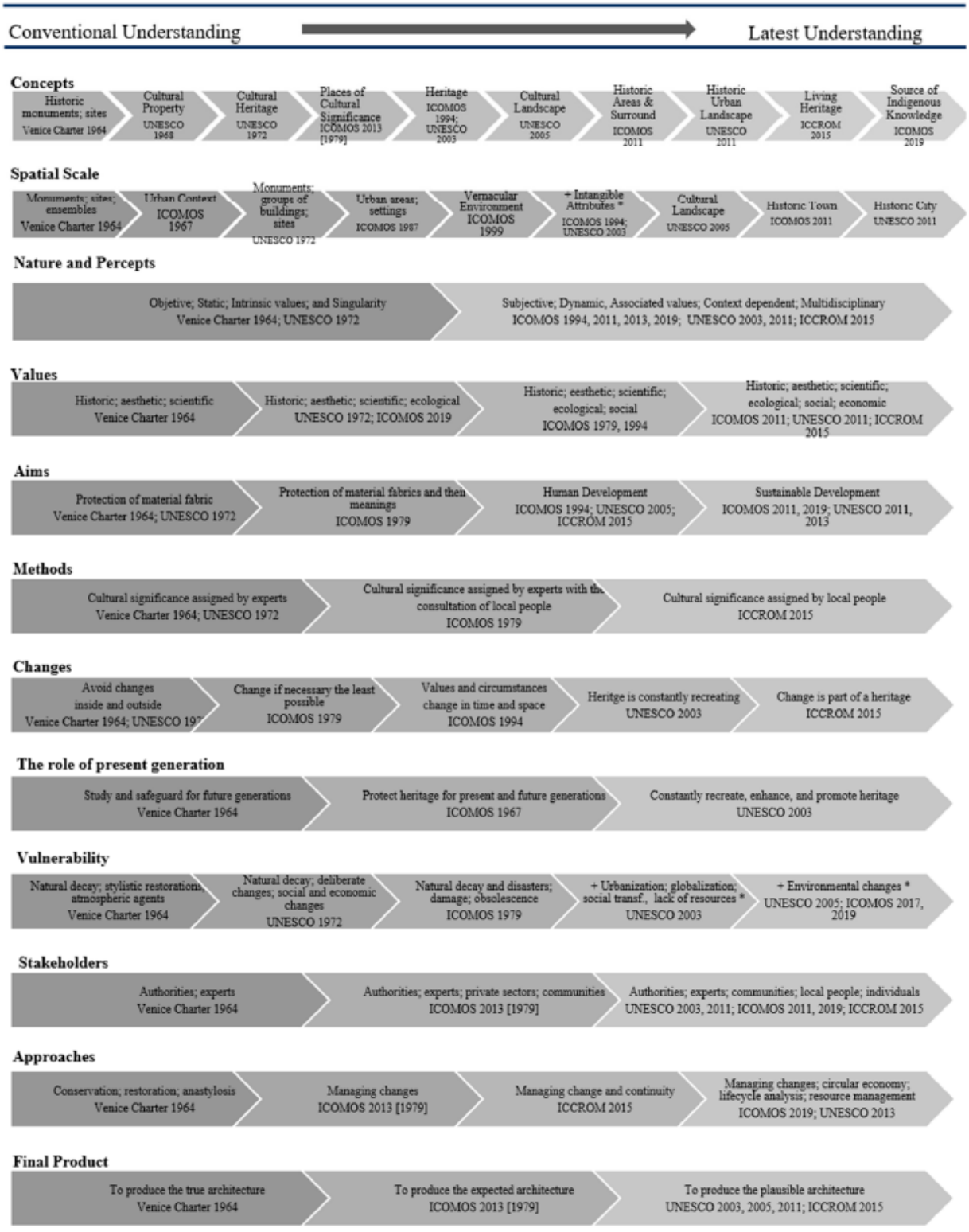
> Unless the prevailing threats are addressed, the loss of the digital heritage will be rapid and inevitable. Member States will benefit by encouraging legal, economic and technical measures to safeguard the heritage. Awareness-raising and advocacy is urgent, alerting policymakers and sensitizing the general public to both the potential of the digital media and the practicalities of preservation[33].

The Valletta Principles, adopted in 2010 by ICOMOS CIVVIH (International Committee on Historic Cities and Villages) specify more the need of adapting the conservation discipline to the contemporary era from the social and urban perspective, by demanding

> an international framework to redefine and further develop the objectives, skills, tools and roles into a comprehensive and systematic management plan for heritage protection which at the same time responds to needs of contemporary life[34].

[33] UNESCO, *Charter on the Preservation of the Digital Heritage*, 2003, cit., art.4. Accessed November 14, 2025. https://unesdoc.unesco.org/ark:/48223/pf0000179529.

[34] Homaira Fayez, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, cit., p.12.



Tab.2 – The process and the different aspects of the evolution of architectural heritage conservation from its seminal understandings to the latest interpretations. *Source: Homaira Fayez, "From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice," Buildings 14, no. 8 (2024): 19, https://doi.org/10.3390/buildings14082566.*

In the same period, the international debate has focused on Adaptive Reuse, which can be viewed as a practice successfully implementing the principles of comprehensive restoration that can be applicable in some cases of built heritage, where the values and importance of the site can allow architectural alterations to some extent.

Adaptive Reuse, as described by Matteo Robiglio in his report *The Adaptive Reuse Toolkit: How Cities Can Turn their Industrial Legacy into Infrastructure for Innovation and Growth*, refers to a process, starting in the late 20th century, in which communities in the United States and Europe took advantage of the cheap availability of large, free unused spaces for underground or marginal activities, sometimes by simply squatting in abandoned industrial buildings[35].

Furthermore, according to the article *The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse* by Elena Guidetti and of the previously mentioned author Robiglio, adaptive reuse is a discourse which underlines the untapped potential in existing buildings as an unstated value waiting to be released[36].

It can be claimed that the practice of adaptive reuse, a dominating notion in the discussion of architectural conservation already in present time, can be a strategy for conservation in the near future, as it can be lead for interesting new cycles of various built heritage. Nonetheless, it must be understood that adaptive reuse is not restoration in the strict sense, as its purpose is focused not on the conservation of the building but on its functional use.

However, the adaptive reuse is sharing similar principles to the comprehensive restoration approach presented in this chapter.
For instance, both notions integrate promoting environmental sustainability through a re-use of an existing structure and most of the materials composing it, instead of demolishing and subsequently creating a waste of materials and more energy consumption as well as emissions resulting from a new construction.
In addition, adaptive reuse is fostering economic development, a necessity of society in conservation projects in the contemporary era. It may achieve this objective through inserting commercial functions into the new design of the structure.

As presented before, cultural heritage was initially analyzed and defined from as objective as possible point of view, where a certain authority decides on a heritage site as an asset to be preserved thanks to its architectural, aesthetic, historical or similar other commemorative values.
Then, it was discussed in this chapter the evolution of the cultural heritage to be more subjective, by including heritage assets such as those who are

[35] Matteo Robiglio, *The Adaptive Reuse Toolkit: How Cities Can Turn Their Industrial Legacy into Infrastructure for Innovation and Growth*, Washington, DC: The German Marshall Fund of the United States, 2016, p.3.
[36] Elena Guidetti, Matteo Robiglio, *The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse*, Sustainability 13, no. 10 (2021), p.2. https://doi.org/10.3390/su13105660.

commemorated by specific communities, regardless of their level of importance at a national, historical, or aesthetic level.

Adaptive reuse is strongly demonstrating this approach. This practice is usually displayed by projects where the site of heritage is a neglected or degraded structure, not viewed as a site which possesses a certain important value by the management authority in charge of preservation in the context in which the structure is situated.
Subsequently, a group of common individuals or experts may demonstrate that the structure holds a particular potential to improve the quality of life in the community, which triggers the process called adaptive reuse.

Often, the adaptive reuse project will begin with an adequate restoration to the structure, followed by a new spatial functionalization of the internal space to make it profitable and fruitful for the community which will potentially use it in the long-term. Occasionally, the adaptive reuse project will integrate a new volumetric design to be integrated into the existing site, under the principle communicated already in the beginning of 20th century, requiring the intervention to be designed in a contemporary architectural style distinguishable from the original structure.

As adaptive reuse is strongly related to the context in which the project site is situated at, the integration between the heritage site and the urban context around it is a protagonist of such processes.

Such an example may be the case of "The Soft Construction of Can Sau Emergency Scenario" as presented more profoundly in the cited article of Guidetti and Robiglio.
The Cau Sau emergency scenario is an adaptive reuse project realized in the historic center of Olot, a small town in the Catalan region of Spain. In 2018, the architectural firm "unparelld'arquitectes" designed the project to convert a partial wall and four stepped buttresses that faced the site façade of the central city church into an urban stage[37]. As figure 2 shows, Olot's municipality demolished a part of the building in this area, because it was crumbling and not aligned with the urban block[38]. During the process, three vaults and four niches were built as a "scenographic support to urban life". The project guarantees to preserve the existing wall and introduced permeable façade to accommodate multiple functions. According to the architects, this project aims to conserve Olot's different traces, preserve the sign of domestic activities on the existing wall, and fill ana abandoned area.

This project may show how comprehensive conservation is continuously evolving towards the focus on the subjective individual inside a community.

[37] Elena Guidetti, Matteo Robiglio, *The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse*, p.8.
[38] *Ibid.*

Fig.2 – Can Sau, situation after the demolition, 2017. *Source: Elena Guidetti and Matteo Robiglio, "The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse," Sustainability 13, no. 10 (2021): 8, https://doi.org/10.3390/su13105660*

Fig.3 – Can Sau, situation after the adaptive reuse project, 2020. *Source: Elena Guidetti and Matteo Robiglio, "The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse," Sustainability 13, no. 10 (2021): 8, https://doi.org/10.3390/su13105660*

1.3 Challenges in the traditional restoration process

The urban sprawl and accelerated development of the built area may function a threat to the preservation of various built heritage, often still not recognizable, around the world.

In 2011, UNESCO adopted the *Recommendation on the Historic Urban Landscape*, which addresses the negative impact of modern urban development on heritage conservation. According to authors of the article *The development of the concept of architectural heritage conservation and its inspiration*, the recommendation mentioned above argues that rigid and dogmatic conservation strategies need to be adapted to a city's social context and economic environment, so history and development would not be opposites but rather mutually beneficial[39].

An additional threat to cultural heritage is the climate change[40]. Homaira Fayez shared her perspective on this criticality in her article:

> There is an urgent need to consolidate the problem of climate change into the cultural heritage debate. Current climate crises affect every aspect of life, and cultural heritage is not sheltered from adverse impacts. Cultural heritage is an element of a large multiplayer environment, and it thrives and degrades with its health; thus, its conservation is not an 'end in itself' anymore... Therefore, heritage conservation must reach beyond their traditional ways of conservation to engage with climate change as a baseline, along with cultural significance, for the competency of heritage management[41].

Since the end of the 19th century, traditional restoration approaches have focused on a stabilized conservation through expert-driven methods, further standardized through various international documents. This model has produced important achievements in the safeguarding of many built heritage cases, that without the adequate theorization of the field, perhaps would lose its heritage values or would face a destiny of demolition.

On the other hand, the standardized model of cultural heritage can be an obstacle in the contemporary era.

Nowadays, the perception of cultural heritage can be characterized by the shift towards a comprehensive and participatory conservation approach, which is much more case-specific

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[39] WEN LIANG, YAHAYA AHMAD, HAZRINA HAJA BAVAMOHIDIN, *The Development of the Concept of Architectural Heritage Conservation and Its Inspiration*, p.1.

[40] For further analysis on the subject, refer to ISABELLA ZAMBONI, *Patrimonio costruito e cambiamenti climatici. Stato dell'arte, prospettive e competenze multidisciplinari,* Archeologia dell'Architettura XXVIII.2, 2023, pp. 7-18, doi: 10.36153/aa28.2.2023.01.

[41] HOMAIRA FAYEZ, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, cit., p.21.

dynamic, as it depends more on the community context of the heritage asset, various other fields which were not considered strongly related to conservation in its theory development during the 20th century (such as information technology, environmental sustainability and economics), and integrating a larger number of stakeholders which were not necessarily considered in the methodology of the past century.

Historically, the process of restoration was dominated by architects, engineers, and conservation specialists who focused mainly on the physical material fabric of the built heritage. Implementation of this approach in a restoration project can risk, in the glance of the contemporary comprehensive notion, a disconnection of the built heritage from their social, urban and cultural contexts.

The domination of experts in the built heritage restoration process have resulted in a decision-making based mainly on technical considerations (such as the stability of the structure, treatment of its materials, and a coherency of the architectural style), without taking into account other intangible values that the heritage asset may possess.

The lack of interdisciplinary perspective in the restoration process has risked a restoration result where the building potentiality is not fully fulfilled and it is showing only a narrower set of physical values it holds, instead of showing more values correlated to the community it is part of.

An additional challenge of the traditional approach is the lack of engagement with the public, a possible result of not considering the society as a stakeholder meaningful to the process.

The traditional framework usually operated under top-down paradigm, where professional experts (at the top) acted as the unquestioned authority in charge of delivering the product to the society (at the bottom). This exclusion may possibly lead to the lack of public support to conservation initiatives, as not being integrated in the process have possibly left them with a lack of interest of making an effort for their protection (such as long-term maintenance), resulting with a threat to transmittance of the values incorporated in the built heritage to the future generations.

The rigidity of the traditional conservation doctrine has also imposed a challenge for adapting the restoration projects to the needs of the contemporary era. As discussed before, a current notion of cultural heritage constantly evolving is the adaptive reuse practice. Principles from the last decade, favouring a minimal intervention due to a high respect of material integrity and authenticity, are highly justified, but in the reality of today, may impose a challenge if not adapted to ensure the built heritage sustainability in the long-term through a reuse design.

The challenge presented above may be also expressed through the obstacle of economic and administrative constrains.

Due to the high attention of traditional doctrine to specialized skills, costly authentic materials and profound long processes to ensure a high-quality restoration project, there is a risk that the authority in charge of funding such projects (such as local municipalities) would prefer to not favour preservation of cultural heritage.

Further research on how to balance the need of a successfully authentic restoration project which will answer economical needs of the stakeholders should be conducted, where adaptive reuse may be a possible solution to such challenge.

To conclude, the strict doctrinal principles of traditional restoration, characterized by a relatively high attachment to hierarchal professional structures and integrity of the material, lead to successfully preserve the built heritage facing various risks in the previous decade, such as the post world wars reconstruction. Nonetheless, this traditional strategy may be less applicable in the context of the contemporary era, as the preservation of built heritage deals with different threats, such as the lack of public support to its protection rather of demolition for the favour of new development.

A possible solution to such challenges presented in this chapter is the comprehensive approach, which integrates various disciplines, also from fields less commonly viewed as strongly related to architecture, into the restoration project.

A strategy included in the comprehensive approach as well as in the adaptive reuse practice is engagement with the public, achievable both during the process and after the built heritage is re-opened.

The participatory approach applied in building restoration can contribute on making the built heritage more relevant to the public, possibly leading to more preservation initiatives and fundings programs in the future.

This integration, to be further discussed in the next pages, is a topic which is narrowed to practical activities being part of conservation initiatives. Nonetheless, the contemporary discussion on how to successfully integrate the community to heritage can be generalized to broader meanings on the transmission of knowledge and values. This dilemma occupies also the discussion presented in the book *Comunità patrimoniali tra memoria e identità: conoscenza, conservazione e valorizzazione nelle Valli valdesi* by Riccardo Rudiero:

> If the heritage is potentially attributable to every human artefact since it could condense its memory, what is its actual role in the population's recognition and consequent conservation as an expression of identity?[42]

[42] Riccardo Rudiero, *Comunità patrimoniali tra memoria e identità: conoscenza, conservazione e valorizzazione nelle Valli valdesi*, Perosa Argentina: LAReditore, 2020, cit., p.38.

1.4 Benefits of a participatory approach

The traditional restoration approach, as addressed beforehand, needs to adapt to the contemporary era. Various challenges threaten it to become a non favourable practice by the public and decisionmakers in the not far future.

One of the reasoning for such threat is the "top down" strategy viewing the public as the receiver of a restoration work and not an active member of it.

A supporting voice to the presented claim can be found in the article, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, where Homaira Fayez stresses:

> Conceptual approaches such as the 'preservation of heritage for future generations, that reduce the role of the present generation to sole 'custodians or caretakers of that heritage, is not enough to promote sustainability in heritage building stocks. It maintains the physical fabric authenticity and integrity of the heritage architecture, but it excludes the right of the present generation to use and enjoy their loved assets. This approach cannot always trigger the will and benefit of the current people who own and use those heritage buildings. In the end, this may lead to heritage obsolescence, which is a socio-cultural, environmental and economic loss. Hence, we need to perceive and approach architectural heritage as an asset that belongs to everyone, to present and the future[43].

The criticality of the public systematic disintegration from the restoration process is also applicable in the archeological discipline, as presented by Riccardo Rudiero in his book, *The ongoing valorisation of heritage in ruins: reflections and experiences, between multimedia and construction sites*. In this case, the author claims that:

> One of the most glaring problems affecting the conservation of archaeological heritage is the lack of effective and direct communication [...] A further difficulty is the inclusion of local populations in conservation strategies, who very often, passively endures invasive construction sites and experiences the vaporization of cultural heritage almost as an obstacle, rather than a benefit"[44].

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[43] HOMAIRA FAYEZ, *From 'Objects' to 'Sustainable Development': The Evolution of Architectural Heritage Conservation in Theory and Practice*, cit., p.21.

[44] RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, Roma: WriteUp, 2024, cit., p.129.

A suggested solution to this criticality can be the promotion of the participatory approach, advocating for an active engagement of the public in the restoration process. This objective may be achieved through its integration in the decision-making process, open attendance to the site of restoration during the process, conductance of activities which gives the public an opportunity to assist and learn on the restoration process, and a continuing public involvement in the management of the site also after the restoration project is complete.

In the book previously mentioned, the author suggests several possibilities for engaging the public with the restoration project, in particular with the heritage site during the restoration process, for a comprehensive experience showing the visitor the complexity of delivering a conserved product to the society.
One possibility may be "Laboratory" kind of events, such as summer schools or workshops, designated for university students and led by professionals, teaching staff and qualified craftsmen. In this way, students would be involved in a process aimed addressing all phases of the project. This could be integrated with multimedia tools (videos, virtual reconstructions etc.), used during the events to recall the history of the place, all to serve the aim of engaging the younger generation[45].

This practice may be implemented not only among students of the younger generation but also among public from all ages and occupations. An example for such kind of participative restoration initiative is the transformative project of Frasta School in Epirus, Greece, organized by Boulouki - Itinerant Workshop on Traditional Building Techniques. As described by the 2018 initiative of European Heritage Days (EHD), the program which the project took part of:

Fig.4-5 – Photographs from the restoration process of "Frasta School" in Epirus, Greece. *Source: European Heritage Days, "Frasta School: Repurposing a Rural School Towards a Community Centre for Sustainable Building Cultures," European Heritage Days, accessed November 15, 2025, https://www.europeanheritagedays.com/Story/Frasta-School-Repurposing-a-Rural-School-Towards-a-Community-Centre-for-sustainable-building-cultures.*

[45] RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, p.125.

> Frasta School initiative is a transformative project aimed at revitalizing a former primary school into a vibrant community hub focused on sustainable building practices, heritage preservation, and innovative learning. Through a participatory approach, the school is being restored using traditional and sustainable techniques that engage not only the local community but also a wider audience, in hands-on training and skill-building workshops[46].

The cases mentioned above demonstrate the model of "educational construction site" or "open construction site", where the management of the project decides to integrate the public directly during the process of restoration through letting it enter inside the construction site with the guidance and supervision of a staff member.

This model was implemented as well in restoration projects of higher scale, such as 'Palazzo Madama' in Turin. In this palace, guided visits to the wide public were conducted through the elevator, intentionally designated to the restoration workers, which allowed the visitors to observe the ongoing interventions for the restoration of the marble decorations and the structural consolidation[47].

In addition, the practice of "open construction site" was implemented in the case study of "Liebling House", a modernist heritage restoration project to be further described in the fifth chapter.

The participatory approach holds an advantage of raising the interest of the public with cultural heritage, which helps in advocating the importance of its protection, subsequently promoting more preservations initiatives and fundings.

In addition, the participatory approach affirms the cultural heritage contemporary needs as expressed by various international organizations. An example for such affirmation can be linked to Faro Convention of 2005.
The Faro Convention states that cultural heritage mya be defined not necessarily by the nation but also by small communities, who believe this object of heritage, whether tangible or not, is transmitting values worthy of preservation for future generations.

Hence, the participatory approach can be viewed as a direct positive response to a general shift in the perception of cultural heritage, moving the focus to the local level of individual communities.

This linkage is also presented by Rudiero in his book, as he claims:

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[46] United Nations, European Heritage Days, *Frasta School: Repurposing a Rural School Towards a Community Centre for Sustainable Building Cultures*, European Heritage Days. Cit., Accessed November 16, 2025. https://www.europeanheritagedays.com/Story/Frasta%20School-Repurposing-a%20Rural%20School-Towards-a%20Community%20Centre-for-sustainable-building%20cultures.

[47] *Apre il grande cantiere di restauro di Palazzo Madama finanziato da Fondazione CRT,* Fondanzione CRT, accessed 19 November. https://www.fondazionecrt.it/palazzo-madama-apertura-cantiere-2022/

> The perspective from which cultural heritage is understood in the millennium is […] the fruit of a progressive alignment between cultural and social needs. This has led to an intensification of experimentation with new forms of conservation. These are obviously aimed at direct participation by citizens, since it is clear that heritage impacts the existence of each individual only if it is part of their daily lives and if they can derive benefit from it whether direct or indirect, physical or spiritual, cultural or economic"[48].

As claimed, participatory restoration can be viewed as a trigger for a direct connection between the public and cultural heritage. In other words, engagement with the public through activities can be used as a tool for people who want to promote preservation of a certain heritage asset.

Such strategy was used by The Property Department of the Riga (capital city of Lithuania) Municipality. In that case, the authority which wishes to promote the safeguarding of existing cultural heritage invited the owners of historic buildings in Riga to apply for free practical training, where they learned how to restore wooden window sashes under the guidance of craftsmen and restoration experts.

Fig.6 – Residents participating in wooden window sashes restoration workshop organized by Riga Municipality. *Source: Rīga City Council, "Owners of Historic Buildings in Riga Are Invited to Learn Wooden Window Restoration," Riga.lv, April 3, 2025, accessed November 16, 2025, https://www.riga.lv/en/article/owners-historic-buildings-riga-are-invited-learn-wooden-window-restoration?utm_source=https%3A%2F%2Fwww.google.com%2F.*

[48] RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, Roma: WriteUp, 2024, cit., p.73.

Through this initiative, the local government aimed to raise awareness of the cultural heritage of building owners and to give them the opportunity to participate in the restoration and preservation of the authentic values of their property under the guidance of master craftsmen and restoration experts[49].

This example can be viewed as an indicator of the benefit both the community and the local authority can gain from implementing the participatory approach in cultural heritage. In this case, where the residents did not have an initial understanding of the importance of heritage values which their built asset possesses, and got exposed to it through the activity offered by the local authority.

Another example of a successful implementation of participatory approach is the case of the public school in West Point, Monrovia (capital city of Liberia in west Africa). In this case, West Point residents have been landing a hand in repairing the Nathaniel Varney Massaquoi School, the only public school in the overpopulated township. Both skilled and unskilled volunteers have been working in shifts to ensure that the school renovations are completed by the start of the academic year. In addition, the Armed Forces of Liberia (AFL) offered to help in the roofing of the school and has sent 30 engineers to help accomplish the task[50].

This case may be analyzed differently from the previous example of Riga wood restoration workshop, as

Fig.7 - Residents participating in renovation of a public school in Monrovia, Liberia. *Source: UN, "Volunteers Working Day and Night to Repair the Only Public School in West Point, Monrovia," Global Ebola Response, April 15, 2015, accessed November 16, 2025, https://ebolaresponse.un.org/volunteers-working-day-and-night-repair-only-public-school-west-point-monrovia.*

[49] RĪGA CITY COUNCIL, *Owners of Historic Buildings in Riga Are Invited to Learn Wooden Window Restoration*, Riga.lv. Accessed November 16, 2025. https://www.riga.lv/en/article/owners-historic-buildings-riga-are-invited-learn-wooden-window-restoration?utm_source=https%3A%2F%2Fwww.google.com%2F.
[50] UNITED NATIONS, *Volunteers Working Day and Night to Repair the Only Public School in West Point, Monrovia*, Global Ebola Response. Accessed November 16, 2025. https://ebolaresponse.un.org/volunteers-working-day-and-night-repair-only-public-school-west-point-monrovia.

contrary to the municipal initiative, the renovation of the Liberian school is an initiative organized by the residents themselves, which later evolved to become a cooperation between the community and the authorities.

It may indicate that the interest in cultural heritage not always needs to be "triggered" by public participation, but in some cases, especially when there is an emerged necessity, is already existing amongst the public, but just needs to be structured and organized accordingly.

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Source: Bar-Orian Architects

Chapter 2:
The White City of Tel Aviv

« I am working on architecture as a language, and I think you have to have a grammar in order to have a language »

- Ludwig Mies van der Rohe

Source: Noyman, A. Power Structures: The Urban Form of Regulation

2. *The White City of Tel Aviv*

2.1 HISTORICAL OVERVIEW OF THE WHITE CITY

Tel Aviv is a the second-largest city (after Jerusalem) of Israel, located in its central district. Recognized as the first modern Jewish city in the country, functioning today as the cultural and economical centre of the country. Its establishment in 1909 marked a pivotal moment in the history of Jewish settlement in Palestine, a time when the region was under Ottoman rule. Initially founded as a neighbourhood called “Ahuzat Bayit” (meaning "House of the Estate"), Tel Aviv was born out of the need to address the overcrowding experienced by the Jewish community in the adjacent city of Jaffa. This movement was driven by a growing population of Jewish immigrants seeking to escape the difficult living conditions and social tensions in mixed-religion cities in Palestine.

The founding families, comprised primarily of Jews from Jaffa, made a decision to purchase land on the outskirts of the city, financing it partly themselves and partly by the Jewish Agency[1]. This act was not just a practical solution to overcrowding; it symbolized a desire for self-determination and community cohesion. The establishment of Tel Aviv was part of a larger trend among Jewish settlers, who aimed to create distinct neighbourhoods characterized by a fully Jewish population, fostering a sense of identity and belonging. This initiative represented a significant shift towards building a modern urban environment that reflected their cultural values and aspirations.

The establishment of Tel Aviv in the early 20th century led to the implementation of a modernist approach in city planning right from its inception. This approach aimed to create a model of social life based on the concept of a "garden city," emphasizing hygiene and public health. The founders envisioned a thriving urban environment that would foster community living while addressing the challenges of overcrowding faced by the Jewish population in nearby Jaffa. This focus on modernity and health was a response to the needs of a rapidly growing city, reflecting the aspirations of its residents for a better quality of life.

A key feature of early Tel Aviv was the prohibition of commercial functions in public spaces, which was designed to maintain a socialist ambiance within the city. This policy reflected the founders’ desire to create an environment where community life could flourish without the distractions of commercialism. By prioritizing residential areas and communal spaces, the city aimed to create a unique atmosphere that distinguished it from other urban centres in the region, reinforcing its identity as a modern Jewish city.

[1] Yodan Rofé, *La città bianca di Tel Aviv: Identificazione e conservazione del moderno come risultato del dibattito urbanistico attuale*, Urbanistica 136 (2008), p.98.

Architecturally, the unique style that characterized Tel Aviv during its first decades was the eclectic style, which incorporated neoclassical elements alongside Islamic architectural features. This blend of styles was not only aesthetically pleasing but also suited the local Mediterranean climate, allowing for better ventilation and cooling in the warm months. The eclectic architecture reflected the diverse influences of the local culture together with the culture which the new residents brought from other countries.

The settlement was characterized by low-level houses, wide roads, and large public spaces. The main path, Rothschild Boulevard, remains the most vibrant and touristic leisure boulevard also today, showcasing various architectural phases that illustrate the city's evolution. This boulevard is not only functional for crossing through the city centre but also a social hub where residents gather, when having many clubs, bars, and restaurant in each of its sides. The planning of these public spaces was intentional, aimed at encouraging social interactions among residents while promoting a sense of belonging. A year after its creation, Ahuzat-Bayit changed its name to Tel Aviv, reflecting its aspirations to become a modern city. The name "Tel Aviv" which means "the hill of spring"[2] in Hebrew, was seen as more suitable than "Bayit," which simply means

Fig.1 - Rothschild Boulevard in 1914. *Source: T. Alon-Mozes, "Rural Ethos and Urban Development: The Emergence of the First Hebrew Town in Modern Palestine," Planning Perspectives 26, no. 2 (2011): 287, http://dx.doi.org/10.1080/02665433.2011.550449.*

[2] TAL ALON-MOZES, *Rural Ethos and Urban Development: The Emergence of the First Hebrew Town in Modern Palestine*, Planning Perspectives 26, no. 2 (2011), cit., p.287. http://dx.doi.org/10.1080/02665433.2011.550449.

"house" in Hebrew. This name change signified a shift towards embracing a broader urban identity and the historical depth that the new city aimed to represent.

The earliest documentation of the name Tel Aviv, which was eventually given to the established city, is in the Jewish Bible[3], indicating a settlement in the intersection between the sea and the river (the intention is to Yarkon River).
Later on, the name was reused in the book *Altneuland: An ancient-new land* by Binyamin Ze'ev Hertzel, a key figure in the Zionist movement, as the name to be given to the first city where Hebrew will be spoken. When the first assemble of the city gathered, one of its members, Nahum Sokolow, proposed the use of this name in relation to the book. In addition, Sokolow has reasoned the use of this name for the emerging city as 'Tel' means an ancient ruin and 'Aviv' means blossom, attributing to the city the metaphor of a combination between old and new[4].

The population of the neighbourhood gradually increased as more Jews chose to establish a life in the region in the spirit of the Zionism, characterized by Hebrew as the dominant language in the settlement, rather than the previously commonly spoken Yiddish[5].

By 1918, following the conclusion of First World War, the area became a British mandate known as Palestine.

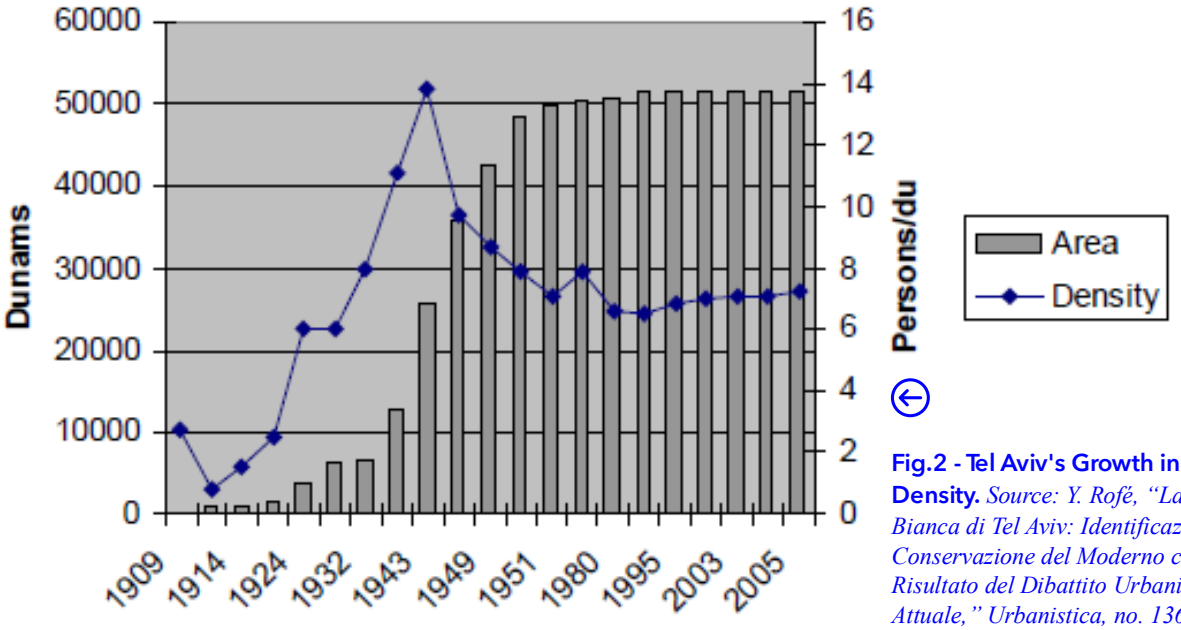

Fig.2 - Tel Aviv's Growth in Size and Density. *Source: Y. Rofé, "La Città Bianca di Tel Aviv: Identificazione e Conservazione del Moderno come Risultato del Dibattito Urbanistico Attuale," Urbanistica, no. 136 (2008): 98.*

[3] *Hebrew bible*, Book of Ezekiel, chapter 3, verse 15, « And I will come to the exile, to Tel Aviv, who dwells by the great river, and as for (and I will dwell)-these are the ones who dwell there; and I will dwell there seven days, dwelling among them. »
[4] MATTIA KAM, *Establishment of Tel Aviv*, Toldot, The Center for Technological Education, accessed November 20, 2025. https://historynet.cet.ac.il/pages/item.asp?item=4801.
[5] Yiddish, a mix of biblical Hebrew and German, is a Jewish language spoken among European Jews. With the rise of Zionism, the use of language has begun to decline in the favor of the modern Hebrew. Today, the language is mainly spoken amongst religious Jews in diaspora.

This shift in governance created new opportunities for Jewish settlement and development. As seen in fig.2, following the Frist World War, with the arrival of the British authority as explained beforehand, the population growth trend in the city has been increasing constantly, reaching its highest point in the end of the Second World War, which may be reasoned with the mass immigration of Jews from Europe after the Holocaust.

As the city continued to grow during the British mandate, and the demand for new houses and neighbourhoods increased, there was a need for creating a masterplan that will manage this urban sprawl in a way that will maintain the character of the city as being a pleasant space for its residents while implementing modernist principles.

From this need, the Sir Patrick Geddes (1854-1932) has conducted a report aiming to shape the urban sprawl of the city. As introduced in a research project on Geddes plan *By Leaves We Live*:

> Tel Aviv's urban planning was influenced by the Garden City Movement, seeking an architectural alternative that will offer a radical solution to the challenges faced by humanity in the beginning of the twentieth century. Geddes set out to challenge the conventional ways of living, working, thinking, and interacting in a given society through historical, botanical, and geographical strategies[6].

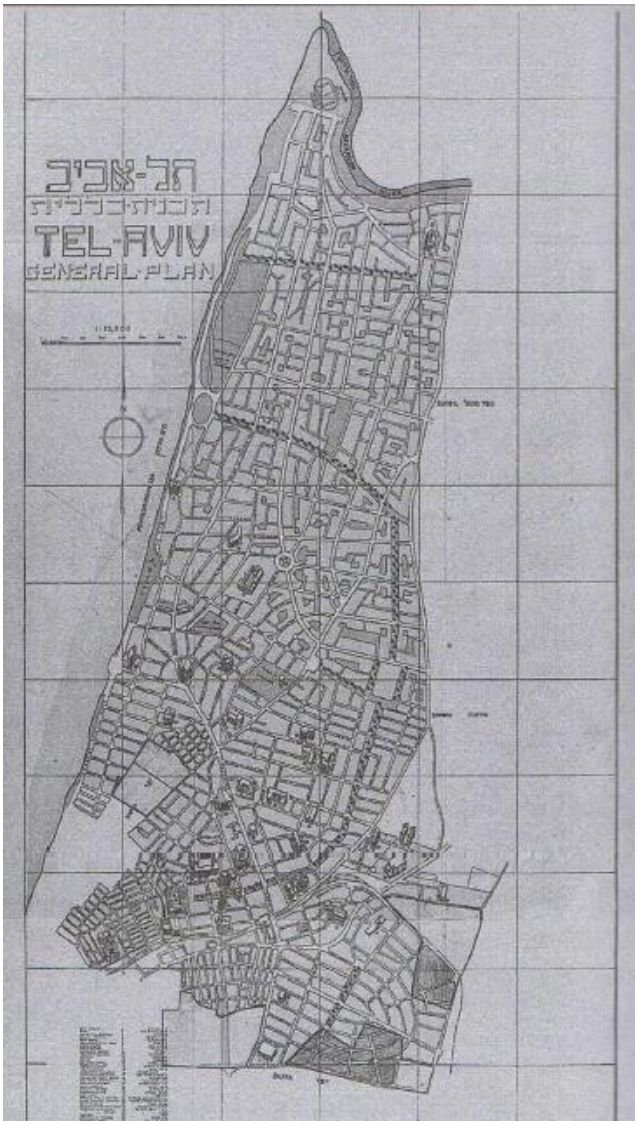

Fig.3 - The Geddes plan for Tel Aviv *Source: T. Alon-Mozes, "Rural Ethos and Urban Development: The Emergence of the First Hebrew Town in Modern Palestine," Planning Perspectives 26, no. 2 (2011): 288, http://dx.doi.org/10.1080/02665433.2011.550449.*

It can be interfered that the approach of Sir Geddes emphasized the importance of integrating urban planning with green spaces and a harmonious relationship between built environments and nature. By promoting a garden city concept, Geddes possibly aimed to create a sustainable urban environment that

[6] Avital Gourary, Natanel Elfassy and Rachel Gottesman, *By Leaves We Live,* White City Centre Tel Aviv & A N +, 2018, p.10.

would enhance the quality of life for its residents.

One of the key features of the Geddes Plan was its focus on zoning and organized expansion, taking in account his deep interest to the landscape of the city rather to its built area[7]. Geddes proposed distinct zones for residential, commercial, and industrial areas. He also set zoning codes such as setbacks of 2-3 meters from the adjoining property line, a 4-meter recession from the street, and 5 meters from the back lot[8]. This forward-thinking approach was preserved also after the masterplan was completed. It has laid the groundwork for future urban planning interventions in the city, which are focusing, like the masterplan, on integration of green spaces and emphasis on community-oriented urban design.

The Geddes Plan for Tel Aviv laid the groundwork for what would later become known as the "White City," a UNESCO World Heritage site characterized by its unique Bauhaus modernist architecture, situated at the heart of the Geddes masterplan.

The Bauhaus movement, which flourished in Germany during the 1920s and 1930s[9], the same time when the modernist Geddes plan was implemented in the urban planning of the city. The architects who immigrated to Palestine during this period were inspired by Geddes' principles.

Subsequently, the modernist buildings designed by the new architects were in harmony with the urban planning promoted by his masterplan, which was following, like the Bauhaus, innovative modernist principles.

With the rise of the Nazi Party in Germany in 1933, a significant wave of Jews immigrated to the British colony of Palestine. This period saw an influx of refugees escaping the escalating antisemitism in Europe. The mass wave of Jewish immigrants brought both challenges and opportunities for the burgeoning city. The main challenge was the emerging housing estates and the overcrowding crisis in Tel Aviv, which was still a relatively small city with limited infrastructure and resources to accommodate the growing population.

The struggle to provide adequate housing and services for new residents was rushed by the rapid demographic changes. By the late 1930s, a significant pressure was created on the city. However, the arrival of many young Jewish architects among the immigrants represented a transformative opportunity. These architects, having recently completed their studies at the prestigious Bauhaus school in Germany, brought with them innovative design principles and a vision for modern urban living, corresponding with the vision of city translated also to its masterplan.

The influence of the Bauhaus movement led to the expansion of Tel

[7] TAL ALON-MOZES, *Rural Ethos and Urban Development: The Emergence of the First Hebrew Town in Modern Palestine*, p.289.
[8] UNESCO, *Nomination File for the White City of Tel Aviv*, 2003, p.9. https://whc.unesco.org/en/list/1096/documents/.
[9] For a detailed study on the Bauhaus movement, refer to MICHAEL SIEBENBRODT, LUTZ SCHÖBE, *Bauhaus 1919-1933: Weimar, Dessau, Berlin*, 1st ed., New York: Parkstone Press International, 2009.

Aviv under the dominant architectural style known as the 'International Style'. This style, which is often also called 'The Bauhaus Style', emphasized simplicity, functionality, and the use of modern materials, adapted to suit the local Mediterranean climate. As the city grew, the empty lands surrounding Tel Aviv were developed into new residential apartments buildings, marking a significant urban sprawl and the development of a city shaped by modernist ideals.

This architectural boom not only transformed the city's footmark but also reflected the cultural aspirations of its residents. The new buildings showcased clean lines, open spaces, and an emphasis on light and air, which resonated with the ideals of the Jewish community striving for a new beginning. The incorporation of gardens and communal spaces within these developments further enhanced the sense of community, creating a modern urban environment.

By the end of the 1930s, Tel Aviv had firmly established itself as a dynamic urban centre, characterized by its unique blend of modernist architecture and vibrant cultural life. The challenges of rapid growth were met with innovative solutions, paving the way for the city's continued development in the years leading up to the establishment of the State of Israel in 1948. This period of transformation laid the groundwork for Tel Aviv's future as a key player in the socio-economic landscape of the region.

Fig.4 - Dizengoff street in Tel Aviv, 1930s. *Source: Alon Noyman, Power Structures: The Urban Form of Regulation (MA thesis, Massachusetts Institute of Technology, 2015), 117.*

Fig.5 - Aerial view of Tel Aviv around Dizengoff Square in 1945. *Source: M. Epstein-Pliouchtch and T. Abramovich, "From 'White City' to 'Bauhaus City' – Tel Aviv's Urban and Architectural Resilience," Docomomo Journal, no. 61 (2019): 27, https://doi.org/10.52200/61.A.7PDJTAIW.*

In addition, by the end of the 1930s, when the buildings that compose today the "White city" world heritage siter were already constructed, Tel-Aviv was already started to be called "White City" by residents, due to the simple white facades, deprived from architectural decorations, which characterized the international style buildings. The term continued to be used as the city continue to grow in the following decades, making a distinction of the original core of the city constructed in its first decades, from the rest of the buildings that have continued to be built afterwards or building who were constructed on the ruins of past buildings.

Many Bauhaus architects played a significant role in shaping Tel Aviv during its urban sprawl in the 1930s. This period was marked by a dramatic increase in construction, and the influence of the Bauhaus school became evident in the city's architectural landscape. Interestingly, many of these architects were not just new immigrants; some were residents of Mandatory Palestine who travelled to Europe only for their architectural education. At that time, there were no architecture schools in Palestine, with the first one opening only in 1965. Also, some architects operating in Tel Aviv during this period were previous workers of famous Architects of the period such as Le Corbusier[10].

Among these architects, Arieh Sharon emerged as the most influential figure. Born in Poland in 1900, he immigrated to Palestine in 1920 and in 1926 began studying at the Bauhaus school in Germany, under the guidance of Walter Gropius. Sharon quickly distinguished himself; just two years into his studies, he was commissioned to travel abroad with Hannes Meyer to present the ideas of the Bauhaus. After completing his education, he worked for a few years in Meyer's office, before returning to Mandatory Palestine to start there his main professional career.

Sharon's impact on Tel Aviv was profound, as he helped shape the White City, which became the centre of Bauhaus architecture in Israel. Upon the establishment of the State of Israel, Sharon was recognized as a leading architect and was commissioned by the Prime Minister to develop the first national plan in 1951. This marked a crucial period in his career, during which he designed numerous grand public facilities characterized by modernist principles. His work reflected the ethos of the White City while also incorporating elements of the new brutalist architectural style, which was gaining prominence at the time.

The Bauhaus school was closed in 1933 due to the rise of the Nazi party, as the party believed the school is propagating Bolshevik ideologies, which were considered the enemies to the Nazi party. Many students were forced to return to their home countries or seek refuge in less politically charged environments. These former Bauhaus students became "agents" of the Bauhaus philosophy, disseminating its modernist principles of design, planning, and construction across the world. Their influence helped to

[10] Nitza Szmuk, Tal Eyal and Tamara Garon, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, January 2002, p.14. https://whc.unesco.org/en/list/1096/documents/.

propagate the ideas of the Bauhaus even after the school's closure.
The legacy of these Bauhaus architects, particularly Arieh Sharon, continues to form an architectural identity for Israel. Their work not only shaped Tel Aviv but also laid the foundation for modern architecture in the country. The contribution of these architects to the combination of European modernist architecture influences and local needs created a unique architectural dialogue, which is most visible in the architecture of the White City in Tel Aviv. This spatial dialogue became a defining characteristic of Israel's urban landscape.

'The International Style' became the dominant architectural language in Israel, extending beyond the boundaries of the White City as new cities emerged throughout the country. As urban development expanded in the mid-20th century, this style was embraced in various urban settlements, reflecting commitment to modernity and functionality. Housing projects, public buildings, and cultural institutions adopted the international style, creating a coherent urban identity.

The lack of a protective legal framework has significantly impacted the preservation of modernist buildings in Israel, leading to their gradual degradation over the decades. In the 1960s, international style buildings in the White City began to be demolished in favour of new high-rises buildings[11]. One of the critical legislative measures affecting conservation efforts was the 1978 Antiquities Law, which stated that only buildings constructed before 1700 were deemed worthy of preservation. This narrow focus effectively harmed the significance of modernist architecture, still considered recent at the time, allowing many structures from the 20th century to fall into neglect as they were not legally recognized for their historical or cultural value.

The consequences of this legislation became evident as modernist buildings began to deteriorate without the necessary maintenance or restoration efforts. Many of these structures, which played an essential role in defining the urban landscape of post-independence Israel, suffered from natural degradation, vandalism, and neglection. The absence of protective measures meant that property owners often had little economical motivation to invest in the maintenance of these buildings, viewing them as a waste of money rather than as valuable components of the nation's architectural heritage[12].

Additionally, the legislative history surrounding conservation in Israel has been inconsistent and often reactive rather than proactive. While older buildings were prioritized for preservation, modernist architecture was left vulnerable. This neglect originated not only from legal frameworks but also from a cultural mindset that favoured the preservation

[11] Alon Noyman, *Power Structures: The Urban Form of Regulation*, M.A thesis, Massachusetts Institute of Technology, 2015, p.114.
[12] Yodan Rofé, *La città bianca di Tel Aviv: Identificazione e conservazione del moderno come risultato del dibattito urbanistico attuale*, p.101.

of historical sites over more recent architectural projects.

In other words, the 1978 Antiquities Law's limitations can be reasoned by a lack of public awareness regarding the significance of modernist architecture. Many residents and policymakers did not view yet these buildings as important historical markers that contributed to the narrative of Israel's urban evolution. This perspective resulted with destruction of international style residential buildings from the first half of the 20th century and their replacement with new construction, continuing the same trend of destruction from 1960s.

In Tel Aviv, the first serious interventions for architectural preservation, consolidation and repair, were launched in the 1980s. At that time, the methods and technique were not adequate and causes additional deterioration of material[13]. The second period of interventions took place in the 1990s, by the conservation team commissioned by Tel Aviv Municipality, which achieved better results comparing to the previous intervention period[14]. Nonetheless, the number of international style buildings enlisted as heritage was only 1,149, a low number comparing to the 3,700 enlisted building from the UNESCO declaration in 2003.

As modernist buildings continued to degrade, the need for a more inclusive approach to conservation increased. This shift in perspective emphasized the importance of recognizing all periods of architectural significance, not just those before 1700, subsequently stating the need for a revaluation of the legislative framework governing heritage conservation.

Correction No. 31, the fourth addition to the Law of Planning and Construction, was enacted in 1991 and marked an important step in preserving modernist architecture in Israel. This update was also recognizing the value of international style buildings, most dominant in those are the ones in the White City in Tel Aviv. The update led to the formation of a national conservation committee, as well as sites conservation committees within local authorities, which were responsible for overseeing efforts to protect the unique architectural features in the local municipalities.

The update also resulted in the launch of the Sites Conservation Program, which provided guidelines and resources for restoration and maintenance[15]. This program aimed to help local authorities manage preservation efforts more effectively, encouraging cooperation among professionals. These initiatives created a more organized approach to conservation, subsequently ensuring that the distinctive characteristics of International Style architecture were preserved as the city of Tel Aviv continued to grow develop intensely.

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[13] ICOMOS, *Evaluation of the White City of Tel Aviv*, ICOMOS Advisory Body Evaluation, 2003, p.58. https://whc.unesco.org/en/list/1096/documents/.

[14] *Ibid.*

[15] GIDEON KOREN, *Conservation Legislation and Reform in the Planning and Building Law*, Shimur, December 31, 2017. https://shimur.org/חקיקת-השימור-והרפורמה-בחוק-התכנון-והב/.

The foundation set by Correction No. 31 was crucial for the White City's nomination as a UNESCO World Heritage Site in 2003, because it established a clear legal framework for the protection of modernist architecture. The update paved the way for local authorities to act in preserving these structures. The creation of sites conservation committees allowed the authorities to organize efforts to manage and restore important sites, ensuring that the unique characteristics of the White City would be safeguarded.

In 2003, the White City of Tel Aviv was officially recognized as a UNESCO World Heritage Site. The decision was made during the 27th session of the World Heritage Committee held in Paris, where the committee highlighted the unique ensemble of 3,700 International-style buildings built between 1931-1948, that exemplify the development of modern architecture in the early 20th century, from which around 1,000 buildings are obligated to strict preservation[16] due to their bold modernist architectural quality. The recognition emphasized the importance of the White City as a cultural landmark that reflects the ideals of modernist design, urban planning, and social history. This designation was not only useful for bringing international attention to the architectural heritage of Tel Aviv, but also reinforced the commitment to preserving these significant structures for future generations.

The date of the declaration of the white city as an UNESCO world heritage is celebrated around the city of Tel Aviv every year in an evening called "White Night", where bars and clubs are setting street parties and various other events, as a celebration of the city's spirit. This municipal holiday can be seen as an attempt to create an immaterial heritage, celebrating the living culture that has evolved in the shadow of the White City's architectural legacy.

Since its recognition of UNESCO, the White City of Tel Aviv has seen a renewed focus on conservation and preservation efforts. Various initiatives have been launched by the municipality and local preservation organizations to encourage property owners to restore and protect these structures, instead of neglection and destruction for the sake of new construction. Many buildings have undergone strict restoration, ensuring their historical and aesthetic value is maintained.

Fig.6 - People dining in Dizengoff Square during the "White Night" holiday, dressed in white. *Source: Ynet, June 29, 2017, https://www.ynet.co.il/articles/0,7340,L-4982077,00.html.).*

[16] Nitza Szmuk, Tal Eyal and Tamara Garon, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, p.13.

Notable recent projects, such as the renovation of the Liebling Haus in 2014, have exemplified the city's dedication to its architectural legacy. The Liebling Haus, a prominent example of Bauhaus architecture, has been transformed into a cultural centre that showcases exhibitions, educational programs, and community events under the subject of conservation, further integrating the heritage of the White City into contemporary life. Nonetheless, many international style buildings still suffer from degradation today, especially ones who were not inscribed by UNESCO as part of the White City.

Fig.7 - Dizengoff Square after its renovation at night functioning as a local gathering spot, 2019 c.a. *Source: Moria Architects, https://studio-ma.co.il/project/dizengoff-circle/?lang=he.*

Fig.8 - Aerial view of Tel Aviv around Dizengoff Square after its renovation, 2019 c.a. *Source: Moria Architects, https://studio-ma.co.il/project/dizengoff-circle/?lang=he.*

2.2 ARCHITECTURAL SIGNIFICANCE AND UNESCO RECOGNITION

The White City of Tel Aviv stands as a strong reflection of the International Style. The modern movement, made forbidden to be expressed as before during the rise of Nazi regime in 1933, found its full expression in the building style and urban planning in Israel in general, and Tel Aviv in particular[17]. The international style, a product of the Bauhaus school, is characterized by its embrace of minimalism, functionality, and a stark departure from ornamental design. It sought to establish a universal architectural language, one that excludes the historical and regional influences and instead focusing on modernist ideals of clarity, rationality, and efficiency.

The Bauhaus school, founded by Walter Gropius in Weimar, Germany, in 1919, advocated for the integration of art, craft, and technology, in the various design disciplines, including architecture[18]. This philosophy can be viewed at the time as an influencing factor on architects globally, including those who would later shape the architectural landscape of Tel Aviv.

The Bauhaus emphasized experimentation with new materials and construction techniques such as reinforced concrete, steel, glass, becoming leading characteristics of the modernist buildings.

The Bauhaus school was conducting obligatory workshops focusing on innovative construction opportunities. An example of such is the metal workshop, which got developed into a design laboratory for the design of lighting appliances along successful contracts with the industry, subsequently developed also into a workshop for metal furniture and building installations[19].

In addition, the Bauhaus emphasized experimentation with new constructional innovations of the modern period, allowed for the creation of new forms and structures previously deemed impossible. Flat roofs, free plan, steel frame construction, modular construction and glass curtain walls, emerged as defining characteristics of the international style.

Architects aimed to create open spaces that fostered a connection between the interior and exterior, enhancing the experience of natural light and air within the structure, hence focusing more on the user experience inside the space.

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[17] NITZA SZMUK, TAL EYAL AND TAMARA GARON, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, p.8.

[18] For a detailed study on the Bauhaus movement, refer to MICHAEL SIEBENBRODT, LUTZ SCHÖBE, *Bauhaus 1919-1933: Weimar, Dessau, Berlin*, 1st ed., New York: Parkstone Press International, 2009.

[19] MICHAEL SIEBENBRODT, LUTZ SCHÖBE, *Bauhaus 1919-1933: Weimar, Dessau, Berlin*, 1st ed., New York: Parkstone Press International, 2009, p.165.

In Tel Aviv, architects who acquired their education in the Bauhaus school, applied these principles, crafting an urban landscape that reflected the spirit of modernism.

Their designs not only demonstrated modernist characteristics, but also responded to the local context, blending functionality with the needs of the local climate. The latter was achieved through various planning decisions such as having a relatively large balcony to maximise the natural cooling effect during the summer, responding to the Mediterranean climate.

The buildings of the White City are not merely functional structures; they are cultural artifacts that narrate the story of a society in transition. Iconic structures such as the "Habima" National Theatre, designed by architect Oskar Kauffman, and the "Sheinkin" apartments buildings, with their geometric forms and their simplified façades, exemplify the characteristics of the International Style. These buildings emphasize the taste of the architects working in Tel Aviv at the 1930s, with their fond to feature smooth surfaces, expressiveness of curves, and the flow of horizontal lines, creating a visual harmony[20].

Architectural significance is also found in the diverse typologies represented within the White City. For instance, the residential buildings often include a commercial ground floor. Along with

Fig.9 - Habima Theatre. *Source: Photo by the author, September 16, 2024.*

Fig.10 - Sheinkin St 55A, example of international style building with balconies and minimal brise-soleil extrusion with their shadowing surface (marked in blue), enhancing the protection from direct sun in the warm climate. *Source: Photo by the author, September 12, 2024.*

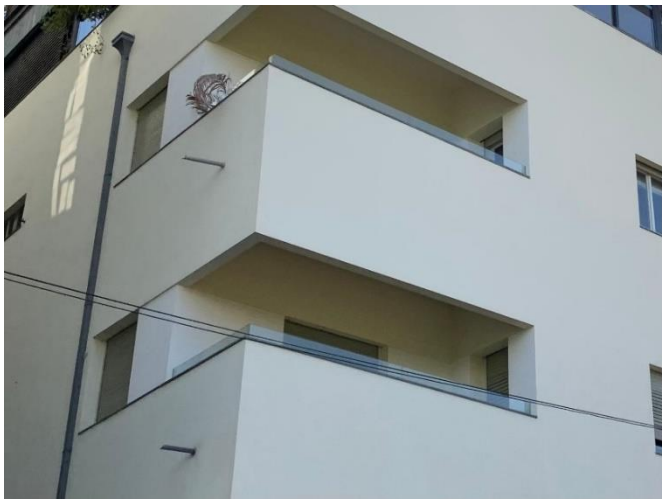

Fig.11 - Recessed balconies in a Sheinkin Street apartment building. *Source: Photo by the author, September 12,2024.*

[20] Nitza Szmuk, Tal Eyal and Tamara Garon, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, p.15.

the fact the city is famous with its cafes culture, the commercial ground floor often a function as social interaction space, reflecting the cultural ethos of a young, bourgeoise city. The use of balconies and shaded areas demonstrates a climate-responsive architecture, promoting outdoor living while enhancing architectural narrative of light and space.

As inspecting the streets in the limits of the white city, the interplay of light and shadow across the façades, complemented by landscaped gardens, exemplifies the thoughtful design that characterizes the White City.

The main construction method used for the buildings in the White City is reinforced concrete, which allows more flexibility in the space planning. The choice of concrete allows the architect to insert larger windows, and subsequently increase the amount of air circulation in the internal space, which is crucial in the local warm climate. Most of the building's facades contain a finishing layer of plaster (most commonly Steinputz, Waschputz, and Kratzputz[21]), dyed in white paint, which is not only an aesthetical choice, but also protects the building from humidity reflects back more solar radiation. Nonetheless, the plaster may appear in yellow in some buildings due to degradation.

While the texture of most plaster facades in Tel Aviv are smooth, some buildings have other variables such as mineral plaster finishing, recognisable

Fig.12 - Instances of the plaster finishing layer. *Source: Photos by the author, September 12, 2024.*

[21] Nitza Szmuk, Tal Eyal and Tamara Garon, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, p.31.

by its rough texture (see fig.10). The mineral plaster provides an additional protection against climate-related degradations.

In addition, the roof is usually flat, resembling other reinforced concrete modernist buildings planned in that period, while also taking in consideration the low amount of rain which indicates a lack of need of inclined roof, and the option for future floors to be constructed on top of it.

Interplay of light and shadow across the façades, complemented by landscaped gardens implemented as part of Geddes masterplan, exemplifies cohesive modernist design characterizing the White City.

The architectural significance of the White City is not only expressed in the physical realm, but also in the written and artistic disciplines. For example, Nathan Altermann, one of the most notable poets in Israel's culture, stated in Ha'aretz newspaper:

> *Because I loved being a drifted grain in the Niagara Falls of roads and sidewalks[...] Because Tel Aviv must grow, to*

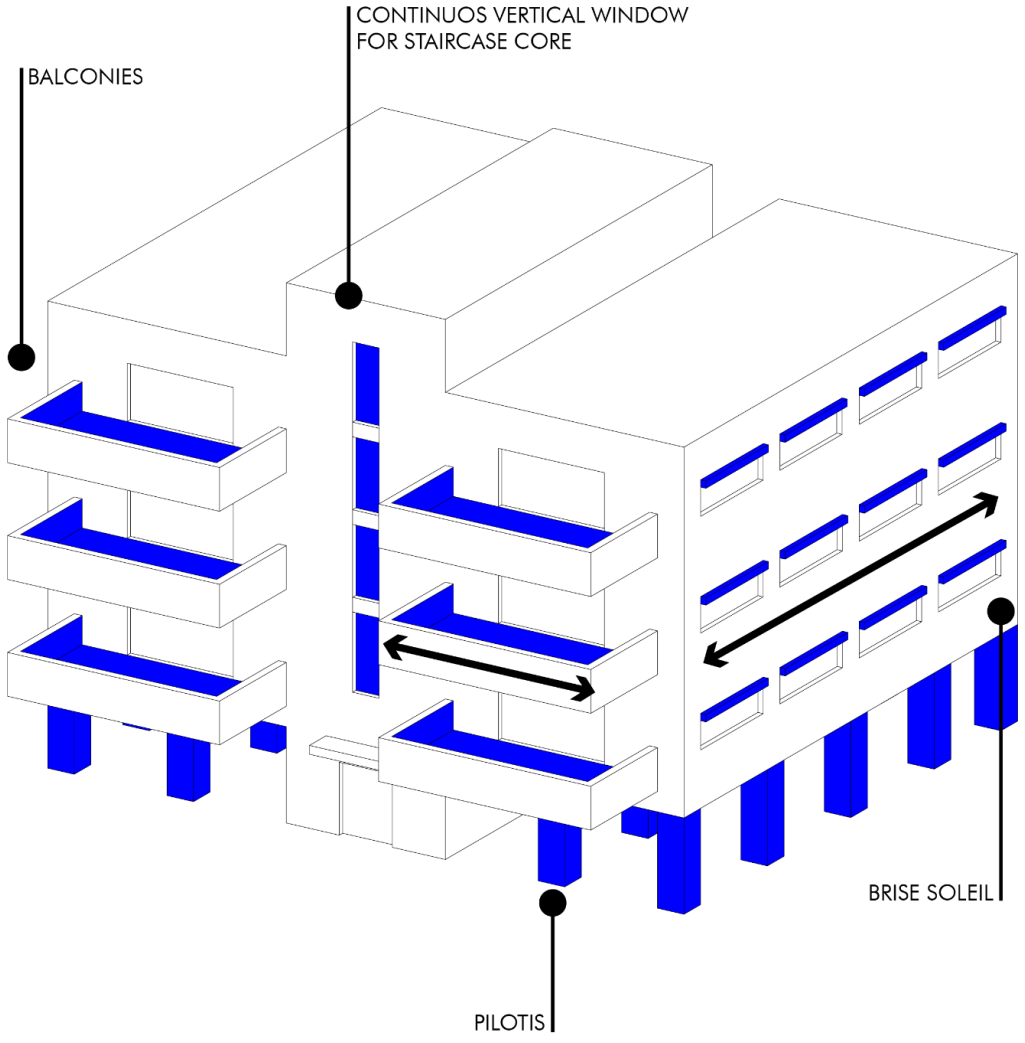

Fig.13 - A typical International Style building in Tel Aviv with recognizable characteristics. *Source: Illustration by the author.*

> *be like its distant sisters, desert-elicited, and desert-eliminating, alien and loved, full of people and heroic beauty. City! Concrete jungle, electricity and iron*[22].

The recognition of the White City as a UNESCO World Heritage Site in 2003 marked a significant milestone in acknowledging its architectural and cultural importance. The journey toward UNESCO designation began in the late 1990s, driven by a growing awareness of the need to preserve Tel Aviv's modernist heritage. A notable limestone in the wakening of the awareness to heritage in Tel Aviv is the conference "International Style in Tel Aviv" in 1994, initiated by Micheal Levin and Nitza Szmuk, jointly sponsored by UNESCO and the municipal authorities[23].

A survey conducted as part of this conference, revealed that many residents refer to the White City as 'Bauhaus City', as they refer to the modernist buildings as 'Bauhaus style' and not 'International style'[24], showing the potential of heritage as the public already know to identify a specific characteristic backed by historical knowledge about the buildings existing in the city.

The campaign for UNESCO designation was championed by a coalition of local authorities, cultural organizations, and architects who recognized the historical value of the White City.

The process for UNESCO designation involved establishing criteria that emphasize both cultural significance and architectural integrity. The White City met these criteria primarily under two categories:

(ii) - to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design.

(iv) - to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history.

The focus of which buildings would be included in the UNESCO recognition of White City, was on structures that retained their original design and function while exemplifying the principles of the International Style. In contrast, buildings that had undergone significant modifications or no longer embodied the original architectural intent were excluded from the designation. This categorisation ensured the integrity and authenticity of the site to be defined officially as the 'White City'.

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[22] Marina Epstein-Pliouchtch, Talia Abramovich, *From "White City" to "Bauhaus City" - Tel Aviv's Urban and Architectural Resilience*, Docomomo Journal (61), 2019, cit., p.26. https://doi.org/10.52200/61.A.7PDJTAIW.

[23] Frits de Wit, *Bauhaus-boom in Tel Aviv: 1994 conference boosts revival*, DOCOMOMO Journal: 21, DOCOMOMO International, June 1999, p.61.

[24] Marina Epstein-Pliouchtch, Talia Abramovich, *From "White City" to "Bauhaus City" - Tel Aviv's Urban and Architectural Resilience*, p.27.

The advocacy for UNESCO designation involved a diverse coalition of stakeholders committed to preserving Tel Aviv's modernist heritage. The interest for including the White City as a world heritage site may be viewed not only as a preservation effort, but also as a celebration of modernist architectural achievements.

The Support given from the Tel Aviv Municipality and the Israeli Ministry of Culture was crucial in promoting the campaign, ensuring a good management also after the inscription.

However, promoting preservation also after UNESCO recognition faces numerous obstacles. Property owners raise concerns that conservation may harm desired development[25]. Subsequently, it is also claimed that initially the municipality had objected for the UNESCO declaration from economical reasons relating to the mentioned development[26]. Another possible risk raising from UNESCO declaration is favouring the preservation of modernist heritage in the city over the eclectic heritage which is still visible in the built fabric of some areas in the city.

Since UNESCO designation, the White City has attracted international attention as a city model of modernist architecture, main landmarks of the city, such as Dizengoff Square and The Independence Hall, function as a preserved demonstration of modernist heritage.

Moreover, the UNESCO designation has provided a platform for ongoing dialogue about the role of modern architecture in urban identity. With the allowance of making construction addition on 2,700 out of the 3,700 heritage buildings included in the White City declaration, Tel Aviv serves as a compelling case study in finding a balance between honouring historical heritage and accommodating modern urban needs. This ongoing conversation is vital as it emphasizes the importance of integrating architectural heritage, contemporary design, and sustainable urban development.

Nonetheless, some White City buildings are showing degradation signs resulting from bad maintenance, indicating difficulties in management. In addition, some buildings which are not included in the White City declaration, hence are not under a particular protection, but still hold an architectural and historical value, were demolished in favour of new construction, or currently in a serious degradation state.

[25] BERNHARD FURRER, *Israel: The White City of Tel Aviv*, Heritage at Risk, ICOMOS World Report 2008-2010 on Monuments and Sites in Danger, 2010, p.108.
[26] YARIV MANDEL, Interview by the author, August 18, 2024, Tel Aviv.

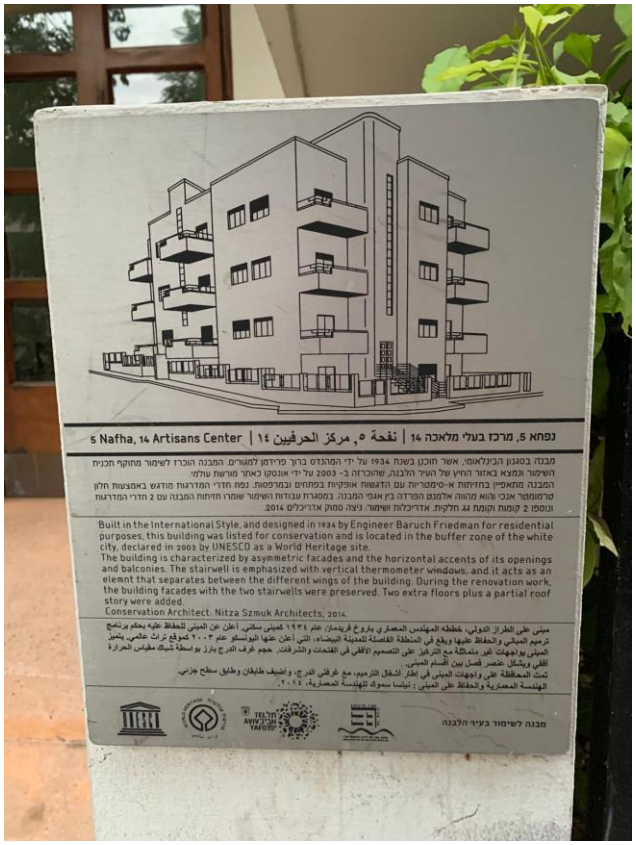

Fig.14 and Fig.15 - 5 Nafha St, Residential building part of White City declaration by UNESCO, after a restoration process, with an explanatory board at its entrance. *Source: Photos by the author, September 12, 2024.*

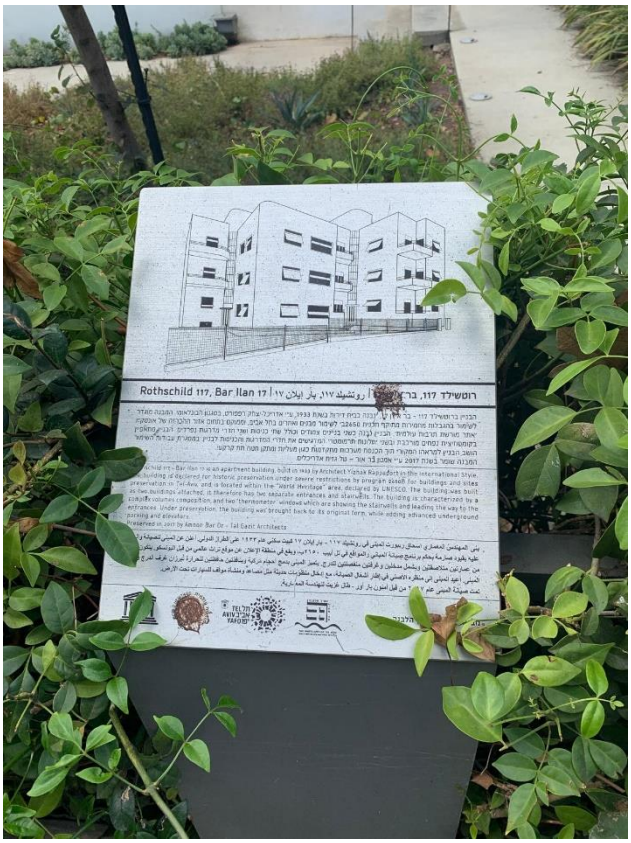

Fig.16 and Fig.17 - 117 Rothschild Blvd, Residential building part of White City declaration by UNESCO, after a restoration process, with an explanatory board at its entrance. *Source: Photos by the author, September 12, 2024.*

2.3 MANAGEMENT OF THE HERITAGE BUILDINGS

The management and maintenance of heritage buildings in Israel are governed by a complex interplay of national legislation, municipal regulations, and national guidelines.
The documentation of buildings in Israel started in 1960, as part of the 'national outline plan', including sites who answer the relevant criteria (sites with national importance). Although the first main law focusing on conservation was established several years afterward. In 1978, 'antiquates law', was the first law giving a clear definition of what is to be considered as antiquity in Israel[27]:

1. Property, whether detached or attached, made by a person before the year 1700 A.D., including anything added thereto afterwards and forming an integral part thereof;
2. Property, as stated in paragraph (1), made by a person beginning in the year 1700 A.D., and which is of historical value and which the Minister has declared to be an antique;
3. Zoological and botanical remains from before the year 1300 A.D.

The legal framework of the country can be analysed from the establishment of the country of Israel in 1948, by adopting the British mandate laws. Regarding conservation, the only law adapted in the subject was the one granting the basic heritage protection to archaeological sites, defined as sites who are created before 1700, which leaves many buildings in the country exposed to the danger of losing their value. A main development in the legal system regarding heritage occurred in 1978 with the 'antiquities law', yet the issue of modernist heritage remained unsolved. In 1999, the 28th Israeli government, decided to accept and implement the 1972 UNESCO Treaty of Protection of the World Cultural and Natural Heritage. In Tel Aviv, the most important milestone in terms of heritage was the 2003 UNESCO declaration of the white city.

A possible critical observation on the current legal framework for conservation is the absence of a standardized national authority responsible for overseeing conservation. As inferred from the 2009 legal reform in the construction sector, the responsibility for conservation is passed down to the municipal level, where local authorities have the power to establish conservation committees and enforce preservation policies on sites of their choosing. However, they are not obligated to form such committees. The national conservation committee functions primarily as an advisory body and lacks the authority to force municipalities to implement conservation measures[28].

[27] *Antiquities law*, 1978. https://www.nevo.co.il/law_html/law01/p186_001.htm.
[28] GIDEON KOREN, *Conservation Legislation and Reform in the Planning and Building Law*, Shimur, December 31, 2017. https://shimur.org/חקיקת-השימור-והרפורמה-בחוק-התכנון-והב/.

Subsequently, enforcement can be inconsistent across different municipalities, particularly in areas experiencing rapid urbanization. Local authorities often face challenges in balancing development needs with heritage preservation, leading to instances where protection of heritage sites may be neglected in favour of economic opportunities. This issue highlights the necessity for a national regulatory mechanism that not only define preservation goals but also has an authority to enforce them.

Tab.1 - (in following pages) Overview of the legal framework in Israel regarding heritage. *Source: Illustration by the author, information by National Conservation Council of Israel, https://shimur.org/חקיקת-השימור-והרפורמה-בחוק-התכנון-והב/.*

1936 British mandate Building cities order

Order out of necessity, following an urban expansion in the country, Stating the hierarchy of the construction process.

1948 Founding the country - adapting Ottoman and British laws

Defining archaeological sites as structures and sites created before 1700.

1965 Law of planning and construction

Based on British mandate 1936 building cities order, the 1965 law is providing construction guidelines and emphasizes the importance of preliminary planning before the operational phase of construction. In addition, the new law is providing specific time frames to each step in the process and defining specific goals for each step.

- Article 61 to law of planning and construction stated the goals of the local outline plan, and small article 3 to article 61 stated that these goals will include "preserving every building and object that has architectural, historical, archaeological, etc. importance", thus, giving the first constitutional importance of conservation past structures, and not only focusing on new structures.
- Small article 5 to article 69 stated the need of giving "Places, buildings and other objects that have national, religious, historical, archaeological, scientific or aesthetic importance" a consideration when they are situated in a property on which there is an intention to construct a new site.
- Article 197 stated that the entity responsible on the preservation property must pay the people who the restoration process harmed their life quality. This financial expense may discourage entities to approach restoration.

1978 Antiquities law

The archaeological sites received an obligatory conservation protection, but the problems of who is the responsible authority remained unregulated. In addition, conservation of structures after 1700 holding one of the values stated in small article 5 to article 69 to the law of planning and construction, remained a desirable goal and not an obligatory.

1980 Restoration interventions become part of law system

1984 Establishment of the Israeli Conservation Council

1991 Correction n. 31 - 4th addition to law of planning and construction

Establishment of sites conservation committees in the local authorities - giving professional recommendations and sites listing documentations to the local authorities.

Obligatory conservation - the conservation committee should order the conservation property owner to maintain the structure also after the restoration process is done. In the absence of such action by the property owner, the committee will overtake the maintenance responsibility and the property owner will return the committee the financial expanses of the maintenance. In case of total lack of operation from the property owner, the committee will be granted an instant complete ownership of the conservation site.

The sites conservation program - each entity interested in performing a restoration (local committees/individuals) is granted the possibility to deliver a preliminary plan of restoration to the planning committee in charge of the desired site. The plan must be taken under consideration in the same importance level as a new construction plan. The local committee or entity proposing the restoration, has the possibility to decide which uses is allowed in the structure after the restoration (nonetheless, the client for which the entity is working for, usually requires profit-worthy functions).

Internal interventions - In a regular structure, performing internal interventions (for example removing a wall to enlarge a certain space) does not require a building permit. Because in many restoration buildings, the values which we want to conserve are evident not only on the façade of the building but also inside of it, each internal intervention requires a building permit, unless it is defined in the conservation plan that internal interventions are allowed without the need of a permit.

2009 The cancellation of 4th addition to law of planning and construction

reform in the L aw of planning and construction from 1965, in order to optimize and shorten processes related to planning and construction.

1. Sites heritage will be defined as a need of the public and not a need of a private entity, therefore will gain more constitutional importance.
2. National Conservation Committee will be cancelled eventually, but the conservation will function as a separate matter which requires a reference when proposing a construction in a certain property.
3. The responsibilities of the National Conservation Committee will be transferred to the local conservation committees, and not be forsaken.
4. The national outline plan will include in it the national importance scheduled buildings and sites.
5. The local outline plan will include restoration guidelines.
6. A conservation body, that can propose restorations plans, will be established and each local authority would be obligated to inform the body in each intervention of a conservation site, for objections to the degree of interventions/possible dangers to values of the site.
7. The building permit obligation of each internal intervention in a conservation site will not be changed, but even expended to site which are not entitled as under conservation, but in the process of getting this title in the future.
8. The paybacks to victims of restoration process will be delivered only after the restoration process is completed in order to mitigate expenses of harms not fulfilled.

In his article *Cultural Heritage Protection in Israel – Centralization vs. Decentralization of Heritage Management*, Adv. Gideon Koren examines the ongoing debate between centralized and decentralized approaches to heritage management in Israel. Adv. Koren explains how lack of clear definition is causing issues and risking the protection of cultural heritage in the country[29] and highlights the importance of centralizing authority to ensure the implementation of a coherent legal framework capable of safeguarding existing heritage assets. Supporting to this claim is also Dr. Noah Hysler Rubin, which claims in his report that nowadays, the most significant obstacle to heritage in the country appears to be the absence of uniform criteria for evaluating sites worthy of conservation[30].

The current legal framework provides strong protection for archaeological heritage sites, to the extent that the state may assume formal ownership of a site even if it is privately owned, provided it meets the criteria outlined in the *Antiquities Law* of 1978, which obligates the preservation of sites established before the year 1700. The Israel Antiquities Authority, established to safeguard antiquity sites as defined in the *Antiquities Law* of 1978, has been granted with extensive powers to fulfill its mandate, unlike the current conservation committees, which are far more limited in authority. To fulfill their purpose, the authority may even override some fundamental civil rights, such as the right to private property[31], to ensure the protection of heritage sites as defined by the law. This demonstrates a well-functioning management system for heritage sites dating prior to 1700, as the *Antiquities Law* provides a clear definition of what qualifies as a heritage site, identifies the responsible authority for its protection, and outlines both the methods of preservation and the extent of the powers granted to ensure the effective safeguarding of such heritage.

A possible explanation for the centralized management of antiquities dating prior to 1700 is that such sites are mostly sharing a common spiritual significance, as Dr. Rubin states in his report, the essential roots of conservation in Israel lie in its being perceived as the "Holy Land"[32].

The importance of such ancient sites may help explain the success of their preservation compared to more recent heritage sites, such as International Style buildings. The latter derive their significance from their architectural style and construction culture, values that are less familiar to the general public and therefore less likely to generate widespread recognition or support for their preservation.

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[29] GIDEON KOREN, *Cultural Heritage Protection in Israel: Centralization vs. Decentralization of Heritage Management*, Shared Global Experiences for Protection of Built Heritage, SPA Press, 2017, p.1.
[30] DR. NOAH HYSER RUBIN, *Conservation in Israel, Content and Practice*, Emek Shaveh, October 2018, p.1.
[31] GIDEON KOREN, *Cultural Heritage Protection in Israel: Centralization vs. Decentralization of Heritage Management*, p.3.
[32] DR. NOAH HYSER RUBIN, *Conservation in Israel, Content and Practice*, p.2.

For instance, it may be harder to convince an authority in charge of conservation, that a building showcasing the architectural spirit of the Bauhaus movement, is worthy of conservation (which requires an investment of funds), comparing to a building in which a national-known event has occurred.

To compensate for the lack of protection for the "modern sites", the country tried to create a functioning mechanism of heritage protection through the building and planning committees. The first problem with the protection of modern sites is that besides expressing the general need for protection of modern heritage sites, the law did not specify which sites exactly are to be considered modern heritage sites, neither the methodology to follow for their protection.

The Fourth Appendix to the *Planning and Building Law* (1965), added in 1991, transferred the responsibility for protecting modern heritage sites from the national to the local level (i.e. the municipalities). The appendix states that each local authority must establish a conservation committee, which, within two years of its formation, is required to compile a list of sites designated for preservation. However, the absence of a clear legal definition and enforcement mechanism has allowed municipalities to avoid establishing such committees altogether. As a result, the two-year period for preparing the heritage list never begins.

In addition, adv. Koren states that the necessity to compensate property owners who are damaged created an inbuilt conflict of interests. This conflict of interest was also caused by the fact that the protection committees are De Facto subordinate to the Planning and Building Local Committees, whose interests are often contrary to interest of the protection purposes[33].

In other words, the obligation to finance compensations for landowners adjacent to the site as part of the conservation of a site, which to be funded only by municipality, combined with the potential financial benefits of promoting new development instead of heritage protection, directly impacts the decision-making process, since the same authority that is required to pay for compensations from its own funds, is the one who holds the decision whether to conserve the site or not[34]. The result of this contradiction of interests is the lack of protection of sites which are to be considered, according to criteria defined in international charters, as worthy of heritage protection.

The 2009 legal reform of the *Planning and Building Law* was introduced with the intention of simplifying bureaucratic procedures related to construction. However, it remains controversial, as it carries the risk of

[33] Gideon Koren, *Cultural Heritage Protection in Israel: Centralization vs. Decentralization of Heritage Management*, p.5.
[34] Dr. Noah Hyser Rubin, *Conservation in Israel, Content and Practice*, p.21.

harming heritage conservation efforts in the country. This risk primarily derives from the transfer of additional conservation authority from the national to the municipal level, which, as discussed above, may encourage municipalities to prioritize new development over preservation. Moreover, the reform increases the financial compensations to property owners, which may discourage even more the municipalities even more to preserve the built heritage.

Another obstacle of the current legal framework is the composition of the local conservation committees, which are obligated to appoint only one professional of conservation, and his rule is to be an advisor and not an active decision-maker. Dr. Rubin supports the addition of conservation professionals to such committees, as they can «balance the conflicts of interest and give greater weight to considerations of conservation»[35].

Lack of activity from the municipalities to preserve the built heritage in their jurisprudence, may be considered as a result of a conflict of interest, which derives from the perceived economic disadvantage of conservation in the current legal framework in the country. Schori and Shamir-Shnan claim[36]:

> The preserved site is a hybrid urban product, it is unclear who pays for it, who benefits from it and when, and it is very difficult to determine its future value. Moreover, conservation is still perceived as a luxury unnecessary act whose value is purely aesthetic. Since the importance of preserving the built heritage is not widely valued as an important goal in spatial planning, the result is the exertion of pressures for accelerated development, which is expressed mainly at the local level.

Furthermore, even if disregarding the economic considerations and the stakeholders involved in municipal conservation committees, the decentralization of heritage protection responsibilities can result in a lack of coordination, lowering the probability of successful heritage protection in a certain municipality. As dr. Rubin claims in his report:

> The large number of bodies does not guarantee the quality or quantity of the conservation projects. To the contrary: the multiplicity of laws and bodies involved in the preservation of buildings and sites make it difficult for the various parties to coordinate and implement conservation. Moreover, despite their number, they do not address al aspects of conservation[37].

In my opinion, it may be concluded from the discussion above that an effective methodology to promote

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[35] Dr. Noah Hyser Rubin, *Conservation in Israel, Content and Practice*, cit., p.22.
[36] Nili Schori and Leah Shamir-Shnan, *Systemic Management of Conservation: Municipal management of local built heritage*, Mikve Israel: Yehuda Dekel Library, 2011, pp. 39-42.
[37] Dr. Noah Hyser Rubin, *Conservation in Israel, Content and Practice*, cit., p.25.

active and comprehensive heritage protection requires centralizing the conservation responsibilities, increasing national financial support for projects (including those not considered as sites of national importance) and reducing the compensations required to property owners during conservation, to enhance the economic feasibility of preservation initiatives.

In the context of management of modern heritage in Tel Aviv, upon the deceleration of the White City as world heritage site by UNESCO in 2003, the buildings included in the site were bordered to zone A, zone B, zone C due to their distinctive characters and location.

Zone A, at the central part of Tel Aviv, has the largest concentration of international-style buildings that currently still demonstrate most of the modernist architectural codes constructed in their original state.

Zone B refers to an area that has became neglected during the 80s and recently largely renovated. Zone B is more residential than the others and hence, should be preserved according to this fabric. In the renovation of the neglected buildings, two or three floors were permitted to be added, unless the building had a particular historical value. Otherwise, the area is characterized by less density of Bauhaus buildings, rather a mix of also eclectic and contemporary style buildings.

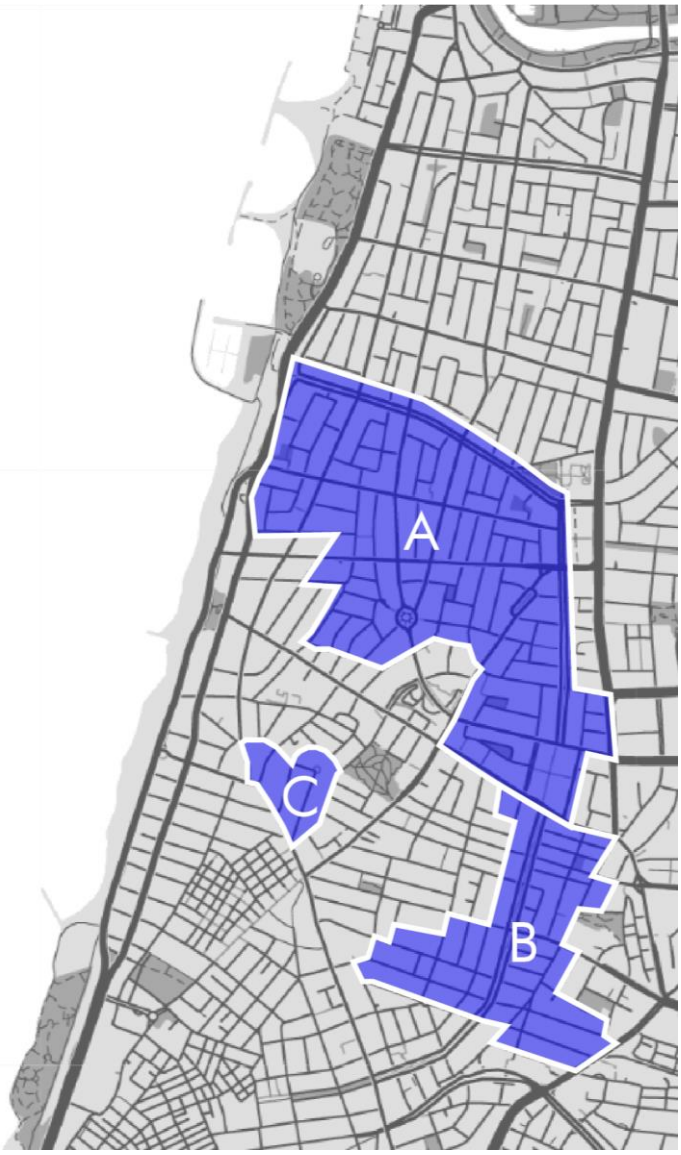

Fig.18 - The three different zones of the White City in Tel Aviv. *Source: Snazzy maps with illustration by the author.*

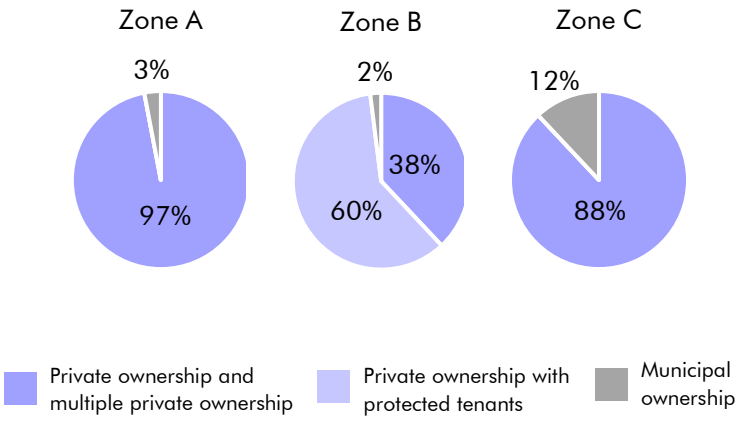

Fig.19 - Percentage of ownership types from total amount of buildings, according to each zone. *Source: Diagram by the author, data from UNESCO, Nomination File for the White City of Tel Aviv.*

Zone C, "The Bialik Area", is the smallest of the three areas mentioned above. According to the original Geddes masterplan, in zone C, 60sqm of an additional building's floor may be added on top of the flat rooftops in case of necessity[38], unless the building is in a high preservation priority. Surprisingly, this is the area left most intact and showcased the largest amount of restoration projects completed.

As visible in fig.18, the White City of Tel Aviv is confined only to several areas in the city, while International Style buildings are situated also beyond the areas defined by UNESCO. Exclusion of a building from the heritage site limits may risk its future preservation as there is no recommendation for its conservation by an internationally recognized organization.

Such is the case of the International Style buildings in Magen David square. While all represent modernist construction culture, they are not recognized by UNESCO as part of the White City, due to their exclusion from any of the three geographical zones discussed beforehand. Some buildings, such as Polishuk House (to be further discussed in this chapter), has received proper preservation regardless of the exclusion from the White City limits (see fig.26), other buildings such as Honigmann House (to be functioning as the topic of the project to be presented in the sixth chapter), are facing risks of demolishment due to an unrecognized heritage value.

In 1991 a law correction to the 4th addition to the law of planning and construction (see fig.18), stated that every local authority should establish its own conservation committee instead of relying on a national conservation body. For this reason, Tel Aviv's conservation committee was created with a scheduled meeting every two months[39]. One of the first actions of this committee was to create a recommendation list of sites to preserve within its jurisdiction, to be approved by the national conservation committee.

The conservation plan, created by this committee, offer a balance between the need of keeping both the architectural value and the real estate value of the building which is recommended as an object of heritage. This balance may be maintained by transferring construction permission from two sites (giver and receiver). If the building of a property owner, which is either a modernist or eclectic style building, is enlisted as to be strictly preserved[40] (instead of normally preserved[41]), the owner may move (by selling) the construction rights to a building with

[38] Nitza Szmuk, Tal Eyal and Tamara Garon, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, p.25.
[39] *Ivi*, p.119.
[40] Hence, a building to be preserved with no additional construction rights which may impact on its architectural identity.
[41] Hence, a building to be preserved with possible additional construction rights which may impact on its architectural identity.

less sensitive condition in terms of heritage[42].

In this way, real estate brokers have more motivation to restore buildings with certain heritage values, because the gain they obtain from selling the construction rights would help them finance the high restoration cost of the building. Property owners who had construction permits up to the establishment of the new conservation plan and lost it due to a re-examination of the values of their building, will be compensated accordingly[43]. In addition to the conservation plan described above, several other municipal plans are ensuring the protection of international style buildings in the area which is defined as the White City. Examples for such plans may be the Geddes plan ((previously discussed)) and TMM5 regional masterplan, providing the main planning instrument for the Tel Aviv conservation area[44].

An additional notable plan is "Lev Hay'ir plan" (heart of the city plan), which is dealing with urban renewal of zone B of the White City. This plan managed to maintain the original tenants and allowed building additional floors on top, to gain more profit for the property owners. Inside Zone B there are 50 buildings which are defined as to be strictly preserved by the conservation plan, due to their values, but because of the previous "Lev Hay'ir" plan, their value is already damaged as floors are constructed on top of their roofs. Hence, in the conservation plan it is indicated that no further floors are allowed to be constructed in those buildings.

The design of floors addition may be characterized to two typologies:

1. A design that continues the original construction by being identical to it.
2. A design that strongly contradicts the original construction by its style, shape and colour.

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[42] YARIV MANDEL, Interview by the author, August 18, 2024, Tel Aviv.

[43] NITZA SZMUK, TAL EYAL AND TAMARA GARON, *Nomination of The White City of Tel Aviv for the World Heritage List*, UNESCO, p.119.

[44] *White City of Tel-Aviv - the Modern Movement*, UNESCO, accessed November 20, 2025. https://whc.unesco.org/en/list/1096/.

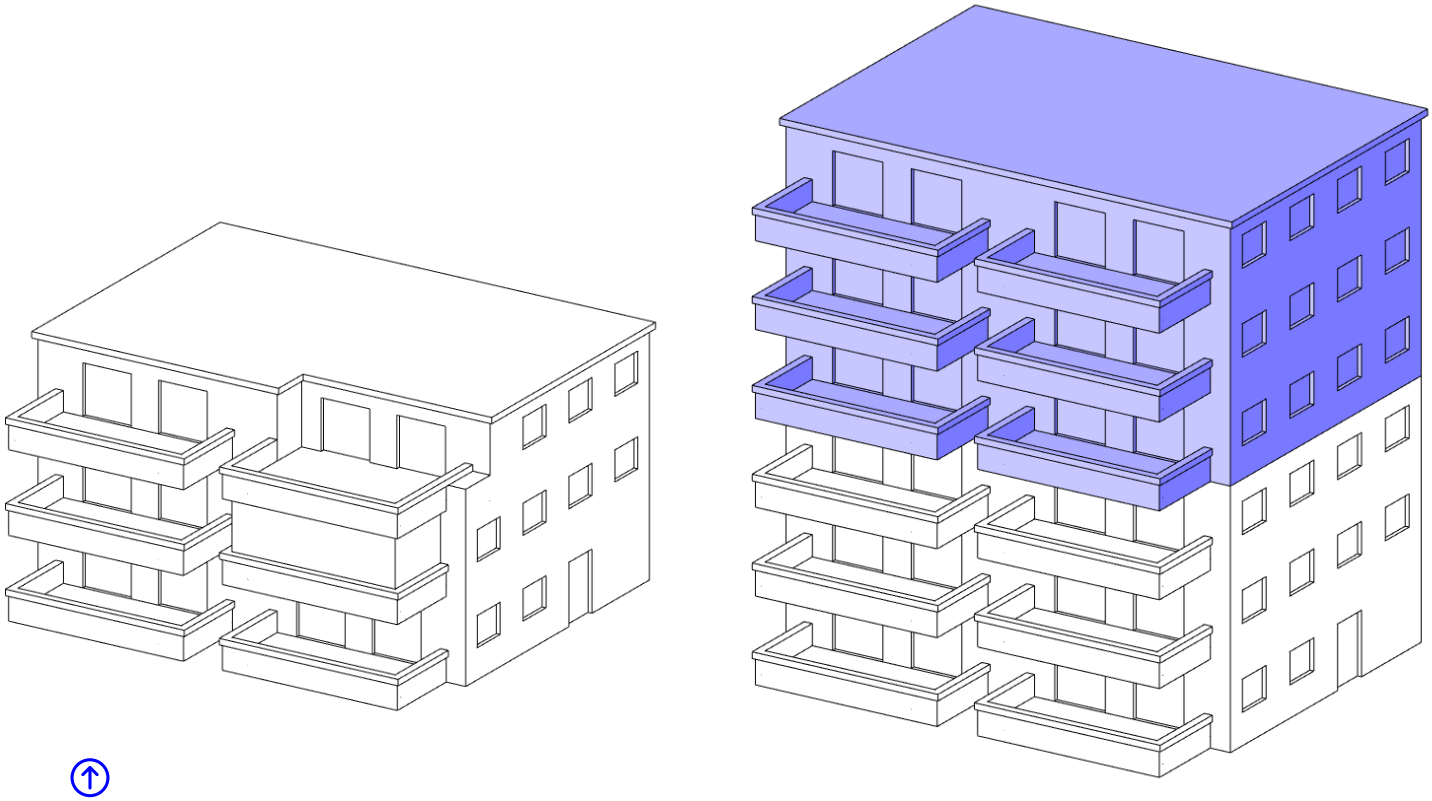

Fig.20 - Volumetric demonstration of construction on heritage building as part of a restoration project, example of type 1 - imitating the design of the original building, inspired by the restoration of Sheinkin St. 2. *Source: Illustration by the author.*

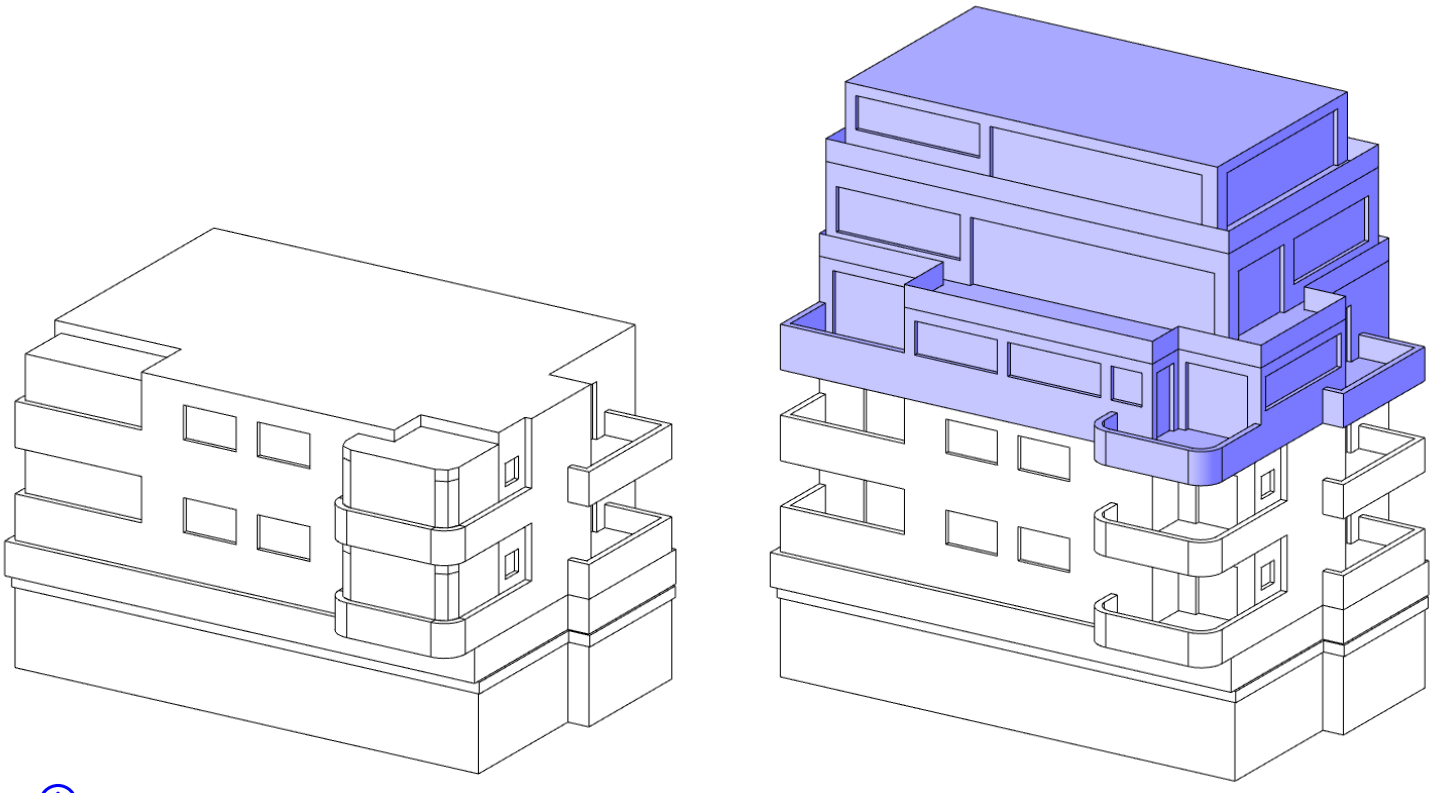

Fig.21 - Volumetric demonstration of construction on heritage building as part of a restoration project, example of type 2 – contrast design from the original building, inspired by the restoration of Ahad Ha'am St. 100. *Source: Illustration by the author.*

Fig.22 - Ahad Ha'am St 100 before its restoration. *Source: Screenshot from Google Earth Street View, unknown date.*

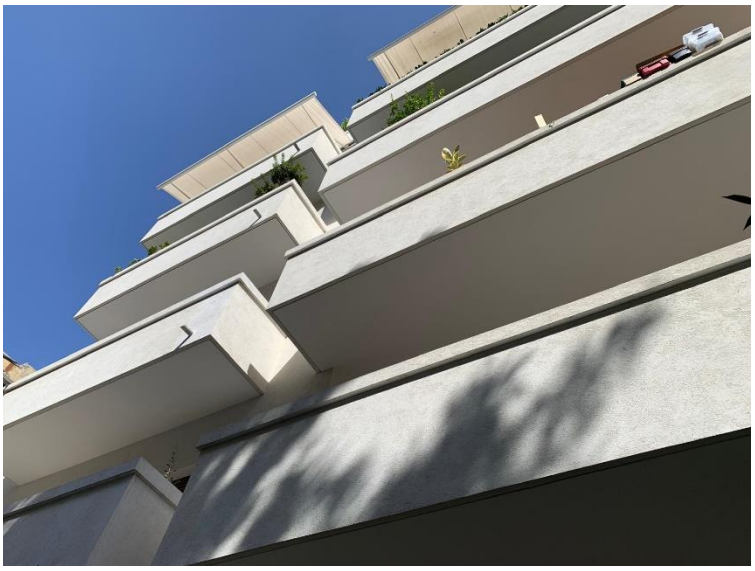

Fig.23 - Ahad Ha'am St 100 after its restoration. *Source: Photo by the author, September 12, 2024.*

Fig.24 - Sheinking St 24 before its restoration. *Source: Screenshot from Google Earth Street View, unknown date.*

Fig.25 - Sheinkin St 24 after its restoration. *Source: Photo by the author, September 12, 2024).*

Due to the need of the property owner to gain the maximum profit from the project, in many of the restoration projects in the White City, the ownership of the building decided to change its function to a boutique hotel. Example of such case is Polischuk House, which today is called Poli House Hotel.

The building, which was inspired with its rounded V-shape by Erich Mendelsohn's Shocken Department in Berlin[45], was built by Shlomo Liakovski in 1934 in Magen-David Square, which was one of the main attractions of the city in its early years. Originally, the house was one of the main commercial and office buildings in the city. The house was refurbished into a boutique luxury hotel in 2013, with a rooftop including a pool and a bar. The project was a collaboration of the architect Nitza Metzger Szmuk and the interior designer Qarim Rashid.

Polischuk house may demonstrate an example of how buildings lose the touch to their original use due to a new desire of luxurious spaces, raising the question whether the functions of the future restoration projects should be managed also by an external factor, more public, which is not the municipality or the architecture studio (which may often reflect the will of the client rather than the one of the architect in charge).

Fig.26 - House Polishuk, Allenby St. 62. Front. *Source: Photo by the author, August 2, 2024.*

Fig.27 - House Polishuk, Allenby St 62. Architectural details. *Source: Photo by the author, August 2, 2024.*

Fig.28 - House Polishuk, Allenby St 62. Rooftop. *Source: Photo by Brown Hotels, https://www.myboutiquehotel.com/it/boutique-hotels-tel-aviv/the-poli-house-hotel-designed-by-karim-rashid.html*

[45] Sharon Golan Yaron, Yael Even, *Architectural Guide Tel Aviv: The White City and Its Modernist Buildings*, Berlin: DOM Publishers, 2019, p.46.

In addition, buildings in the buffer zone of the White City, along with other buildings around the city that hold values important in a level like the buildings who are included as part of the White city, suffer from lack of management. Their lack of economical potential recognition, together with their lack of protective legal framework, leave them exposed to natural degradation. In some cases, the unrecognised building reach a severe level of degradation up to a point where its existence reflects a risk to its residents (see the exposed reinforcement bars in fig.29).

As the advisory body ICOMOS stated in its evaluation to the White City, The Regional Masterplan of Tel Aviv Municipality, TMM 5, presented briefly beforehand, is an important legal instrument, as it is defining the conservation area of Tel Aviv. This masterplan has high potential if a proper defined management for the heritage buildings would be added to it[46], subsequently preventing future degradation cases of buildings with a potential heritage value.

Fig.29 - Merkaz Ba'alei Ha'melacha St 19-21. *Source: photo by the author, August 2, 2024).*

[46] ICOMOS, *Evaluation of the White City of Tel Aviv*, p.59.

Fig.30 - Allenby St 51.
Source: photo by the author, August 2, 2024).

Fig.31 - Idelson St 13
Source: Photo by the author, August 2, 2024.

2.4 CHALLENGES IN PRESERVATION AND RESTORATION EFFORTS - PUBLIC OPPOSITION TO RESTORATION AND HOUSING CRISIS

The preservation and restoration of the White City of Tel Aviv constantly faces significant challenges. These challenges are deeply related with the ongoing housing crisis in the city and the continuous urban development in the city. Restoration projects may cause an increase in the property values and rental prices, leading to potential public opposition from current tenants and the potential shaping of a negative image on the importance of the restoration process.

Due to the fact many tenants do not choose their estate based on its architectural value, when the tenants are required to evacuate or to live in the building as it undergoes extensive restoration process, they often express opposition to this act. In addition, a restoration process naturally is increasing the property value, hence, tenants who could afford living in a certain apartment in a building, would not necessarily be capable to afford the same apartment after the building will go through a restoration process, which initiates a dislocation of residents within a city. Subsequently, tenants who live in a building with certain heritage values, often express concern from an upcoming restoration process in their building, instead of desiring it.

This issue is widely present in the White City of Tel Aviv, where many long-term tenants occupy older modernist houses, usually with a state of degradation to some extent, due to the affordability of the apartment driven by its disadvantages. For these residents, the reasons behind performing a restoration process signifies not just improvements or protection of the building, but a direct threat to their housing stability.

As property values rise, landlords may seize the opportunity to match the value of the property to existing market demands, leading to significant rent increasement or even the conversion of residential units into more profitable functions, such as boutique hotels or short-term renting apartments like Airbnb.

Similar housing crisis due to a touristic interest in a city's historical core of a comparable scale has occurred in Lisbon, Portugal:

> Over the past decade, Lisbon has undergone a dramatic transformation. The once affordable capital city has become a prime destination for tourists, with soaring property prices and a growing number of short-term rentals. Between 2014 and 2024, house prices in Lisbon increased by 176% city-wide and by over 200% in historic districts like Santa Maria Maior and Alfama. This surge in prices has led to a 28% population loss in these neighbourhoods, as long-term

> residents are priced out. In fact, approximately 60% of Lisbon's historic centre is now made up of tourist accommodation, with short-term rentals taking up an ever-growing share of the housing stock[47].

In recent years, several neighbourhoods in Tel Aviv have witnessed a wave of gentrification linked to restoration and urban renewal efforts. These neighbourhoods include also the areas which are defined as the White City by UNESCO. These transformations highlight a broader trend in urban development, where the focus on preserving architectural heritage often goes hand by hand with changing the character of the neighbourhood from residential to more commercial and profitable, impacting directly the existing communities.

Negative sentiment of the residents against the restoration process can thus be understood not only as opposition to an aesthetic change of their building or discomfort from a construction process, but as a defence against their possible displacement due to economic reasons which were not existing without the restoration process. Many tenants view this opposition to restoration efforts as an indirect mechanism against a gentrification process that gradually transforms neighbourhoods, pushing out lower-income residents in favour of new high-income residents.

Demand for housing in Tel Aviv continues to increase due to population growth and urbanization. The relationship between restoration This, together with restoration projects enhance the attractiveness of the White City, are leading to more new high-income residents willing to reside in those buildings, hence, creating a cycle of increased property values that directly contributes to the housing crisis.

Altogether with resilience of existing residents within their building, the profit or the property owner should not be dismissed. The rising price of the housing in Tel Aviv and Israel in general, goes together with a general rise of the price of living. In fact, Tel Aviv was receiving the title of the most expensive city in the world to live at for 2021 by The Economist magazine[48] (Tel Aviv continued to shift positions among the 10 most expensive cities in the world to live at according to the same magazine in the following years).

This may indicate the need of property owners to gain a profit from the building, in accordance for the increasing cost of living in the city.

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[47] *Lisbon Unites Venice, Barcelona, and Málaga in the Tourism Invasion: Historic Neighborhoods Destroyed by Gentrification and Housing Crisis Exposed: Here is What You Need to Know,* TTW, November 1, 2025.
[48] *Tel Aviv Is the World's Most Expensive City*, The Economist, November 30, 2021. https://www.economist.com/graphic-detail/2021/11/30/tel-aviv-is-the-worlds-most-expensive-city.

Fig.32 - Rank of the most expensive cities in the world for 2021, according to The Economist magazine. *Source: The Economist, November 30, 2021. https://www.economist.com/graphic-detail/2021/11/30/tel-aviv-is-the-worlds-most-expensive-city.*

Community forums and open meetings with the municipality serve as platforms for residents to voice their concerns and propose alternative solutions. However, despite these efforts, the influence of wealthy investors and developers in local governance often complicates the fight for affordable housing.

Although there was no restoration process intended, but a complete demolition of the international style structure, the "Romano House" case may be demonstrated as an example of how the municipality can act as an intermediate actor between the public and the real estate brokers, through its power as an authority.

Romano House, a late modernist building in 9 Jaffa Road, constructed in 1947 by Meir Hormann, was Tel Aviv's first shopping mall[49]. The building owns a particular architectural character as its main space is an internal courtyard, a morphology which stands against the approach promoted at Geddes masterplan inspired by garden-city planning. In recent years, the building became a multifunctional space focusing on the leisure of young people. During the daytime, it functions as a vintage second-hand marketplace, but as the evening arrives, the site changes its character, becoming a party space with bars and clubs inside the various shops.

Romano house is considered as one of the most popular attractions known by the young generation across the country, representing the street and night culture of the city, as well as a social interaction space and a hub for various artists. In 2022, 'ybox', a real estate company, purchased the house

[49] SHARON GOLAN YARON, YAEL EVEN, *Architectural Guide Tel Aviv: The White City and Its Modernist Buildings*, p.252.

for a price of approximately 90 million Euros.

The company presented its plan to demolish the structure and construct instead a luxurious residential complex with commercial and leisure spaces[50]. This project instantly received serious criticism from the public[51]. To save the building for demolition, Tel Aviv Municipality reached an agreement with the real estate company, in which the building will become a property of the municipality, and in return the company will receive a building permit for another 20 floors in three of its planned skyscrapers[52], an act that will increase their profits. This case shows the potential of the municipality to overcome the challenges between the need of preservation and the economical urban development.

The challenges reveal a growing awareness of the interplay between urban planning, heritage preservation, and social justice. The struggle of the residents, even if specific to the case of their building, may impact the urban development across the city.

[50] ERIC MIRKOVSKY, *The Tel Aviv Municipality prevented the closure of the Romano House. What will the developers get in return?* Globes, August 1, 2023. https://www.globes.co.il/news/article.aspx?did=1001453936.
[51] RONI LIPSHITZ, *The "Teder" was saved: The mythical Romano house will be transferred to the ownership of the Tel Aviv municipality*, Merkaz Ha'nadlan, August 2, 2023. https://www.nadlancenter.co.il/article/8131.
[52] ERIC MIRKOVSKY, *The Tel Aviv Municipality prevented the closure of the Romano House. What will the developers get in return?*

Fig.33 - Romano House, internal courtyard. *Source: Photo by the author, September 14, 2024.*

Fig.34 - Romano House, external façade. *Source: Photo by the author, 14 September 2024.*

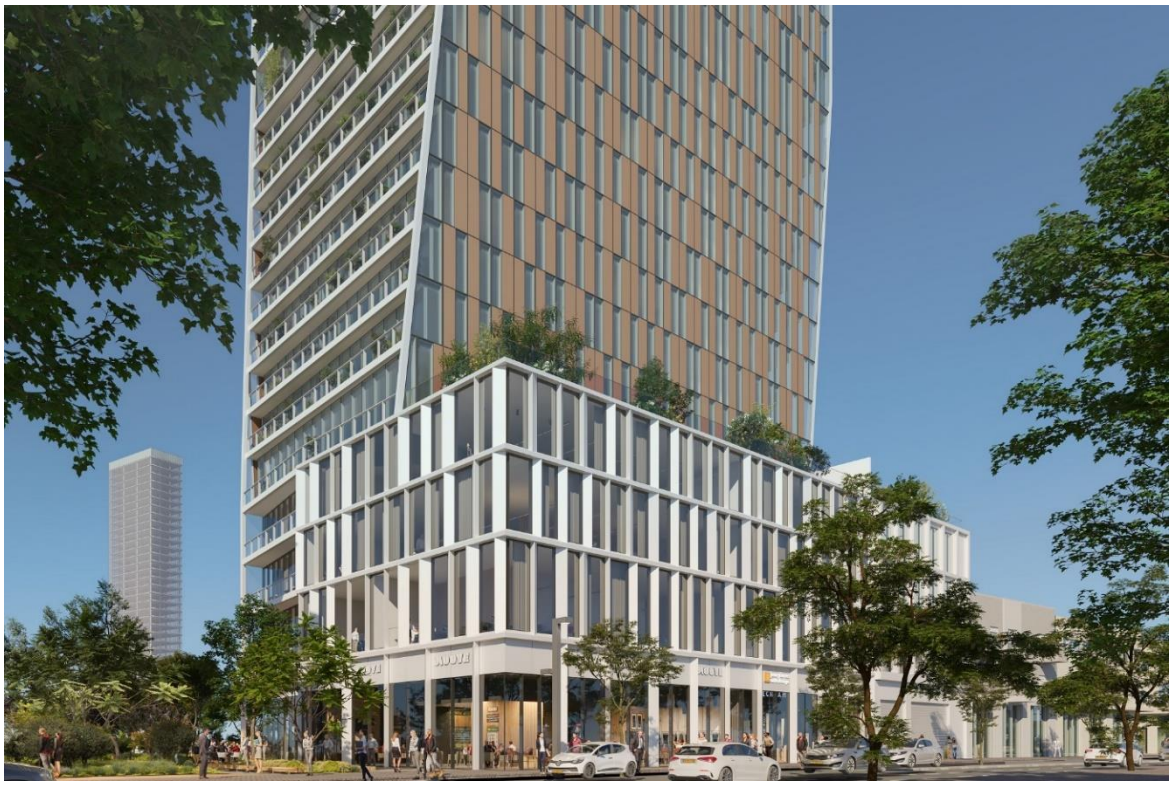

Fig.35 - The proposal for "Gat-Rimon" cancelled project on the ground of Romano House, which involved its demolition. *Source: YBox, https://ybox.co.il/project/פרויקטים-למגורים/גת-רימון-תל-אביב/.*

This realization has immerged into efforts to build coalitions across different neighbourhoods facing similar challenges, amplifying their collective voice in the fight against gentrification.

There is a pressing need for policymakers to recognize the unintended consequences of preservation efforts on local communities. An example for such can be policies that will serve as a protective measure for residents. Those policies should limit the rate of rent increases in historically significant areas, by Implementing rent control measures that will function as a buffer against sudden increasements in housing costs, allowing long-term residents to remain in their homes.

Urban renewal programs such as Lev Ha'ir program in the 1990s (see subchapter 4.3), where property owners were receiving more construction freedom during the restoration process (subsequently more space to accommodate new residents), in return of ensuring the rent price of the apartments for the existing tenants would not increase, should be further investigated, examining also the impact of the construction addition on the architectural character of the building.

Dr. Metrany states that one of the possible reasons to the opposition of the public to restoration projects within the white city is their lack of awareness to the heritage it contains[53]. The public, when asked about heritage, would think of old buildings from a few centuries ago, and not on the modernist buildings of the White City, which by being built in the 1930s, are still considered relatively new. According to Metrany, if the public would achieve the identification of heritage in the White City building, it will have the intention to preserve and protect it from future false interventions also after the restoration process is done.

This realisation states the need for strategies that include community engagement in the decision-making process, as well as involvement of the public in the actual restoration process, through events such as 'Open for Renovation' by Liebling Haus, which allowed the public to participate in the restoration process of the modernist building before becoming a conservation centre. Such strategies can help mitigate tensions and increase the interests of residents in the field of restoration, and possibly increase the support of the residents in future restoration initiatives.

In other words, the importance behind the restoration projects should be more communicated to the public, in order to change the public opinion on restoration as a realisation that the original intention of restoring a building is not to create a higher profit for the property owner by raising the value of the apartments or regenerating its functions, but to save the building form possible demolition

[53] Dr. Keren Metrany, Interview by the author, August 12, 2024, Tel Aviv.

due to degradation. In addition, it should be communicated to the public that one of the main aims of restoration is to highlight the particular values of the building for future generations, as many buildings in the city, as simple as they may seem to the existing residents, may serve as a vital historical document in the future to the modernist construction culture and the story of the city's urban development.

Policies that maintain both the needs of the residents and the profit wishes of the property owner should be developed. A possible strategy is creating advisory boards composed of residents, heritage experts, and urban planners to guide preservation efforts in a way that balances heritage conservation with the need for affordable housing and economic profit.

This imbalance demonstrated raises the critical questions about who benefits from restoration efforts and who is left to bear the burdens of rising costs and displacement. Moreover, it raises the question of how the professionals involved in the restoration process can assist to restoring this balance between the various stakeholder existing in a city like Tel Aviv, that deals with both a housing crisis that puts affordable housing at risk for many of its residents, and a rich architectural heritage in danger of losing its value through the passage of time.

Another factor which may put the built heritage of Tel Aviv at risk is the construction, for the first time in the city, of light rail and metro systems, which are profoundly transforming the city's urban form and identity. These mass-transportation projects require deep interventions in the existing urban fabric, through the placement of rails, requiring intervention in urban routes, and through the construction of underground stations for both the metro and the light rail's underground segment. These interventions pose a challenge as they are integrated in a dense and complex urban environment.

Naturally, these projects are reshaping the city's urban appearance. While they can have a negative impact on Tel Aviv's urban heritage, their advantages should be noted. The new transport systems will link a large number of municipalities and will contribute to the mitigation of the housing crisis in the city as discussed in this chapter.

The new transportation project means will enable people to live in surrounding cities with lower housing demand while still be able to sustain a working routine in Tel Aviv due to the easy commuting between the various cities.

As the opening of the future metro lines, involving the most extensive construction and urban intervention, is expected only in the next, the extent of upcoming demolitions and urban transformations remains uncertain and requires more assessment in the future to be shared with the public as well as with conservation committees, due to the recent conception that heritage is no longer just the historic building but

also the integrity of an urban environment.

However, what can already be evaluated is the impact of the Red Line of the light rail system, which connects five cities: Petah Tikva, Bnei Brak, Ramat Gan, Tel Aviv, and Bat Yam. Within Tel Aviv the line is completely underground, due to the city's density and complexity, making it function as a de facto metro line.

This development has modified the city's existing urban fabric, in some areas for the first time since their original formation, while fostering new urban development projects such as "HaMesila Park", above the connection between two underground stations, once being a large parking lot.

It should be noted that most stations were strategically located along the city's main perimeter roads, areas characterized by lower building density. Consequently, the interventions required for constructing the underground stations, involved mainly modifications of public urban space without a recognized particular significance, rather than demolition of built heritage.

An exception was the case of the Ma'ariv Bridge, which was demolished on August 21, 2015, after 39 years of operation as one of Tel Aviv's major transportation routes, in favour of the construction of the Carlebach underground station of the Red Line.

From this example, it can be deduced that the development of the mass-transit system in Tel Aviv during the next decade poses a significant challenge to heritage preservation in the city, as it carries a risk of demolition for certain heritage structures. This situation underscores the importance,

Fig.36 - Ma'ariv Bridge during its construction phase in 1976. *Source: Ynet, "Farewell to the Maariv Bridge: The Story of a Tel Aviv Symbol," Ynet, August 13, 2015, https://www.ynet.co.il/articles/0,7340,L-4690087,00.html./.*

perhaps now more than ever, of adopting new, comprehensive, and participatory methodologies for the conservation of the existing built heritage. Furthermore, it highlights the need to strengthen the legal framework supporting heritage preservation, in order to prevent unnecessary demolitions in cases where built heritage could coexist with the infrastructure of the future light rail and metro stations projects without compromising the functionality of either of the two.

In addition, the development of underground stations in areas surrounded by modernist and eclectic architectural heritage presents a unique opportunity. These stations, functioning as contemporary public spaces with a high flow of users, have the potential to increase public awareness and appreciation to the cultural heritage. This potential will be analysed in depth in the following Third Chapter and will serve as a foundation for the design proposal presented in the Sixth Chapter.

Fig.37 – Demolition of Ma'ariv Bridge in favor of the construction of the Red Line, August 21, 2015.
Source: Israel Hayom, "Watch the Destruction of the Maariv Bridge: The Maariv Bridge Was Blown Up and Is No More," Israel Hayom, August 21, 2015, https://www.israelhayom.co.il/article/307905.

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9. *Farewell to the Maariv Bridge: The Story of a Tel Aviv Symbol*, Ynet, August 13, 2015. https://www.ynet.co.il/articles/0,7340,L-4690087,00.html.

Source: San Giovanni Metro Station, Rome. https://archidiap.com/ricerche/allestimento-archeologico-della-stazione-metro-c-fermata-san-giovanni/.

Chapter 3: Metro Stations as Potential Educational Spaces

« Metro stations act as 'white canvases', where commercial, political and cultural messages are displayed. These messages contribute to city branding while simultaneously influencing the perception and interpretation of the historic urban landscape above ground »

-Plácido González Martínez

Source: San Giovanni Metro Station, Rome, https://www.iguzzini.com/projects/project-gallery/rome-metro-c-line-san-giovanni-station/.

3. *Metro Stations as Potential Educational Spaces*

3.1 The metro station as a high-density space of movement with cultural potential

Metro stations can be defined as important transportation nodes that carry many intracity trips and constitute an important part of the urban spatial structure[1].

The internal space of the metro station is usually composed of a ticketing floor, which is the first interaction of the passenger with the underground space of the station usually, a technical floor below it (not accessible to the public), and eventually the platforms floor, through which the passenger can enter the metro to reach the desired destination.

Since the development of metro in the 19th century, in the shadow of the rapid industrial revolution, city governments gave an importance for the design of the metro station[2].

Due to the intensified movement of a high number of passengers in a closed underground space, the metro station became a crowded space where the movement of the user in the space has a direct impact on the commuting commodity, stressing the need for an adequate design strategy which is 'controlling' the user at the station to assure an optimized and time-efficient orientation in the interior space.

As the modern passenger can be characterized as one who attends the metro station at least twice a day, as part of the commuting pattern to the workplace or other destination, the metro station may hold the potential of 'controlling' the knowledge to which the public is exposed to in a certain way. In order to reach the metro, the passenger needs to pass through various passages, often narrow due to the limited open space underground, characterized by corridors and vertical circulation spaces (stairs, escalators, elevators).

Hence, it can deduct that metro station design may have a direct impact on the experience of the public during their commuting.
This potential can be used as s tool by the architect, to not only improve the psychological comfort of the public, but also to try and manipulate the public, in the positive manner, for integration with new knowledge such as of the cultural heritage discipline.

This integration can be labelled as 'Metro Heritagization'. This term is introduced by Plácido González Martínez defines in his article *'Minding the gap': The heritagization of metro stations and its perception by users in*

[1] Heping Jiang, Ruihua Liu, Shijia Luo, Disheng Yi & Jing Zhang, *Understanding Metro Station Areas' Functional Characteristics via Embedding Representation: A Case Study of Shanghai*, Scientific Reports 15 (2025): 2725, p.1. https://doi.org/10.1038/s41598-025-87336-6.
[2] For a further study on the topic, refer to Tiziana Casaburi, *Roma. Un Secolo di Metropolitana*, Confronti: infrastrutture urbane e città storica (2-3), Arte'm, December 2023, pp.68-74.

the Shanghai metro: «Metro heritagization, understood as the introduction of heritage related immovable and movable elements in metro stations, is a particular form of beautification»[3].

In another article on the subject of the same author, *Echo from the underground: the heritage customization of subway infrastructures in Shanghai's listed areas*, Martínez reaffirms the potential cultural role the metro station can obtain in the city in which is situated, not only by describing the specific built heritage which is situated above it but also by functioning as a propagation mean for cultural heritage as a discipline:

> Stations act as gates for locals and tourists, creating the opportunity for identity construction and visitor appreciation. At the same time, by means of customization, stations become an underground 'parallel heritage city', not only reflecting the historic environment above round but ales becoming a powerful tool for the dissemination of the authorized heritage discourse that guides heritage appreciation[4].

In other words, the metro heritagization can be viewed as a powerful instrument for the citizen's education on cultural heritage, similar to the objective of museums.

This positive impact transmitted through the design of the metro station, can be viewed also as a counteract to possible negative psychological effects the conventional metro station is conveying due to its natural constrains from being an underground space. such negative effects may be the lack of natural light, light of natural ventilation and the overcrowding in the space especially during rush-hours (hours in which a work or school day is either beginning or ending).
The success or failure rate of such integration in the metro station design is a question which should be further researched, as this design practice as a subject of analysis can be considered as relatively new.

Nonetheless, a notable analysis to this dilemma is one on the heritagization of Shanghai metro stations. The previously mentioned Martínez in his article *Minding the gap*, conducted a qualitative analysis, through interviews with common commuters of Shanghai metro, where he questioned them on the effectiveness of the design approach integrating local cultural heritage to the interior space of the metro stations which are situated at the 12 areas in Shanghai listed as heritage sites for protection by Shanghai Municipal Government in 2003.

One interviewee has found the integration of cultural heritage to be a matter which is not negative, but neither strongly important: *«I think (the introduction of heritage content) is*

[3] Plácido González Martínez, *'Minding the Gap': The Heritagization of Metro Stations and Their Role in the Regeneration of Urban Rail Infrastructure*, Journal of Urban Management 12, no. 1 (2023), cit., p.2. https://doi.org/10.1016/S0886-7798(22)00412-6.
[4] Plácido González Martínez, *Echo from the Underground: The Heritage Customization of Subway Infrastructures in Shanghai's Listed Areas*, Built Heritage 5 (2021), cit., p.2. https://doi.org/10.1186/s43238-021-00024-y.

okay if it doesn't affect the people, traffic, or safety»[5].
A second interviewee continued the trend, by viewing the matter insignificant, out of the belief this is not an important purpose for a metro station: *«For most people, the subway station is just a mean of transportation… Of course, in addition to the functionality of the subway, it also has to meet some cultural needs, especially in the contemporary era»*[6]. Nonetheless, this interviewee, unlike the previous one, is indicating the importance of culture as a notion to be considered in present society.

This claim is furtherly supported by the third interviewee, which stated that *«If there are more decorations of the cultural stuff, people will notice them and eventually-one day will realize the significance of the heritage area»*[7].

It can be inferred that while the cultural heritage integrated into a metro station design is not considered as a negative action by the public, there is still a gap between its significance viewed by the expert and the public. A possible solution is a further engagement of the public with the heritage displayed in the metro station, which will be later discussed more profoundly in the chapter.

In addition, the difference between each case study should be considered when concluding from such qualitative analysis. In other words, perhaps the interviewees do not see the cultural heritage integrated into the metro station as a significant contribution because it was not implemented successfully as in other examples of such metro museum-stations.

[5] PLÁCIDO GONZÁLEZ MARTÍNEZ, *'Minding the Gap': The Heritagization of Metro Stations and Their Role in the Regeneration of Urban Rail Infrastructure*, cit., p.3.
[6] PLÁCIDO GONZÁLEZ MARTÍNEZ, *'Minding the Gap': The Heritagization of Metro Stations and Their Role in the Regeneration of Urban Rail Infrastructure*, cit., p.3.
[7] *Ibid.*

3.2 Spatial parallelism with museum environments

As discussed before, a metro station can be considered as a unique space, where the orientation inside of it is much more controlled by the design. From this premises the definition, as used in the article *Echo from the underground: the heritage customization of subway infrastructures in Shanghai's listed areas*, of «unavoidable museum»[8], can be used when talking about the heritagization strategy of metro stations.

An additional space characterized by the display of heritage assets in its interior space is the museum.
The museum can be defined as a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing[9].

Nonetheless, there is a strong difference through the characterization of museums and metro stations, as each has a distinctive function which impacts its usage patterns.

For instance, a museum is characterized by a slow pace of movement and a low exchange of people in its space, while metro stations are characterized by a fast pace of movement and high exchange of people throughout the day.

This difference of movement pace in the space is crucial for reaching the aim that a visitor will manage to sufficiently absorb of the heritage. While a visitor in the museum usually has the time for stopping and inspecting the displayed heritage, the visitor of the metro museum is usually in a hurry to enter the metro. Normally, a metro arrives in a constant interval of up to 10 minutes, unlike other transportation hubs such as train stations, where the visitor usually spends more time in the architectural space. The short time in which the designer has "a hold" of the user in the space, makes it difficult catch the attention for interactive, whether passive or active, with the displayed heritage.

In addition, the people who are visiting the museum often are there out of a deliberate choice to view the heritage assets which are displayed in the various spaces. This allows the designer to have more freedom in the distribution of heritage display throughout the museum.

In comparison, the people who visit the metro station often do so not for the sake of attending the station out of their own interest, but of need of commuting, as they need to reach the platforms in order to enter the metro

[8] Plácido González Martínez, *Echo from the Underground: The Heritage Customization of Subway Infrastructures in Shanghai's Listed Areas*, cit., p.16.
[9] International Council of Museums, *Museum Definition*. Accessed November 17, 2025. https://icom.museum/en/resources/standards-guidelines/museum-definition/.

public transportation vehicle and reach their destination.

In my opinion, this may be an obstacle to the designer of the space as the heritage objects, as part of the heritagization process of the station, cannot be allocated in a more free manner in the space as in the case of museums.
Instead, the heritage objects need to be allocated in key areas where the space is characterized by higher density, so the users, often not aware of or not attending the station for the purpose of viewing its displayed heritage objects, would be more exposed to it during their relatively short time spent in the station's interior space.

Those examples are crucial to take into account during a heritagization process of a metro station. The station holds great potential for its transmission of cultural heritage, yet, for reaching these objectives there are several challenges derived from the uniqueness of the metro station as a relatively small space, designed to host a high number of people in constant movement for short intervals of time.

Another personal observation on the difference between the two environments is the spatial configuration. While museums often contain a large, centralized space, segmented to certain paths according to the designated design, metro stations are usually characterized by a more long and narrow passages, where the first priority should be the comfort and orientation of the passenger and not the optimization of exposure to heritage.

As discussed, there are several distinctions between a metro station and a museum when it comes to the conditions for displaying heritage in the given space. A general conclusion can be that the allocation of heritage objects in metro station is more difficult, making the heritagization of metro station a possibly hard objective to achieve, especially when the metro station is adapted to display cultural heritage and not designed intentionally to hold this kind of function.

In several conditions, where there is an existing museum above the metro station, the heritagization of the metro station may be easier, also if the station is already existing so the architect deals with an adaption and not an intentional design. The opportunity given derives from the fact that people who enter the specific metro station may be visitors coming or going from the museum above. In that case, the heritagization of the station may be easier as the people would possibly already have the interest in heritage, making the exposure to heritage easier due to higher chance for interaction of the public with the displayed heritage.

Example for such is the "Louvre-Rivoli" metro station, located under the historic "Louvre" museum in Paris. Replica statues stand in softly lit corners on a platform, making it look like an underground art gallery. The visitor can spot familiar figures like the Venus de Milo, the Code of Hammurabi, and Les Esclaves, along

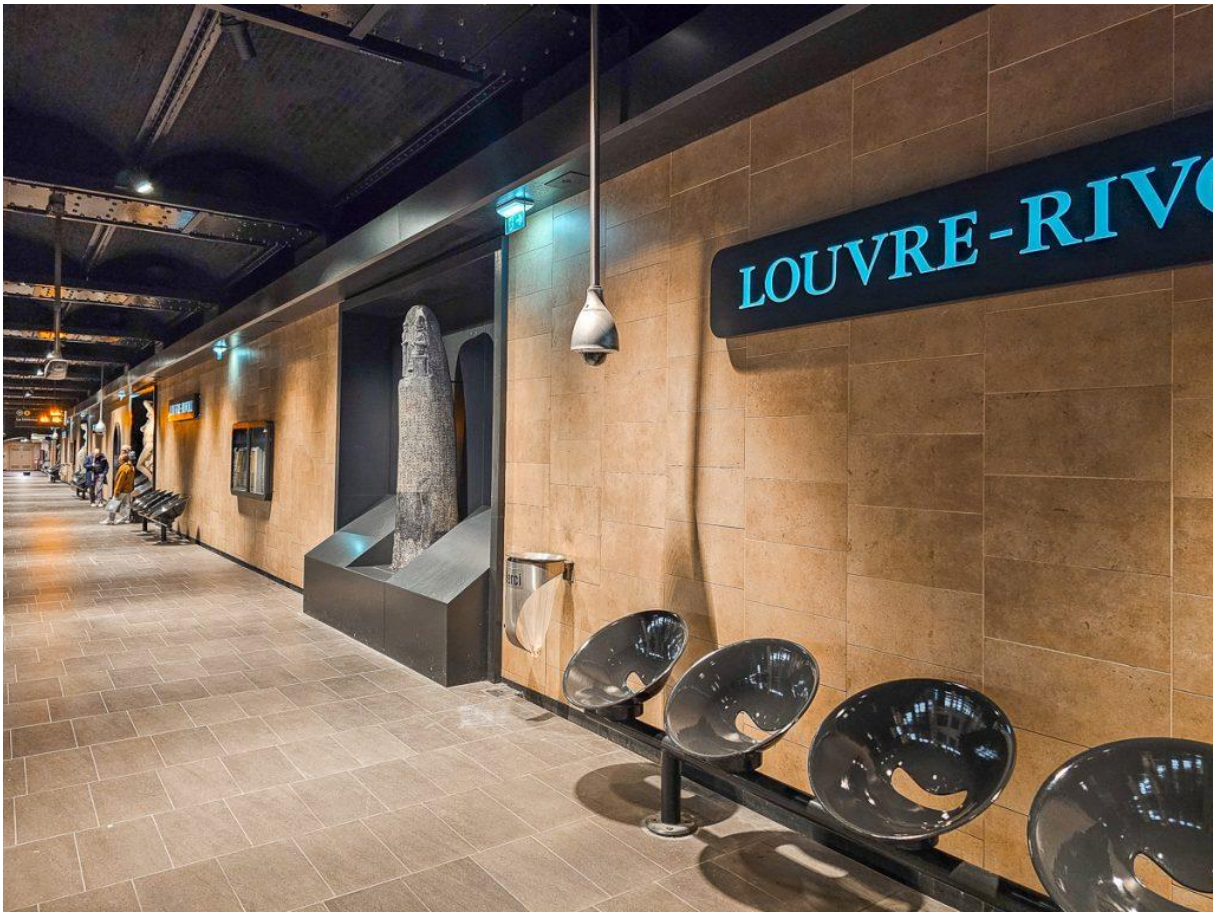
with other Greek and Egyptian sculptures[10].

This strategic design holds the key advantage of continuity. The visitor can start or either continue the didactic path from the museum already from the metro station, gaining a fruitful exposure to heritage in a less conventional space.

A possible opportunity is when there is an existing built heritage above a metro station which is yet to be designed. This particular condition is the theme of the proposed project for Honigmann House and the future Magen-David metro station, presented in the sixth chapter.

In that project, the strategy implemented by the author of this work was to design at the same time museal spaces both in the built heritage structure and the future metro station, in order to ensure a successful continuity of a heritage path, starting below the ground and continuing above it, or vice versa.

Fig.1 – Louvre-Rivoli metro station in Paris, with a visible replica of Code of Hammurabi. *Source: France Adventurer, "10 Beautiful Metro Stations in Paris Worth Stopping By," FranceAdventurer.com, accessed November 17, 2025.*



[10] FRANCE ADVENTURER, *10 Beautiful Metro Stations in Paris Worth Stopping By*. Accessed November 17, 2025. https://franceadventurer.com/beautiful-metro-stations-in-paris/

3.3 Case studies overview

Currently, various metro stations around the world are integrating withing themselves museum spaces, demonstrating in reality the potential of the metro station as a cultural space. The heritagization of those stations is derived from different contexts, and its application may be a result of adaptation of an existing space or as part of a new design.

A first notable example can be the integration of archeological ruins and artifacts into the underground metro stations in Athens, Greece[11]. In her article, Marilena Papageorgiou describes the successful integration of cultural heritage with the underground space of Athens:

> Greece entered a new era regarding the use of its underground space. With the construction of the Athens Metro, the antiquities encountered – which were once considered to be a 'curse' - turned into a 'blessing'. Indeed, since that time, the archeological treasures found in other underground spaces are very often displayed *in situ* and in continuity with the cultural and archeological spaces of the surface[12].

Fig.2 – Interior of Syntagma metro station in Athens, featuring displays of archaeological finds. *Source: Duncan Howitt-Marshall, Discovering Archaeology in the Athens Metro, Greece-is, September 30, 2025.* https://www.greece-is.com/discovering-archaeology-in-the-athens-metro

[11] For a further study on the heritage aspect of Athens metro network, refer to FOTINI KANTZAVELOU, *The Subterranean City or The Old and the New in a Relation of Disturbance and Balance. The Case of the Athenian Metro*, Confronti: infrastrutture urbane e città storica (2-3), Arte'm, December 2023, pp.111-118.

[12] MARILENA PAPAGEORGIOU, Networking Underground Archeological and Cultural Sites: The Case of The Athens Metro, Think Deep: Planning, development, and use of underground space in cities, ISOCARP, 2015, pp.54-55. https://www.greece-is.com/discovering-archaeology-in-the-athens-metro.

Another example may be the integration of cultural heritage into the underground space of Naples metro stations[13]. In the case of Duomo metro station, designed by Massimiliano Fuskas, Archaeology is integrated into both the underground and ground space through the use of a glass roof in the piazza above the metro station (see fig.3), which connects the urban space with the archaeological finds[14]. In addition, the archeological excavation process is communicated into the underground space through a educative walls across the station (see fig.4).

Fig.3 – Glass roof above Naples Duomo metro station designed by Massimiliano Fuskas. *Source: Annalisa Tirrito, Naples' New Duomo Station: Fuksas's Project, Architettura Ecosostenibile, March 30, 2021. https://www.architetturaecosostenibile.it/architettura/progetti/stazione-duomo-napoli-fuksas-392.*

Fig.4 – Communication of the archaeological excavations in Naples Duomo metro station. *Source: https://metropolitanadinapoli.it/stazione-duomo/*

In Rome, a heritage-abundant city with many important archeological remains such as of the Roman Empire, a planning of a new underground metro line may include various constructional obstacles related to existing heritage situated above or under the ground[15].

Such is the case with San Giovanni metro station in Rome, which its part hosting line C extension was opened in 2018.

The construction of the San Giovanni station allowed for one of the most significant urban archaeological excavations ever carried out in Rome, both for the complexity of the stratigraphy explored and the wealth of data acquired. The archaeological

Fig.5 – Archaeological excavations as part of the San Giovanni line C metro station project. *Source: Metro C Scpa, "Stazione San Giovanni," Metro C, accessed November 17, 2025, https://metrocspa.it/lopera/stazione-san-giovanni/.*

[13] For a further study on the heritage aspect of Naples metro network, refer to UGO CARUGHI, *La metropolitana a Napoli. Due casi limite: Municipio e Duomo*, Confronti: infrastrutture urbane e città storica (2-3), Arte'm, December 2023, pp.75-86.

[14] ANNALISA TIRRITO, *Naples' New Duomo Station: Fuksas's Project,* Architettura Ecosostenibile, March 30, 2021. https://www.architetturaecosostenibile.it/architettura/progetti/stazione-duomo-napoli-fuksas-392.

[15] For a further study on the heritage aspect of Rome metro network, refer to TIZIANA CASABURI, *Roma. Un Secolo di Metropolitana*, Confronti: infrastrutture urbane e città storica (2-3), Arte'm, December 2023, pp.68-74.

excavations covered an area of approximately 3,000 m2 to a depth of approximately 15-18m and brought to light the remains of a large agricultural farm from the first half of the Imperial period[16].

The design of the station, designated to be a public museum in addition to its functionality as a transportation hub, was done with high attention and intentional aim of highlighting the archaeological artifacts from the Roman Empire period, as described in the Line C website:

> The project was developed with the aim of restoring the stratigraphic character of the site , as revealed during the excavation, by unravelling a story told through the perimeter surfaces that extend along the horizontal and vertical paths of the station spaces. The entire exhibition space, composed of display cases with structures and artifacts, wall narrations, video projections, and floor reproductions of the traces of the discovered reservoir, extends across the metropolitan spaces accessible to users, effectively making San Giovanni station a museum station in which innovation, safety, functi onality, and history merge[17].

Therefore, it can be interpretated that the design strategy implemented in this case is integration of the heritage through allocation of the artifacts inside the walls, allowing both a visible display of tangible heritage and a continuation of the passages throughout the station without the physical heritage objects to be an

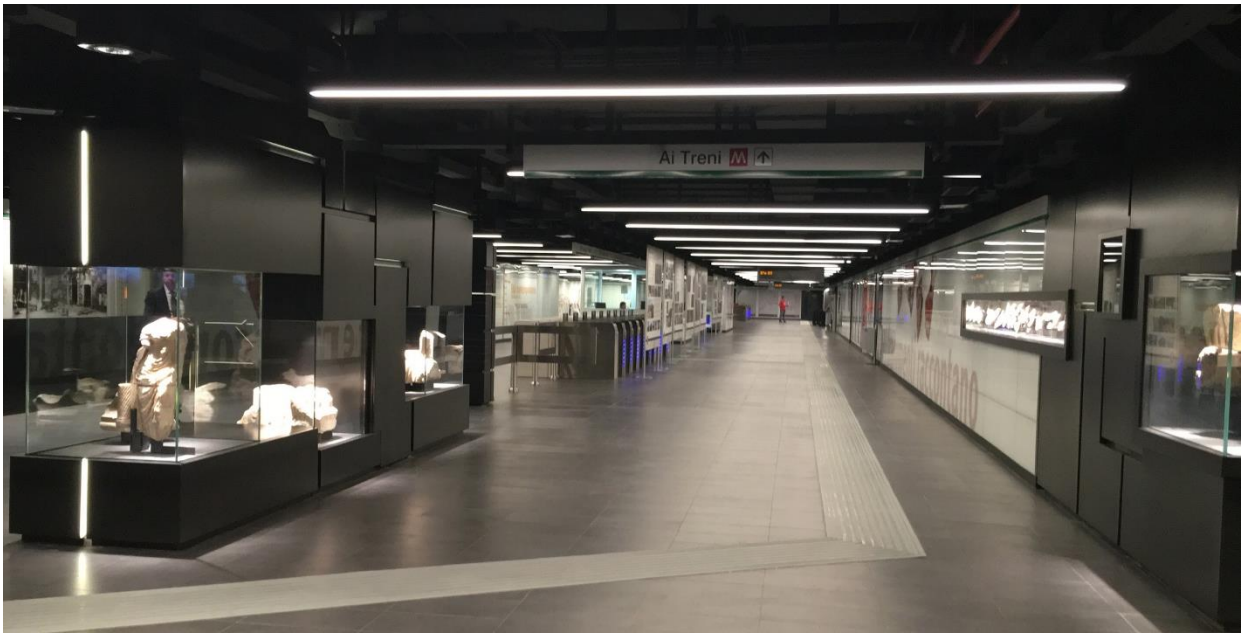


Fig.6 – Ticketing level of San Giovanni line C metro station, displaying archaeological artifacts. *Source: Metro C Scpa, "Stazione San Giovanni."*

[16] METRO C SCPA, *Stazione San Giovanni, Metro C*. Accessed November 17, 2025. https://metrocspa.it/lopera/stazione-san-giovanni/.
[17] *Ibid.*

obstacle to the user orientating in the internal space.

The museal identity of the station was characterized not only through the display of archaeological artifacts, but also through cultural information on the Roman Empire in a textual form incorporated at key areas in the station such as the walls of the stairs connecting between the platforms to the ticketing floor.

Fig.7 – Platform level of San Giovanni line C metro station, displaying textual information. *Source: Metro C Scpa, "Stazione San Giovanni."*

In addition, the design decisions making the station obtain a dual function of museum and transportation node go to the smaller details, as the dark gray-black color of the surfaces, together with direct lighting, can be interfered as an attempt of leading the passenger to observe the highlighted artifacts without physically disturbing the path.

An additional case showcasing integration of archaeology to the metro station making it a partly museal space is the Amba Aradam station.

This station, located as well on the line C of the metro network in Rome, and similarly to San Giovanni, deals with the existence of a built heritage and the challenge of integrating it to the design of the mesto station. In this case, archaeological excavations in the site have found Roman barracks dating back to the 2d century AD, built during the time of Emperor Hadrian[18].

Unlike San Giovanni metro station mentioned above, here, possibly due to the large size of the heritage asset, the museum part is separated spatially from the metro passages, yet both are part of the design of the same station.

The challenge of integrating large-scale tangible-built heritage was solved through levelling disconnection, while maintaining a visual connection through a walkway which will allow visitors to walk suspended above the remains of the

Fig.8 – Walkaway in Amba Aradam metro station integrating the passengers to the museal area of the station. *Source: Mobilita.org, "ROMA METRO C | Ecco come sarà la Stazione Amba Aradam," Mobilita.org, February 23, 2020, https://mobilita.org/2020/02/23/roma-metro-c-ecco-come-sara-la-stazione-amba-aradam/.*

[18] MOBILITA.ORG, *ROMA METRO C | Ecco come sarà la Stazione Amba Aradam*, February 23, 2020. https://mobilita.org/2020/02/23/roma-metro-c-ecco-come-sara-la-stazione-amba-aradam/.

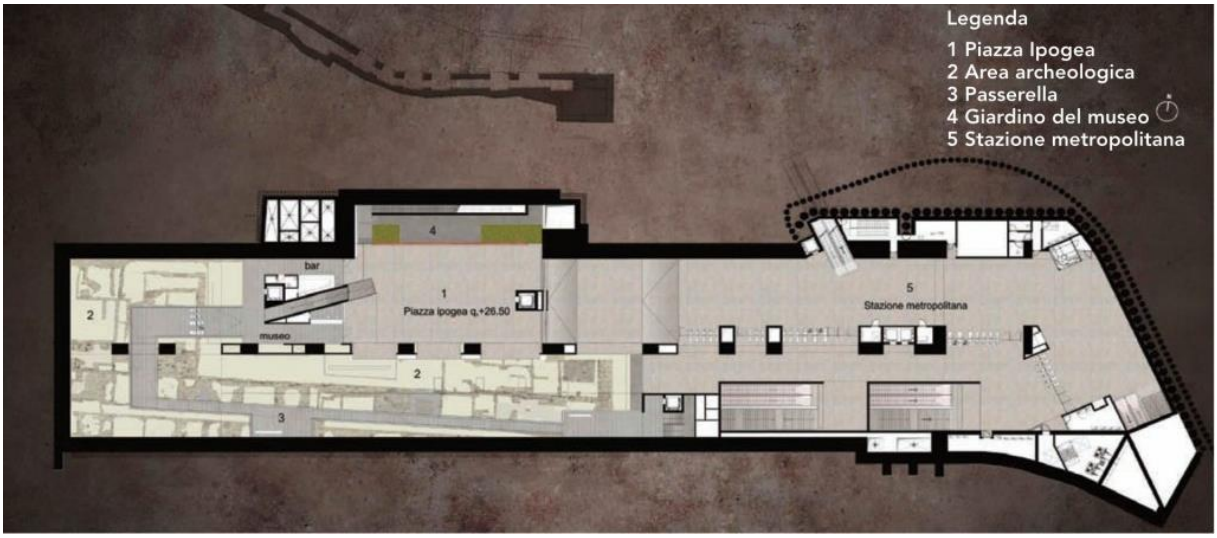


Fig.9 – Floor plan of Amba Aradam metro station ticketing level, showing the spatial division between the station to the museum area. *Source: Mobilita.org, "ROMA METRO C | Ecco come sarà la Stazione Amba Aradam."*

Roman barracks[19]. For the small-scale heritage artifacts, the design integrates glass cases containing the objects found during the excavations[20].

Lastly, the case of Shanghai metro, mentioned also before in this chapter, demonstrates how the heritagization of metro stations can answer needs of the authority of connecting the public to certain values.

The Shanghai's city government project can be described as integration of architectural and artistic features of the Shanghai metro stations located within the limits or within the 12 'Cultural and Historically Significant Heritage Areas of Shanghai' listed in 2003. Considering that the Shanghai metro serves an average of 10 million riders every day, these stations act as

Fig.10 – Representation of street activity at East Nanjing Road Station. *Source: Plácido González Martínez, "Echo from the Underground: The Heritage Customization of Subway Infrastructures in Shanghai's Listed Areas," Built Heritage 5 (2021): 13, https://doi.org/10.1186/s43238-021-00024-y.*

[19] MOBILITA.ORG, *ROMA METRO C | Ecco come sarà la Stazione Amba Aradam*, February 23, 2020. https://mobilita.org/2020/02/23/roma-metro-c-ecco-come-sara-la-stazione-amba-aradam/.
[20] *Ibid.*

privileged gates for both the local population and visitors to heritage areas[21].

The heritage features represented in the selected metro stations include calligraphy engravings, reproductions of city landmarks, religious motives such as Buddhist iconography, key figures to Shanghai's history, traditional art and even representation of intangible heritage such as the bicycle symbolizing the urban image of Shanghai[22].

A more controversial type of heritagization was done specifically in Xintiandi Station, where the government chose to demonstrate the history and key figures of the communist party through dedicated display.
The objective of this design strategy may be reinforcing to the passengers of the metro the governmental authority through a possibly manipulated use of the public space.

From this strategy, it may be understoof that, as mentioned beofre, a metro station can be powerful tool, due to its functionality as a space attended by a high amount of visitors out of the basic necessity of commuting in this city. Following the example of Shanghai metro stations, a possible discussion may be legitimacy of using metro stations as a space for tranmsitting political heritage.

Overall, the presentation of the example above aims to show the power of heritagization as a tool to encourage recognition and awareness on certain heritage values amongst the public. The transmitted heritage can can be both tangible, as the cases of archaeological artifacts displayed Rome's metro, and intangible as the cases of urban history communicated in Shanghai's metro stations.

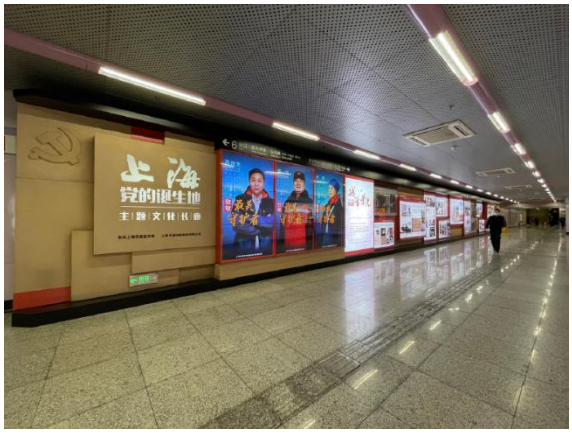


Fig.11 - Exhibition on the founding of the Communist Party of China in Xintiandi Station. *Source: Martínez, Echo from the Underground, 14.*

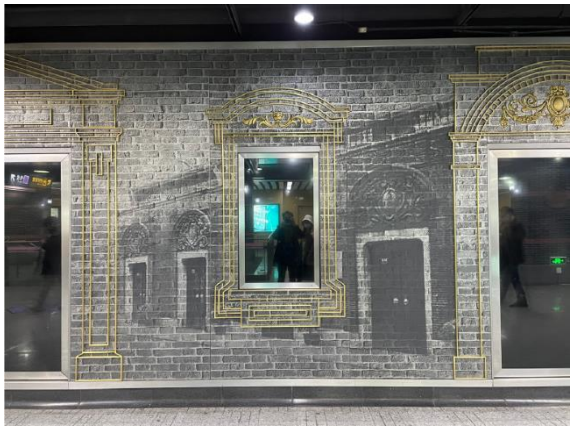


Fig.12 - Representation of the shikumen gate of 76 Xingye Road, Site of the First National Congress of the Communist Party of China. *Source: Source: Martínez, Echo from the Underground, 14.*

[21] Plácido González Martínez, *Echo from the Underground: The Heritage Customization of Subway Infrastructures in Shanghai's Listed Areas*, p.4.
[22] *Ivi*, p.8.

3.4 Key insights and potential integration with Digital Heritage

As discussed in the chapter, since their first development in the 19th century, metro stations design held an aesthetic significance beyond the mere objective of being a transportation architectural node connecting the passenger between the street and the public transportation vehicle for which the station was built for – the underground train connecting various locations in the metropolitan city.

The contemporary architectural approach aiming for integration between various discipline, has led to an interesting new notion – the heritagization of the metro station.

When using the term 'heritagization of the metro station', the reference is to integration of museal spaces in the interior space of the metro station. This requires a comparative analysis, to be conducted more profoundly, on differences and similarities between spatial design and specifically spatial configuration required in the two distinct structures of an underground metro station and the traditional form of museum.
Subsequently, integrating museum spaces inside the metro station can face various challenges, which can be derived from two main aspects.

The physical kind of challenges may be derived from the question of how to integrate a heritage artifact in the space without making it an obstacle for the movement flow of the user, and how to integrate a large-scale heritage object such as a segment of a wall, without interrupting the main function of the metro station.

On the other hand, social kind of challenges may be the doubt of how to attract the visitor to observe the displayed heritage and not just pass through it on the way to the metro, as well as which kind of heritage content is legitimate to display in a space where the public can be considered as 'in captivity' until the arrival of the metro.

This chapter has tried to answer those kind of questions through an overview of various metro stations examples from around the world.

From the examples demonstrating archeological-museum integration to metro stations in Rome, it can be deducted that the heritage artifact, if compatible in size, should be places inside the wall, visible by glass, for minimizing the disruption of passenger's path inside the station. In cases where the heritage artifact is of large-scale, such as a segmented wall, it may be recommended to use a clear physical barrier, possibly through level difference, in order to maintain the dominancy of the metro station as a transportation-designated
architectural space before being a museum space.

Another notable examples was of Shanghai metro stations, stressing the ability of a transportation space to convey also intangible heritage (in that example of urban and national values), through various didactical means incorporated to the surfaces of the space.

An additional design strategy that could be implemented in the heritagization of the metro station is the integration of modern digital tools to assist in the transmission of heritage values.

Digital heritage, a field which is to be further analyzed in the following fourth chapter, can be defined, in my opinion, as an approach where cultural heritage is analyzed, elaborated and transmitted to the public through the use of digital tools available with contemporary technology.

In the context of designing a metro-museum station, the digital heritage approach may possibly hold two main benefits compared to the analogue approach.

The first one is the attention attraction of the public. As claimed above, a critical obstacle in incorporating a museum area into a metro station is the risk it will remain unnoticed by the passengers. Digital tools, which may be seen as less conventional to be integrated into the design of the metro station, may attract the attention of a passenger on its way to the metro and hence, increase the exposure of the public to the displayed heritage content.

A second benefit may be the ability to change the heritage content displayed without the requirement of intervention in the space, which can be a delicate situation as every closure for content replacement may halter the public transportation network and disrupt the comfort of the public, which may provoke a negative sentiment to heritagization initiatives. A following benefit from the second statement can be the ability to create changing exhibitions in metro stations, instead of designating the space to demonstrate only a permanent type of cultural content.

An example of a metro station design demonstrating an additional function of transmitting cultural heritage through the implementation of the digital heritage approach is the Shivaji Stadium metro station in Delhi, India.

Delhi Metro Rail Corporation (DMRC) has established an interactive museum inside the interior space of the metro station, characterized by the dominant use of the listed innovative technologies as tools for transmitting cultural heritage[23]:

- Simulator equipped with a screen and a joystick, allowing visitors to immerse themselves in the experience of 'sitting in a train pilot's seat.' By pulling the lever, participants witness their actions translated onto the screen, complete with simulated visuals, creating a lifelike encounter.

- A wide-screen digital display mounted on a kiosk offers visitors a chance to navigate through the history of DMRC, to provides a comprehensive overview of the metro's evolution over the years.

[23] ET Online, *Delhi Metro Introduces Interactive Museum Exhibits for Commuters*, The Economic Times, January 31, 2024, cit. https://economictimes.indiatimes.com/industry/transportation/railways/delhi-metro-introduces-interactive-museum-exhibits-for-commuters/articleshow/107295106.cms.

- Online quiz on Delhi Metro through designated kiosks, serving also as an informative tool for individuals interested in testing their knowledge about the metro system.

- A large screen at the station displays the metro network, featuring icons marking nearby tourist sites. By clicking on these icons, commuters can access details about the various attractions, contributing to a more informed and connected travel experience.

Fig.13 – The DMRC quiz in the Shivaji Stadium metro station, Delhi. *Source: The New Indian Express, "Up and Down the Tube: Interactive Museum at Shivaji Stadium Metro Station in Delhi," February 16, 2024, https://www.newindianexpress.com/cities/delhi/2024/Feb/16/up-and-down-the-tube-interactive-museum-at-shivaji-stadium-metro-station-in-delhi.*

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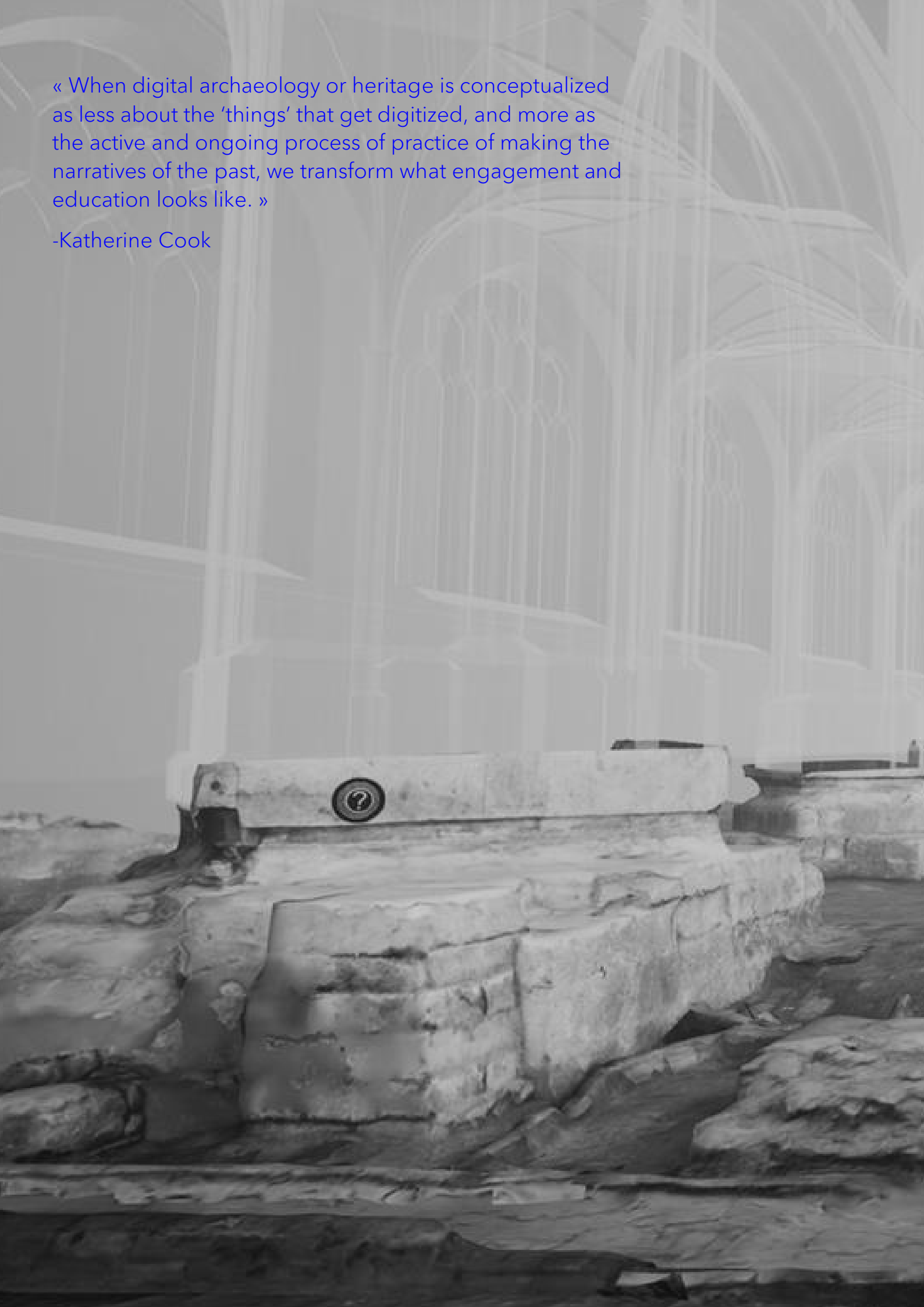
Chapter 4: Digital Archaeology as a Case Study for Digital Heritage

Source: VR Archeology: Secrets of Kulikovo Field, RIALAB, Steam Games

« When digital archaeology or heritage is conceptualized as less about the ‘things’ that get digitized, and more as the active and ongoing process of practice of making the narratives of the past, we transform what engagement and education looks like. »

-Katherine Cook



Source: Wessex Archaeology Virtual Reality (VR): Bath Abbey

4. *Digital Archaeology as a Case Study for Digital Heritage*

4.1 Digital heritage as a methodological approach

The main scope of heritage protection can be viewed as preserving the legacy from our past, whether as a civilization, a local community, or as individuals, with an aim to transmit the value of such legacy to be viewed also in the future.

The temporal decade in which we live in is labelled as the information era, often called also 'the digital era'.
Our era is characterised by a mass use of digital tools, mainly smartphones, portable computers, which contains a continuous exchange of data, thanks to their connection to the World Wide Web (the internet), through which each person can access and create or receive information in various means such as text, image or video.

Lately, new digital tools, developed by main cooperations, have been trying to enter the market of digital devices, in which is also included the virtual reality headsets. Those headsets once put on, covering the eyes of the user and hence control the visual sense, are allowing the user to enter a separate digital world depending on the interface design of the device, or to remain in the visual environment in which the user is situated, while enhancing it with various digital features introduced in the interface (often called 'augmented reality').

In the disciplines of architecture and archaeology, various digital tools are contributing the ongoing research and development of those field. Examples of those tools are 3D modelling programs such as BIM (Building Information Modelling) as well as GIS (Geographical Information System) and webGIS (allowing an easier interaction with the wide public through the internet platforms).
An additional digital tool recently studied and developed more in depth for its application for architectural conservation is HBIM (Heritage Building Information Modelling), where various metadata can be integrated to the accurate 3d model, such as videos and URLs, subsequently making file to be considered not only as a three-dimensional visualisation of the building but also as a proper archival document[1].

The tools mentioned above can be utilized as well for the promotion and research in the field of cultural heritage. Reasoning for this is both the possibilities lying in the advanced technology, as well as the opportunity to reach the younger generation who is more familiar and subsequently attracted to such tools.

Digital Heritage, as defined by UNESCO, is the use of digital media in

[1] Riccardo Rudiero, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, Roma: WriteUp, 2024, cit., p.166.

the service of preserving, protecting, studying and presenting heritage[2].

As Xinyuan Wang described in her article on Digital Heritage, the latter may be classified by genres: information resources stored in specific carriers (such as optical disks, disks, and tapes), computer databases, via internet or digital media, as well as preprint materials or archives held in e-print[3].

A possible common method to present the digital heritage is on displays, such as LED screens. Those displays can be created especially for the cause of presenting this heritage (touch screen mounted on a specific location in site), but in addition those displays can be already exiting (such as smartphone screens) and the digital heritage is presented on those screens thanks to various digital communication solutions such as the internet or Bluetooth.

One of the possible main advantages of transitioning the cultural heritage from analogue to digital, is making a non-tangible replica of the object of heritage to be existing in a timeless realm, as it is not subjected to dangers such as damage and degradation, which applies to it when it is in its physical form. In addition, the digitalisation of heritage making it easily accessible to the public both in-site and off-site, hence increasing the number of possible target audience, not bounded to limitations of the physical site in which the object of heritage is situated.
Keeping the accessibility of digital heritage to the public in the long-term is not merely a technical challenge, it requires also an adequate management and law-making efforts.

The digitalisation of heritage consists of various technological processes, that are not necessarily chronological to each other. Such processes may be the extraction of data, processing it, interpermeating and subsequently present it, as well as documenting it.
Presentation of the digital heritage as well is an issue which needs to be considered seriously, as it should be presented in a clear, simplified yet respectable way, to ensure the wide public can both understand it without prior knowledge as well as appreciate the complexity of it.

Digital heritage can be easily integrated with the participatory approach for cultural heritage, through its implementation in relevant environments such as museums[4].

This integration is widely discussed in the article of Elena Pacetti on innovative approaches to use digital environments as formal and informal educative means for increasing active participation of children[5]. The article focuses on using existing technologies

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[2] Xinyuan Wang, Huadong Guo, Michael F. Goodchild & Alessandro Annoni, *Digital Heritage*, Manual of Digital Earth, Singapore: Springer, 2019, p.566. https://doi.org/10.1007/978-981-32-9915-3_17.
[3] *Ibid.*
[4] For an additional study in the subject, focusing on the integration between digital heritage and archaeological museums, refer to Valeria Minucciani, *Tecnologie, museo virtuale e ICT per la musealizzazione archeologica*, MOSTRARE L'ARCHEOLOGIA, Allemandi & C, 2008, pp.130-140.
[5] Elena Pacetti, *Ambienti digitali nella prima infanzia per giocare con l'arte, Ambienti digitali per l'educazione all'arte e al patrimonio*, edited by Alessandro Luigini, Chiara Panciroli, 190-203, Milano: FrancoAngeli, 2018.

in a new perspective which maximises their potential for promoting culture, as stated by the European Commission:

> Being digitally component is more than being able to use the latest smart phone or computer software – it is about being able to use such digital technologies in a critical, collaborative and creative way[6].

Technological devices children hold today, such as smartphones and tablets, can function as a pedagogical tool and subsequently promote cultural values through designed gamified simulations. The article stresses that the main obstacle preventing portable technological devices to be used in an appropriate enriching way for children, is the fact adults view those devices as a "babysitter" to entertain the children, and not as an educational tool, as claimed by Mithcel Resnick (American computer scientist specializing on the integration between technology and children education[7]): «in my view, computers will not live up their potential until we start to think of them less like televisions and more like paintbrushes»[8].

Nonetheless, it should be reminded that the digital simulations, also when used as an educational tool, should be adapted to children, hence simplified and supporting experimental subjective creativity rather than directing the user to a unique objective scientifical goal.

Modernist Art Heritage can be set an example for a discipline which have a few existing cases where the approach discussed above was successfully implemented in projects designated for kids.

A first example for implementation of the digital heritage approach in modernist art is "ExplorArtKlee – The Art of Paul Klee", an application which presents a few works of art by the influential modernist painter from in an animated and gamified way in order to provoke the interest of children to explore and subsequently deepen their knowledge on the history of art.

Second example may be "MoMa Art Lab", the Modern Art Museum of New York app designated for children, which proposes activities on forms, colours and collages integrating visuals and sound through a playful approach[9].

An additional recently developed technological tool which is gaining popularity in the various applications cases of the digital heritage approach, is VR (Virtual Reality) technology. VR is a relatively newly developed technology in the sphere of computer science, which integrates computer graphics technology, multimedia technology, sensor technology, human-computer interaction technology, network technology,

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[6] ELENA PACETTI, *Ambienti digitali nella prima infanzia per giocare con l'arte, Ambienti digitali per l'educazione all'arte e al patrimonio*, cit., p.191.

[7] *Mithcel Resnick*, Fondazione Reggio Children, https://www.frchildren.org/en/who-we-are/people/mitchel-resnick.

[8] ELENA PACETTI, *Ambienti digitali nella prima infanzia per giocare con l'arte, Ambienti digitali per l'educazione all'arte e al patrimonio*, cit., p.195.

[9] *Ivi*, p.199.

stereo display technology and simulation technology[10].

The various technologies mentioned above, allow a creation an immersive lifelike environment completely virtual, which can be used in digital heritage both for research and practical purposes in its various applicable disciplines.
A lifelike environment for digital heritage can present for instance a virtual ancient scene integrating a constructed virtual reality, holographic projection, augmented reality components and digital animation.
The complexity of those processes continues, as to construct digitally such virtual environments augmented on a physical heritage site, it requires a high accuracy 3D modelling. Such model is achieved through point cloud, laser scanning and modelled texture through digital photogrammetry[11].

The result of the various processes mentioned above is a simulation which can be presented scientifically or as a game, in which the user can interact with the environment through features such as hand gestures (may consist also the use of wearable virtual reality devices), in order to learn more both on the site itself and the methodologies which were implemented in the heritage site for excavations or conservation measures.

As introduced briefly above, digital heritage focuses not only the technological tools themselves, but also on the way in which they are presented to the user. The creation of a user-friendly and gamified interfaces within VR (Virtual Reality) as an exemplary case for a technological tool incorporating the use of digital heritage, is a subject of a qualitative assessment focusing on User Interface/User Experience (UI/UX) design, conducted by Tugce Balli in her article *Improving Accessibility to Cultural Heritage with AI-Assisted Virtual Reality*[12]. Her analysis raises the awareness on the required digital design-decisions to be taken during the heritage project, focusing the interface and the narrative of the experience. Those decisions vary from the micro to the macro level, such as font size, image contrast of the scene, gamified elements such as artifacts and checkpoints, simplified navigation controls etc.

Balli discusses in her article also on the importance of matching the interface design to the possible variability of the public users interacting with the digital heritage project, stating that the user interface (UI) and user experience (UX) should be designed to match the needs of users with different levels of technical skills, age, education and cognitive abilities[13].

Digital environments with their multiple layers as mentioned above, can be available also without the complexity of Virtual Reality and its

[10] Xinyuan Wang, Huadong Guo, Michael F. Goodchild & Alessandro Annoni, *Digital Heritage*, Manual of Digital Earth, Singapore: Springer, 2019, p.577. https://doi.org/10.1007/978-981-32-9915-3_17.
[11] Xinyuan Wang, Huadong Guo, Michael F. Goodchild & Alessandro Annoni, *Digital Heritage*, Manual of Digital Earth, Singapore: Springer, 2019, p.582. https://doi.org/10.1007/978-981-32-9915-3_17.
[12] Tuğçe Balli, Hasan Peker, Şenol Pişkin & Emrullah Fatih Yetkin, *RESTORATIVE: Improving Accessibility to Cultural Heritage with AI-Assisted Virtual Reality*, Digital Presentation and Preservation of Cultural and Scientific Heritage 15 (2025): pp.65-71.
[13] *Ivi*, p.69.

unique requirements such as headset and other necessary equipment. A possible alternative for such virtual scenes is with mobile devices such as a phone or tablet, which many of them today include the augmented reality technology thanks to their built-in camera and sensors components. In this case, a 3d model can be integrated to the real environment captured in the lenses of the mobile device's camera, showing the user the heritage site as it existed before integrated with its current state.

Mobile devices is a useful tool which can be used as tools for digital heritage also outside of the heritage site. Though certain technologies for presenting the heritage, such as Augmented Reality, will be hard to be implemented off-site, an application designated for mobile devices can enrich the user on the object of heritage through various measures such as images, videos and text. Advantages of such apps can be the accessibility to users who are not physically situated inside the site, as well as lowering the cost for implementation as the devices from which the users access the digital heritage functions of the site are personal and not bought by the management of the heritage site.

Another possible propagation method of heritage through digital mean not requiring the existence of the user in the heritage site itself, is the internet. Creating specific websites for the heritage site, as well as publication in external sites such as YouTube, or in social networks such as Facebook and Instagram, allow people to passively interact with heritage site, such publications can be for instance documentary videos showing the conservation process of the object of heritage. Access to the internet domain containing the virtual demonstration of the heritage can be accessible also on-site through placement of QR (Quick Response) code, a two-dimensional barcode which can be scanned through the camera lenses of a smartphone or tablet.

Nonetheless, narrowing the gap between digital heritage tools (such as virtual reality) and cultural heritage remain a challenge. Digital heritage suffers from obstacles preventing it to be widely integrated in the cultural heritage field of today. Such issues are related to data security, distribution, interoperability, cost, simplification and speed problems[14].

The London Charter of 2006 (later on updated with several drafts), is aiming to give recommendations on an aware use of such digital tools for cultural heritage purposes. For example, the Charter is stressing that «It should not be assumed that computer-based visualisation is the most appropriate means of addressing all cultural heritage research or communication aims»[15], and subsequently claiming that «A systematic, documented evaluation of the suitability of each method to each aim should be carried out, in order to ascertain what, if any,

[14] XINYUAN WANG, HUADONG GUO, MICHAEL F. GOODCHILD & ALESSANDRO ANNONI, *Digital Heritage*, Manual of Digital Earth, Singapore: Springer, 2019, p.585. https://doi.org/10.1007/978-981-32-9915-3_17.
[15] HUGH DENARD, *The London Charter*, draft 2.1, February 7, 2009, cit., principle 2.1. https://www.london-charter.org/downloads.html.

type of computer-based visualisation is likely to prove most appropriate»[16].

As there is the need for developing appropriate soltuions to the issues presented above, some issues can be solved with exisitng solution, such as the obstacle of data storage and transmission of it to the mobile devices of the users. The latter can be solved through the use of various cloud-services or powerful remote services.
It can be concluded from the discussion that digital heritage may function as a succesful tool for creating accesible cultural heritage for different people, in which both experts and non-experts are included. This tool can be fruitful for research, tourism and education. In addition, digital heritage can be applied in a more specific and adapted way in various disicplilines such as arcaheology and architectural restoration.

Comparing to the fiels of architectural restroation, the field of archeology has made a realitvely adavcned progress towards its integration with current technological tools, a field which is often called "Digital Heritage". Various case studies of digital archeology exisitng today, are contributing for conducitng researches which subseuqently promotes the application of digital heritage to various other fields, in which architectural restroation is included.

Digital heritage in its various applicable fields, represents the growing need for integration between computer sciences and culture. This particular integration holds significant opportunities for the safeguarding of heritage as well as ensuring the durability of its values also to future generations[17].

In addition, with the development of digital heritage, there is a growing awareness on the need for safeguarding the protection of it as a digital product. All the intangible outcome of digital heritage is existing as a computer-based material, which is a set of data. As mentioned before, this data is stored either on cloud services or powerful servers. Without an adequate protection of such storage sources, which should be derived from policymaking, legal framework and adequate management, there is a potential risk that such heritage data, which may include also the last traces of a past tangible heritage, can be deleted and hence lost.

Due to the increasing use of digital heritage in recent years, the preservation of digital heritage not only as a tool for preserving but as a heritage per se, is a subject of discussion in recent conventions, and was also the focus on UNESCO's Charter for the Preservation of Digital Heritage, which stated[18]:

- Resources of human knowledge or expression, whether cultural, educational, scientific and administrative,

[16] *Ivi*, cit., principle 2.2.
[17] For a profound study on the subject, refer to MASSIMO LIMONCELLI, *Il restauro virtuale in archeologia*, Carocci editore, 2012.
[18] UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, *Concept of Digital Heritage*, accessed November 4, 2025, cit. https://webarchive.unesco.org/web/20230616073538/https://en.unesco.org/themes/information-preservation/digital-heritage/concept-digital-heritage.

or embracing technical, legal, medical and other kinds of information, are increasingly created digitally, or converted into digital form from existing analogue resources. Where resources are "born digital", there is no other format but the digital original.

- Digital materials include texts, databases, still and moving images, audio, graphics, software, and web pages, among a wide and growing range of formats. They are frequently ephemeral, and require purposeful production, maintenance and management to be retained.

- Many of these resources have lasting value and significance and therefore constitute a heritage that should be protected and preserved for current and future generations. This heritage may exist in any language, in any part of the world, and in any area of human knowledge or expression.

Still, there are some criticalities to be considered in the implemented methodologies of digital heritage.
As Marika Sarvilahti stated in her article *Strategies for Promoting the Use of Digital Cultural Heritage Collections with Student and Researcher Engagement*, there seems to be a gap in knowledge about digital cultural heritage as a potential source[19].

Her article focuses on the need of research on the methodology to be implemented with using visual resources as part of a digital heritage project. Sarvilahti presents cases of activities, cooperations and courses that focus on deepening the knowledge on the use of visual resources by relevant heritage specialists.

Nonetheless, Sarvilahti states the need for a further development of the training of heritage specialists in order to deepen their knowledge, potentially lacking due to their age, on the usage of new technological tools to promote the safeguarding of cultural heritage.
For achieving this goal, she suggests formal user training, building online guides and reference tools, or facilitating creative tools[20].

Ultimately, as the discipline continuously emerges due to the growing need of its application, there is a growing need for adequate measure on the protection of the digital material which holds a heritage value is necessary today. An additional necessity is new researches as well as revising the relevancy of solutions presented in previous researches in the subject, as the discipline is characterized by rapid development thanks to new technological tool which were not existing yet in 2003 (when UNESCO's Charter for the Preservation of Digital Heritage was published), such as AI (Artificial Intelligence) and the way it can endanger or contribute to digital heritage.

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[19] MARIKA SARVILAHTI, *Strategies for Promoting the Use of Digital Cultural Heritage Collections with Student and Researcher Engagement*, Opening Up Our Heritage, Liège: ULiège Press, 2025, p.232.
[20] MARIKA SARVILAHTI, *Strategies for Promoting the Use of Digital Cultural Heritage Collections with Student and Researcher Engagement*, p.238.

4.2 Digital Archaeology: challenges and exemplary cases

Archaeology is defined by Britannica as:

> The scientific study of the material remains of past human life and activities. These include human artifacts from the very earliest stone tools to the man-made objects that are buried or thrown away in the present day[21].

It is an integral discipline of cultural heritage, serving as a foundation conservation studies prior to the conceptualisation of safeguarding the built heritage.

Archaeology began to emerge as distinct scientifical discipline in Europe in the 19th century, as diverse methodological excavations have been executed with the purpose of finding artifacts which demonstrate past human civilizations.
During the 20th century, as awareness of the need to protect heritage have been increased, the discipline of archaeology has been formalized with diverse research and development of new methodologies for analysis and equipment.

Towards the 21st century, experts of archaeology have begun to use new emerging technologies which could be integrated to promote research and improve the archaeological discipline, developing what is often defined as a distinct sub-discipline called "Virtual Archaeology" of "Digital Archaeology".

This discipline is often correlated to an additional sub-discipline of archaeology called "Public Archaeology"[22]. The latter focuses on integration of the wide public through active participation on-site in addition to accessibility of the discipline to the public off-site. In many cases, digital archaeology strongly supports the emergence of public archaeology, as the experts use the current technological means such as video documentation, application design and virtual reality, to achieve the scopes of public participation, both on and off site.

In the book *The ongoing valorisation of heritage in ruins: reflections and experiences, between multimedia and construction sites* by Riccardo Rudiero, the author describes the discussed integration as a new approach for the valorisation of archaeological cultural assets, as well as stressing the importance of public participation:

> The possibility of direct participation by enthusiasts and scholars in the excavation experience was also supported, even through voluntary contributions, possibly with the support and mediation of institutions and organizations that include the protection of the heritage[23].

One of the most wide-used technological tools which became

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[21] GLYN EDMUND DANIEL, *Archaeology*, Encyclopedia Britannica, accessed November 5, 2025, cit. https://www.britannica.com/science/archaeology.
[22] For a profound study on the subject, refer to the book by GIULIANO VOLPE, *Archeologia pubblica. Metodi, tecniche, esperienze*, Carocci editore, 2020.
[23] RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, cit., p.56.

relevant also in the digital archaeology discipline is the high-accuracy computer 3d modelling. Adam Rabinowitz claims that digital 3D documentation methods in current archaeological practice can reenforce a division between "scientific" models intended for internal consumption by the project that produces them, and external communication in the form of lower-quality online displays[24]. This statement, as part of his article *Communication in Three Dimensions: Questions of Audience and Reuse in 3D Excavation Documentation Practice*, highlights the importance of a three dimensional computer model, conducted as part of the digital archaeology approach, not only as a visual tool for the viewer of the project but also as a methodological tool for the experts as part of the project elaboration process[25].

In other words, the high-resolution three-dimensional virtual document can be used for archaeologists not only as a visual mean designated to the public but also as a professional tool for improving and analysing the excavations of the heritage artifacts. This usage of technology is a key distinction of digital archaeology from other digital heritage disciplines. Digital archaeology can be viewed as the transition point of technology usage in cultural sciences, from a form of communication to an analytical tool inseparable from the methodology of heritage protection.

Rabinowitz examines an application of digital heritage approach in the archaeological site in the Greek colonial city of Histria on the Romanian Black Sea Cost. The team, composed of both academic archaeology students and professionals from the archaeological field, applied photogrammetrical techniques to create high-accuracy measurable 3D models of stratigraphic units

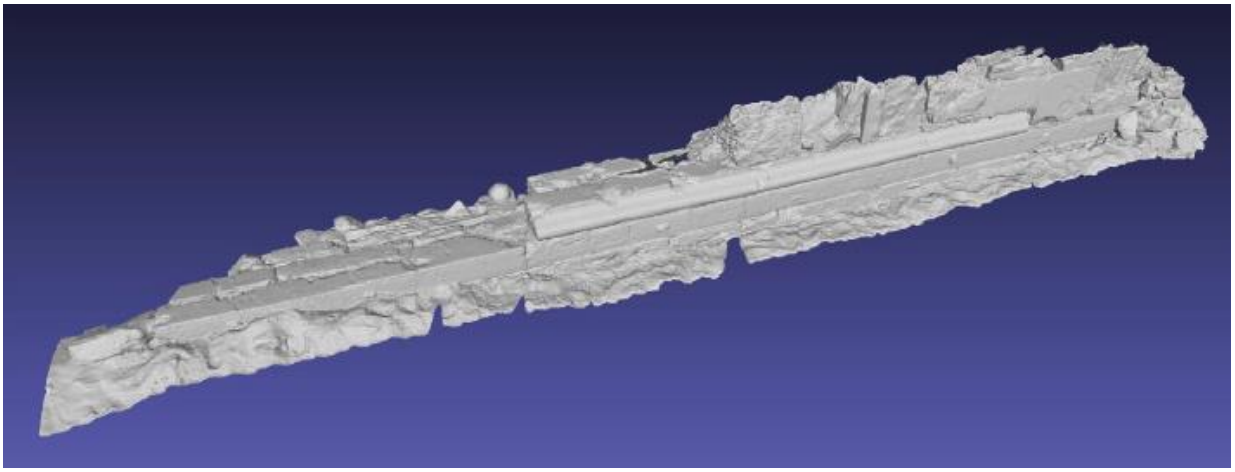

Fig.1 – High-resolution 3D digital model of a detail of the wall of the Hellenistic Temple of Aphrodite, created from 298 photos taken with a Canon EOS Rebel SL 1, processed in Agisoft Photoscan, and exported by an OBJ file (untextured). *Source: Adam Rabinowitz, "Communicating in Three Dimensions: Questions of Audience and Reuse in 3D Excavation Documentation Practice," Studies in Digital Heritage 3, no. 1 (June 2019): 105. https://doi.org/10.14434/sdh.v3i1.25386.*

[24] ADAM RABINOWITZ, *Communicating in Three Dimensions: Questions of Audience and Reuse in 3D Excavation Documentation Practice*, Studies in Digital Heritage 3, no. 1 (June 2019), p.100. https://doi.org/10.14434/sdh.v3i1.25386.

[25] For an additional study on the subject, refer to MASSIMO LIMONCELLI, *Applicazioni Digitali per l'Archeologia:il Restauro Virtuale*, DigItalia, Rivista del digitale nei beni culturali, 2011, pp.42-59.

uncovered during excavations in an Archaic to Hellenistic Greek urban sanctuary in the heritage site[26].
The article examines the gap between low-resolution 3D models of excavations presented for basic exploration to the public, and high-resolution 3D models of excavations conducted by experts for scientifical use, as well as other digital tools to support the analysis viewed in the 3D model.

More specifically, the article investigates how the archaeological computer-based 3D models we produce nowadays, whether through advanced or simplified tools, might better facilitate the production of new knowledge to different kinds of audience, such as scholars, experts or the unexperienced public.

To answer this question, the research team has conducted a questionnaire directed to each target audience mentioned above, in order to examine their preferences and usage patterns for the various digital heritage tools implemented in the case of Histria.

The result achieved from the qualitative analysis demonstrate that specialists would like to have integrated models from the two typologies, so it would be possible to move between different of levels of detail. Object conservators preferred to begin with a low-resolution 3D model for first examination of the subject and subsequently continue to high-resolution 3D model for specific issues of interpretation.

The article presented various issues which could derive from an intense use of 3D models, such as the credibility and comfort of performing measurement on high-resolution 3D models. Rabinowitz give an example

Fig.2 – High-resolution 3D digital model of a rural deposit of ritual deposit of animal bones, crafted from 59 photos taken with a Canon EOS Rebel SL 1, processed in Agisoft Photoscan, and exported as an OBJ file (textured). *Source: Rabinowitz, "Communicating in Three Dimensions," 105.*

[26] ADAM RABINOWITZ, *Communicating in Three Dimensions: Questions of Audience and Reuse in 3D Excavation Documentation Practice*, p.101.

of a 3D model achieved through photogrammetry, presenting remaining of an animal found during excavations in the site, indicating two main obstacles. First, that since the scale of the bone deposit was not immediately clear from the 3D representation, it was impossible to attribute the bones represented to a large animal or a small one. Second, that the object conservator was more used to working with 3D files so had less trouble with measurements but noted that the use of in-viewer measurement tools had not come naturally in the beginning[27].

A supporting opinion on the use of advanced technology during archaeological excavations was found amongst the historic preservationist who participated in the survey, claiming there is a high potential in the use of photogrammetrical models (even if not furtherly developed to a complete 3D model) of archaeology for off-site preservation and conservation analysis.

An additional perspective which was examined in the article is the efficiency of 2D documents, which were the main source of analysis until now, among 3D document recently developed with new technological tools.

The case study of Histria serves as an evidence for the relevancy of 2D documents also in the emerging digital archaeology discipline. In the University of Texas at Austin, which was a part of the Romanian excavations, the 2D documents were used for the analysis in cases where the 3D model was lacking accurate information, especially relating to necessary measurements for the preliminary analysis of the site.

This comparison was presented, as part of the article's qualitative analysis, to archaeology students participating in the project. 12 of 15 students felt that schematic drawings of stratigraphic sections made the most immediate visual sense, while according to the students, the 3D model was valued more than 2D documents when it was part of a preliminary material for the initial study of the site[28].

Fig.3 – Different graphic representation of the stratigraphy of the sacred area at Histria displayed on the "Stallon" multi-screen display in the Visualization Laboratory of the Texas Advanced Computing Center. *Source: Rabinowitz, "Communicating in Three Dimensions," 106.*

The discussion above indicates the continuing importance of the 2D documents in the archaeological analysis, to co-exist side by side with the newly developed advanced 3D models produced in computers. In fact, the case study of Histria showed how digital tools, such as visualisation screens, can contribute to the reading of such 2D documents not necessarily

[27] ADAM RABINOWITZ, *Communicating in Three Dimensions: Questions of Audience and Reuse in 3D Excavation Documentation Practice*, p.108.
[28] *Ivi*, 109.

by the public during visits, but also by the professional stuff during the analytical process.
The digital archaeology discipline, as presented before, is strongly integrated to the theory behind the public archaeology approach, which promotes enrichments of the archaeological knowledge presented to the visitor through various technological tools, as well as promoting different ways of active participation and enhanced perception of the archaeological site.

An example for such integration, highlighting the role of digital tools as a way of communication with the visitors, is the use of touch screens in the National Archaeology Museum of Marche.

Paolo Clini presents in his article, *Touching the Art and Looking with Other Eyes. A Digital Way for the Rebirth of Archaeological Museums in the Era of Reproducibility of the Work of Art*, an approach based on the concept of "learning by interacting", which allows to surpass the traditional modality of presenting/observing heritage through exhibition cases, stimulating the visitor to become an active spectator, making him a participant and protagonist of the object of his vision[29].

This objective is achieved through technological installations in the internal space of the museum by the Marche Polytechnic University research team, designed in an accessible and simplified way to attract both experts and the younger unexperienced generation. The installations are composed mainly of touch screens situated along the visitor's path, next to the archaeological artefacts presented in the museum, making the path to be didactic and interactive so the people will not remain passive during their visit.
In the interface of the touch screens, the user can explore the 3D model displaying a certain artifact, through rotation and touch-based functions displaying photos, texts and videos related to the artifact.
Furthermore, the article technically details installations, explaining what the touch screen as a technological device contains[30]:

- Computer hardware for the processing of the information and management of the

Fig.4 – Installation based on the haptic device in the National Archaeology Museum of Marche. *Source: Paolo Clini et al., "Toccare l'arte e guardare con altri occhi. Una via digitale per la rinascita dei musei archeologici nell'epoca della riproducibilità dell'opera d'arte," in Ambienti digitali per l'educazione all'arte e al patrimonio, ed. Alessandro Luigini and Chiara Panciroli (Milano: FrancoAngeli, 2018), 106.*

[29] PAOLO CLINI, NICOLETTA FRAPICCINI, ROMINA QUATTRINI & ROMINA NESPECA, *Toccare l'arte e guardare con altri occhi. Una via digitale per la rinascita dei musei archeologici nell'epoca della riproducibilità dell'opera d'arte*, Ambienti digitali per l'educazione all'arte e al patrimonio, edited by ALESSANDRO LUIGINI, CHIARA PANCIROLI, Milano: FrancoAngeli, 2018, p.99.
[30] *Ivi*, cit., pp.99-100.

Fig.5 – A typological interface content implemented in the digital library of the National Archaeological Museum of Marche. *Source: Clini et al., "Toccare l'arte e guardare con altri occhi," 109.*

interactive function of the models.

- A stand-alone totem for insertion along the 'didactic path', based on the integration of a display and 'haptic device' (a device stimulating the user a physical sense of touch of the object such as texture and material feeling) for the tangible interaction with the models.
- A software which displays a digital virtual tour of the 3D models and objects of the museum (part of it available also on the web interface accessible to portable smartphones and tablets through QR codes placed on the didactic physical panels).

Whereas the software itself is composed of:

- A digital archive gathering and managing the 3D models, images as well as a variety of other multimedia and multilingual content.
- Graphic interface guaranteeing the contextual visualisation of the digital information and models, as well as the interaction with the 3D models.
- A calculation engine for the synchronization of the data originated from the haptic device and of the graphic display
- A software for the rendering of the 3D models until achieving their realistic appearance.

In addition, the VR technology, integrated with the gaming field, have brought new opportunities for the development of the digital archaeology discipline.
Various institutions have used gaming experiences integrated with Virtual Reality headsets for promoting the archaeological culture.

For instance, Wessex (United Kingdom) Archaeology's studio team have set themselves a goal of creating Virtual Reality experiences on real archaeological sites designated to off-site visitors, with the aim to:

> Allow a much wider audience to visit a fully immersive digital version of archaeological sties. This allows a much wider audience to visit a fully immersive digital version of archaeological sites. They can explore places that they would otherwise not be able to visit for safety reasons, and in this example, they even have the opportunity to see the site in a way that the archaeologists didn't get to see it in real life![31].

An example for such project is the realization of a high-resolution 3D model of the excavated floor of Bath Abbey in England, realized through innovative tools such as photogrammetry. Moreover, the team has described in detail the complex process of the virtual re-construction of the excavation. For instance, where photogrammetry could not be applied completely, the team has re-sampled areas to different levels of detail (poly counts) and then recombined them into a gaming engine environment, achieving the realization of re-projected surfaces which were lost when reducing the density of the mesh[32].

Fig.6 – Screenshot from the realization process of the "Wessex Archaeology Virtual Reality (VR): Bath Abbey" Project, showcasing the photogrammetry phase. *Source: Wessex Archaeology, "Virtual Reality Experience an Excavation below Bath Abbey," WessexArchaeology.co.uk, accessed November 7, 2025, https://www.wessexarch.co.uk/our-work/virtual-reality-experience-excavation-below-bath-abbey.*

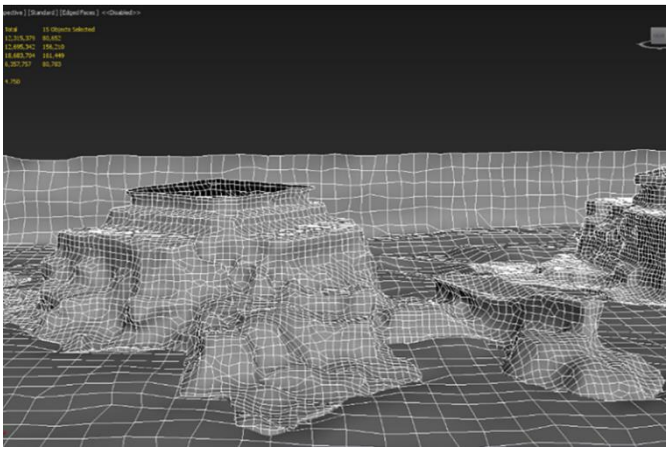

Fig.7 – Screenshot from the realization process of the "Wessex Archaeology Virtual Reality (VR): Bath Abbey" Project, showcasing the high poly-counts mesh model. *Source: Wessex Archaeology, "Virtual Reality Experience an Excavation below Bath Abbey."*

[31] WESSEX ARCHAEOLOGY, *Virtual Reality Experience an Excavation below Bath Abbey*, accessed November 7, 2025, cit. https://www.wessexarch.co.uk/our-work/virtual-reality-experience-excavation-below-bath-abbey.
[32] *Ibid.*

Fig.8 – Screenshot from the "Wessex Archaeology Virtual Reality (VR): Bath Abbey" Project, showcasing an interface from the finalized simulation to be viewed in the VR headset. *Source: Wessex Archaeology, "Virtual Reality Experience an Excavation below Bath Abbey."*

An additional example of VR-based game integrating the archaeology discipline is "VR Archeology: Secrets of Kulikovo Field". The interactive game educates the user on the field of archaeology from a professional point of view, rather focusing on a specific heritage site. In this virtual experience, the user can explore the roles of modern archaeologists, restoration experts and re-enactors[33] (people who recreate historical events, usually in costume and objects related to the period, with the scope of bringing historical events 'alive').

The fact that the game is free-to-play and downloadable on Steam, one of the most popular platforms for gaming, increases the accessibility of this game to the wide public. In addition, the publication of the game on Steam promotes culture and specifically knowledge on the archaeological process in an approachable way, as it is not classified

Fig.10 – The Steam page through which the public can download the "VR Archeology: Secrets of Kulikovo" Field" video game. *Source: RIALAB, VR Archeology: Secrets of Kulikovo Field.*

[33] RIALAB, *VR Archeology: Secrets of Kulikovo Field*, released November 30, 2022, Steam. https://store.steampowered.com/app/2209990/VR_Archeology_Secrets_of_Kulikovo_Field/

as a simulation for experts or heritage enthusiasts.

Fig.9 – Instance from the "VR Archeology: Secrets of Kulikovo Field" video game, showcasing an activity of a modern archaeologist. *Source: Screenshot from VR Archeology: Secrets of Kulikovo Field, video game, RIALAB, Valve Corporation/Steam, released November 30, 2022, accessed November 7 2025, https://store.steampowered.com/app/2209990/VR_Archeology_Secrets_of_Kulikovo_Field/*

4.3 Potential applications to comprehensive architectural restoration

The methods applied in digital archaeology, particularly the promotion of public participation through interactive technological tools, as well as the accessibility of knowledge both on the site of heritage and of the process itself, can be applied as well to other disciplined related to the safeguarding of heritage. Nonetheless, the experimental aspect remains a useful practice to achieve an effective synergistic valorisation of the heritage.

In the case of the built heritage, the theory of digital archaeology can be implemented to educate the public on the complex methodologies behind the restoration of built heritage.
This goal can be achieved through interactive technological tools to be integrated on-site, as well as communication of the knowledge gathered by the professionals to the public off-site through online digital means.

An example for the latter is the communicated restoration project of "Bagni di Petriolo", thermal baths located along the Farma river in Tuscany. This restoration process demonstrates the application of the digital heritage approach through a dedicated website and a YouTube page, where videos documenting the restoration process, as well as a virtual tour in a 3d model showcasing the heritage site as it appeared in its original time of construction, were published to demonstrate the heritage values of the site. Thanks to the application of digital heritage in this restoration process, the public can learn, even without being present in the site, on both the history of the baths as well as the methodology of their restoration.

Fig.11 – Documentary video demonstrating the restoration process of "Bagni di Petriolo". *Source: 'Bagni di Petriolo: cronache di un cantiere di restauro - Puntata 2' YouTube video, screenshot by the author, November 4, 2025.*

Hence, the goal achieved here is double: raising awareness on the importance of the restoration process, as well as the importance of the specific heritage site.

The documentation videos of "Bagni di Petriolo" are elaborated in a constant structure to both maintain the interest of the viewer as well as ensuring the value of such videos as an adequate document which transmits the knowledge on the site and its restoration process. Each video, which can be considered as an episode, has a duration of between 4-5 minutes, following standards for such educative digital multimedia.

The episodes are composed of a first part, approximately 1 minute long, in which the subject as well as questions to be answered subsequently in the video are presented, followed by an approximated 2-minute length description of episode's main theme through a narrative voice, concluded by approximately 1 minute of conclusion and suggestions for the next videos[34].

An example for an integration of video documentation with gamified interface can be the project of the realization of a defensive wall in the traditional construction techniques of the medieval era.

In this project, conducted by Riccardo Rudiero and presented in his book *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, students filmed and elaborated a set of documentary videos describing in detail the process of such wall construction, yet, in a simplified communication language comprehensible to the vast public[35].

In addition, the interface and the method chosen for the presentation and narration of the project, designed as a simplified gaming experience, enhanced the scope of demonstrating the public the process in an accessible approach.

Fig.12 – Implementation of the level 3 production process, i.e. the one related to the production of mortar. *Source: Riccardo Rudiero, La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere (Roma: WriteUp, 2024), p. 151.*

In the article *Digital Heritage as Collaborative Process: Fostering Partnerships, Engagement and Inclusivity in Museums*, Katherine Cook indicates the opportunities of digital heritage as a tool for promoting long-term engagement with the project.

On the other hand, the article demonstrates challenges accompanied with the use of a variety of digital tools, such as maintaining a

[34] RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, p.158.
[35] *Ivi*, p.148

range of file types that are houses on different sites, platforms and servers[36].

Another possible criticality lies with the attempt to communicate the heritage of the process of conserving it through internet platforms, which are not collaborative in nature beyond commenting section and hence, more adequate only for a passive enrichment of the user. Subsequently, Cook is highlighting that "we have to evaluate where digital is the best approach and where is not, avoiding the expectation that technology is always the best solution"[37].

The statement mentioned above is critical for the analysis on digital heritage and its possible application. As discussed in the chapter, the use of contemporary technological tools can enhance the development of cultural fields such as archaeology and architectural restoration and moreover promote the engagement of the public both with the heritage and with the process.

Nonetheless, digital heritage should not be used in any restoration project. For instance, in case where the interaction with the public on-site is not possible, it should be considered what kind of fruitful interaction is possible to be achieved through off-site internet engagement, perhaps, future research on the integration between digital heritage and social media could be the solution for such obstacle.

Therefore, it can be concluded from the critical discussion above that digital heritage should be applied considering the context of the project and site, as well as of how fruitful such integration would be for the possible specific scopes of the archaeological or restoration project, such as the communication of its elaboration process, as well as the general scope of preserving and transmitting the values of a certain heritage asset.

[36] KATHERINE COOK, GENEVIEVE HILL, *Digital Heritage as Collaborative Process: Fostering Partnerships, Engagement and Inclusivity*, Studies in Digital Heritage 3, no. 1 (2019), p.92.
[37] KATHERINE COOK, GENEVIEVE HILL, *Digital Heritage as Collaborative Process: Fostering Partnerships, Engagement and Inclusivity*, p.93.

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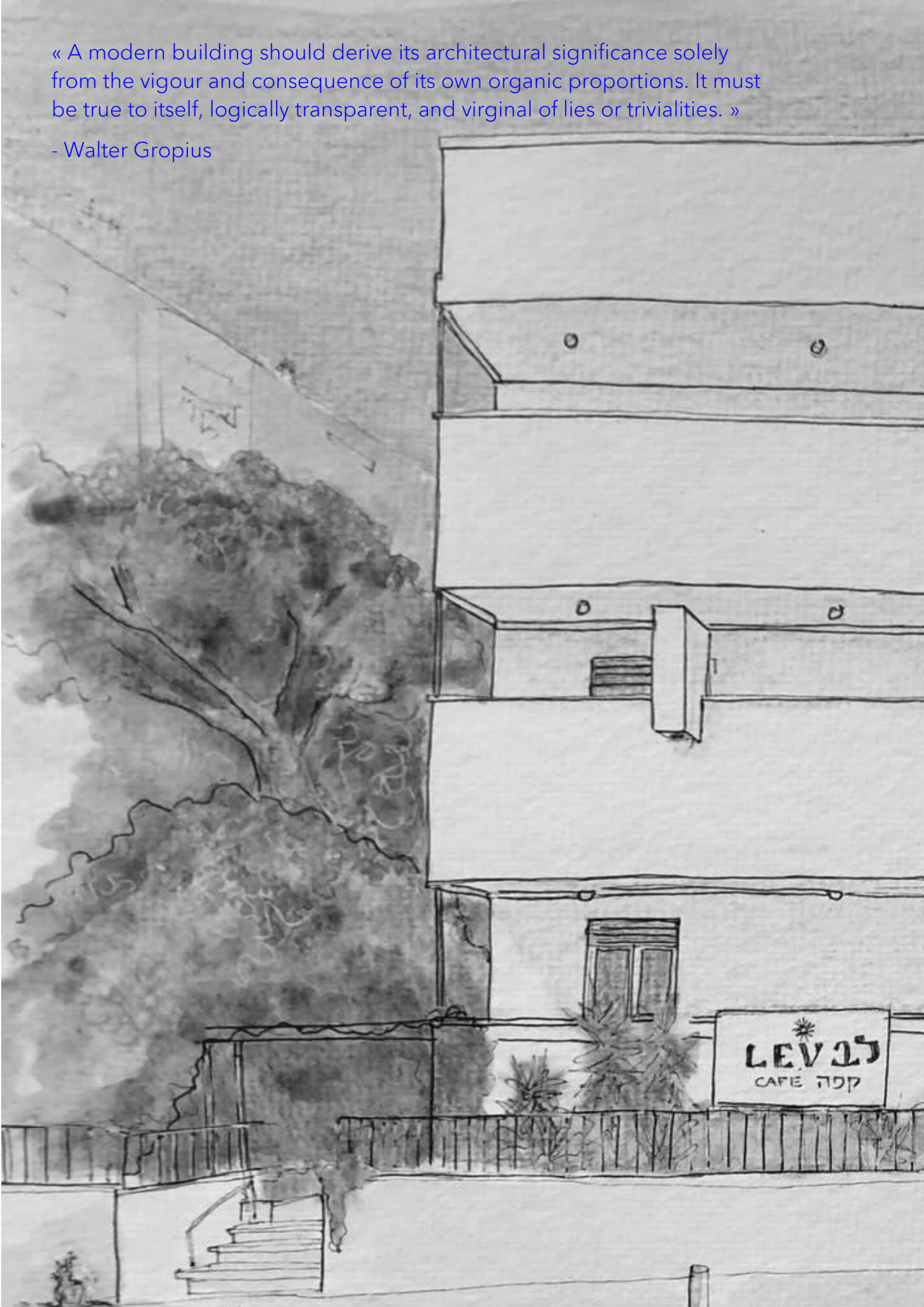
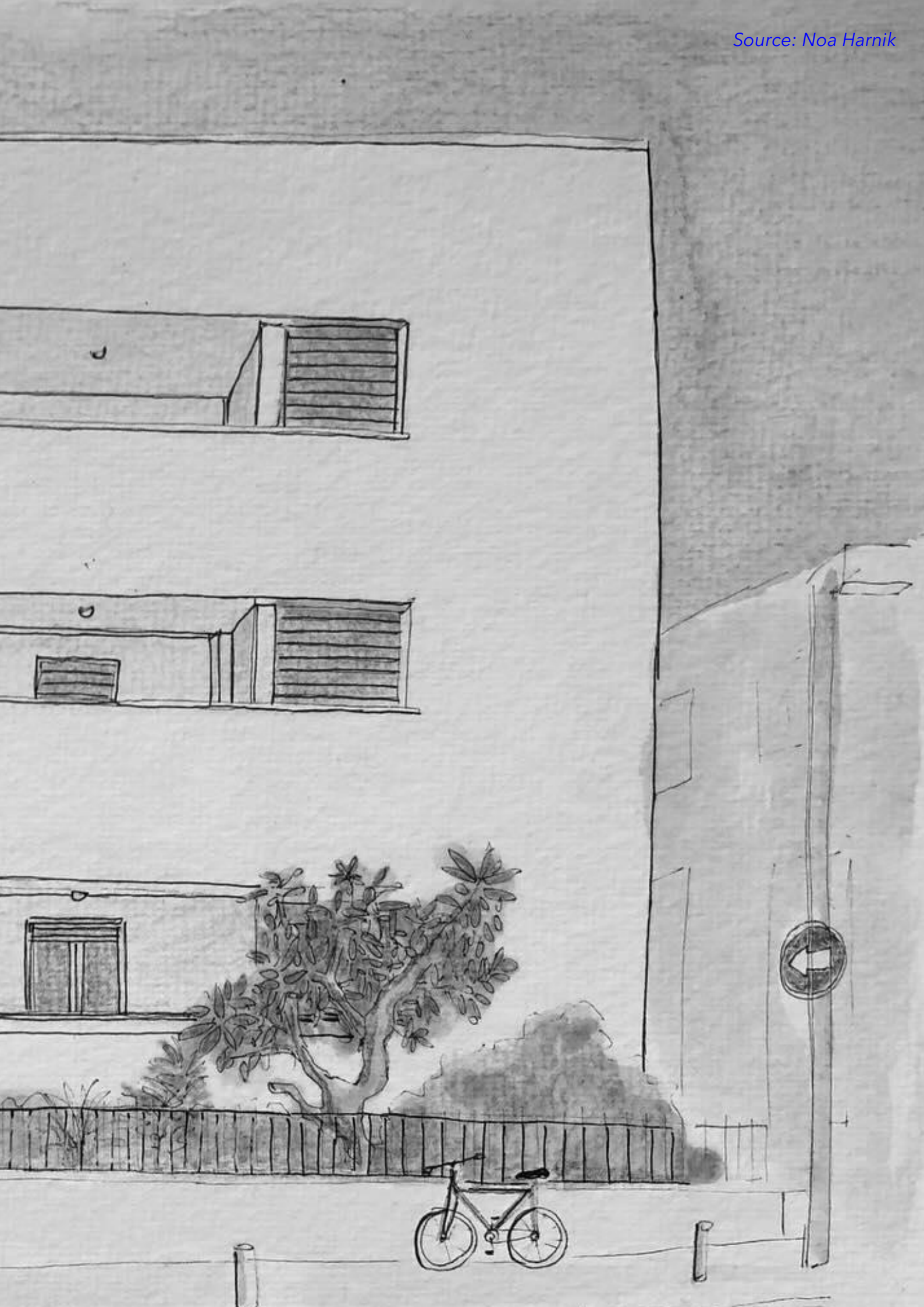
Source: Paz Ponce

Chapter 5: Liebling Haus as a Case Study for Comprehensive Restoration of Modernist Heritage

« A modern building should derive its architectural significance solely from the vigour and consequence of its own organic proportions. It must be true to itself, logically transparent, and virginal of lies or trivialities. »

- Walter Gropius





Source: Noa Harnik

5. *Liebling Haus as a Case Study for Comprehensive Restoration of Modernist Heritage*

As mentioned in the introduction for this work, one of the methodologies used for the conduction of this work is using a main case-study analysis. For this, Liebling Haus in Tel Aviv was chosen, out of the belief it represents many of the notions which are discussed in previous chapters.

Liebling Haus displays how a restoration process which is not limited to the renovarion of the building, but promotes at the same time social needs, may enhance the sustainability of the built heritage in the long term.

As will be discussed in the chapter, this case study demonstrates an integration of public participation into the restoration process, as well as integrating the process into the new use of the building through various design decision. In addition, Liebling Haus uses digital heritage as a tool for communicating the restoration process conducted in the building to the public, in its present state.

5.1 HISTORICAL BACKGROUND OF LIEBLING HAUS

Liebling House in Idelson St. 19, is part of zone C of the White City, and out of 3,700 buildings to be conserved according to UNESCO, Liebling House is enlisted as part of the 190 buildings to be under strict conservation[1], due to its bold international architectural style and specifically the modernist principles the building is representing. Liebling House was built in 1936 for the couple Max and Tony Liebling by the architect Dov Karmi, and the engineer Tzvi Barak. Max Liebling was a real estate contractor from Berlin, who immigrated to mandatory Palestine with his wife Tony, because of the rise of Nazism in their country.

The neighbourhood in which Liebling House is situated, known today as the Bialik Neighborhood, named after one of its known residents, was among the earliest and most significant urban

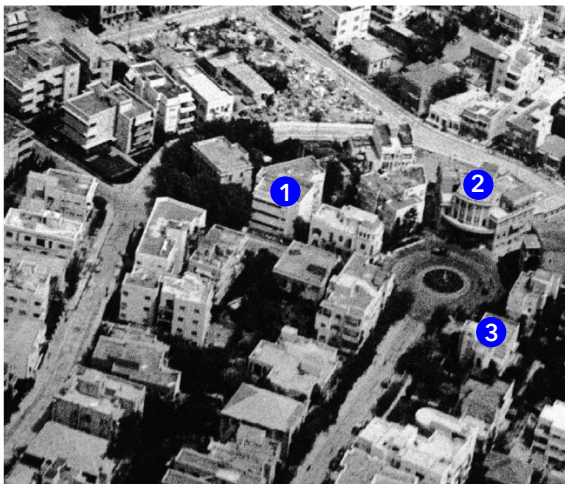


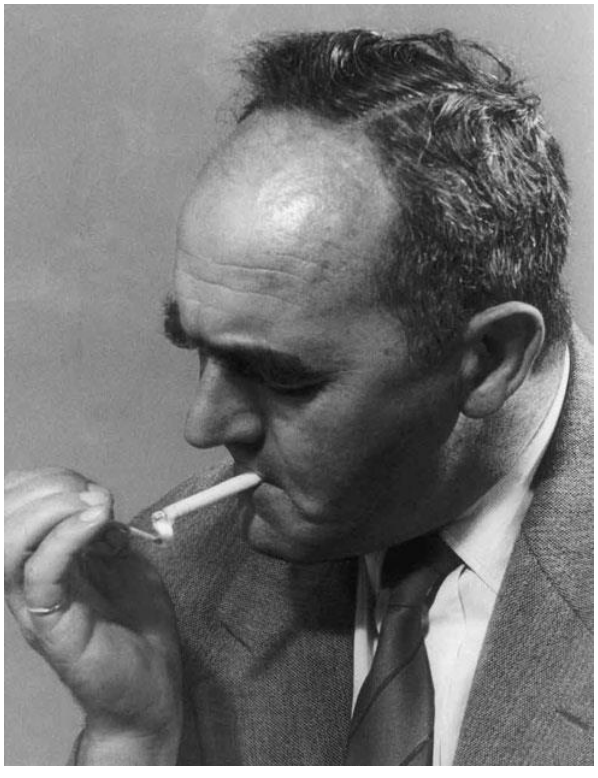
Fig.1 - Aerial view of Bialik neighbourhood from 1937: 1: Liebling House: 2: Old Municipality Hall: 3: Bialik House. *Source: Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 15.*

[1] *The Holistic Conservation Approach of the Liebling Haus*, Liebling Haus, February 23, 2020. https://bit.ly/3J-LieblingHaus.

areas of Tel Aviv. It hosted the city's first municipality hall, its first main public square (called today Bialik Square), and was home to several notable cultural figures, including the national poet Haim Nahman Bialik, the city's first mayor Meir Dizengoff and the painter Reuven Rubin, who became known as the painter of Tel Aviv.

Although the building was originally designed as an apartment house intended for several families, including the Liebling couple who occupied only one unit, it immediately became known by their surname, as they were the original building owners, and who commissioned the construction of it.

For constructing their new house, the couple hired the architect Dov Karmi. Born in 1905 in Ukraine. Karmi, who completed his architectural education in Ghent, Belgium in 1929, under the influence of Architect Henry Van der Welde[2]. Karmi was considered to be one of the most influential figures in shaping the modern architectural identity of Tel Aviv and Mandatory Palestine during the 1930s and 1940s. After immigrating to Mandatory Palestine in 1931, he occupied an important place in the creation of a modern architectural style for the country and in creating prototypes, especially in domestic and commercial building styles[3].



As a disciple of the softened modernism of the Ghent school, Karmi brought to Tel Aviv the culture of functionalism and the attention to details regarding space planning and user experience in the domestic space, as well as innovative technological construction culture. His approach of using harmonic proportions between the shape of the house and its openings (windows, balconies etc.) was used as a guideline for various architects in the following years, experimenting with the adaptive International architectural style in new Tel Aviv buildings .

The early stages of his career were marked by small-scale residential projects for the upper bourgeois social class of the developing city of Tel Aviv. His residential buildings reflected the principles of the International Style

Fig.2 – Dov Karmi. *Source: Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Dov_Karmi.jpg.*

[2] *Liebling Haus White City Center*, Greyscape, accessed October 23, 2025. https://www.greyscape.com/liebling-haus-tel-aviv/.
[3] *KARMI, Dov (1905–1962), Israel architect*, Jewish Virtual Library, accessed October 23, 2025. https://www.jewishvirtuallibrary.org/karmi-dov.

and the Bauhaus movement. In addition, the buildings were characterized by clean geometric forms, functional layouts, adapted to local vernacular building materials, social conditions of the city and the coastal Mediterranean climate.

Over the years, Karmi deepened his influence on the city, although his focus transitioned to public structures, such as Helena Rubinstein Arts House and Charles Bronfman Auditorium. As his recognition as a primary architect of modernism increased, he expanded his practice to include major public and institutional projects also outside of Tel Aviv, with his most notable project of his career – The Israeli Parliament in Jerusalem.

In recognition of his significant contribution to Israeli architecture and particularly recognition of him as one of the leading figures of Israeli modernism, Dov Karmi became the first recipient of the Israel Prize for Architecture in 1957. His work not only defined the early modern architectural language of Tel Aviv but also laid the foundations for the evolution of modern Israeli architecture in the decades that followed.

Karmi's residential architecture projects in Tel Aviv, realized during the 1930s, collectively hold a set of common features which characterize the residential projects of the modernist architect. As described in an article on his works by Dana Margalith:

> Dov Karmi's building envelopes are typified by clear, abstract, and united facades. In their austerity they echo the barren landscape as depicted in drawings by Karmi and his contemporaries. Their horizontal openings stretch from one side of the building to the other; a few cubical openings are often placed on the facade in an unbalanced and asymmetrical

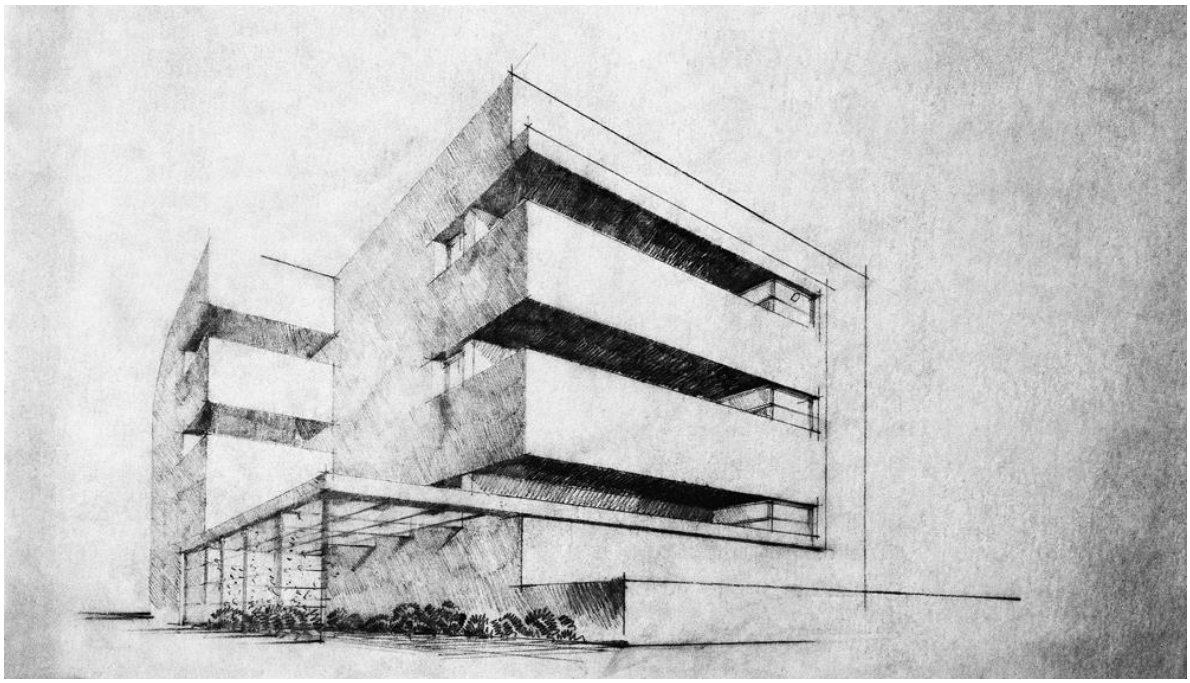


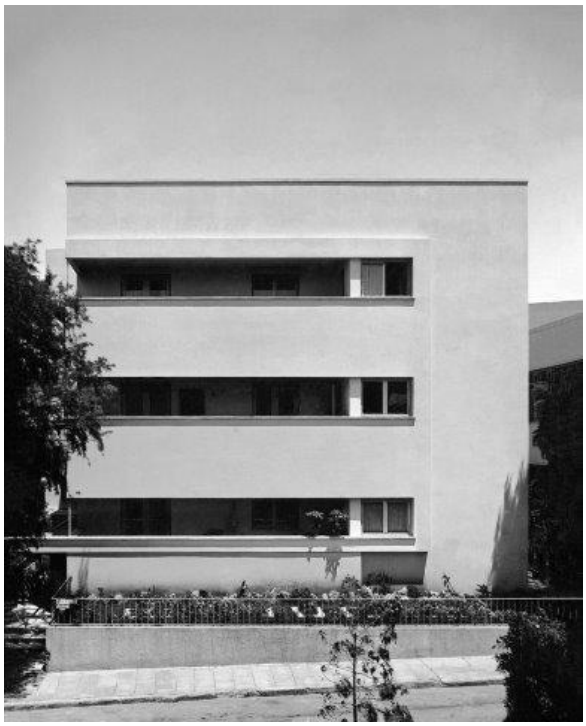
Fig.3 – Max Liebling House, perspective design sketch by Dov Karmi, c. 1934-1936. *Source: Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 18.*

> arrangement. These elements conceal inner functional components – the various apartments and their specific elements – which are usually on display in Bauhaus buildings, and they endow the façade with a monumental appearance suiting the collective realm[4].

Liebling House remained, as one of his earlier projects in Tel-Aviv, a notable example of his sophistication and functionalism; The key legacy of the house as an architectural object derives from its front façade, facing to the street, and seems to be "cut" by the outlines of the recessed balconies – creating game of light and shadow, as well as creating a double façade (a choice to become a repeating characteristic in the International style buildings of Tel Aviv). His daughter, Ada Karmi-Melamed, being herself one of the most important Architects in Israel nowadays, is having the image of the house as the cover of the biographical book about Dov Kar, indicating a strong integration of the project, being not constructed in large scale but rather constructed with high precision and sophistication, to the legacy of the architect. In one of the critics to the book, the house is described:

> it's an early work which looks relevant also for our period, it is a time-less façade. Also today, if an architect would have done the same work, it would look right. It (the façade) looks a bit like a portrait.

Fig.4 - Max Liebling House, 1937. *Source: Michael Yekutieli, "A Tribute to Dov Karmi," MichaelArch – Rear Window (blog), April 6, 2019, https://michaelarch.wordpress.com/2019/04/06/tribute-dov-karmi/*



> Something about the proportions and the human scale is transmitted strongly and matching the balance which appears in the book as the relationship between a man and his architecture[5].

The lot's shape in which the building is situated can be viewed as quite irregular. The front part of the lot is parallel to the street while the back part of the lot is angled. This irregularity required a particular spatial planning of the building. Liebling House consists of two main volumes, one parallel while the other angled, connected by the staircase gear, in order to maximize the space in the site

[4] DANA MARGALITH, Situating the Self: Dov Karmi's Architecture as Bridging Communal and Individual Identities, AMPS Proceedings Series 40, no. 3-1 (2025), cit., p.121.
[5] MICHAEL YAAKOVSON, *Will the Expensive and Safe German Scaffolding Save Construction Workers?* Xnet (Ynet), February 22, 2019, cit. https://xnet.ynet.co.il/articles/0,7340,L-5467613,00.html.

which can be used for construction. The rectangularity is the main modernist key design of the building, emphasized the most in the façade facing the street, as there is a repetition of rectangles in various proportions: the outlines of the building's volume, the window openings, and the recessed balconies.

The building is spatially distributed to six residential apartments, two for each floor. As the building is designated to the upper bourgeoisie social class of residents, all the apartments were originally equipped with practical and elaborate built-in furniture - not only in the kitchens, but also in the corridors and rooms[6].

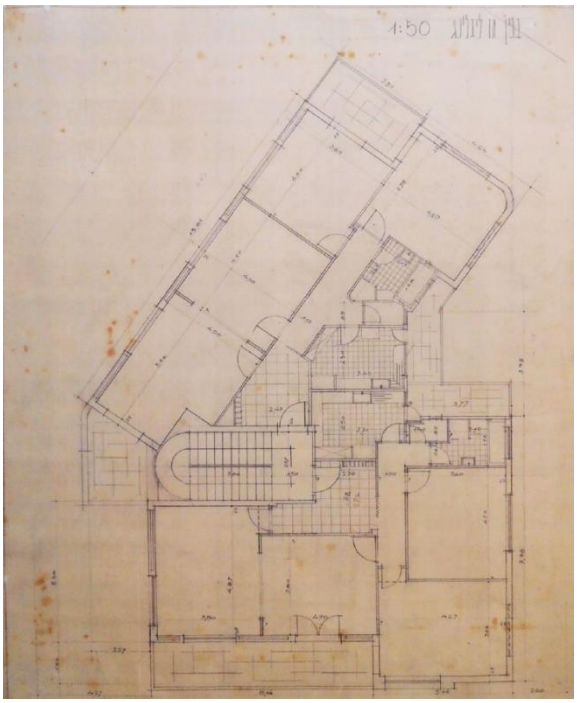


Fig.5 - First floor plan, c. 1936-1937. *Source: Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 27.*

Balconies were one of the main characteristics of the local interpretation of Bauhaus by the modernist architects in the city implementing the international style, with the aim of adapting it to maximize the comfort of the user. The latter is achieved through extensive use of balconies, both to use the air circulation unique to coastal cities, and to try and ease the heat which is heavily felt during the summer months of the Mediterranean city.

Therefore, two types of balconies exist in the building: those who are part of the living space (the recessed balconies well visible on the façade facing Idelson St.), and those who serve as service balconies connected to the apartment's kitchen.

The building walls finishing is made of white/light yellow plaster, as common to international-style buildings, while the floor is made of terrazzo, common material as well for buildings of the same architectural style. Apart from the two main materials for walls and floorings, the building contains high-quality material for the glazing of windows, framing, and decorative tiles used as walls coating in various spaces such as toilets, kitchens, and staircase core.

Some of the materials, such as the wall tiles, came from Germany under the Transfer Agreement made with the Nazi regime, which enabled Jews immigrating to Palestine to export goods from Germany and thereby salvage some of their assets[7]. This fact is surprising as it shows a Nazi non-direct cooperative involvement in the construction of the building, shortly before the start of Second World War and subsequently the holocaust.

[6] BRENNE ARCHITEKTEN, *Max Liebling House: Conservation Survey*, 2016-2017, p.22.
[7] BRENNE ARCHITEKTEN, *Max Liebling House: Conservation Survey*, 2016-2017, p.29.

Fig.6 – Ludwig Ferdinand Meyer and his wife Lotte, tenants in the northern apartment on the ground floor (undated). *Source: Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 36.*

Apart from the Liebling couple, upon completion of the building, more Jewish-German families escaping from the rising Nazism, have bought an apartment in the building. Befitting the prestige of the neighbourhood, the tenants in the building were often well-known personalities among the city citizens, such as pioneers of the Israeli medicine field; Professor Ludwig Ferdinand Meyer and Professor Yosef (Gustav) Asherman.

After the death of Max Liebling, Tony Liebling gained the ownership on the entire building and not only the apartment of the couple, as being a married couple without children – Tony left the building in her will to be in the hands of Tel Aviv municipality, with specific instruction on its future designation:

> The house is to be donated to the Tel Aviv Municipality after the tenants leave and should serve as an orphanage, residential facility for children, old age home, dorm for needy students, or museum. A sign stating that Max and Tony Liebling have donated the building is to be mounted above the front entrance"[8].

The building indeed became a property of the municipality, but unfortunately, after her death, Tony's wishes for the building were not entirely fulfilled. For 50 years after her death, the ground floor indeed was used for a similar purpose to what Tony's stated in the will, a kindergarten (instead of a residential facility for children), whereas the rest of the building was used by the municipality as offices for their own profit.

Fig.7 – One of the balconies which got closed to be used as a temporary storage space, 2015. *Source: Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 141.*

Fig.8 – The kindergarten which operated on the ground floor, 2015. *Source: Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 149.*

[8] BRENNE ARCHITEKTEN, *Max Liebling House: Conservation Survey*, 2016-2017, cit., p.34.

In 2014, Liebling House destiny was to be changed drastically, as it was chosen to be one of the first 10 modernist buildings to receive a restoration funding as part of the "Keeping It Modern" program by Keren Getty[9].
In 2015, the government of Germany joined the funding of the house restoration to transform it to a Bauhaus Museum and headquarters for representatives to supervise the overall process of White City Buildings conservation .

Today, the house is considered to be the main hub for the conservation community of Tel Aviv and Israel in general. The building not only functions as an open access conservation museum – but also as a research laboratory, hosting spaces for events, lectures and workshops. The various public functions offered in Liebling Haus today foster dialogue and cooperation in the fields of research, professional training, and knowledge related to architectural and urban conservation.

In addition, upon completion of the restoration process, the building was renamed to 'Liebling Haus', the German translation of the former name, a symbolic way to express the cooperation between Israel and Germany, who was responsible to the funding of the restoration project.

Fig.6 – Idelson St. with Liebling Haus today. *Source: Aviad Bar Ness.*

[9] SARA PELED, *Liebling House: Everything You Wanted to Know About the White City, the Bauhaus, and the International Style*, Megafon News, June 15, 2021. https://megafon-news.co.il/asys/archives/335471.

5.2 The restoration process

The first restoration process in Liebling House occurred in the late 1990s, before the building was considered as part of the White City UNESCO World Heritage Site and hence, before it was defined as a building to be strictly conserved. The reasoning for the first restoration works was the lack of maintenance, possibly due to lack of appreciation of the building by the municipality after Tony Liebling's death[10].

The lack of maintenance not only resulted in degradation of the building but also in the loss of the building's identity. For example, a main modernist characteristic of the building was the recessed balconies who allowed the residents of the apartment have an outdoor space with increased air circulation in their apartments during the warm summer months. Although, with the entrance of mechanical ventilation systems during the 1980s and 1990s, those balconies were closed by an addition of glazing panels instead of the opening cuts, in order to increase the internal space.

Prior to the main restoration phase of the building, which started in 2017, more extensive repair works were carried out. The timing was not coincidental, the closer attention of the municipality to the conservation of the building was part of the upcoming proposal of the White City to UNESCO to be declared as a World Heritage Site in 2003[11].

More than a decade after UNESCO's declaration of the White City of Tel Aviv as a World Heritage Site in 2003, the city's Bauhaus buildings once again became a subject of international attention, as Germany expressed its interest to invest public funds in the intensive conservation of International Style architecture, this due to the upcoming celebrations of 100 years to the creation of the Bauhaus movement. The buildings had a particular connection to the German culture as they were built by German architects or architects who pursued their education in the prestigious Bauhaus school. Another link lies in the fact that, as previously mentioned, buildings such as the Liebling House were constructed with materials imported from Germany during the 1930s[12].

Subsequently, an official cooperation was established between the Municipality of Tel Aviv and the German government for the restoration of the Liebling House. According to the agreement, the Municipality of Tel Aviv funded approximately €2 million for the restoration, while Germany contributed an additional €3 million[13]. The investment of the German government did not end with the restoration process, as it is guaranteed a continuous funding of approximately €2.75 million in the next 9 years from the re-opening of Liebling House, in

[10] Brenne Architekten, *Max Liebling House: Conservation Survey*, 2016-2017, p.276.
[11] *Ibid.*
[12] Gunda Achterhold, *A Network for the White City*, DEUTSCHLAND.de, last modified March 24, 2014. https://www.deutschland.de/en/topic/knowledge/networks-partnerships/a-network-for-the-white-city.
[13] Yonat Nahmani, *Liebling House to Stand at the Center of the Bauhaus Centennial Celebrations*, Calcalist, September 11, 2019. https://www.calcalist.co.il/articles/0,7340,L-3770067,00.html.

favour of its maintenance[14].

This approach may reflect an understanding that heritage restoration does not conclude with the inauguration of a site but continues through its long-term management and care, to ensure the heritage site is sustainable and able to transmit its values to the future generations.

As a prior phase to the restoration process, the German architecture firm Brenne Architekten was commissioned with conducting a comprehensive survey report on Liebling House, which includes the historical background of it, a profound building analysis in all its phases, and degradation criticalities.

As described in the survey report, the building was modified numerous times, mostly consistent with the passage of ownership between the various figures, whereas the main damages to the identity of the building were caused due to modification of the building's external envelope.

One of the challenges in the restoration process were the modifications, small in scale but significant in terms of heritage, which were carried out during the establishment of the children daycare on the ground floor. Since there was not an awareness to the value of the original construction culture, the municipality conducted alteration to the internal elements which resulted in loss of the original value and identity of the building. An example of such modifications is the installation of new floor tiles or replacement of doors to answer safety requirements of a childcare facility.

Tab.1 – Main modification and degradation documented in Liebling House from its construction until its restoration. *Source: Illustration by author, information by Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 278-279.*

YEAR	MAIN MODIFICATIONS AND DEGRADATION
1940	Reinforcement of the walls of a basement room to create an air raid shelter
1954	Connection to the municipal sewerage system
1964	Bad condition of the pergola in the entrance
1982 /1987	Bad structural condition of the top and roof floor
1993	Enclosure of the balconies
1999	Redesign of the side entrance and basement steps; Replacement of the railing of the second and third floor utility balconies on the east facade; Replacement of a balcony door in room
2008	Creation of an improved air-raid shelter in the basement floor consisting of reinforcement of the walls and ceilings, installation of ventilation system, replacement of doors and windows and creation of two emergency exits through windows

[14] *Germany Giving $3.2 M to Help Tel Aviv Preserve Bauhaus Buildings*, Jewish Telegraphic Agency, July 12, 2015. https://www.jta.org/2015/07/12/israel/germany-to-help-tel-aviv-preserve-bauhaus-buildings-2.

Due to the modifications mentioned above, and others such as tiles replacement and walls coating, in many cases there was a confusion among the restoration team whether the present case demonstrates an original design or an alteration from a later phase of the building[15].

The decision regarding which parts of the Liebling House to demolish, preserve, or restore following years of neglect and functional changes was guided by an aim of return to the building's original 1936 appearance. The restoration team adopted a conservation approach focused on authenticity and historical accuracy, based on drawings by Dov Karmi existing in Tel Aviv Municipality

Fig.7 – Corrosion in the reinforcement of a concrete ceiling in the basement, 2016. *Source: Illustration by author, information by Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 291.*

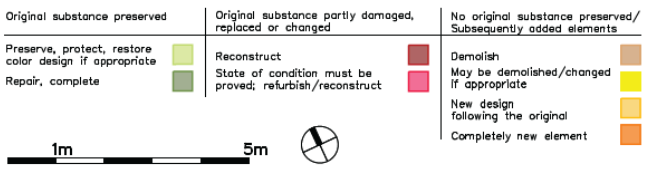
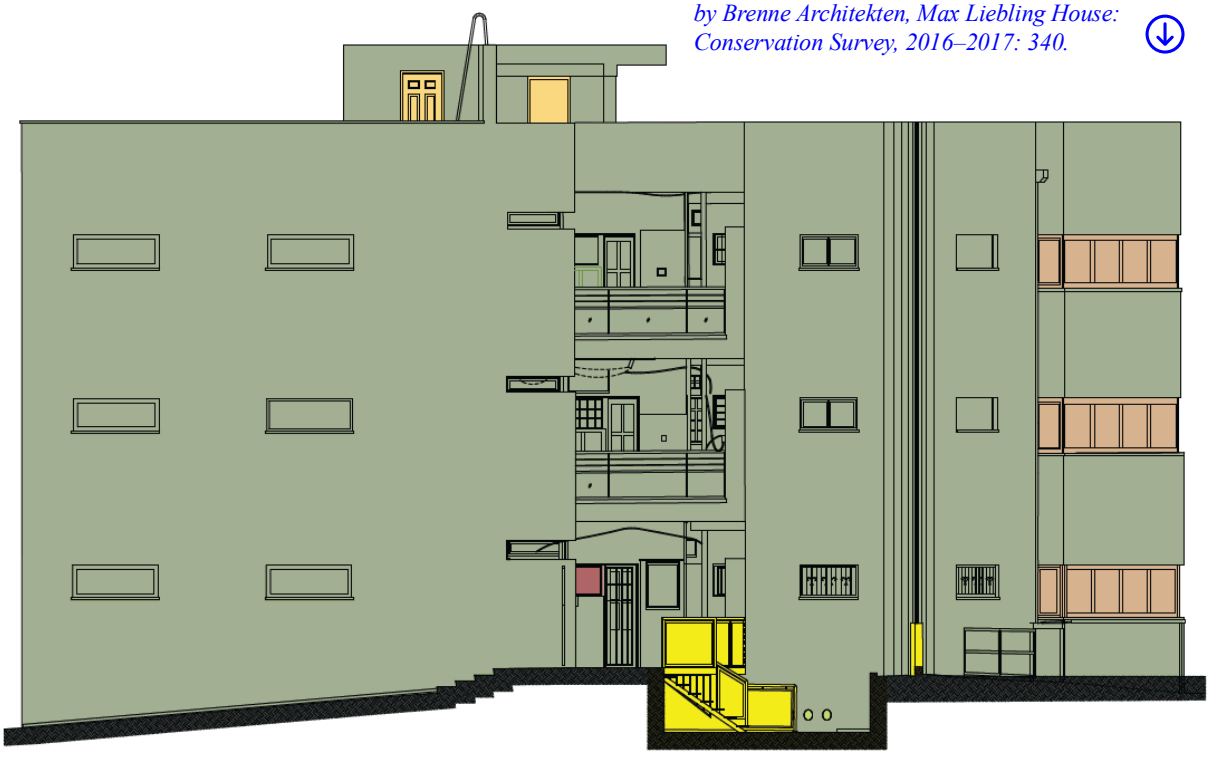


Fig.8 – Preservation measures for doors and windows done on the east façade. *Source: Illustration by author, information by Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 340.*



[15] BRENNE ARCHITEKTEN, *Max Liebling House: Conservation Survey*, 2016-2017, p.279.

Archive. Consequently, all elements that had been introduced in later renovation phases, such as internal partitions, balcony enclosures, and non-original wall finishes, were carefully removed without harming the layer beneath.
At the same time, great attention was devoted to the preservation of original components, such as the type of façade plaster used for finishing, steel railings, and other characteristic Bauhaus-style decorative elements. These restoration of those elements was done by using methods and materials consistent with those originally employed. In instances where certain components had been lost or damaged beyond repair, they were reconstructed based on comparable other International Style buildings in in the city.

Through this comprehensive process, the restoration of the Liebling House aimed to achieve a coherent and unified appearance that reflects the spirit of the Modern Movement and Bauhaus heritage in Tel Aviv.

The German involvement in the restoration of the Liebling House was manifested throughout the entire process. This collaboration was reflected not only in the funding mechanisms but also in the standards, materials, and methods adopted during the restoration works. A notable example expressing this influence is the decision to use European-standard scaffolding rather than the conventional Israeli type.
During the restoration process, the building was enveloped in a scaffolding system manufactured by the German company *Layher*. Unlike the local scaffolding systems, which are typically improvised and composed of simple iron bars and wooden planks, the imported system was modular, highly precise, and made of galvanized steel components combined with anti-slip wooden boards.

This type of scaffolding is estimated to have a lifespan of approximately thirty years and compile with German engineering and safety standards[16].
Its use in the Liebling House restoration signified not only a commitment to safety and efficiency but also may indicate the level of significance attributed to the project. In addition, this decision demonstrates how international cooperation, when done thanks to shared conservation values, can enhance the quality of a heritage restoration process.

Fig.9 – Sharon Golan, the architect which led the Israeli team in the restoration process, walking on the German scaffoldings imported to the project site during the restoration process (undated). *Source: Michael Yaakovson, "Will the Expensive and Safe German Scaffolding Save Construction Workers?", Xnet (Ynet), February 22, 2019.*

[16] MICHAEL YAAKOVSON, *Will the Expensive and Safe German Scaffolding Save Construction Workers?* Xnet (Ynet), February 22, 2019. https://xnet.ynet.co.il/articles/0,7340,L-5467613,00.html.

The new functions designated for the building are distinctive from one another, yet they all share a common goal: transforming the building into a center for education about the White City, while simultaneously serving as a hub for the exchange of knowledge on the conservation of built heritage. At the same time, the building holds commercial functions intended to increase its economic profitability, as it is owned by the municipality and therefore functions as a public site.

In addition to the spatial planning of the new functions, an analysis was conducted of the spatial functions developed by the organizers of the conservation centre (see tab.2). Its purpose was to understand the

Tab.2 – Main requirements for adaptation for the new use of the building. *Source: Illustration by author, information by Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 320.*

USE CATEGORY	USE	ADAPTATION OF THE EXISTING FABRIC MAIN REQUIREMENTS						
		NUMBER OF USERS	ELECTRIC INSTALLATIONS/ IT	CLIMATE CONTROL, VENTILATION	SANITARY INSTALLATIONS	LIGHTING (SPECIAL REQUIREMENTS)	SECURITY	FIRE SECURITY
EXTERNAL USE								
Exhibition	Museum apartment	Moderate	X	X			X	
Exhibition	Gallery, permanent exhibition	High	X	X		X	X	X
Visitor Center	Cash desk, reception	High	X	X		X	X	X
Visitor Center	Shop	High	X	X		X	X	X
Visitor Center	Café	High	X	X				X
Research and Education	Research area	Moderate	X	X		X		X
Research and Education	Digital Archive	Low	X	X				X
Research and Education	White City Service Office	Moderate	X	X				X
Research and Education	Library	Moderate	X	X		X		X
Research and Education	Seminar room	Moderate	X	X		X		X
Research and Education	Children's education program	Moderate	Outdoor facilities					
Service facilities	WC	High	X		X			X
Service facilities	Wardrobe	High	X					X
Public Access	Staircase, corridors	High	X				X	X
INTERNAL USE								
Administration	Conference room	Moderate	X	X		X		X
Administration	Office	Moderate	X	X		X		X
Living	Artist in residence	Low	X	X				X
Service facilities	Storage	Low	X				X	X
Service facilities	Kitchen (Café)	High	X	X	X	X		X
Service facilities	Kitchenette, staff room	Moderate	X	X	X			X
Service facilities	WC	Moderate	X	X	X			X
Internal Access	Staircase, corridors	Moderate	X				X	X

Fig.10 – An example of the new distribution of functions in the Liebling House, on display: ground and first floor plans. *Source: Illustration by author, information by Brenne Architekten, Max Liebling House: Conservation Survey, 2016–2017: 323.*

requirements necessary according to the new functions. The spatial functions were divided by the intensity of their use, and subsequent required adaptions.

The new design includes a visitors' center on the ground floor, featuring an information desk, a Bauhaus-themed souvenir shop, and a commercial café designed in the style of 1930s bourgeois interiors. The upper floors host a variety of exhibition spaces, where some are dedicated to education on conservation, others to changing contemporary art exhibitions, and additional rooms displaying reconstructions of the original apartments as they appeared during the building's first phase.

In addition, the building new design fosters education and research, as it includes a research area (with changing events such as workshops and guest lectures), a space dedicated for adult education (such as specialized trainings related to conservation), and a space dedicated to children's education activities.

Nonetheless, the building includes various service spaces for the utility of the working staff

of the conservation, such as kitchen, staff rooms and sanitary facilities.

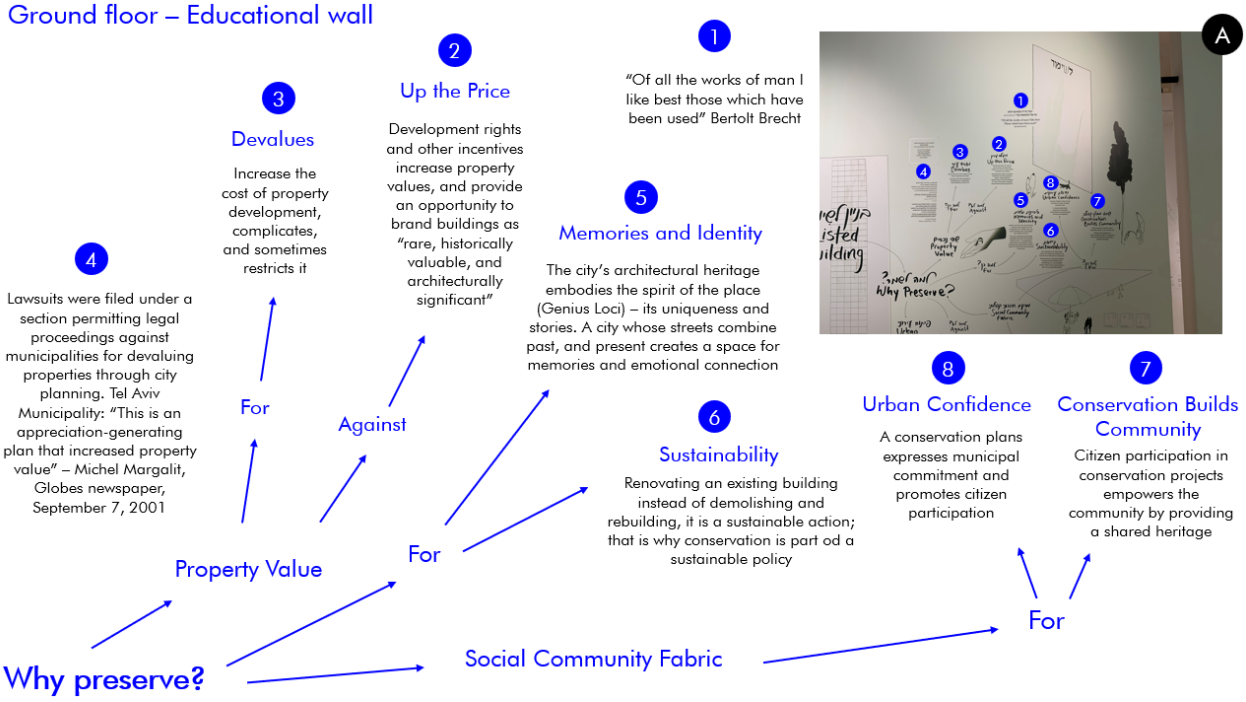
An additional unique function to the site is the artist residence, the function is a result of the proposed residency program designated to researchers and artists, offering them the opportunity to live in the Max Liebling House for a limited period. For this purpose, a combination dwelling and studio for one to two persons is set for the living and working of the artist. The program is not expected to harm the natural visitor flow within the building, as the expected frequency of use of the residence will be low[17].

Fig.11 – Artist residency studio in the current state of Liebling Haus. *Source: Photo by the author, February 18, 2024.*

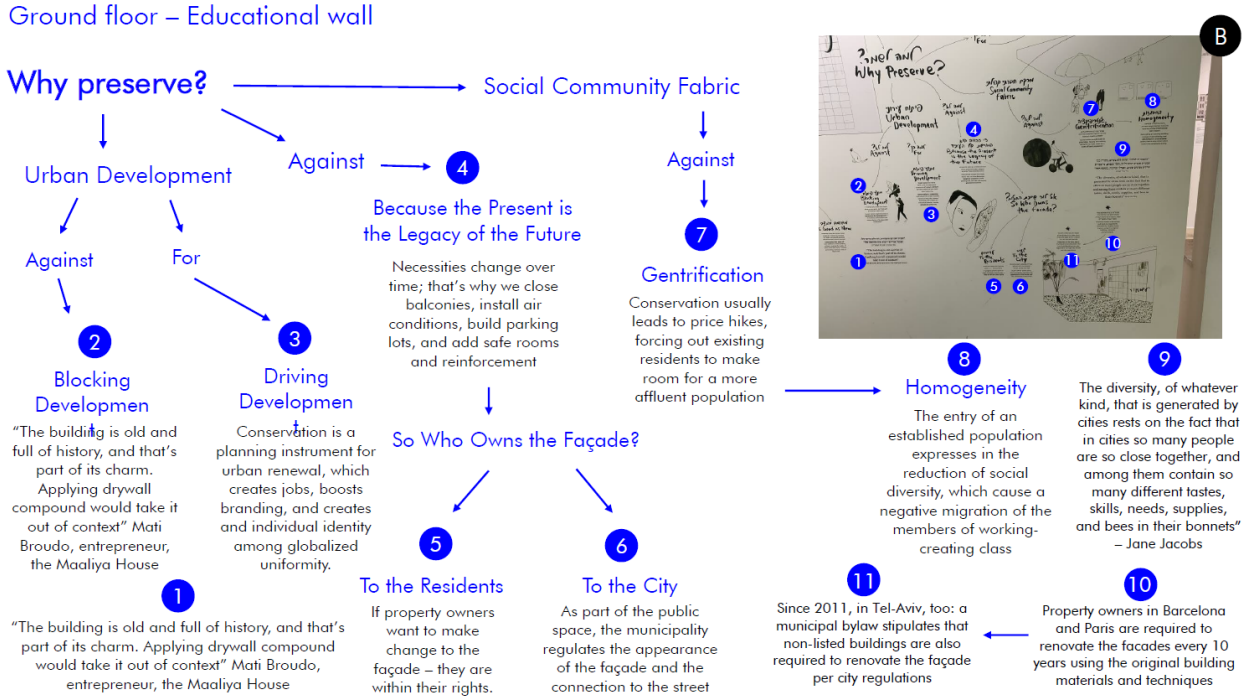
Tab.3 - (in following pages) Rewriting of the ground floor explanatory wall, educating the audience about conservation, from methodology to profitability, law, management and various other aspects. *Source: Illustration by the author, photos by the author, September 17, 2024.*

[17] BRENNE ARCHITEKTEN, *Max Liebling House: Conservation Survey*, 2016-2017, p.321.

Ground floor – Educational wall



Ground floor – Educational wall



Ground floor – Educational wall

9
The Conservation Committee
Includes elected officials (and advising architect), whose role is to represent the interests of the city, the residents, the developers, and property owners

1
"Conservation is a social tool fed by nostalgia and longing… and it is applied by tools and mechanisms with which the community implements its decisions concerning past components, worthy of commemoration and stabilizing in its collective memory" – Arch Shmuel Groag

C

12
Urban Social-Historical
The political, cultural, or economic role of the building in the city or state's history; and its current physical condition

11
Esthetic Architectural
The structure's design qualities; building materials and techniques; the architects

10
What's the Story of this Building?
The conservation process begins with a local (or thematic) survey conducted by the municipality, resulting in preliminary conservation survey for each building, detailing values worthy of preservation. The document helps grade the structure according to predetermined criteria:

Submits its recommendations to

5
Mizrachi girls home on Dov Hoz St. (1938)
The building, excluded from the conservation plan, was renovated following a civil protest and converted into a community center. A successful example of a conservation project that was not dictated from above

6
In 2011, UNESCO adopted an approach dubbed HUL: Historic Urban Landscape. The HUL approach shifts emphasis from the monumental architecture to the conservation of urban values that undergird the life of the city

7
The conservation plan of Florentin neighborhood is an example of urban fabric conservation that does not focus on a single building

3
New Approach
In recent years, a broader model of conservation has been adopted, which no longer focuses solely on the architectural aspect, and instead advocates and acknowledges the diversity of values, traditions, cultures, and the environment as an ongoing, sustainable whole.

4
A civil action can transform public opinion, leveraging the power of the community to preserve a property.

8
The Department of Conservation
Responsible for developing urban conservation plans, including the Tel-Aviv Conservation Plan – White City that covers 1,000 buildings

And Sometimes

Who Gets to Decide?

2
What Does it Mean?
According to the Planning and Building Law, conservation is an architectural-engineering work of restoring historically, nationally, architecturally, or archeologically significant buildings

Ground floor – Educational wall

1
Which type of Conservation are you?
The Tel-Aviv Conservation Plan includes two categories:

D

2
Standard Conservation
Preserving the structure's surface skin and communal areas (facades, rooftop, etc.); and applying development rights on-site

9
Let's Talk Cash
Conservation involves restoration and renovation of the building using the original building materials and techniques. It's a time consuming, costly process… 1,000-2,000 ILS per sqm difference (depends on who you ask…)

Help, Please!

8
Incentives
The municipality offers property owners benefits designed to promote conservation projects, including granting development rights

7
Restrictive Conservation
Buildings of particular importance, whose preservation requires the structure's surface skin and communal areas be restored to the original form; buildings additions are prohibited.

But also

4
Building Additions
Adding or extending floor space, converting service areas into residential or office spaces and more

3
In standard listed buildings, development rights can be applied to the building itself, provided its unique character and outline are protected

11
Developments rights cannot be applied to restricted listed buildings, but can be transferred to another lot

6
A distinctively contemporary addition, designed to deliberately differentiate itself from the historical architecture

5
Additional construction that assimilates into the existing contour of the structure, simulating the original style and design as much as possible

12
Transferring Development Rights
Transferring development rights from the listed buildings – the Granting lot – to the Receiving lot

10
"Conservation may, according to circumstance, include the process of: retention or reintroduction of a use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaption and interpretation; and will commonly include a combination of more than one of these" (The Burra Charter)

There are Other Ways

14
As Good as New
Conservation that wipes off later additions to the building, without covering the marks of time; traces the source, without pretending to bring it back to square one

13
The Conservation Fund
The municipal Listed Buildings Fund is designed to help property owners through grants, loans, and professional support

15
You do You
A real-estate developer is not always necessary: residents and property owners insisting on regular maintenance can avoid a large-scale conservation process that might have a dramatic effect on the surroundings

5.3 Public participation during the restoration process – 'Open for Renovation' initiative

The restoration process of Liebling House was innovative not only in its international collaboration and close attention to detail, but also in its unique approach of involving the public. This was achieved through a series of events titled *"Open for Renovation"*, initiated by the White City Center and the Tel Aviv Municipality. These events invited the public to engage in the restoration process by participating in workshops or joining guided tours inside the construction site to witness the conservation work in progress. The activities were organized in groups: the tours were open to the general public, while the workshops, which require professional expertise, were attended primarily by students specializing in the field, offering them hands-on experience. The title *"Open for Renovation"* itself carries an ironic meaning: while buildings are typically closed during restoration, the Liebling House project chose to emphasize the fact its process is transparent and inclusive, transforming it into a shared and educational experience rather than a concealed one.

Sharon Golan, the Program Director & Head of the Research Lab of the White City center in Liebling House, describes the idea which led to the formation of this particular series of workshops, activities and events:

> *We wanted to make an open building, because usually when you renovate the building, it is closed, and it creates sort of distance of the building from the population. We wanted to create a very open and inviting atmosphere right from the start. The idea we followed is called "Bauhütten" in German, this term was used when they were renovating churches. They had like a shed where craftsmen working on the field were staying, and young student were training there. You have a lot of challenges (here in Tel Aviv), especially that there are no craftsman in Israel, there are no craftsman schools. The Germans didn't have a problem bringing (to Liebling Haus) masters from Germany, because it (the craftsmen community today) is like a guild, so we had craftsmen from Germany, with students of Israel (from architecture for example). Also, it was hard to find really people who want to learn how to work with materials. So yeah, that (attracting visitors to this tours) was a big challenge, and also safety challenges -we had to bring the scaffoldings from Germany*[18].

The inspiration that Sharon Golan refers to is the German-originated Bauhütten practice, which in 2020 got recognized by UNESCO as an

[18] SHARON GOLAN, Interview by the author, August 18, 2024, Tel Aviv.

intangible heritage[19]. This tradition dates to the medieval period, when large-scale construction projects, such as cathedrals, established workshops directly on site. Within these workshops, known commonly as Bauhütten (-masons' lodge in English, which means a space for builders), craftsmen of various trades, including blacksmiths, carpenters, and stonemasons, worked side by side. Students of these crafts would spend time at the site observing skilled masters at work and gaining hands-on experience through direct participation. Notable examples of buildings where the Bauhütten tradition was practiced during their construction include St. Stephen's Cathedral in Vienna, Reims Cathedral,

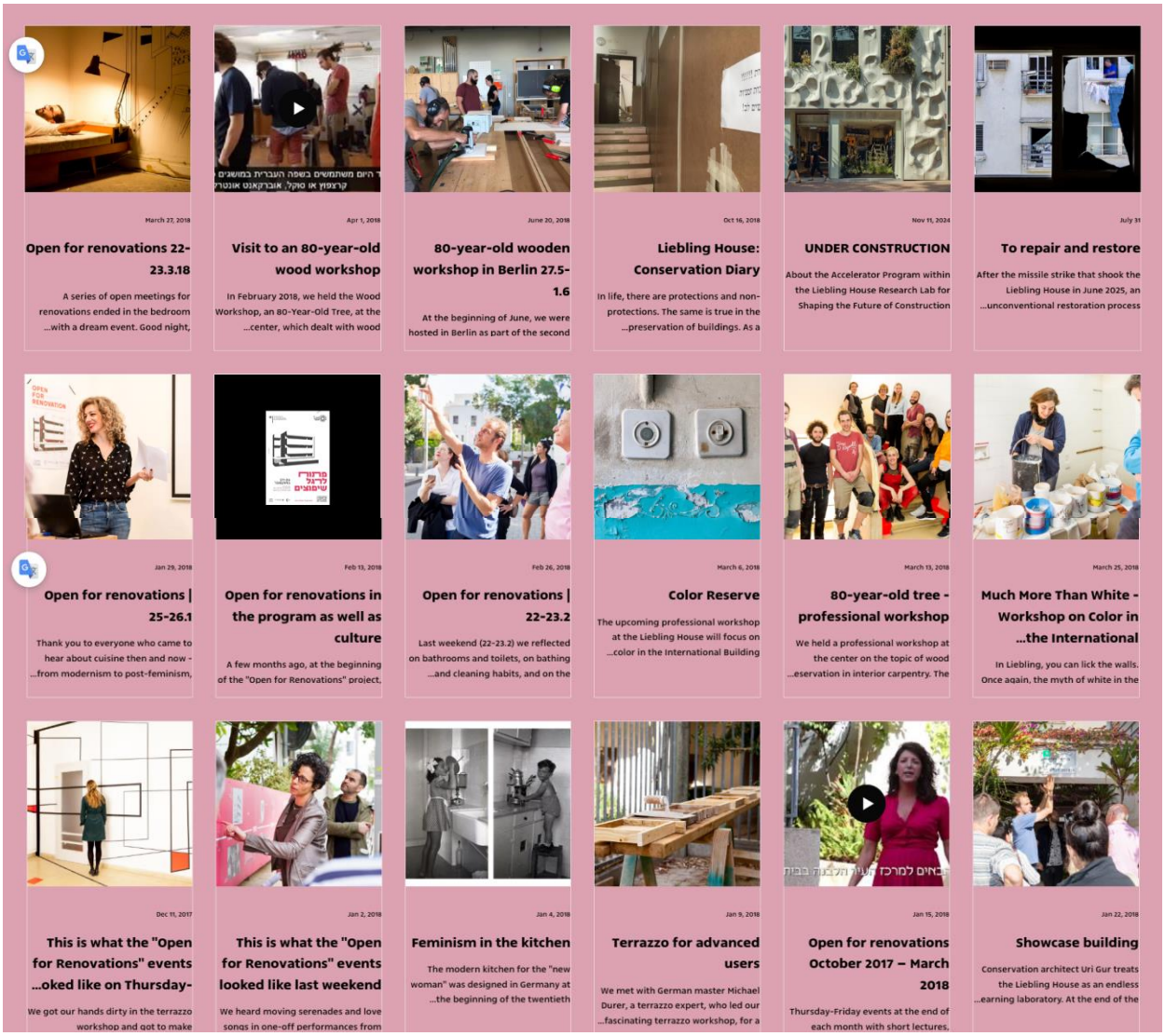


Fig.12 – Screenshot from Liebling Haus website showing various activities which occurred as part of the 'Open for Renovation' initiative. *Source: "Open for Renovation," Liebling Haus – The White City Center, accessed October 26, 2025, https://www.lieblinghaus.org/lieblingblog/categories/open-for-renovation.*

[19] DEUTSCHE WELLE, *The Unique German Trade of Bauhüttenwesen Is Recognized by UNESCO*, December 20, 2020. https://www.dw.com/en/the-unique-german-trade-of-bauh%C3%BCttenwesen-is-recognized-by-unesco/a-56003928.

the Strasbourg Cathedral, and the Zwinger Palace in Dresden[20].

Even though there are significant differences between the medieval construction culture of the original Bauhütten and the modernist construction culture during the building of the Liebling House, the same guiding principle inspired Sharon Golan in establishing *"Open for Renovation"*: viewing the restoration not only as a process to be completed quickly, but as an opportunity for knowledge exchange. Furthermore, the public participation integrated into *"Open for Renovation"* allowed people without prior experience in the field to acquire new knowledge and, more importantly, to gain awareness of the restoration process and an understanding of its importance.

The 'Open for Renovation' events were not addressed only to the local public but also served as a groundwork for international cooperation among the young generation. An example of such participative cooperation was the renovation of the plaster finishing layer on the façades of the building. As described by the STO foundation fostering this workshop:
"The renovation of the facade was planned as a youth camp that brings together young German and Israeli craftspeople. It is part of the "Open for Renovation" cooperative initiative that is being coordinated by the Federal Buildings Office (ABB) in Mainz as representative of the German government and the White City office in Tel Aviv. The non-profit Sto Foundation financed and organised the German-Israeli facade renovation

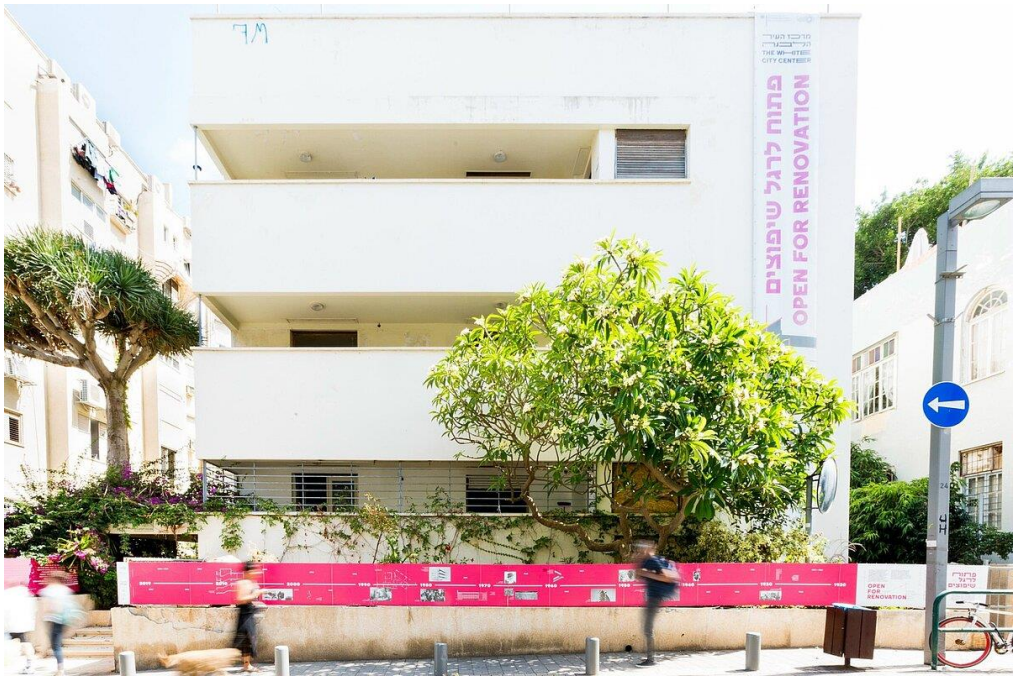


Fig.13 – Liebling Haus front façade during its restoration process, with a sign inviting to the 'open for renovation' events. *Source: "Open for Renovation," Liebling Haus – The White City Center, accessed October 26, 2025, https://www.lieblinghaus.org/lieblingblog/categories/open-for-renovation.*

[20] DEUTSCHE WELLE, *The Unique German Trade of Bauhüttenwesen Is Recognized by UNESCO*, December 20, 2020. https://www.dw.com/en/the-unique-german-trade-of-bauh%C3%BCttenwesen-is-recognized-by-unesco/a-56003928.

workshop. The project is also supported by the vocational school in Leonberg and the competence centre for plasterers in Rutesheim.

Each of the three teams of five trainee plasterers from the vocational training school in Leonberg worked for one week on the facade of the Max-Liebling-House:

> They repaired cracks and applied deep solvent primer, adhesive primer and finishing render. Seven journeyman painters, from the German vocational colleges in Berlin, Hamburg, Hildesheim, Fulda, Lahr, Munich and Stuttgart, applied the new coat of paint. A lively exchange with the young Israeli craftsmen on site contributed to the intercultural transfer of knowledge: For example, the German craftspeople learned about the mix of render appropriate to be used in the Mediterranean air, which is rich in salt. When their work was done, the workshop participants got an impression of Tel Aviv and Israel as part of the accompanying cultural programme[21].

Fig.14 – A professional carpentry workshop for restoring wooden elements of Liebling Haus as part of 'Open for Renovation' events. *Source: "Open for Renovation," Liebling Haus – The White City Center, accessed October 26, 2025. https://www.lieblinghaus.org/lieblingblog/categories/open-for-renovation.*

Fig.15 – A public terrazzo workshop hosting a German terrazzo expert, as part of 'Open for Renovation' events. *Source: "Open for Renovation," Liebling Haus – The White City Center, accessed October 26, 2025. https://www.lieblinghaus.org/lieblingblog/categories/open-for-renovation.*

[21] *Bauhaus Renovation in Israel: The Max-Liebling-House Shines in a New Light*, Sto Foundation, May 22, 2019, cit. https://sto-stiftung.de/en/home/press/article/bauhaus-renovation-in-israel-the-max-liebling-house-shines-in-a-new-light.

Fig.16 – German students from colleges for painters participate in the renovation of the plaster in Liebling House as part of 'Open for Renovation'. *Source: "Open for Renovation," Liebling Haus – The White City Center, accessed October 26, 2025, https://www.lieblinghaus.org/lieblingblog/categories/open-for-renovation.*

5.4 Traces of the restoration process in the existing design

In Liebling House, the restoration process never really stopped because it remains alive within the building's ongoing functions This continuity is achieved through a combination of tangible and intangible strategies that integrate conservation with contemporary use.

The first method is digital, adding an interpretive layer to the Liebling House and enriching it with additional information on the restoration process. This includes the building's history and the specific methodologies applied to restore individual elements now visible in their completed conserved form. The information is accessible through a dedicated mobile application, available for free on major digital platforms such as Apple's App Store and Google Play. The app presents its content in episodes - video or audio files, which are divided into thematic sections such as conservation, history, or even kids-oriented. Each episode focuses on a particular heritage feature of the building, for example, the tiles in the staircase core, the conservation strategy for the interior walls, or the story behind the Frankfurt kitchen model.

Every element featured in an episode is marked in the building physically by a written serial number consisting of three digits, displayed next to the corresponding feature. Alongside the serial number, is stamped also the episode's title and a QR code linking directly to the relevant content in the application. Visitors can therefore explore the restoration process and the building's history in two ways: by

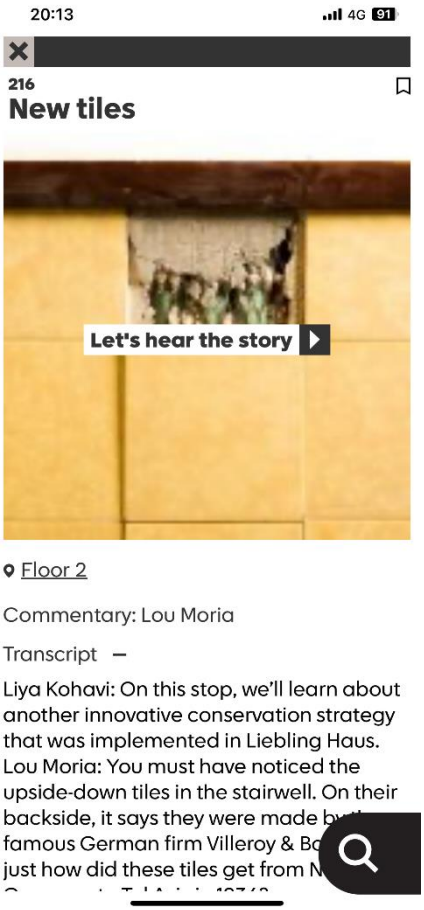


Fig.17,18,19 - Tiles of the staircase core, the identification stamp and the corresponding episode in the digital application. *Source: photos by the author, August 26, 2024; screenshot of 'Liebling Haus' app by the author, October 27, 2025.*

scanning the QR code of the feature in front of them or by browsing through the app and locating the physical mark in the building searching for the corresponding serial number (see fig. 19). Sharon Golan describes this feature of the building as an opportunity for an exploration experience, "The idea was that the visitor can feel free to explore independently, it's not like pushing buttons in a regular museum"[22].

A second approach that expresses the complexity of the restoration is the decision to leave certain walls exposed. The layers of plaster from previous interventions remain visible, allowing visitors to experience the building as though the restoration was still under process. Walking through areas where yellow, white, and grey tones overlap reveals the history of the structure and gives the visitor an experience of being a part of a restoration process on-site. Sharon Golan explains the rationality behind this decision:

> If you look here, the walls, we didn't paint them. We took off the plaster, which was kind of a plastic plaster after so many years of misuse of the building, and we discovered a lot of richness in the colors, so we decided to use the buildings like that. This was a message that says to stay authentic all the time – not replace anything, the floors are still the original floors, and the handles are the original handles, the doors, the windows etc… if you would do a renovation and you will take off all the plaster of the building's outside shell, and bring new plaster from Italy and assemble it, or if you would terrazzo floor and you will take all the terrazzo and replace it with new terrazzo. First of all – it's too expensive, so it creates gentrification, second – it's not authentic, and the third – craftmanship today is not what it used to be, and everything is not done as well as it was used to be. Mainly for me, it (leaving the walls exposed) is telling the story of the building, and the authenticity of the story of the building for me has to stay with its original materials, and I don't care if they're not perfect, it can be like shaggy, for me it adds[23].

An additional aspect of this strategy is that visitors can observe the color palette marked directly on the wall,

Fig.20 – Corridor of one of the apartments in Liebling Haus, functioning as an exhibition space, with exposed plaster layers visible on the walls. *Source: photo by the author, August 26, 2024.*

[22] SHARON GOLAN, Interview by the author, August 18, 2024, Tel Aviv.
[23] *Ibid.*

Fig.21 – Room of one of the apartments in Liebling Haus, functioning as an exhibition space, with exposed plaster layers and color palette created during the restoration process on the wall. *Source: photo by the author, August 26, 2024.*

which was originally intended to guide the selection of the appropriate finishing layer paint color for that surface. Although the decision to repaint ultimately did not occur in favor of leaving the walls exposed for didactic purposes, the palette remains visible, as evidence of the kinds of choices faced by a professional team during a restoration process.

A third strategy for integrating the restoration process into the building's current design is the marking of former walls on the floors. In many restoration projects, certain walls are demolished to adapt the building to its new spatial and functional requirements. Although some of these walls may not hold a significant architectural or historical value, the question of 'if' and 'how' to commemorate them remains. At the Liebling House, a thoughtful solution was adopted: where a wall once stood, a trace was left on the floor by

Fig.22 – Open access museum on the ground floor, with traces of the demolished walls visible on the floor and remaining walls. *Source: photo by the author, August 26, 2024.*

removing sections of the terrazzo tiles. This simple yet sophisticated intervention provides the visitors with a visible indication of the building's spatial organization before the restoration. In this way, the design successfully balances the practical needs of the building's new use with the desire to preserve the memory of its earlier form.

The fourth strategy to be discussed demonstrates the restoration process includes not only the operative phase but also a comprehensive preliminary analysis, aimed at studying both the building itself and the historical construction culture it represents. A key component of this analysis is the study of materials, an integral aspect that involves understanding the materials used in the construction of the building, as well as those used in comparable similar structures within the same spatial and temporal context (in the case of the Liebling House, this refers to the city of Tel Aviv during the 1930s).

The purpose of the material study can be viewed as dual. First, it provides the necessary knowledge to treat and restore materials that have degraded due to direct damage, or indirect damage such as climatic conditions or the passage of time. Second, it offers a historical basis for material decisions in cases where information is lacking. For example, in cases of lacuna or disintegration of components, when no evidence of the original component and its material exists, the study enables the professional staff form a research-based hypotheses for completing the component in their restoration process.

For this reason, in the ground-floor space where part of the space functions as an open museum presenting both the development of the city and the history of the Liebling House, there are openable shelves displaying tangible artifacts that provide a physical dimension to the information described on the educational panels stamped on the walls.

An example of those shelves, in continuation to the preliminary analysis of restoration discussed before, contains samples of plasters in the form of grained powders and cut blocks, whereas some of them were extracted directly from Liebling Haus during its restoration process.

Fig.23 – Samples of different typologies of plasters in various solid forms, used in international style buildings (including Liebling Haus). *Source: photo by the author, August 26, 2024.*

5.5 Current functionality and potential insights

Today, the White City Centre established in Liebling Haus functions both as a public cultural space and as a professional hub dedicated to the fields of architecture and conservation. It can be assumed that the museum's free admission contributes to its popularity among visitors seeking a cultural activity. The regularly changing exhibitions, which is renewed every few months, also helps to increase repetition of previous visitors and sustained public engagement.

The building's location enhances its accessibility and appeal to the public. Situated in a neighbourhood rich with heritage and subsequently cultural landmarks, such as the former municipal hall, Bialik Museum, and Reuven Rubin Museum. Thanks to this, White City Centre easily attracts passersby who may not have planned to visit Liebling Haus but are drawn to it due to its proximity to other landmarks.

The café on the ground floor, apart from increasing the profitability of Liebling Haus, strengthens the building's role as a leisure hotspot in addition to an educational museum. In a city characterized by a strong café culture and remote-working habits, this function seems to have become one of the most frequented areas of the building at any given time.

At the same time, Liebling Haus is recognized not only as a cultural landmark but also as a research hub for architecture and, more specifically, architectural restoration. The White City Centre, and particularly its research laboratory, frequently hosts a range of events that attract professionals and enthusiasts. These events include guest lectures, workshops, networking-oriented events, and exhibitions that explore the intersection between architecture and contemporary art, often presented through the Centre's residency program.

Positioning Liebling Haus as a hub for architecture and conservation is a strategic move, given that no comparable institution currently exists in the city or the country. This lack of competition reinforces its distinct identity and relevance within the city's cultural and professional landscape.

Nevertheless, the building has not yet achieved the level of popularity it may has aspired to. This may reflect a general decline in museums popularity, as well as the relatively low tourist activity in Tel Aviv compared to major European cities, where tourists often serve as a core audience for museums. Consequently, Liebling Haus draws most of its visitors from within the architectural and conservation communities, where awareness of its existence is more renown.

The criticalities presented above stress the importance of integrating commercial and leisure functions within public cultural buildings, as they help ensure a constant flow of visitors

and long-term financial sustainability for the restoration project.

Therefore, Liebling Haus can be viewed as a model case study for the project of the restoration of Honigmann House, presented in the next chapter. It demonstrates a restoration process that engages public participation and makes restoration a comprehensive process rather a purely technical one. In this sense, the new design turned the act of restoration itself into a core component of the building's identity, a strategy that could also be implemented also to the Honigmann House proposed restoration project.

However, in the proposal for Honigmann House, careful consideration should be given to its future use to ensure that the project remains sustainable over time and that the building does not face periods of inactivity, as it seems to have occasionally occurred in the case of Liebling Haus.

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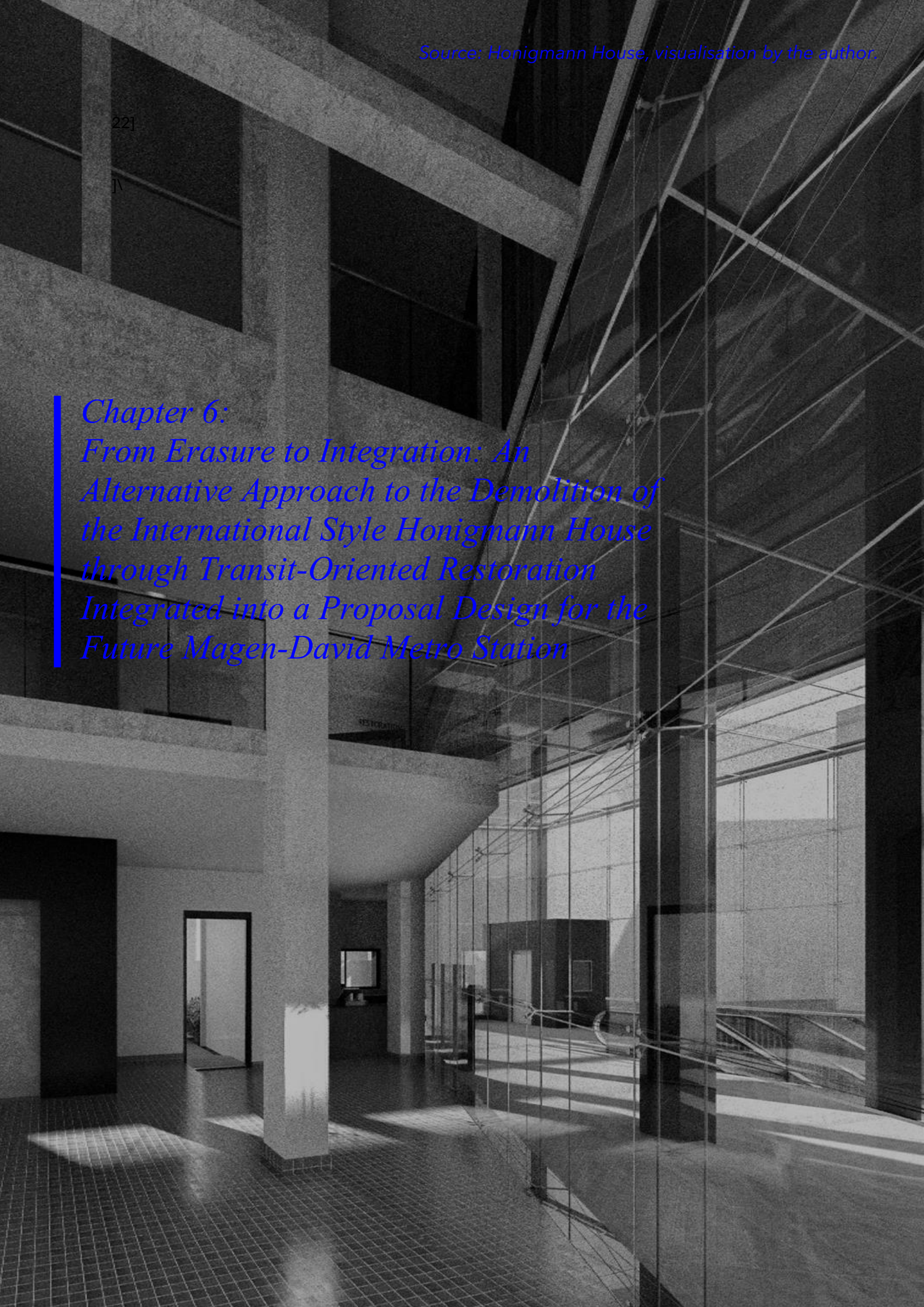


Source: Honigmann House, visualisation by the author.

Chapter 6: From Erasure to Integration: An Alternative Approach to the Demolition of the International Style Honigmann House through Transit-Oriented Restoration Integrated into a Proposal Design for the Future Magen-David Metro Station

"Adaptive reuses neither substitute the old with the new nor restore the old to its integrity. Adaptive reuses accept the void, cohabit with its anguish, and domesticate its enormity."

-Matteo Robiglio

Source: Magen-David metro station, visualisation by the author.

6. *From Erasure to Integration: An Alternative Approach to the Demolition of the International Style Honigmann House through Transit-Oriented Restoration Integrated into a Proposal Design for the Future Magen-David Metro Station*

6.1 Site Analysis: 'Honigmann House' by Arch. Yehuda Stempler and Arch. Genia Averbuch, Allenby St 49 / King George St 1, Tel-Aviv

Honigmann House, the designated lot for the proposed project, is the name for the building situated at the intersection of Allenby Street and King George Street, both are integral to the urban fabric of Tel Aviv. The intersection between the streets is situated "Lev Ha'ir" district of the city, which is the original central district before the massive urban expansion towards the north in the middle of the 20th century.

While King George St (marked in yellow, see fig.2), approximately 1.5km long, is connecting Masarik Square to Magen-David square, Allenby St (marked in red, see fig.2), approximately 2km long, is connecting the buffer zone of the southern district of the city to the beach.

Both streets are characterized by more intense commercial activity comparing to other streets in the area. The main type of commercial activity in those streets is of clothing stores, supermarkets, caffes and various other food services.

Fig.1 – King George St., view towards Allenby St. *Source: photo by the author, April 1, 2025.*

In addition, the adjacent streets to the location of the project can hold a significance from their popularity as leisure urban paths.

For instance, Sheinkin street (marked in cyan, see fig.2) is known for its boutique fashion stores, while

Nechalat Binyamin (marked in orange, see fig.2) is known for being a promenade demonstrating preserved Eclectic architecture, unique bars and artisans' fairs during the weekends.

All the streets mentioned above converge into the 'Magen-David' square. The square was once functioning as a main roundabout as in the past the area in which the streets mentioned above are situated was considered as the central part of the city.

To this day, the area around the project's location is considered highly-attended, mostly during the daytime. Due to recent trends in urban plans, all the streets described above were adapted to favour a more sustainable-oriented mobility. The main modifications done to the streets are limiting the permitted private car passage only to nighttime and weekends, to favour public transportation usage, as well as the expansion of the sidewalk part of the street to insert a bi-direction bicycle path.

Fig.2 – Main streets around project site (for legend and full-scale version, see fig.A.1 in appendix). *Source: illustration by the author*

The area surrounding Honigmann House contains numerous attractions raising the potentiality of the project to be popular in the long-term.

The main attraction to be found in the area is Carmel Market (marked in green, see fig.4), one of the most popular destinations in the city for both locals and tourists, hosting a variety of food, clothing and souvenir stalls. Additional to the main Carmel Market, Bezalel Market (marked in pink, see fig.4), much smaller in dimension, is known for tailored items, clothes and jewellery.

The neighbourhood behind Honigmann House, commonly called "Bialik Neighbourhood", contains numerous heritage buildings, which beyond their significance derived from their adequate representation of the Eclectic architectural style, hold particular importance related to the urban heritage of the city.

The most important location of the neighbourhood is "Bialik Square", demonstrating in its front the historical landmark of the Old City Hall (marked in yellow, see fig.4), constructed in 1925 and prior to its important adaption to host the offices of Tel Aviv municipality (later moved to a new larger building in Rabin Square, the current central plaza of the city), functioned as apartments hotel[1]. Today, the building is functioning as a museum telling the story of the city in its first year and demonstrating the current urban experience in city,

[1] Shimur (Council for the Preservation of Heritage sites in Israel), *Tel Aviv-Jaffa City Museum (Beit Ha'ir)*, accessed November 19, 2025. https://shimur.org/sites/בית-העיר-תל-אביב/.

Fig.3 - Old City Hall. *Source: Shimur, "Tel Aviv-Jaffa City Museum (Beit Ha'ir)," Shimur.org, accessed November 19, 2025, https://shimur.org/sites/בית-העיר-תל-אביב/.*

narrated by the residents of the city, through various technological tools.

Adjacent to the Old City Hall, Bialik House (marked in cyan, see fig.4) can be found, which is building from which the name of the street, plaza, and neighbourhood is derived, is situated. The house was built in 1924 upon the arrival of Hayim Nachman Bialik, to be later considered the national poet of the county, to be functioning as his home and creation space. After Bialik's death in 1934, the place served as the home of various associations and committees. Later on, the building changed its function again to serve as a library and research centre. Today, after a renovation project fostered by the musicality in 2009, the buildings functions as a museum dedicated for the deceased national poet[2].

Another landmark situated along Bialik St is Reuben House (marked in blue, see fig.4), originally belonging to Reuben Rubin, a notable local painter which his works of art tell the evolution story of Tel Aviv from being a small settlement in the sand dunes of Jaffa's outskirts to a developing city. The building, functioning today as museum dedicated to the works of the painter as well as a space for changing art exhibition, was served as home for him and his family, where he created most of his work from 1946 to his death in 1974[3].

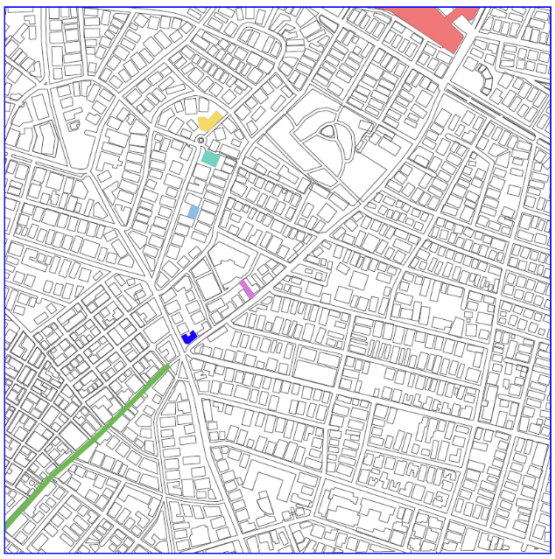


Fig.4 - City landmarks around project site (for legend and full-scale version, see fig.A.2 in appendix). *Source: illustration by the author*

[2] BIALIK MUSEUM, *About Beit Bialik*, accessed November 19, 2025. https://www.bialikmuseum.org.il/pages?pageid=3.
[3] RUBIN MUSEUM, *About the Museum*, accessed 19 November 19, 2025. https://www.rubinmuseum.org.il/en/company/about/main/.

Honigmann House is located at the margins of area C of the White City (see fig.18 in chapter 2), indicating the integration of the Bauhaus movement in it, expressed through the various international-style building, of which Honigmann House is included. Most of the buildings in the area have undergone a restoration process, while some of those buildings hold particular importance beyond their architectural characteristics and construction culture.

A main example for an important White City building close to the location of the project is Liebling Haus (marked in orange, see fig.6), broadly analysed in the previous fifth chapter. A few steps from Liebling Haus, the building at Bialik St 21 (marked in pink, see fig.6) is used today as a Bauhaus heritage centre.

An additional notable Bauhaus building nearby is Polishuk House (marked in green, see fig.6). The curved international style building, situated on the intersection of Nechalat Binyamin and Allenby Street, was designed by the architects Salomon Liaskovsky and Jacob Orenstein and constructed in 1937 to host numerous offices.
After the building was damaged by the air strikes of the Italian Air Force in Tel Aviv in 1941, the building was neglected for years until its renovation in 2015 and reopening as "Poli House" hotel[4].

Fig.5 - Polishuk House. *Source: Golden Lotus, "Beit Polishuk – 62 Allenby Street, Tel Aviv," Golden-Lotus.co.il, accessed November 19, 2025, https://golden-lotus.co.il/polishuk/*

The abundance of modernist heritage affirms the proposition of restoring Honigmann House, which will be described throughout the chapter, from the possible intention of making the area functioning as a potential hotspot for modernist heritage.

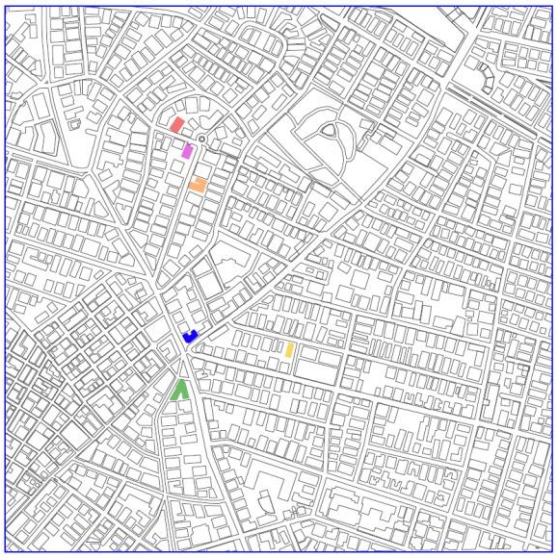


Fig.6 - White City buildings under strict preservation around project site (for legend and full-scale version, see fig.A.3 in appendix). *Source: illustration by the author*

Currently, in the analysed area there are several urban squares in such Bialik square (marked in red, see fig.8) and Bezalel square (marked in orange, see fig.8), both recently renovated, ensuring a public designated outdoor space. The presence of vegetation areas such the large Meir Garden

[4] GOLDEN LOTUS, *Beit Polishuk - 62 Allenby Street, Tel Aviv*, accessed November 19, 2025. https://golden-lotus.co.il/polishuk/.

(marked in green, see fig.8) and the additional smaller Sheinkin Garden (marked in yellow, see fig.8) are enhancing the urban experience by giving other possibilities for interactions in the outdoor space.

Nonetheless, taking into consideration the central location of the area in relation to city, the number of public facilities is relatively low. In the approximated radius of 1km from the Honigmann House, only two buildings can be marked officially as designated for the public (not taking into consideration conventional educational facilities which are naturally managed by the municipality). The first building is Tami House (marked in pink, see fig.8), located adjacent to Sheinkin Garden, this community centre offers a variety of activities for the residents of the city such as sport and social programs.

A second public building in the discussed area is Mazeh 9 (marked in cyan, see fig.8), a youth centre in an Eclectic heritage building, established by the municipality in 2011[5], which offers a variety of studying and working designated spaces as well as social programs to the target audience of young adults.

Fig.7 - Common working/studying space in Mazeh 9 Youth Centre. *Source: Spacenter, "Mazeh 9 Tel Aviv," Spacenter.co.il, accessed November 19, 2025, https://www.spacenter.co.il/space/mazeh-9-tel-aviv/.*

The possibly insufficient number of buildings containing public functions in an area which is highly frequented during the day, can be an opportunity for the insertion of such function as part of the conservation and adaptive reuse strategy to be implemented in the project of Honigmann House, described in this chapter.

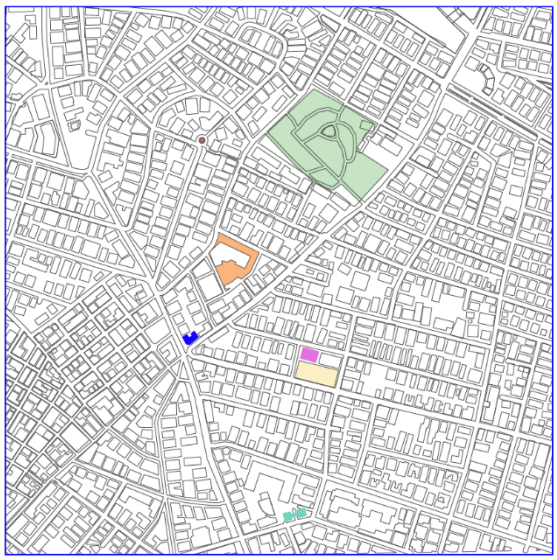


Fig.8 - Public spaces/facilities around project site (for legend and full-scale version, see fig.A.4 in appendix). *Source: illustration by the author*

[5] SPACENTER, *Mazeh 9 Tel Aviv*, accessed November 19, 2025. https://www.spacenter.co.il/space/mazeh-9-tel-aviv/.

6.2 History of Honigmann House: from Eclectic to Bauhaus

The uniqueness of Honigmann House can be derived from its construction culture. The building was constructed originally in the Eclectic architectural style by the architect Yehuda Stempler, later changed to the international style by the Bauhaus influenced architect Genia Averbuch, Honigmann House served in most of its years as a normative office building with a commercial ground floor, similar to various other buildings in the city.

Therefore, it can be said that the building narrates the story of the city, as described profoundly in the second chapter, starting as a small settlement characterized by the Eclectic architectural style, later becoming a developing ground for implementing the ideas of the Bauhaus movement.

Due to the lack of important function or important figure inhabiting the building, not many textural information was found on Honigmann House. Nonetheless, the history of the building may be approximated through the various drawings present in the archive of Tel Aviv Municipality (accessible to the public through the dedicated "building folders" website)[6], as well as from historical photographs displayed in "VTLV", a private initiative for an openly accessed photo-based digital archive for Tel Aviv built heritage[7].

The photograph presented below, taken from VTLV archive and dates back to 1920, is the earliest document available of the site, demonstrating its construction. Only 11 years after Tel Aviv was established, the photographs showcase the city in its earliest development phase, as the landscape around the construction site can be characterized as entirely sandy. An additional notable conclusion from the

Fig.9 – Honigmann House during its construction in 1920. *Source: VTLV (Virtual Tel Aviv), "49 Allenby Street, Tel Aviv (Block 6912, Parcel 5)," accessed November 19, 2025, https://www.vtlv.co.il/%D7%90%D7%9C%D7%A0%D7%91%D7%99_49_2.*

[6] TEL AVIV-YAFO MUNICIPALITY, ENGINEERING ADMINISTRATION, *Building File for 49 Allenby Street / 1 King George Street, Tel Aviv (Block/Parcel 6912/5; File No. 00040490)*, Handasa Tel Aviv (Municipal Engineering Archive), accessed November 19, 2025. https://handasa.tel-aviv.gov.il/Pages/searchResultsAnonPageNew.aspx?partialAddress=4_49.

[7] VTLV (VIRTUAL TEL AVIV), *49 Allenby Street, Tel Aviv (Block 6912, Parcel 5)*, accessed November 19, 2025. https://www.vtlv.co.il/%D7%90%D7%9C%D7%A0%D7%91%D7%99_49_2.

fact is the lack of roads surrounding the future building, indicating either the streets were added only after the completion of the building or the functionality of the road in the context of that time was primarily for camels and donkeys rather of mobilized cars.

The architect in charge of the design of the structure in its original Eclectic Style was Yehuda Stempler. Stempler was born in 1889 in the town of Buchach in Galicia (now Ukraine), and studied building engineering in Lviv, Ukraine, not long before the start of the First World War[8]. In 1920, after the war has ended, Stempler settled in Tel Aviv and immediately started to take charge on the design of various buildings in the city (such as Honigmann House), as it experienced its first main urban growth since its establishment in 1909.

Fig.10 - Yehuda Stempler. *Source: Tzvi Elhyani, "The Architect Was Forgotten, but His Buildings Are Well Remembered: Who Are You, Yehuda Stempler?" Xnet, May 17, 2017, https://xnet.ynet.co.il/articles/0,7340,L-4963413,00.html.*

In an online article, written an exhibition dedicated to the work the architect, as part of 2017 "Open House" events, Tzvi Elhyani describes the architect as one who got forgotten and did not receive the deserved acknowledgment for his Eclectic architectural works shaping the city of Tel Aviv in its first year: "Stempler's architectural work has not yet been collected, and beyond a brief lexical mention, his place in the history of Israeli architecture is absent (he does not even have a Wikipedia entry yet). While collecting the material for the exhibition and given the fact that his archive has not been preserved, materials and records have been located so far indicating about 25 buildings that he designed in Tel Aviv, or those in which he was involved in the design at various stages. It was surprising to discover that not only have all the buildings, except one, survived and are still standing, but that many of them have been renovated or preserved in recent years, some of them in recent times"[9].

The clients of the Honigmann House, from which the name of the building is originated, were the couple Abaraham and Tova Honigmann. No info was found on the background of the couple, while the indication on their ownership of the building is derived from a archival documents. An example for such proof is the floor plan demonstrating a segment of the

[8] TZVI ELHYANI, The Architect Was Forgotten, but His Buildings Are Well Remembered: Who Are You, Yehuda Stempler? Xnet (Ynet), May 17, 2017. https://xnet.ynet.co.il/articles/0,7340,L-4963413,00.html.
[9] Cit., *ibid.*

building (stores and their storage spaces), where it is clearly indicated in handwriting their names and surnames under the label of "building owners".

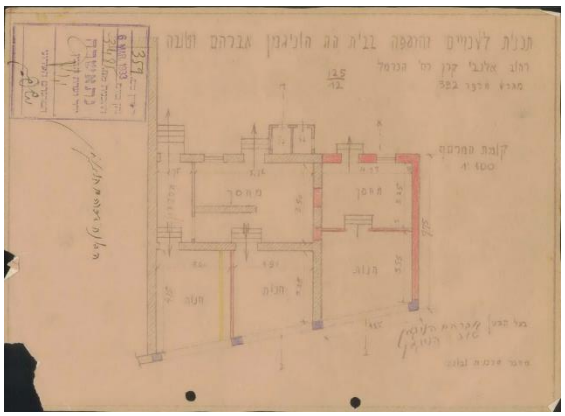


Fig.11 – Segment of the ground floor plan facing King George Street. *Source:* Tel Aviv-Yafo Municipality, Engineering Administration, "Building File for 49 Allenby Street / 1 King George Street, Tel Aviv (Block/Parcel 6912/5; File No. 00040490)

The building construction was completed no later than 1922, as it is the year indicated for the photograph presented in VTLV archive, demonstrating Honigmann House in its complete from.

The photo, taken by the Dutch photographer Frank Scholten, demonstrates a start of development around the building. New buildings constructed adjacent to it, and Magen David square as well as the roads leading to it are starting to receive a built form.

An additional undated photo available in the digital archive demonstrates the area around Honigmann House as much more developed, with more emerged building, new roads with

Fig.12 – Honigmann House and Magen David square in 1922. *Source: photo by Frank Scholten, VTLV (Virtual Tel Aviv), "49 Allenby Street, Tel Aviv (Block 6912, Parcel 5)," accessed November 19, 2025.*

mobilized cars driving and various stalls in the built Megen David square possibly indicating the early formation of Carmel Market. It should be noted that the building on the left side of the photo (Gershon Levin House)[10] is conserved to this day in its Eclectic form.

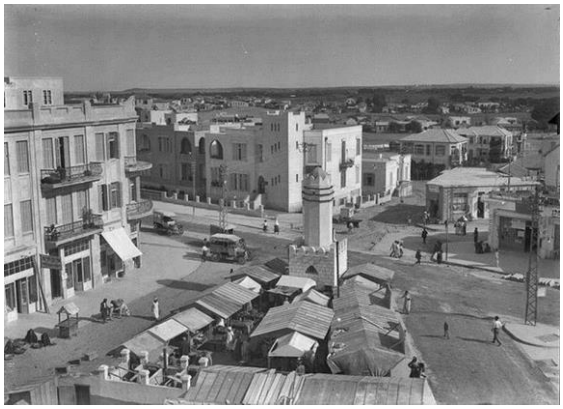


Fig.13 – Honigmann House and Magen David square in 1922. *Source: VTLV, 49 Allenby Street, Tel Aviv (Block 6912, Parcel 5), accessed Nov. 19, 2025.*

Possibly due to the fact the city and the country was still undeveloped in the 1920s, apart from the various photos, there is no registry or drawings indicating the true function of the building during its first years. Nonetheless, the available photos may indicate a residential function, due to the presence of numerous balconies.

In 1930, a photograph from the Zonenfeld collection in Nahum Goldmann Museum of the Jewish Diaspora, presented in VTLV digital archive[11], demonstrates an intervention which was done to the building (it is not indicated whether the intervention was done by the architect Yehuda Stempler or a different one), maintaining the Eclectic architectural style with several functional modifications and stylistic alterations.

Fig.15 – Honigmann House and Magen David square in ca. 1930. *Source: VTLV, 49 Allenby Street, Tel Aviv (Block 6912, Parcel 5), accessed Nov. 19, 2025.*

This photograph gives a glance to not only the building's development, but also to the development of the surrounding urban context.

From being a small settlement, the surrounding area by 1930 receives the appearance of a standard city for the period, with developed roads, urban sidewalks integrated with new

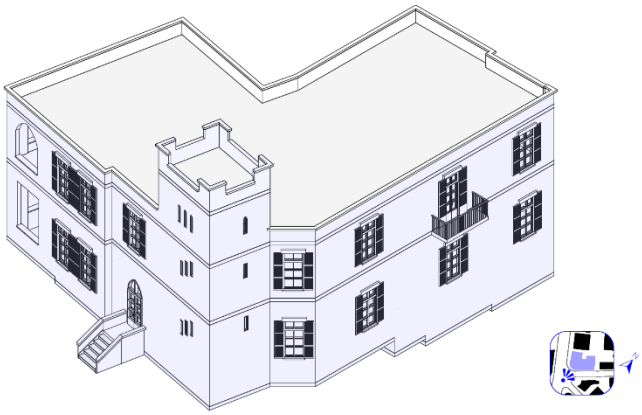


Fig.14 – Axonometric drawing of Honigmann House in ca. 1922 (for legend and scaled version, see fig.A.13 in appendix). *Source: drawing by the author.*

[10] VTLV (Virtual Tel Aviv), *60 Allenby Street, Tel Aviv (Block 6111, Parcel 159)*, accessed November 19, 2025. https://www.vtlv.co.il/building?street_name=%D7%90%D7%9C%D7%A0%D7%91%D7%99&street_number=60.

[11] VTLV (Virtual Tel Aviv), *49 Allenby Street, Tel Aviv (Block 6912, Parcel 5)*, accessed November 19, 2025. https://www.vtlv.co.il/%D7%90%D7%9C%D7%A0%D7%91%D7%99_49_2.

vegetation, a flow of mobilized vehicles including even what appears to be a public transportation bus, and a development of a roundabout indicating implementation of urban planning solutions.

Comparing the photographs, it appears to be that the adjacent buildings to Honigmann House (along Allenby Street), which were also constructed at the same time (see fig.9) and shared a similar appearance (see fig.12), were demolished or modified in favour of what appears to be the international style. This indicates both the start of propagation the Bauhaus movement modernist ideas in the architecture of the city, as well as the similar destination awaiting Honigmann House in the upcoming years to the period of the photograph.

Focusing on Honigmann House, it is visible that the right facade facing King George Street have remained similar to the original design, while the left facade facing Allenby Street has changed its appearance to contain more symmetrical openings, as well as integration of various architectural decorations techniques such as walls russification, giving the building a more European appearance.

A notable redesignation of the building is the adaptation of its ground floor for commercial use, converting the entire floor into retail spaces with direct integration to the street.

In addition, the building's main entrance was relocated to the right wing, a notable change that should be considered when referring to documents demonstrating the later modification of the building to the international style.

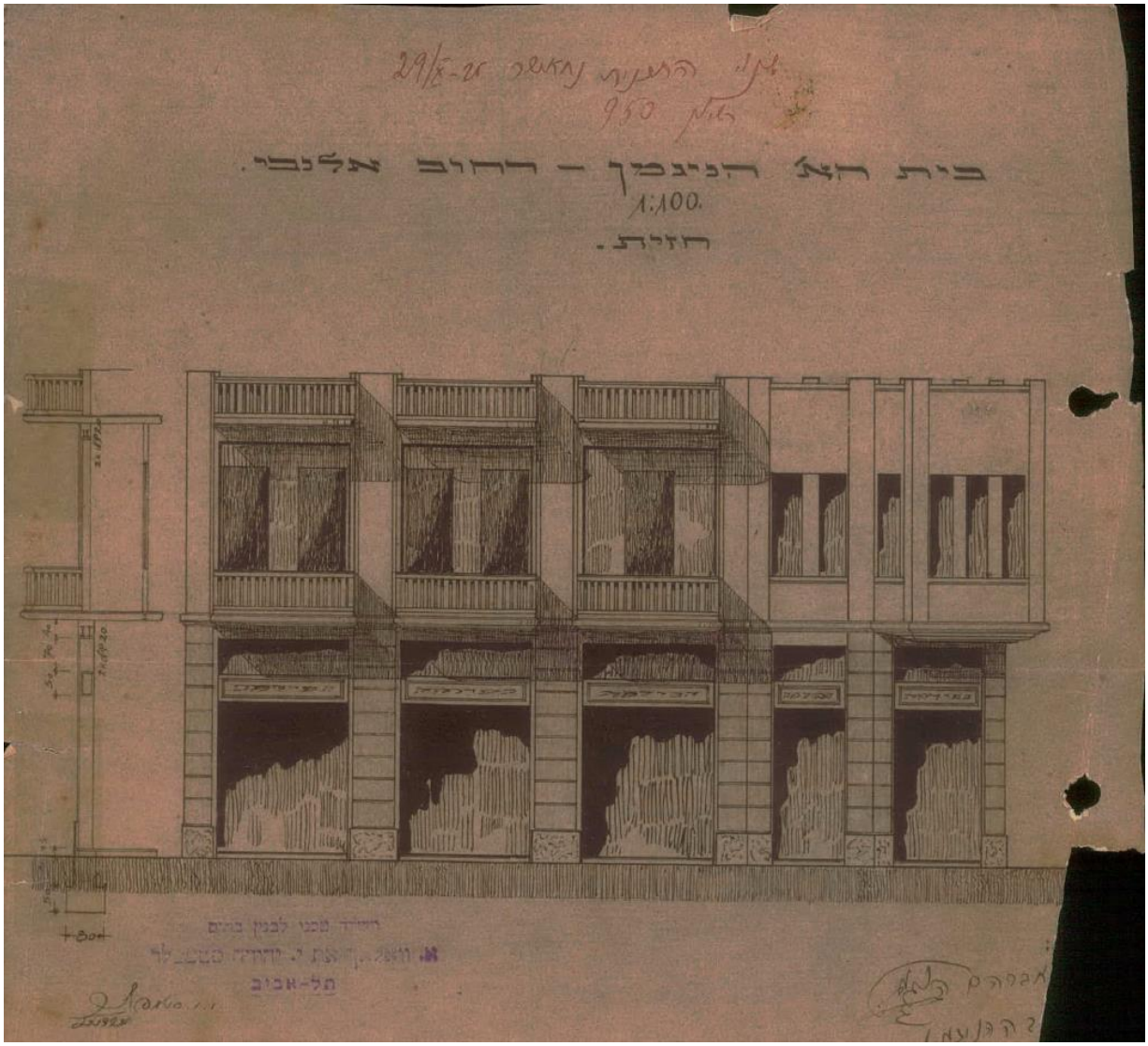
Moreover, it is important to acknowledge that the development of the city may be characterized not only by an enhanced adaption of the urban environment to modern needs, but also by the beginning of a more

Fig.16 – Axonometric drawing of Honigmann House in ca. 1930 (for legend and scaled version, see fig.A.14 in appendix). *Source: drawing by the author.*

consistent and detailed registration of the city's built fabric.

The second modification to the building, discussed above, is already documented through numerous drawings available in the municipal archive[12], giving an opportunity to analyse the architectural characteristics of the building more profoundly.
Such is the example of the elevation drawing (see fig. 16) facing Allenby St. The drawing demonstrates a hand-drawing (unclear if by pen or pencil), along with various signatures of the architect and the landowner. This elevation drawing is allowing not only to examine in detail the design of the facade but also perform approximated measurements as the drawing is scaled and contains annotations of some basic dimensions.

Fig.17 – Elevation drawing from the municipal archive showing King George Street façade (original scale: 1:100; reproduction not to scale). *Source: Tel Aviv-Yafo Municipality, Engineering Administration, Building File for 49 Allenby Street / 1 King George Street, accessed Nov. 19, 2025.*



[12] TEL AVIV-YAFO MUNICIPALITY, ENGINEERING ADMINISTRATION, *Building File for 49 Allenby Street / 1 King George Street, Tel Aviv (Block/Parcel 6912/5; File No. 00040490)*.

During the first 20 years of the city, the Eclectic Style was the dominant in the city, demonstrating the values settlers wanted to transmit the abstract encounter between the east and west through the built fabric, demonstrating a blend between local Arabic style and the European style.

Towards the 1930s, with the rise of modernism as a dominant notion in architecture, and the emergence of the Bauhaus movement, new buildings in the city of Tel Aviv, developing rapidly due to wave of Jewish European immigrants escaping from the rising Nazism, were built in the International Style, a modernist architectural style with an adaptation to the local Mediterranean climate.

The peak of modernist architectural success in the city was marked by the transformation of existing Eclectic-Style buildings (without any structural damage that would justify such intervention) were inverted, mainly through complete façade renovations, to the International Style.

Such was also the case with the Honigmann House. Approximately in 1937, the building changed its appearance and shape drastically, transforming from a building of the Eclectic Style to an international style building.

Inferred from the documents available in the municipal archive through various signatures on drawings of the building from its 'Bauhaus era', the architect in charge of the drastic transformation was Genia Averbuch.

Genia Averbuch is known as one of the key architects shaping the modernist identity of the city through its built fabric.
Averbuch was born in 1909 in Smila, Ukraine, and moved with her family to Tel Aviv already in 1911. After growing up in the developing Eclectic city, Genia moved to Rome to peruse her architectural studies. Due to antisemitism, Genia has decided to transfer her academic training to Bruxelles, Belgium, where she obtained her architecture degree in 1930. After completing her studies, Genia has returned to Tel Aviv, starting immediately to participate in various construction projects, where she implemented the modernist principes she acquired in Belgium[13].

One of her most renowned projects is Dizengoff Square, which remains to this day one of the city's main attractions. This, along with many other Bauhaus-inspired works by Genia that have been preserved, earned her the title, given by many scholars, of the "Queen of the White City."

Such tribute was expressed also by Ilan Shchori in his article, describing Genia as: "A groundbreaking architect who worked in the early 1930s in a world dominated entirely by men. She was one of the most prominent in designing Tel Aviv's international style buildings. She won first prize for designing Dizengoff Square in 1934,

[13] Ilan Shchori, *Genia Averbuch - The Queen of the White City*, My Tel-Aviv, accessed November 21, 2025. https://www.mytelaviv.co.il/GeniaAberboch.

and her many works are now spread across many areas of the city, and she can rightly be called the undisputed queen of the "White City""[14].

Fig.18 – Genia Averbuch, undated. *Source: Ilan Shchori, "Genia Averbuch – The Queen of the White City," My Tel-Aviv, accessed November 21, 2025,*

The estimated time of the transformation is derived from drawings available in the municipal archive, particularly floor plans, which show a significant modification of the interior spatial organization. While the original L-shape was maintained, the corner of it facing the street was made curved.

During the elaboration of this work, doubt has been raised as to whether the building, in its "Bauhaus era", is resulted from a true transformation or from demolition and reconstruction.
The assumption of this study is that it represents a transformation of the same structure from the Eclectic period. This conclusion is based on a critical comparison of the archival floor plans from different periods, which show that the building's entrance, as well as the structural pillars and walls of the stores in the right wing facing King George Street, remain in the same locations.

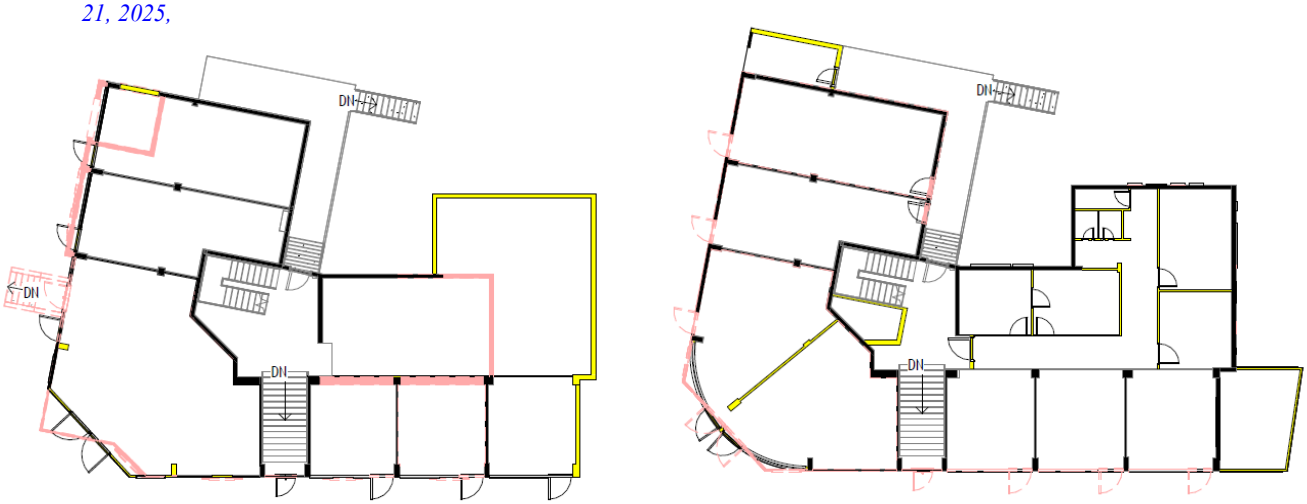


Fig.19 and Fig.20 – Ground floor of Honigmann House from from ca. 1930 (on the left) and 1937 (on the right), demonstrating the assumed demolition (in red) and new construction (in yellow)relatively to the previous phase of the building (for scaled version and rest of the comparative plans see fig.A.6 and fig.A.7 in appendix). *Source: drawings by the author.*

[14] ILAN SHCHORI, *Genia Averbuch - The Queen of the White City*, My Tel-Aviv, accessed November 21, 2025, cit. https://www.mytelaviv.co.il/GeniaAberboch.

A further source supporting the analysis of Honigmann House in its early International Style phase is a photograph from the VTLV digital archive, showing the newly modified building within the context of its developed surrounding urban environment, characterized by expanded roads, the insertion of a roundabout, and the development of adjacent buildings along Allenby Street.

Another notable change observed in Honigmann House during its early International Style phase, compared to its previous Eclectic Style phase, is the removal of the first floor, leaving only the commercial ground floor, which indicates a change in the building's functional designation.

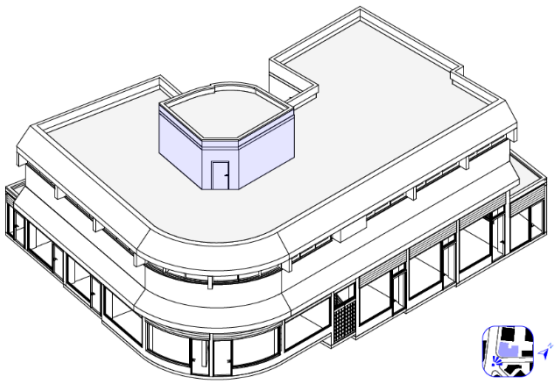
Fig.21 – Honigmann House, ca. late 1930s. *Source: VTLV, 49 Allenby Street, Tel Aviv (Block 6912, Parcel 5), accessed Nov. 19, 2025.*

Relating to the photographs available in the digital archive, beyond the photograph above there is a gap of knowledge as the next chronological photo represented is taken from recent years, indicating a gap of approximately 60-70 years.

This gap may be completed by the several drawings available in the municipal archive, demonstrating floor plans, elevations and sections[15]. Those documents served as an integral resource for the elaboration of the axonometric drawings, aiming to narrate the history of the building throughout its transformation.

Nonetheless, an important criticality is the fact that none of modifications interfered in the documents are proofed to be elaborated in real life, due to the lack of available photographs or other kind of supporting information.
Therefore, the phases presented between ca.1937 to the current state, are to be considered hypothetical, possibly proposals who never got to be realised in the building.

Fig.22 – Axonometric drawing of Honigmann House in ca. 1940 (for legend and scaled version, see fig.A.17.1 in appendix). *Source: drawing by the author.*



[15] TEL AVIV-YAFO MUNICIPALITY, ENGINEERING ADMINISTRATION, *Building File for 49 Allenby Street / 1 King George Street, Tel Aviv (Block/Parcel 6912/5; File No. 00040490)*.

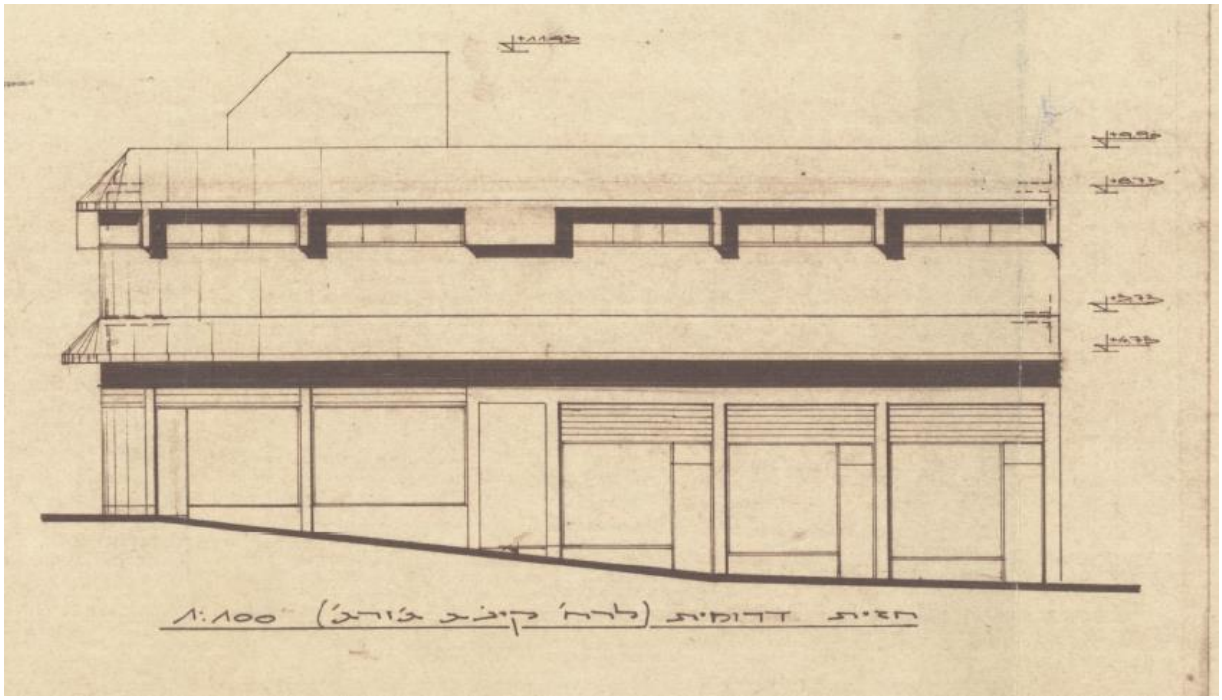


Fig.23 – Elevation drawing from the municipal archive showing King George Street façade, ca. 1940 (original scale: 1:100; reproduction not to scale). *Source: Tel Aviv-Yafo Municipality, Engineering Administration, Building File for 49 Allenby Street / 1 King George Street, accessed Nov. 19, 2025.*

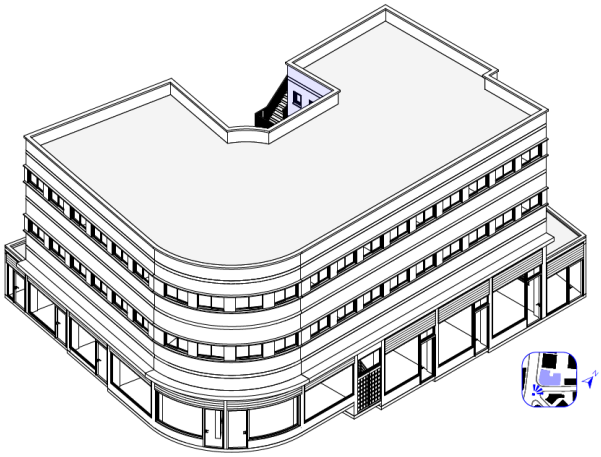


Fig.24 – Axonometric drawing of Honigmann House, n.d (for legend and scaled version, see fig.A.17.1 in appendix). *Source: drawing by the author.*

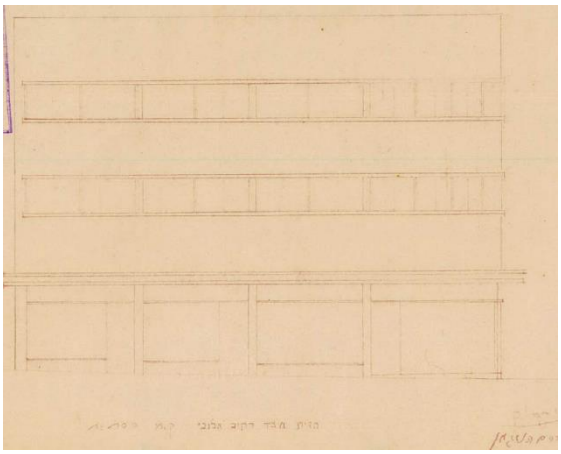


Fig.25 – Elevation drawing from the municipal archive showing both wings combined (original scale: 1:100; reproduction not to scale). *Source: Tel Aviv-Yafo Municipality, Engineering Administration, Building File for 49 Allenby Street / 1 King George Street, accessed Nov. 19, 2025.*

Archives can be useful for the historical analysis of the built heritage not only thanks to various drawings, but also due to the presence of textual registries.

In Tel Aviv Municipal Archive, not only drawings were found, but also registries of reports delivered to the municipality by stakeholders of Honigmann house.

A registry from 1965 sheds light on the transformation not only aesthetically but also by spatial functionality.
In this registry, a form filled in 1965 was delivered to the municipality for the request of a structural addition to the building (notable to mention, it is indicated in handwriting that the permit was not granted).

Within the form, it is written the function of the building is commercial and offices, indicating that if indeed there was a residential designation of the building originally in its Eclectic period, it has been changed upon the 'Bauhaus transformation'.

In addition, it is indicated that the offices which occupy the building (probably in its first floor, as the ground floor were occupied by commercial stores), belonged to a company called "Salon Allenby". No textual or visual information was found on this company during the elaboration of this work, but it can be assumed from the word "Salon" the company was related to the fashion businesses.

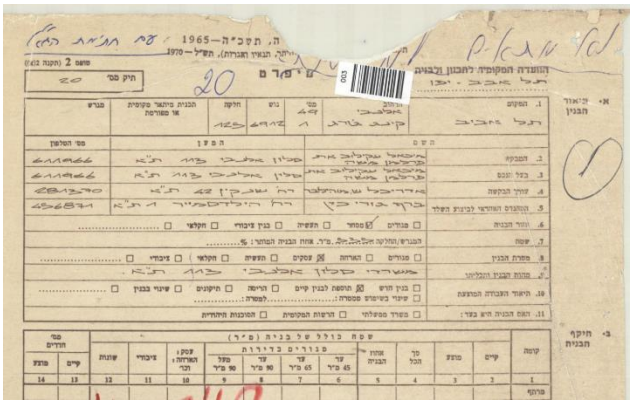


Fig.26 – Registry on a structural addition request to Honigmann House from 1965. *Source: Tel Aviv-Yafo Municipality, Engineering Administration, Building File for 49 Allenby Street / 1 King George Street, accessed Nov. 19, 2025.*

6.3 Honigmann House today: simultaneous neglect and resilience, driven by commercial activity

Nowadays, Honigmann House comprises three floors: a ground floor, a first floor, and a second floor serving only as a small structure in the shape of the staircase core, giving an access to the roof. This differs from the late 1930s photograph (see fig.21), where the area corresponding to today's first floor was originally the roof.

Despite this change, multiple site visits reveal that the façade remains largely similar to its historic appearance. In particular, the horizontal shading strip on top of the first floor's windows openings, projecting from the façade (a characteristic feature of the building's modernist design), has been preserved.

The layout of the commercial stores also closely resembles that of the late 1930s. However, the type of glazing in the building's openings has more of a contemporary design, especially in the glazing of the commercial stores on the ground floor, suggesting that these elements have been replaced over time. Similarly, the current main entrance door to the building is made of durable PVC, indicate that the original entrance door has likely been replaced, as this material was uncommon during the building's Bauhaus transformation period.

Fig.28 – Honigmann House, main entrance view from the inside. *Source: photo by the author, April 1, 2025.*

Fig.27 – Honigmann House, view from Magen David square. *Source: photo by the author, January 9, 2025.*

Additionally, the first floor features a horizontal band of marble tiles that distinguishes the windows from the rest of the façade, reinforcing the building's sense of horizontality. This effect is further enhanced by the curved corner, which creates a continuous flow along the façade.

Fig.29 – Horizontal band of marble tiles displayed on the first floor of Honigmann House. *Source: photo by the author, April 1, 2025.*

Concerning the interior, due to the fact the internal spaces are of private use, the information on the current spatial distribution is derived from various archival architectural drawings dating back to the 1977 and 1984, as part of several delivered proposals for the construction of an underground bomb shelter[16].

Furthermore, It should be noted that no trace of a bomb shelter was found during the site visits, and the existence of such shelter was not confirmed from non-official interviews with people in the site, indicating that the construction of the shelter was probably not approved eventually.

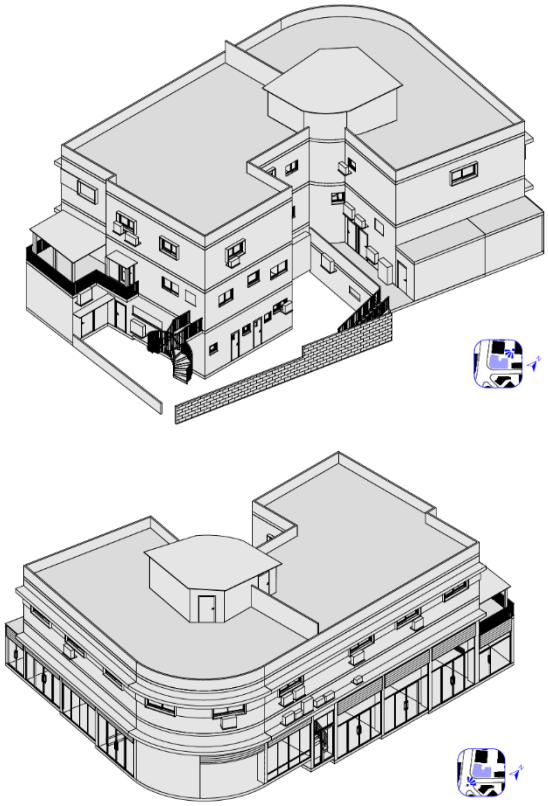


Fig.30 and Fig.31 – Axonometric drawing of front (up) and back (down) of Honigmann House, current state (for legend and scaled version, see fig.A.20.1 and fig.A.20.2 in appendix). *Source: drawings by the author.*

Critically comparing the various plans and the accessible common spaces surveyed during site visits, it can be concluded that the spatial configuration of the common area has remained the same.

The most notable change in the building is its functional use. While the ground floor remained commercial, the upper floors transitioned from being designated to office to be designated to private apartments.

Based on the site visit, the left wing of the first floor, as well as the mezzanine floor intentionally used as a second

[16] Tel Aviv-Yafo Municipality, Engineering Administration, *Building File for 49 Allenby Street / 1 King George Street, Tel Aviv (Block/Parcel 6912/5; File No. 00040490)*.

floor for the commercial spaces, became each a separate apartment. While the right wing of the first floor became divided to numerous apartments.

Fig.32 – Corridor in the past office of the right wing of the first floor of Honigmann House, showing its transition to numerous divided apartments. *Source: photo by the author, January 9, 2025.*

Hence, the presence in architectural drawings elaborated for this work of later alterations done in the private spaces to answer the needed transition from office use to residential use, are to be considered as a critical assumption taking into account the site visit and past architectural drawings, indicating a possible sense of the dividing walls allocation (for example, through connection of existing pillars).

Additional aspect of the transition of the building to a primary residential function, is the insertion of a high number of mechanical air conditioning engines (enhanced as well by the presence of the commercial stores on the ground floor), harming the aesthetical integrity of the facade through various uncoherent installations (see fig.27).

In the roof floor, a wall is dividing the floor area from a part commonly belonging to the residents of the building and an inaccessible part which is privately claimed (in doubt if in a legal manner) by one of the residents of the building. While the private part of the roof is relatively adequately managed, the common part of the roof suffers from neglection, degradation, and accumulation of waste and objects.

In addition to the accumulation in the roof, it contains the necessary objects to make it a temporary outdoor dwelling (refrigerator, cooking devices etc.), as it is inhabited (illegally) by a homeless person, living in the roof (according to an unofficial interview conducted with him) up to 7 years.

Fig.33 – Assumed current interior walls configuration of the first floor of Honigmann House, demonstrating demolition (in red) and new construction (in yellow) relatively to the previous phase of the building (for scaled version and rest of the comparative plans see fig.A.12.4 in appendix). *Source: drawing by the author.*

Fig.34 – Accumulation of waste and objects in the common roof of Honigmann House. *Source: photo by the author, March 19, 2025.*

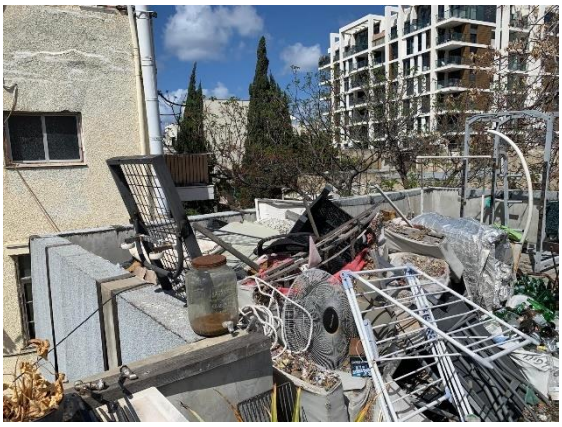
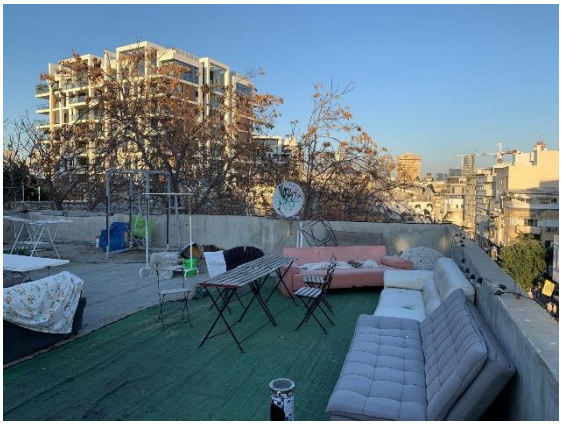


Fig.35 – Domestic furniture for an unofficial use of the common roof of Honigmann House as a dwelling unit by a homeless resident. *Source: photo by the author, January 9, 2025.*



Nonetheless, the roof, despite of its severe state, host within itself a great potential for the future functionality of the building.
The roof, characterized by its large open surface, does not include any installations that could pose safety obstacles for public use (such as solar panels), and is surrounded by half-height walls that can, with an additional non-significant intervention, serve as fall-prevention barriers.

An additional potential advantage for using the roof in the new design is its view. Honigmann House, located in Tel Aviv's old center and facing a public square, offers a scenic urban panorama. The surrounding International Style buildings and the relatively low skyline, due to the lack of tall buildings nearby, allow for an unobstructed, far-reaching view of the city.

Fig.36 – Urban panorama view from the roof of Honigmann House. *Source: photo by the author, January 9, 2025.*

The back part of the building reveals a disturbing image on the condition of a building, characterized by severe degradation caused by long-term neglect and mismanagement.
The back yard of the building is hidden from the streets, a factor which may have encouraged the neglect causing the severe state. In addition, the accumulation of air conditioning engines and pipework, have contributed to formation of degradation related to presence of water, to which the building was already exposed due to the humid Mediterranean climate.

Fig.37-44 (in the following page) – Instances indicating the condition of degradation and severe neglection in the backyard of Honigmann House. *Source: photos by the author, March 14, 2025.*








As mentioned before, there are a variety of degradation types present in the building, especially in its backyard, where many of them are caused by climatic conditions causing moisture, enhanced by the presence of air conditioning engines and pipework. Such kind of degradation types may be fungal colonization, efflorescence, disintegration and scaling.

The existence of pollutants, caused also by the high quantity of mechanical activity in the yard, as well as because of nearby activities in an urban dense area, is also harming the building by leaving marks of deposit which are decreasing the quality of the material.

Several degradation types can be viewed also as indicators of a lack of

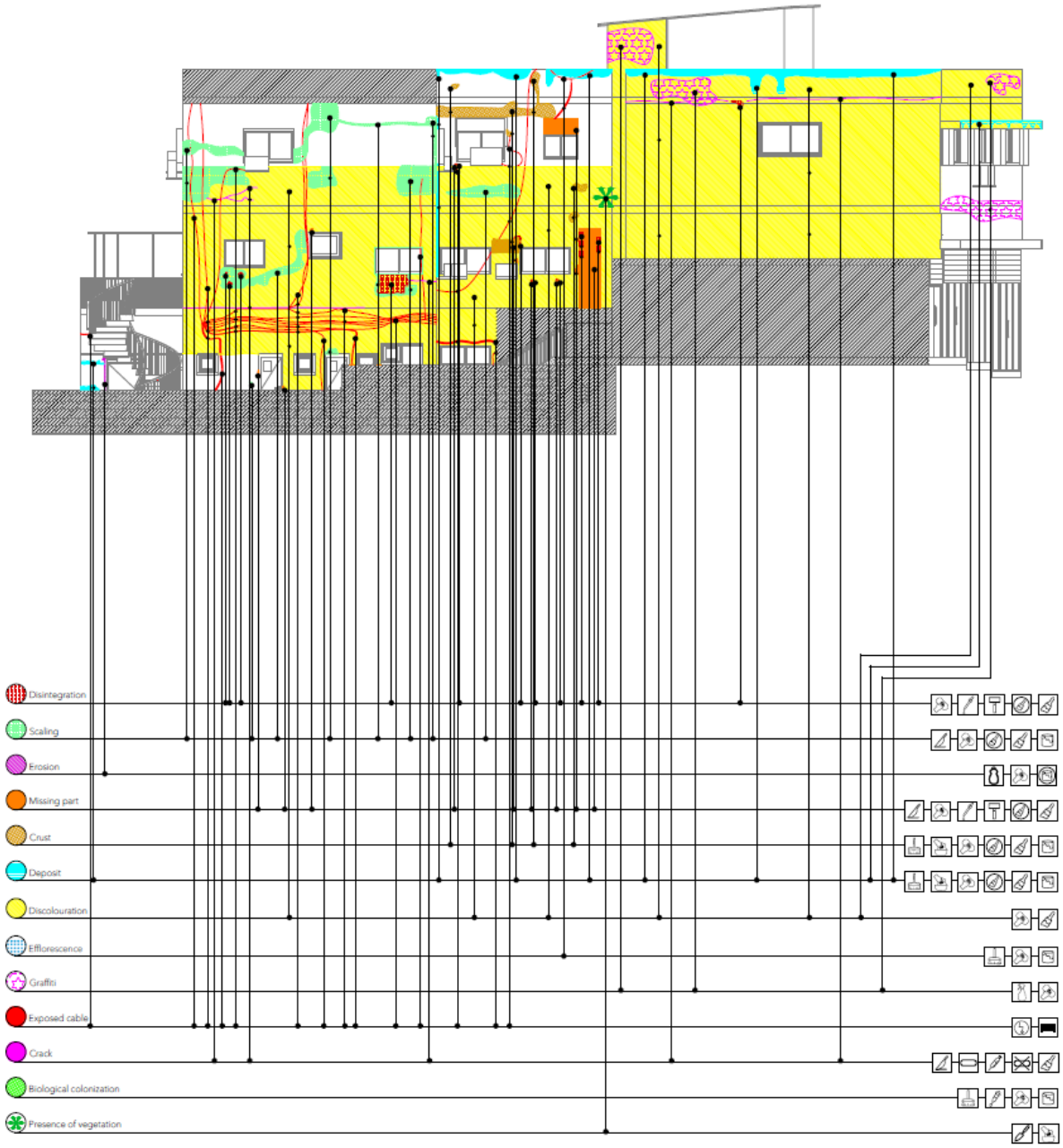


Fig.45 – Degradation analysis and suggested treatments of the north façade, facing the backyard of Honigmann House (for scaled version and more information on the proposed treatment methodology, see Fig.A.36 in appendix). *Source: drawing and illustration by the author.*

adequate management of the building, and not only of a climatic or mechanical activity. For example, erosion in metal, discoloration and cracks are degradation types which can be caused by the passage of time without a maintenance intervention conducted on the structure.

Other examples, which demonstrate even more the neglection from the managing authority, are degradation types such as missing part and graffiti. In addition, exposed cables on the façade may pose an actual threat to people in the space when left disperse, and the abundance of such type of untreated risk also strengthens the fact there is a bold lack of maintenance in the building which have been an integral factor in bringing Honigmann House to the condition in which it is in.

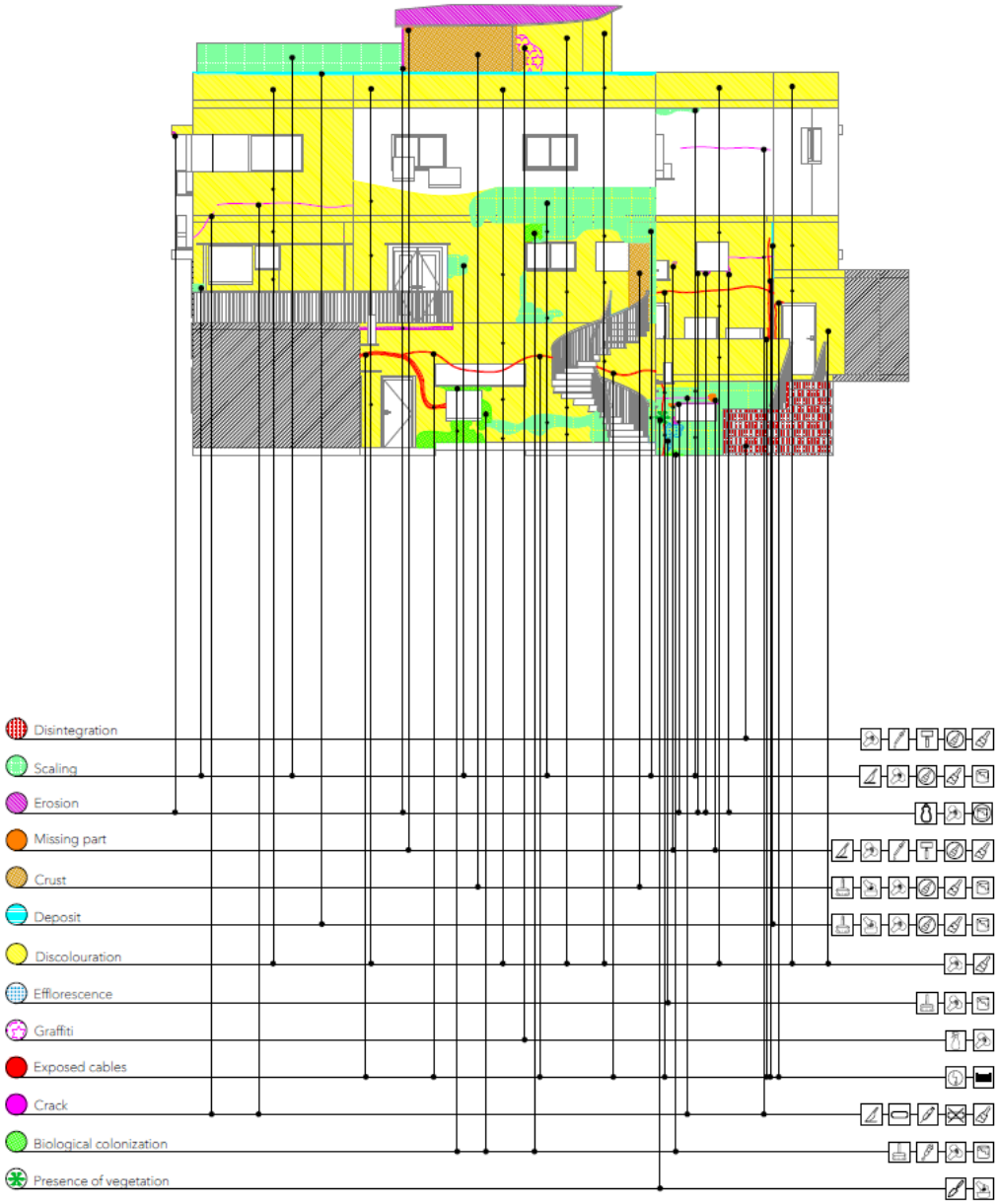


Fig.46 – Degradation analysis and suggested treatments of the east façade, facing the backyard of Honigmann House (for scaled version and more information on the proposed treatment methodology, see Fig.A.34 in appendix). *Source: drawing and illustration by the author.*

For a detailed description of the materials composing Honigmann House, see Tab.A.1 and Fig.A.30-33 in appendix (material glossary and analysis), whereas for the detailed description of degradation types present in Honigmann House, as well as suggested treatments, see Tab.A.2 and Fig.A.34-37 in appendix (degradation glossary and analysis[17]).

Opposite to the exterior condition of the building discussed above, the circulation space of Honigmann House, hence the entrance lobby and staircase core, are maintained in an adequate condition compared to the latter. The black marble stone floor characterizing the circulation spaces seems well-maintained, as well as the finishing white plaster of the walls and the terrazzo floor partially present in the staircase core.

Nonetheless, the railings of the stairs and of the border between the floor and opening of the staircase sore, are also in an adequate condition but can be considered as unsafe for users of the building as there are large gaps between each horizontal rail.

Fig.47 - The staircase core in Honigmann House, view from first floor going down to ground floor. *Source: photo by the author, January 9, 2025.*

Even though Honigmann House today is a residential structure, its commercial ground floor can be considered as its main characteristic.

On its right wing, facing King George Street, only one commercial activity space is present, a currency exchange store (see fig.48), while the rest of the commercial spaces are unoccupied and offered for rent.

In contrast, the left wing, facing Allenby Street, exhibits more successful commercial activity, with two highly active food-service businesses, a shawarma restaurant (see fig.49) and a meat-sandwiches restaurant (see fig.50), along an additional shop which was close during all of the site visits hence it remains unclear if it is for rent or temporary close.

This positive commercial activity in Honigmann House stresses the importance of preserving its successful retail function, not only by a design-decision of not intervening the space of the stores, but also by aiming, through adequate municipal policy making, for maintaining a similar rent by the property owner also after the restoration is completed. Such measures help mitigate the potential

[17] The methodology used for the elaboration of the degradation analysis drawings, including definitions, textures and coloring, is following the normative of ICOMOS. For more information, refer to ICOMOS-International Scientific Committee for Stone, *Illustrated Glossary on Stone Deterioration Patterns*, ICOMOS, September 2008.

negative economic impact of the restoration process on retail tenants.

In addition, the success of commercial activity in Honigmann House, specifically in the food sector, may indicate the potential for accommodating similar functions as part of the building's conservation and adaptive reuse.

Fig.48 – Currency store in Honigmann House, facing King George Street. *Source: photo by the author, January 9, 2025.*

Fig.49 – Shawarma restaurant in Honigmann House, on the corner intersecting King George Street and Allenby Street. *Source: photo by the author, January 9, 2025.*

Fig.50 – Meat-sandwiches restaurant, facing and Allenby Street. *Source: photo by the author, January 9, 2025.*

6.4 The Future Mass Transit Plan in Tel Aviv and Honigman House: development alongside demolition

Since its establishment, not only the city of Tel Aviv is growing constantly but also the cities surrounding it, often called "satellite cities".
Established during the first half of the 20th century, those cities together with Tel Aviv composed what the metropolitan Tel Aviv, called also "Gush Dan", the Hebrew nickname for Dan metropolitan area (derived as it is the land of the biblical Jewish tribe of "Dan").

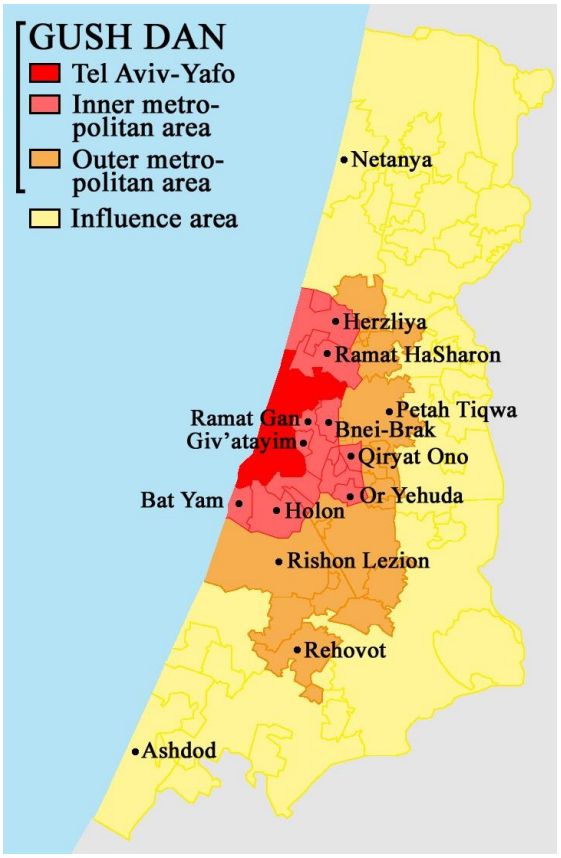


Fig.51 – Synthetic map of Dan Metropolitan Area (Gush Dan). *Source: Ynhockey, Gush Dan map, May 14, 2006, Wikimedia Commons, accessed November 18, 2025, https://en.wikipedia.org/wiki/File:Gush_Dan.png.*

Today, Dan metropolitan area is considered the economical district of Israel, as well as its most populated and dense area, inhabited by more than 4 million people, making this metropolitan area the home of approximately 40% of the country.
Being the economical heart of the country, most of the people in the metropolitan area, as well as people from various districts of the country, are commuting daily in its various cities, especially Tel Aviv and Ramat Gan, as it is their workplace.

Those cities are characterised by significant number of office skyscrapers, each composed of approximately 50 floors, designated to host offices of a variety of work industries, in particular the Hi-Tech industry, being the leading industry of the country contributing the most of its income comparing to other existing industries.

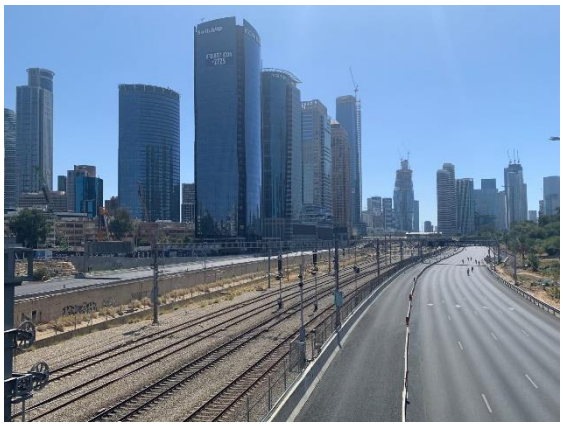


Fig.52 – Part of the skyscrapers designated for offices in Tel Aviv metropolitan area. *Source: photo by the author, October 2, 2025.*

Being a vital urban zone, Dan metropolitan area is characterised by extensive use of private vehicles alongside bus transportation, often

creating issues such as traffic and high pollution, decreasing the quality of life in the cities.

The strategic role of Tel Aviv metropolitan area together with growing number of workplaces due to the continuous development of industries, have created a demand for an adequate transportation planning, which is not relying exclusively on busses and private vehicles.

To answer this need, NTA company is currently developing, through governmental funding, an advanced public transportation network called The Tel Aviv Metropolitan Mass Transit System. This network includes the light rail network ("Dankal"), the Tel Aviv Metro, and bus rapid transit (BRT) systems.

The optimised connectivity between the cities of Tel Aviv metropolitan area this project aims to supply answers an additional scope of mitigating the housing crisis in the city of Tel Aviv, through allowing an easier commute to it from adjacent cities where the housing demand is lower.

Among the new transportation methods introduced in the project of Tel Aviv Metropolitan Mass Transportation System, the network currently under development by NTA is the light rail system, called 'Dankal' as mentioned before. This system is composed of three lines connecting 14 municipalities[18]. The Red Line opened in 2023, while the Green Line and Purple Line are both scheduled to become operational in 2028.

As described in its official website, the red line, being an example of the first operative part of the Tel Aviv Metropolitan Mass Transportation System, is expected to serve around 80 million passengers per year. The line is 24 km long, 12 km of which run in an underground tunnel, from Bat Yam, through Tel Aviv, Ramat Gan, and Bnei Brak, to Petah Tikva. The line has 34 stations, ten of which are underground and 24 are at street level. The distance between the street-level stations is approximately 500 meters, and the

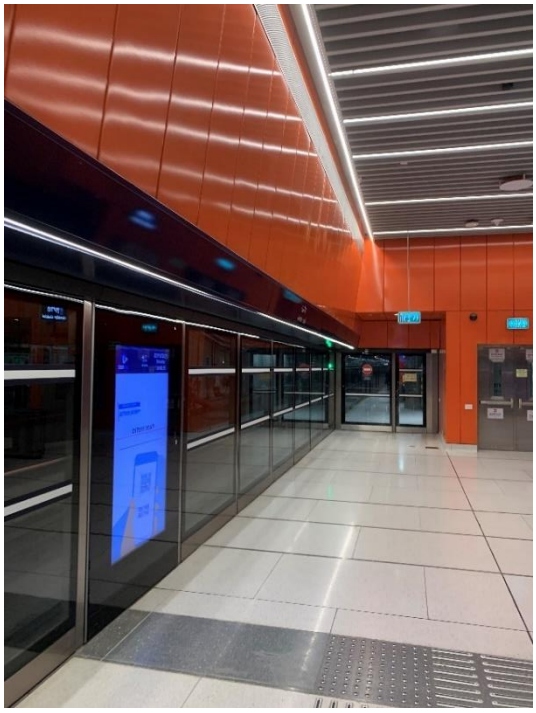


Fig.53 – Platforms floor of the red line light rail underground Allenby station.
Source: photo by the author, October 2, 2025.

[18] NTA Metropolitan Mass Transit System LTD., *Light Rail*, accessed November 18, 2025. https://www.nta.co.il/light-rail/.

distance between the underground stations is about one kilometer[19].
As described in chapter 2, the construction of the red line was accompanied by various demolitions, from which also the Ma'ariv bridge, commonly considered as an urban built heritage (see pages 77-78).

Such demolitions are expected to be conducted as well during the construction of the 3 metro lines consisting of the MetroTLV project, part of the future Tel Aviv Metropolitan Mass Transportation System.

As described in Tel Aviv Municipality website, the metro network in the Tel Aviv metropolitan area is a system of underground trains designed to expand the coverage of the mass-transit network. The plan is based on the state's strategic goals to provide public transportation service to 60% of the metropolitan population, enabling travel to the metropolitan centre in no more than 45 minutes.

The metro trains will operate in underground tunnels, completely separated from road traffic (unlike the light-rail lines, which also run above ground). The greater distance between stations (compared to the light-rail routes) will allow for higher travel speeds, thereby shortening travel times between the metropolitan cities.

In Tel Aviv–Yafo, approximately 21 underground stations are planned, connecting to the light-rail and Israel Railways stations, creating a mass-transit network on the scale of an international metropolis.
The project cost is estimated at 150 billion shekels (approximately 40 billion euros), making it the most ambitious infrastructure project ever undertaken in Israel[20].

Fig.54 - Synthetic map of the future Tel Aviv Metropolitan Transport System.
Source: Constantine Konovalov and Daria Vinokurova, The Map of Tel Aviv Metropolitan Transportation System, Portfolio page, accessed November 18, 2025, https://ckonovalov.com/nta.

[19] DANKAL, *About the Red Line*, accessed November 18, 2025. https://www.dankal.co.il/אודות-הקו-האדום/.
[20] TEL AVIV-YAFO MUNICIPALITY, *Mass Transport*, accessed November 18, 2025. https://www.tel-aviv.gov.il/Residents/Transportation/Pages/Masstransport2.aspx.

Part of the expected demolitions for the development of the future orange line of the metro (M2) is of Honigmann House.
The building, situated in a strategic location on the intersection of King George Street and Allenby Street, is planned to be demolished in favour of making an additional small plaza to be served as the entrance to the future Magen David metro station.

Social media today plays a major role in shaping and reflecting public opinion, serving as a fast, accessible space where communities can support or criticise future projects.

Such example is the social media Instagram, where "projecttlv", a non-official page dedicated to urban development in Tel Aviv has posted in December 5, 2024, a rendering (by NTA) of the future Magen David metro station entrance (alongside the future purple line of the light trail) that will stand where Honigmann House is planned to be demolished[21]. In the render, the small square requiring the demolition of the modernist built heritage, can be seen as relatively empty, containing pavement, grass, and a few trees, lacking even seating facilities.

The reaction in the comments section of the post was characterised by users expressing frustration and opposition, showing how strongly people feel about the loss of the built heritage of both the building per se and the integrity of Magen David Square as a whole. This observation can demonstrate how social media can be used as an indicator of public sentiment towards proposed alterations of cultural heritage.

Fig.55 – Visualisation showing the Magen David Square upon completion of the second metro line of Tel Aviv, where Honigmann House is demolished in favor for a new small urban square. *Source: ProjectTLV (@projecttlv), "This is how Magen David Square will look after the completion of the M2 Metro Line project," Instagram photo, December 5, 2024, https://www.instagram.com/p/DDMFsunI0jU/?igsh=MTg5MHZieXJoYzl6Yg==.*

Examples of relevant comments to the render published in the discussed Instagram post include[22]:

[21] PROJECTTLV (@PROJECTTLV), *This is how Magen David Square will look after the completion of the M2 Metro Line project*, Instagram post, December 5, 2024. https://www.instagram.com/p/DDMFsunI0jU/?igsh=MTg5MHZieXJoYzl6Yg==.
[22] Cit., *ibid.*

1. What a shame… demolishing the building… changes the aesthetics of the intersection.
   - Comment by Shaul
2. Terrible design and a crying shame for generations, as if it's impossible to rebuild this edge as a public/mixed-use building.
   - Comment by Yinnong
3. No, please no, I'd rather die than see this demolition.
   - Comment by GiGi Levit
4. Honestly, it looks disappointing. The whole character of the place is just lost.
   - Comment by Or Lustinger
5. Ugh, taking a beautiful square and bringing it down from its greatness.
   - Comment by Dana Blech
6. A rendering of how to kill a vibrant urban space.
   - Comment by Gal Hevroni
7. Are they going to take down the round building? (referring to Honigmann House)
   - Comment by Lior Fatiha
8. It's better to just leave it as it is.
   - Comment by Mike Yudin
9. But why demolish the round building on the left? (referring to Honigmann House)
   - Comment by Ayelet Mohar
10. Where is the preservation here?
    - Comment by Mia Perlm

6.5 Strategy proposal for Honigman House: a preservation-oriented profitable alternative to demolition, linking the building physically and conceptually to the metro station

The project aims to be used as an alternative to demolition, saving the building by inserting a volume to be used as a metro entrance, the reason for the proposed destruction of the bult heritage, which in this case, unlike the proposal of NTA, requires only partial demolition of Honigmann House.

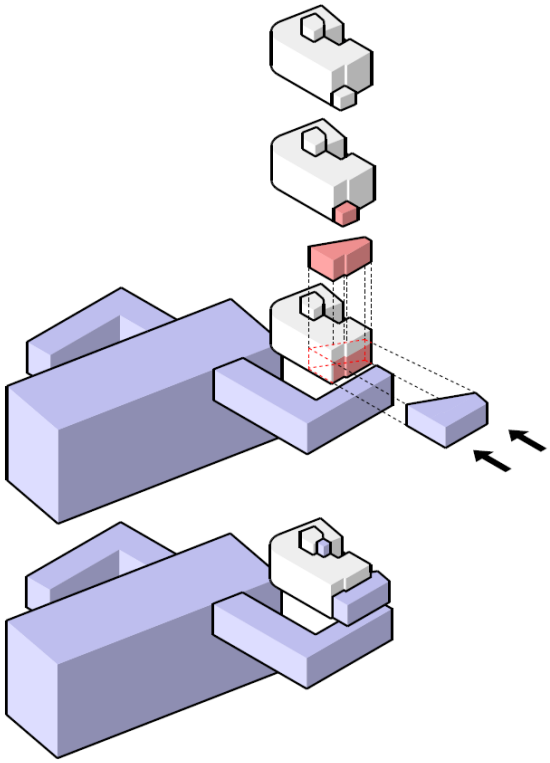


Fig.56 – Volumetric transformation diagram showing Honigmann House (in white), the proposed demolition (in red), and the additions related to the new Magan David metro station (in blue). *Source: illustration by the author.*

This partial demolition concerns only a segment of the building in its part facing King George, in the area where today are situated vacant commercial spaces, as well as the currency-exchange store characterized by a low commercial activity.

This design choice emerges from reflection on how the integration between a new volume and an existing structure can be done in a way that preserves a meaningful relationship between the two. This question is widely discussed in the book *Spazio tra: Un tema per modificare il costruito*, where the author Giovanni Rocco Cellini is questioning, «Are there geometric modalities that facilitate the configuration of spatial relationships between parts without determining shape priorly?»[23].

In other words, the author is exploring for a mechanism guiding the insertion of a new volume to a site of an existing structure, which does not depend on the shapes of both the existing structure and the contemporary addition. The configuration presented in the book, which was guiding the design of the integration between Honigmann House and the new Magen David metro station entrance is defined by the author as "insertion" (see fig.58), and determines «a "negative" expansion of the new intervention into the pre-existing body, leading to a design intervention that primarily addresses the redistribution of the interior»[24].

[23] GIOVANNI ROCCO CELLINI, *Spazio tra: Un tema per modificare il costruito*, Macerata: Quodlibet, 2023, cit., p.33.
[24] *Ivi*, p.36.

Fig.57 – Honigmann House integrated with a contemporary volume for the entrance to Magen David metro station, displaying "insertion" mechanism of relationship between volumes as described in the book "Spazio Tra" by Giovanni Rocco Cellini.
Source: visualisation by the author.

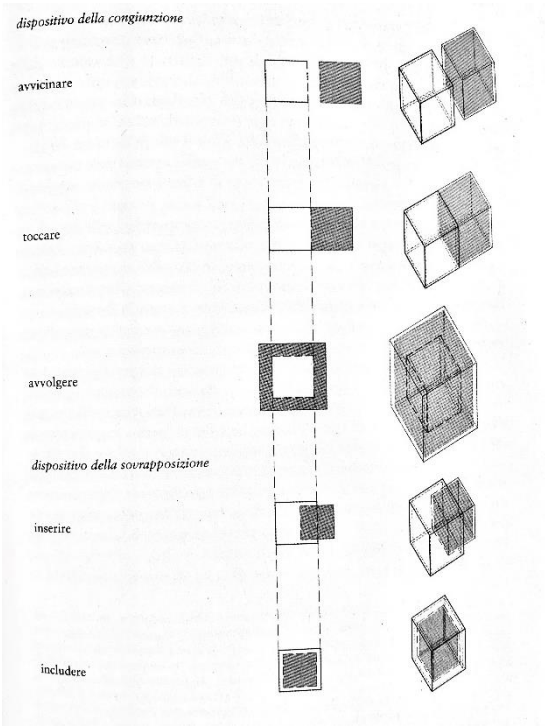


Fig.58 – Diagram demonstrating several possible relationships between a new designed volume and an existing structure. *Source: Spazio tra: Un tema per modificare il costruito (Macerata: Quodlibet, 2023), 35.*

The connection between the building and the metro is not only physical but is also conceptual.
Throughout the spatial distribution of both structures Honigmann House and Magen David metro station, small exhibition and didactic spaces are integrated into circulation areas.

Those spaces constitute a public non-official museum dedicated to the city's modernist heritage, the historical role of the building, and the restoration process itself. These museum spaces are purposely allocated at strategic points, such as metro platforms, circulation cores, and entrances, due to the high pedestrian flow of those areas throughout the operational hours of the structures.

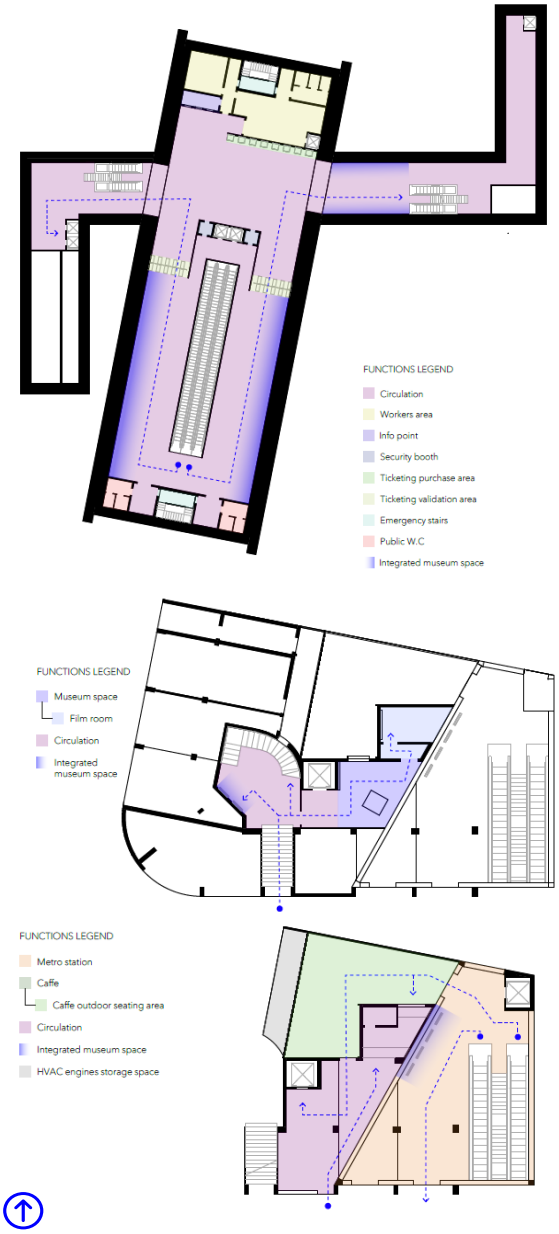


Fig.59-61 – Functional distribution plans of Magen David metro station platforms (up), Honigmann House bottom floor (middle) and mezzanine floor (down), showing integration of museum spaces (for scaled version and rest of floor plans see fig.B.2 in appendix). *Source: drawings by the author.*

An example for how the design integrates cultural heritage knowledge into the common space is the allocation of the historical timeline on the history of modernist heritage in the city and of Honigmann House, on the walls of the escalator core of the metro station, connecting the ticketing floor to the platforms, and hence 'catching' the attention of the commuters.

Fig.62 – Historical timeline on the escalator core between the ticketing floor and the platforms floor of Magen David metro station, showing the historical evolution of modernist heritage in Tel Aviv, as well as the historical evolution of Honigmann House (for the original size of the image, see fig.B.51 in appendix).
Source: visualization by the author

The project re-designates the existing spaces, the previously apartments and earlier offices, while preserving as many of the original walls as possible. These spaces will host new commercial and public functions, that the project proposes to be managed by the municipality.

The introduction of a new public area on the first floor responds to the local need for public space in an area lacking such amenities, while the new commercial spaces address the stakeholder's need for a building that can generate economic value.

Both main uses, commercial and public, are expected to gain the necessary attendance by people due to the building's designed integration into the metro entrance. The high flow of passengers moving through the building to arrive or to exit from the metro station will significantly increase the inviting accessibility of Honigmann House's interior spaces, thus increasing attendance.

Following the comprehensive approach guiding this project, the new adaptive reuse aims to be sustainable in the long term to the local community, based on the understanding that their needs and habits need to be integrated into the design.

Therefore, the design strategy seeks not only to give the building a renewed identity, but also to retain the successful part of the original character of the building.

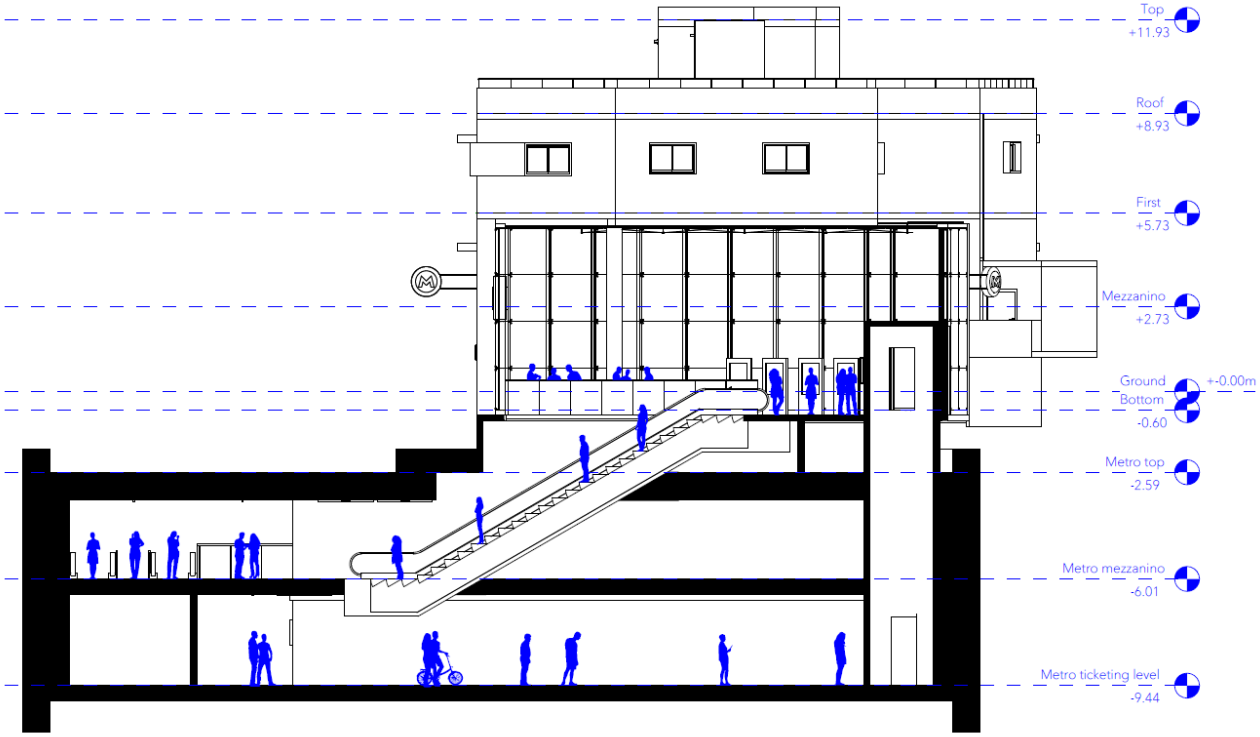


Fig.63 – Sectional drawing showing the integration of Magen David metro station mezzanine floor to the bottom floor of Honingmann House, through the new inserted volume (for scaled version see fig.B.29 in appendix). *Source: drawing by the author.*

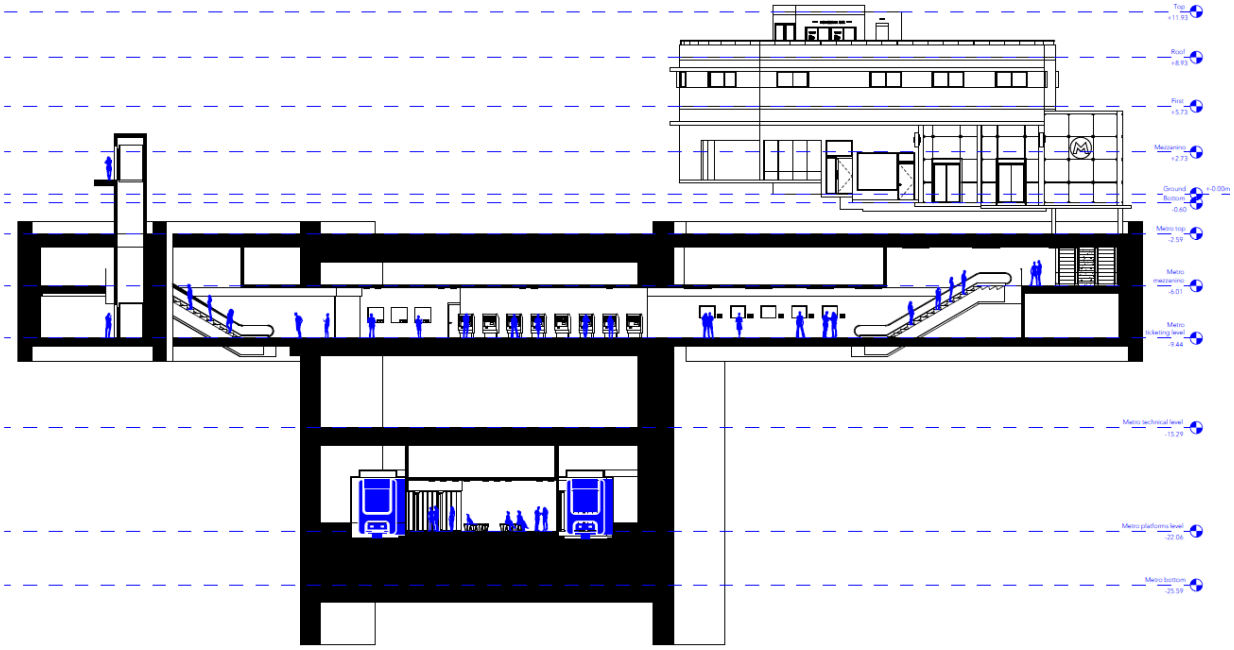


Fig.64 – Sectional drawing showing the integration of Magen David metro station to Honingmann House, through the new inserted volume (for scaled version see fig.B.33 in appendix). *Source: drawing by the author.*

The building is widely recognised by residents, especially those with no particular interest in architecture or heritage, thanks to certain commercial activity on the ground floor. When several acquaintances were asked whether they were familiar with Honigmann House, their answer was identical, recognizing this structure as *"the building with the good shawarma."* This refers to the shawarma restaurant located on the curved corner at the intersection of King George Street and Allenby Street (see fig. 27 and fig.49).

In other words, the project seeks to protect the heritage of Honigmann House not only through the preservation of its architectural features and material integrity, but also through the preservation of its successful commercial identity.
These attended commercial spaces are the ones situated at the left wing of the building (see fig.B.3 in appendix), facing Allenby Street, where the sidewalk is wider and where a future stop of the Purple Light Rail Line will be located. This offers further justification for preserving these businesses, as they will likely continue to contribute to be financially sustainable in the future, especially since this site will become a point of transfer between the future metro and the future light-rail line.

Another design strategy characterising this project is the differentiation of wall types. As discussed in the article *The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse* by Elena Guidetti and Matteo Robiglio, buildings contain multiple layers with different life spans. The space plan,

meaning walls, ceilings, floors etc, might change in 3 to 30 years[25].

Additionally, Matteo Robiglio claims in his book, *RE-USA*:

> The production of space through adaptive reuse is ruined by a minimum effort law implicit in the adjective "adaptive". This differentiates adaptive reuse from other forms of reuse and is possible thanks to the opportunities offered by the existing structure that is reused and the adaptive devices that make its reuse possible[26].

In other words, the author claims that the goal of adaptive reuse is to assign a new designation to the existing spaces with minimal intervention, while still ensuring that the building acquires a renewed life. This principle underpins the proposed design for Honigmann House.

Integrating this understanding to the approximated life span of the interior layout mentioned in the article presented beforehand, it may be assumed the that interior partitions in Honigmann House may need to change according to users' needs in the near future. This requires a design approach that clearly differentiates walls part of the previous phases of the building, recommended to be preserved, from those constructed during the project, having more justification to be altered upon the future needs.

Accordingly, new interior walls have a customized coloured finishing layer,

Fig.65 – The new function of senior-oriented municipal help desk in first floor featuring new constructed walls with a custom plaster finishing along original walls with a white plaster finishing. *Source: visualisation by the author.*

while the original walls which remained from before the restoration are re-plastered in their original white colour.

In addition to preservation of some interior walls along creation of new ones, the adaptive reuse of Honigmann House necessitates the demolition of certain walls, in order to accommodate new spatial and functional requirements.

Example for such demolition is due to the opening of the mezzanine and first floor towards the exterior wall facing King George Street, to create a direct visual connection to the new lobby adjacent to the new metro-entrance volume, allocated in the space

[25] Elena Guidetti, Matteo Robiglio, *The Transformative Potential of Ruins: A Tool for a Nonlinear Design Perspective in Adaptive Reuse*, Sustainability 13, no. 10 (2021), p.2. https://doi.org/10.3390/su13105660.
[26] Matteo Robilgio, *RE USA: 20 American Stories of Adaptive Reuse, a Toolkit for Post Industrial Cities*, Berlin: JOVIS Verlag, 2017, cit., p.56.

formerly occupied by the currency exchange store.

The demolished floors/ceilings and walls are marked with a visible trace, inspired by the strategy implemented at the Liebling Haus for its demolished walls (see fig.22 in chapter 5, p.151). This trace appears as solid components of exposed concrete,

giving the restoration process a material presence within the completed building. It offers visitors an enhanced spatial experience by allowing them to perceive how the space was previously organised, showing them a sense of being in a restoration process 'in site', effectively teaching them about the complexity of the restoration discipline.

Fig.66 – Honigmann House's entrance in the current state. *Source: photo by the author, March 14, 2025.*

Fig.67 – Honigmann House entrance in the proposed project, demonstrating the traces of the demolished walls (on the left). *Source: visualisation by the author.*

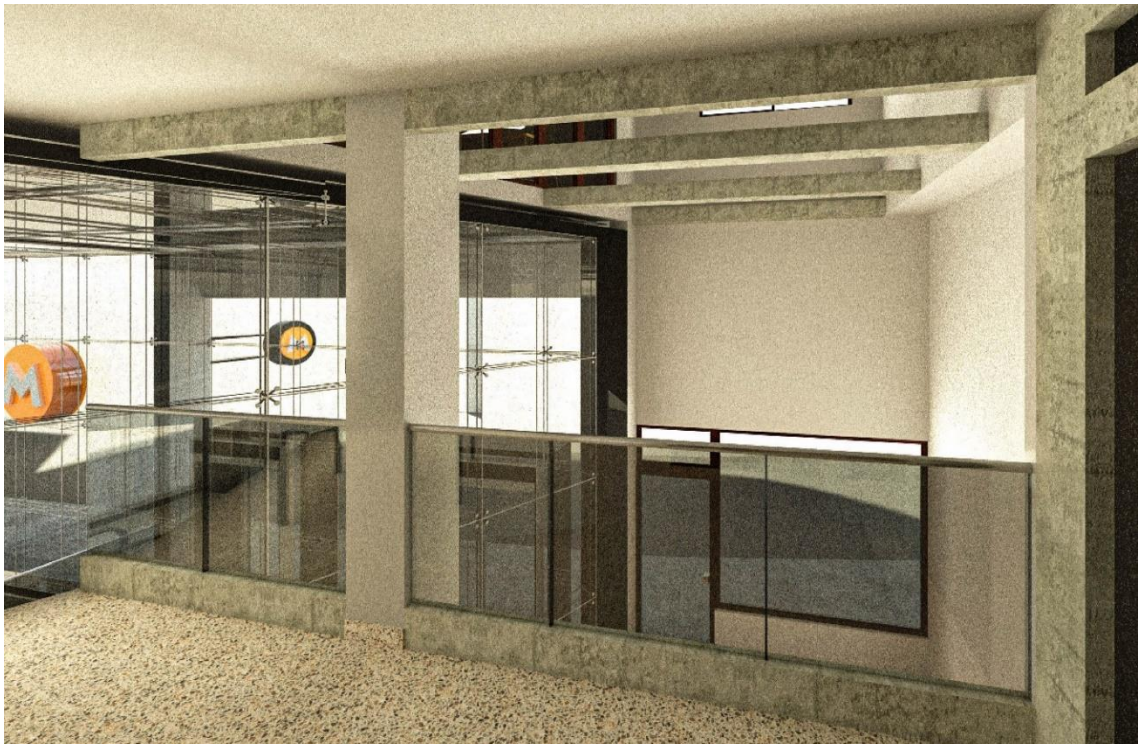


Fig.68 – Mezzanine floor in the proposed project of Honigmann House, demonstrating traces of the demolished walls as well as traces of the demolished ceiling. *Source: visualisation by the author.*

In addition, this strategy allows the design to be reversible, which is a key point in the discipline of restoration since the 20th century and specifically in the adaptive reuse practice.

Therefore, if needed in the future, the building can re-establish the walls demolished during the project, as their traces have been preserved, marking their placement physically.

6.6 Project overview: functionality and strategic integration of museum spaces

As introduced earlier, the design project consists of two main components: a new underground metro station and the adaptive reuse of the Honigmann House, which includes both the restoration of the existing structure and the integration of a new volume to be connected directly to the metro station.

Beginning with the metro station, the spatial configuration is inspired by the Allenby underground station of the Red Line light rail. This reference proved useful because it illustrates standard requirements such as floor-to-floor heights, thickness of various structural components, excavation depths, and the gap between street level and the start of the underground station. In addition, adopting this precedent supports the continuity of a design language across the city's underground transit stations.

The reference to the underground light rail stations is also essential given that both light rail and metro stations are designated to operate as public bomb shelters when necessary.

However, the interior design of the proposed metro station does not follow that of the light rail stations. Instead, it adopts a more independent character, inspired by the M4 line stations of the Milan Metro, and shaped according to the author's design approach.

The main visual feature of the station is an orange aluminium strip running along the upper part of the walls in all accessible areas, indicating that the station belongs to M2, the orange line of the metro network. Additional characteristics include stone cladding for the floors and thick envelope walls. Interior walls, except for the emergency stairwells requiring greater thickness, are distinguished by using light grey steel panels instead of stone.

All accessible floors incorporate a suspended ceiling, housing essential mechanical systems such as ventilation ducts and artificial lighting fixtures. The suspended ceiling is composed of metallic panels, allowing easy access for maintenance and future interventions.

At the lowest level, the platforms are defined by a long, narrow space using a central-platform layout, similar to the Allenby light rail station and the M4 stations in Milan. This configuration allows passengers arriving to the platform to share a unified space serving metro trains arriving from both directions.

The platform area is intentionally kept relatively empty to accommodate as many passengers as possible. The border between the platform and the tracks is fully enclosed with glass partitions composed of fixed panels and sliding doors, which open only upon the metro's arrival. This system ensures passenger safety by preventing accidental falls to the tracks.

Fig.69 – Magen David metro station platforms level (for the original size of the image, see fig.B.47 in appendix). *Source: visualization by the author.*

As visible in Fig. 69, the platform level includes a series of touchscreen kiosks that allow passengers to access an interactive city map, helping them planning their journey with optimal commuting routes. The cultural heritage aspect is expressed as these maps also promotes the city's modernist cultural heritage, as to be further discussed in Subchapter 6.8.

Above the touchscreen kiosks, the wall features the inscription "Explore Bauhaus with the City", encouraging passengers to use the interactive maps as a tool for discovering the city's modernist architectural heritage. Beneath it, the text "Explore Restoration in Honigmann House - Exit B from Station" invites users to access the restored modernist building directly from the station and visit its museal spaces. Together, these elements promote an integrated experience between the two structures of the metro station and the International Style heritage site.

The technical floor, positioned between the platform level and the ticketing level, is inaccessible from the public escalators, as it is reserved exclusively for operational staff. Access to this floor is provided only through the two emergency staircases and a dedicated elevator located inside the staff-only area of the ticketing level (see Fig.B.18 in the appendix).

The ticketing floor features two lateral corridors, leading to the integration with the ground level (Exit A toward Magen David Square and Exit B toward the Honigmann House), which converge into the main longitudinal hall. This intersection occurs

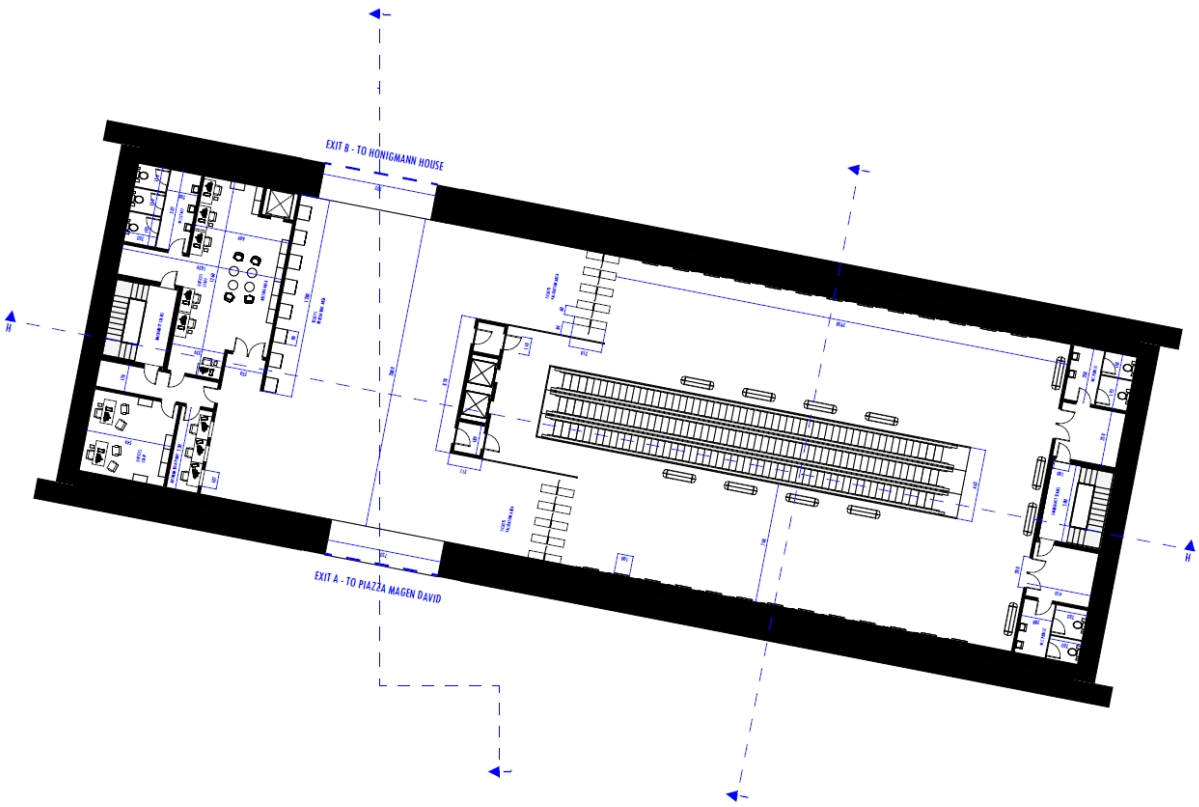


Fig.70 – Magen David metro station ticketing level floor plan (for scaled version and the plans of the exit corridors see fig.B.17 in appendix). *Source: drawing by the author.*

approximately at three-quarters of the hall's total length. The remaining quarter accommodates the staff-only area, including the information point, general offices of the station, and various utility rooms for the staff, while the rest of the space in the hall is dedicated to public use.

Ticket-validation machines are positioned along the same connection axis of exit A-main volume-exit B, creating a direct horizontal alignment between Magen David Square and the Honigmann House. This configuration allows pedestrians an alternative for moving between the square and King George Street, even when not using the metro. By acting as a pedestrian connector, the station increases the visibility and accessibility of Honigmann House to the public, strengthening its role as an urban transit node.

Between the escalators and the ticket-validation zone lies an elongated passage used by passengers both entering and exiting from the metro. This space has been identified as a strategic location for integrating museal elements into the station.

Along its walls, a display of photographs showcases significant Bauhaus buildings in Tel Aviv, each accompanied by a descriptive text plaque and a map plaque indicating its location. The buildings represented in this passage are also included in the interactive digital maps available on the touchscreen kiosks at platforms and station entrance, offering an analogue museal element for visitors who have difficulty with digital tools.

Through the cultural-heritage timeline visible along the escalators (see Fig. 62) and the touchscreens kiosk in the platforms (see Fig. 69), this design aims to transform the metro station into a successful integrated public museum in addition to its main transit-oriented function.

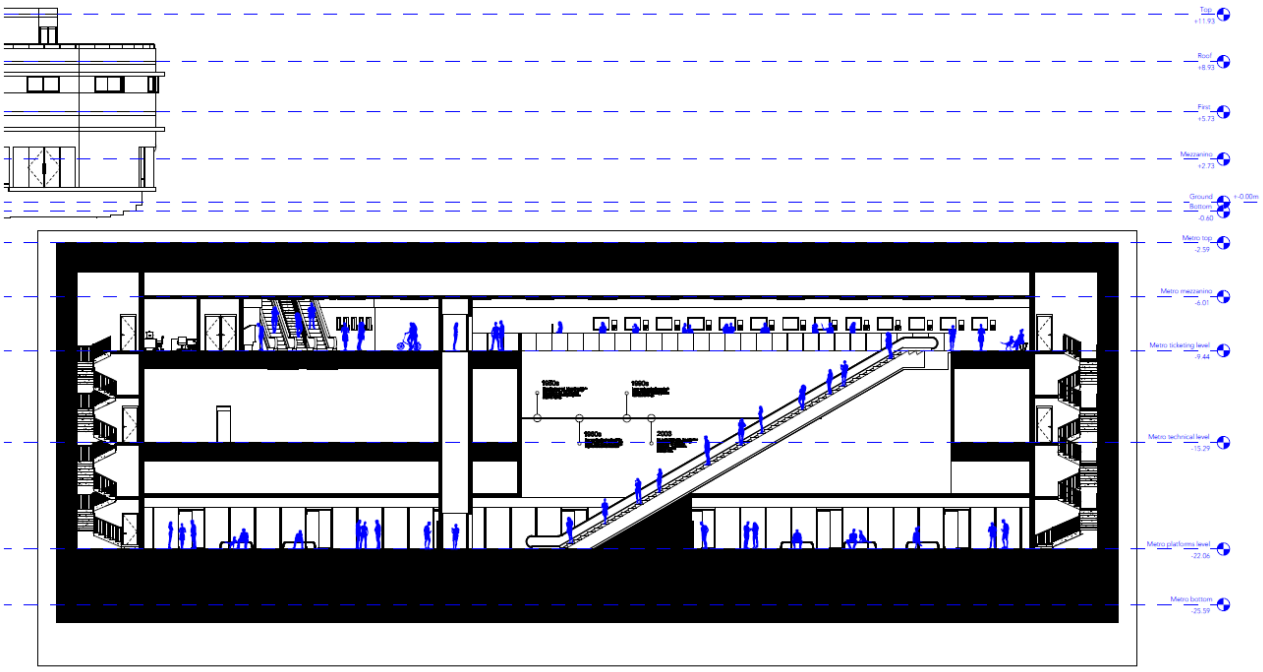


Fig.71 – Longitudinal section of Magen David metro station's main volume ticketing level (for scaled version see fig.B.31 in appendix). *Source: drawing by the author.*

Fig.72 – Magen David metro station ticketing level. *Source: visualisation by the author.*

Exit B to Honigmann House is continuing the narrative of museal space integration through analogue tools, as discussed for the rest of the ticketing floor. Nonetheless, in this passage, leading the pedestrian to the metro entrance volume through the mezzanine level of the metro station, the museal elements demonstrate specifically the historical evolution of Honigmann House.

This strategy was implied to demonstrate to the user the sense of transition in the integrated museum, from the discussion of modernist heritage in the context of the city to a discussion of it in the context of a specific building. This discussion narrated by the museal space will continue to transition to a more specific scale of how the restoration process is preserving this heritage.

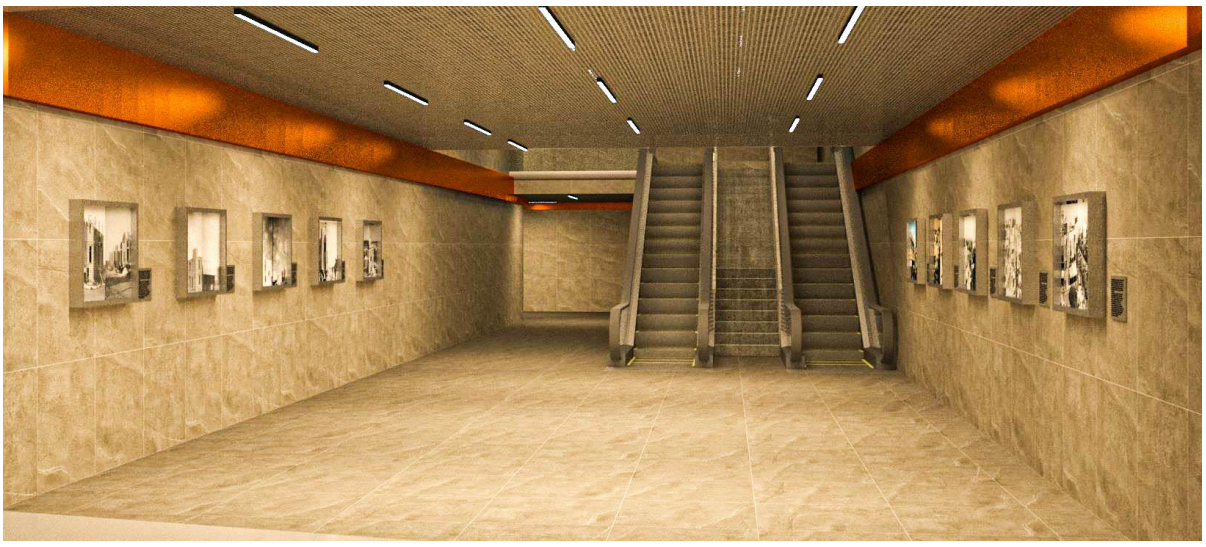


Fig.73 – Magen David metro station exit B to Honigmann House. *Source: visualisation by the author.*

Fig.74 – The new proposed façade of Honigmann House towards King George Street, demonstrating the integration with a metro entrance volume (for the original size of the image, see fig.B.75 in appendix). *Source: visualisation by the author.*

As introduced earlier, the design of the project includes a contemporary volume inserted into Honigmann House through partial demolition. This new volume establishes the physical connection between the building and the metro station. Although it is attached to Honigmann House, it is not permeable and remains separated from the building's interior spaces. This separation preserves the distinction between the two structures, where one is contemporary and the other is not, thus ensures that Honigmann House retains a degree of independence from the metro station.

`The metro entrance volume is defined by a transparent envelope, achieved through glass curtain-wall systems applied to its walls and ceiling, while its overall form is outlined by a black steel framing. The transparency of the structure enhances accessibility and integration with the street, while clearly emphasizing its difference from Honigmann House. This contrast is further reinforced by the use of black as the dominant colour of the contemporary structure, in opposition to the white of Honigmann House characterising the International Style structures.

Spatially, the metro entrance volume reaches its maximum width on the façade facing King George Street and gradually narrows towards the opposite end of the lot. This diagonal spatial configuration plays an important role in directing the movement of people from the street toward the escalators, and vice versa.

The volume is intentionally kept free of obstacles, an approach consistent with the design principles of metro stations

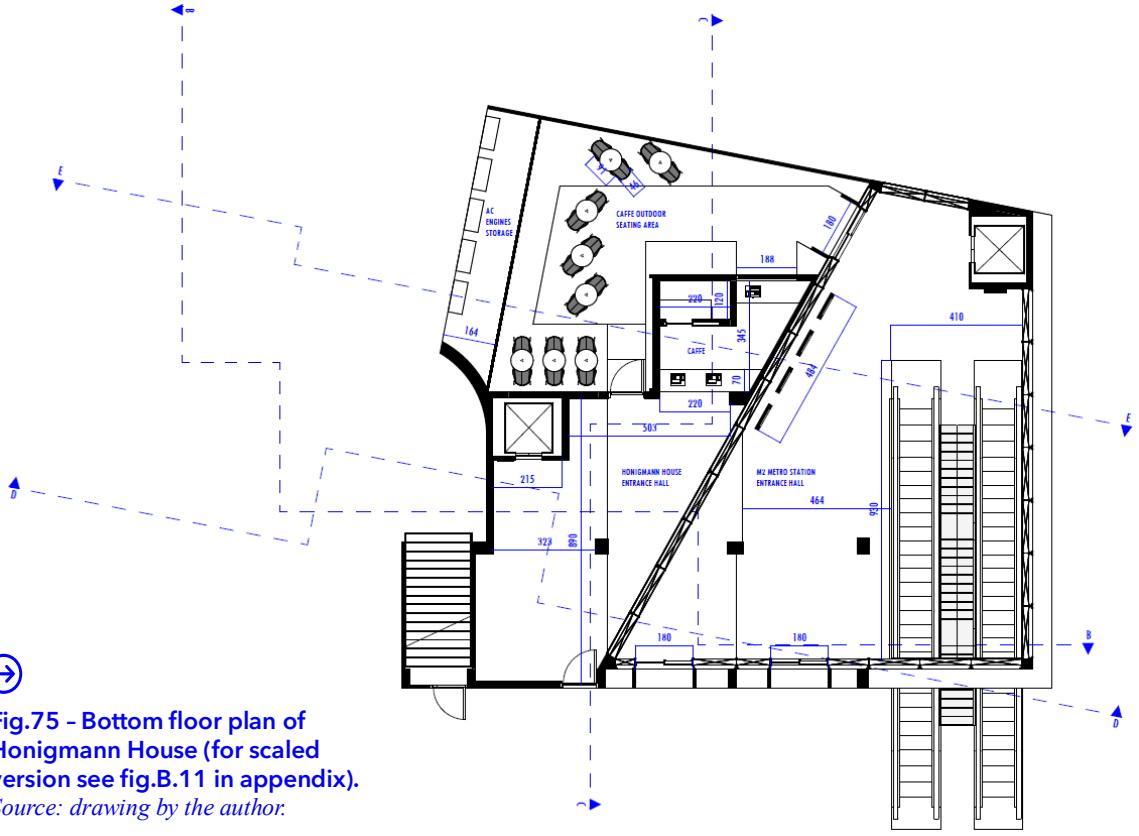


Fig.75 – Bottom floor plan of Honigmann House (for scaled version see fig.B.11 in appendix).
Source: drawing by the author.

design, allowing for greater fluidity in passenger movement. Apart from the escalators and the elevator linking the street level to the underground, the space contains a digital screen displaying upcoming metro arrivals and four touchscreen kiosks. These kiosks are identical devices to those located on the metro station platforms level and serve here as well to subtly integrate a museal area into the common space. By placing the touchscreen kiosks adjacent to the wall placed diagonally to guide the movement in the space, those devices aim to capture the attention of passengers without interrupting their natural flow through the space.

As in the metro station's platforms, some of the touchscreen kiosks display an interactive city map that combines wayfinding functions with the possibility of exploring Bauhaus buildings throughout the city. The remaining kiosks feature a simplified restoration game designed for all ages, aimed at illustrating the restoration process of Honigmann House and providing the public with insight into the methodology and complexity of the intervention, to be furtherly described in Subchapter 6.8.

The metro entrance volume features two access points: one at the wider front section facing King George Street, directly integrating it with the urban streetscape, and another at the narrower rear section, connecting to the backyard of Honigmann House. This backyard is redesignated as an outdoor café space named *The Metro Caffè*.

The outdoor café area planned for the backyard of Honigmann House represents a significant revamp of a space currently in a state of severe neglect and degradation (see Fig. 37–44).

Beyond restoring the damaged materials, the design also re-organizes the infrastructural systems that posed a threat for a safe use of the space. This re-organization includes relocating the mechanical ventilation engines units to a designated semi-hidden area (see Fig.75) and integrating exposed tubes and cables to a unified duct which runs along corners of the exterior walls. The café allows service both from the lobby interior and directly from the backyard through a dedicated sliding window.

Fig.76 – Honigmann House's backyard in the current state. *Source: photo by the author, March 14, 2025.*

Fig.77 – Honigmann House's backyard in the proposed project. *Source: visualisation by the author.*

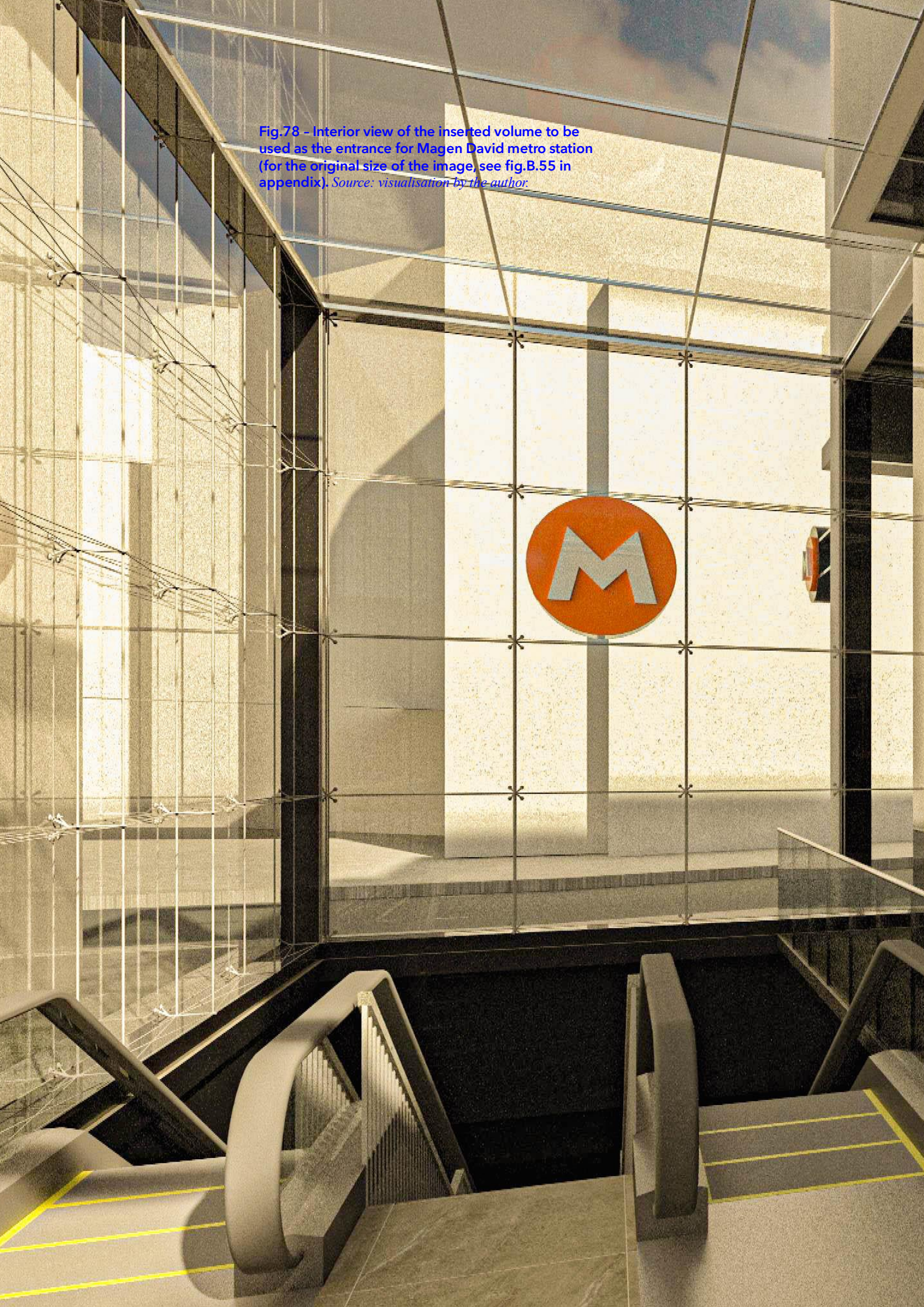


Fig.78 – Interior view of the inserted volume to be used as the entrance for Magen David metro station (for the original size of the image, see fig.B.55 in appendix). *Source: visualisation by the author.*

The mezzanine floor is entirely dedicated to function as a museum space. However, unlike the museal installations integrated into the metro station, the museum in the mezzanine floor focuses exclusively on narrating and presenting the restoration process undertaken in Honigmann House.

The decision to integrate the discipline of restoration as an exhibition theme within the designed museum in the project, was inspired by the Liebling Haus, where the restoration process acts as a spatial protagonist in the building's new function. The aim of such integration is to make restoration, normally a field whose knowledge is associated mainly to the relevant experts, more accessible to a wider public, not necessarily connected to architecture. A possible outcome of this knowledge enrichment is that by developing a deeper understanding of the complexity and importance of restoration work, the public may be more inclined to support initiatives on the preservation of built heritage in their surroundings.

In the case of Honigmann House, the transmission of restoration knowledge focuses on three key aspects: the study of materials of the built heritage subject to restoration; the study of the building's history, including the analysis of its various phases through archival documents; and the demonstration of the methodologies applied on-site during the restoration process.

The first aspect is communicated analogically through a dedicated wall displaying block samples of the materials studied and identified in the building. Each sample is accompanied by a plaque demonstrating the material's name and textural information about it.

Adjacent to the material-analysis wall, a large touchscreen table presents a simplified digital interface allowing visitors to explore the documents consulted during the preliminary architectural analysis of the building's characteristics and phases, which will

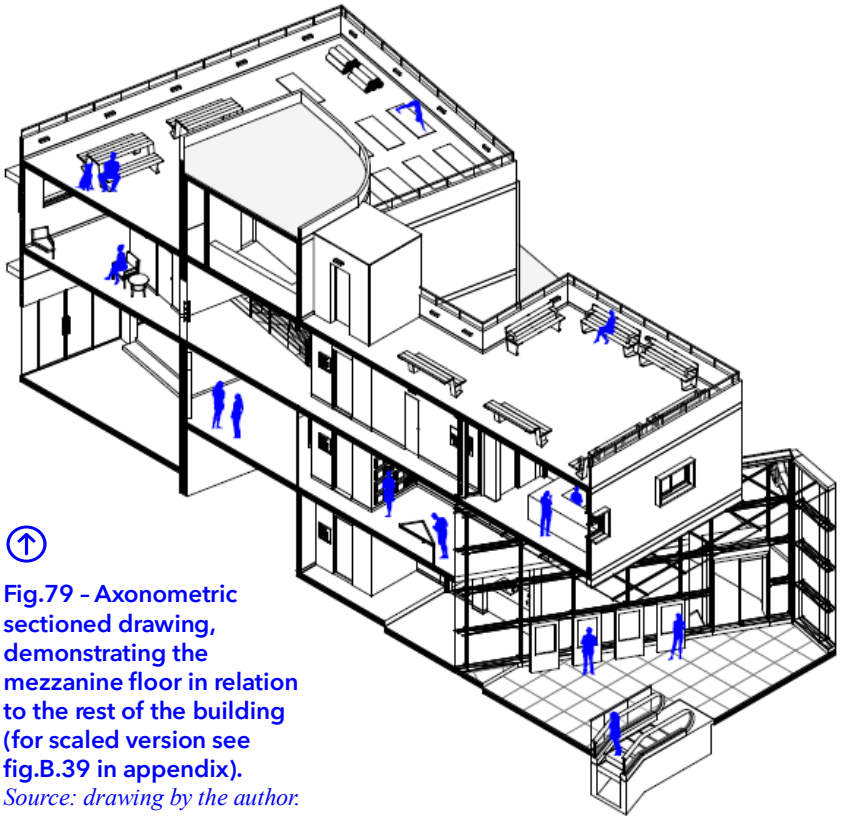


Fig.79 – Axonometric sectioned drawing, demonstrating the mezzanine floor in relation to the rest of the building (for scaled version see fig.B.39 in appendix).
Source: drawing by the author.

be furtherly discussed in Subchapter 6.8.

This mezzanine space is opened toward the lobby by demolishing the wall that previously separated it from the former street-level commercial units. This intervention allows the restoration museum to have a more visual and spatial integration the new lobby of Honigmann House, subsequently capturing the attention of visitors looking upwards upon entering the building.

The open museum space also contains an enclosed area designed as a small cinema room, projecting a film demonstrating on-site video documentation of the restoration process, the presentation of this kind of content is aligned with the comprehensive approach digital heritage supporting implementation of innovative instruments in order to deepen the connection of the project to the community.

Additionally, touchscreen kiosks are located in the building's original lobby, which serves in the project as the entrance to the restoration museum in addition to its original function as the start of the building's staircase. These kiosks present the simplified restoration game previously described, functioning as a complementary interactive tool that enhances the visitor's engagement and understanding of the field of restoration conveyed in the dedicated museum space of this floor.

The first floor is divided into three functional zones: commercial space,

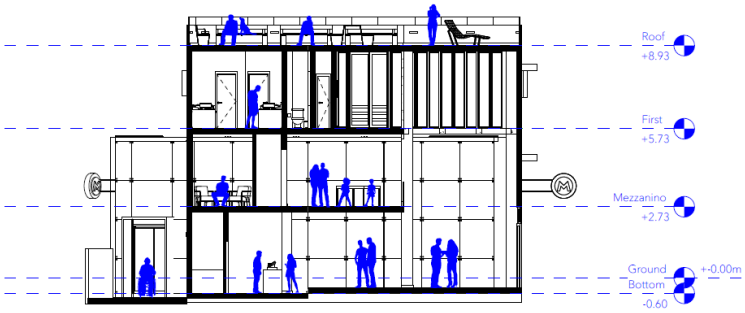


Fig.81 – Building section demonstrating the mezzanine floor in relation to the rest of the building (for scaled version see fig.B.26 in appendix). *Source: drawing by the author.*

Fig.80 – The museal space dedicated to restoration in the mezzanine floor. *Source: visualisation by the author.*

public space, and utility space for maintenance staff.

The commercial area is occupied by a restaurant, given the name "The Bauhaus Bistrot". This naming offers a management strategy in which commercial functions correspond with the building's architectural language, thereby creating a unified brand identity for the site. In this case, the desirable brand identity the project aims to create is a hub for modernism lovers. Subsequently, for the commercial function of the restaurant on the first floor (proved to be profitable by the existing commercial spaces of the building in its ground floor), the intention was to create an atmosphere of Bauhaus interior design in its peak years of the 1930s and 1940s. The restaurant is therefore characterised by furniture and material choices reflecting the period during which Honigmann House transitioned to the International Style.

The objective of this interior-design approach, implemented not only in the restaurant but also in the building's public municipal help desk in the first floor, the cinema room in the mezzanine floor and in its lobby in the bottom floor, is to allow visitors to experience a sense of returning to the modernist era while being inside the building. This interior design strategy can be viewed as an initiative for

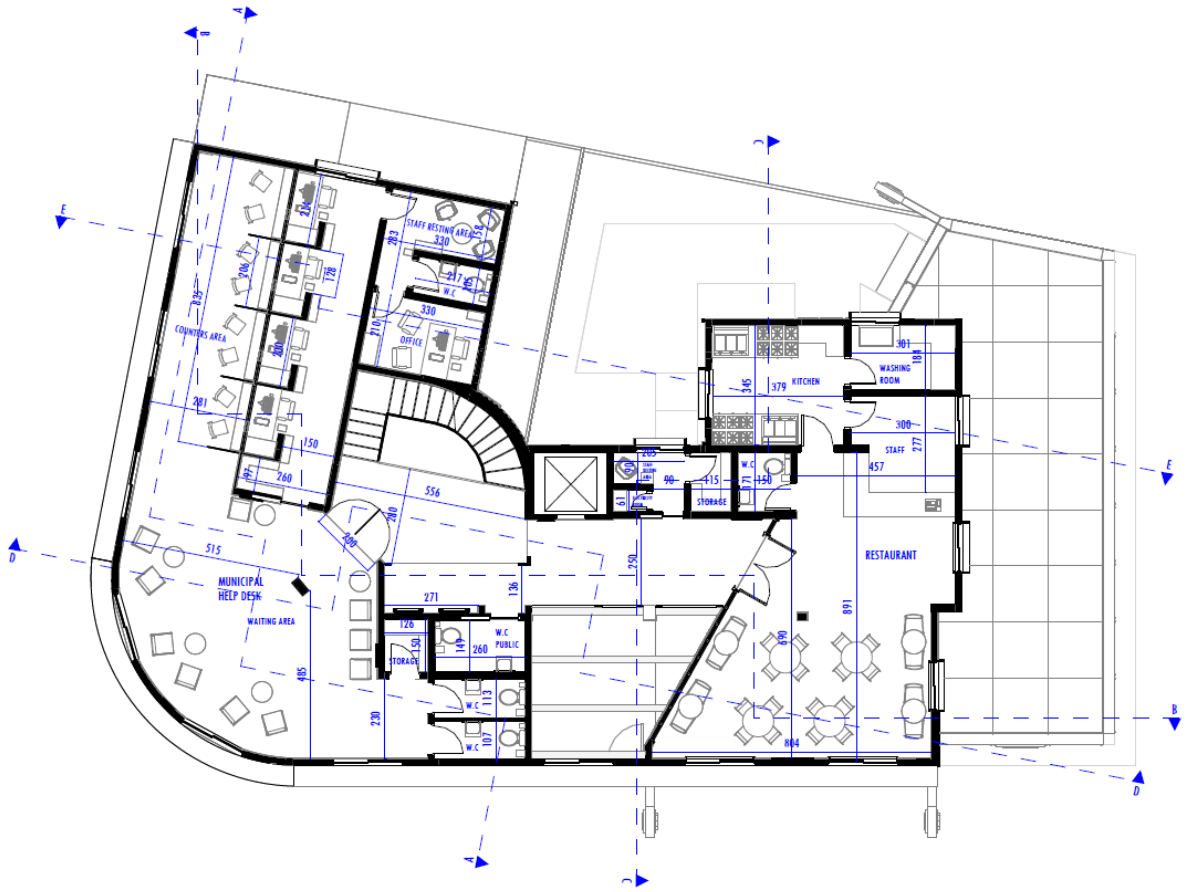


Fig.82 – First floor plan of Honigmann House (for scaled version see fig.B.14 in appendix).
Source: drawing by the author.

transmitting modernist heritage in a way which is possibly less conventional in the traditional cultural heritage.

Fig.83 - "The Bauhaus Bistrot" in first floor of Honigmann House. *Source: visualisation by the author.*

Unlike the mezzanine level, the first-floor corridor remains free of obstructions, as this floor is expected to accommodate a higher flow of people throughout the building's operating hours. The only fixed elements in the common area are the touchscreen kiosks placed in a key position facing the staircase. The content of the kiosks is the same as on the mezzanine floor: an accessible, simplified interactive game, with the scope of engaging occasional users of the floor with the discipline of restoration, potentially leading them into the main museal space in the mezzanine floor.

The first floor also includes a space designated for public use, which its function is defined through a participatory decision-making process with the local community, an initiative further explained in Subchapter 6.7. In the scenario assumed for the project, the community of the neighbourhood is characterised by an elderly population. Therefore, the space is planned as a municipal help desk providing in-person services for residents who struggle to access them digitally due to a disability or lack of familiarity with technological instruments.

Previously abandoned and filled with waste (see figs. 34–35), the roof floor, once informally occupied by a resident and, in its other part, by a homeless person, becomes in the project the building's primary point of attraction. Through the installation of appropriate flooring, removal of accumulated waste, treatment of material degradation, and the addition of glass railings mounted above the existing half-wall to improve safety, the roof is transformed into an accessible urban landmark, intended not only for visitors who are already situated in the building, but also for people coming specifically to experience the panoramic city view visible from the roof (see fig. 36).

The roof level is composed of two merged outdoor functional spaces, seating area and events space, which, unlike the prior approach for the configuration of the diverse roof areas, are no longer physically separated.

A small interior room is created directly before the exit to the outdoor space, designed to host a compact bar booth with openable sliding windows. These allow direct service to the outdoor area, where customers can order drinks and enjoy them in the seating facilities distributed across the roof. In

Fig.84 – Honigmann Bar integrated with the outdoor space through sliding windows, as demonstrated in the roof floor of Honigmann House. *Source: visualisation by the author.*

the project, the bar is named "Honigmann Bar" to reinforce the building's identity as a brand.
Beyond the seating area, a portion of the roof is intentionally left vacant to accommodate municipal or building-related events (for instance, film screenings organized by the rooftop bar). In the visualisation of the project, the chosen event scenario is a free-admission yoga class organized by the municipality, a practice already occurring in several key locations in Tel Aviv such as the Old Port, Bialik Square, and Charles Clore Park.

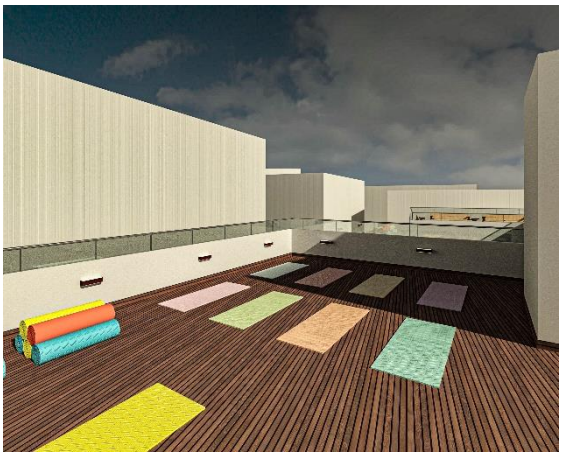


Fig.85 – Spatial configuration example of a yoga lesson in the outdoor events area of the roof floor. *Source: visualisation by the author.*

Additionally, a small cubic volume is introduced on the roof as part of the newly installed elevator shaft, ensuring full accessibility for users with disabilities or for elderly visitors, such as those visiting the public municipal help desk on the first floor. The envelope of the structure belonging to the elevator shaft in the roof is covered by deck cladding, in order to establish a sense of continuity with the new floor finishing and to create a consistent design language across the roof, while differentiating it from the white-plastered volume of the existing staircase core of the building.

Fig.86 – Corner at the roof floor in its existing state, occupied by kitchen devices. *Source: photo by the author, March 19, 2025.*

Fig.87 – Same corner as presented in fig.86, in the proposal of the project, occupied by a new structure of the elevator shaft. *Source: visualisation by the author.*

The elevator shaft was intentionally positioned in a location which will allow a convenient exit from the elevator to the roof while simultaneously keeping the structure hidden from people who view the building from the street, so the volume will not harm the aesthetic and volumetric integrity of the building.

At the same time, the placement of the new elevator shaft is at a central location within the building's floor plans, ensuring a convenient accessibility from all the spatial functions introduced in the project.

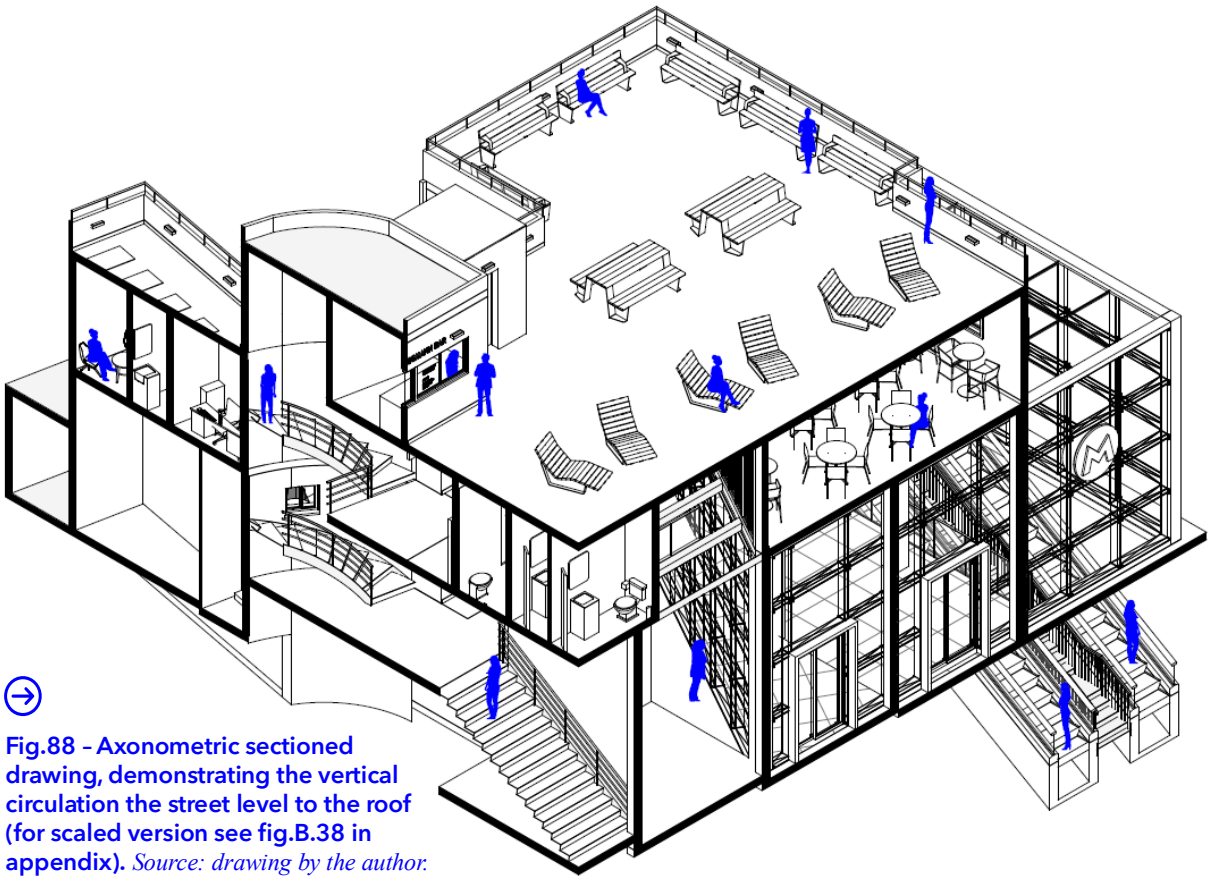


Fig.88 – Axonometric sectioned drawing, demonstrating the vertical circulation the street level to the roof (for scaled version see fig.B.38 in appendix). *Source: drawing by the author.*

Fig.90 - Honigmann House, bird's eye view from the intersection of King George Street and Allenby Street (for the original size of the image, see fig.B.72 in appendix). *Source: visualisation by the author.*

6.7 Engaging the public in the restoration process through hands-on workshops and participatory decision-making

One of the integral components of a comprehensive conservation approach is the active engagement of the local community. As discussed in the first chapter, the importance of involving communities in heritage conservation emerged toward the end of the 20th century, when the definition of cultural heritage was broadened to include assets relevant not only to the nation as a whole but also to specific communities.

Throughout this work, practices of public integration have been examined, such as the example of the Liebling Haus, where the restoration process was opened to the public through "open for renovation" events including events of workshops and guided visits.

In the project presented in this chapter, which includes the restoration of Honigmann House, public engagement is incorporated through two principal channels: events designed to foster public involvement, and mechanisms that integrate the community into selected aspects of the decision-making process.

Similar to the initiative of the Liebling Haus discussed in Subchapter 5.3, the proposed strategy for Honigmann House includes the organisation of a week-long programme, presented in tab.1, featuring several events held directly on the restoration site, while it is still considered a "construction site". The purpose of this initiative is to engage the public with the discipline of restoration, offering them the opportunity to experience hands-on practices or observe real restoration processes in site.

Tab.1 – Proposed timetable for events week in which the restoration site of Honigmann House is open to the public. *Source: illustration by the author.*

	SUNDAY	MONDAY	TUESDAY	WEDNSDAY	THURSDAY	FRIDAY	SATURDAY
10:00-12:00	Dealing with biological growth	Site visit	Applying plaster to the walls of the building	Treating corrosion: how to apply it for your homes	Site visit	CRACKS! And how epoxy resin is related?	Cleaning the graffiti
12:00-14:00	*LUNCH ON THE SITE: discussion with the professional team*	*LUNCH ON THE SITE: discussion with the professional team*	*LUNCH ON THE SITE: discussion with the professional team*	*LUNCH ON THE SITE: discussion with the professional team*	*LUNCH ON THE SITE: discussion with the professional team*	*LUNCH ON THE SITE: discussion with the professional team*	*LUNCH ON THE SITE: discussion with the professional team*
14:00-16:00	The old stores of Honigmann House	Using archival documents to study the building	Dealing with biological growth	Site visit	Applying plaster to the walls of the building	Applying plaster to the walls of the building	Treating corrosion: how to apply it for your homes
16:00-18:00	Cleaning the graffiti	CRACKS! And how epoxy resin is related?	Site visit	Honigmann House as an eclectic building: to which phase are we restoring?	Cleaning the graffiti	Site visit	Using archival documents to study the building

As seen in the table above, these events consist of two types. The first type is of an active nature, including hands-on workshops in which visitors can learn restoration methodologies through direct practice. This kind of activities not only enrich the knowledge of the public but also strengthening their connection with cultural heritage, while offering the satisfaction of contributing to the restoration of a built heritage[27].

The second type of activities is of a more passive nature and consist of guided site visits inside the building, which remained priorly closed to the public.

Given the delicacy of the building during this phase and the need to ensure public safety, each activity is to be supervised by staff members, and every visitor would be required to wear a protective helmet.

In accordance with the approach adopted in this project, all activities offered during the restoration of Honigmann House are to be provided free of charge. Participation is to be managed through mandatory registration, both for data gathering purposes and due to the limited number of people who can safely be present on site at the same time.

Additionally, in order to optimise the future formation of similar initiatives in other restoration projects, participants

Tab.2 – Proposed post-activity questionnaire for events week in which the restoration site of Honigmann House is open to the public.
Source: illustration by the author.

QUESTION	TYPE OF ANSWER
What was the most interesting thing you have learned in the activity?	*TEXT*
How safe would you consider this activity?	*RATING 1-5*
How physically hard would you consider this activity?	*RATING 1-5*
Were the safety instructions were described clearly before the start of the activity?	*YES/NO*
What would you suggest improving in the next activities?	*TEXT*

will be asked in the end of the activity to complete a questionnaire evaluating their experience, as shown in tab.2.

Beyond participation in on-site activities, the project also incorporates community engagement in the decision-making process, inviting the public not only to observe or learn how the future of the built heritage is shaped by experts but to take an active part in shaping its future function.

Naturally, public involvement in decision-making carries risks, particularly due to potential gaps in understanding the long-term implications of certain choices for the integrity and sustainability of the building.
Therefore, the level of influence granted to the public in those kinds of initiatives is limited and designed as a

[27] For more examples of such possible activities, refer to RICCARDO RUDIERO, *La valorizzazione in itinere del patrimonio allo stato di rudere: Riflessioni ed esperienze, tra multimedialità e cantiere*, Roma: WriteUp, 2024, pp.104-105.

pilot mechanism to assess whether such an approach can serve as an effective model of public engagement.

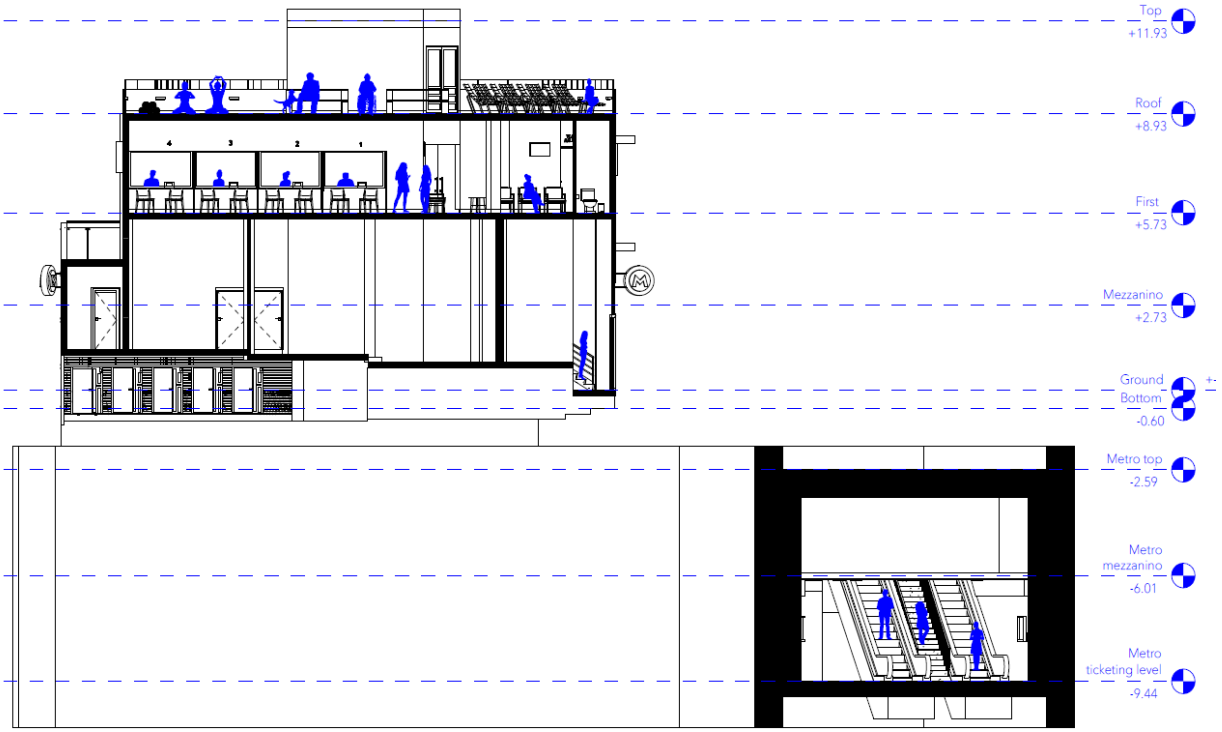
The decision subject to public's choice in this case concerns the function of the designated public space in the first floor of Honigmann House, which was an apartment prior to the proposed restoration and an office beforehand. As a model for future applications, this project proposes that a portion of any heritage building undergoing restoration with an adaptive reuse should be designated partially for a public use. The type of public function to be implemented in this designated area can be determined by the community rather than only by the professional team.

A questionnaire is therefore to be distributed to the local community in which the heritage building is situated. The scale of distribution should be defined by the managing authority depending on the context. In this case, the assumed scale of distribution is the neighbourhood.

This format of distribution this project recommends is mainly digital, via SMS or through a municipal online website/application, but other methods, such as sending printed questionnaires by mail, may be adopted depending on the demographic characteristics of the community (for instance, community composed mainly by elderly people).

The questionnaire presents several possible public functions defined by the professional team as possible for the project, each accompanied by explanation and demonstration of its advantages and disadvantages,

Fig.91 – Building section demonstrating the first floor in relation to the rest of the project (for scaled version see fig.B.24 in appendix). *Source: drawing by the author.*



allowing respondents to make an informed choice. In the case of Honigmann House, the proposed options may include:

1. Study/Remote working space
2. Nursery
3. Accessible municipal service point.

Hypothetically, the first option would be chosen in a neighbourhood dominated by young adults, the second in one inhabited by many families, and the third in a neighbourhood with a majority of an elderly population.

For the elaboration of this project, it is assumed that the neighbourhood is mainly composed of elderly residents. Therefore, the third option, the municipal service point, was selected.

In this scenario, the public space becomes a municipal help desk oriented also towards elderly individuals who may experience difficulties using the digital municipal services. Instead of relying only on online customer service, residents can receive in-person assistance and complete administrative tasks (such as document submission) with the support of municipal staff.

Fig.92 – The proposed interior of the municipal help desk on the first floor of Honigmann House. *Source: visualisation by the author.*

6.8 Communicating the restoration process and increasing public interest in Modernist Heritage through Digital Heritage tools

Digital heritage, as broadly discussed in the fourth chapter, is a developing discipline which integrates cultural heritage with contemporary technological tools.

The scopes of digital heritage are improving the quality of the conservation process, ensure a long-term documentation, and as strongly linked with the theme of this work, enhance the transmission of the values of the conservation object or process to the public.
Therefore, it can be said that the integration of the digital heritage and the participatory approach to conservation lies with the functionality of digital heritage as a tool for the fulfilment of a successful public engagement.

In this project, three technological tools are applied in the museal spaces of the project: projection of video documentation, a touchscreen table and touchscreen kiosks.

As mentioned, the first integration of digital heritage to the restoration of Honigmann House is through video documentation. Similar to the example of "Bagni di Petriolo" as mentioned in the fourth chapter (see p.120), in the hypothesis of the project the restoration process of Honigmann House is documented in-site through video recording, to be narrated and organised according to a certain video structure, as implemented in the restoration case of "Bagni di Petriolo".

The video documentation would be available both online through a video platform (such as YouTube) as well as physically in a dedicated film screening space in the open-access restoration museum in the mezzanine floor (for the relevant floor plan see fig.B.13 in appendix).

This dedicated space, screening the short film (with a duration of 7:20, similar to the videos of Bagni di Petriolo) in loops throughout the building's operative hours, is separate from the main space of the floor in order to enhance the sense of a film room and avoid noise distractions inside the screening space.

Fig.93 - The proposed cinema room in Honigmann House. *Source: visualisation by the author.*

The cinema room is aiming to give the user a sense of being inside a construction site through the material choices, while allowing its exposure to the passengers entering the metro

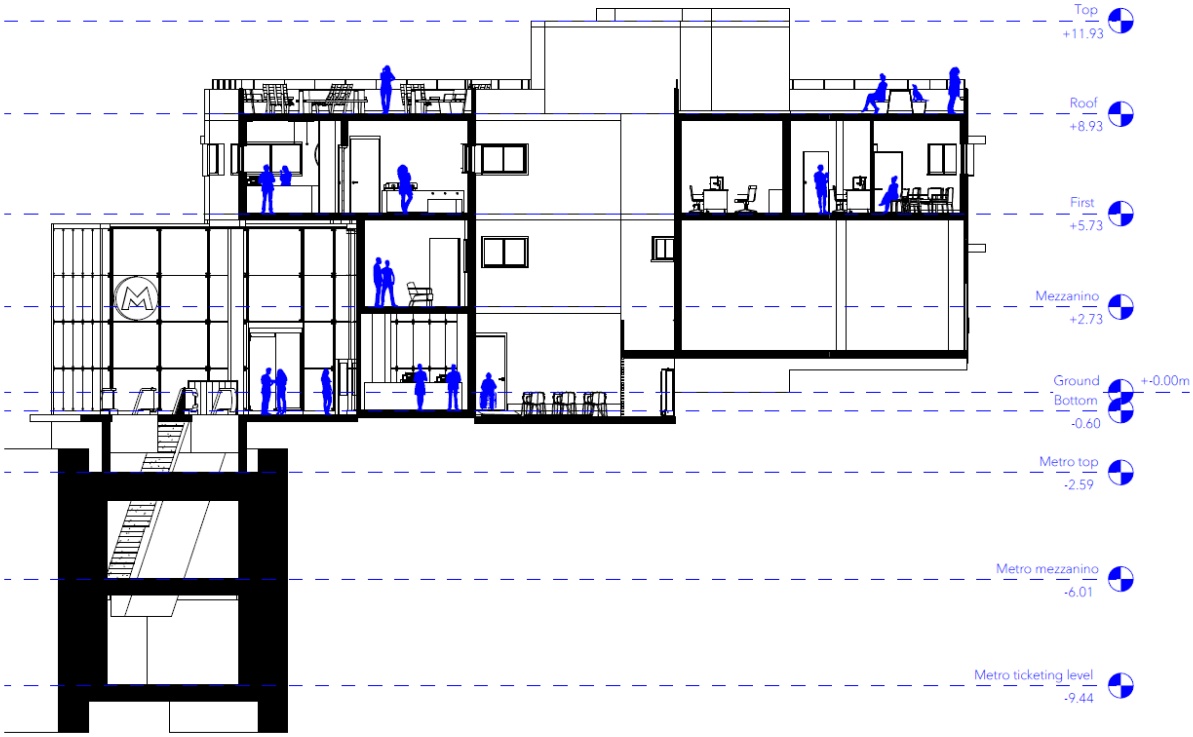


Fig.94 – Section of Honigmann House showing the integration of the cinema room to the structure of the metro station entrance (for scaled version see fig.B.28 in appendix). *Source: drawing by the author.*

station through making the inside of it visible through the glass curtain system wall of the metro entrance structure.

The second digital instrument used is the touchscreen table, placed as well in the restoration museum space of the mezzanine floor. This large touch device, designed as a normal table, aims to transmit the knowledge on the historical and architectural characteristics of Honigmann House, as well as allowing the user to understand the importance of studying the building in all of its construction phases through archival documents, as part of the preliminary analysis, a fundamental step in the restoration process of a built heritage.

This instrument also achieves a second scope of digital heritage, which is the creation of digital archives assuring the continuous existence of documents who own a heritage value, so it will be transmitted to the future generations in case of damage to the original physical copy. In addition, it answers the scope of public engagement as documents who were not easily

Fig.95 – The touchscreen table showing a digital archive and the entrance to the cinema room in the mezzanine floor of Honigmann House. *Source: visualisation by the author.*

reachable to the public, are to be communicated to the public in an interactive way of a simplified touch screen interface.

The interface displays an accumulation of various documents scattered along the display and explorable through moving the screen directly by touching. Once a document is clicked, a pop-up window demonstrating textual information on the content is displayed on the screen, as well as other small pop-up windows containing information on the type of content demonstrated (such as the author of the document, year of the document, and type of technique used to create this document). In addition, to help the user orientation in the experience, there is an option for a random pick of a document by the program, as well as showing similar documents to the one picked.

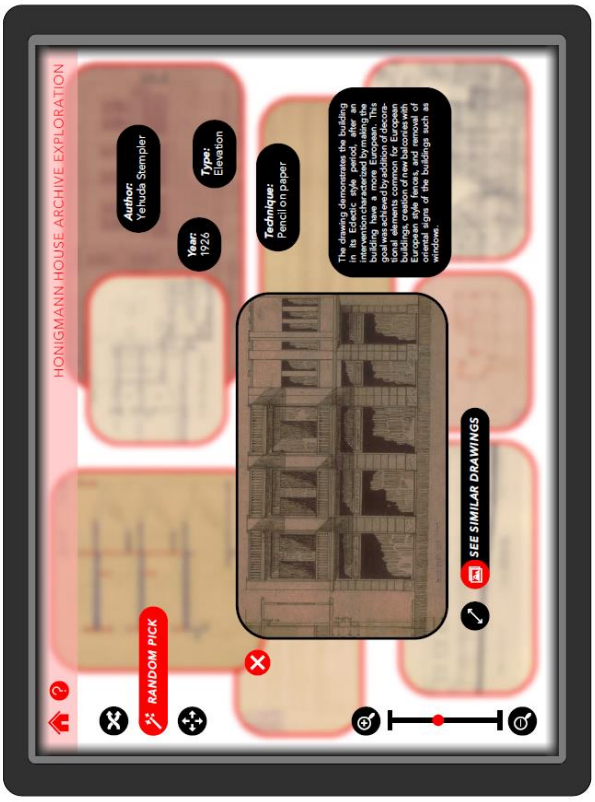


Fig.96 – The interface of the digital archive in the touchscreen table of the mezzanine floor (for original size of the image see fig.B.46 in appendix). *Source: illustration by the author.*

The third digital tool is the touchscreen kiosk. Similar by its technology to the touchscreen table, this time the device is floor-mounted and contains a vertical display rather the horizontal display of the touchscreen table. In addition, instead of being placed in a single location in the project, the various kiosks are scattered throughout many spaces of both Honigmann House and Magen David metro station, strengthening the functional integration of both structures by both being a hosting body of a scattered public museum, containing the same technological device, the touchscreen kiosk, as the primary didactical object of the museum.

Fig.97 – Touchscreen kiosks placed in the proposed common space of the first floor in Honigmann House. *Source: visualisation by the author.*

The touchscreen kiosk in this project have two diverse interfaces: an interactive map and a restoration game, as both of the interfaces contribute to the transmittance of modernist heritage to the user, each through focusing on a different subject.

The interactive map is implemented in the touchscreen kiosks situated at the metro station and the metro entrance structure, as they are the urban transit spaces of the project. This interface is demonstrating the map of the city, where the user can explore its different landmarks and attractions, as well as get directions to the desired destination through the various commuting possibilities (walking, bus, metro, light rail) integrated in the program of the interactive map or supported by an integrated third-party public transportation program. The functions of city exploration and navigation are integrated with promotion of the modernist heritage of the city, as various international style buildings are highlighted along the map, suggesting the user to get more information about them (available through a combination of textual information and images), with an

Fig.98 – The interface of the interactive map in a touchscreen kiosk (for original size of the image see fig.B.45 in appendix). *Source: illustration by the author.*

option of also making them the new destination of the journey. Through this, the interactive map lets the user discover the Bauhaus culture of the city alongside the journey to the original destination or exploration scope of the user.

The other type of touchscreen kiosks displays a restoration game, allowing the user to have a virtual experience with the work of restoring a modernist building, in this case Honigmann House, through an interactive simplified game interface designated to all ages.

In this virtual game, the user has a section called "my restoration" where there is an illustration of Honigmann House in its state prior to the restoration. There, the user can click on various components of the building

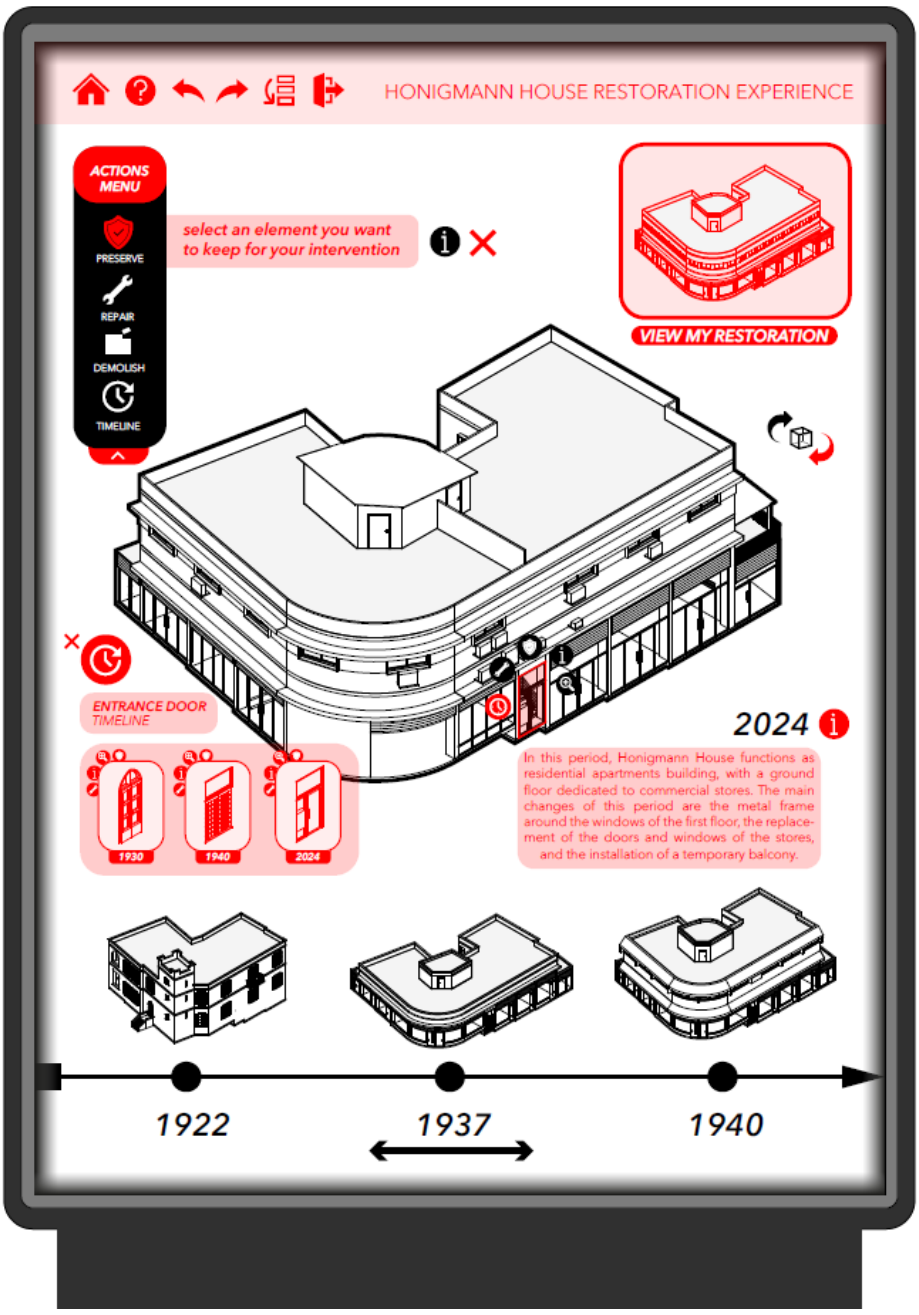


Fig.99 – The interface of the restoration game in a touchscreen kiosk (for original size of the image see fig.B.44 in appendix). *Source: illustration by the author.*

and choose whether to demolish or preserve them.

In addition, the user can browse between the various phases of the building, choosing elements from the selected phase to be added to the personal restoration project created in the game.
As the restoration discipline deals with preserving also the components of the building and not only its material integrity, the game allows the user to learn about the specific components of the building through browsing their own periodic phases and the methodologies ensuring their preservation. For instance, the user can learn how the front door has changed in the building along the years, and subsequently choose which phase of the door to insert to the personalised restoration project.

Although the result of the restoration work of the user may be not correct according to the professional standards of the restoration discipline, it can be claimed that allowing the user to have more personal customization in the game contributes to raising the interest in the game and subsequently making the user see the restoration discipline in a more positive light, which will possibly encourage the user to support restoration initiatives in the future.

6.9 Critical comparison to case study of Liebling Haus

As discussed in the previous fifth chapter, the restoration of Liebling Haus, located at 19 Idelson Street in Tel Aviv, may be viewed as a successful example of a comprehensive conservation project. It integrates several innovative approaches, such as integrating the restoration process within the building's design and with active public participation. Subsequently, the restoration proposal for Honigmann House draws significant inspiration from Liebling Haus, which illustrates an effective implementation of many ideas addressed in this thesis.

However, a critical aspect considered in the development of this proposal is the relatively low attendance observed at Liebling Haus, as well as the homogeneous profile of its visitors, from which many have a pre-existing interest in architecture or cultural heritage.

Therefore, Honigmann House aspires to differ from Liebling Haus in this subject, as it is not intended to serve as a professional hub for conservation specialists, but instead, as an accumulation of functions integrated with an educational experience targeted to audiences who are not experienced nor particularly interested in the field of restoration.

This approach emerges from the belief that promoting restoration initiatives, especially in cases like Honigmann House which is planned to demolition, requires raising awareness among wider publics who may not have previously considered preservation as the favourable approach in a developing urban fabric.

In other words, while Liebling Haus may be described as "convincing the already convinced", the target audience of Honigmann House may be characterized as those who remain unconvinced.

One possible explanation for the low attendance at Liebling Haus is its designation as a museum. Globally, it may be claimed cultural museums have experienced a decline in visitors attendance, particularly in cities such as Tel Aviv, which is not considered as a major tourist destination. It can be furtherly claimed that many residents, especially from the younger generations, tend not to visit museums due to limited time or lack of interest. This may also explain why the typical visitor profile at Liebling Haus can be seen as an architecture or conservation enthusiast, as the type of content presented in the museum corresponds with the fields of interest of such visitors, making them attend the museum frequently.

The proposed project, consisting of both Honigmann House and the Magen David metro station, also includes a museal function, but introduces it in a fundamentally different way. Rather than making the museum its primary function, the project integrates cultural heritage within spaces that attract the public for unrelated reasons: mobility (the metro

station) and commercial activities (Honigmann House).
This approach of the project contrasts with Liebling Haus, whose central role is to serve as a public cultural institution.

By integrating heritage into everyday urban functions, the project aims to communicate conservation values to a broader audience and subsequently to promote greater public support for restoration initiatives.

Nevertheless, it must be acknowledged that the location of Liebling Haus, situated on a small street within a quiet neighbourhood, may contribute to its relatively low attendance.
In contrast, Honigmann House occupies a strategic position as it is situated at the intersection of the primary King George and Allenby streets (see fig.2, p.162), and designed to be linked directly to a metro station. These characteristics suggest a higher potential for sustained public interest in the building for the long-term.

Despite their differences in branding and urban context, the two projects share a common aim: to promote cultural heritage and more specifically to enhance public understanding of restoration processes.

Honigmann House adopts two key methods from the comprehensive conservation performed in Liebling Haus:

1. Active public engagement.
2. The integration of the restoration process into the architectural design.

The first method, public participation, is implemented in the Honigmann House proposal through a dedicated week of activities, inspired by Liebling Haus's '*Open for Renovation'* initiative (see pp.145–148).

In both cases, the restoration site becomes accessible to the public during the process, through various guided activities intended to educate the public through hands-on practice on the various methodologies taking place in the site for restoring a certain building.

The programme at Honigmann House focuses on material treatment workshops, site visits for general exploration, and discussions with the professional restoration team (see tab.1, p.218). Such initiatives, both in Liebling Haus and in the proposed project for Honigmann House, demonstrate how active public participation can deepen their sense of involvement with cultural heritage and increase awareness of the complexity and importance of the restoration processes.

The second method concerns the incorporation of traces from the restoration process into the new design of the building. As presented in the fifth chapter, Liebling Haus marks the location of the demolished walls, allowing visitors to understand the historical spatial configuration of the building (see fig. 22, p. 151).

Similarly, the proposal design for the adaptive reuse of Honigmann House marks demolished walls and floors through exposed concrete traces (see figs. 66–67, p.199; fig. 97, p. 224). This strategy, in addition to enriching the visitor's understanding of the building's previous spatial configuration, supports a key approach in the practice of adaptive reuse, which is making the new design of the building reversible, implemented in Honigmann House as removed partitions can be reconstructed without the necessity to modify the designed spatial configuration.

Another aspect borrowed from Liebling Haus is the presentation of materialistic samples from material analysis phase of the restoration process. At Liebling Haus, these samples, extracted from the building and from similar International Style building, are displayed in a dedicated openable shelve (see fig. 23, p. 152 in the fifth chapter).

In Honigmann House, the material analysis becomes a protagonist of the museal space, as samples from the various materials of the buildings are showcased across an entire wall on the mezzanine level (see fig. 80, p. 212), raising the awareness on the importance of material integrity in the restoration process.
Comparing with Liebling Haus, the material analysis idea is expanded, as it receives more dominance in the space by receiving a dedicated wall rather of being enclosed in a shelve, risking it left undiscovered by visitors.

6.10 Conclusion

This proposed project offers an alternative to the demolition of Honigmann House by restoring it and integrating it with the new metro station at Magen David Square through a connecting contemporary structure.

The restoration strategy implemented in the project incorporates various sub-disciplines of the comprehensive conservation approach. In parallel, the design of the metro station aligns with recent research on the integration between underground transit-oriented environments and didactic-museal spaces.

Conservation and transit-oriented design are brought together in this work through the implementation of the adaptive reuse practice. The new designation of Honigmann House as an urban node connecting commercial and public activity with transportation was made possible by the insertion of a contemporary volume constructed through *partial* rather than *total* demolition. This new volume connects physically and conceptually the two structures while preserving the identity and integrity of Honigmann House.

This conservation and adaptive reuse project can therefore be understood as consisting of three main phases: the construction of a new metro station, the restoration of an existing modernist building, and their integration through a connector structure, designed to be distinguishable from the hosting structure in order to differentiate the old and new architecture which coexist in project.

The comprehensive approach to conservation, advocating innovative methodologies alongside traditional practices, is reflected in the restoration proposed for Honigmann House through including in the process not only the treatment of degradation and the preservation of material integrity, but also the integration of digital heritage tools and public participation.

Such integration of multiple disciplines into the conservation field, in the spirit of the comprehensive approach, aims to ensure the sustainability of the cultural heritage in the long-term through the development of its conservation process by innovative digital means, and strengthening of the relationship between communities and the heritage asset, an approach which was emphasised in international heritage charters over recent decades[28].

The project is situated in Tel Aviv, a relatively young city founded in 1909, which became in the 1930s a fertile ground for the Bauhaus movement, hence a significant centre for modernist architectural development. The extent of the modernist influence on the city's built fabric can be seen in the fact not only new construction was

[28] For an additional study on the subject, refer to NORA LOMBARDINI, SILVIA CERISOLA, *Valorizzazione del patrimonio architettonico come bene commune*, Restauro dell'architettura Per un progetto di qualità, SIRA (sezione 6), 2023, pp.235-242.

characterised by the modernist international style, but numerous buildings were transformed to so their appearance will fit the modernist character of the growing city. Honigmann House exemplifies this evolution: originally constructed in the eclectic style by Yehuda Stempler, it was renovated a decade later to become an international style building by Genia Averbuch.

Both Honigmann House and the new metro station are designed to integrate a public museum 'scattered' throughout their interior spaces, aimed at educating the public about the city's modernist heritage, the historical evolution of Honigmann House, and the restoration process which, under the hypothetical reality of this project, prevented its demolition.

The metro station, a space defined by a constant flow of passengers, requires a spatial configuration that allows for smooth and efficient movement from the platforms to the ticketing validation machines and from there to the various exits. Therefore, the integration of museal elements within such a dynamic space was approached carefully, drawing inspiration from several examples such as the San Giovanni Line C metro station in Rome, which incorporates within it an archaeological museum.

The museum components include both analogue and digital components, enabling transmission of heritage values, particularly for younger audiences. Studies reviewed in this work have shown the usefulness of digital tools in enhancing public engagement and subsequently encourage a broader awareness on the importance of cultural heritage amongst the public.

Within this project, implemented digital tools include video documentation, digital archiving, and interactive touchscreens featuring as well gamified experiences.

A central source of inspiration for this work was the detailed analysis of the Liebling Haus case study. This International Style building underwent a restoration characterised by a strong respect for the original fabric and by an educative design approach that exposes the restoration process within the building's contemporary use. Similar strategy was implemented in the proposed project for Honigmann House for narrating the restoration process, not only through museal functions dedicated, but also through design decisions such as the display of traces of demolished walls and floors, as well as the exhibition of material samples studied during the preliminary analysis of the process.

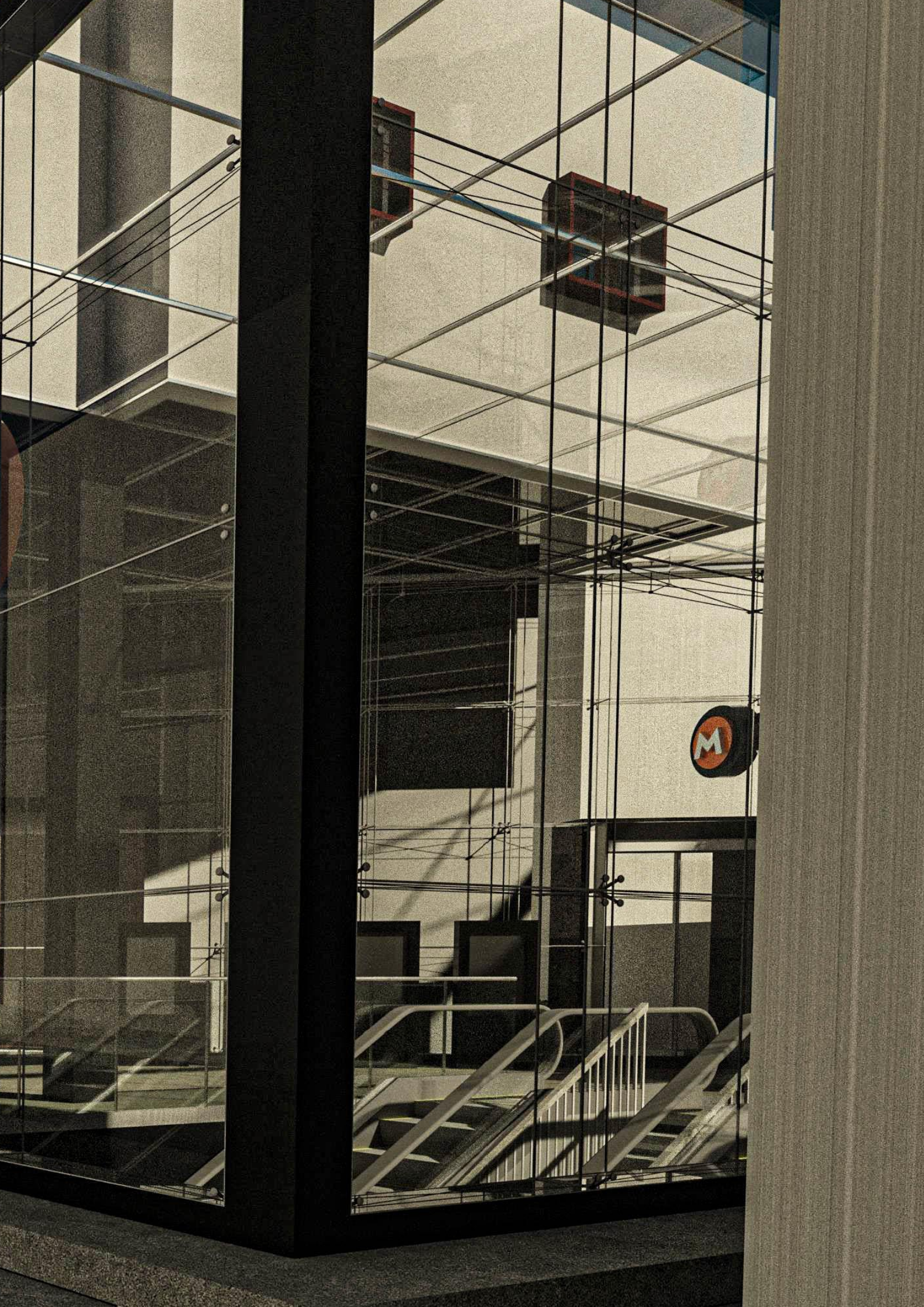
Although in certain urban contexts the demolition of buildings with limited recognised heritage value may be justified due to broader development needs, in other cases, such as with Honigmann House, this work claims that no meaningful benefit is gained by the alternative suggested with the demolition such heritage (a small urban square for a metro station entrance). In situations such as these, the approach presented in this work

demonstrates that an alternative exists, one in which urban development and the preservation of built heritage can coexist in a profitable way for both sides.

This alternative was elaborated through an in-depth analysis of all the relevant dimensions: from analysing the historical evolution of the building, to investigating the comprehensive conservation approach (and how it can be implemented to the project), examining strategies for designing complex transit spaces, exploring integration of innovative digital tools, and comparatively analysing a selected case study.

Ultimately, this work aims to serve as a model for future cases in which the built heritage is considered, due to a misconception, as one which do not hold a sufficient value to make its preservation more worthy from demolition.
In addition, this work challenges the assumption that cultural heritage preservation is an obstacle to urban development, demonstrating instead, through the presented project, that heritage can be safeguarded while simultaneously answering contemporary urban needs.

Fig.100 – The proposed entrance to Magen David metro station from the new structure inserted to Honigmann House (for the original size of the image, see fig.B.56 in appendix).
Source: visualisation by the author.



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Appendix

Appendix A: Building Analysis

A.1 - Territorial Analysis
A.2 - Floor Plans Temporal Comparison
A.3 - Axonometric Temporal Comparison
A.4 - Sectional Overview
A.5 - Material Analysis
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B.7 - Sectioned Axonometric Views
B.8 - Touch Screens User Interfaces
B.9 - Visualisations

Appendix A:
Building Analysis

A.1: *Territorial Analysis*

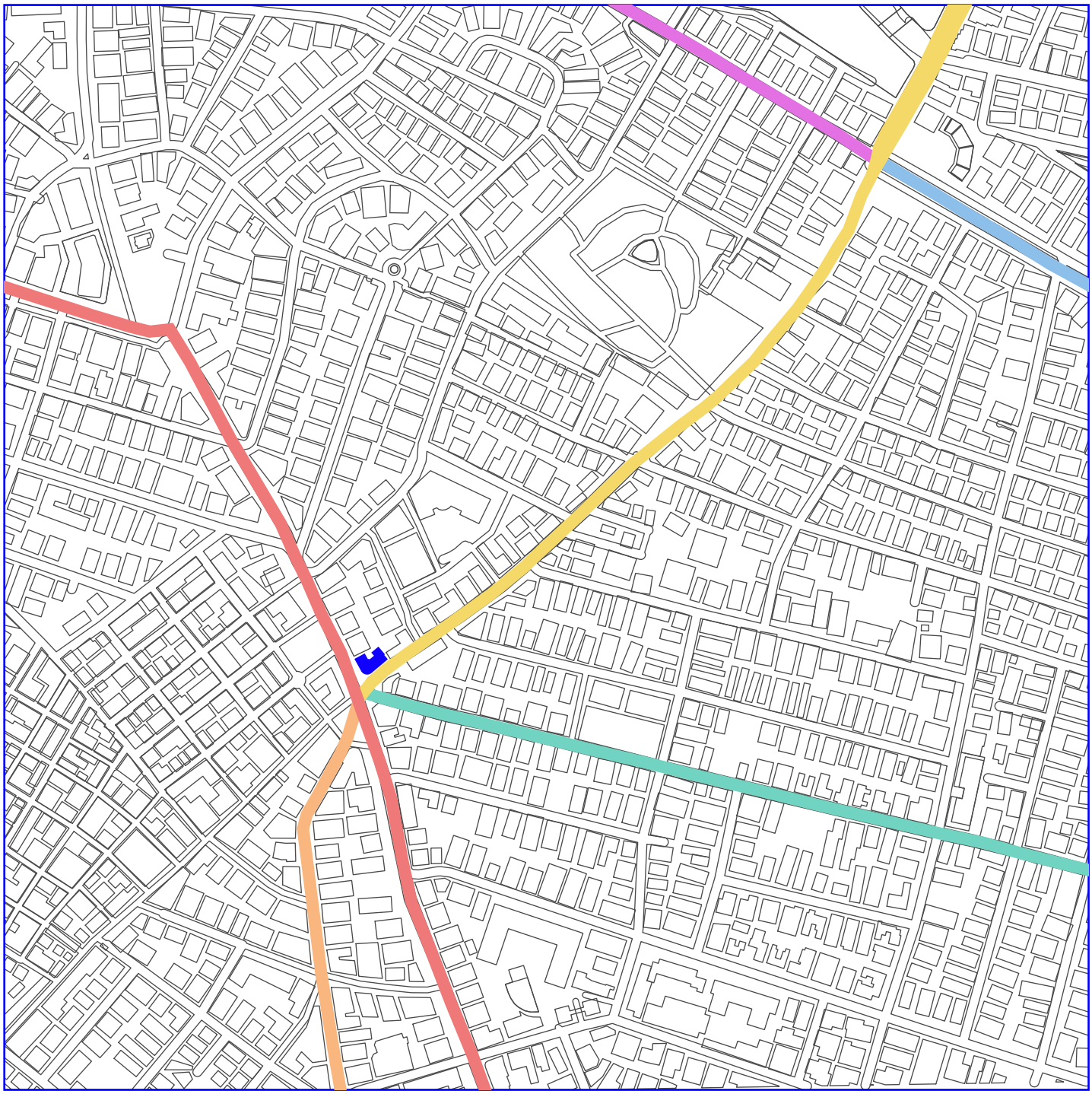


Fig.A.1 - Main streets around project site.

Project site - Allenby St 49 / King George St 1, Tel Aviv

Allenby St

King George St

Bograshov St

Nachalat Binyamin St

Sheinkin St

Ben-Tsiyon Boulevard

N

Scale 1:5000

0 62.5 125 250 m

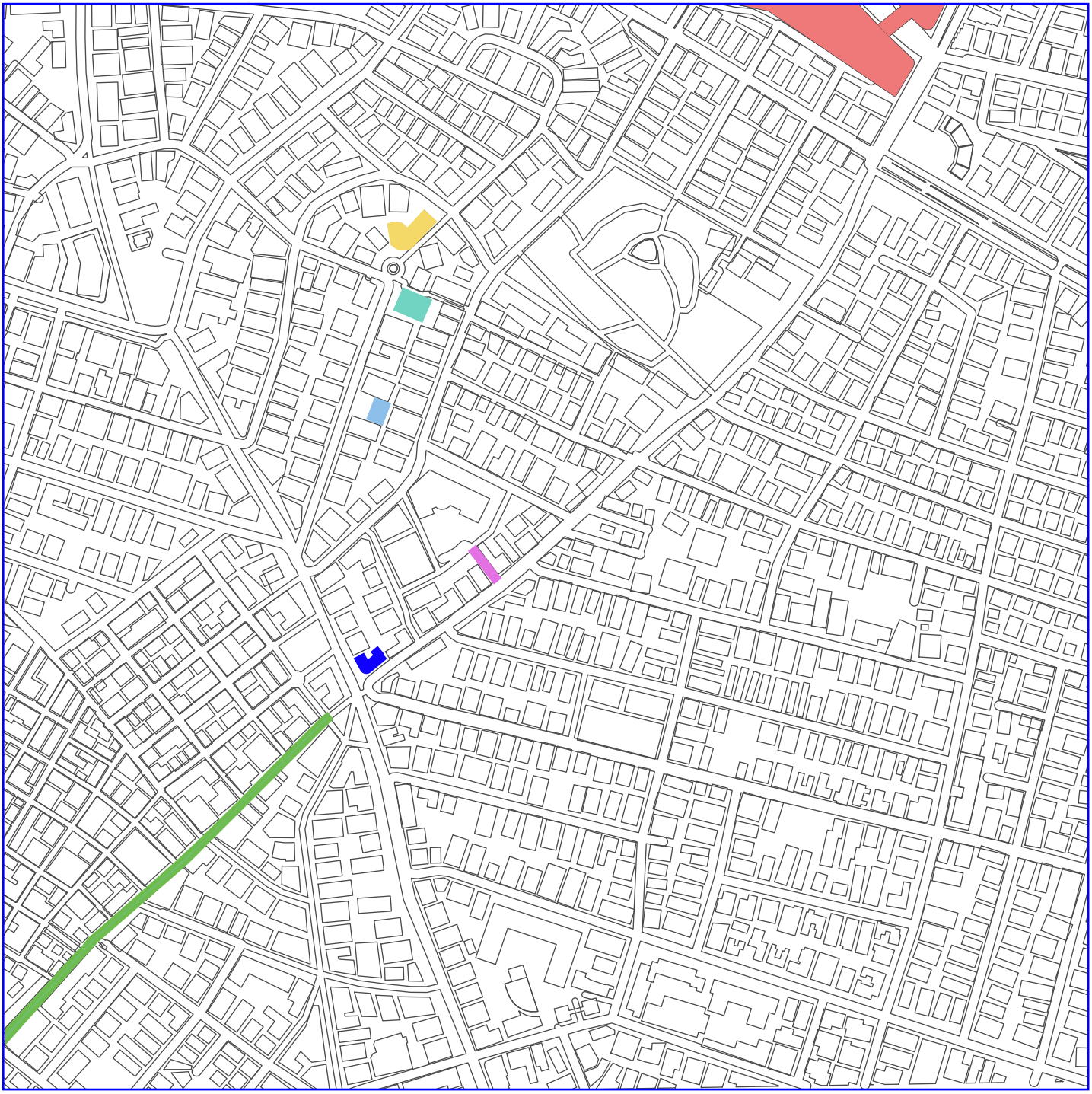


Fig.A.2 - City landmarks around project site.

Project site - Allenby St 49 / King George St 1, Tel Aviv

Carmel Market

Reuven Rubin House

Bezalel Market

Old City Hall

Bialik House

Dizengoff Center

N

Scale 1:5000

0 62.5 125 250 m

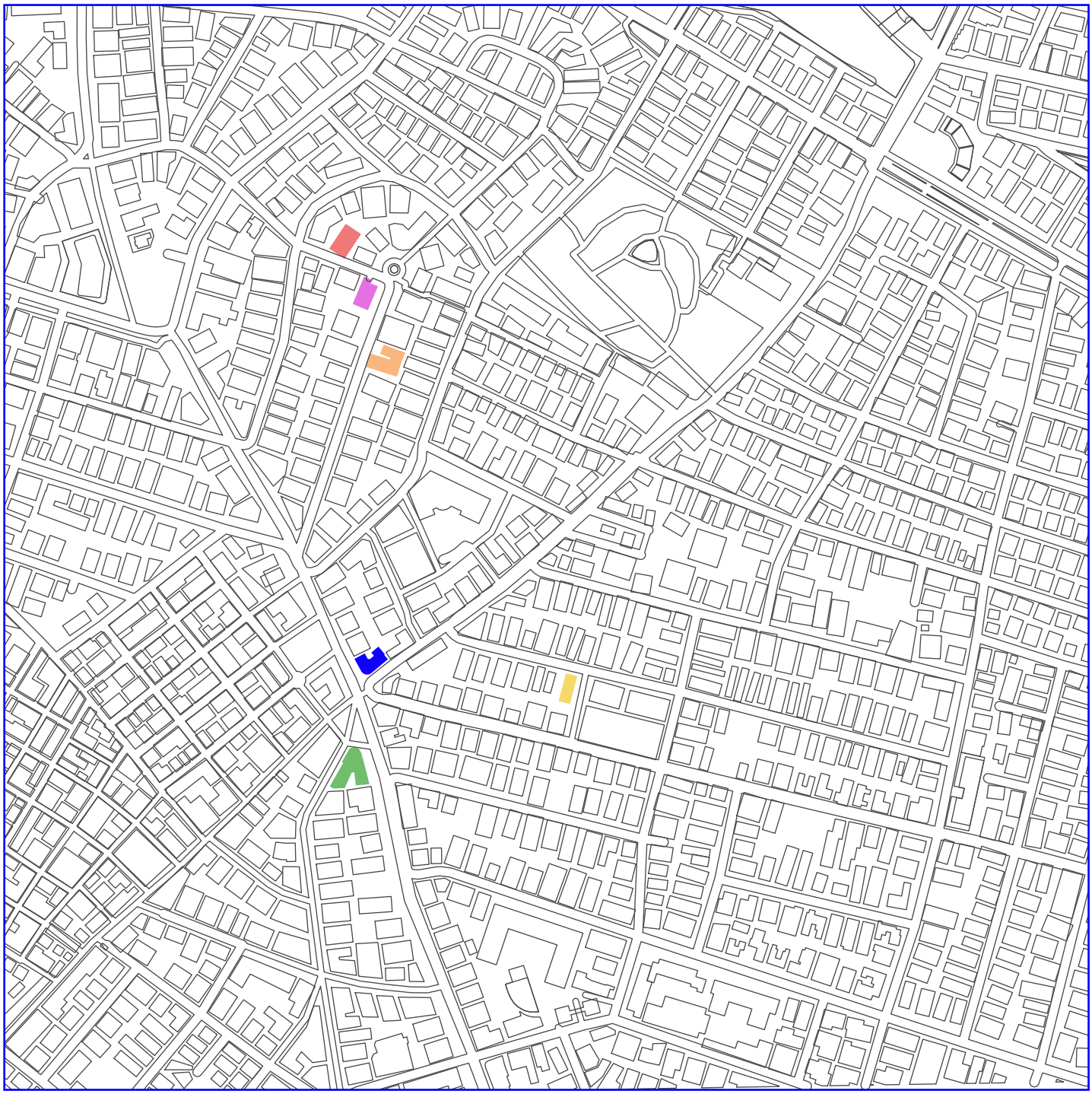


Fig.A.3 - White City buildings under strict preservation around project site.

Project site - Allenby St 49 / King George St 1, Tel Aviv

Bialik St 21

Merkaz Ba'alei Ha'melacha St 14

Liebling Haus

Polishuk House

Peltzman-Wacht House

N

Scale 1:5000

0 62.5 125 250 m

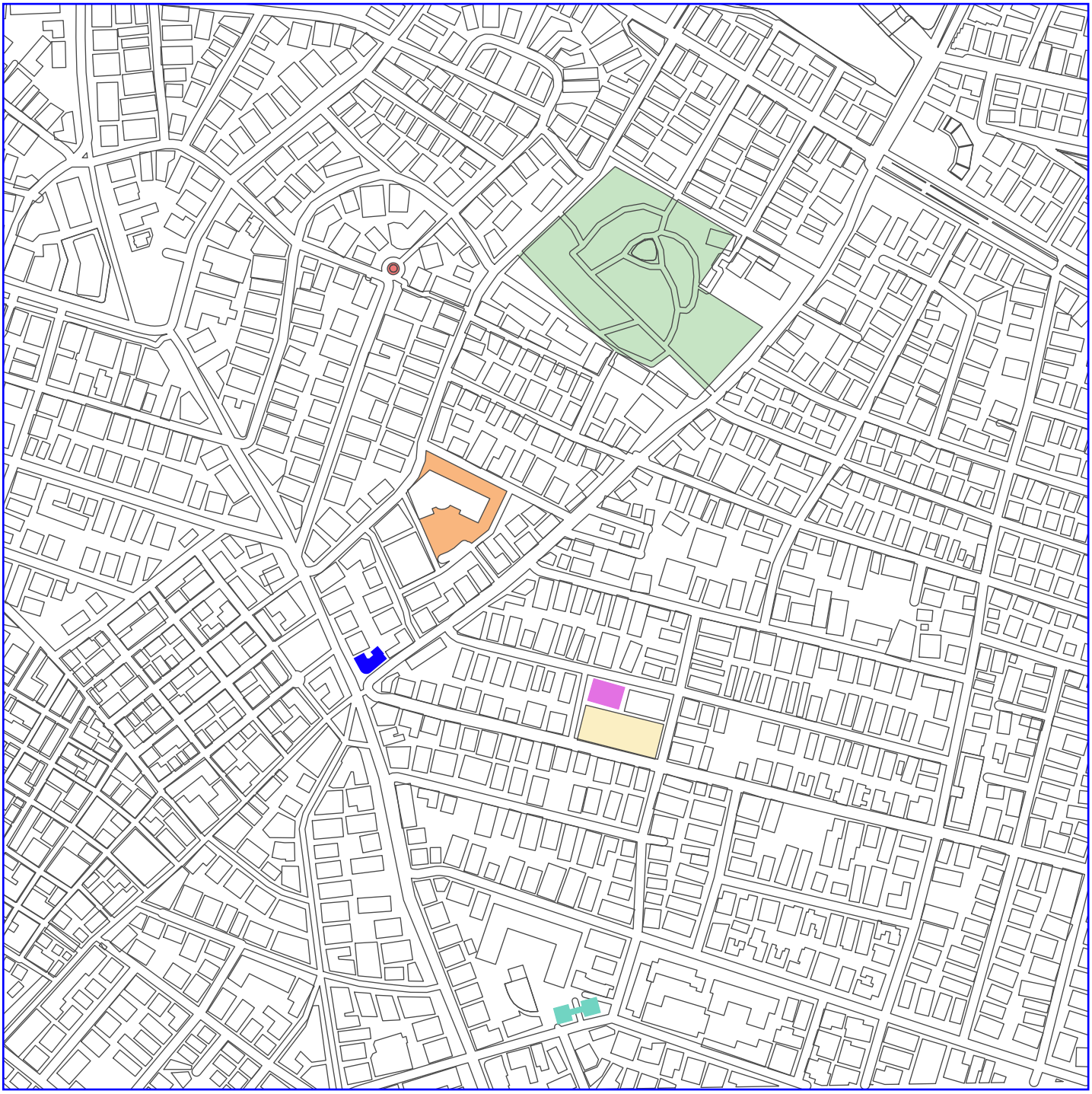


Fig.A.4 - Public spaces/facilities around project site.

Project site - Allenby St 49 / King George St 1, Tel Aviv

Bialik Square

Tami House Community Center

Bezalel Square

Mazeh 9 Youth Center

Meir Garden

Sheinkin Garden

N

Scale 1:5000

0 62.5 125 250 m

A.2: *Floor Plans Temporal Comparison*

Fig.A.5 - Floor plans, phase 'eclectic 1', ca. 1922.

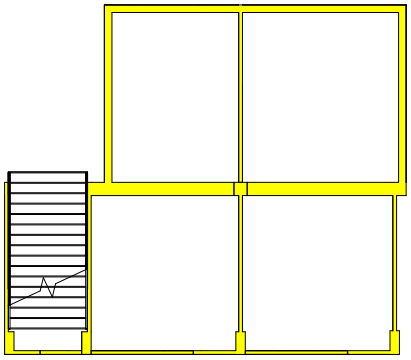


Fig.A.5.1 - Bottom floor (-0.60m)

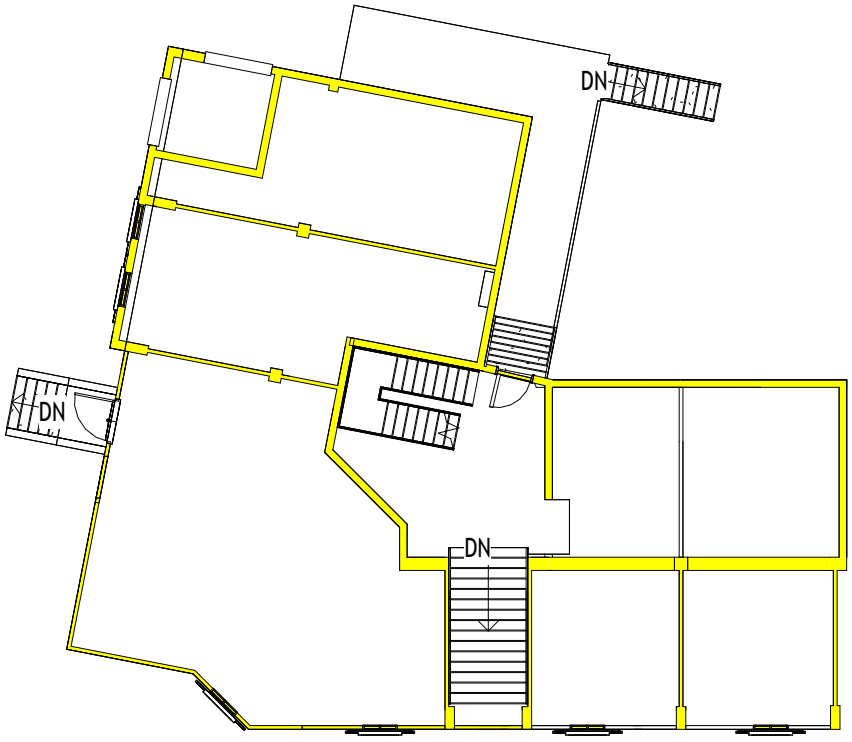


Fig.A.5.2 - Ground floor (+-0.00m)

LEGEND

Demolition New construction Existing

Scale 1:200

0 2.5 5 10 m

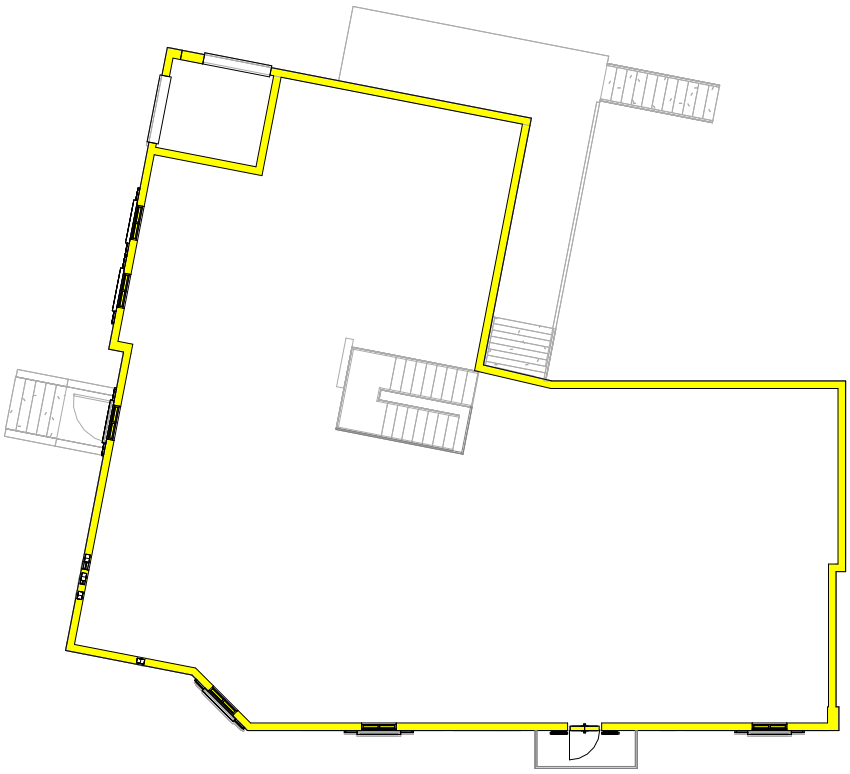


Fig.A.5.3 - First floor (+5.73m)

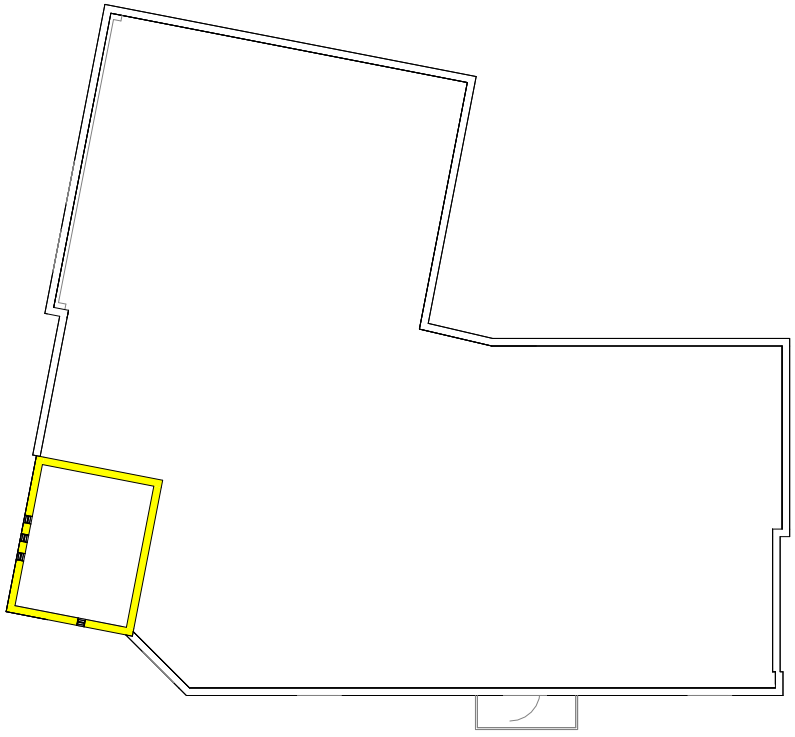


Fig.A.5.4 - Roof floor (+8.93m)

Scale 1:200

0 2.5 5 10 m

Fig.A.6 - Floor plans, phase 'eclectic 2', ca. 1930.

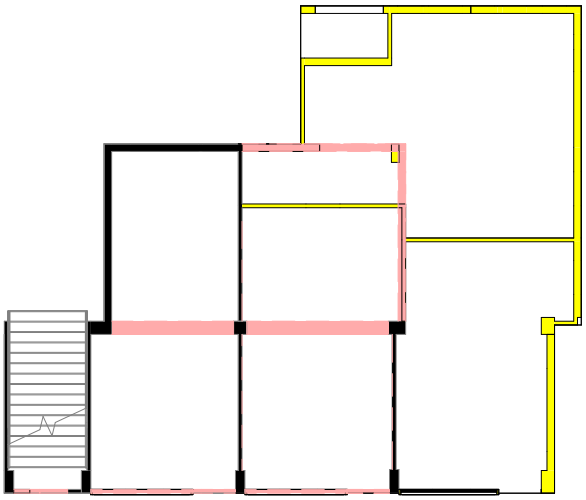


Fig.A.6.1 - Bottom floor (-0.60m)

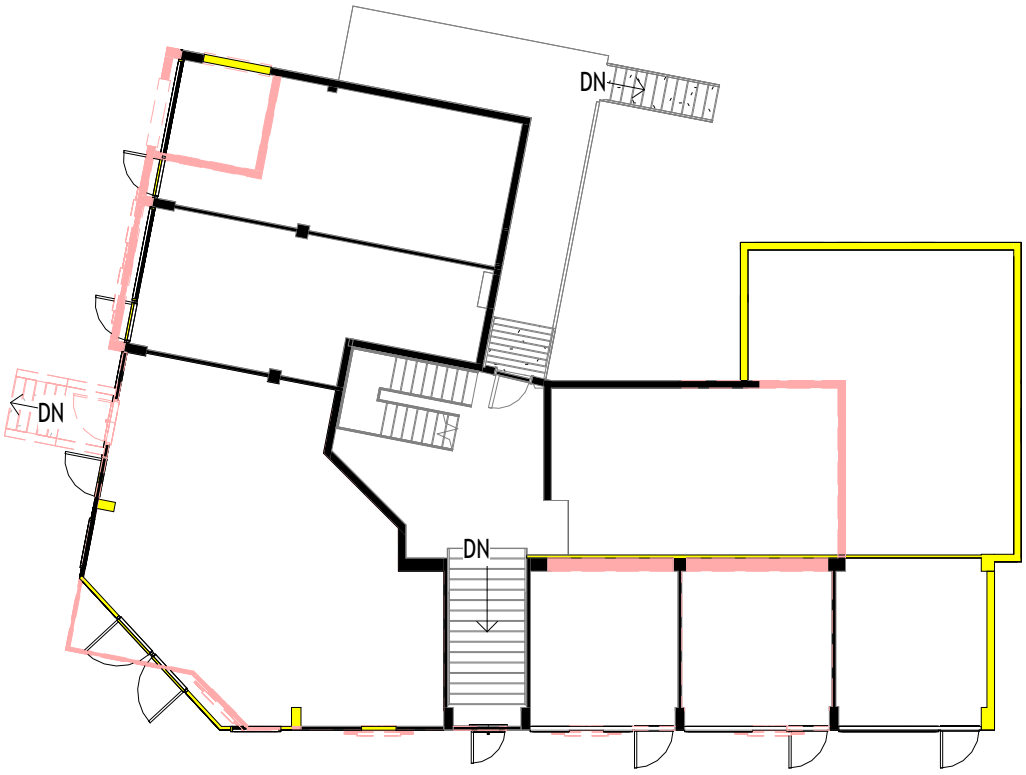


Fig.A.6.2 - Ground floor (+-0.00m)

LEGEND

Demolition

New construction

Existing

Scale 1:200

0 2.5 5 10 m

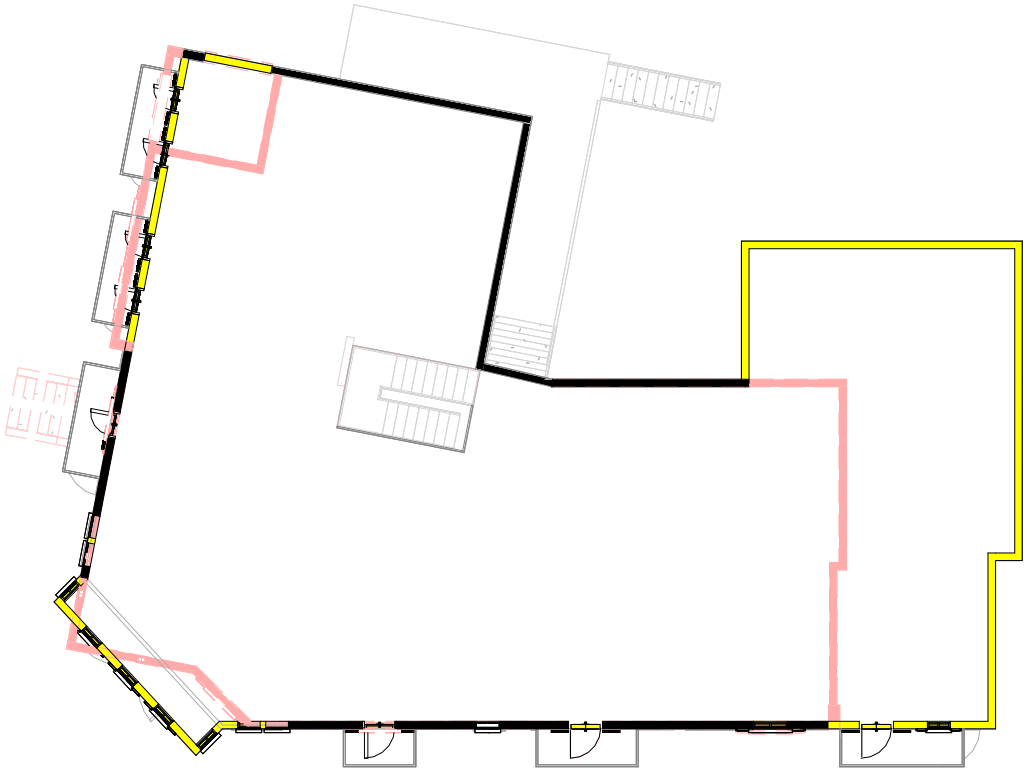


Fig.A.6.3 - First floor (+5.73m)

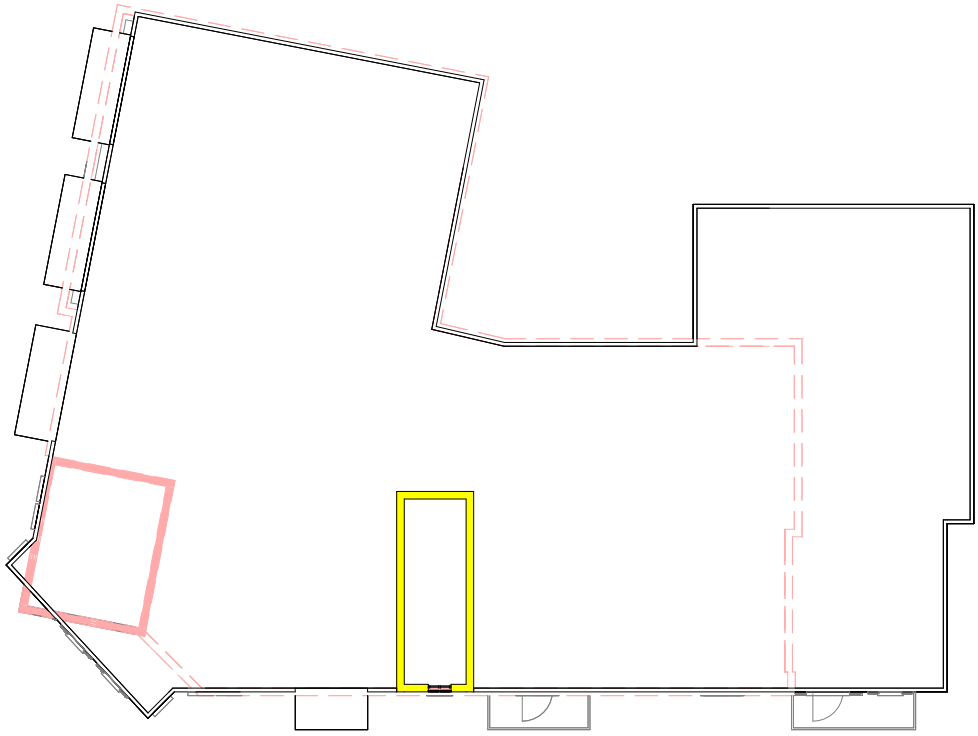


Fig.A.6.4 - Roof floor (+8.93m)

Scale 1:200

0 2.5 5 10 m

Fig.A.7 - Floor plans, phase 'bauhaus 1', ca. 1937.

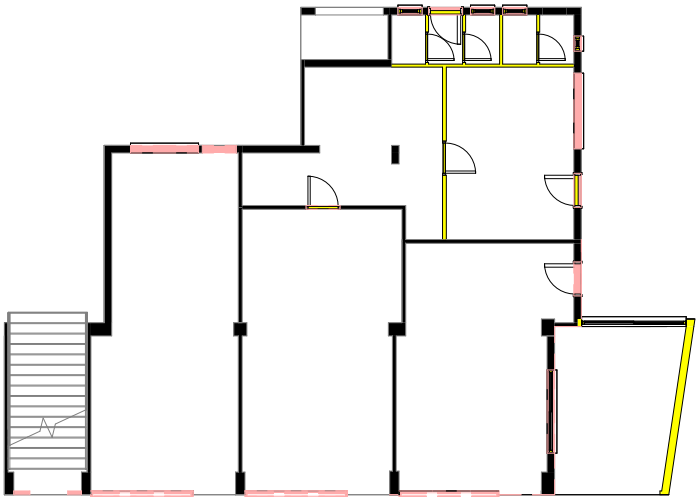


Fig.A.7.1 - Bottom floor (-0.60m)

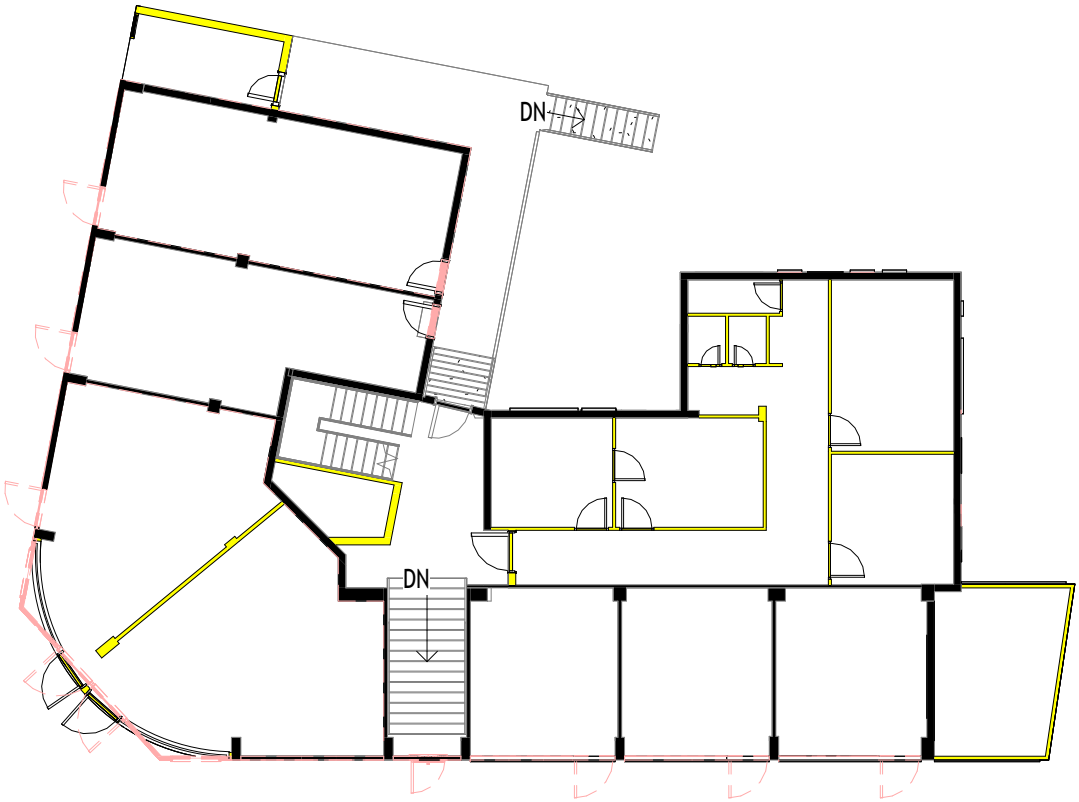


Fig.A.7.2 - Ground floor (+-0.00m)

LEGEND

Demolition New construction Existing

Scale 1:200

0 2.5 5 10 m

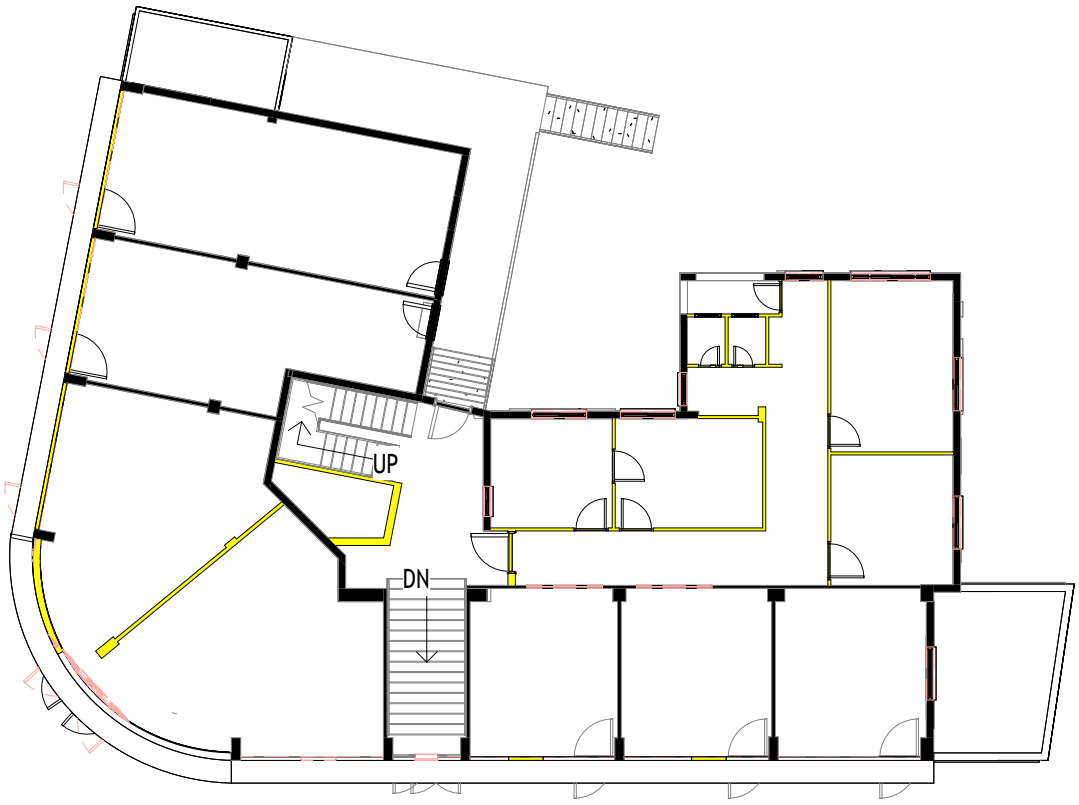


Fig.A.7.3 - Mezzanino floor (+2.73m)

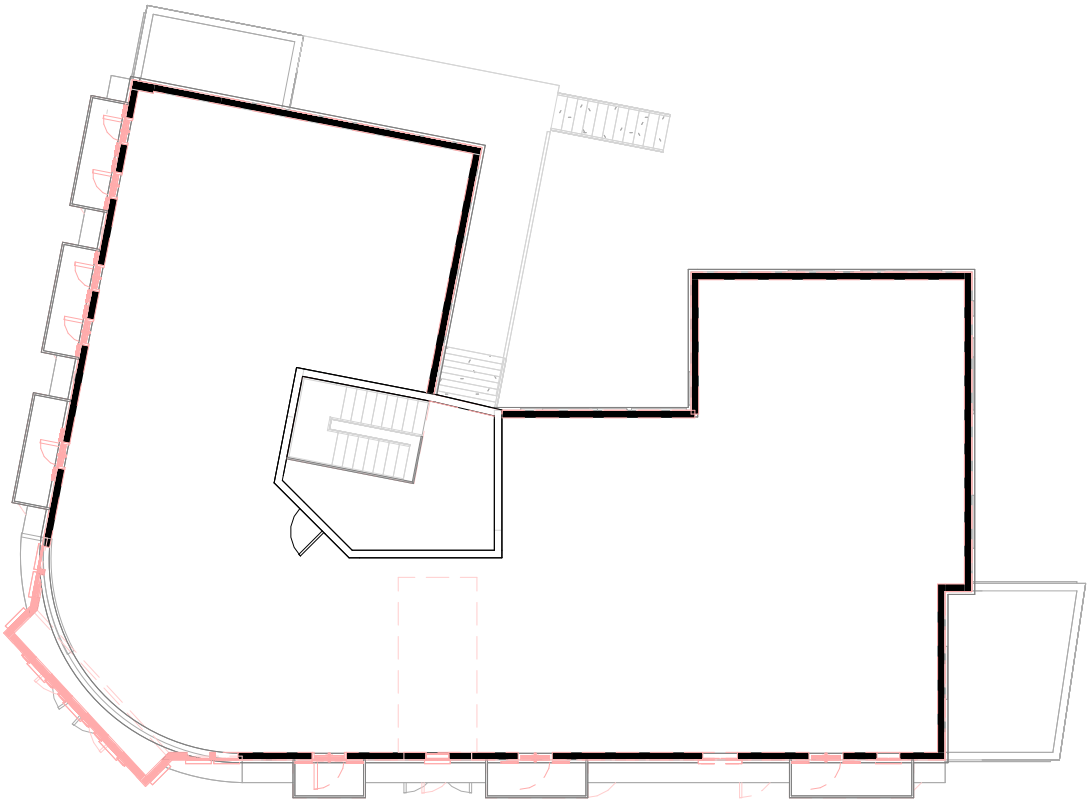


Fig.A.7.4 - Roof floor (+5.73m)

Scale 1:200

0 2.5 5 10 m

Fig.A.8 - Floor plans, phase ‘bauhaus 2’, n.d.

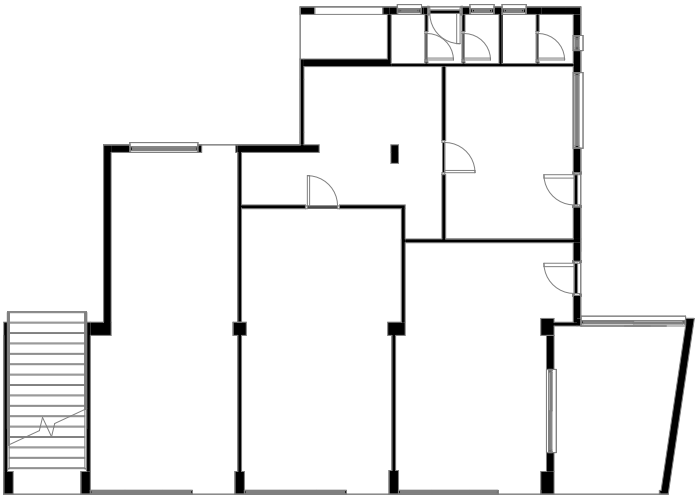


Fig.A.8.1 - Bottom floor (-0.60m)

Fig.A.8.2 - Ground floor (+-0.00m)

LEGEND

Demolition

New construction

Existing

Scale 1:200

0 2.5 5 10 m

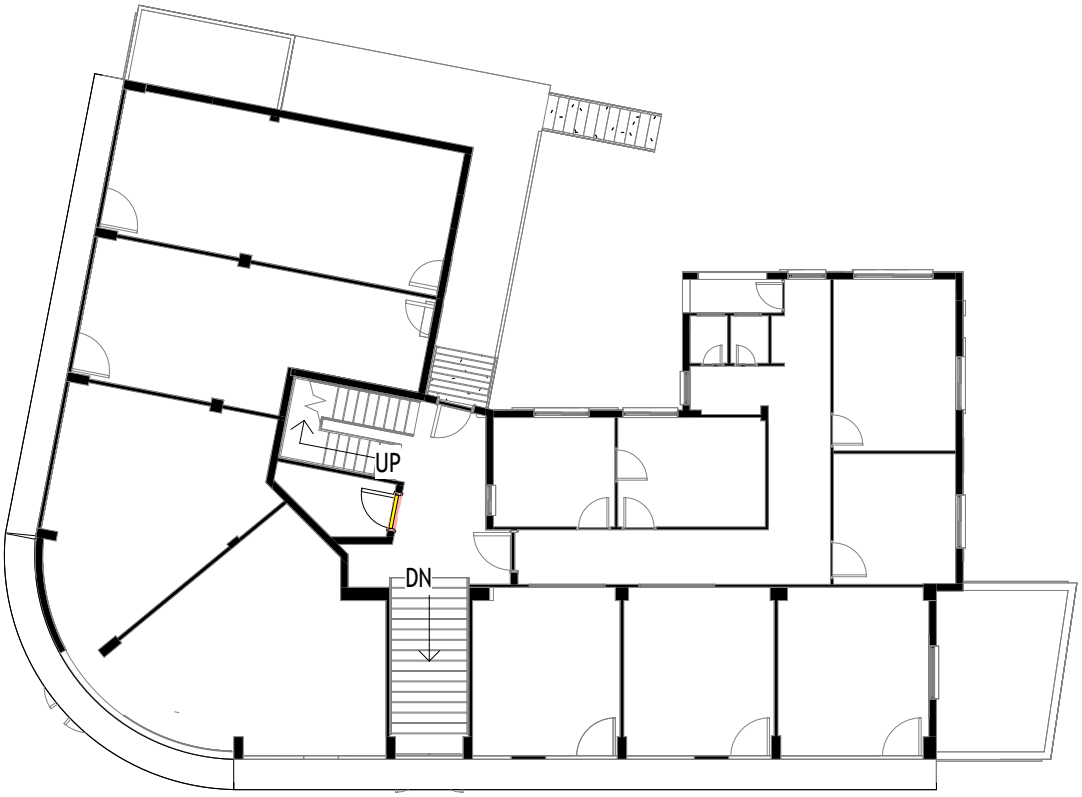


Fig.A.8.3 - Mezzanino floor (+2.73m)

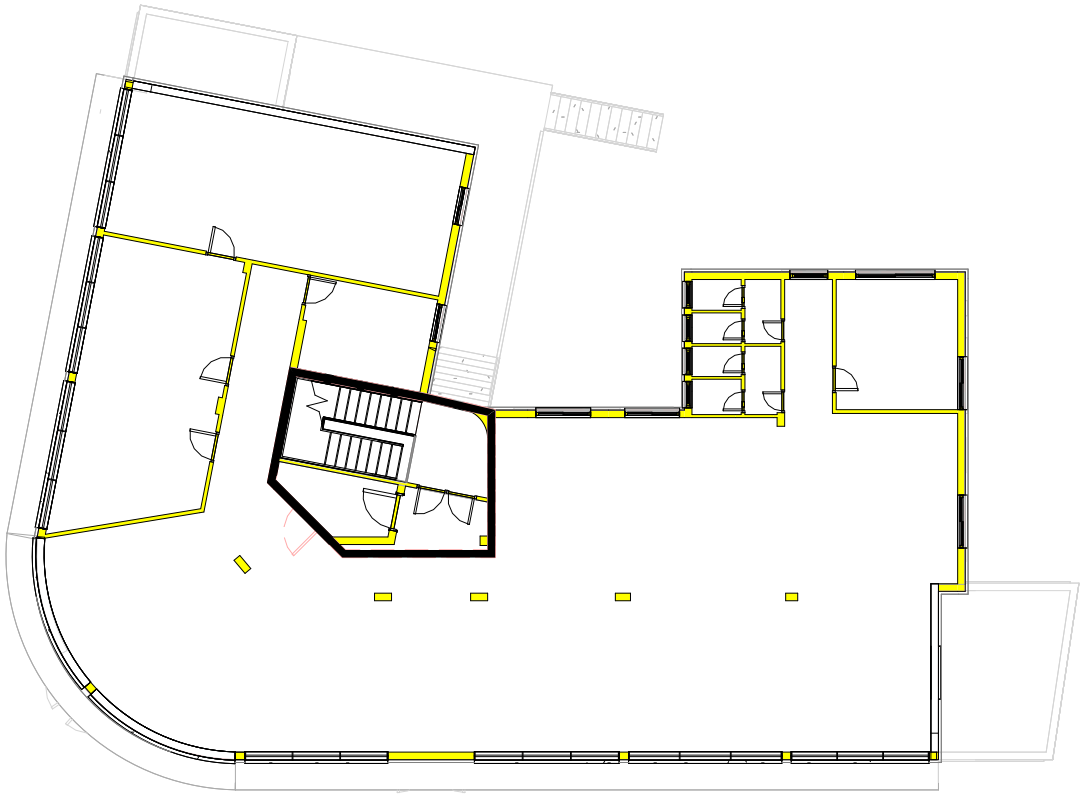


Fig.A.8.4 - First floor (+5.73m)

Scale 1:200

0 2.5 5 10 m

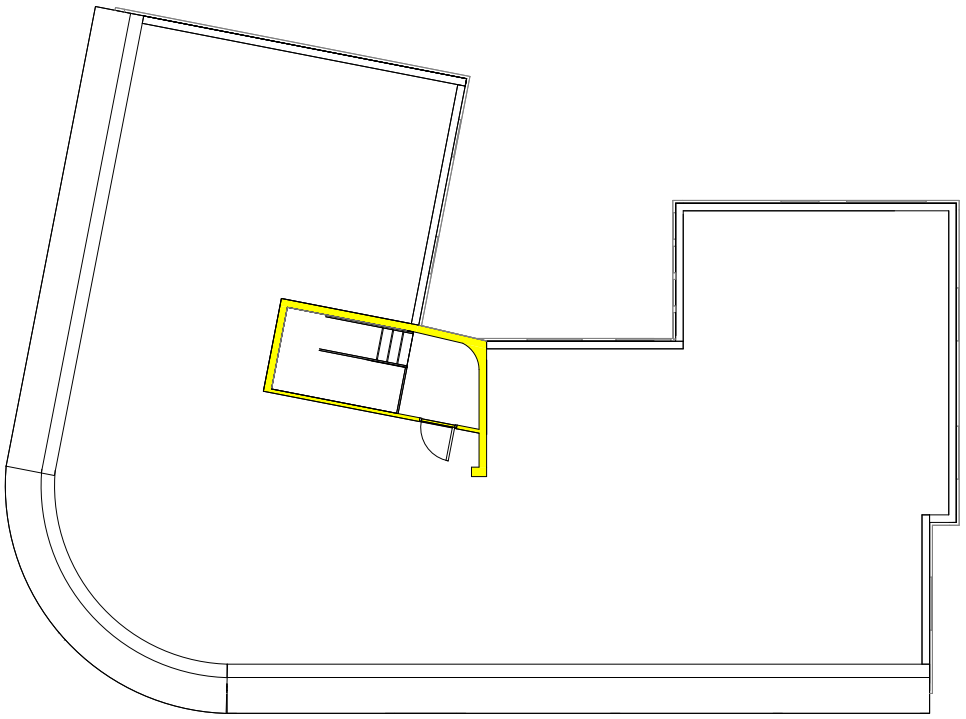


Fig.A.8.5 - Roof floor (+8.93m)

LEGEND

Demolition New construction Existing

Scale 1:200

0 2.5 5 10 m

Fig.A.9 - Floor plans, phase 'bauhaus 3', ca. 1940.

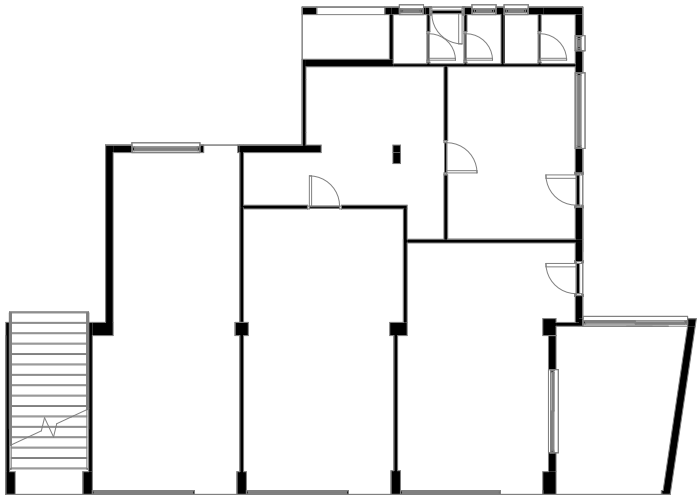


Fig.A.9.1 - Bottom floor (-0.60m)

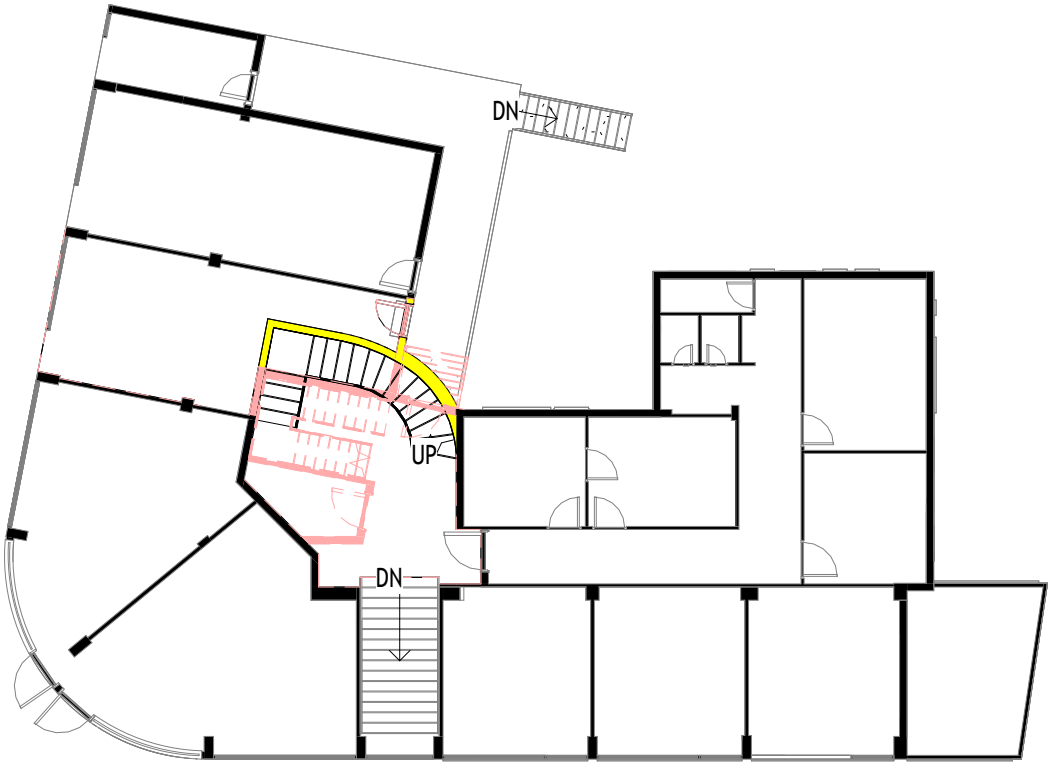


Fig.A.9.2 - Ground floor (+-0.00m)

Scale 1:200

0 2.5 5 10 m

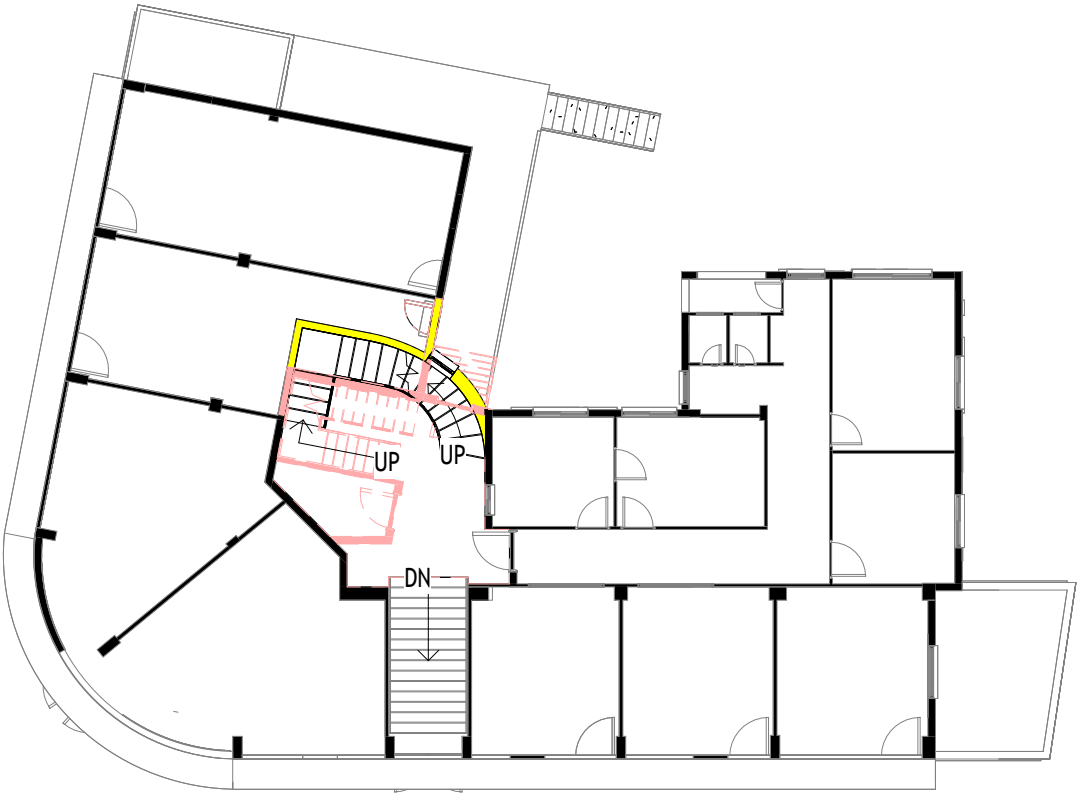


Fig.A.9.3 - Mezzanino floor (+2.73m)

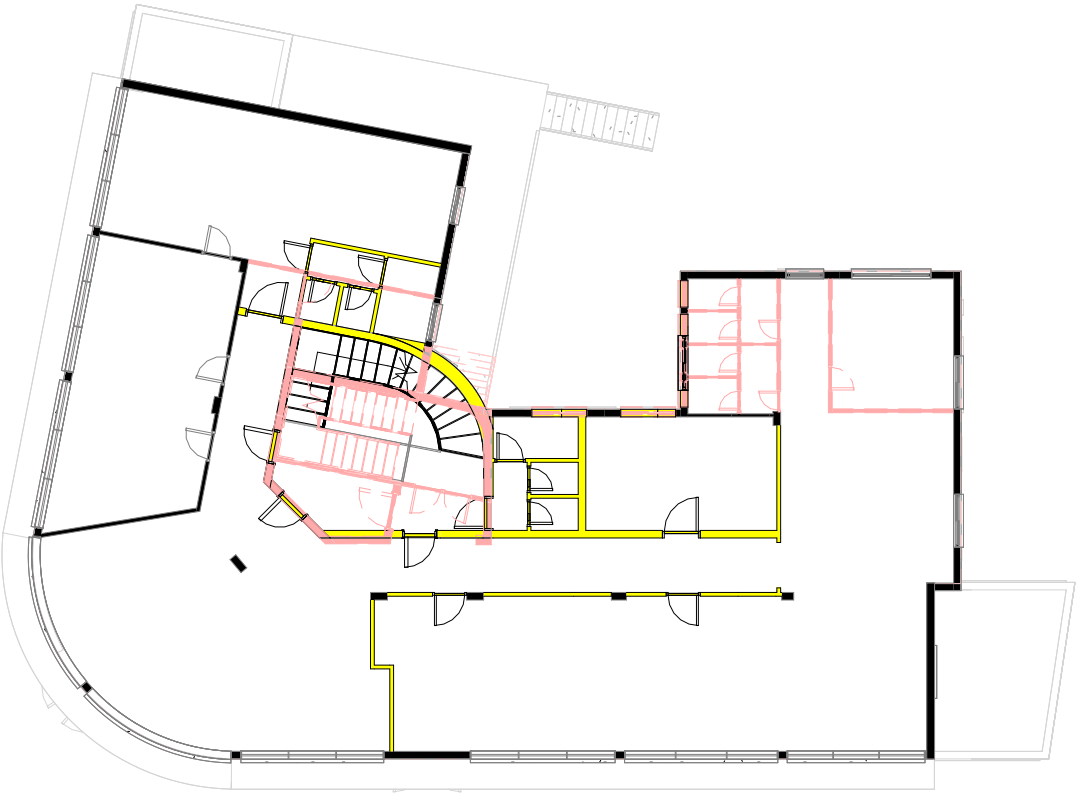


Fig.A.9.4 - First floor (+5.73m)

LEGEND

Demolition

New construction

Existing

Scale 1:200

0 2.5 5 10 m

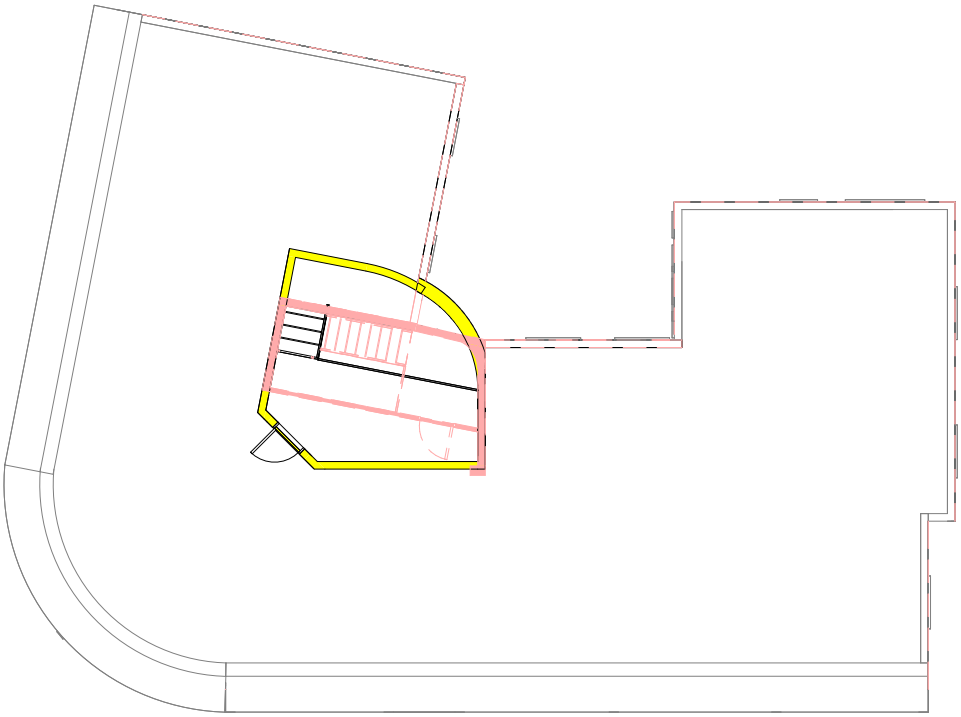


Fig.A.9.5 - Roof floor (+8.93m)

Scale 1:200

0 2.5 5 10 m

Fig.A.10 - Floor plans, phase ‘bauhaus 4’, n.d.

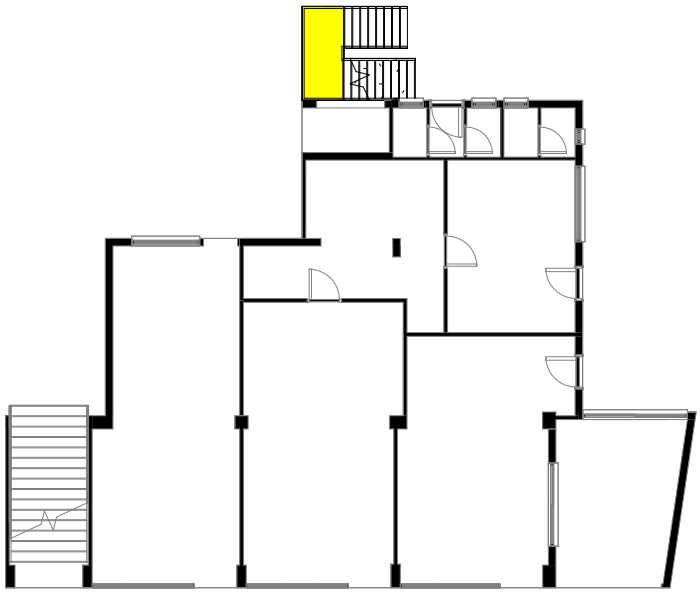


Fig.A.10.1 - Bottom floor (-0.60m)

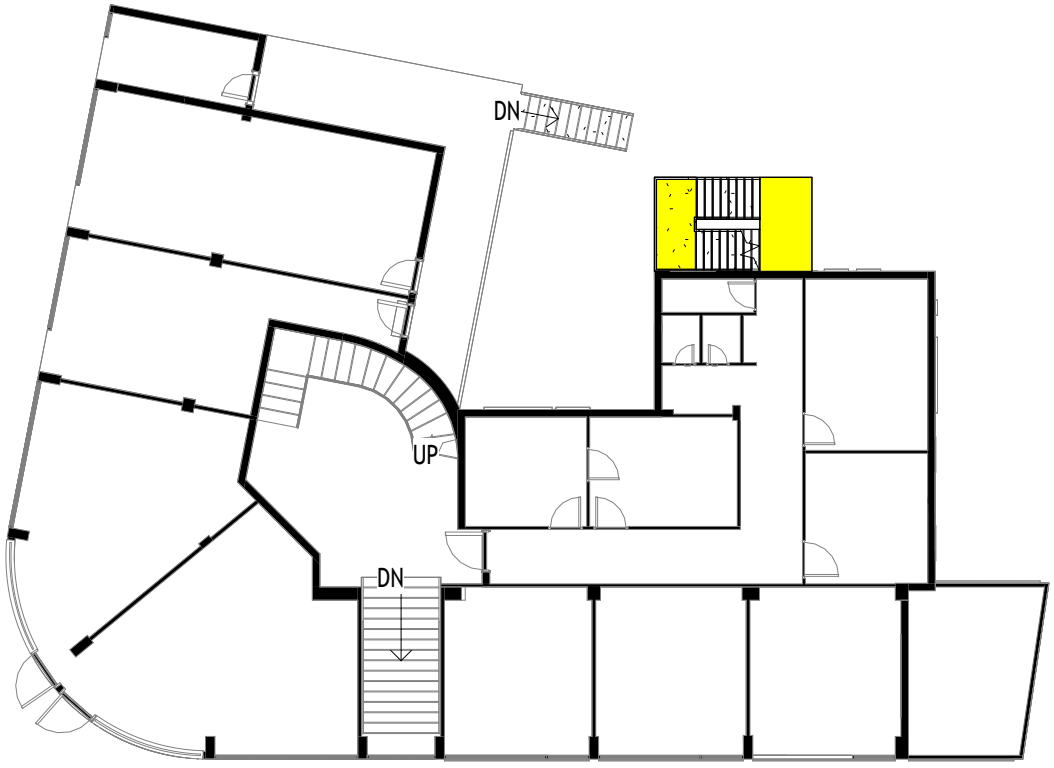


Fig.A.10.2 - Ground floor (+-0.00m)

LEGEND

Demolition

New construction

Existing

Scale 1:200

0 2.5 5 10 m

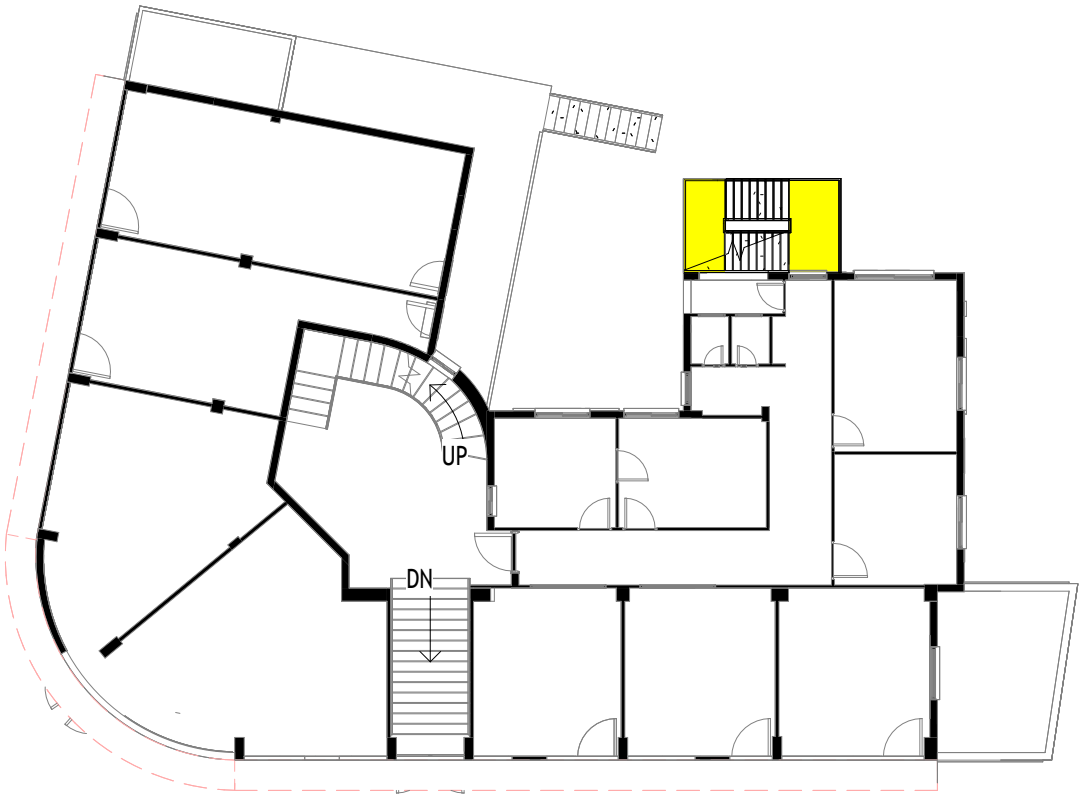


Fig.A.10.3 - Mezzanino floor (+2.73m)

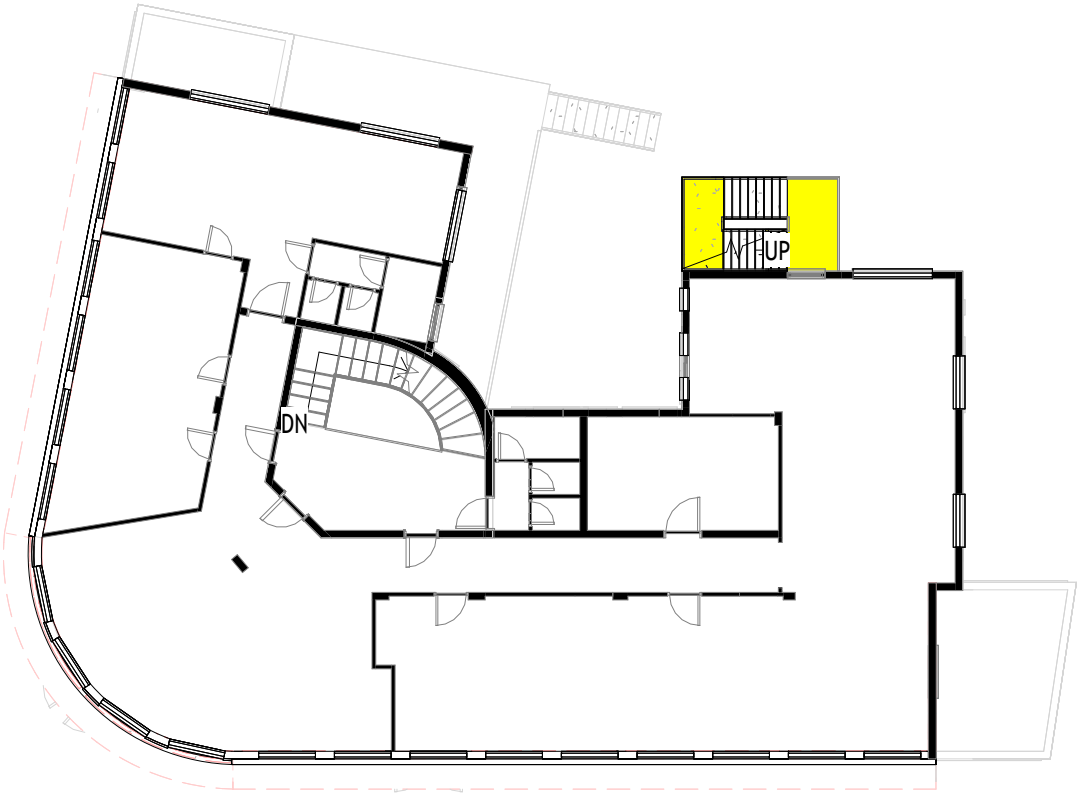


Fig.A.10.4 - First floor (+5.73m)

Scale 1:200

0 2.5 5 10 m

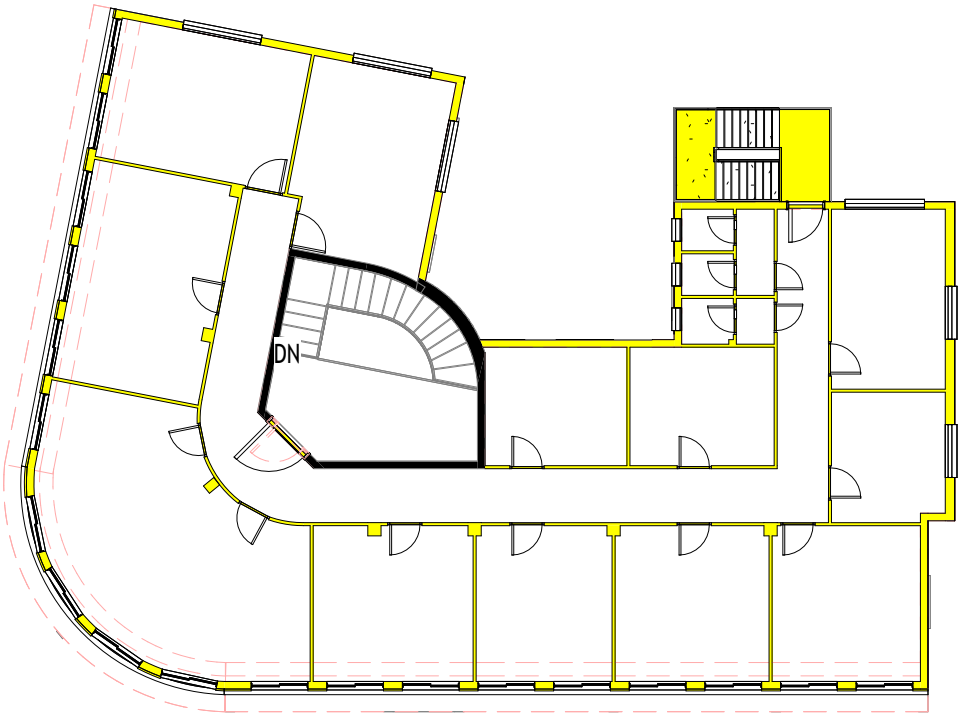


Fig.A.10.5 - Second floor (+8.93m)

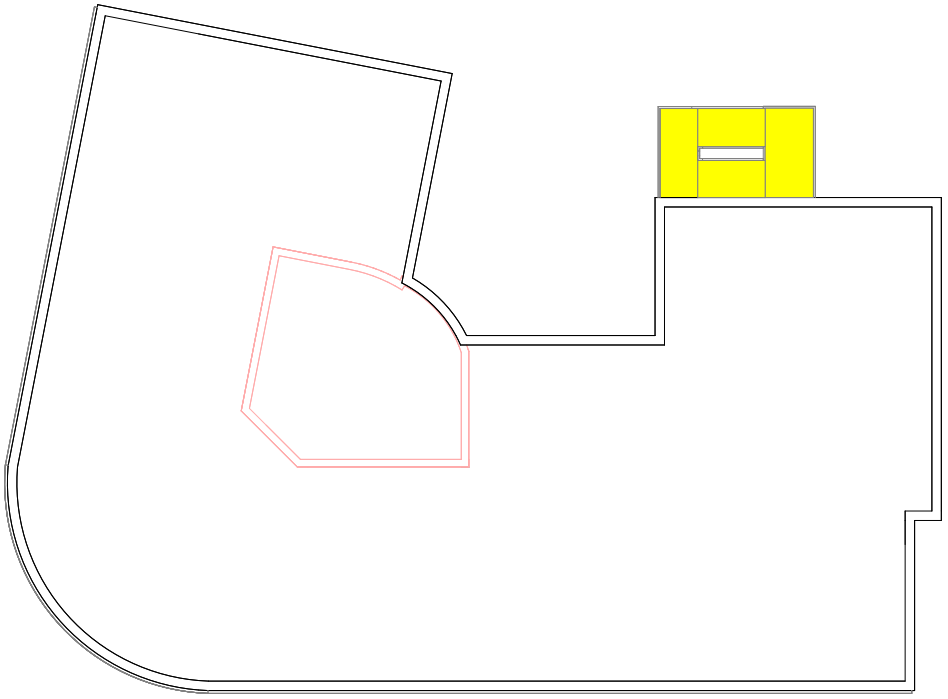


Fig.A.10.6 - Roof floor (+11.93m)

LEGEND

Demolition New construction Existing

Scale 1:200

0 2.5 5 10 m

Fig.A.11 - Floor plans, phase 'bauhaus 5', n.d.

Fig.A.11.1 - Bottom floor (-0.60m)

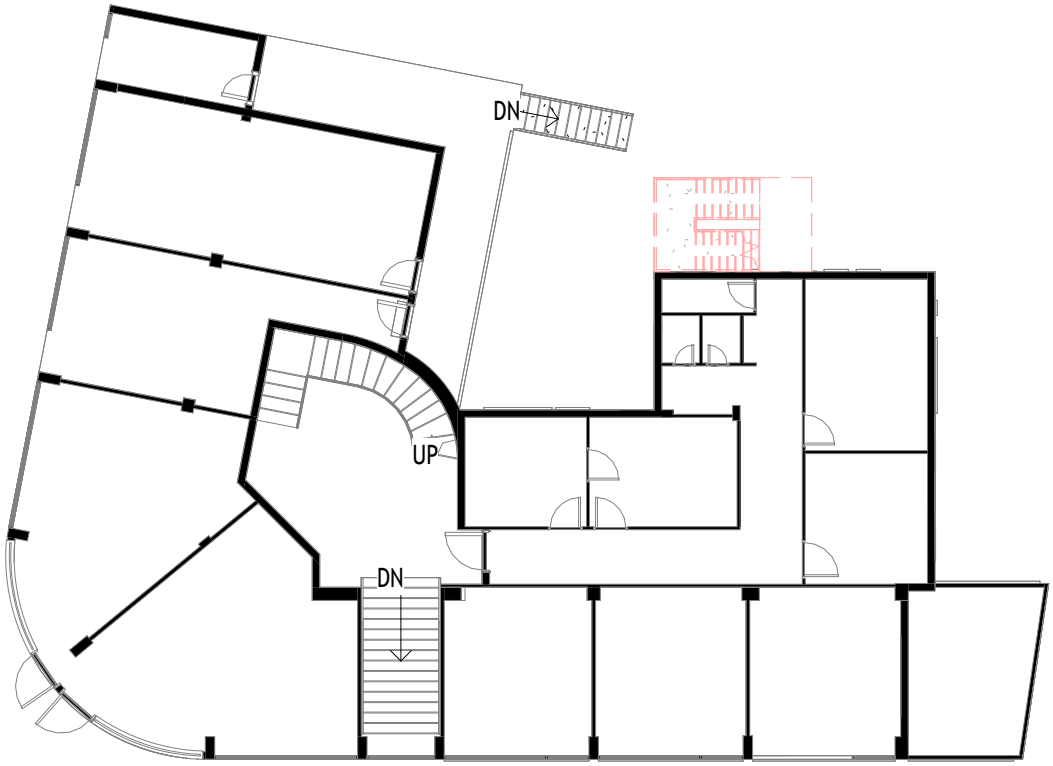


Fig.A.11.2 - Ground floor (+-0.00m)

Scale 1:200

0 2.5 5 10 m

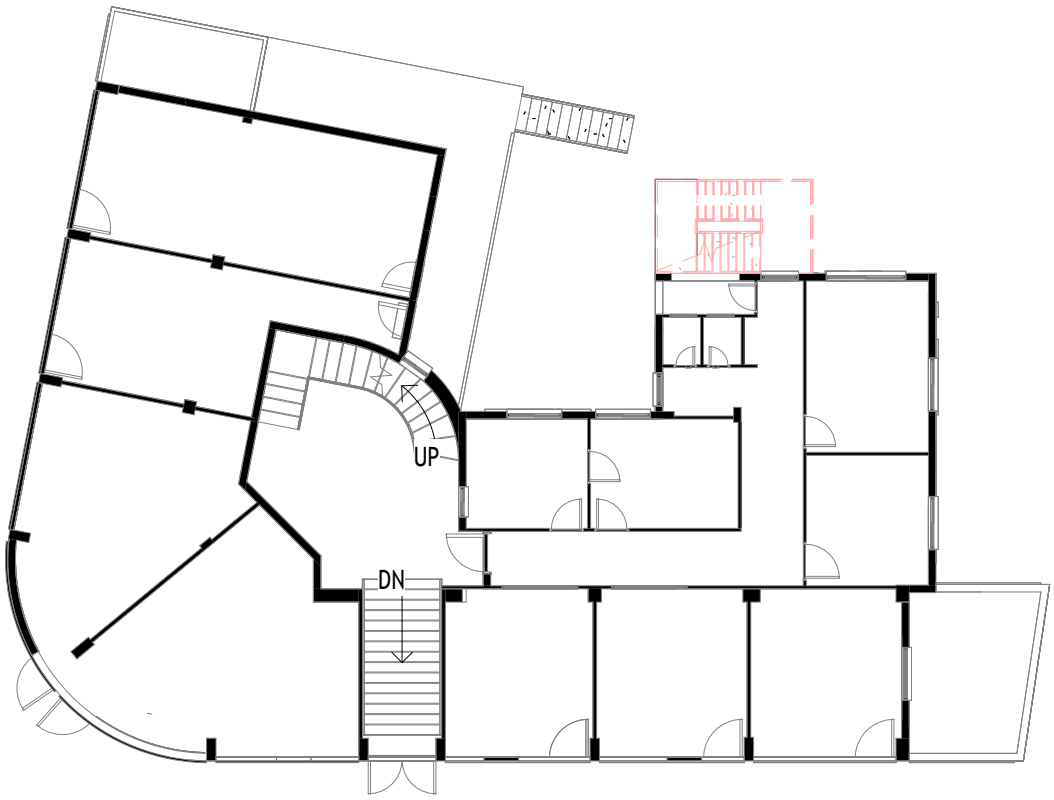


Fig.A.11.3 - Mezzanino floor (+2.73m)

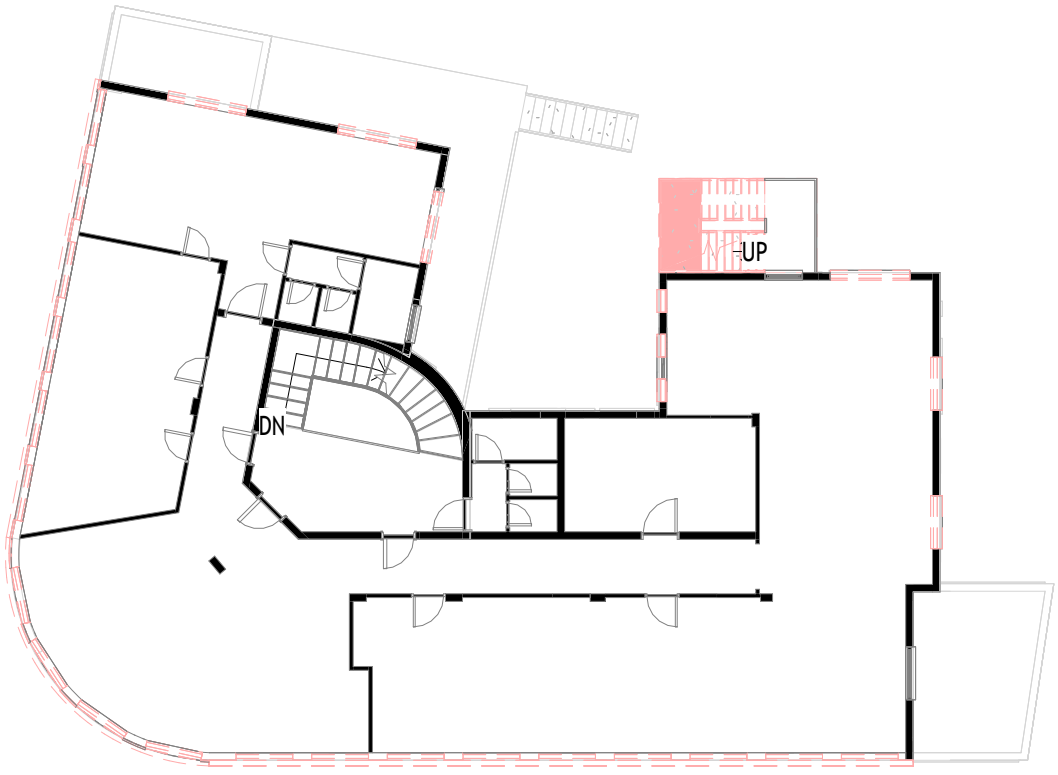


Fig.A.11.4 - First floor (+5.73m)

LEGEND

Demolition New construction Existing

Scale 1:200

0 2.5 5 10 m

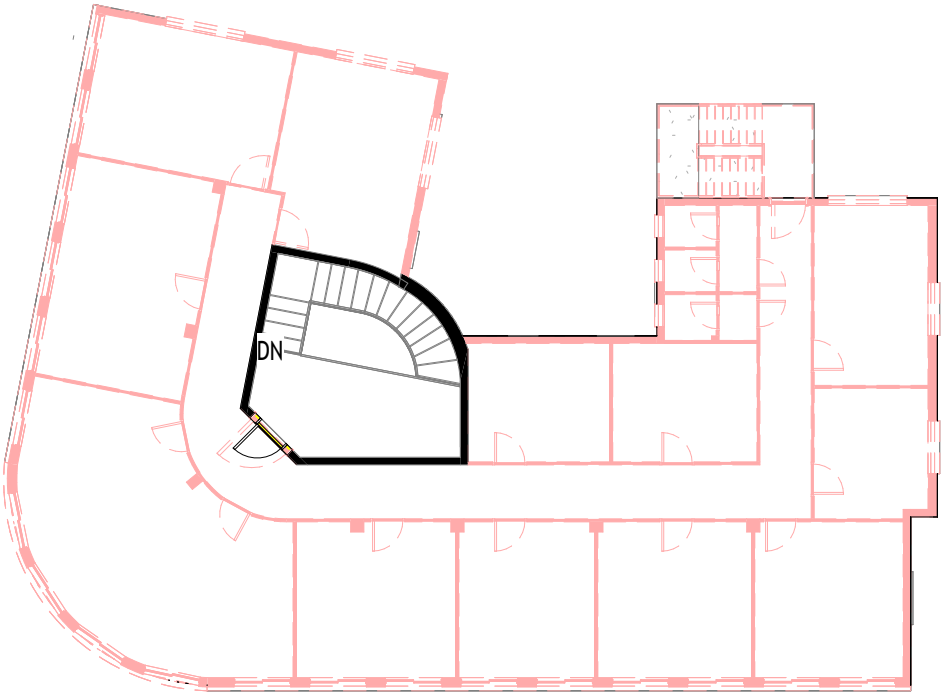


Fig.A.11.5 - Roof floor (+8.93m)

Scale 1:200

0 2.5 5 10 m

Figure A.12. Floor plans, existing state.

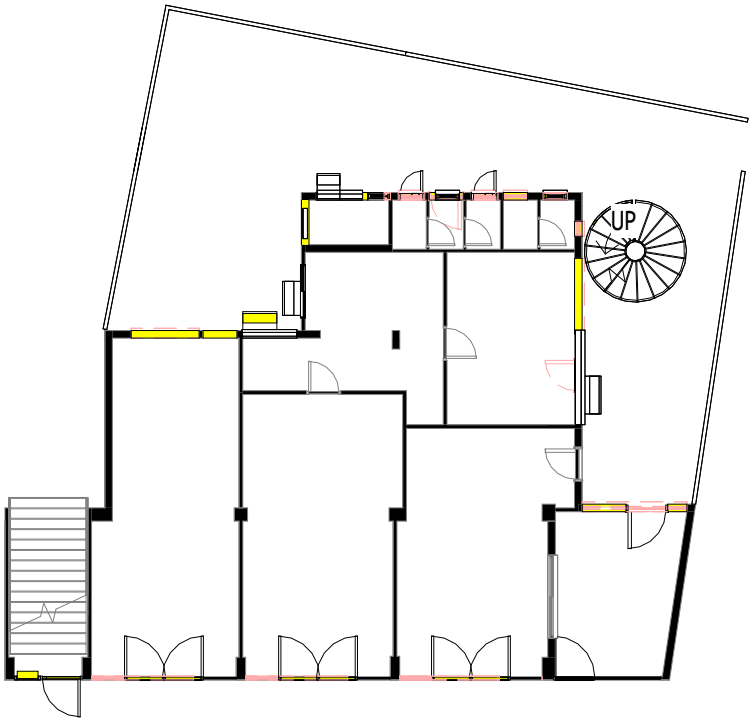


Fig.A.12.1 - Bottom floor (-0.60m)

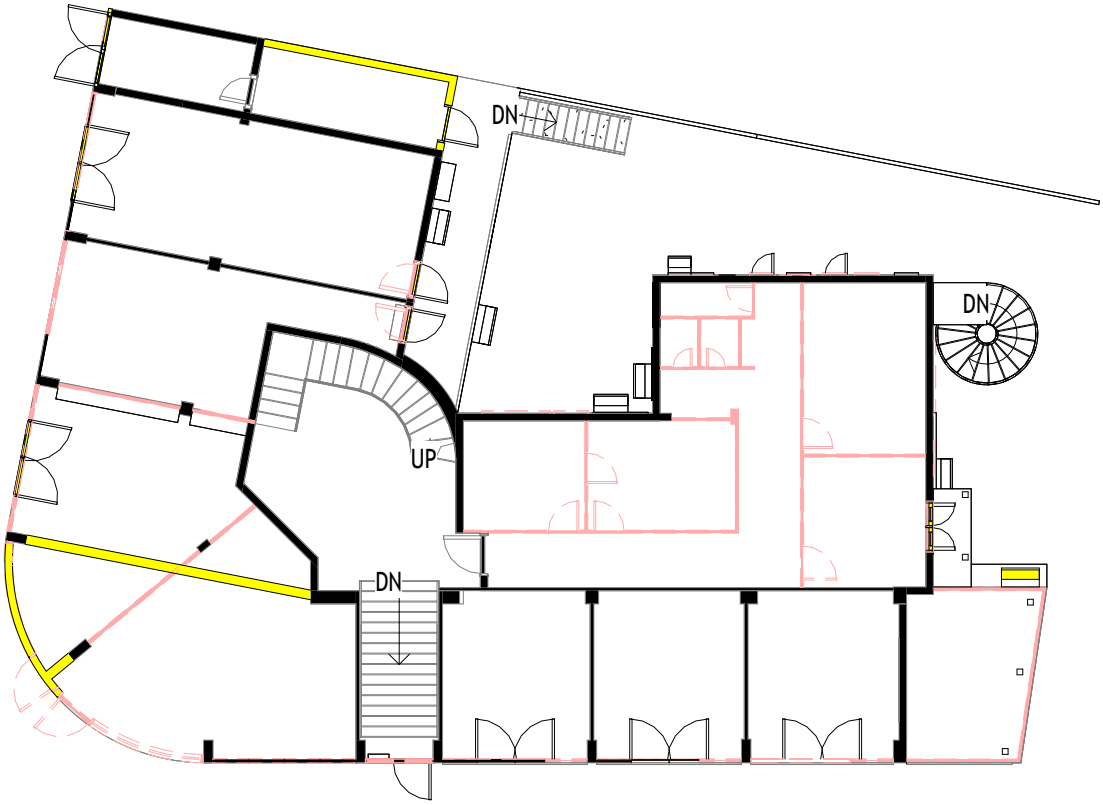


Fig.X.12.2 - Ground floor (+-0.00m)

LEGEND

Demolition

New construction

Existing

Scale 1:200

0 2.5 5 10 m

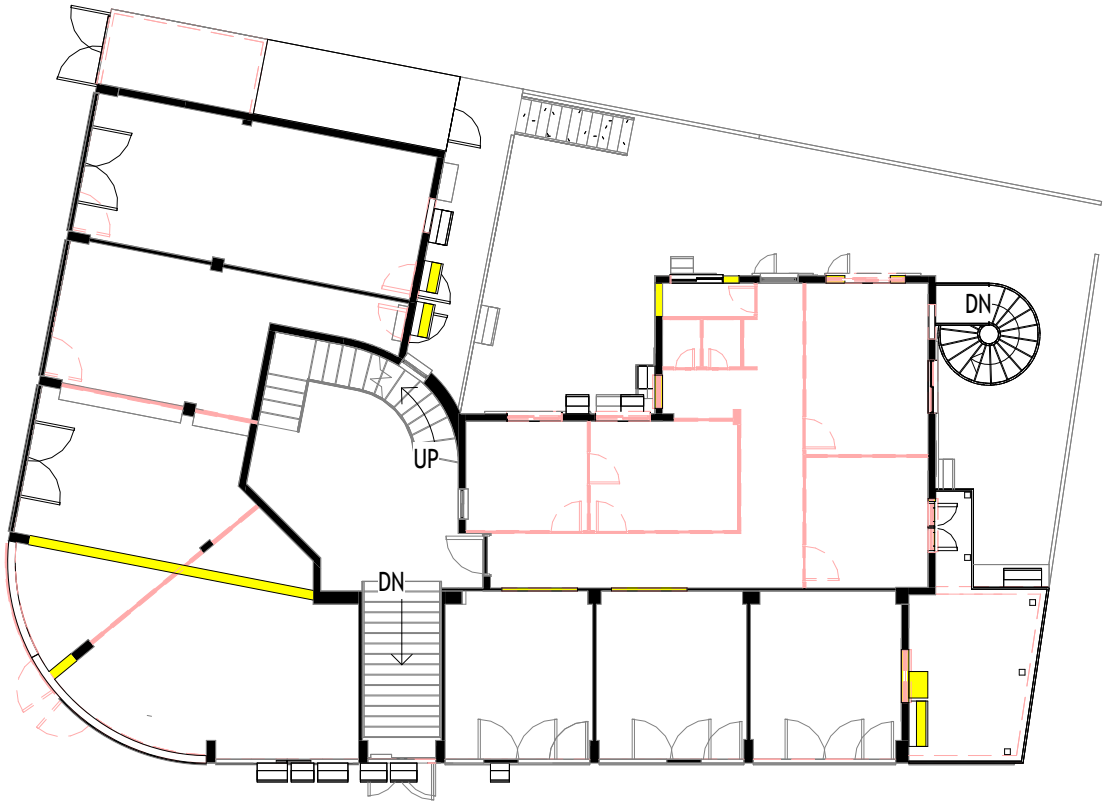


Fig.A.12.3 - Mezzanino floor (+2.73m)

Fig.A.12.4 - First floor (+5.73m)

Scale 1:200

0 2.5 5 10 m

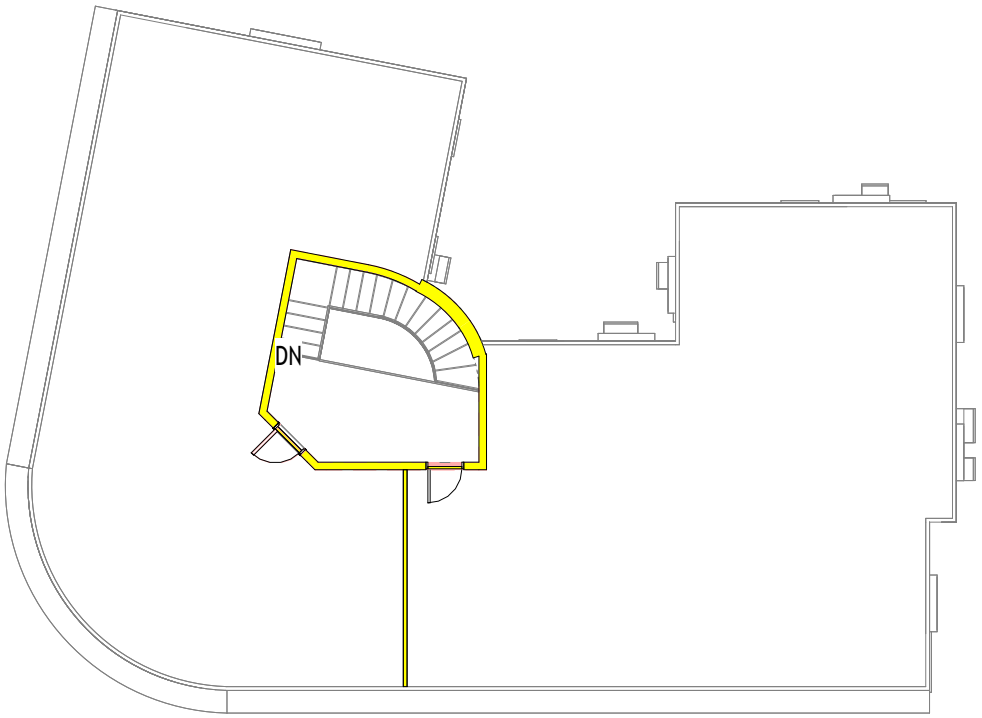


Fig.A.12.5 - Roof floor (+8.93m)

LEGEND

Demolition

New construction

Existing

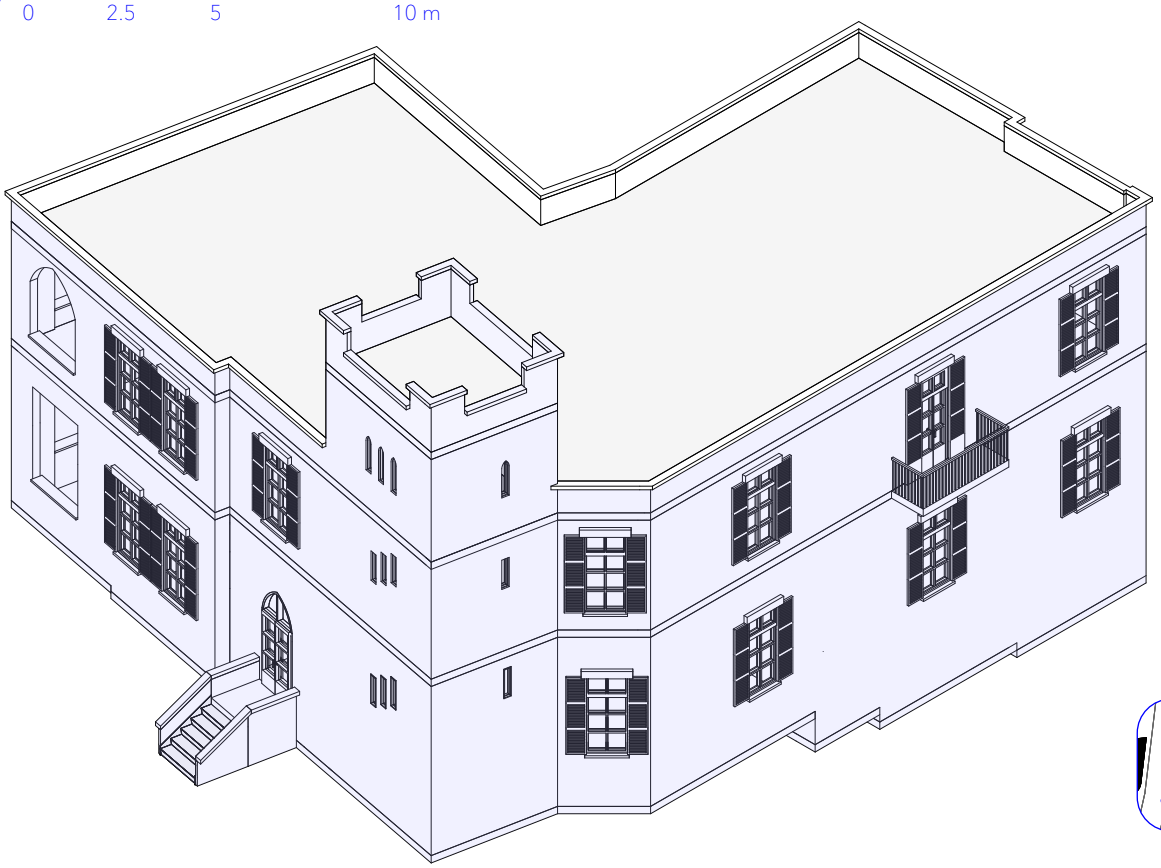
Scale 1:200

0 2.5 5 10 m

A.3: *Axonometric Temporal Comparison*

Scale 1:200

0 2.5 5 10 m



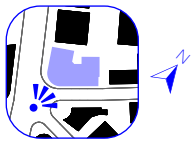


Fig.A.13 - Axonometric view, front, phase 'eclectic 1', ca. 1922.

SOURCES

Photograph Archive

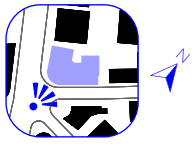


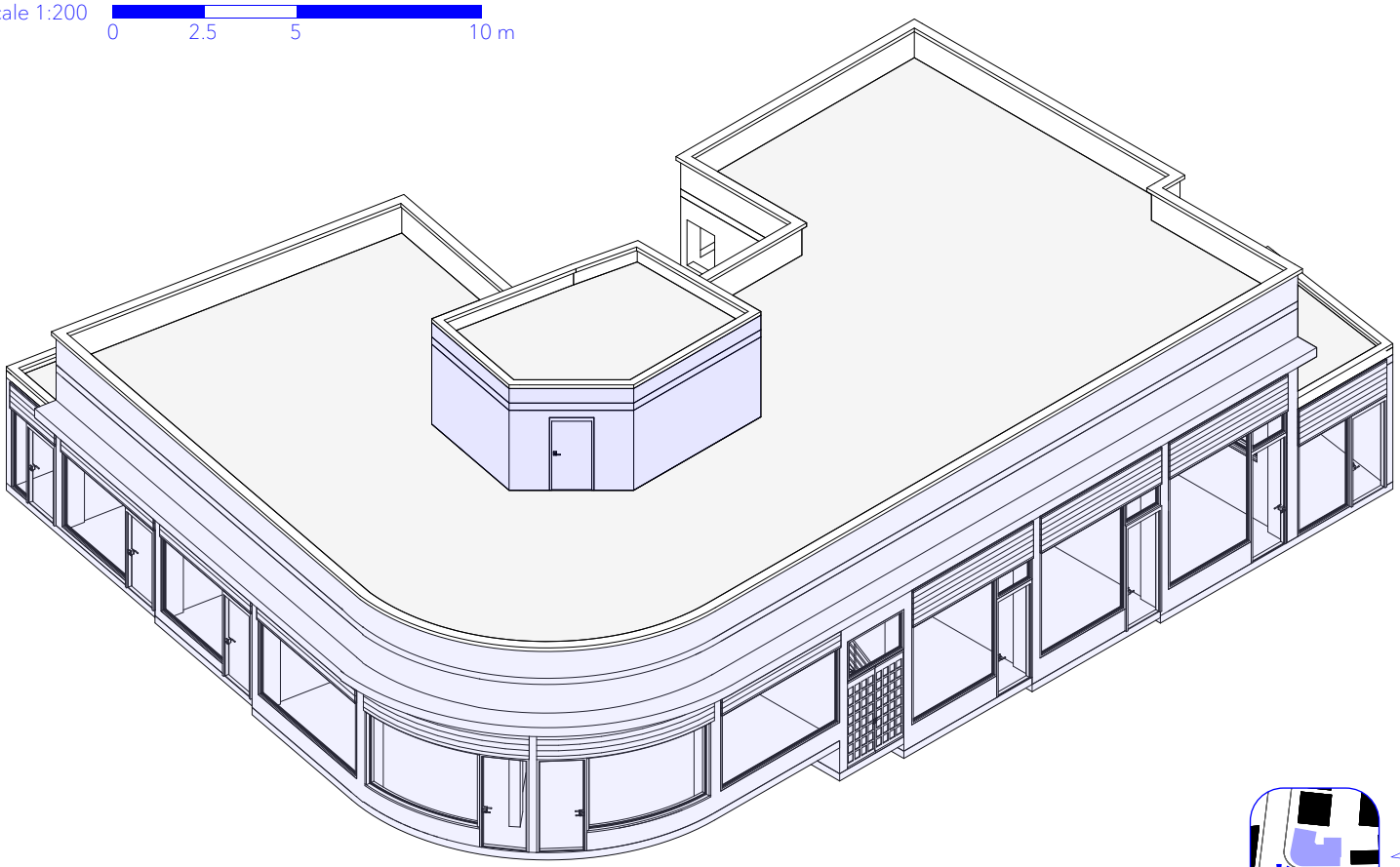
Fig.A.14 - Axonometric view, front, phase 'eclectic 2', ca. 1930.

SOURCES

Archive

Scale 1:200

0 2.5 5 10 m



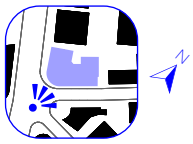


Fig.A.15.1 - Axonometric view, front, phase 'bauhaus 1', ca. 1937.

SOURCES

Photograph Hypothesis Archive

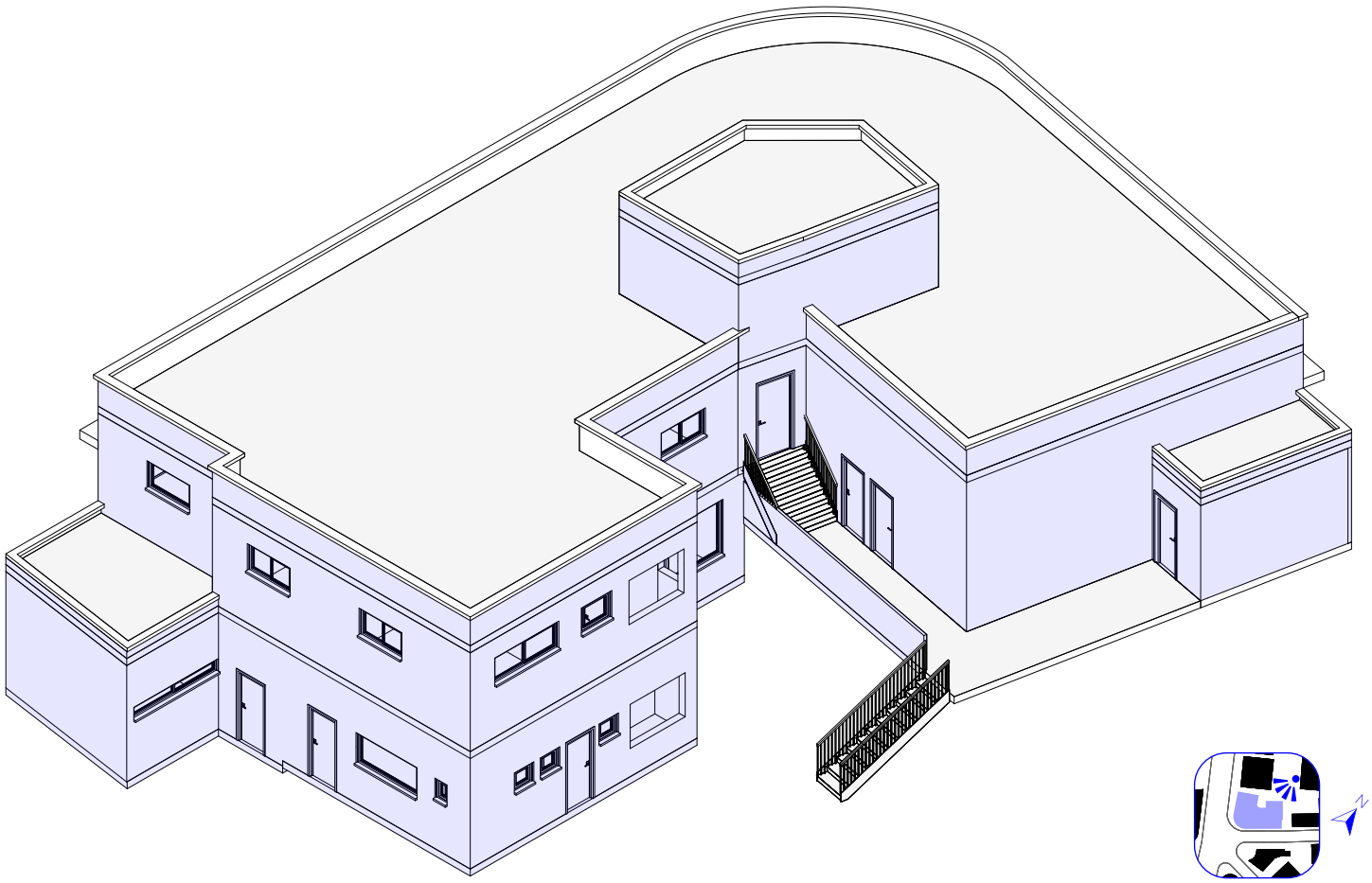


Fig.A.15.2 - Axonometric view, back, phase 'bauhaus 1', ca. 1937.

SOURCES

Hypothesis Archive

Scale 1:200
0 2.5 5 10 m

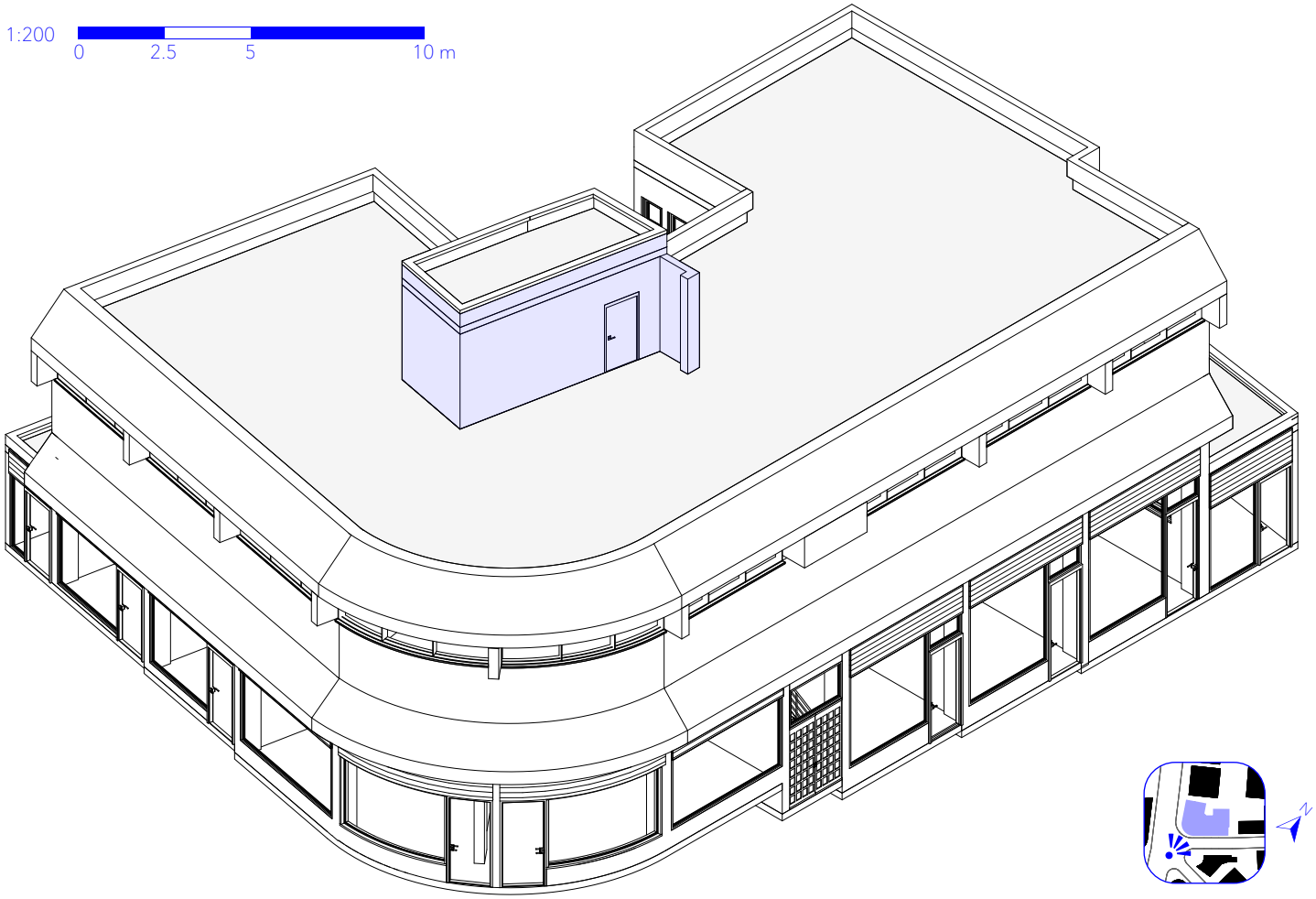


Fig.A.16.1 - Axonometric view, front, phase 'bauhaus 2', n.d.

SOURCES
Hypothesis Archive

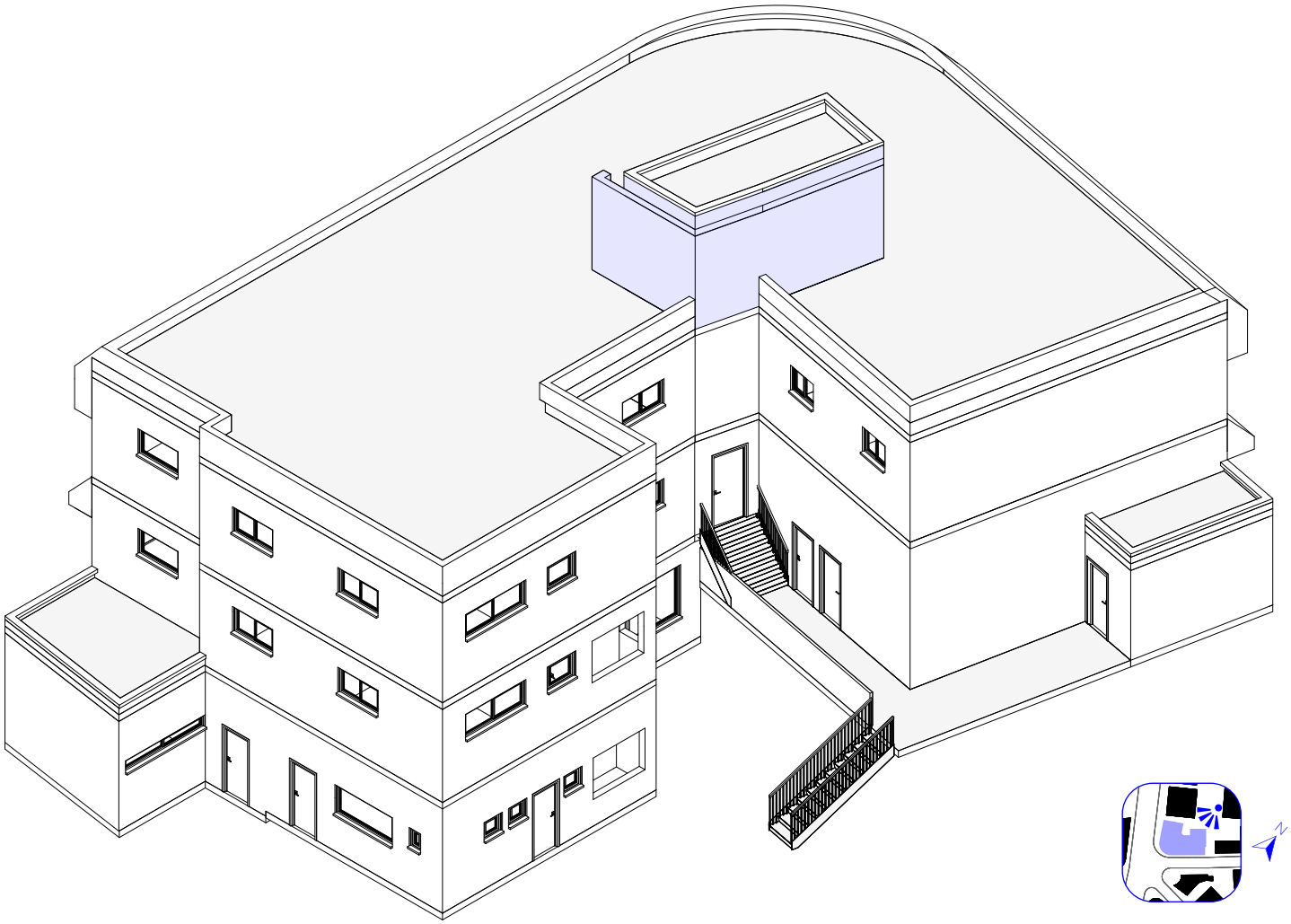


Fig.A.16.2 - Axonometric view, back, phase 'bauhaus 2', n.d.

SOURCES
Hypothesis Archive

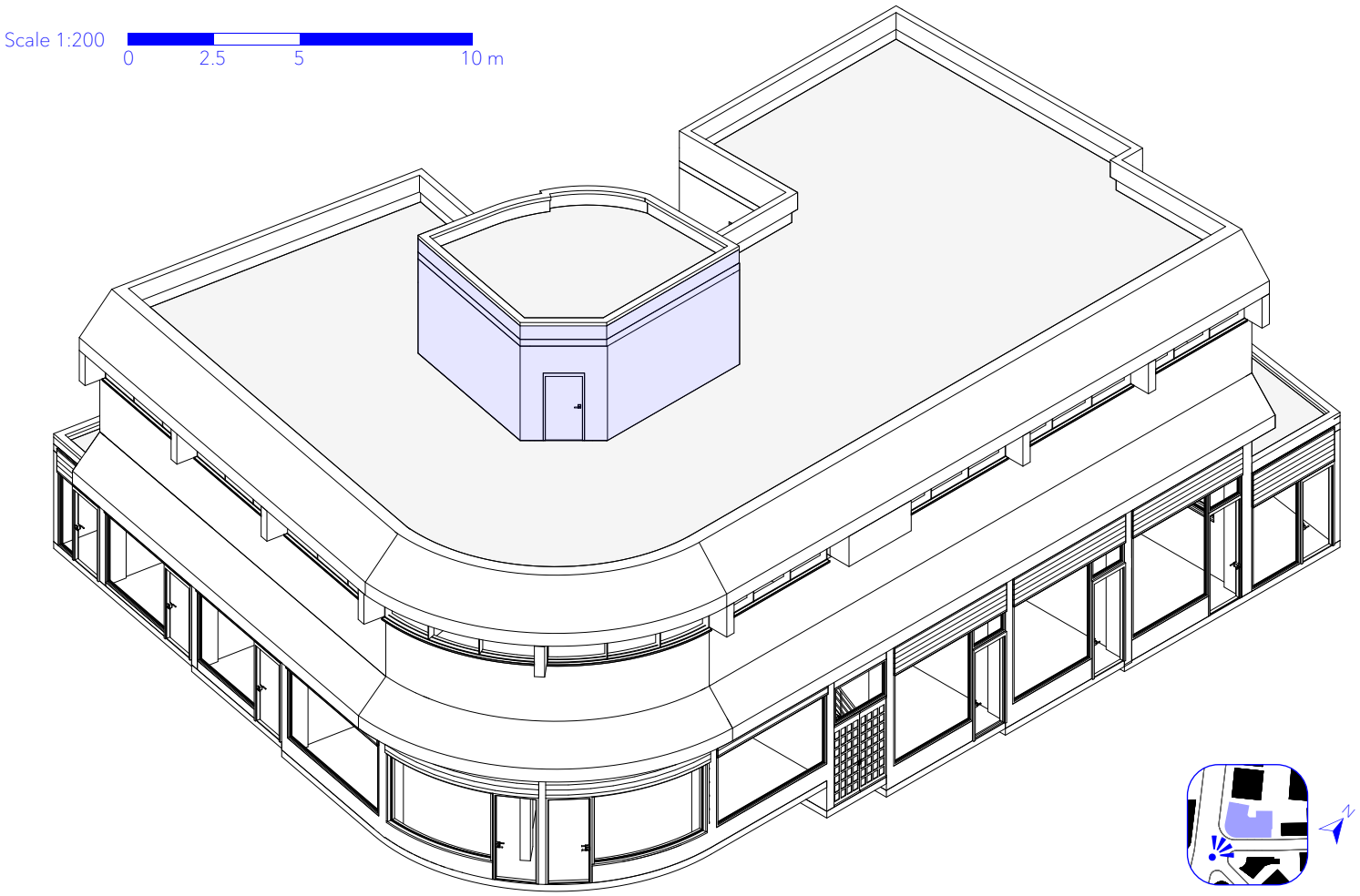


Fig.A.17.1 - Axonometric view, front, phase 'bauhaus 3', ca. 1940.

SOURCES
Hypothesis
Archive

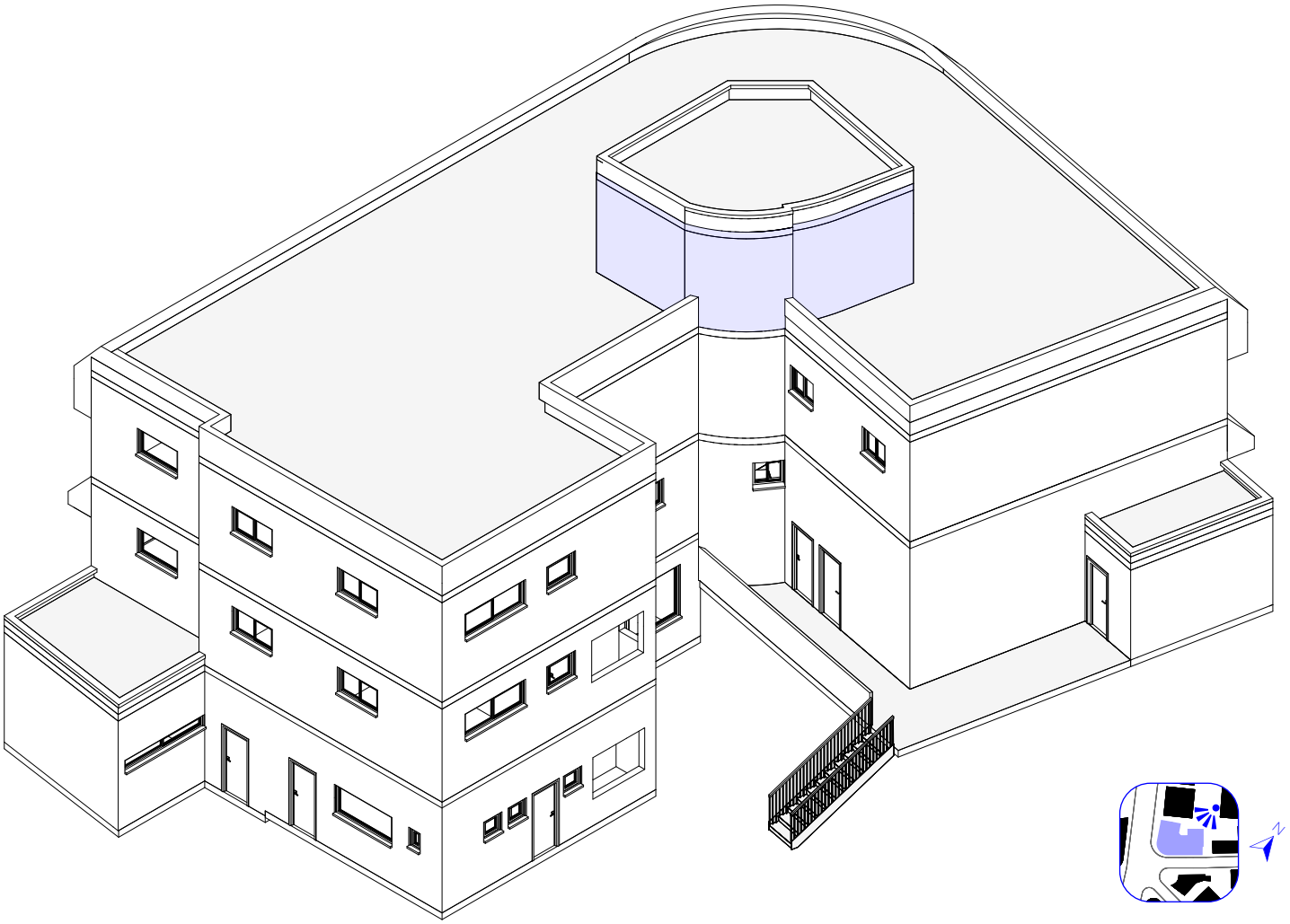


Fig.A.17.2 - Axonometric view, back, phase 'bauhaus 3', ca. 1940.

SOURCES
Hypothesis
Archive

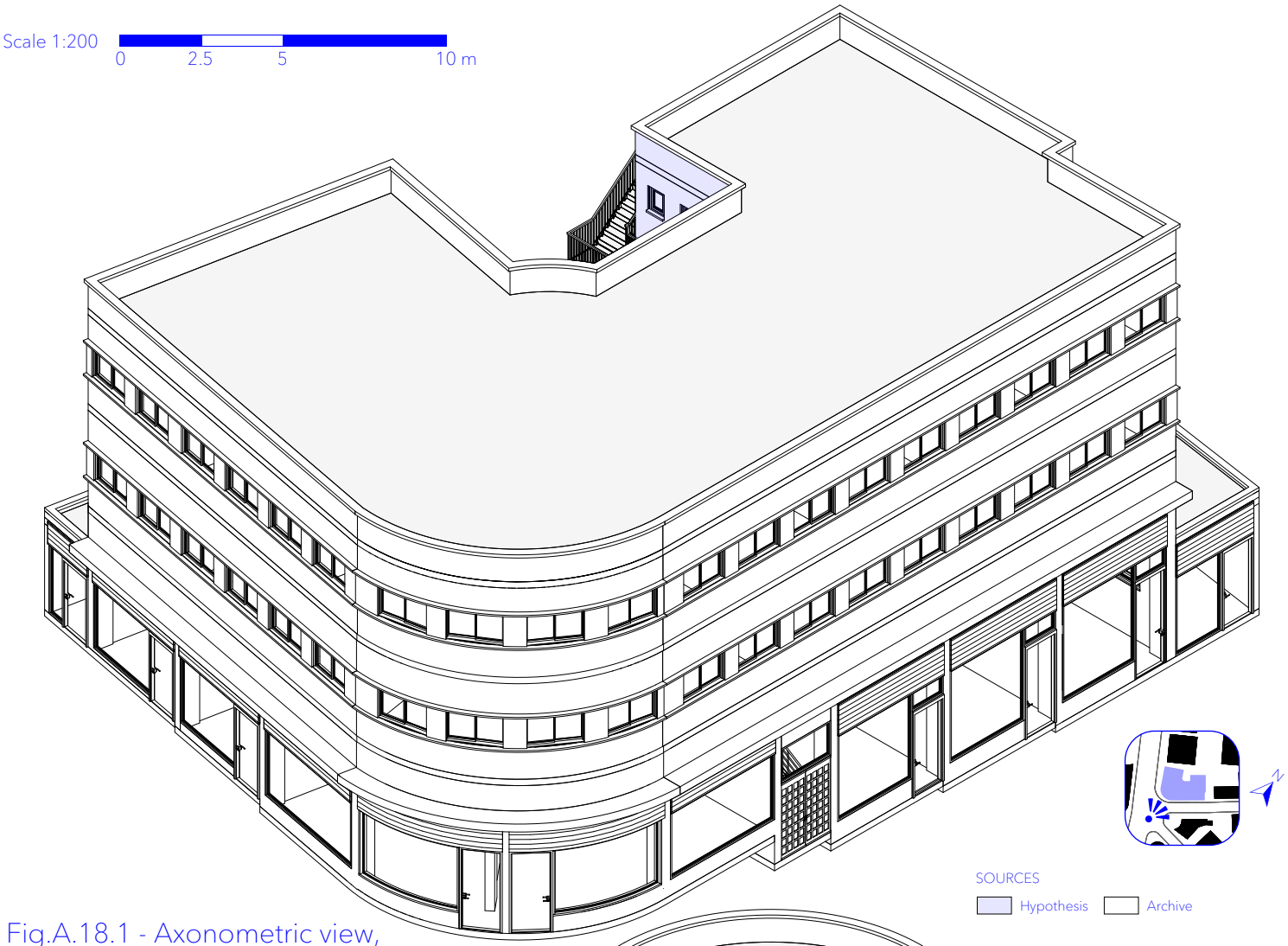


Fig.A.18.1 - Axonometric view, front, phase 'bauhaus 4', n.d.

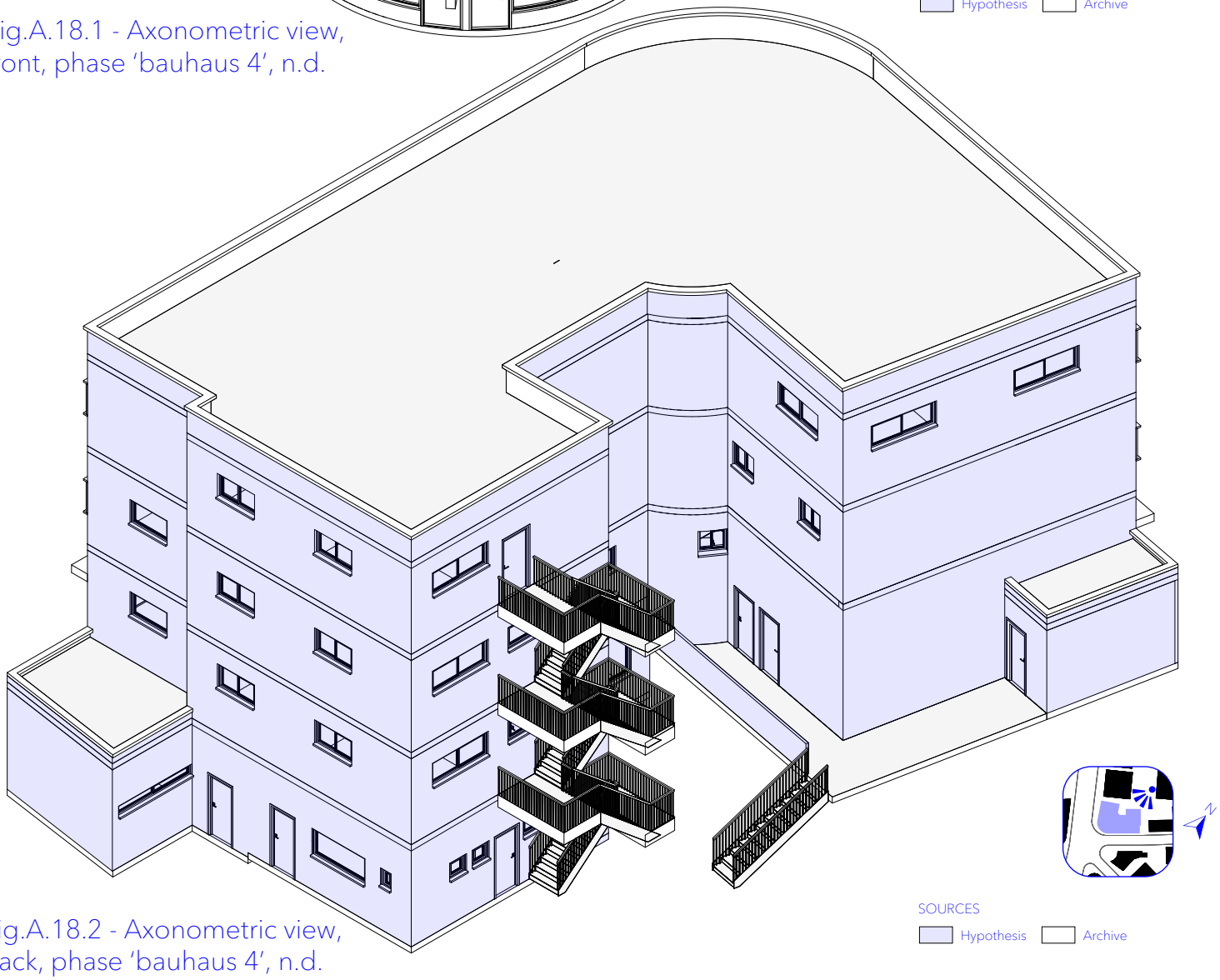


Fig.A.18.2 - Axonometric view, back, phase 'bauhaus 4', n.d.

Scale 1:200

0 2.5 5 10 m

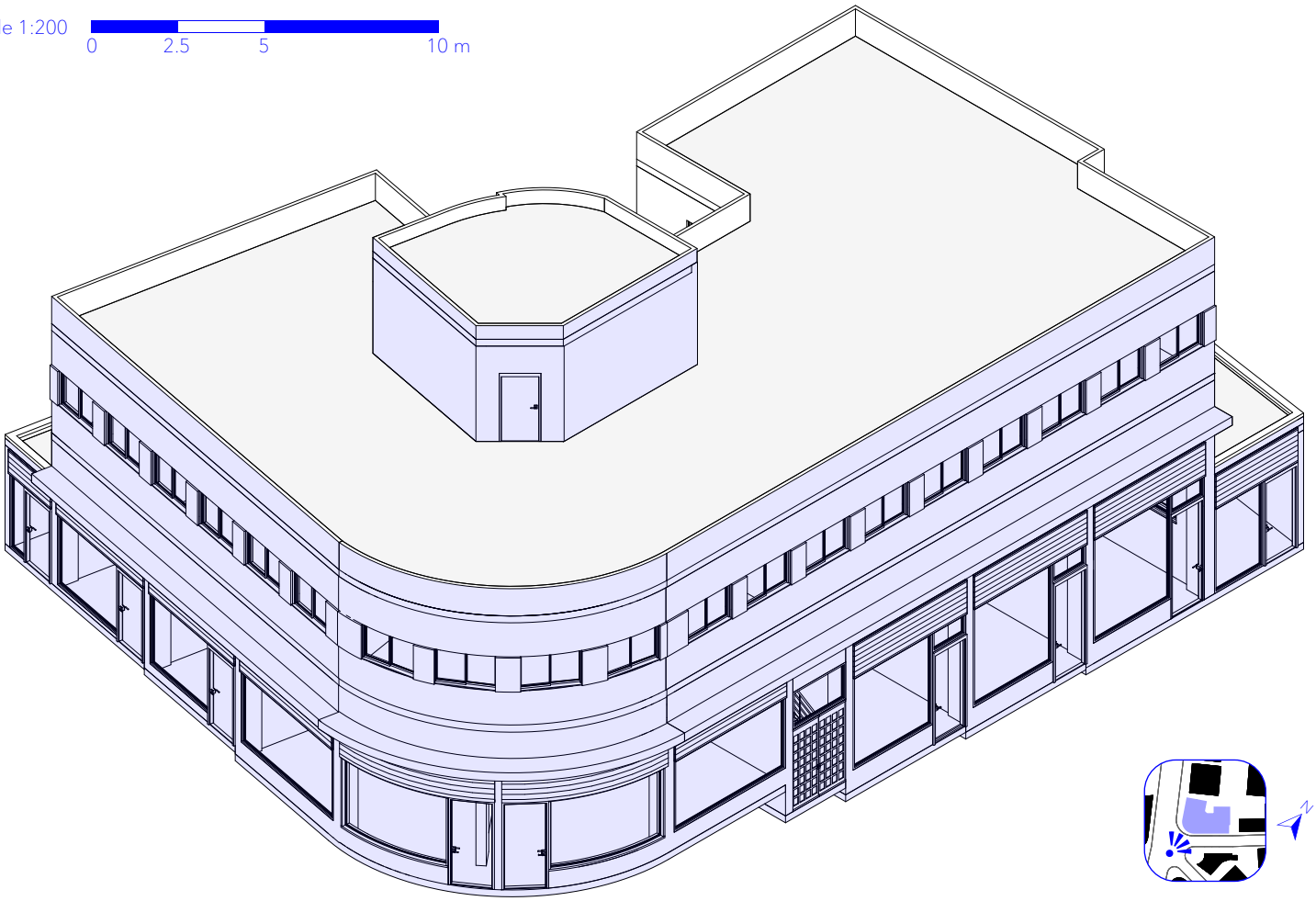


Fig.A.19.1 - Axonometric view, front, phase 'bauhaus 5', n.d.

SOURCES

Hypothesis Archive

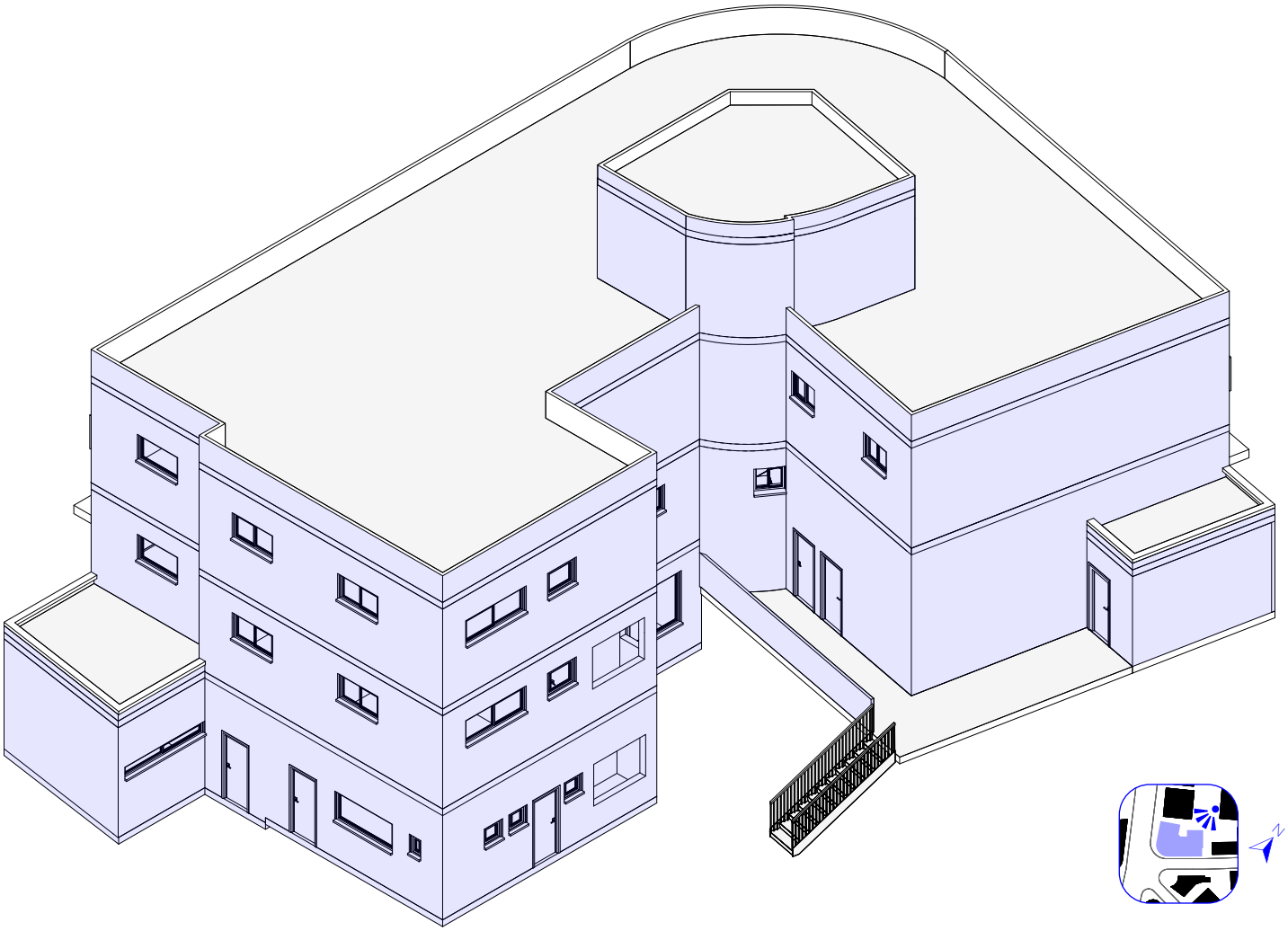


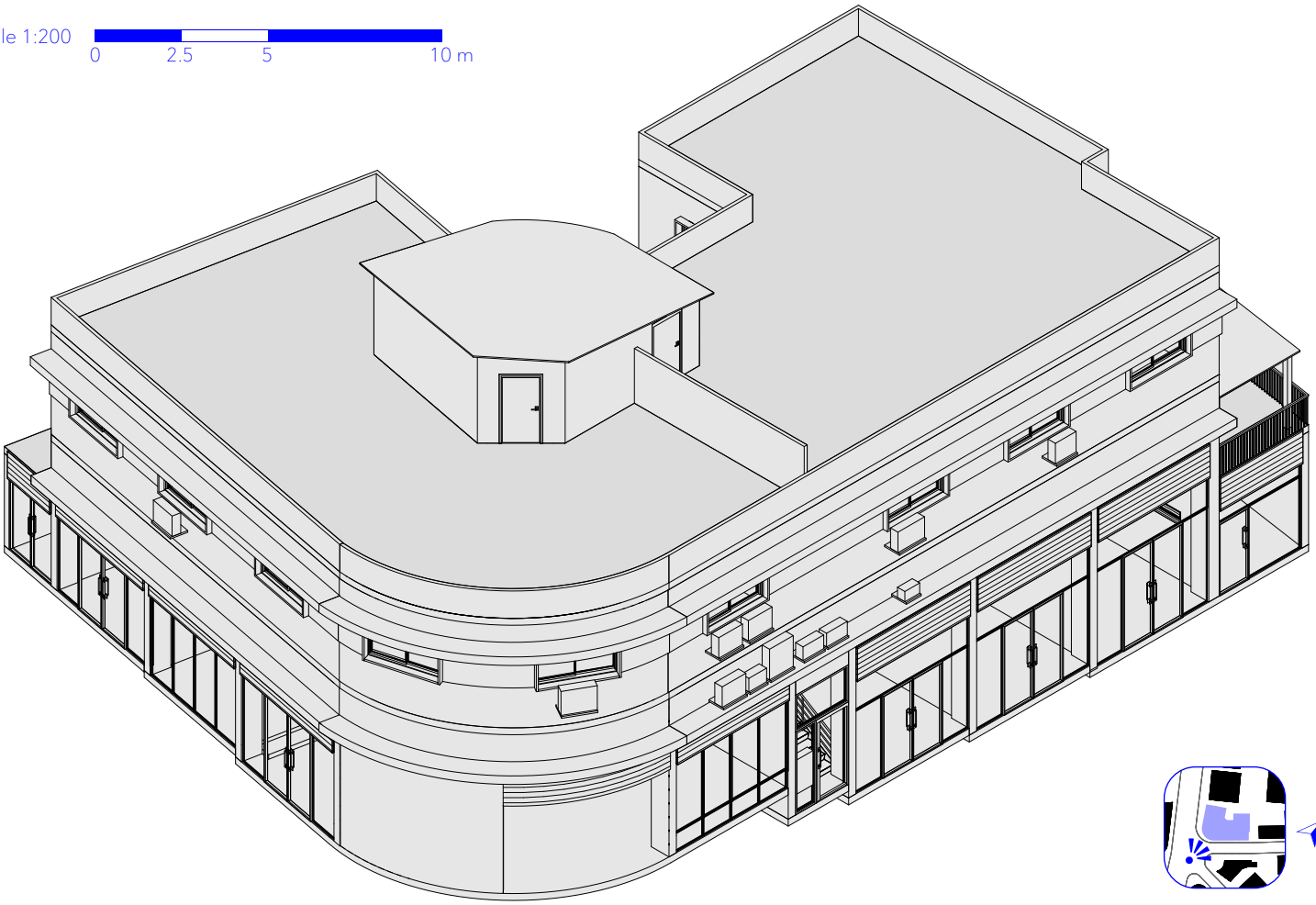
Fig.A.19.2 - Axonometric view, back, phase 'bauhaus 5', n.d.

SOURCES

Hypothesis Archive

Scale 1:200

0 2.5 5 10 m



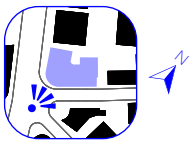


Fig.A.20.1 - Axonometric view, front, existing state.

SOURCES

Site visit

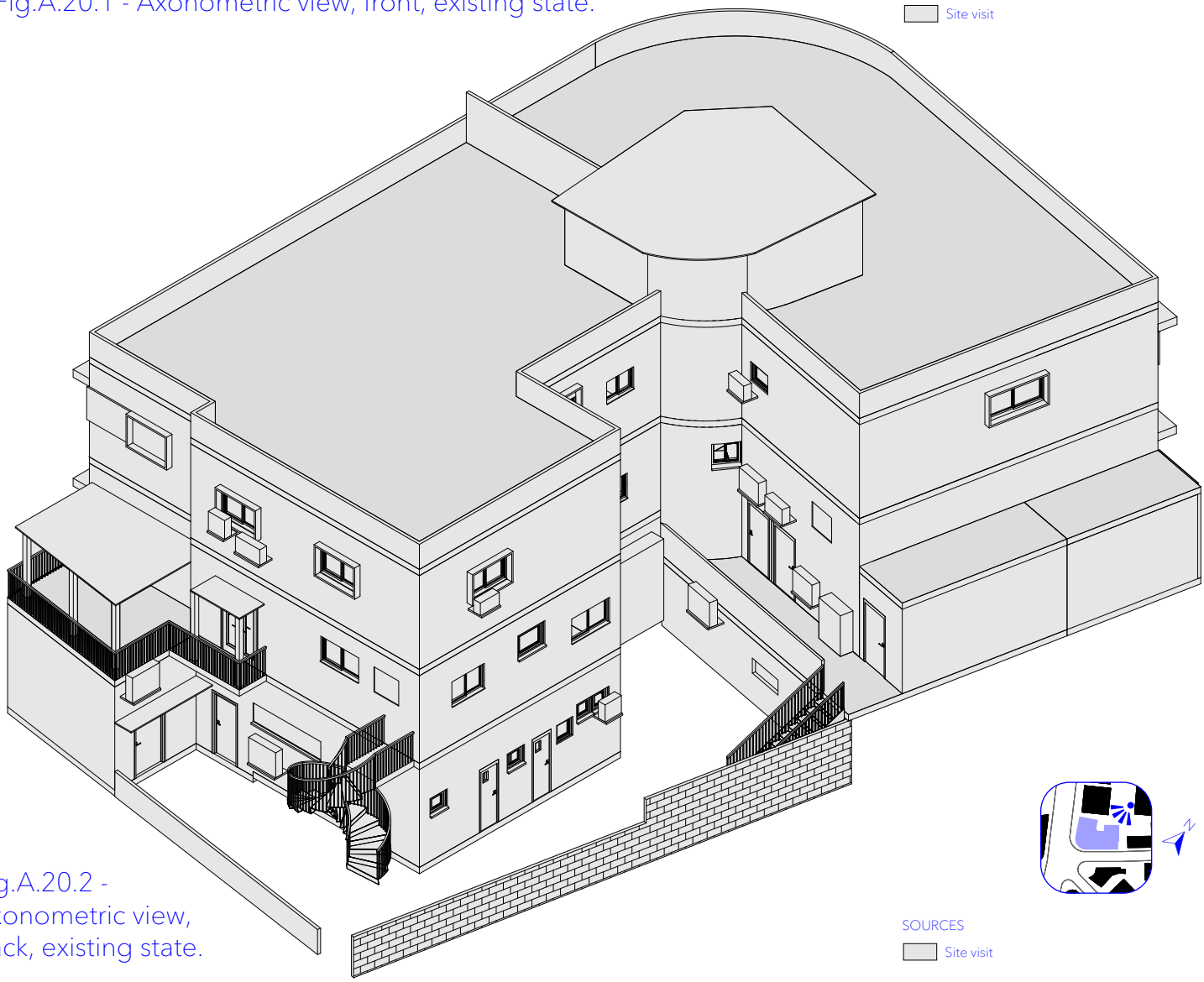


Fig.A.20.2 - Axonometric view, back, existing state.

SOURCES

Site visit

A.4: *Sectional Overview*

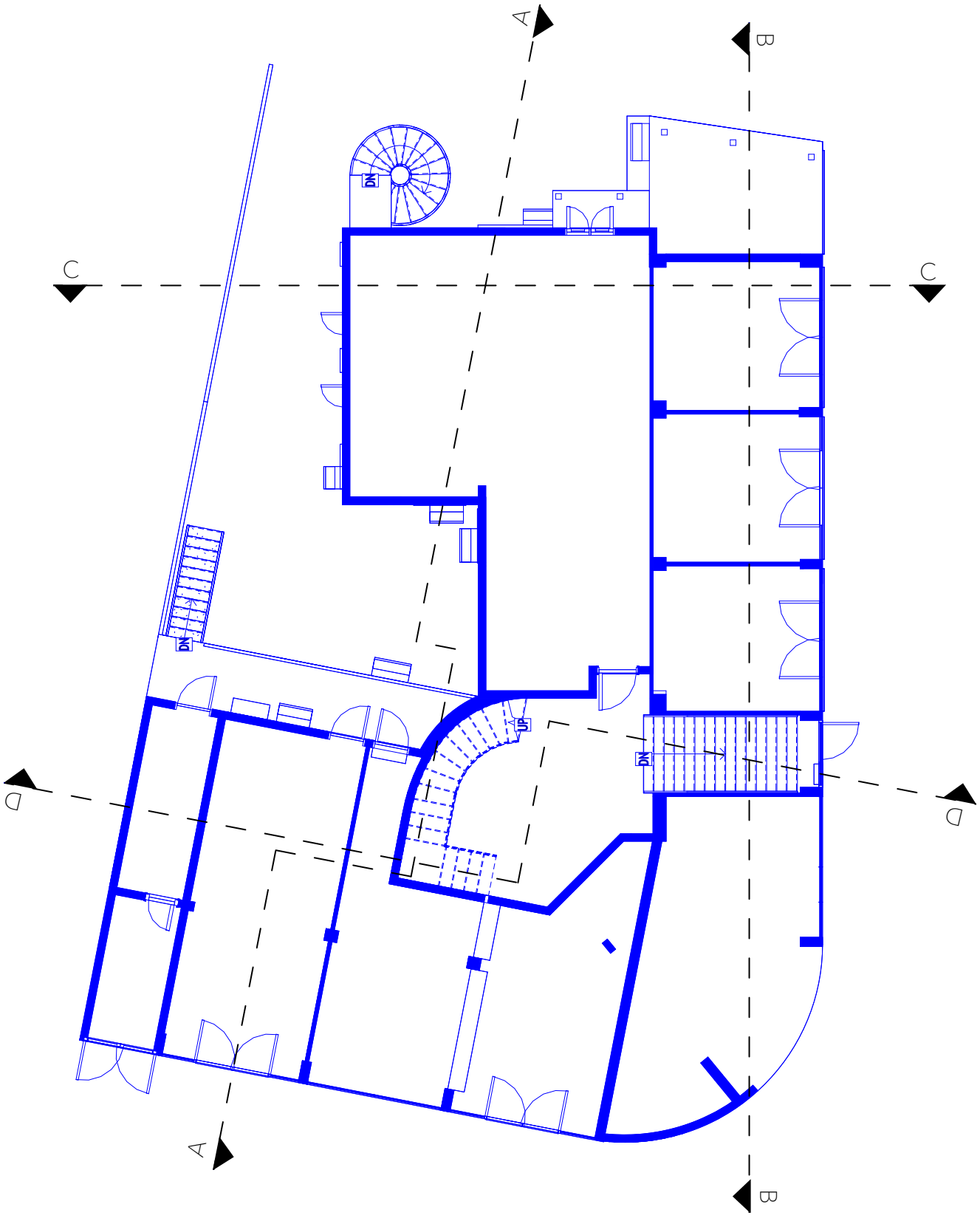


Fig.A.21 - Key plan, ground floor

N

Scale 1:150

0 3.75 7.5 15 m

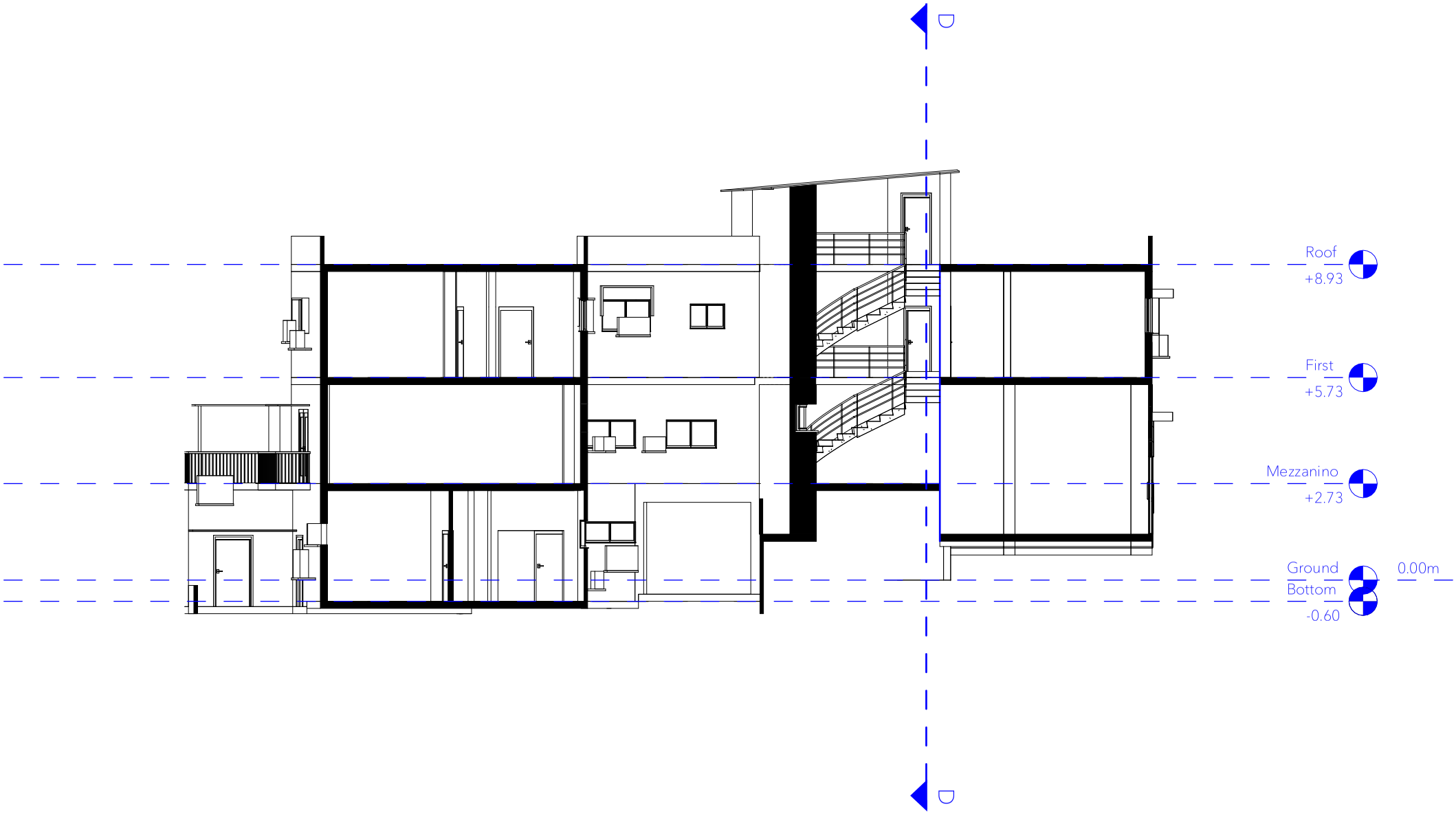
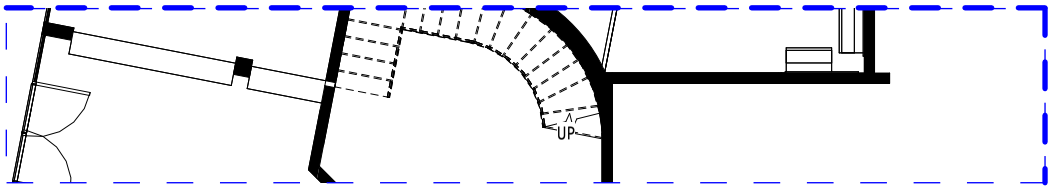


Fig.A.22 - Section A-A

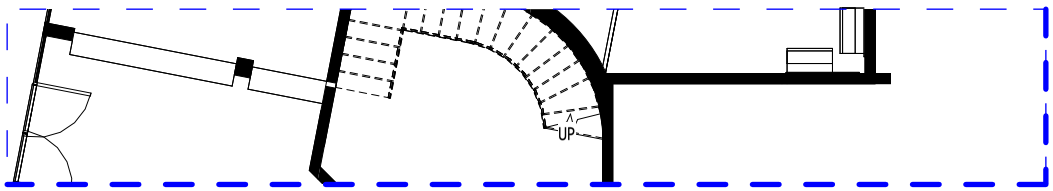
Scale 1:150

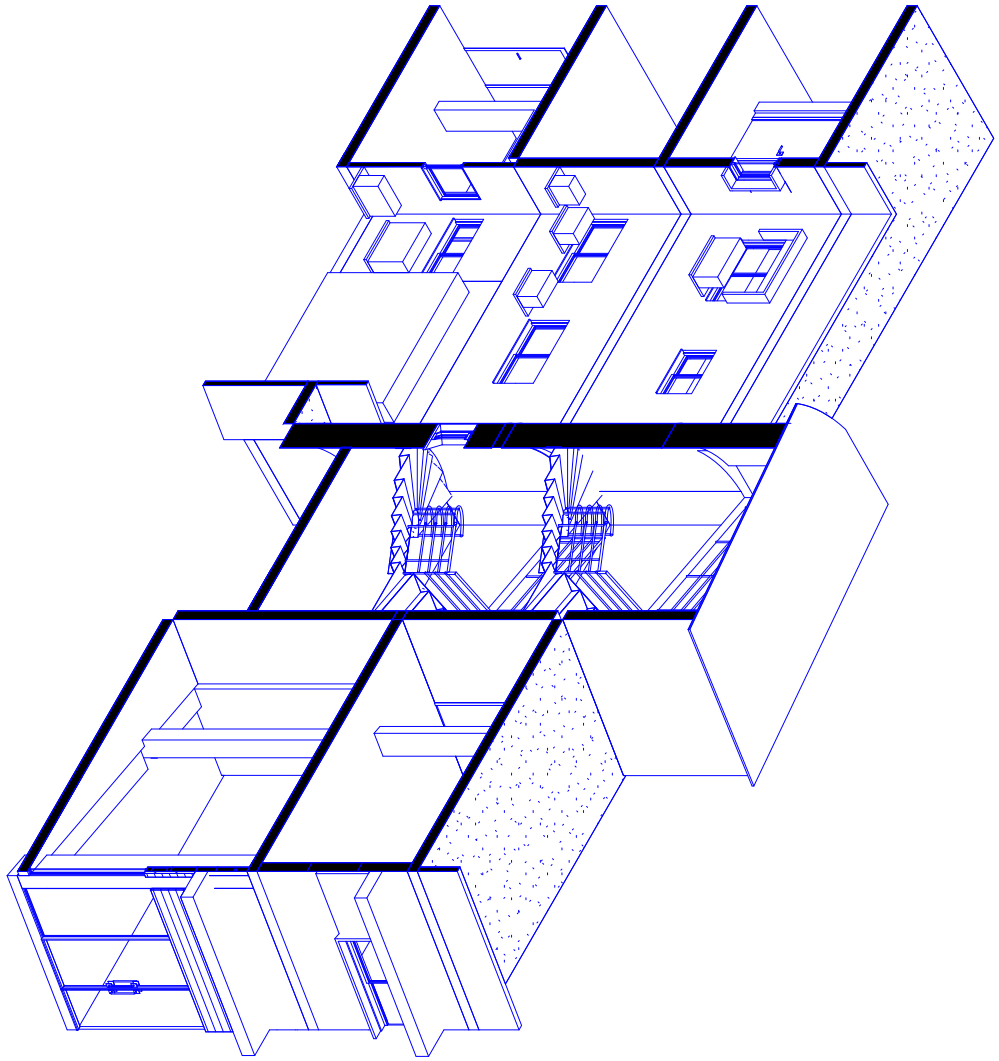
0 3.75 7.5 15 m



N

Ground floor





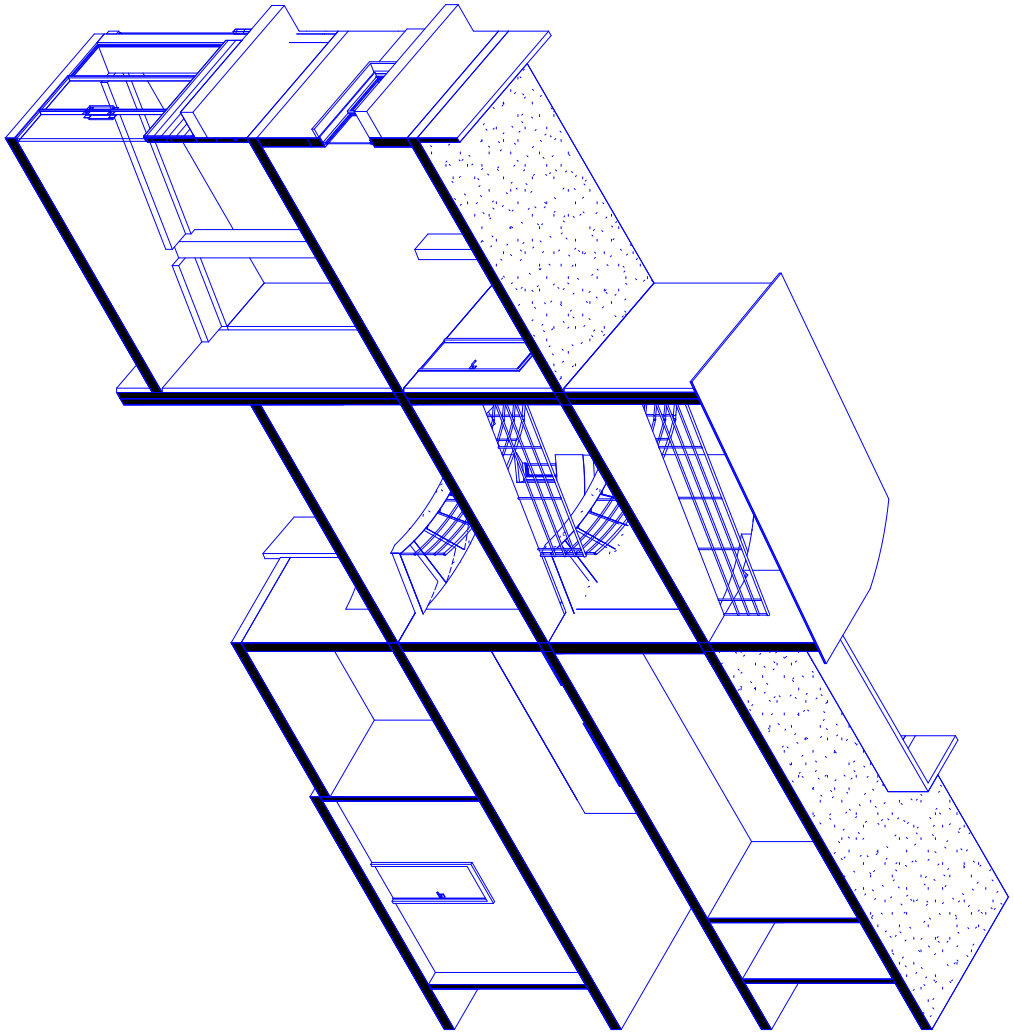


Fig.A.26.1 and Fig.A.26.2 - Section A-A, axonometric segments

Scale 1:150

0 3.75 7.5 15 m

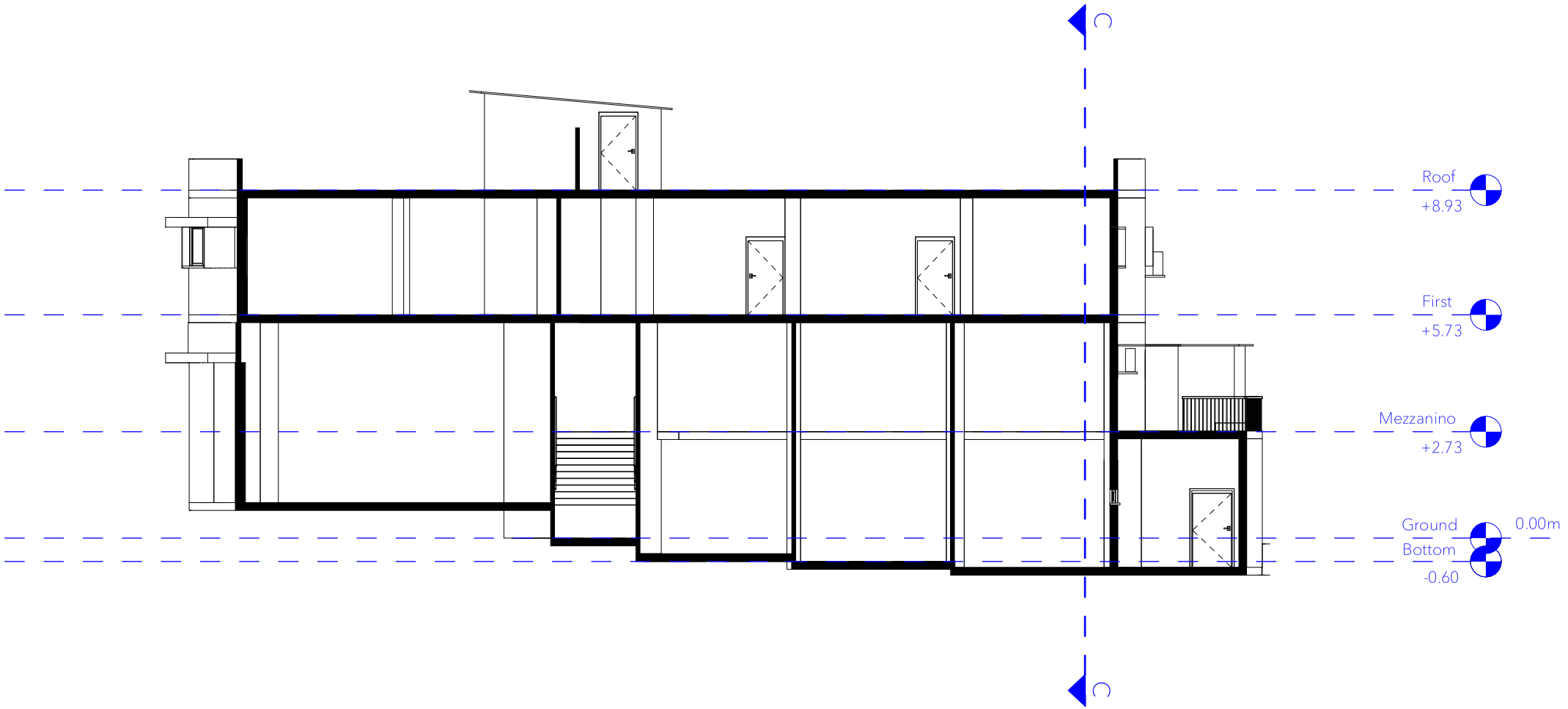
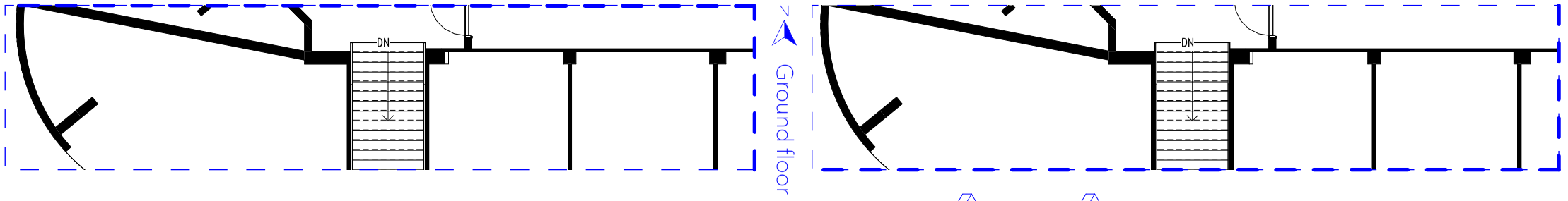
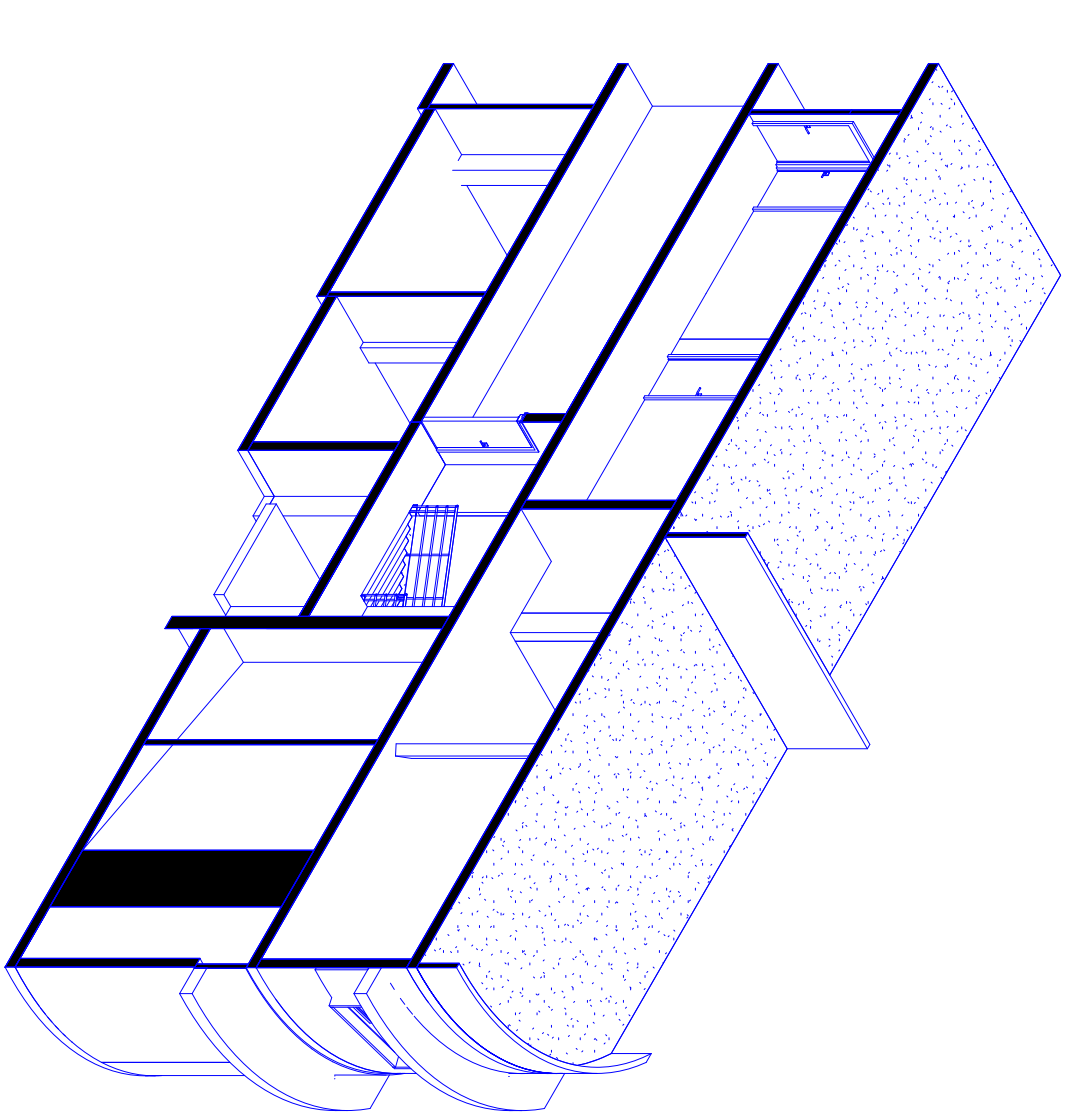


Fig.A.23 - Section B-B

Scale 1:150

0 3.75 7.5 15 m





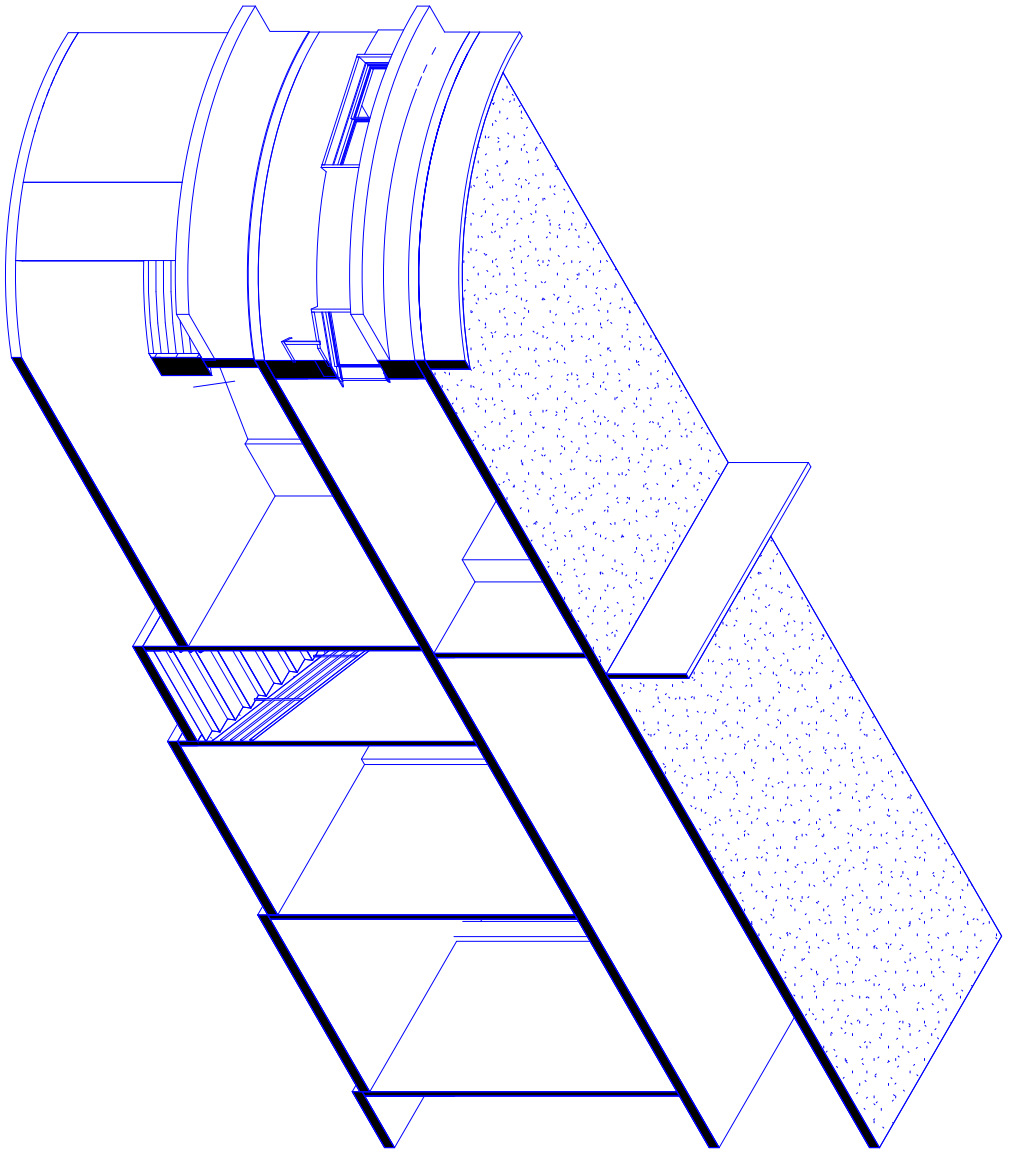


Fig.A.27.1 and Fig.A.27.2 - Section B-B, axonometric segments

Scale 1:150

0 3.75 7.5 15 m

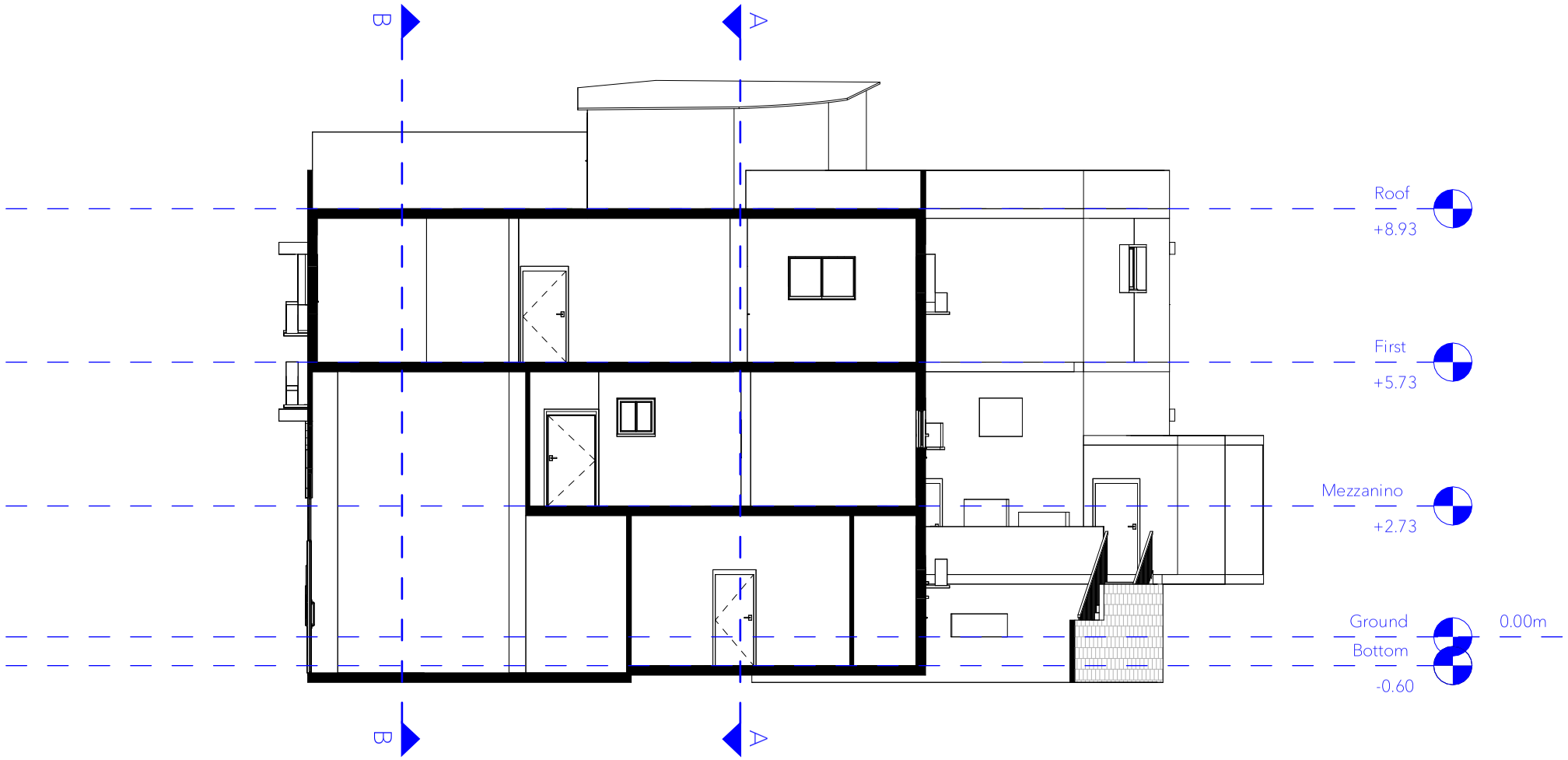
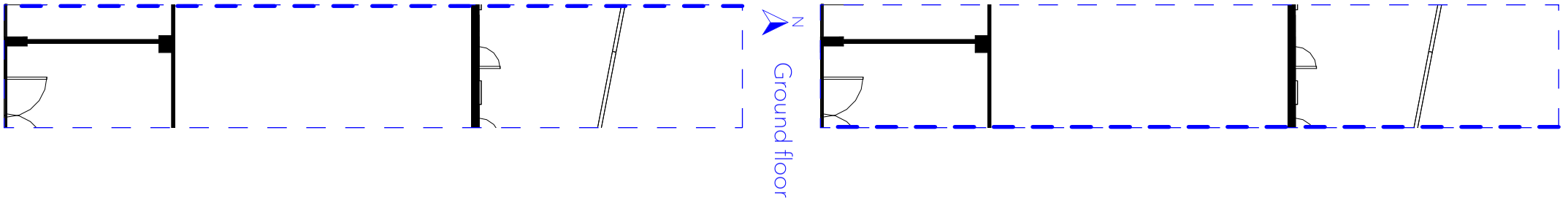
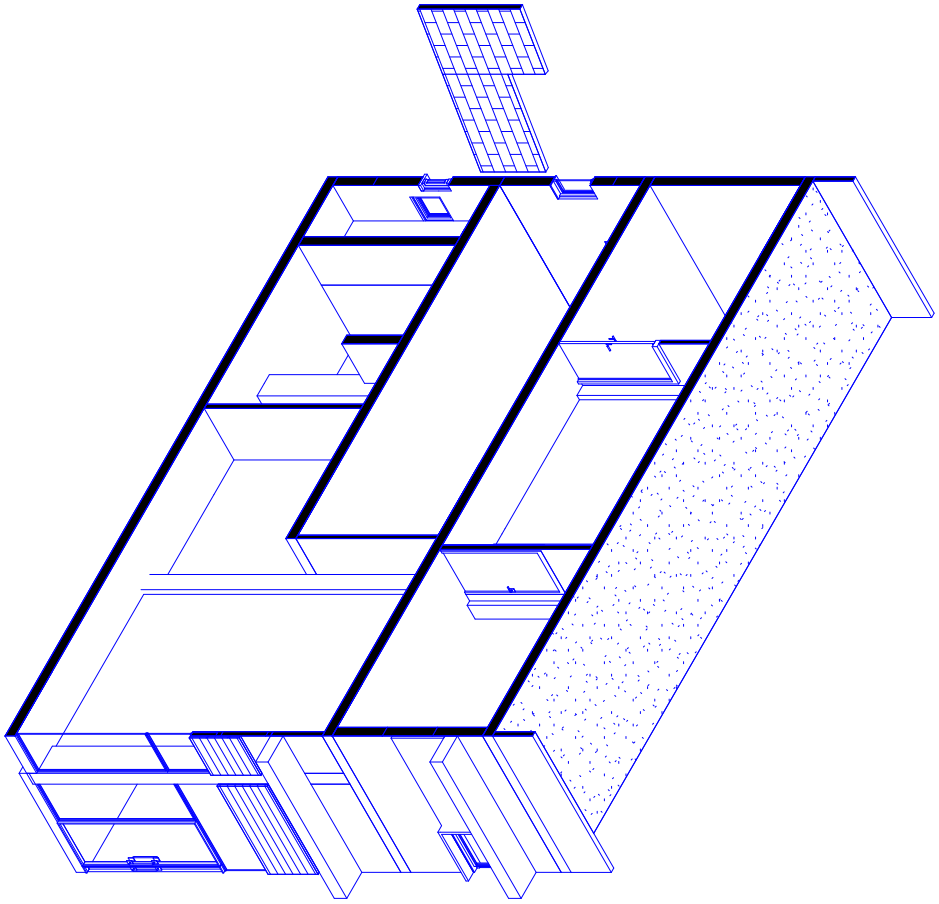


Fig.A.24 - Section C-C

Scale 1:150

0 3.75 7.5 15 m





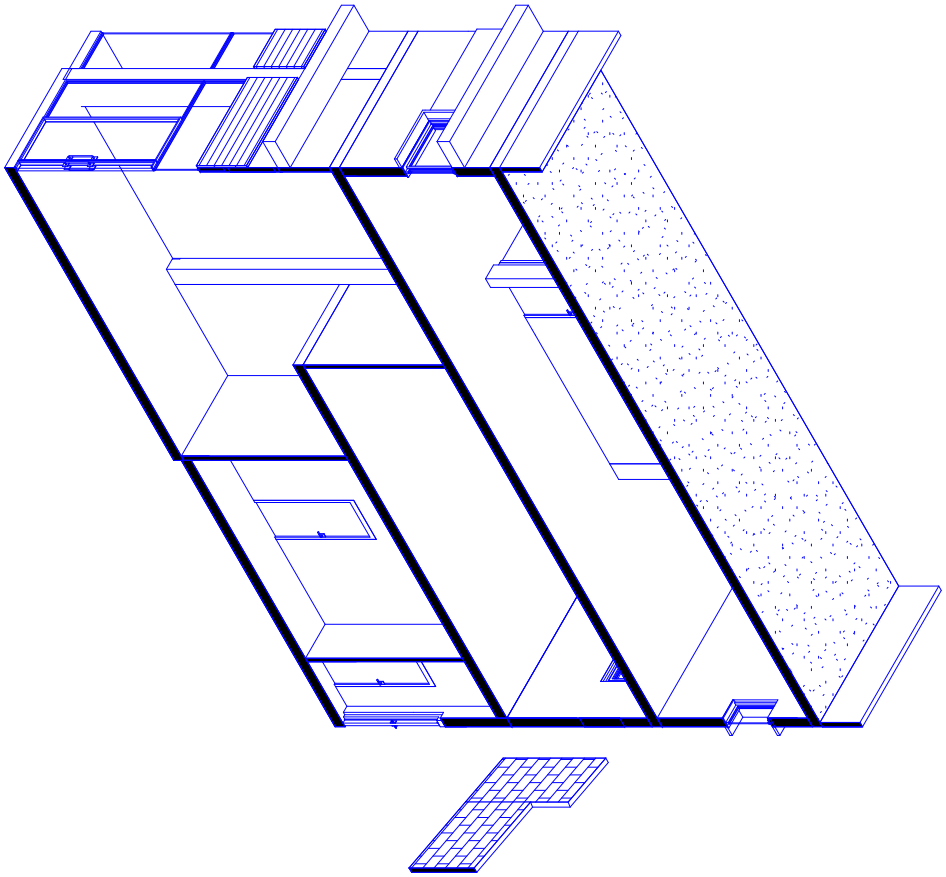


Fig.A.28.1 and Fig.A.28.2 - Section C-C, axonometric segments

Scale 1:150

0 3.75 7.5 15 m

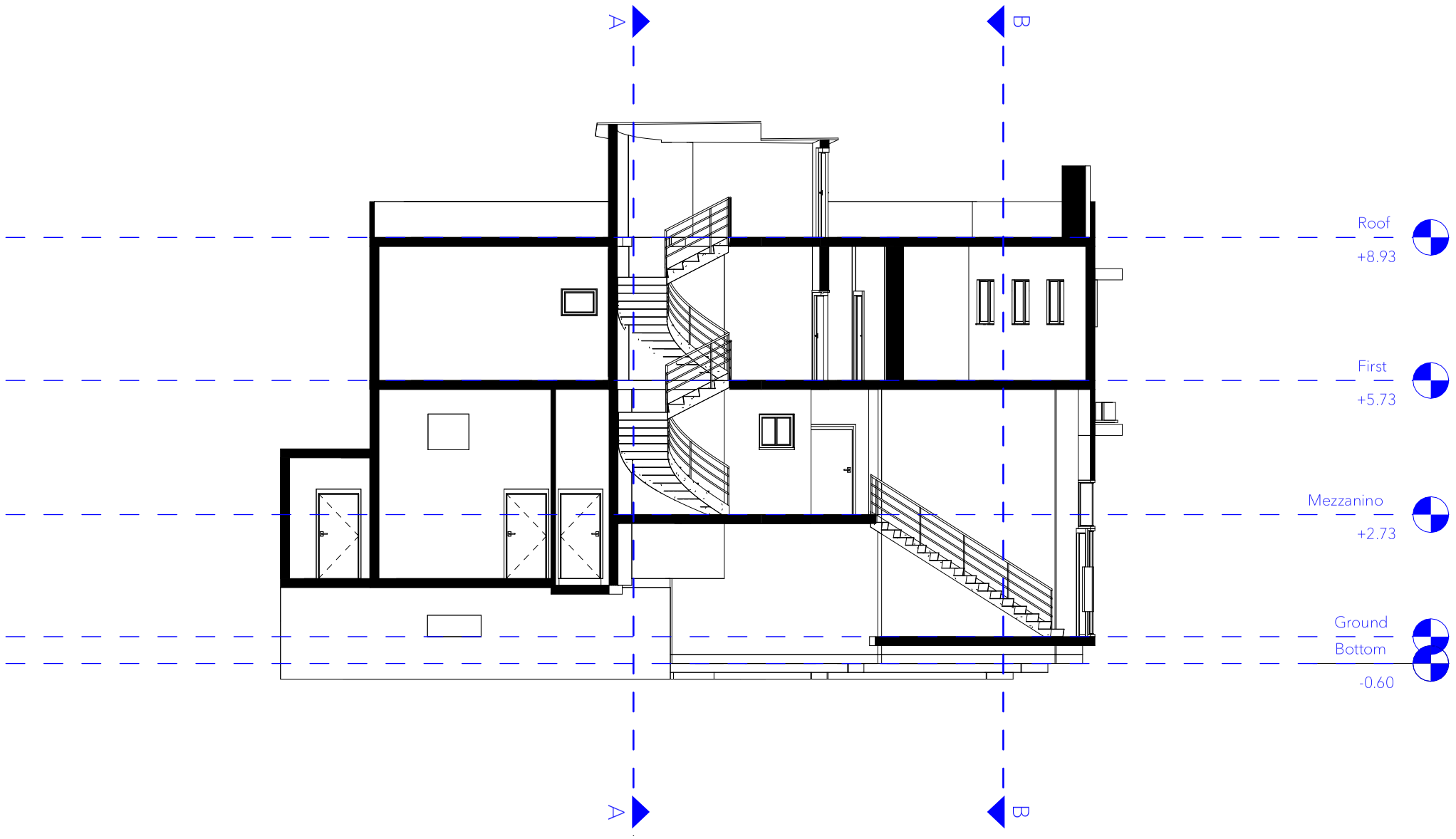
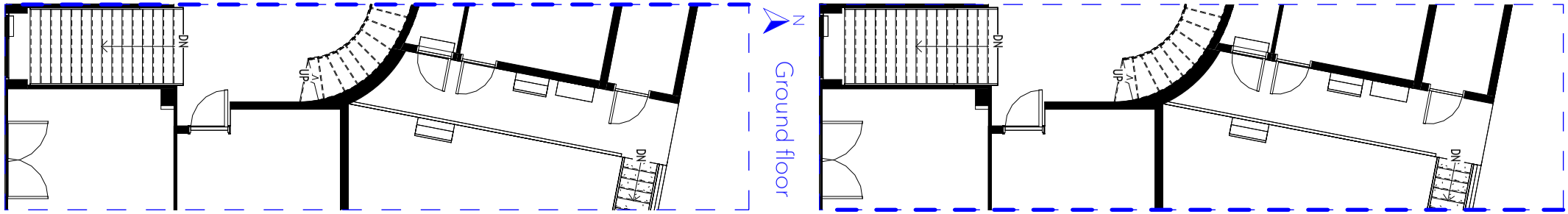
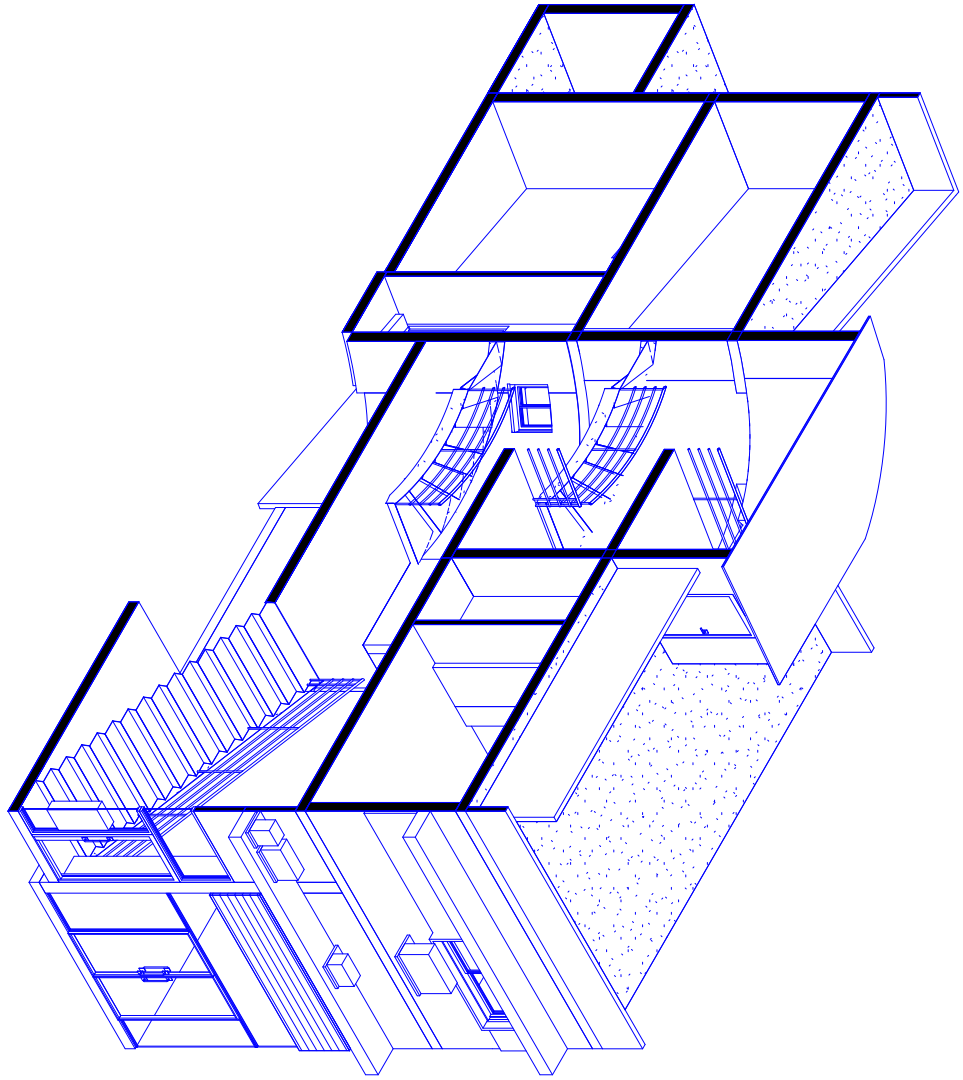


Fig.A.25 - Section D-D

Scale 1:150

0 3.75 7.5 15 m





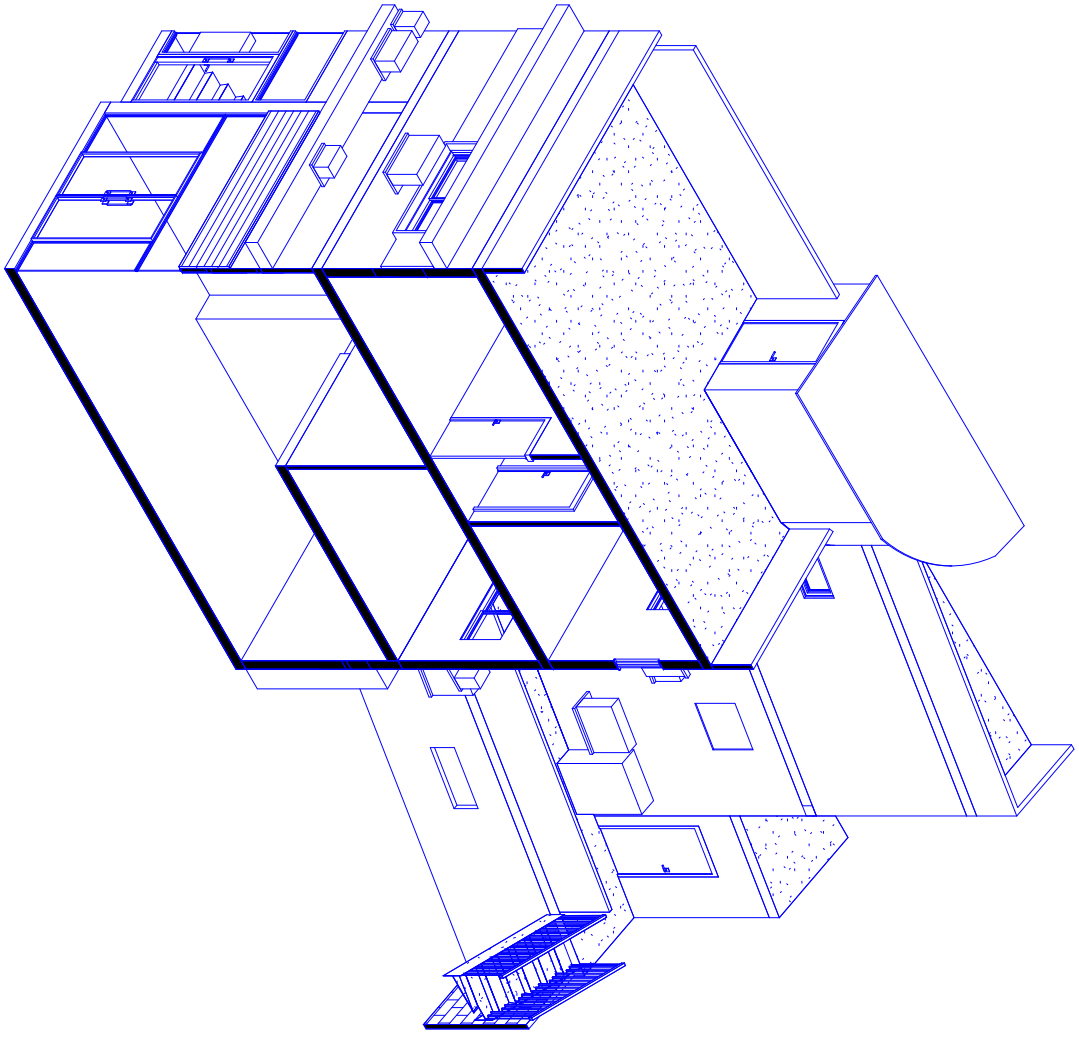


Fig.A.29.1 and Fig.A.29.2 - Section D-D, axonometric segment

Scale 1:150

0 3.75 7.5 15 m

A.5: *Material Analysis*

Tab.A.1 - Materials glossary

1 Plaster

Made from lime and sand, plaster is used in international style buildings as a coating layer for the external walls, which are made of concrete. After being applied, the substance hardens, making a smooth surface with increased durability.

2 Corrugated metal sheet

Made from steel with a thin layer of zinc coating (galvanized steel), corrugated metal sheet is mainly used for addition of roofings or sheds in international style buildings in Tel Aviv. The wavy pattern increases the strength of the sheet.

3 Steel

A strong and flexible metal, alloy of steel and carbon. In international style buildings, composing the structure and other various elements (AC engines, doors etc.). Exposed to the danger of corrosion due to the local coastal climate.

4 PVC (Polyvinyl Chloride)

A lightweight, durable type of plastic. Its low cost and ease of instillation, made it present widely in recent interventions on international style buildings in Tel Aviv, mainly as in additioned tubes and replaced window frames.

5 Wood

A hard substance which is the main component of trees. In Tel Aviv, wood is a less common building material due to the warm mediterranean climate, used nowadays mainly for door plates, and in early 20th century also for window frames.

6 Glass

Transparent material widely used to enhance the presence of natura light. Available in various forms, such as plain panels or bricks. The latter mainly present in international style buildings to allow diffused light in private spaces.

7 Concrete brick

Made from cement, sand and various aggregates. characterized by strength and efficient construciton for their modularity, concrete bricks are widely used for load bearing walls and paritions such as site barrier in the subject building.

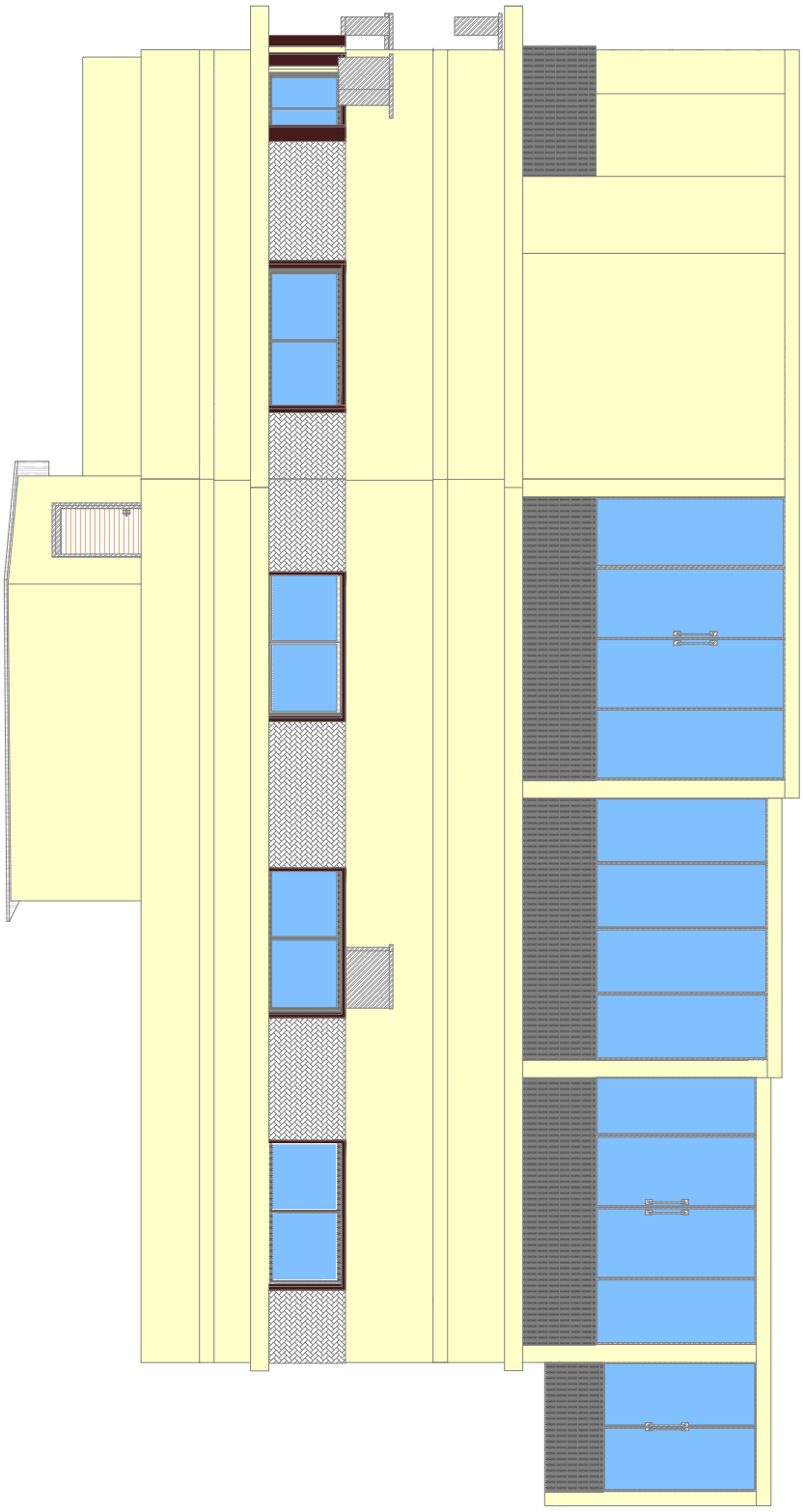
8 Marble tiles

Made from limestone which has undergone metamorphosis, marble tiles are decorational components in international style buildings. In ths case of the subject building, used as exterior wall cladding added in a later intervention.

9 Painted metal sheet

In the subject building, painted metal sheet is used as a coating material for a decorative element (extruded frame around window openings) added in a later intervention. The coating gives a clean look and protects from rust.

Fig.A.30 - Material analysis, west façade

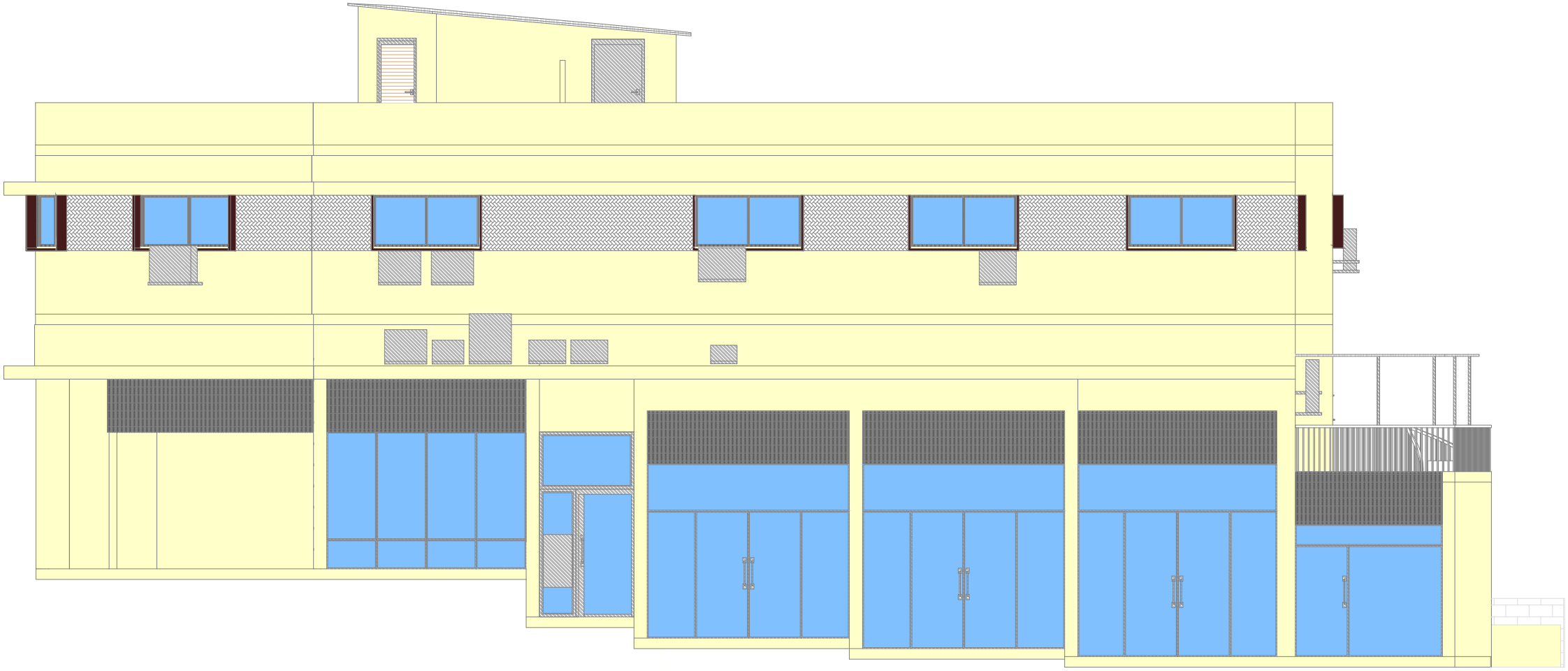


West elevation 1:100

0 1.25 2.5 5 m

LEGEND

1 Plaster
2 Corrugated metal sheet
3 Steel
4 PVC (Polyvinyl Chloride)
5 Wood
6 Glass
7 Concrete brick
8 Marble tiles
9 Painted metal sheet



South elevation 1:100

0 1.25 2.5 5 m

LEGEND

1 Plaster
2 Corrugated metal sheet
3 Steel
4 PVC (Polyvinyl Chloride)
5 Wood
6 Glass
7 Concrete brick
8 Marble tiles
9 Painted metal sheet

Fig.A.31 - Material analysis, south façade

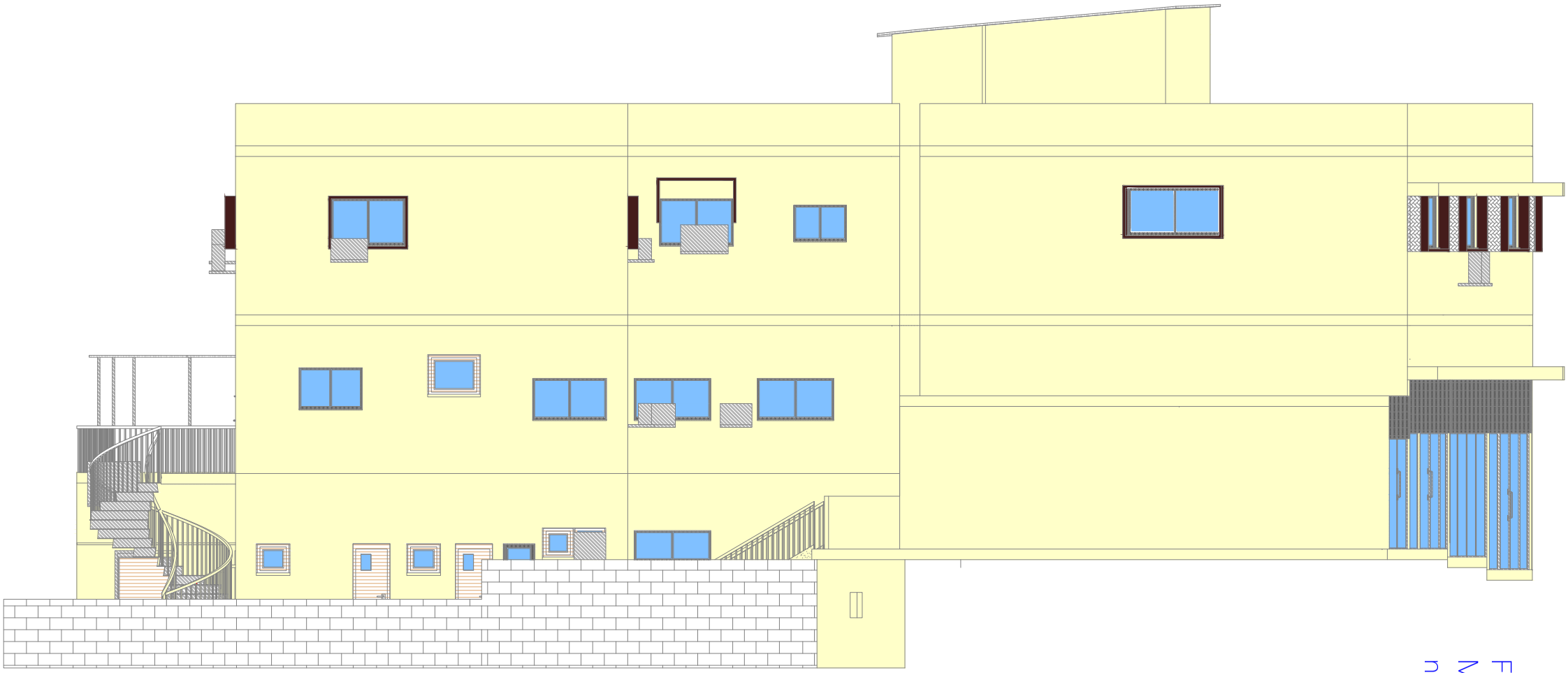
East elevation 1:100

0 1.25 2.5 5 m

LEGEND

1 Plaster
2 Corrugated metal sheet
3 Steel
4 PVC (Polyvinyl Chloride)
5 Wood
6 Glass
7 Concrete brick
8 Marble tiles
9 Painted metal sheet

Fig.A.32 - Material analysis, east façade



North elevation 1:100

0 1.25 2.5 5 m

LEGEND

1 Plaster
2 Corrugated metal sheet
3 Steel
4 PVC (Polyvinyl Chloride)
5 Wood
6 Glass
7 Concrete brick
8 Marble tiles
9 Painted metal sheet

Fig.A.33 - Material analysis, north façade

A.6: *Degradation Analysis* Tab.A.2 - Degradation glossary

DETACHMENT

Disintegration 1

"Detachment of single grains or aggregates of grains." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.20.

gradual disintegration of the mortar joints between the masonry bricks due to weathering, moisture, and pollutants, which can weaken the structural integrity of the masonry and allow increased water penetration.

Scaling 2

"Detachment of stone as a scale or a stack of scales, not following any stone structure and detaching like fish scales or parallel to the stone surface..." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.26.

crumbling of the plaster into loose fragments, due to exposure to moisture, thermal activity or structural movements from the modifications in the building.

FEATURES INDUCED BY MATERIAL LOSS

Erosion 3

"Loss of original surface, leading to smoothed shapes." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.30.

exposure of moisture and passage of time causes the metal to begin to rust, resulting also in cracking and spalling of surrounding materials.

Missing part 4

"Empty space, obviously located in the place of some formerly existing stone part." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.36.

holes in the wall caused by a poor installation of bars or non poor openings for insertion of tubeswater penetration.

DISCOLORATION & DEPOSIT

Crust 5

"Generally coherent accumulation of materials on the surface. A crust may include exogenic deposits in combination with materials derived from the stone. A crust is frequently dark coloured (black crust)" - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.42.

Change in the surface in forms of dark stains caused by presence of liquids or pollution, without a loss of material (such as crumbling).

Deposit 6

"Accumulation of exogenic material of variable thickness. ...Some examples of deposits : atmospheric particles such as soot or dust,..." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.44.

gray-black soot stains on the plaster, which are concentration of carbon particles of fuel caught on the surface due to pollution activity.

Discoloration 7

"Change of the stone colour in one to three of the colour parameters : hue, value and chroma." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.46.

gradual degradation of the plaster due to increased amount of sunlight and hot temperatures, leading to color fading (giving the shade of yellow), surface crumbling and loss of cohesion to the under layer.

Efflorescence 8

"Generally whitish, powdery or whisker-like crystals on the surface. Efflorescences are generally poorly cohesive and commonly made of soluble salt crystals." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.48.

White stains on the surface of the plaster coming from the end of a tube which is depositing water from the air-conditioner engine. The color white may be also due to the gathering of salts on the wet surface.

MISCELLANEOUS

Graffiti 9

"Engraving, scratching, cutting or application of paint, ink or similar matter on the stone surface." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.56.

spray paint on the plaster finishing that may harm in terms of further degradation, aesthetics and authenticity.

Exposed cables 10

Not a degradation type defined in ICOMOS glossary

concentration of passage of numerous cables and tubes on the external part of the facade, mainly on the backyard, making a risk of electrifying and outbreaks.

CRACK & DEFORMATION

Crack 11

"Individual fissure, clearly visible by the naked eye, resulting from separation of one part from another." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.10.

horizontal cracks, resulted probably from interventions inside the wall, expansion of the material due to temperature change and humidity, as well as earthquakes.

BIOLOGICAL COLONIZATION

Biological colonization 12

"Colonization of the stone by plants and micro-organisms such as bacteria, cyanobacteria, algae, fungi and lichen (symbioses of the latter three)." - ICOMOS-ISCS: Illustrated glossary on stone deterioration patterns, p.64.

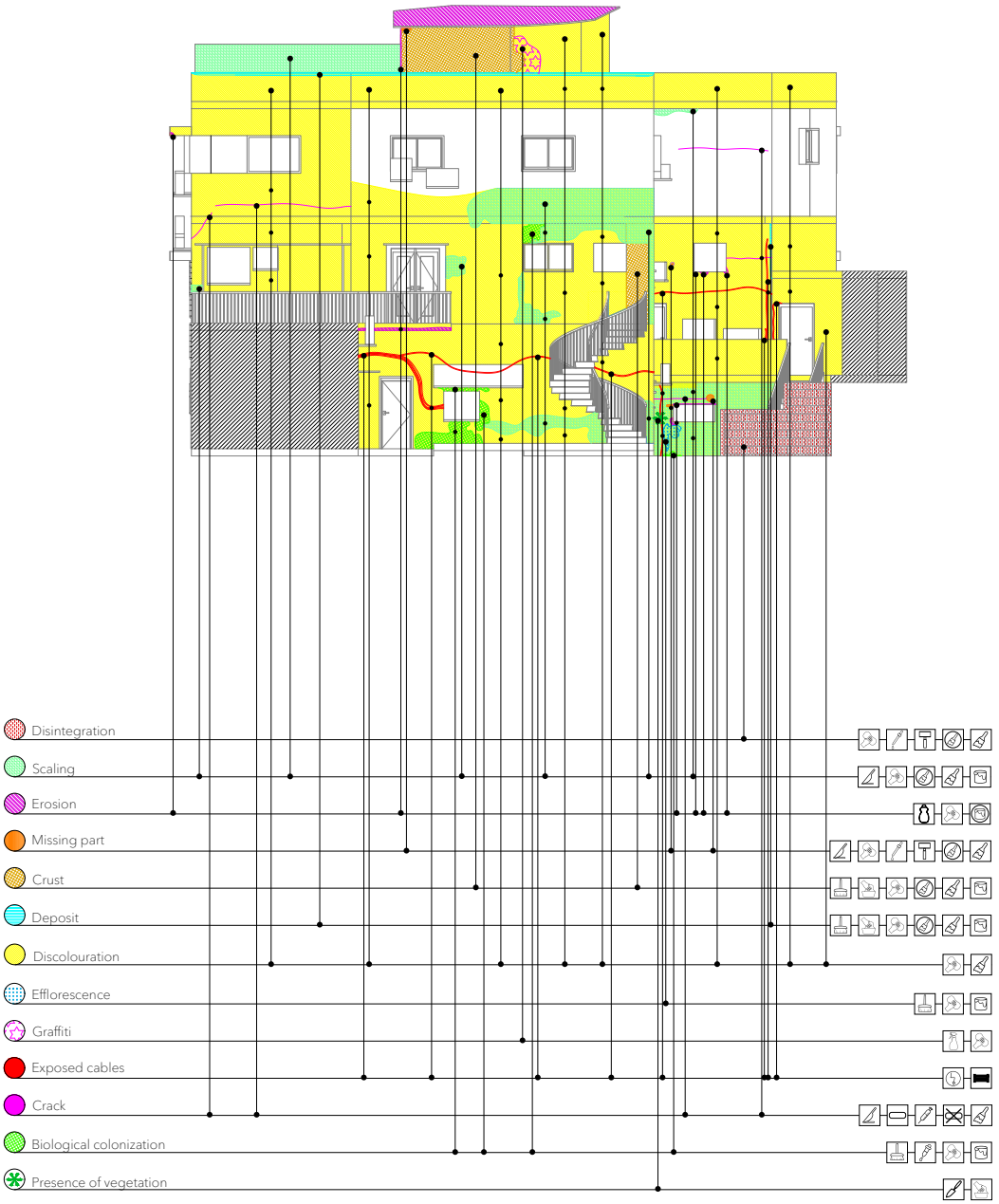
fungal growth created where there is moisture, characterized by the strong green color, and can lead to health hazards due to the release of airborne spores.

Fig.A.34 - Degradation analysis, east façade

East elevation 1:200

0 2.5 5 10 m

Unknown condition (blocked view)



Treatment Legend:

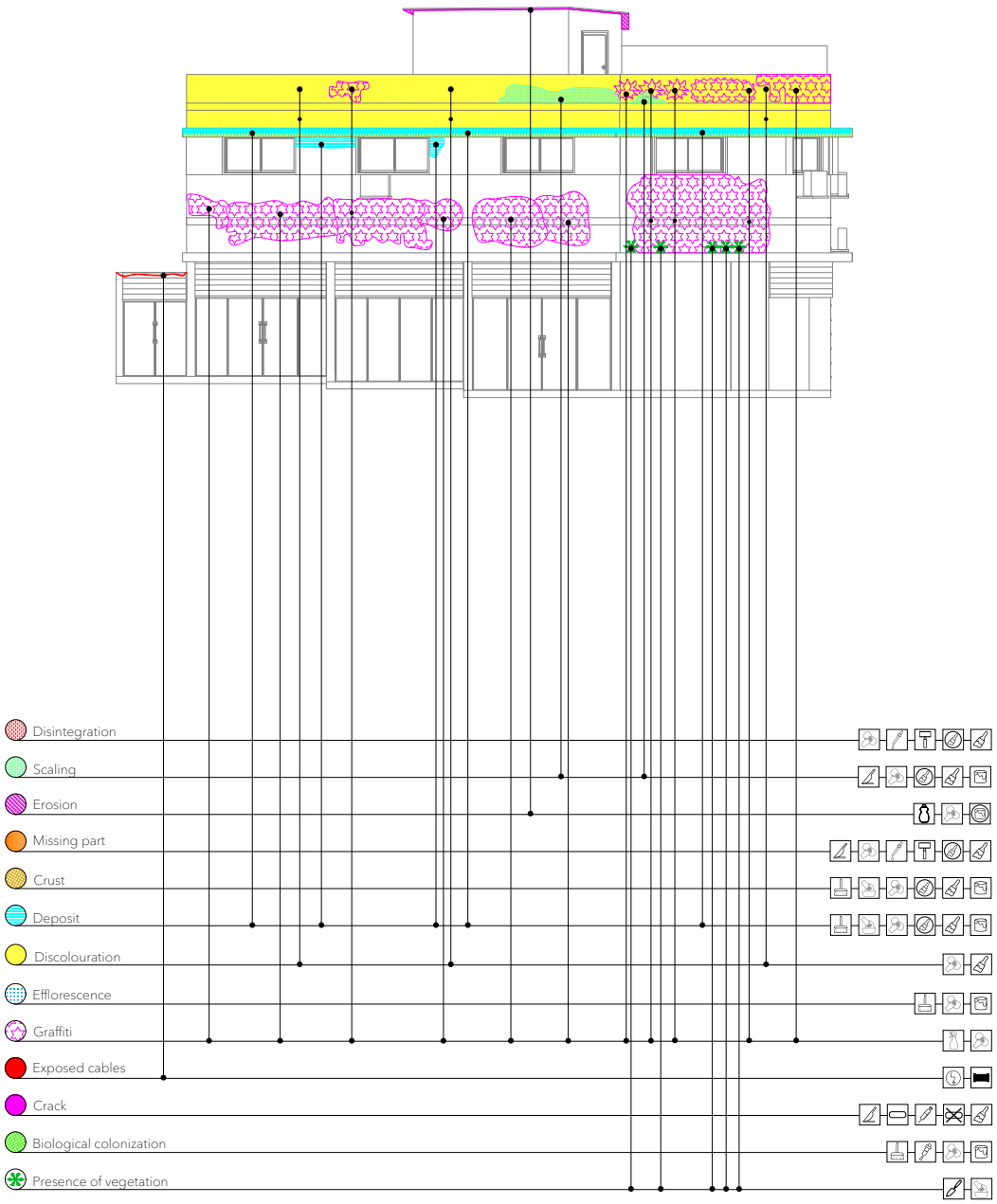
Clean
Apply bonding agent
Fill with mortar
Apply bonding primer
Apply plaster
Remove loose pieces
Apply siloxane hydrophobic coating
Apply acid-based rust remover
Apply epoxy coating
Dry brush
Wash
Spray graffiti remover
Unfiy cables routes
Enclose in PVC conduit
Seal with tape
Inject epoxy resin
Remove tape
Apply biocide gel
Remove root

Fig.A.35 - Degradation analysis, west façade

West elevation 1:200

0 2.5 5 10 m

Unknown condition (blocked view)



Treatment Legend:

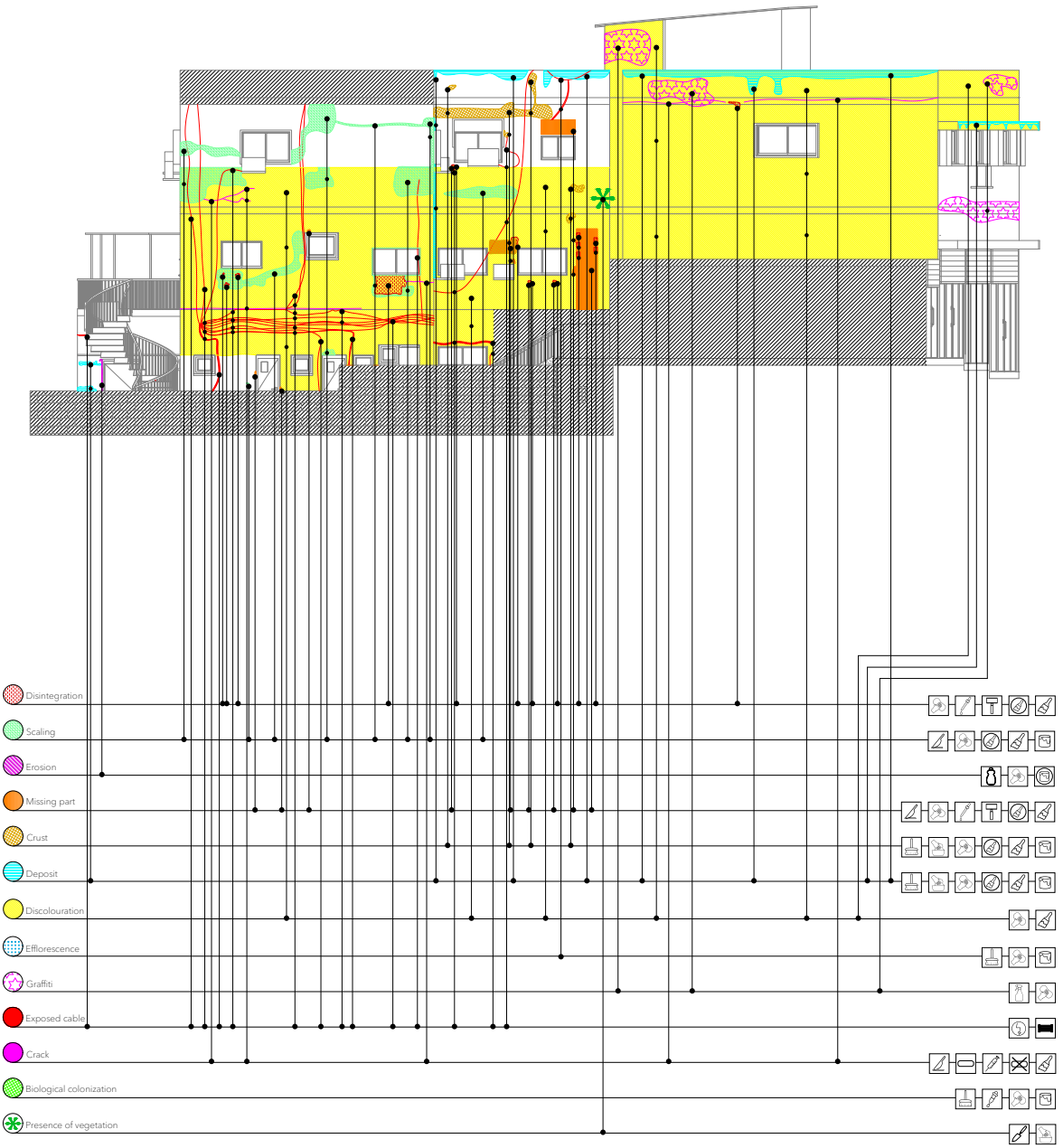
Clean
Apply bonding agent
Fill with mortar
Apply bonding primer
Apply plaster
Remove loose pieces
Apply siloxane hydrophobic coating
Apply acid-based rust remover
Apply epoxy coating
Dry brush
Wash
Spray graffiti remover
Unfiy cables routes
Enclose in PVC conduit
Seal with tape
Inject epoxy resin
Remove tape
Apply biocide gel
Remove root

Fig.A.36 - Degradation analysis, north façade

North elevation 1:200

0 2.5 5 10 m

Unknown condition (blocked view)



Treatment Legend:

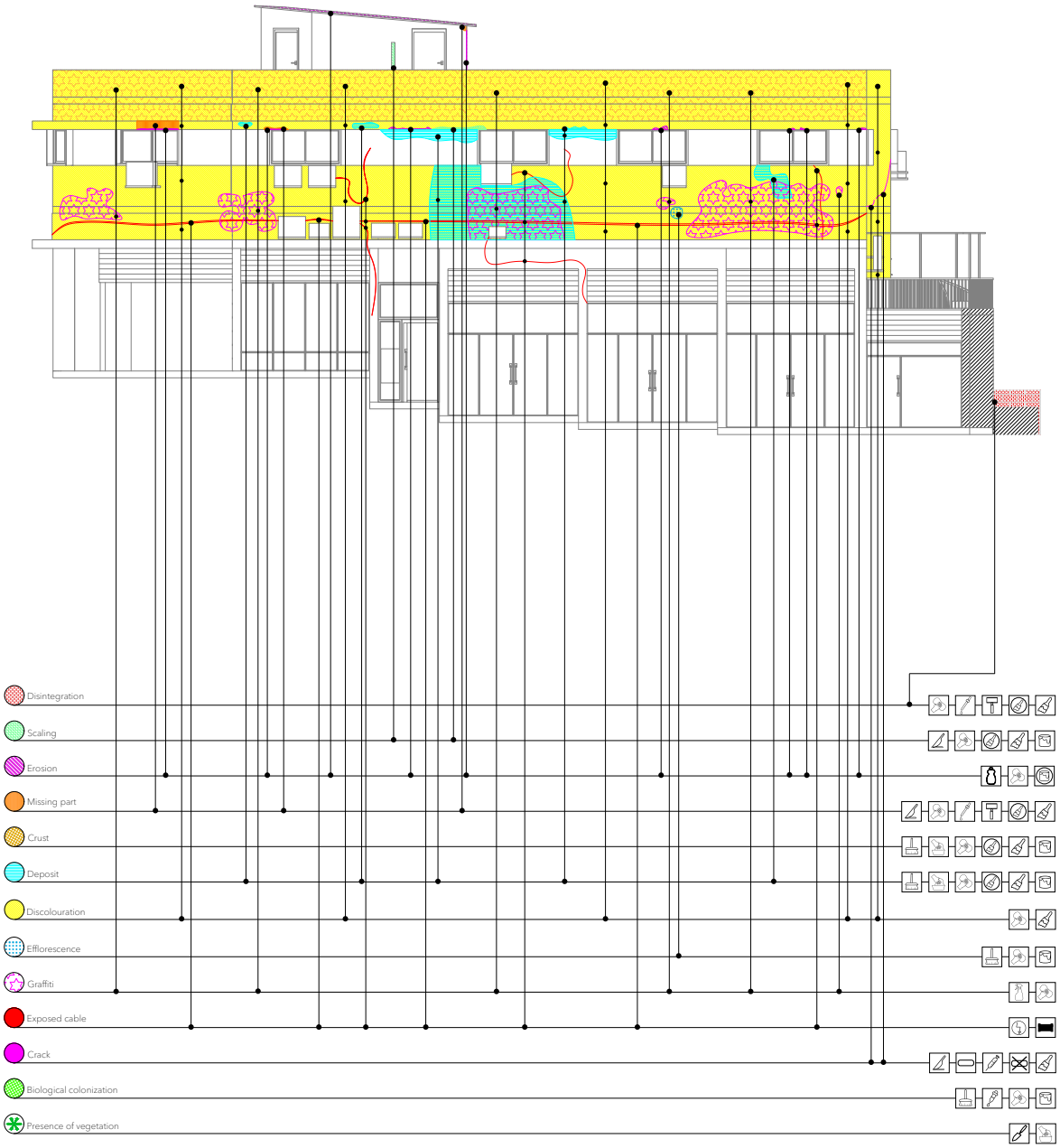
Clean
Apply bonding agent
Fill with mortar
Apply bonding primer
Apply plaster
Remove loose pieces
Apply siloxane hydrophobic coating
Apply acid-based rust remover
Apply epoxy coating
Dry brush
Wash
Spray graffiti remover
Unfiy cables routes
Enclose in PVC conduit
Seal with tape
Inject epoxy resin
Remove tape
Apply biocide gel
Remove root

Fig.A.37 - Degradation analysis, south façade

South elevation 1:200

0 2.5 5 10 m

Unknown condition (blocked view)



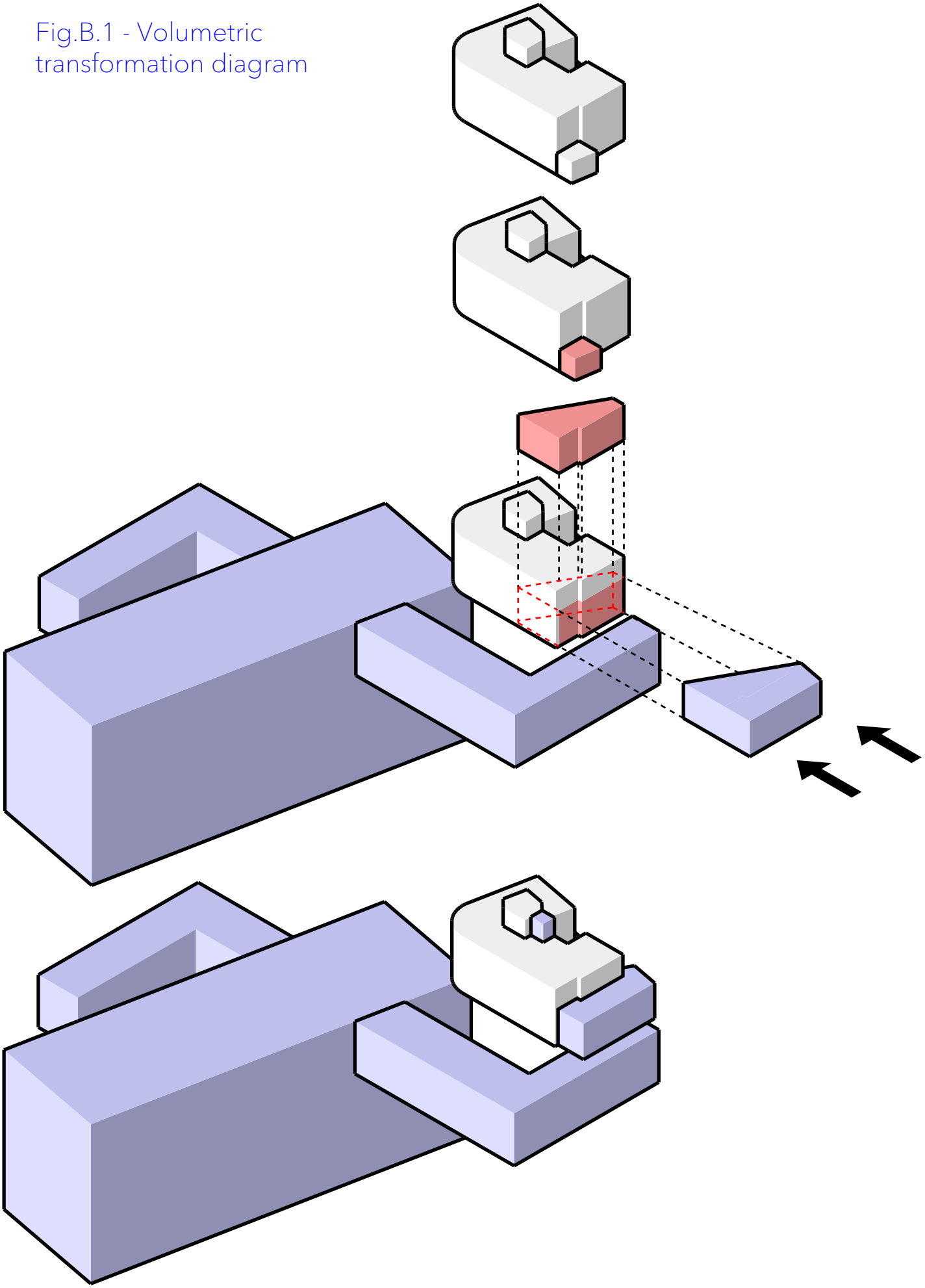
Treatment Legend:

Clean
Apply bonding agent
Fill with mortar
Apply bonding primer
Apply plaster
Remove loose pieces
Apply siloxane hydrophobic coating
Apply acid-based rust remover
Apply epoxy coating
Dry brush
Wash
Spray graffiti remover
Unfiy cables routes
Enclose in PVC conduit
Seal with tape
Inject epoxy resin
Remove tape
Apply biocide gel
Remove root

Appendix B:
Design Proposal

B.1: *Volumetric Diagram*

Fig.B.1 - Volumetric transformation diagram



B.2: *Functional Distribution*

FUNCTIONS LEGEND

- Metro station
- Caffe
  - Caffe outdoor seating area
- Circulation
- Integrated museum space
- HVAC engines storage space

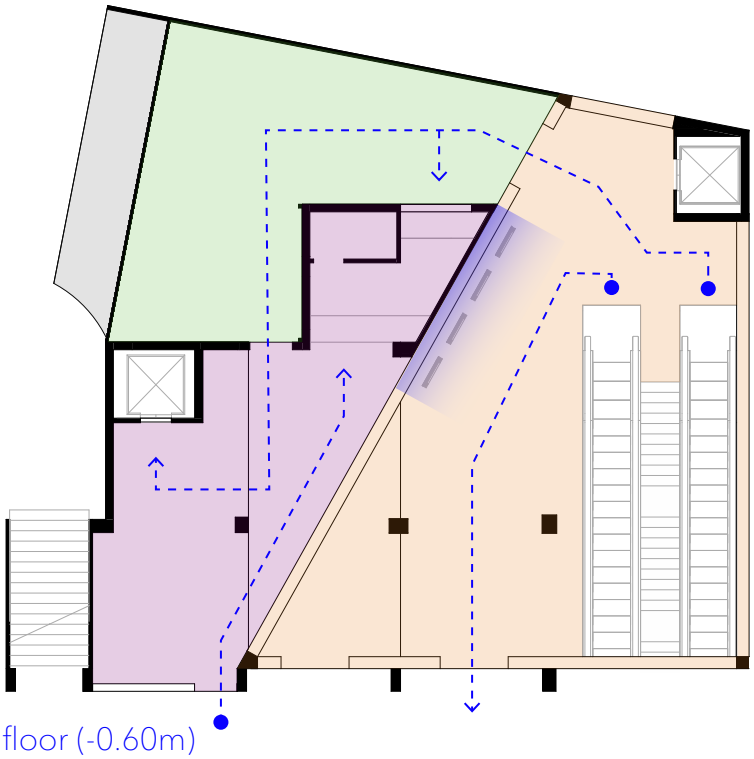


Fig.B.2 - Functional distribution, bottom floor (-0.60m)

FUNCTIONS LEGEND

- Existing business (retail space)
- Existing business (retail space)
- Existing business (food service)
- Existing business (food service)
- Workers space

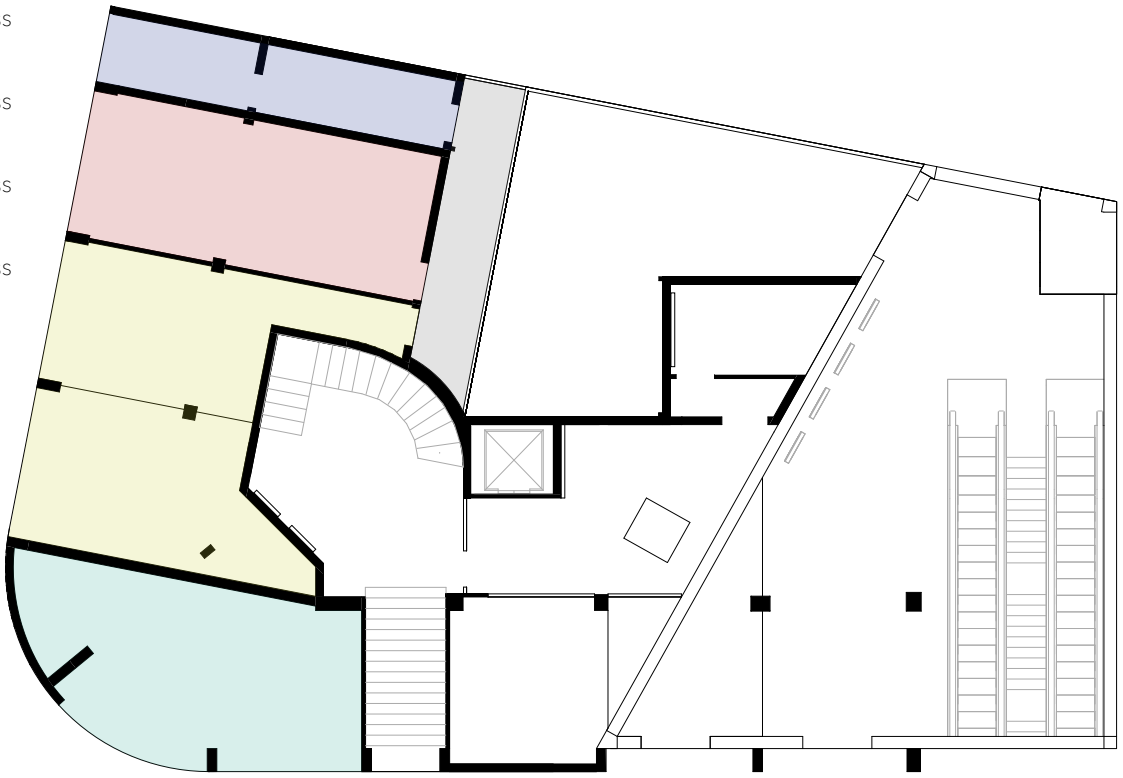


Fig.B.3 - Functional distribution, ground floor (+-0.00m)

Scale 1:200

0 2.5 5 10 m

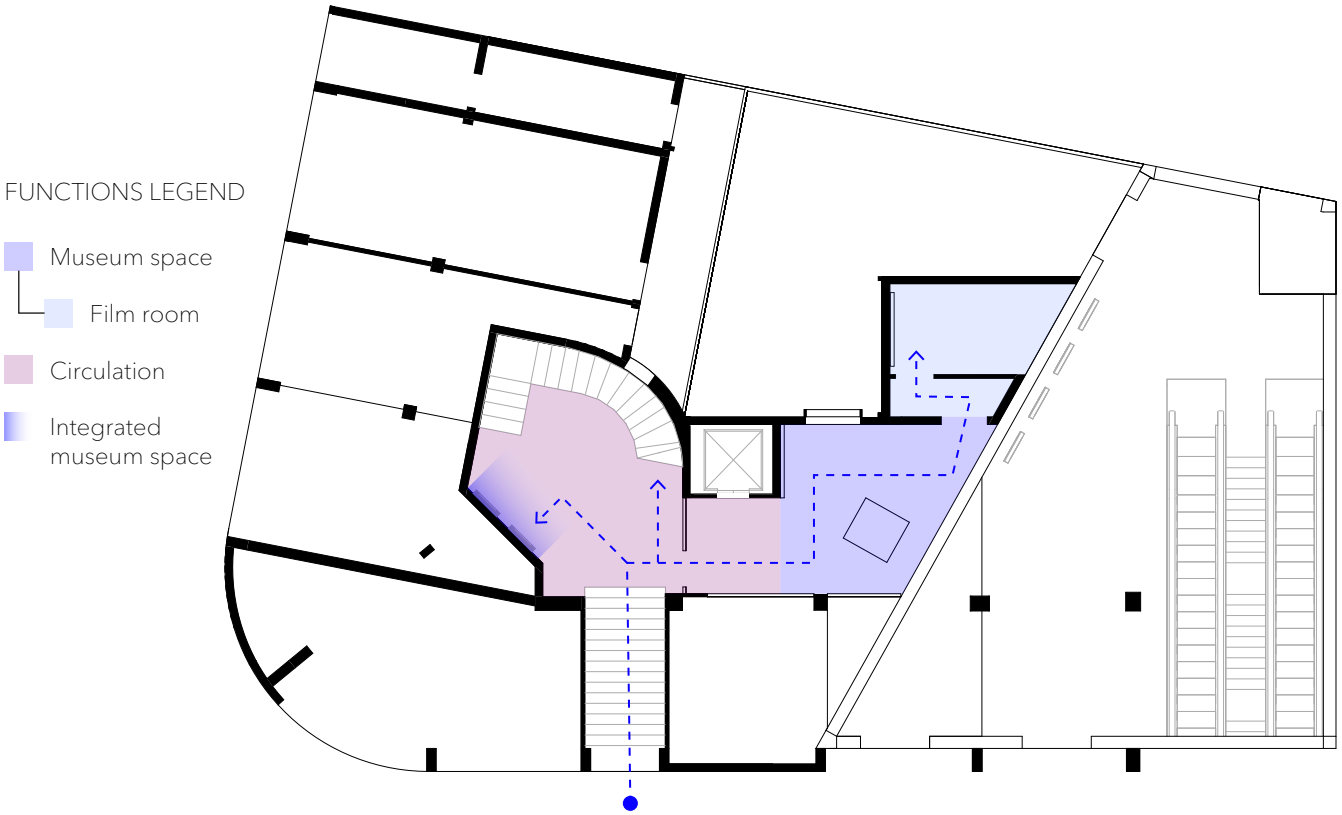


Fig.B.4 - Functional distribution, mezzanino floor (+2.73m)

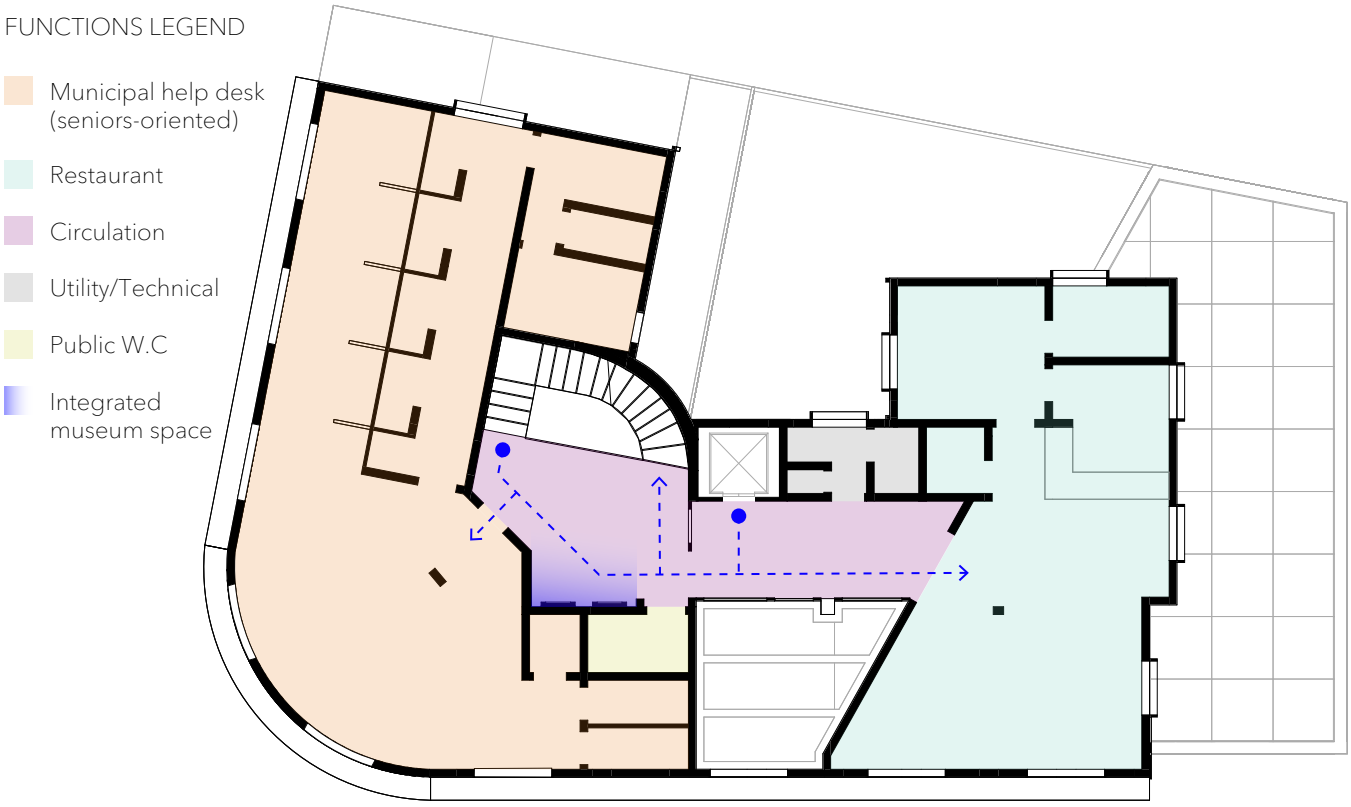


Fig.B.5 - Functional distribution, first floor (+5.73m)

Scale 1:200

0 2.5 5 10 m

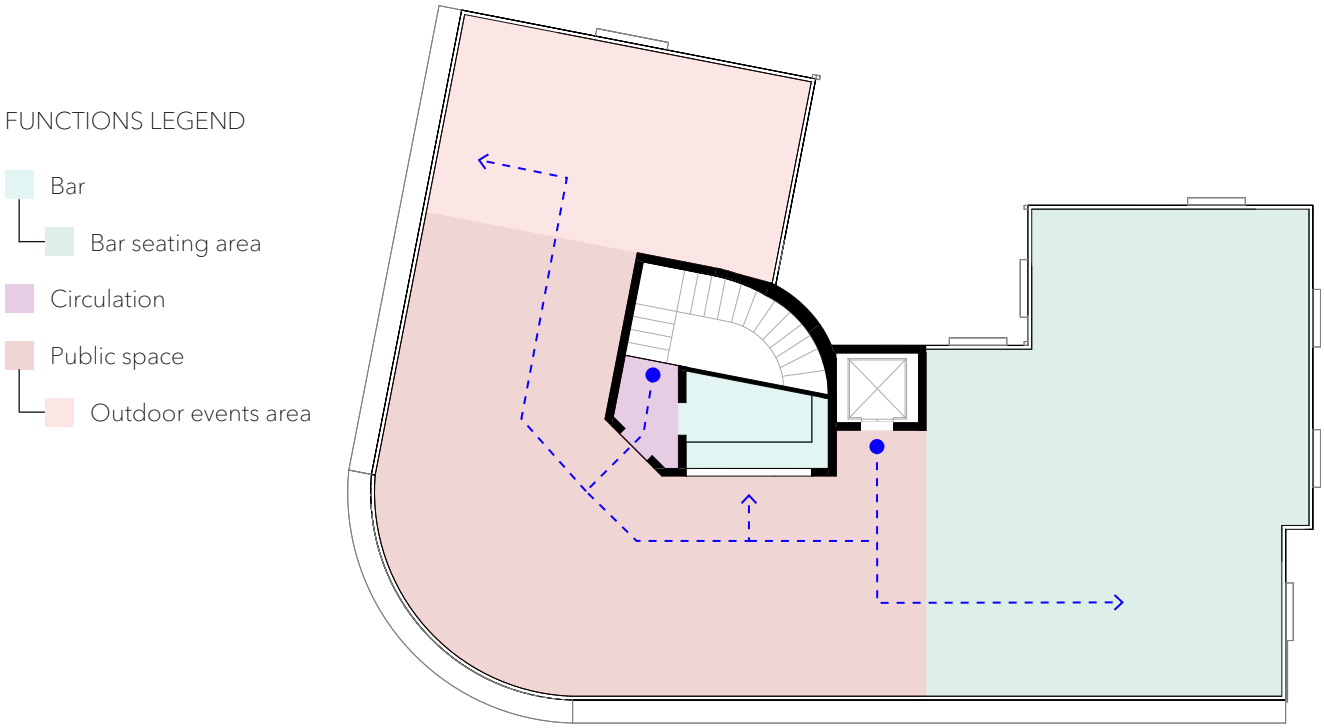


Fig.B.6 - Functional distribution, roof floor (+8.93m)

Scale 1:200

0 2.5 5 10 m

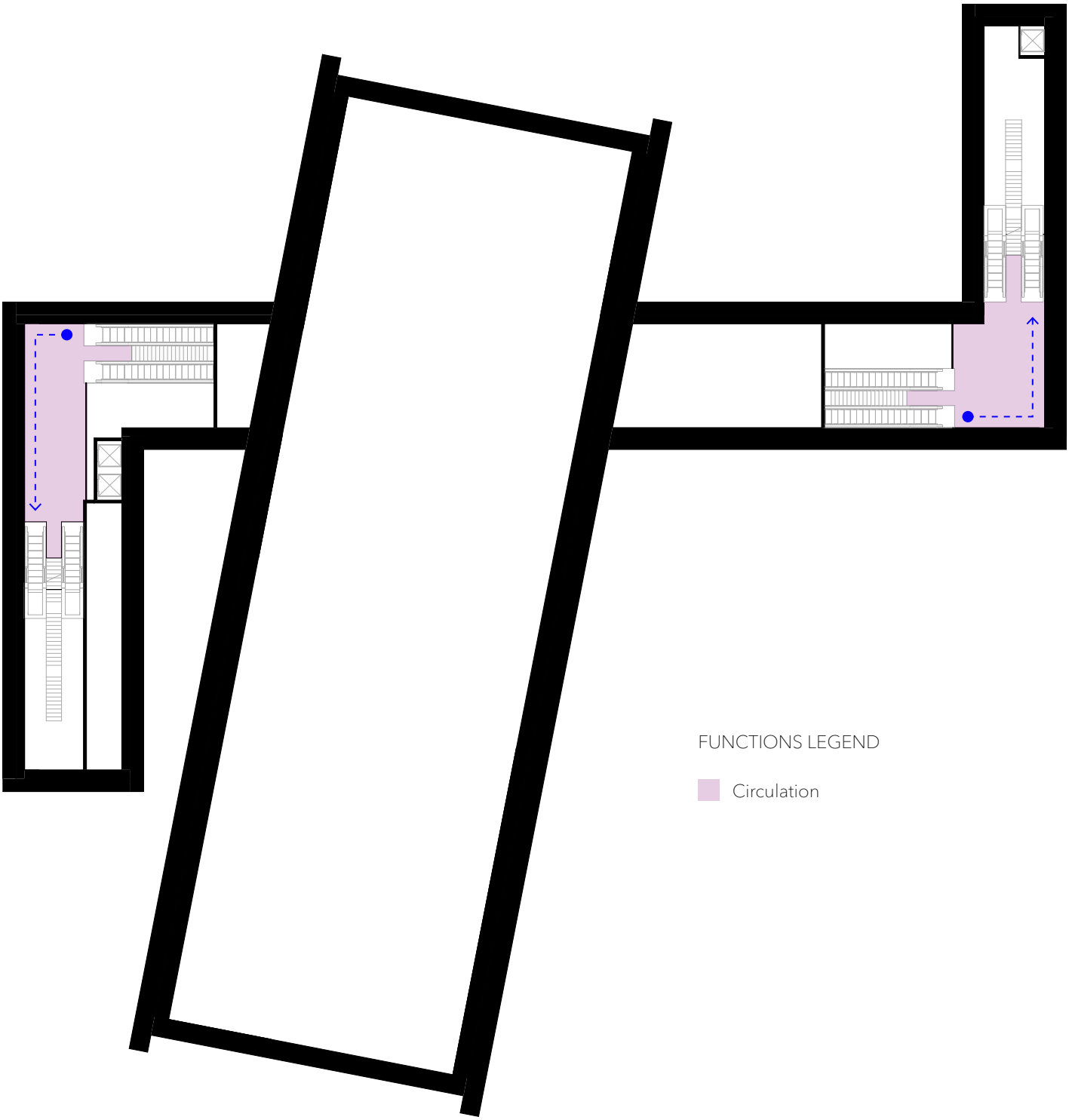


Fig.B.7 - Functional distribution, metro mezzanino floor (-6.01m)

Scale 1:400

0 5 10 20 m

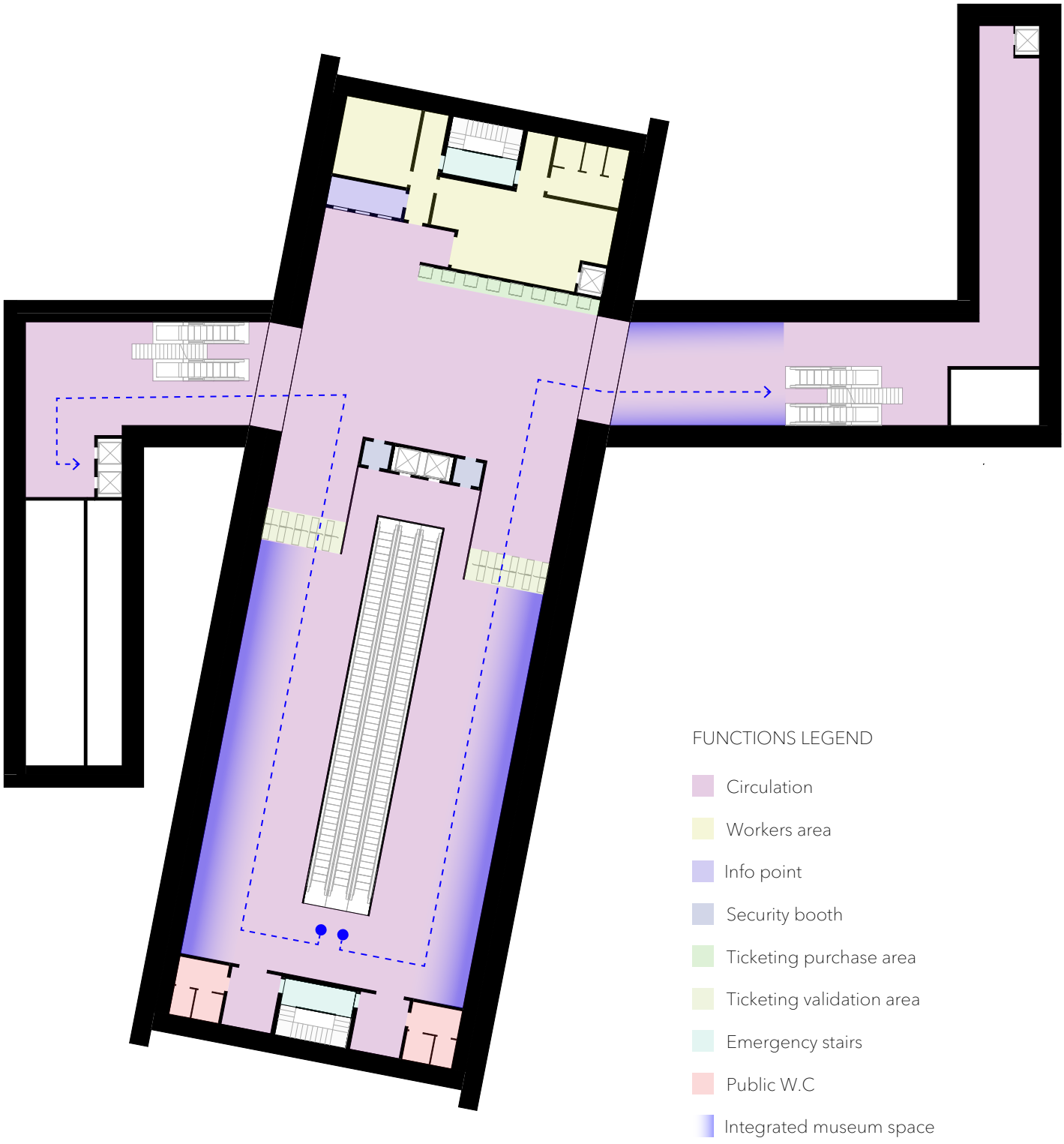


Fig.B.8 - Functional distribution, metro ticketing floor (-9.44m)

Scale 1:400

0 5 10 20 m

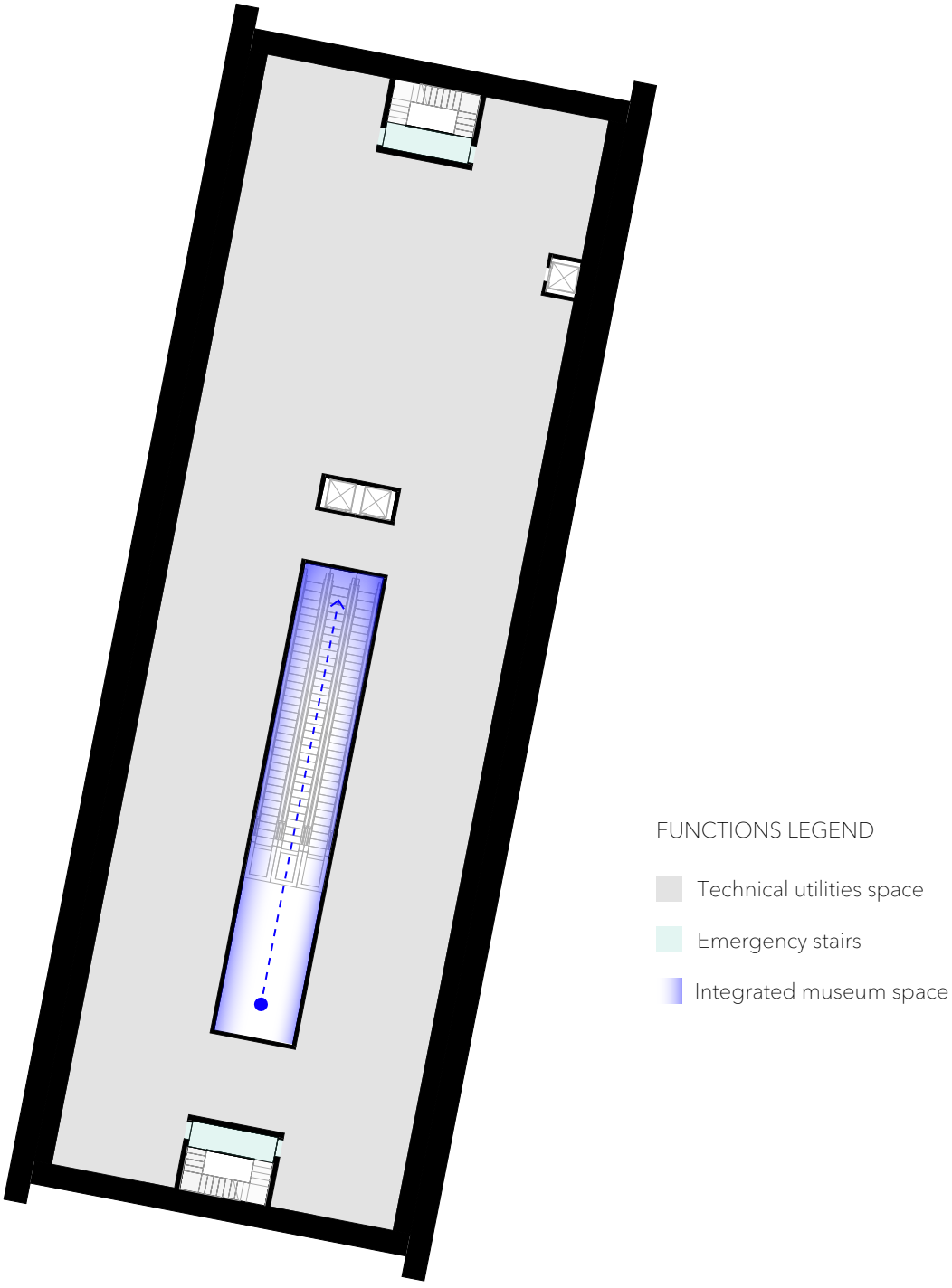


Fig.B.9 - Functional distribution, metro technical floor (-15.29m)

Scale 1:400

0 5 10 20 m

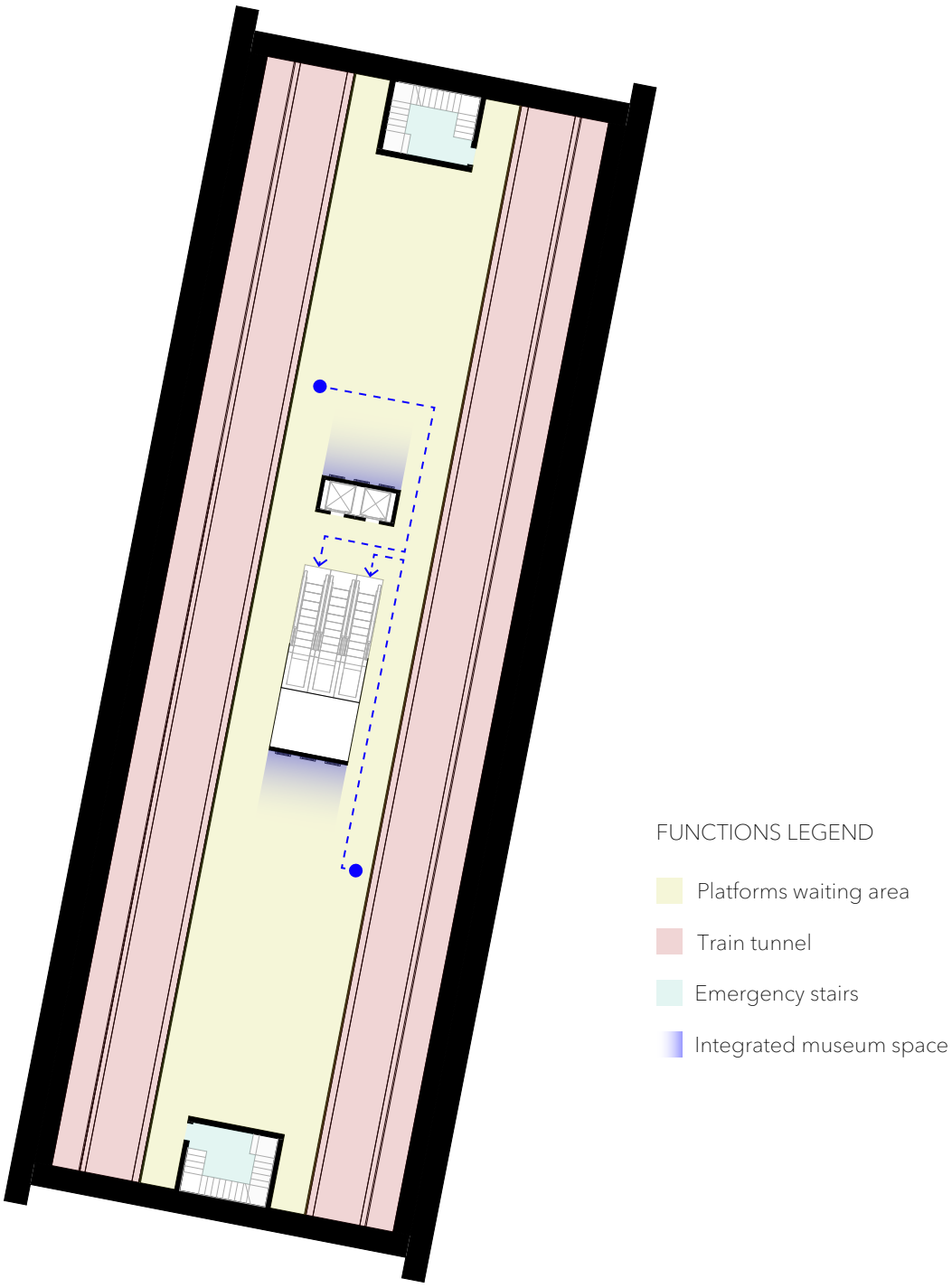


Fig.B.10 - Functional distribution, metro platforms floor (-22.06m)

Scale 1:400

0 5 10 20 m

B.3: *Floor plans*

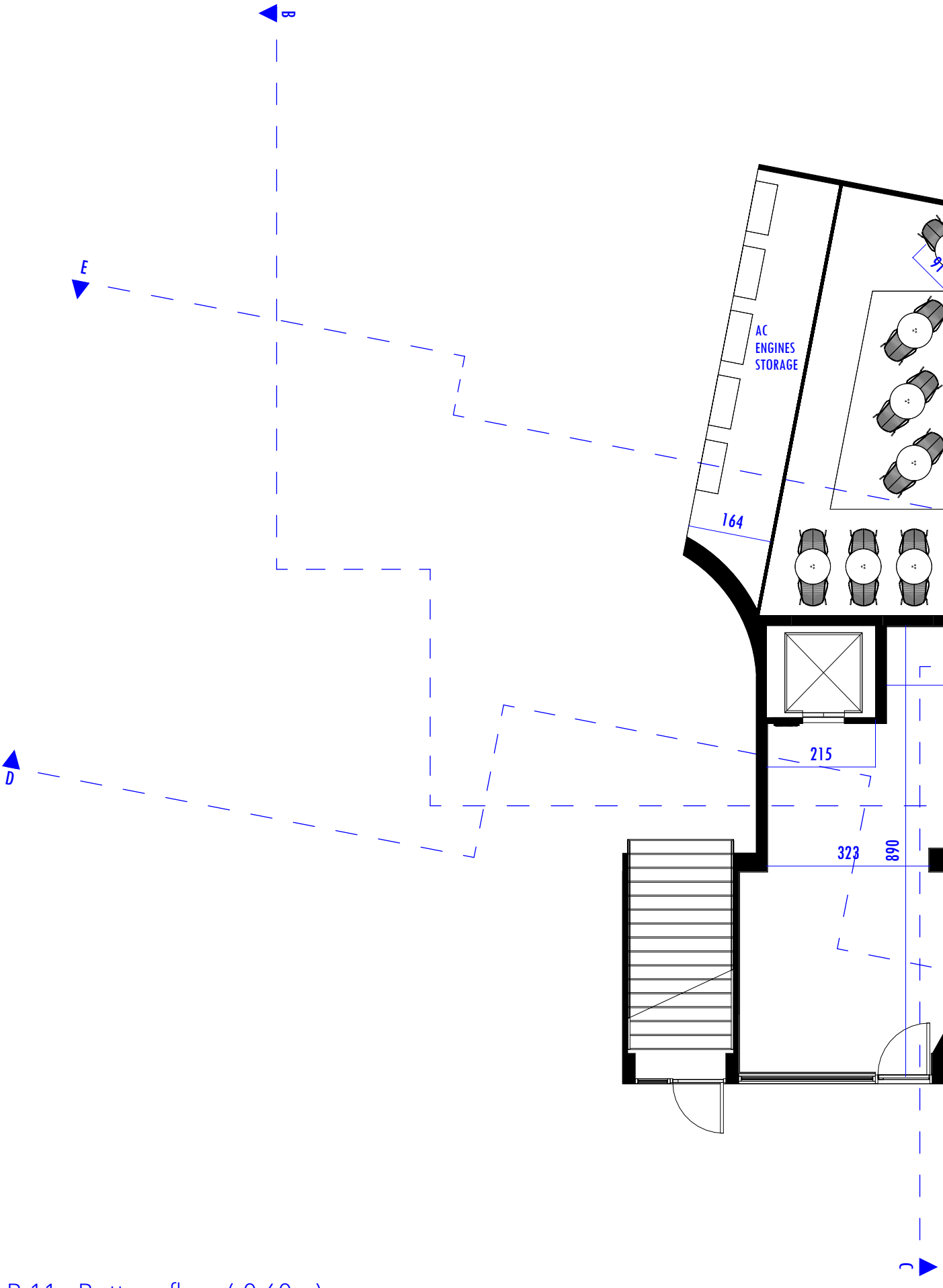
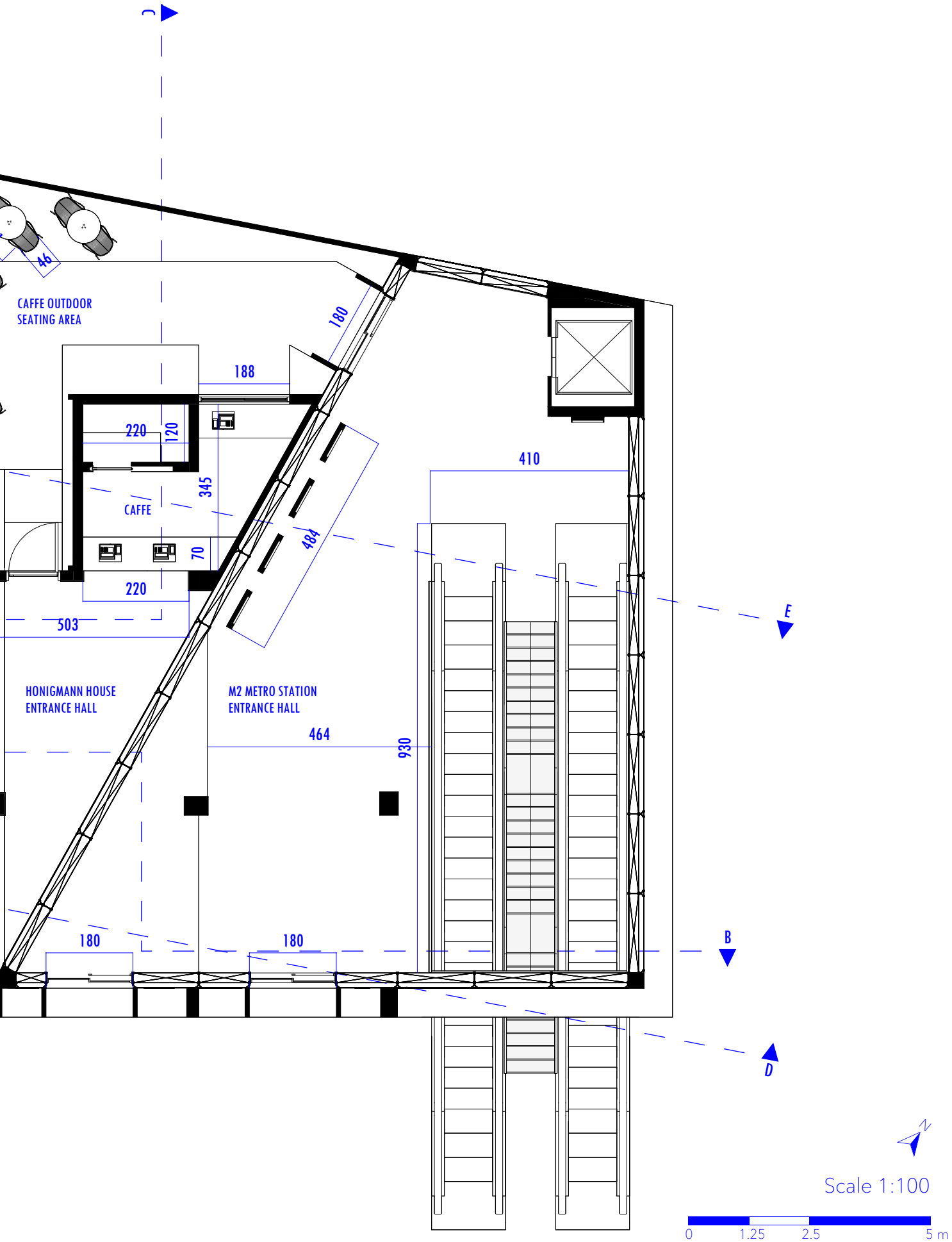


Fig.B.11 - Bottom floor (-0.60m)



Scale 1:100

0 1.25 2.5 5 m

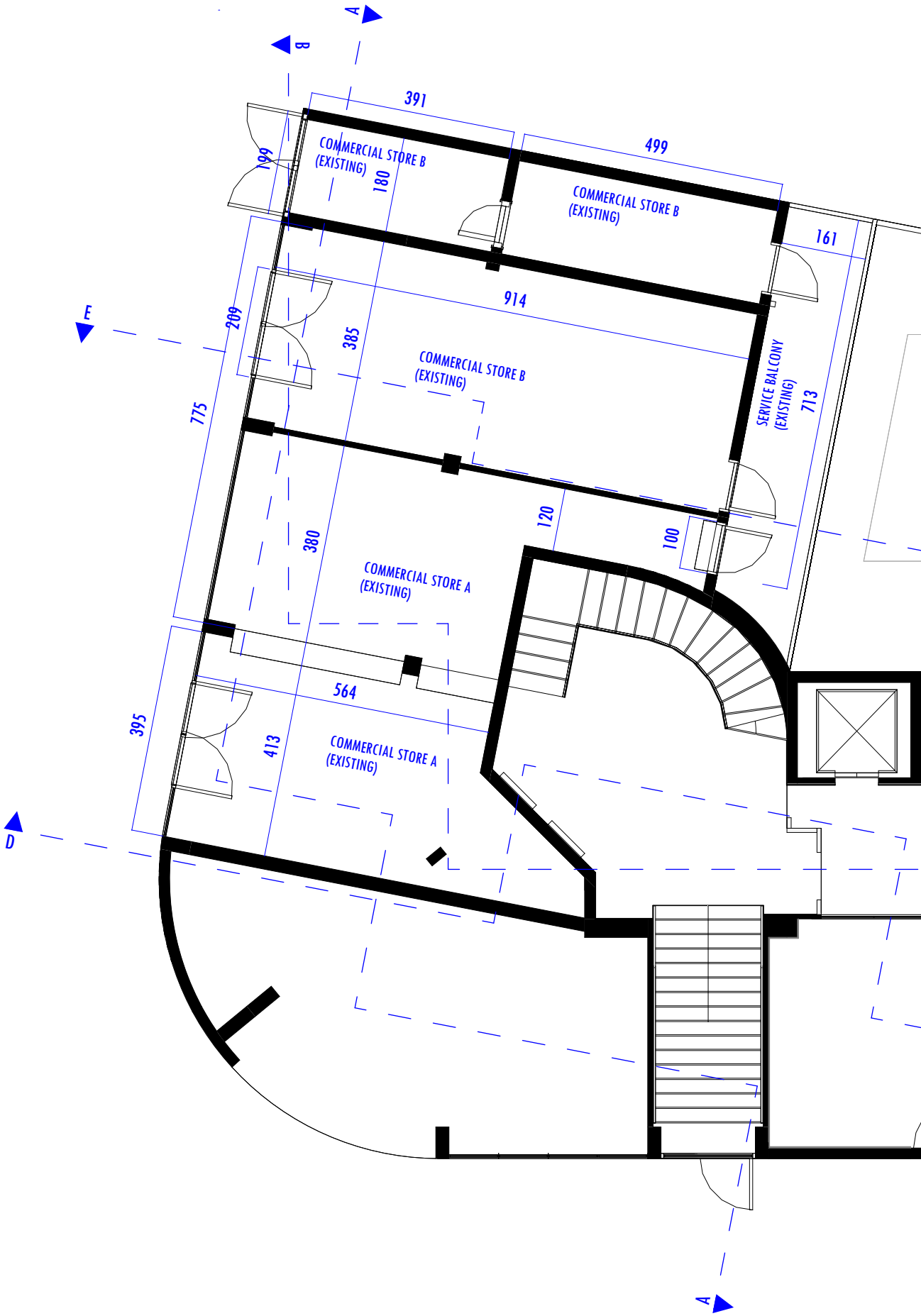
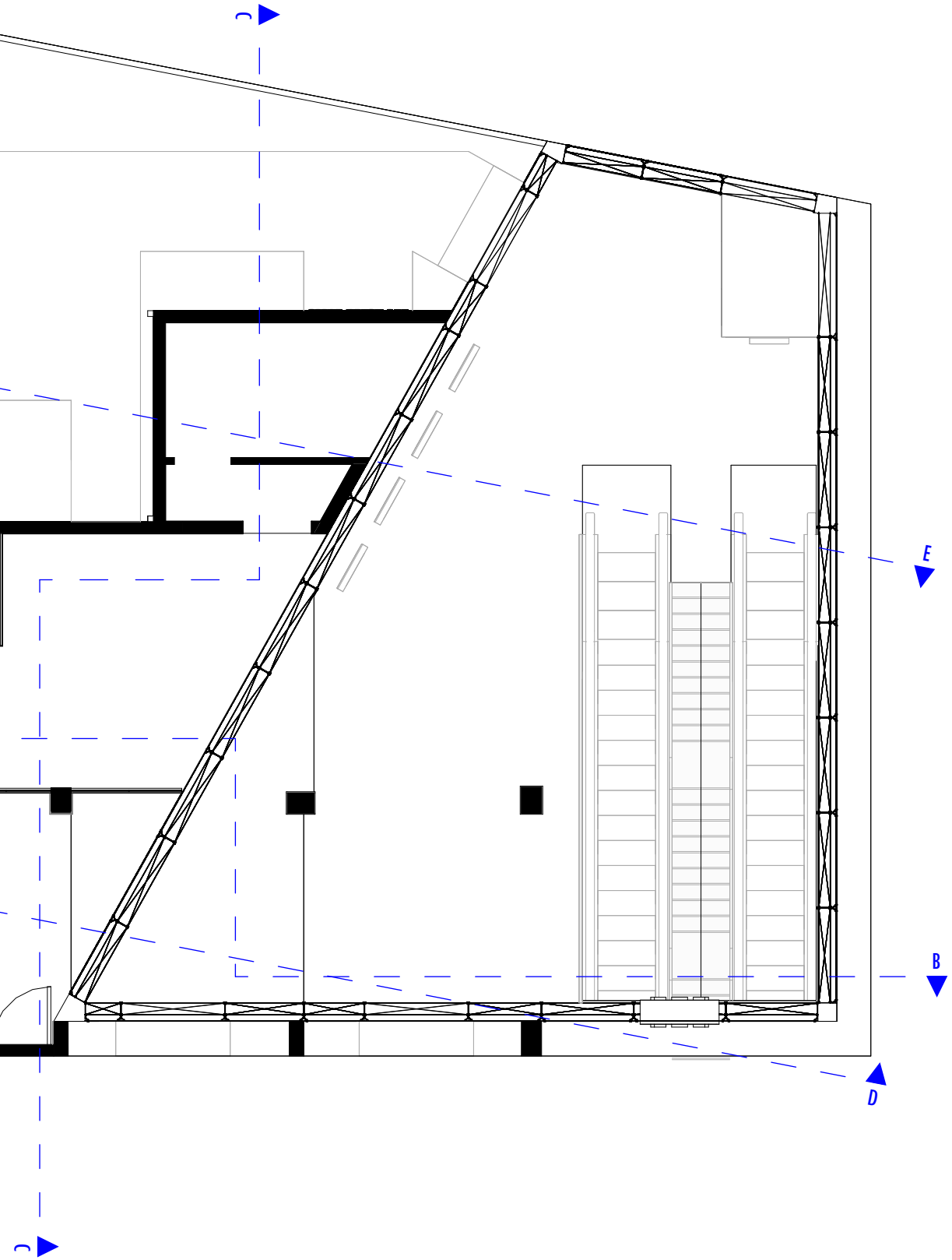


Fig.B.12 - Ground floor (+-0.00m)



Scale 1:100

0 1.25 2.5 5 m

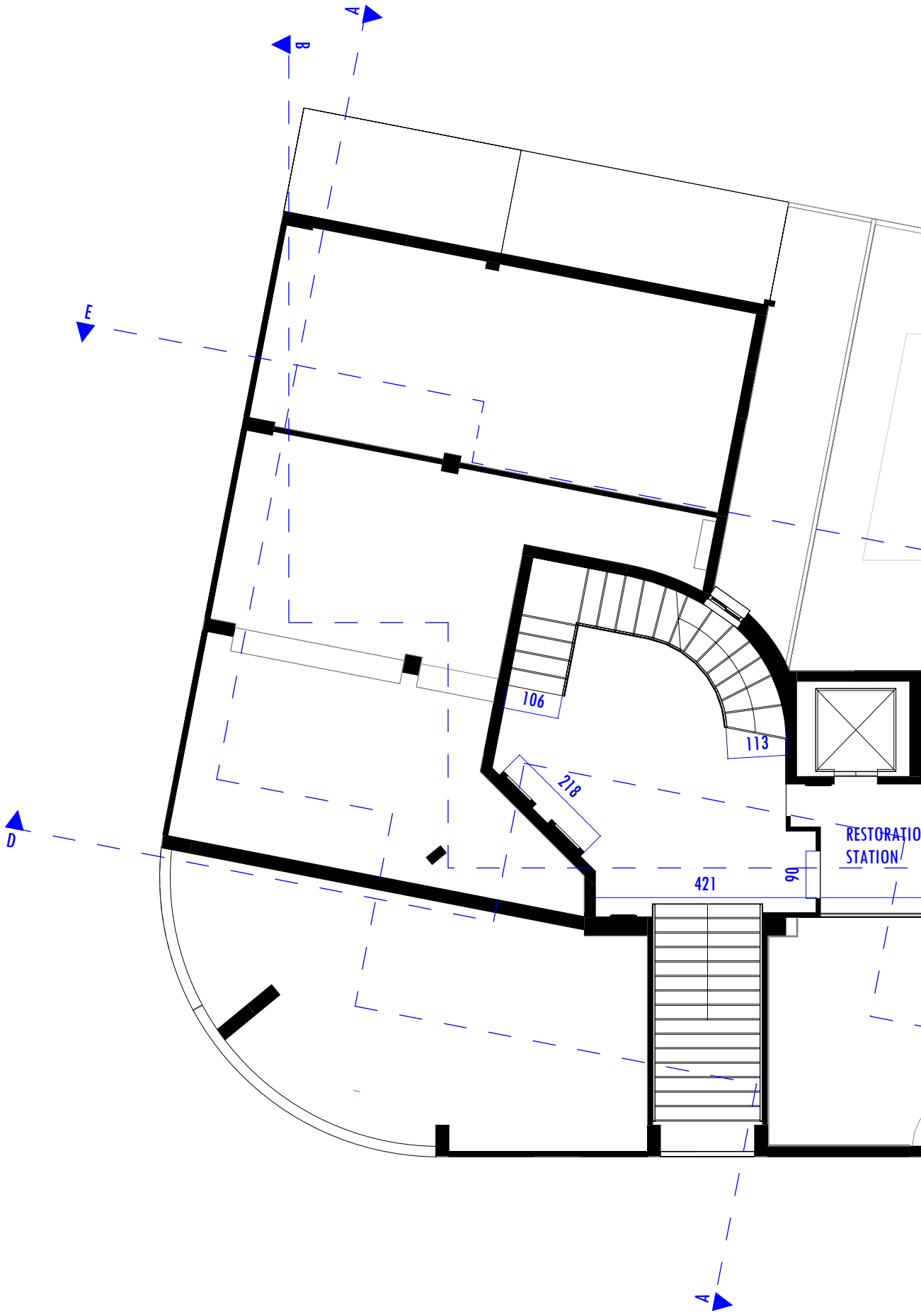
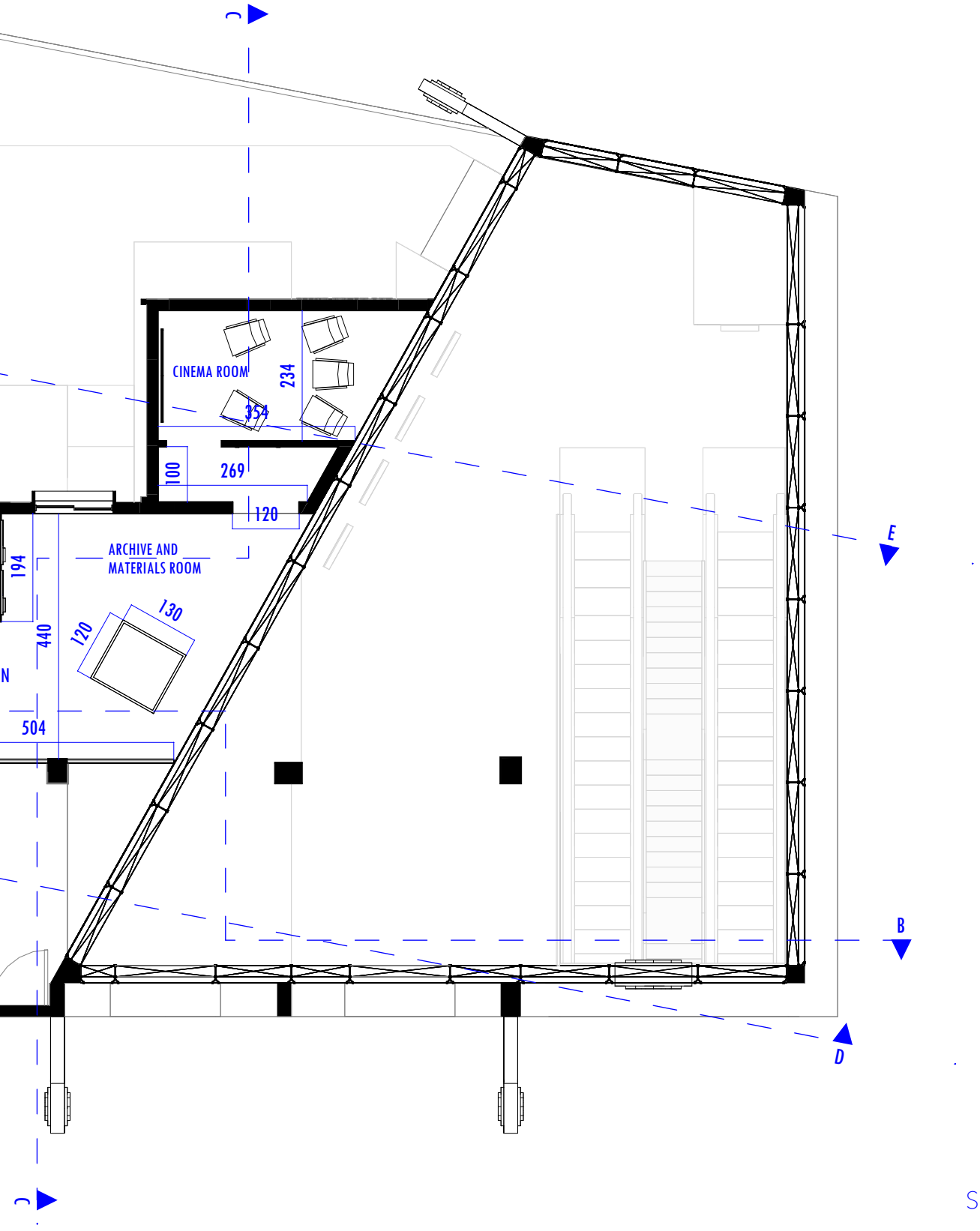


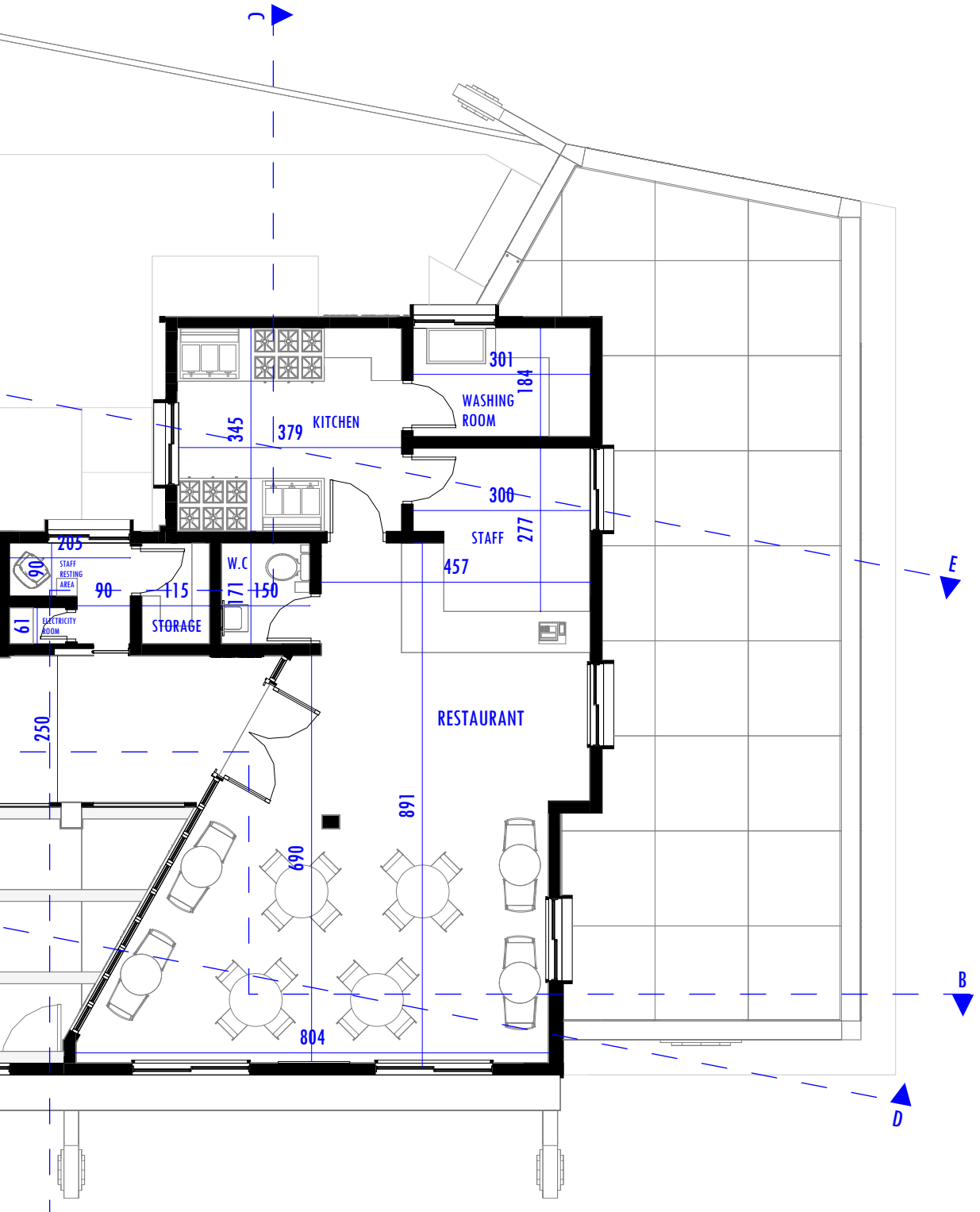
Fig.B.13 - Mezzanino floor (+2.73m)



Scale 1:100

0 1.25 2.5 5 m

Fig.B.14 - First floor (+5.73m)



Scale 1:100

0 1.25 2.5 5 m

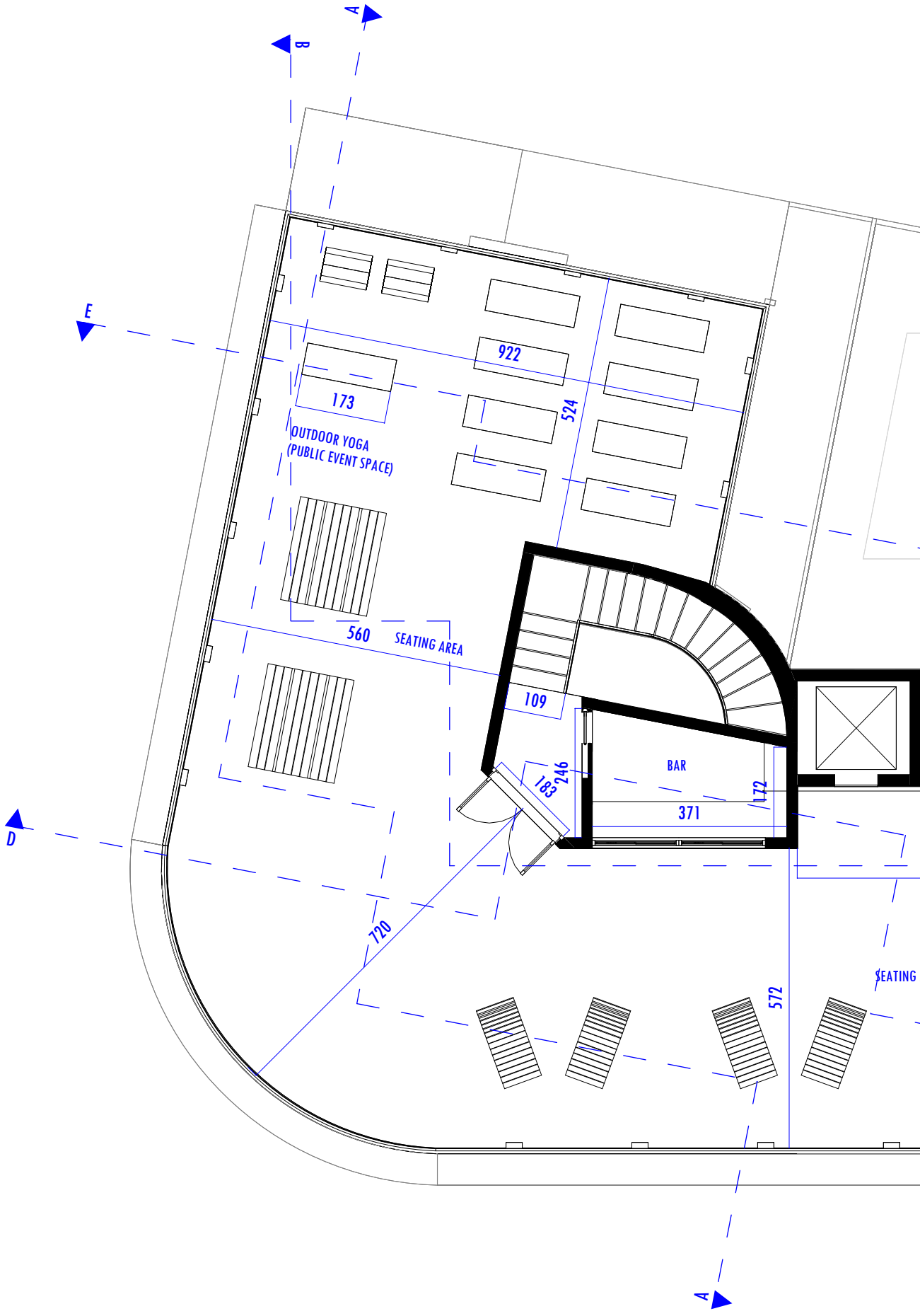
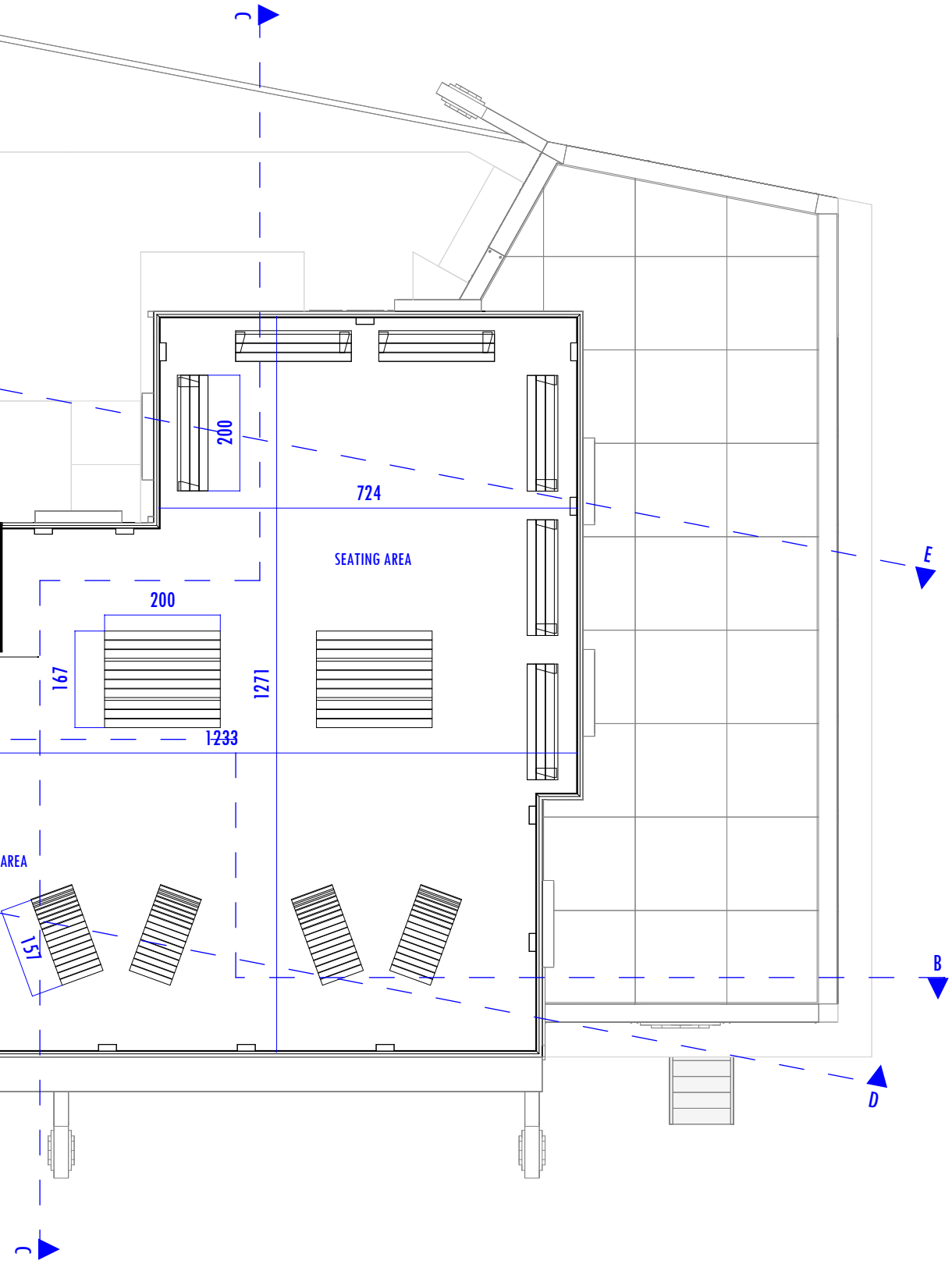


Fig.B.15 - Roof floor (+8.93m)



Scale 1:100

0 1.25 2.5 5 m

Figure X: *Floor plans, Magen David Metro Station*

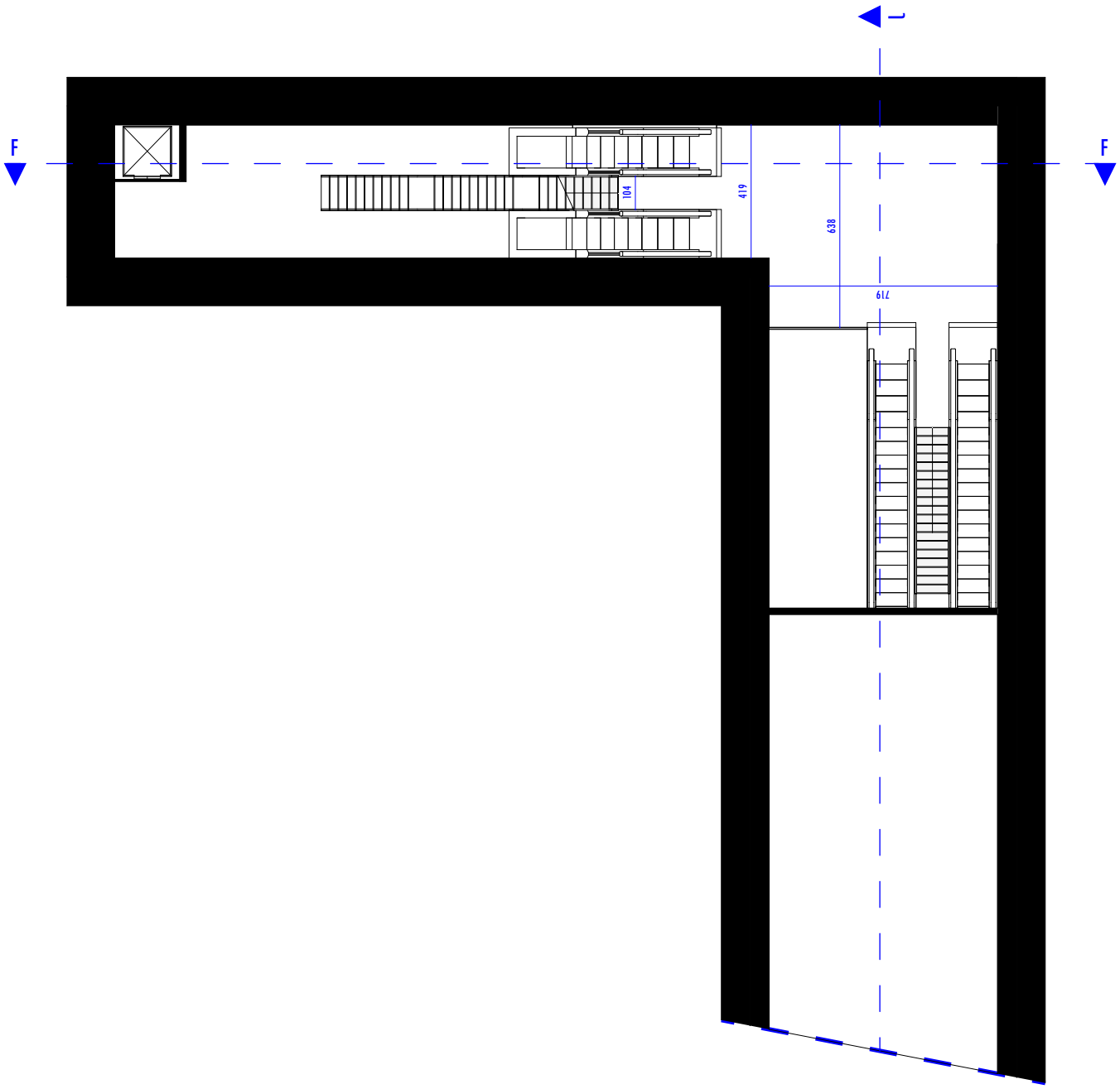


Fig.B.16.1 - Mezzanino floor - Exit B to Honigmann House (-6.01m)

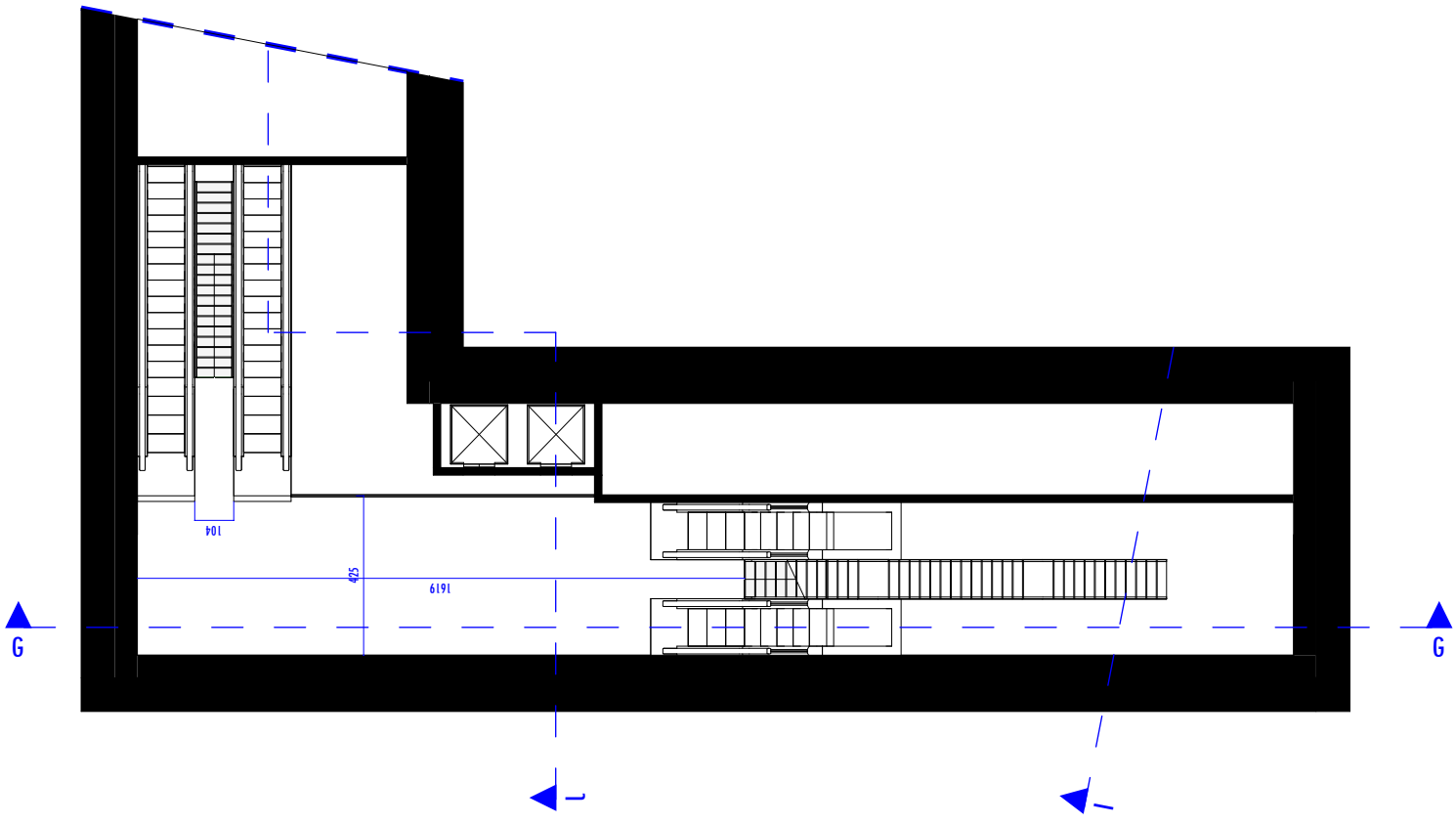


Fig.B.16.2 - Mezzanino floor - Exit A to Piazza Magen David (-6.01m)

Scale 1:200

0 2.5 5 10 m

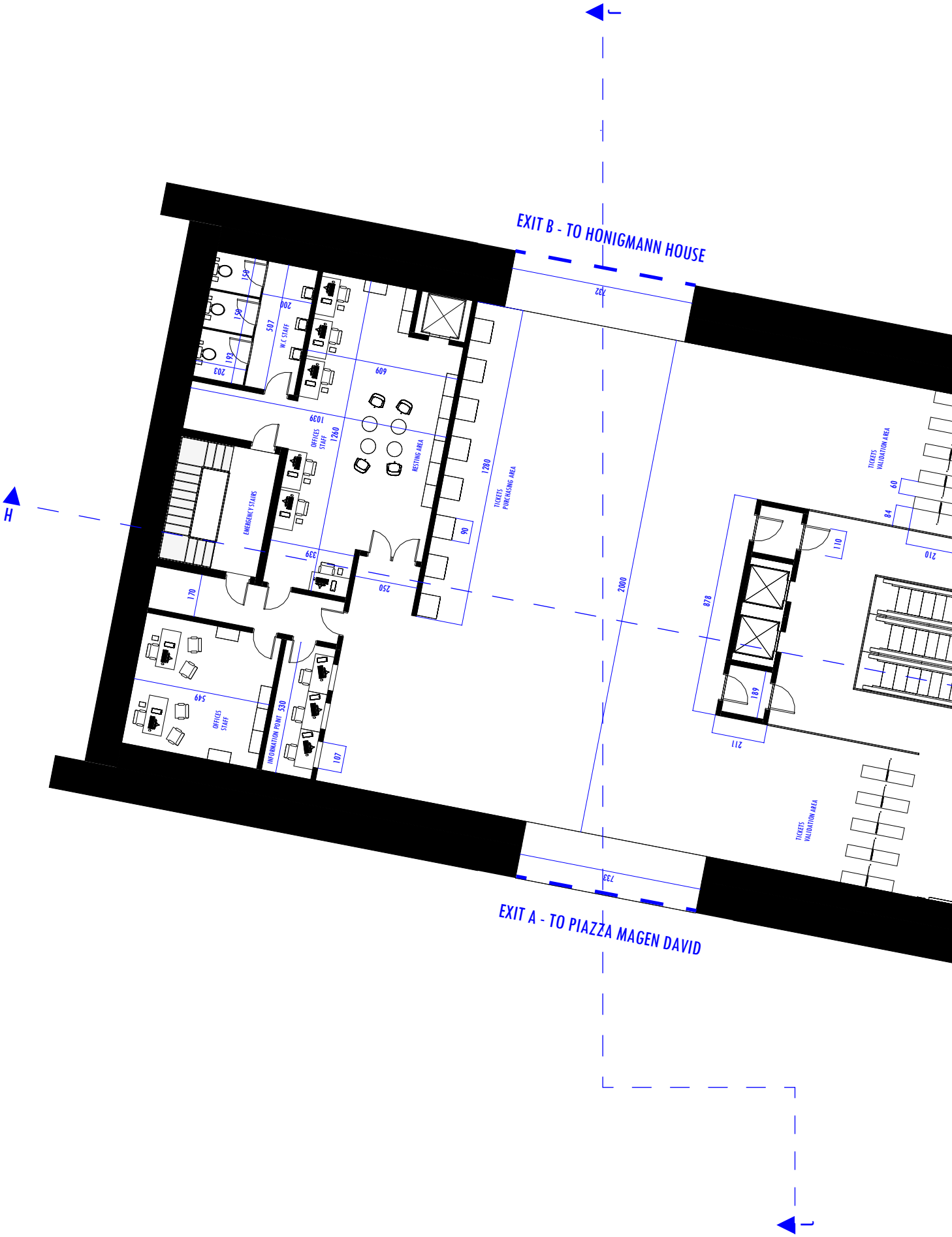
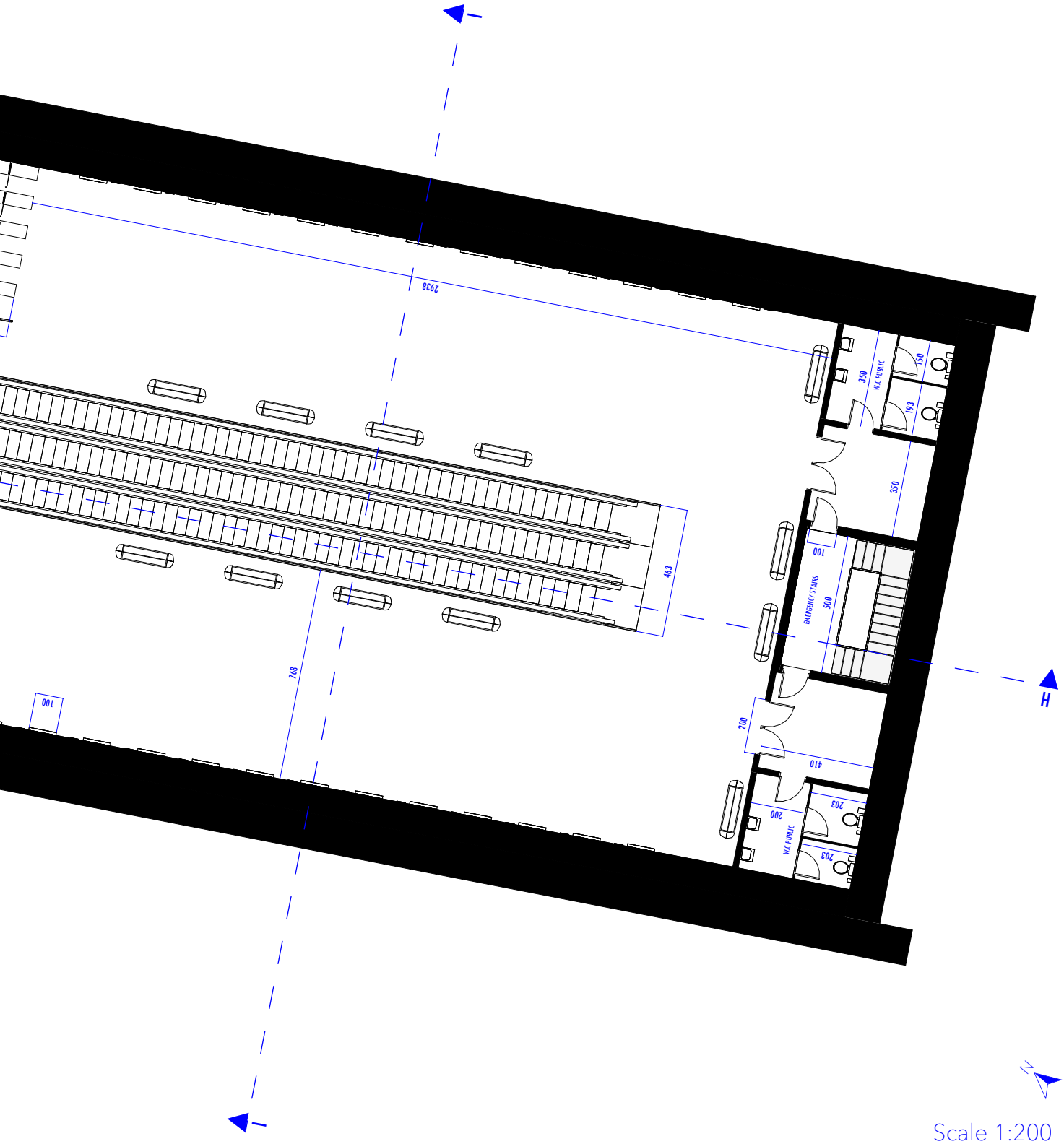


Fig.B.17.1 - Ticketing floor - main volume (-9.44m)



Scale 1:200

0 2.5 5 10 m

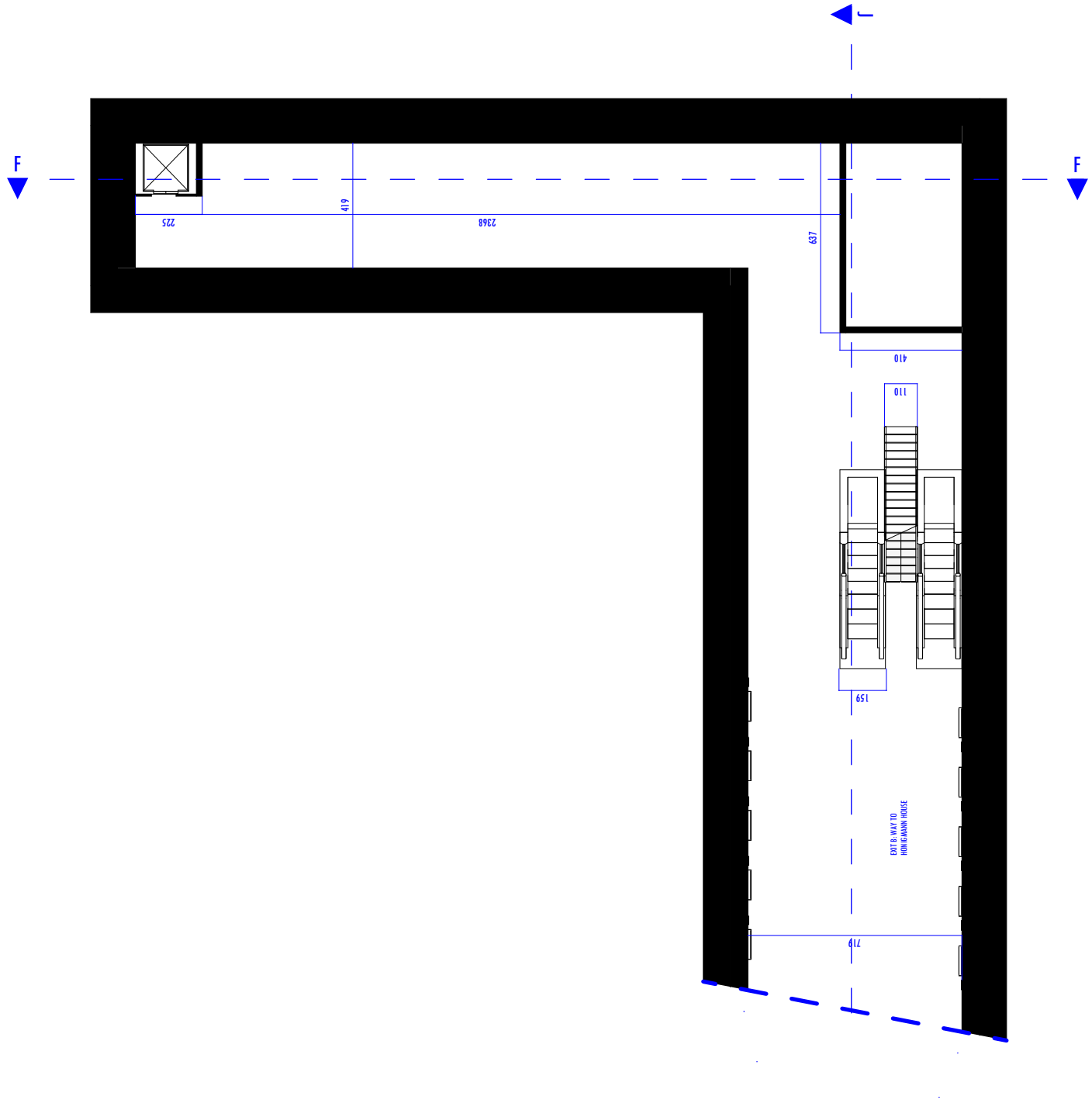


Fig.B.17.2 - Ticketing floor - Exit B to Honigmann House (-9.44m)

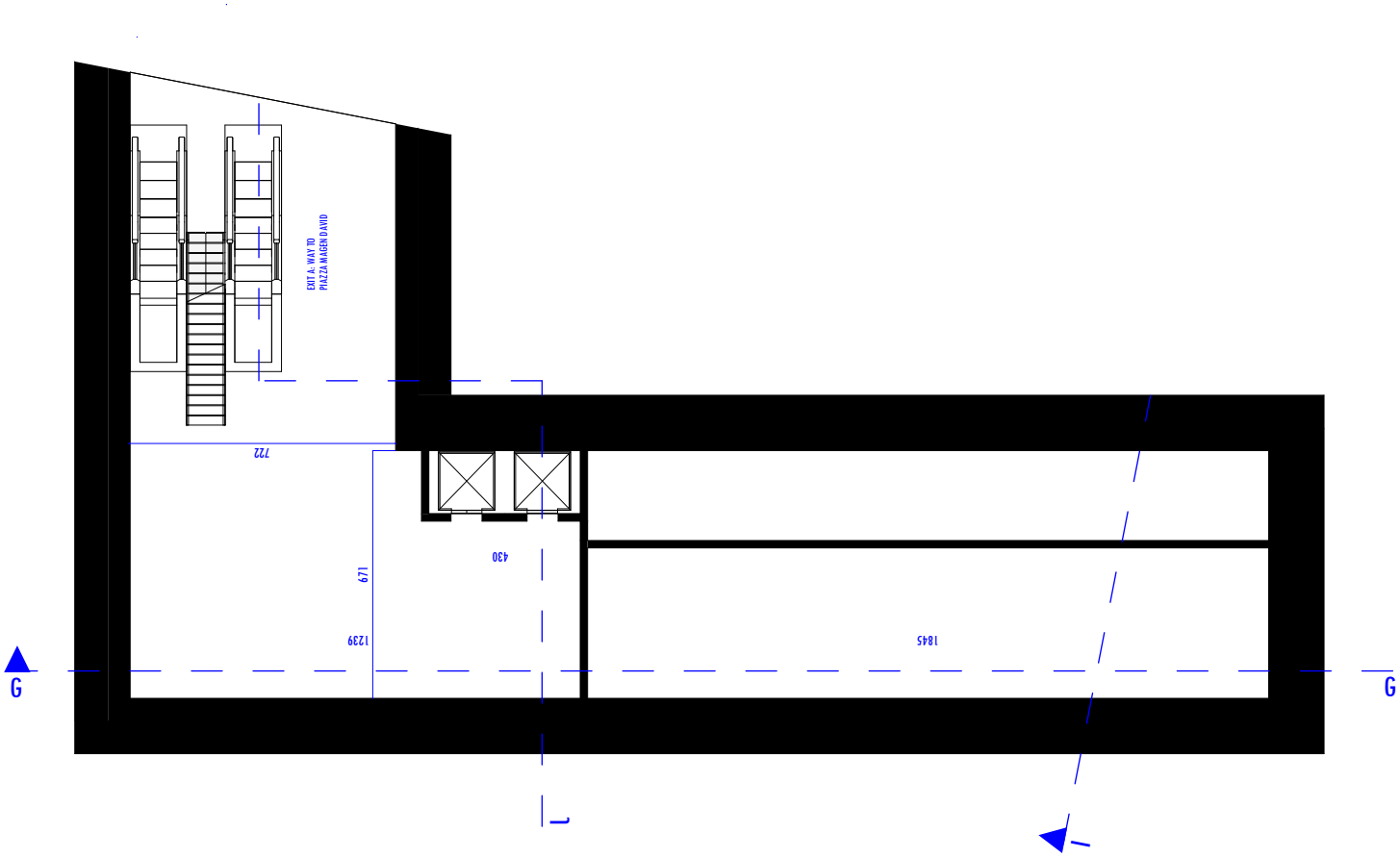


Fig.B.17.3 - Ticketing floor - Exit A to Piazza Magen David (-9.44m)

Scale 1:200

0 2.5 5 10 m

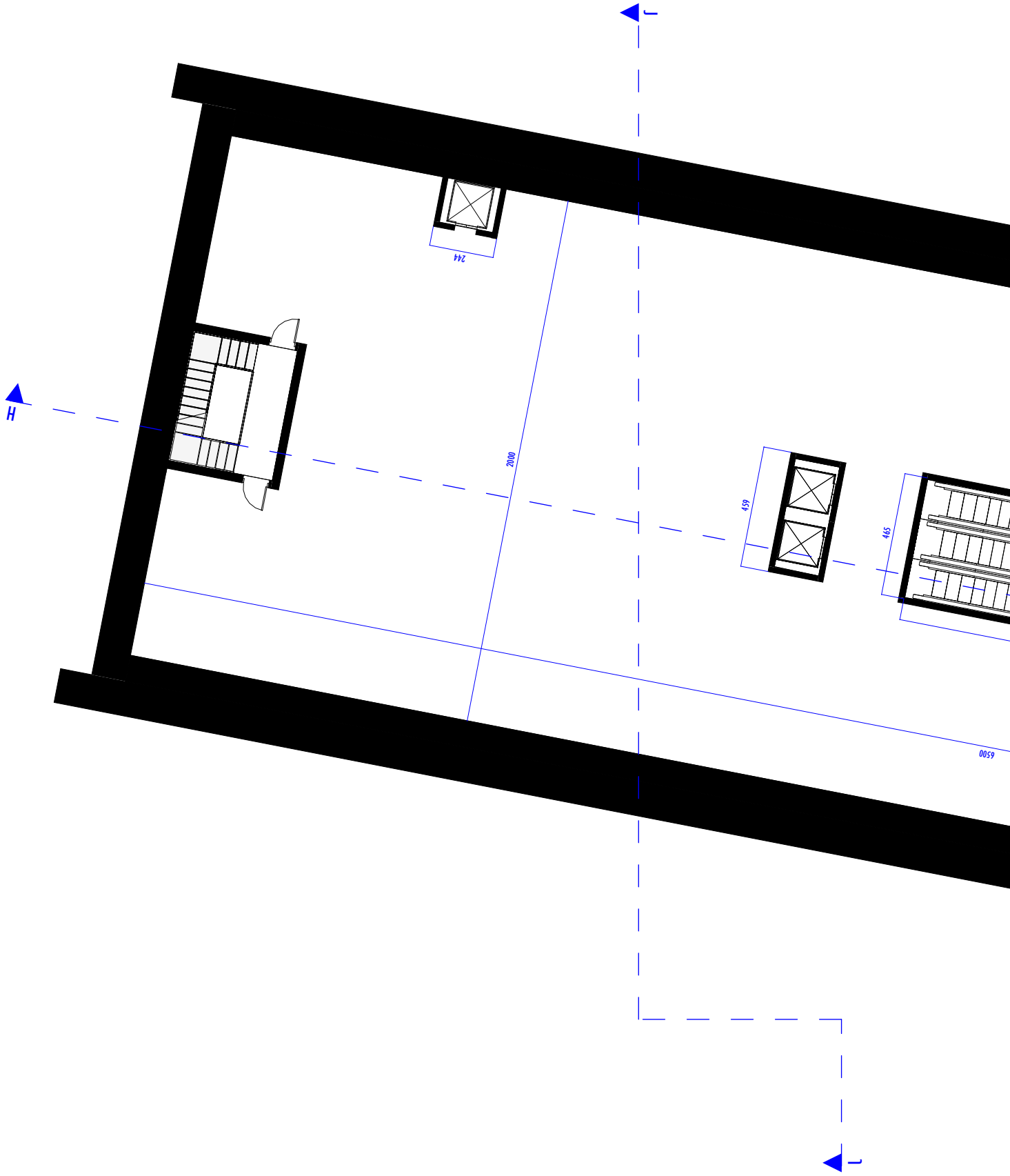
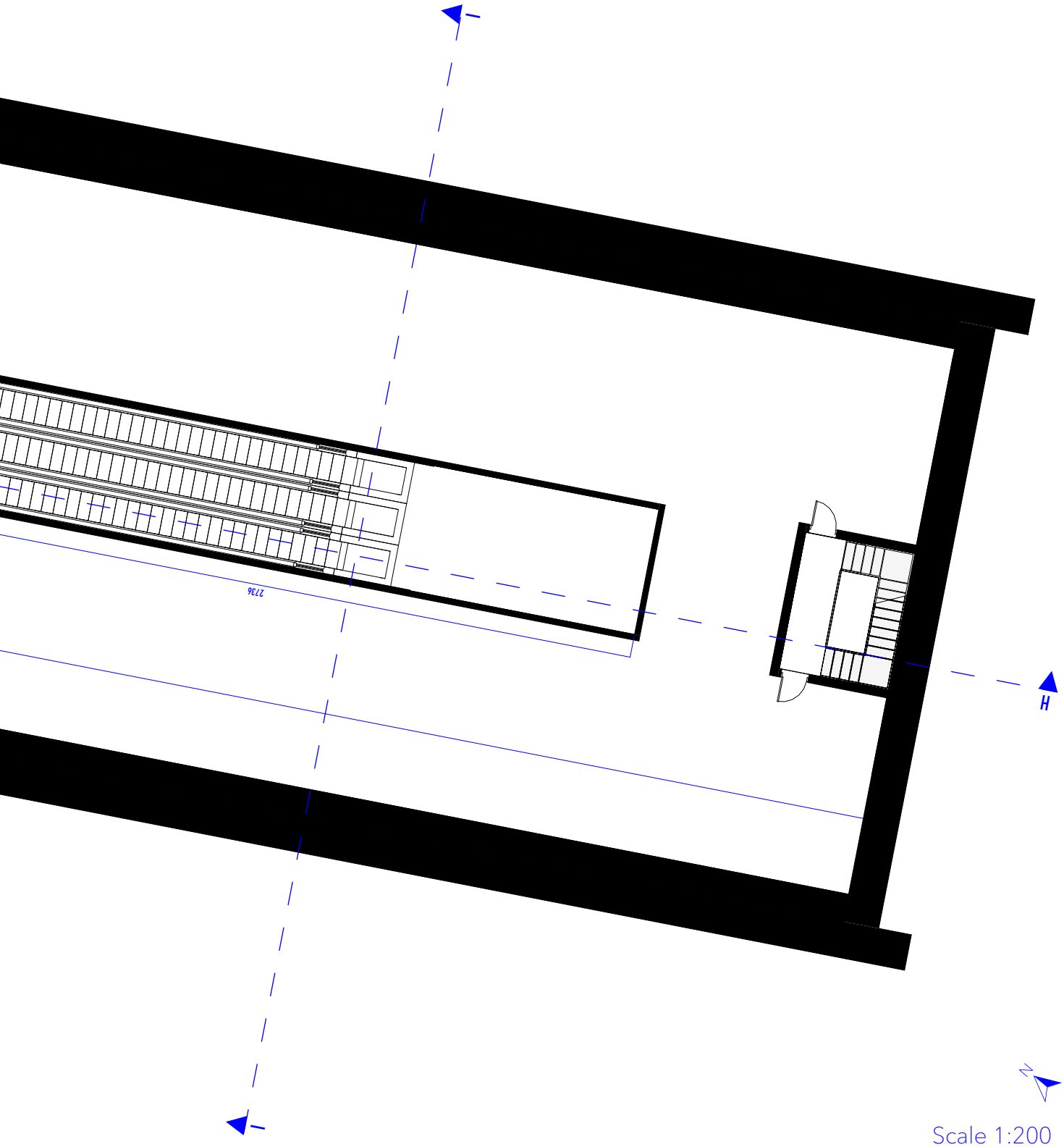


Fig.B.18 - Technical floor (-15.29m)



Scale 1:200

0 2.5 5 10 m

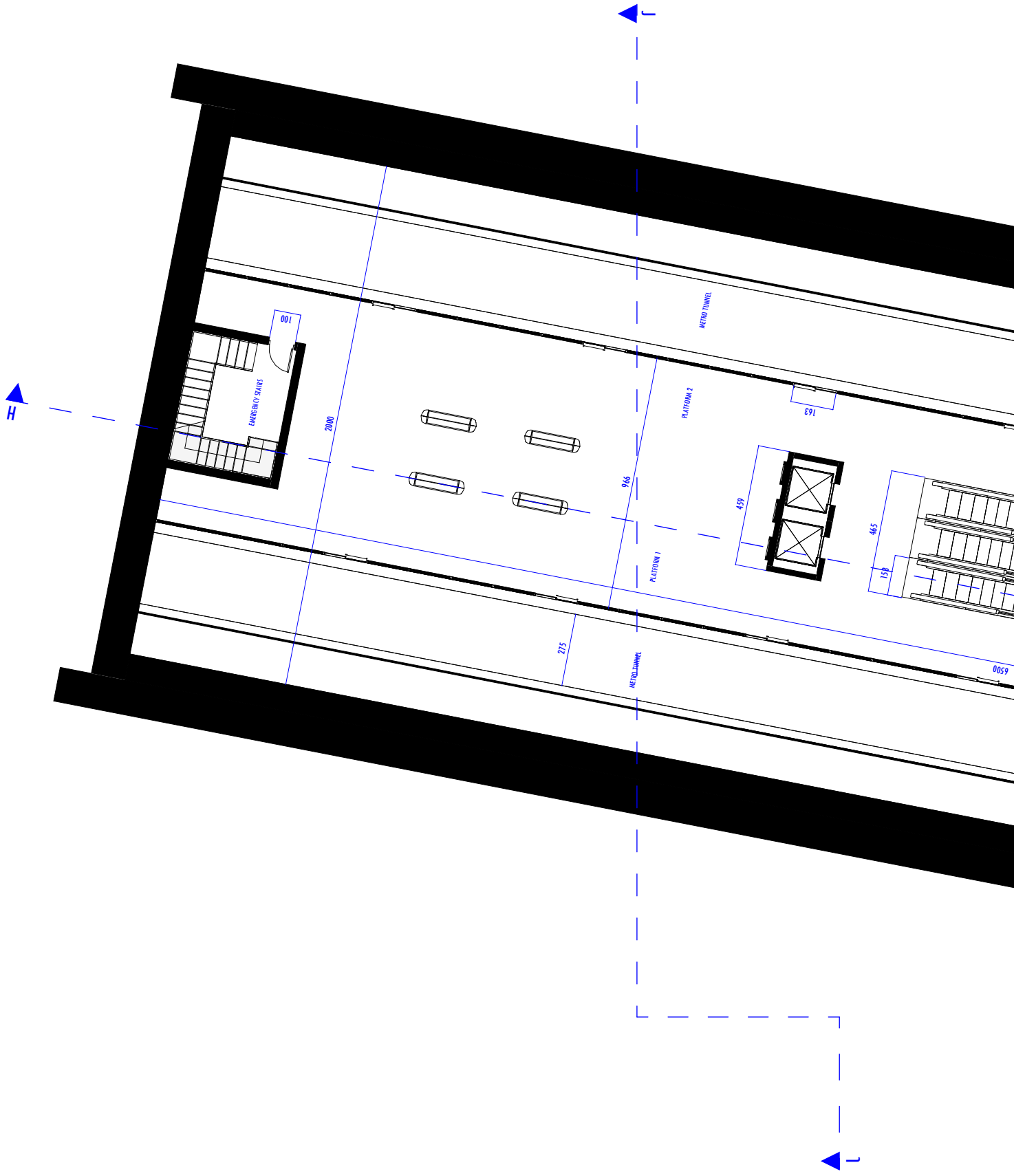
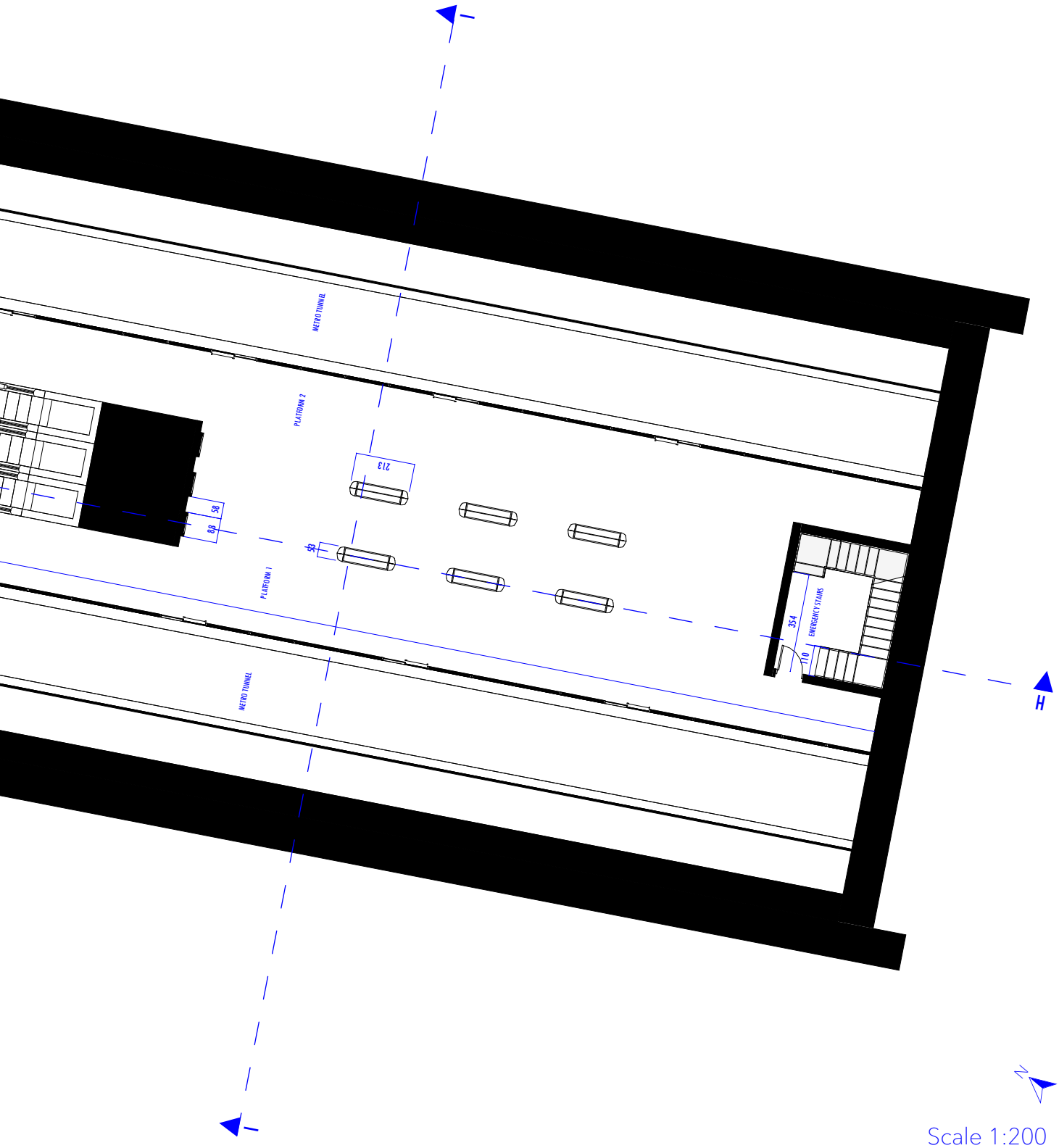


Fig.B.19 - Platforms floor (-22.06m)



Scale 1:200

0 2.5 5 10 m

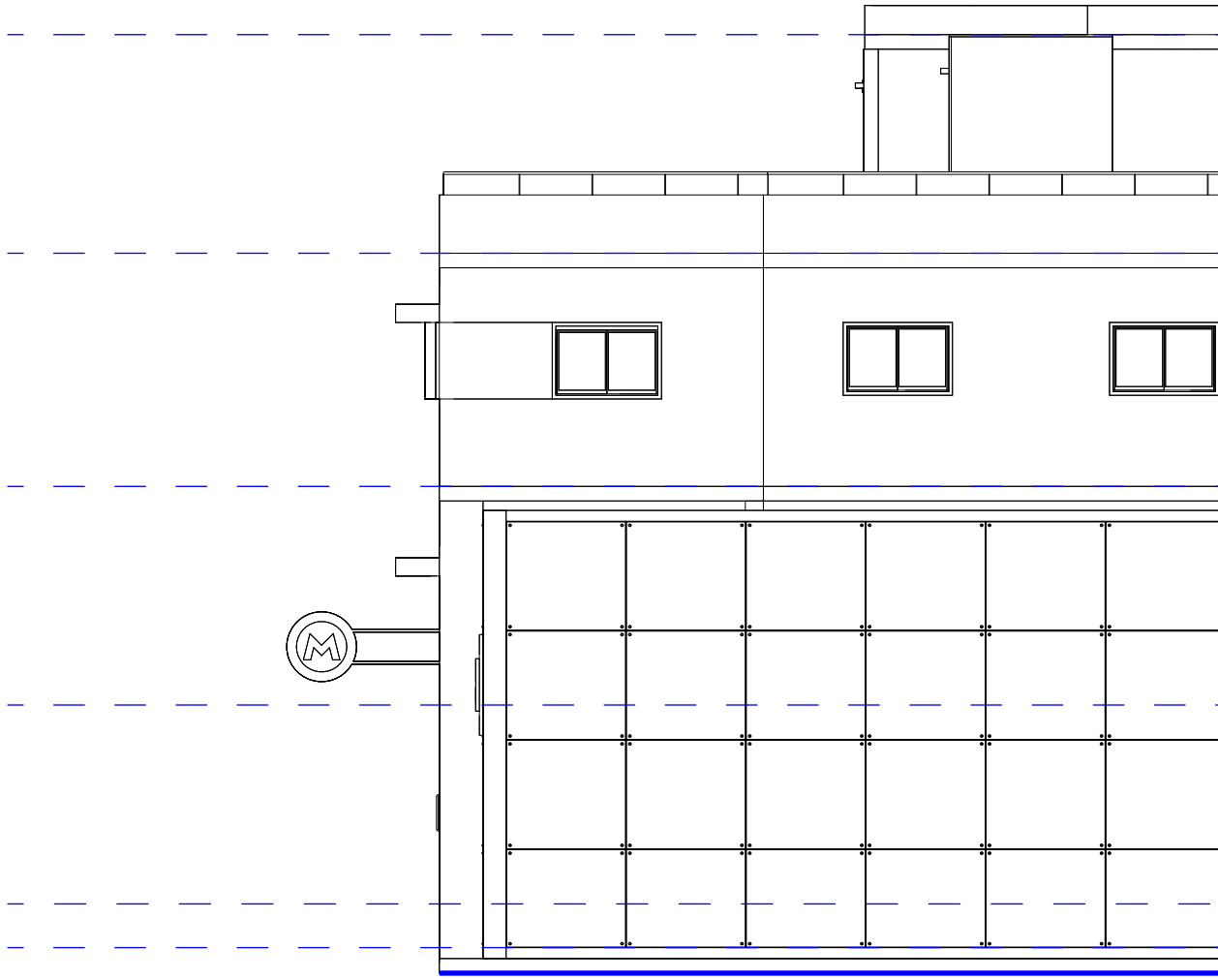
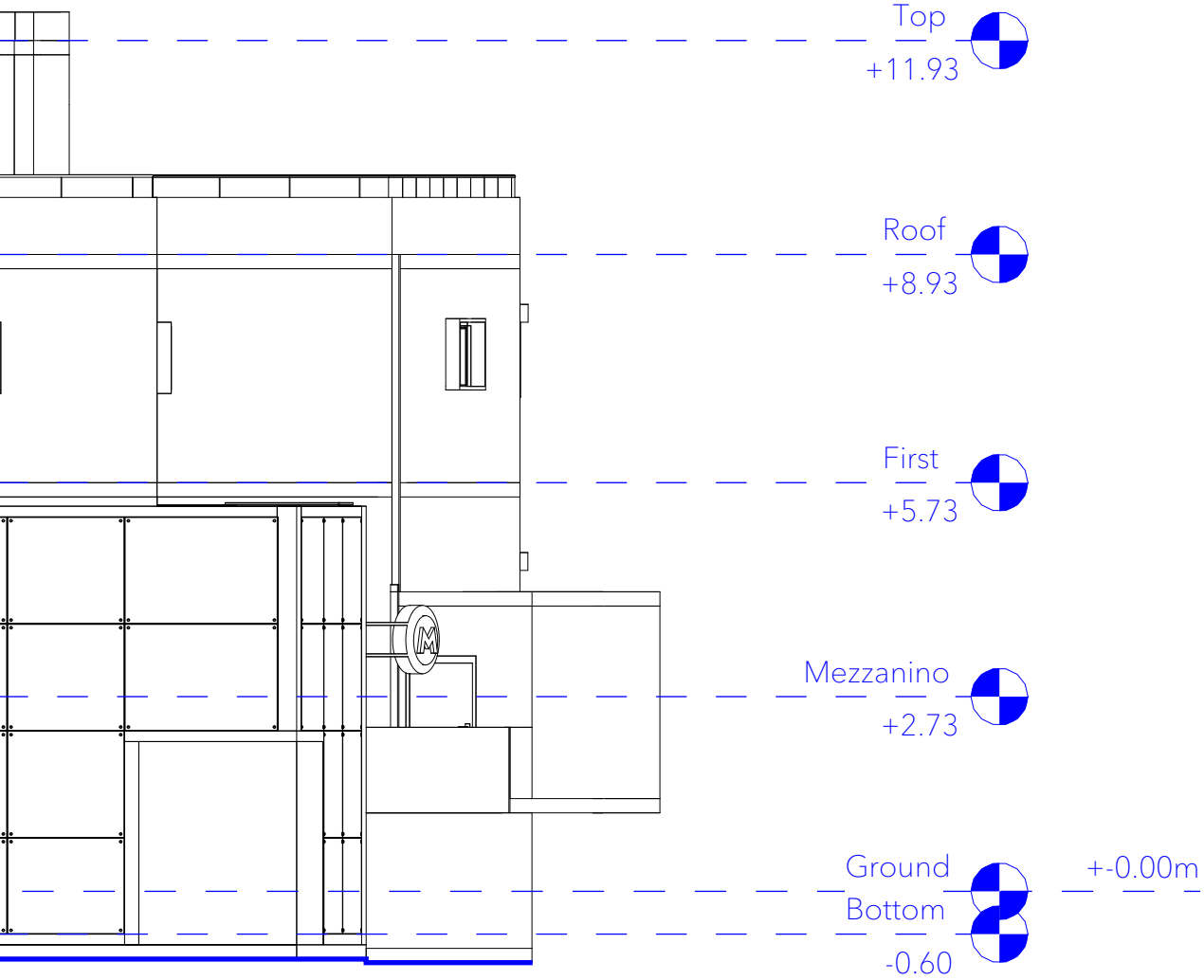


Fig.B.20 - East elevation, Honigmann House



Scale 1:100

0 1.25 2.5 5 m

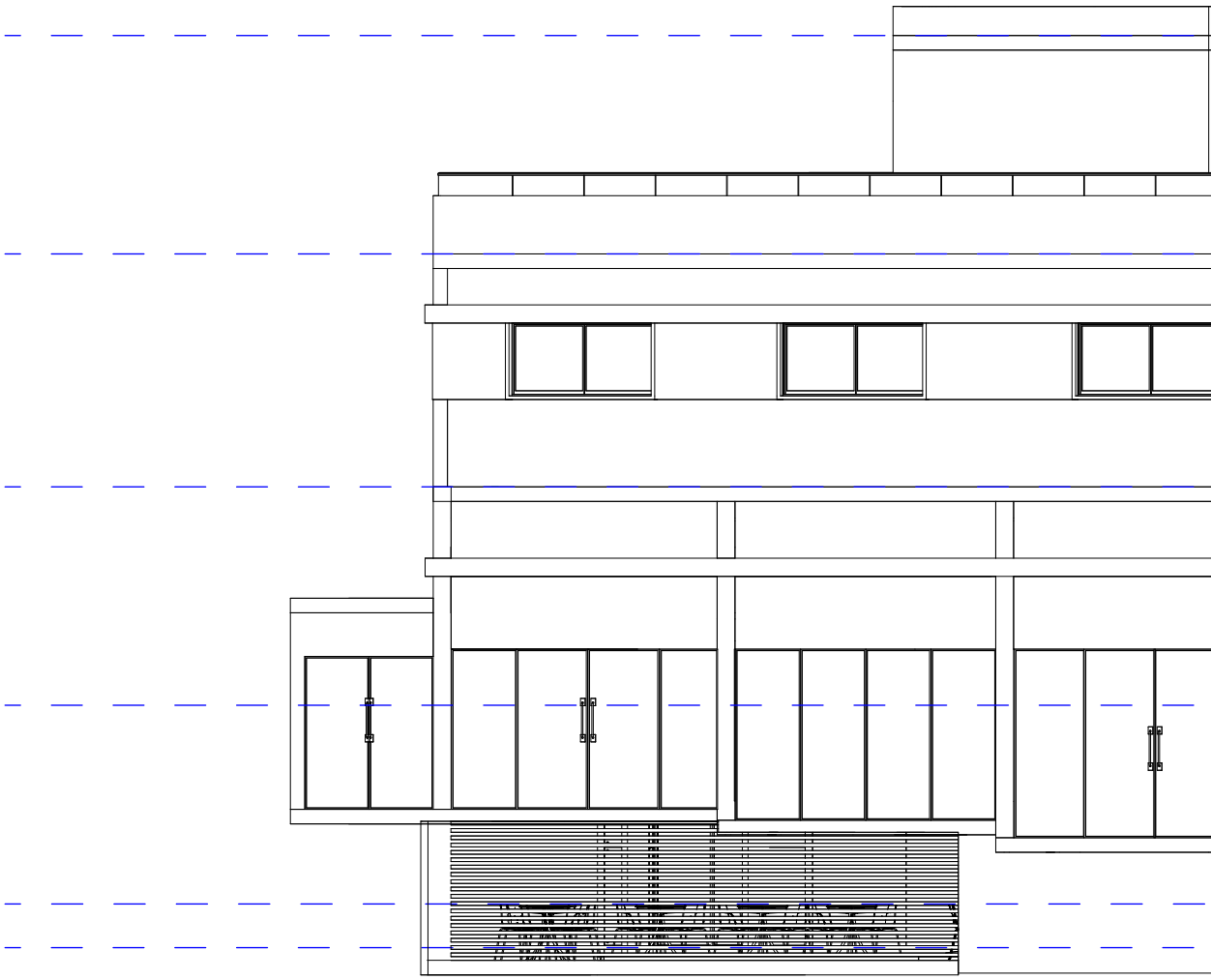
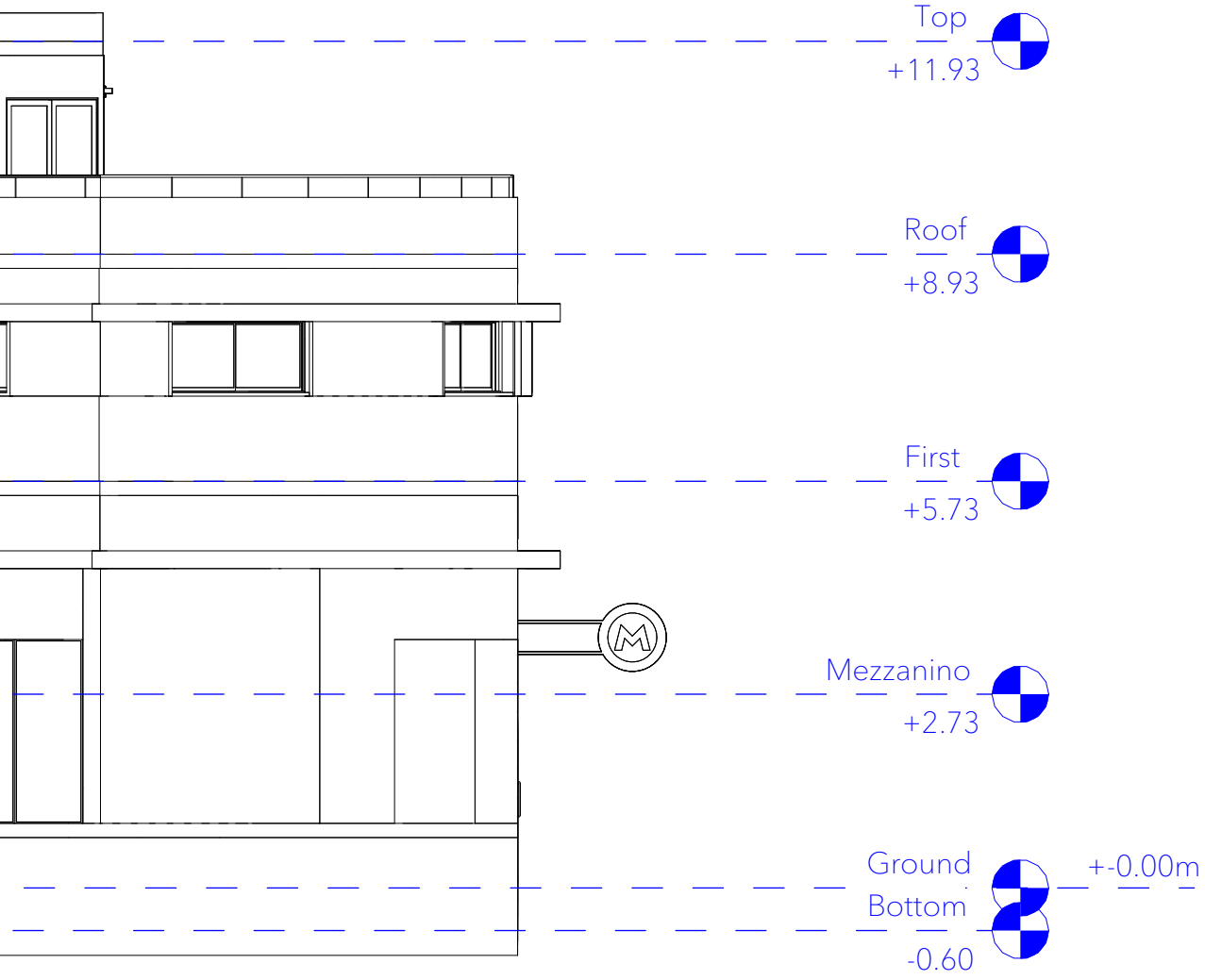


Fig.B.21 - West elevation, Honigmann House



Scale 1:100

0 1.25 2.5 5 m

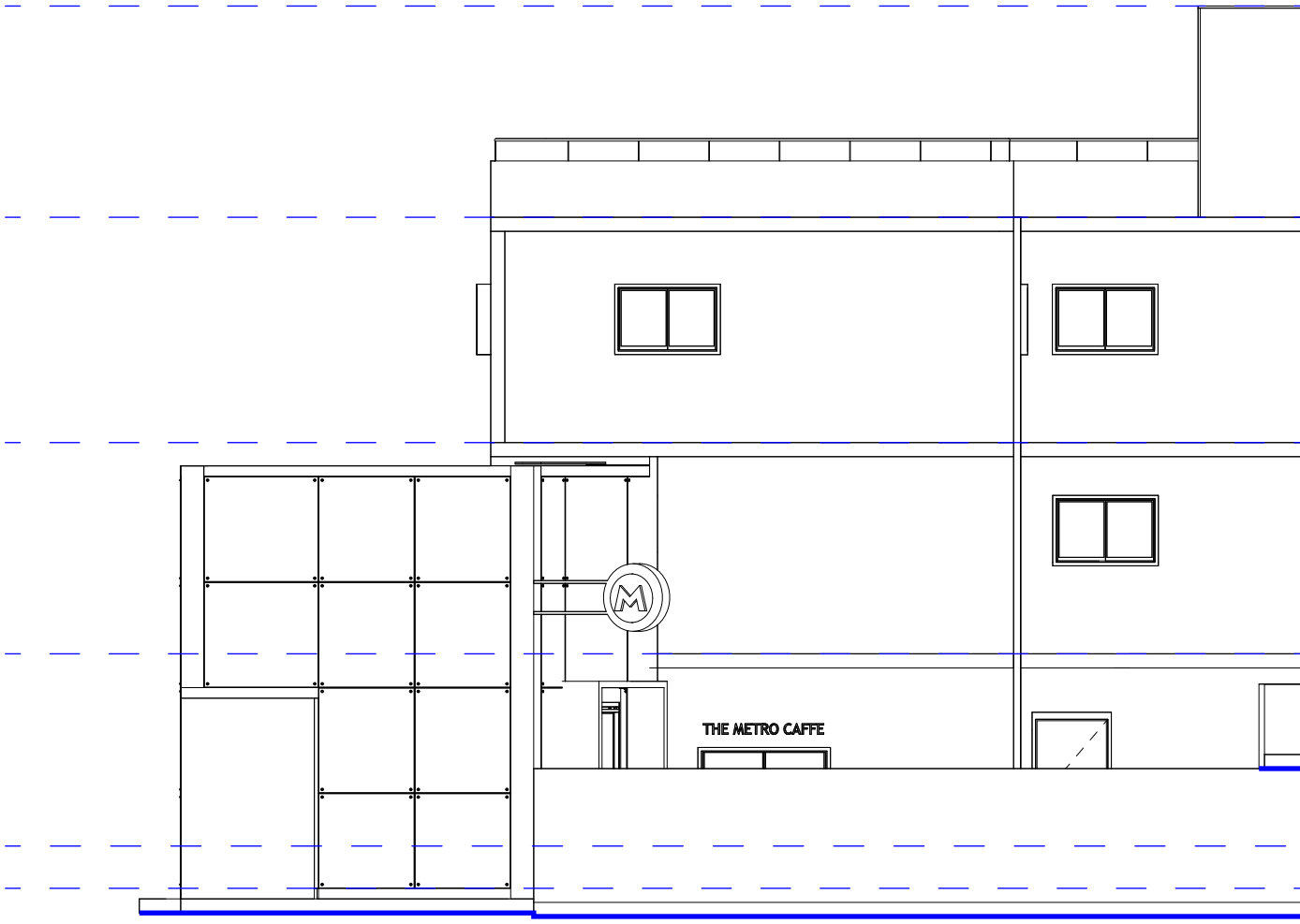
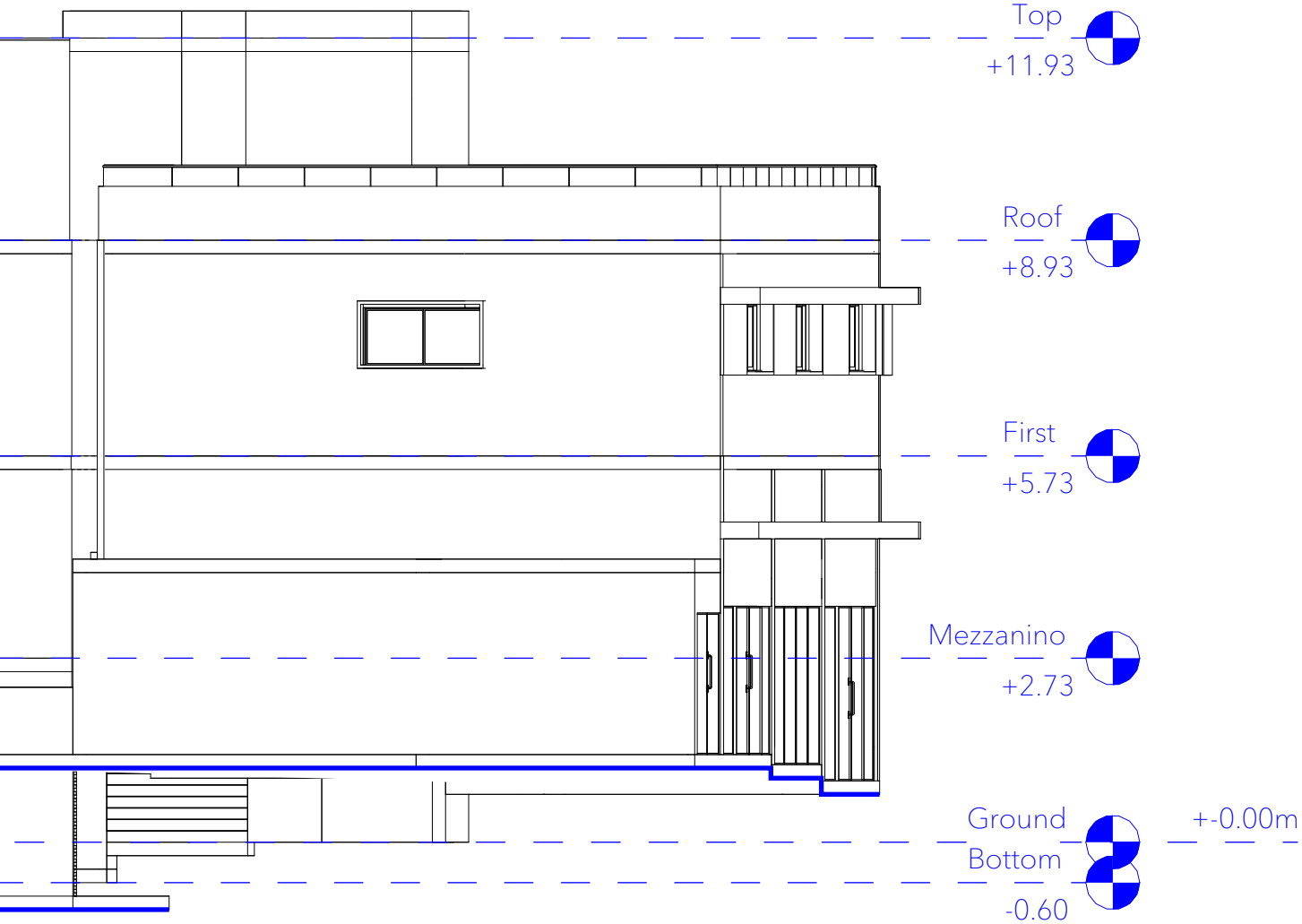


Fig.B.22 - North elevation, Honigmann House



Scale 1:100

0 1.25 2.5 5 m

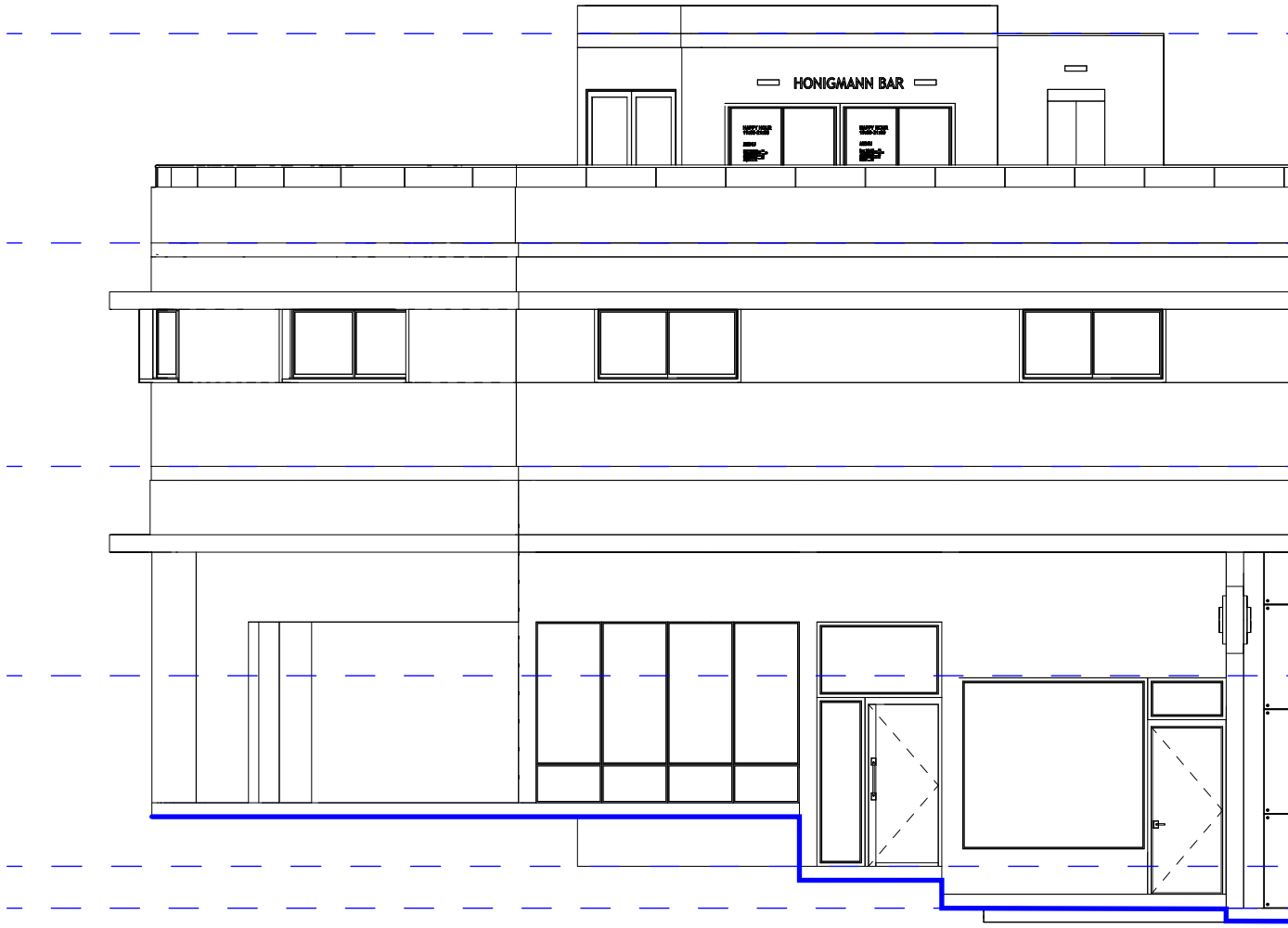
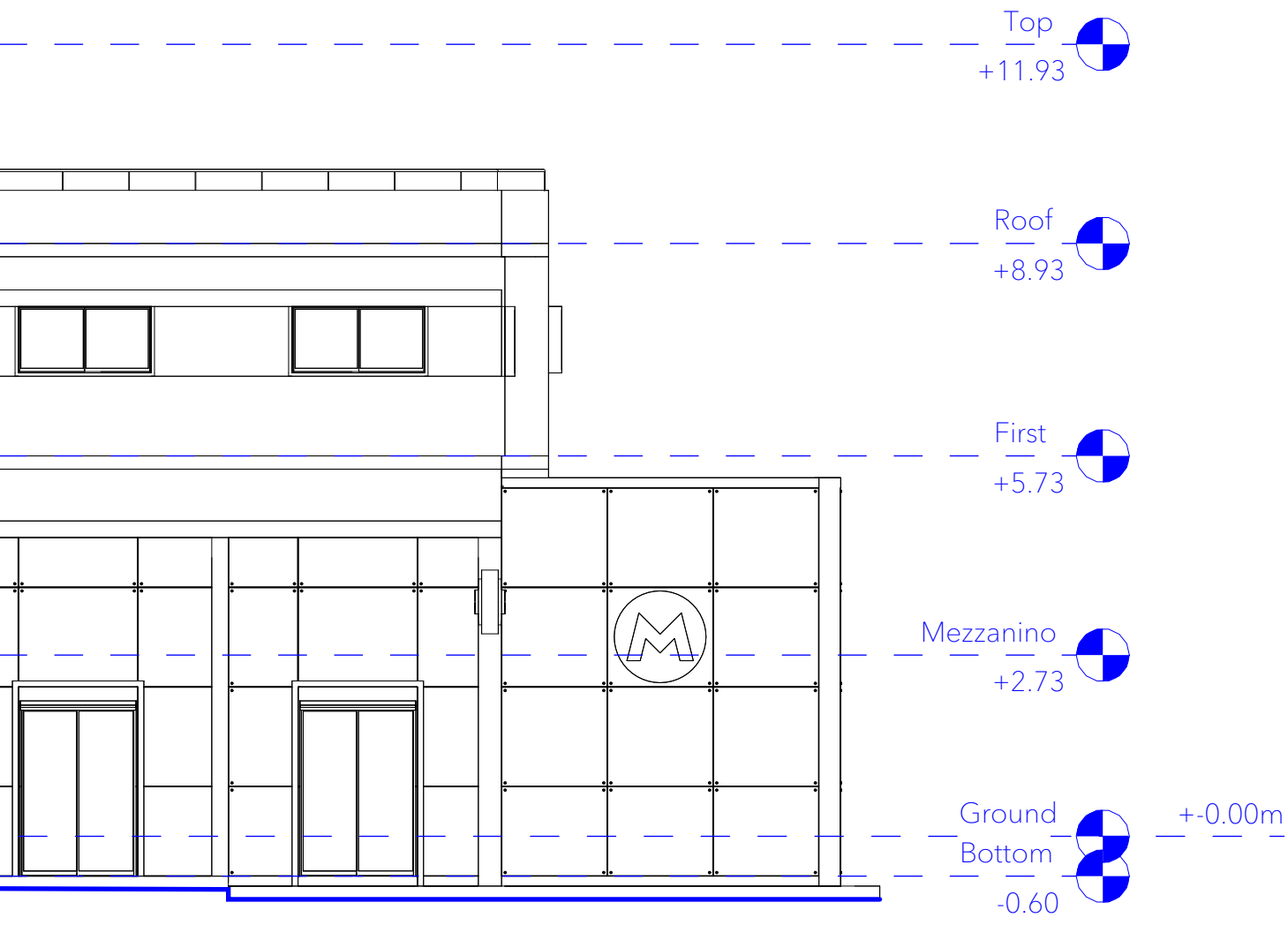


Fig.B.23 - South elevation, Honigmann House



Scale 1:100

0 1.25 2.5 5 m

B.5: *Building Sections*

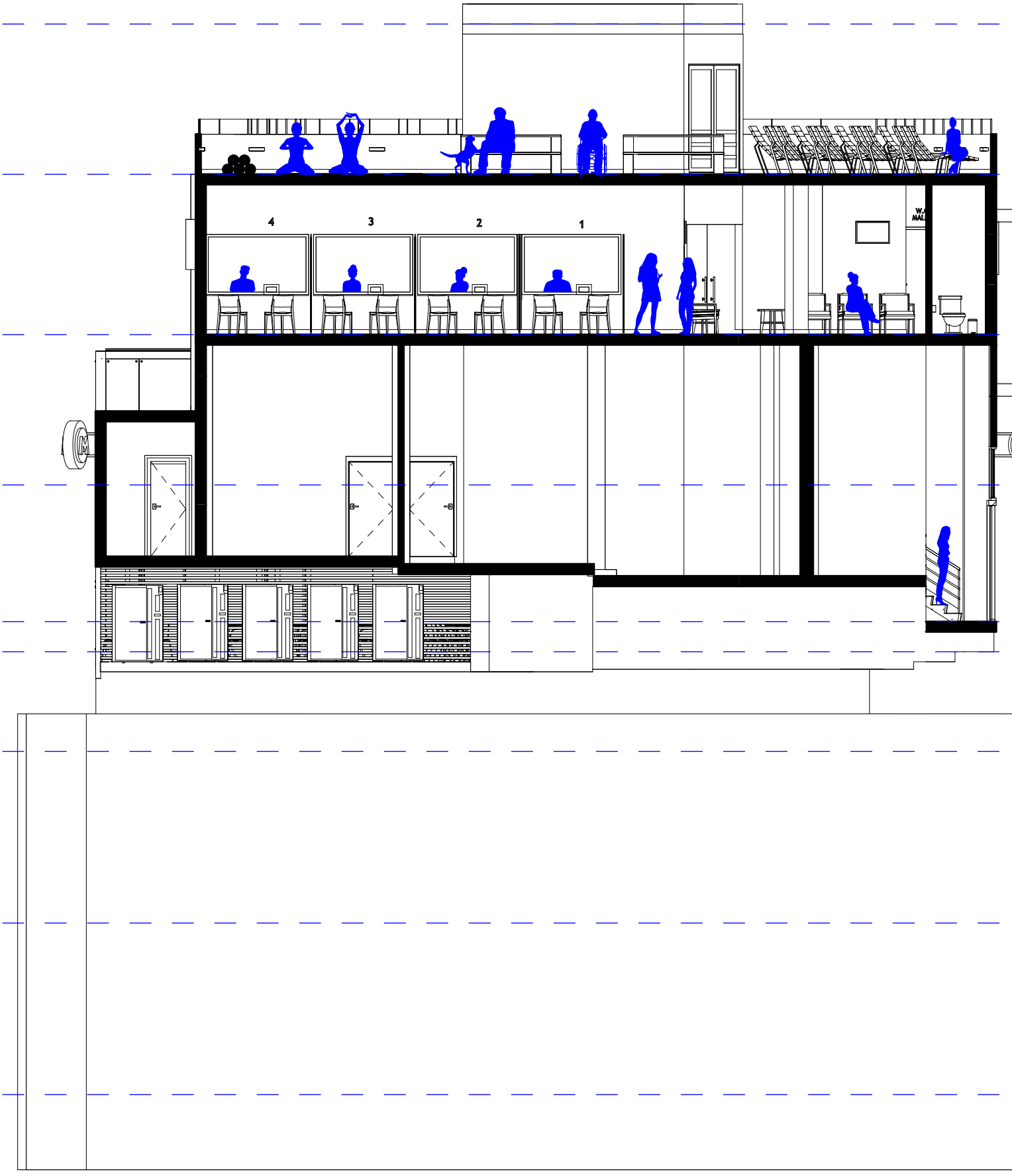


Fig.B.24 - Section A-A

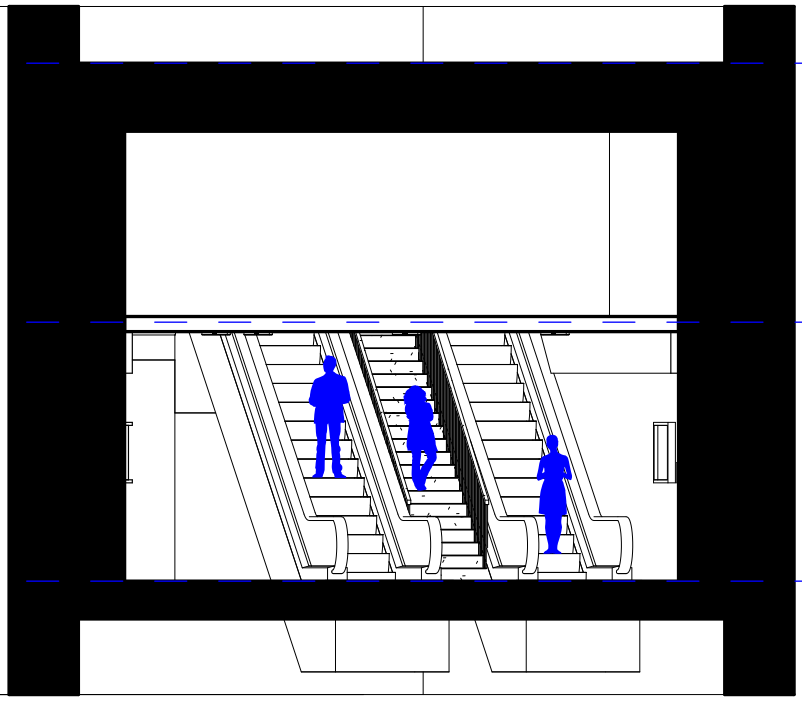
Top
+11.93

Roof
+8.93

First
+5.73

Mezzanino
+2.73

Ground
+-0.00m
Bottom
-0.60



Metro top
-2.59

Metro
mezzanino
-6.01

Metro
ticketing level
-9.44

Scale 1:100

0 1.25 2.5 5 m

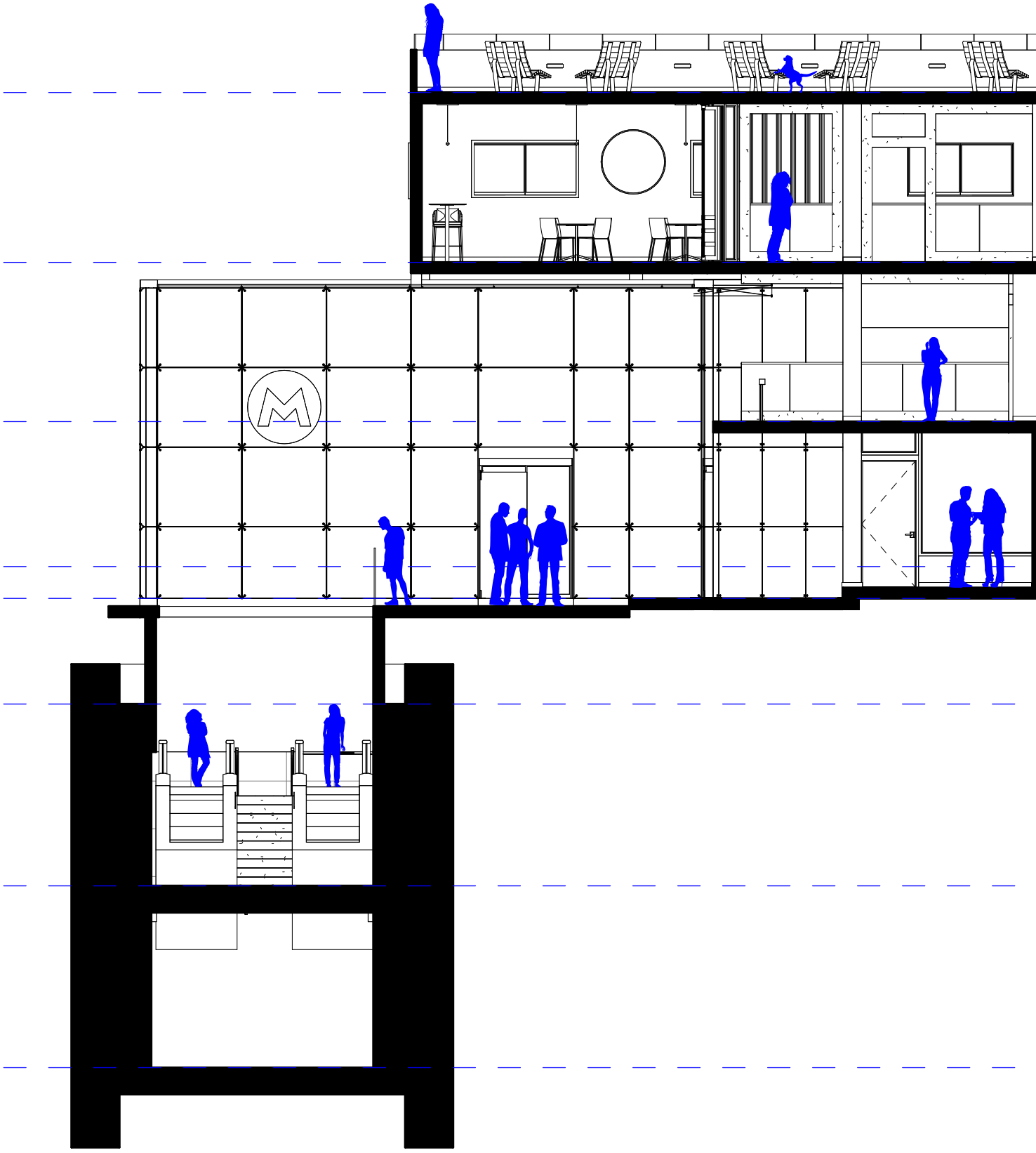
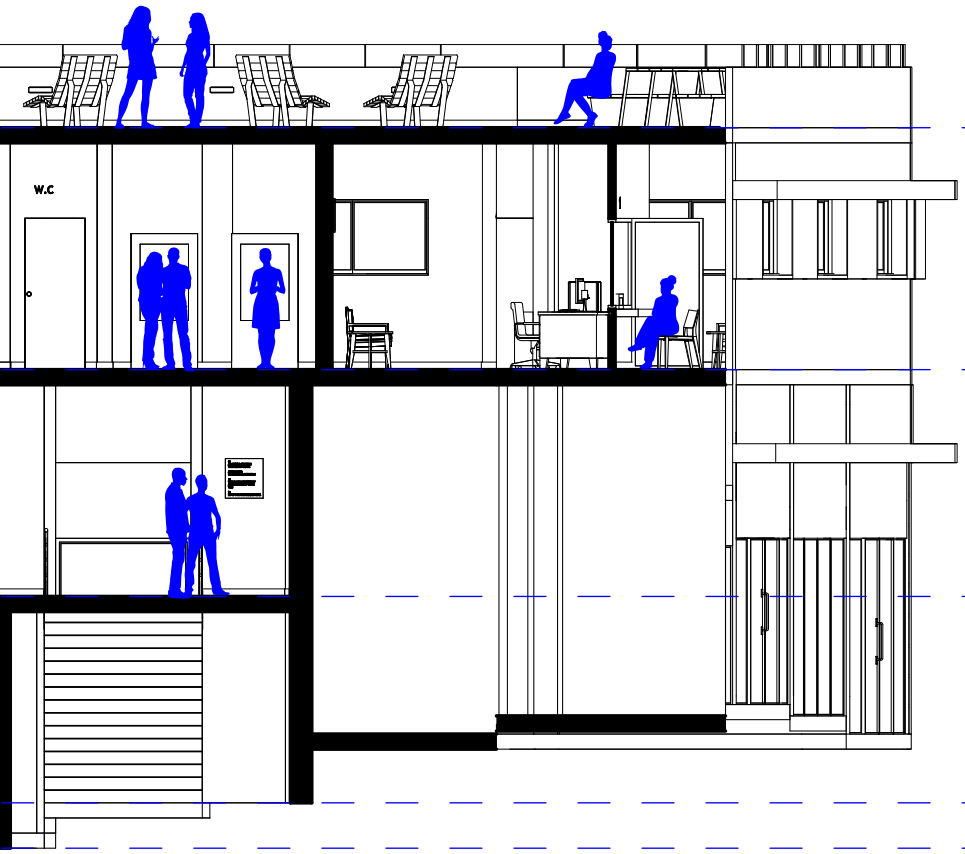


Fig.B.25 - Section B-B



Roof
+8.93

First
+5.73

Mezzanino
+2.73

Ground +-0.00m
Bottom
-0.60

Metro top
-2.59

Metro mezzanino
-6.01

Metro ticketing level
-9.44

Scale 1:100

0 1.25 2.5 5 m

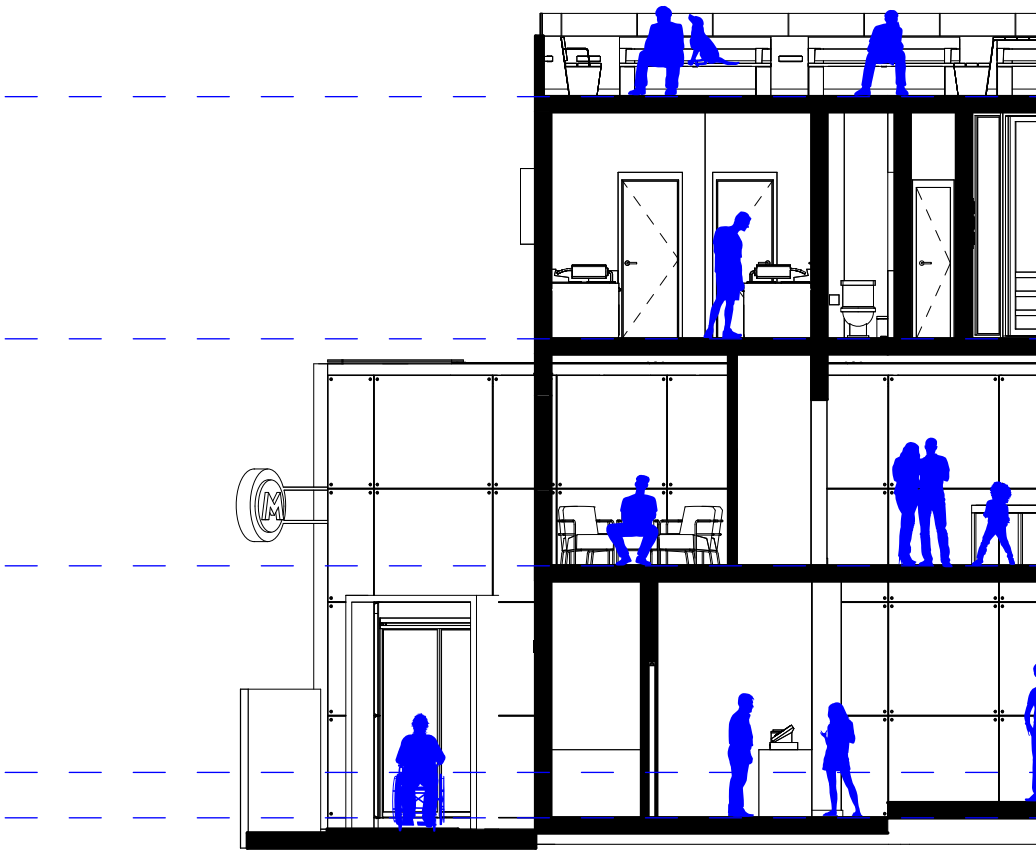
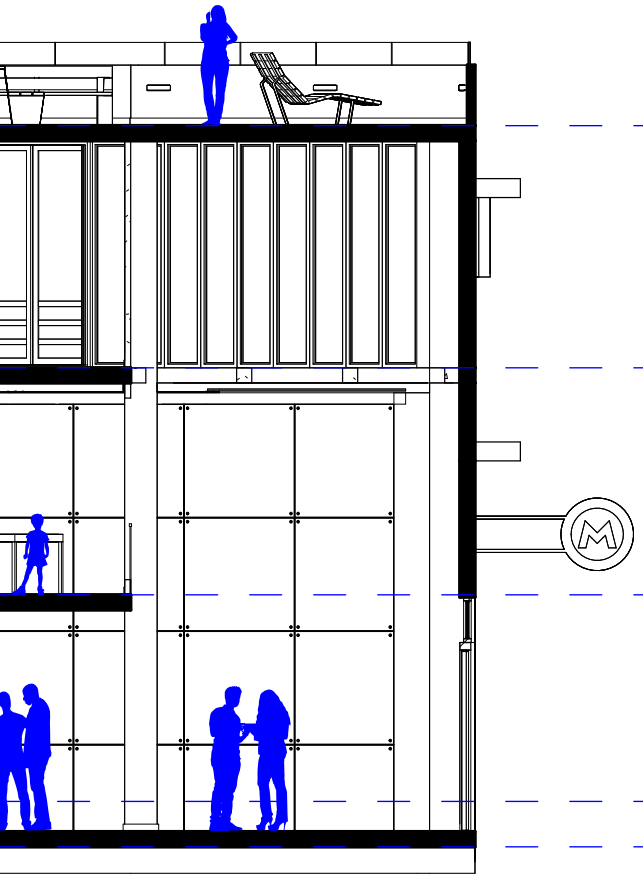


Fig.B.26 - Section C-C



Roof
+8.93

First
+5.73

Mezzanino
+2.73

Ground
+-0.00m

Bottom
-0.60

Metro top
-2.59

Metro mezzanino
-6.01

Metro ticketing level
-9.44

Scale 1:100

0 1.25 2.5 5 m

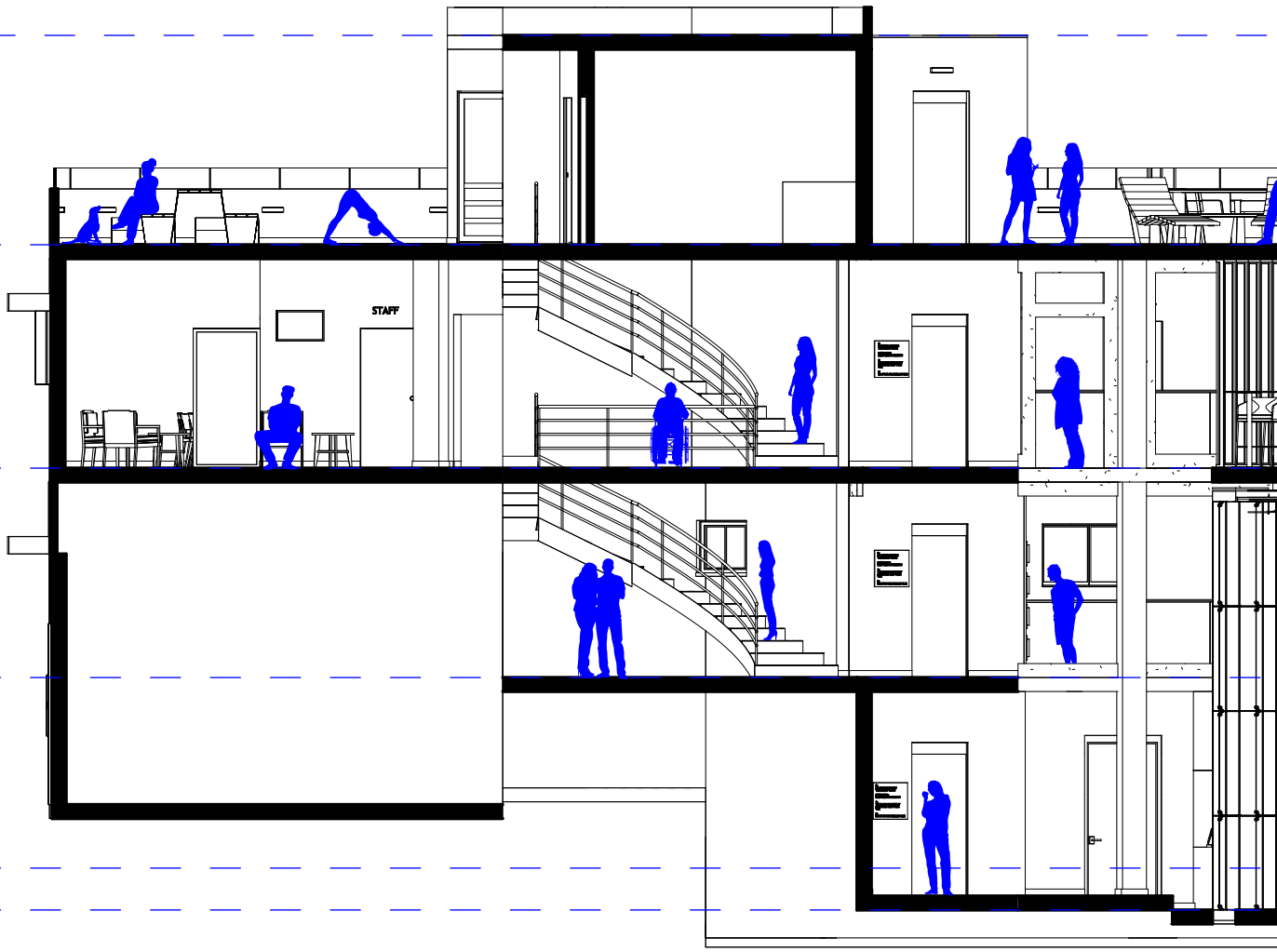
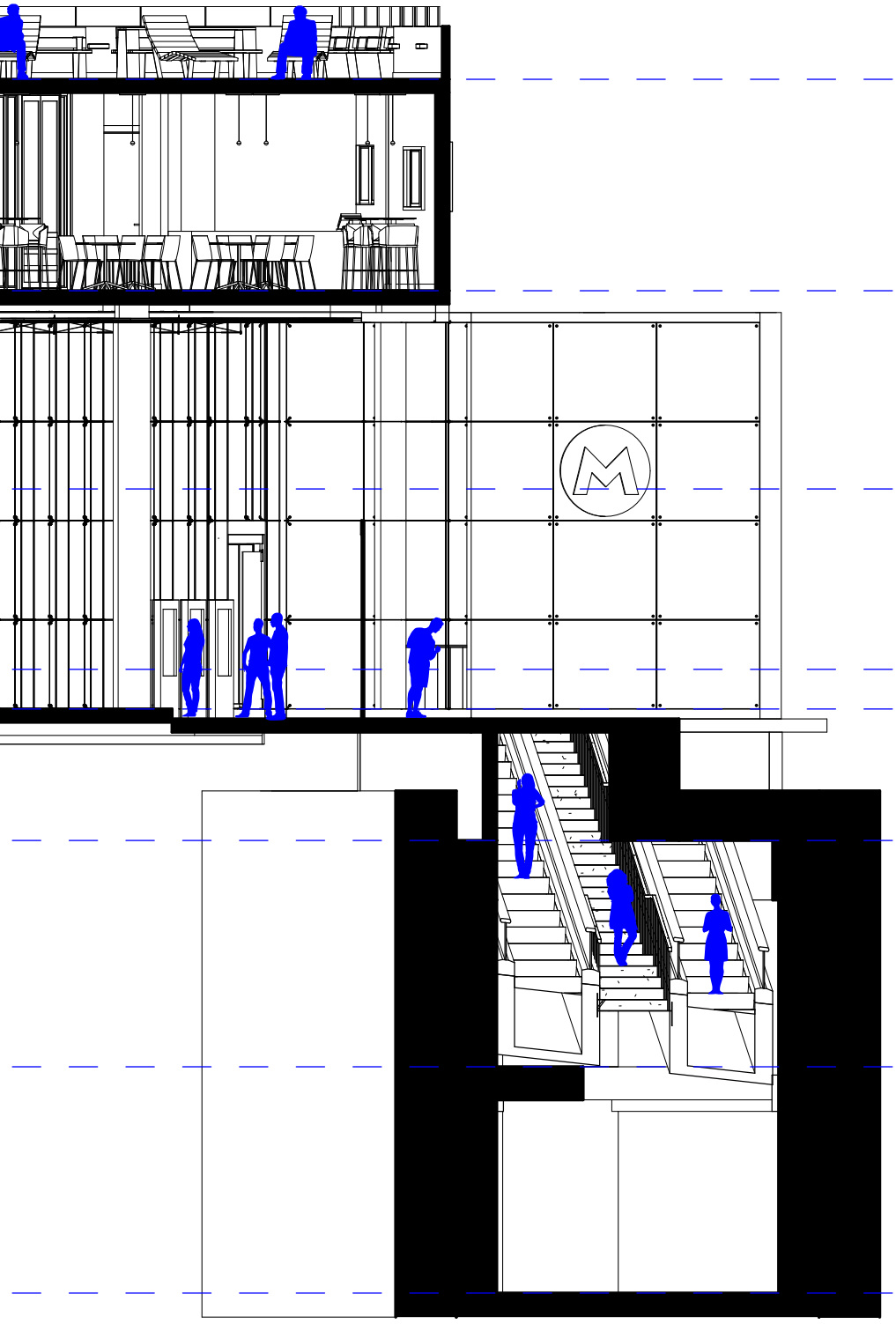


Fig.B.27 - Section D-D



Top
+11.93

Roof
+8.93

First
+5.73

Mezzanino
+2.73

Ground
Bottom
-0.60

Metro top
-2.59

Metro mezzanino
-6.01

Metro ticketing level
-9.44

Scale 1:100

0 1.25 2.5 5 m

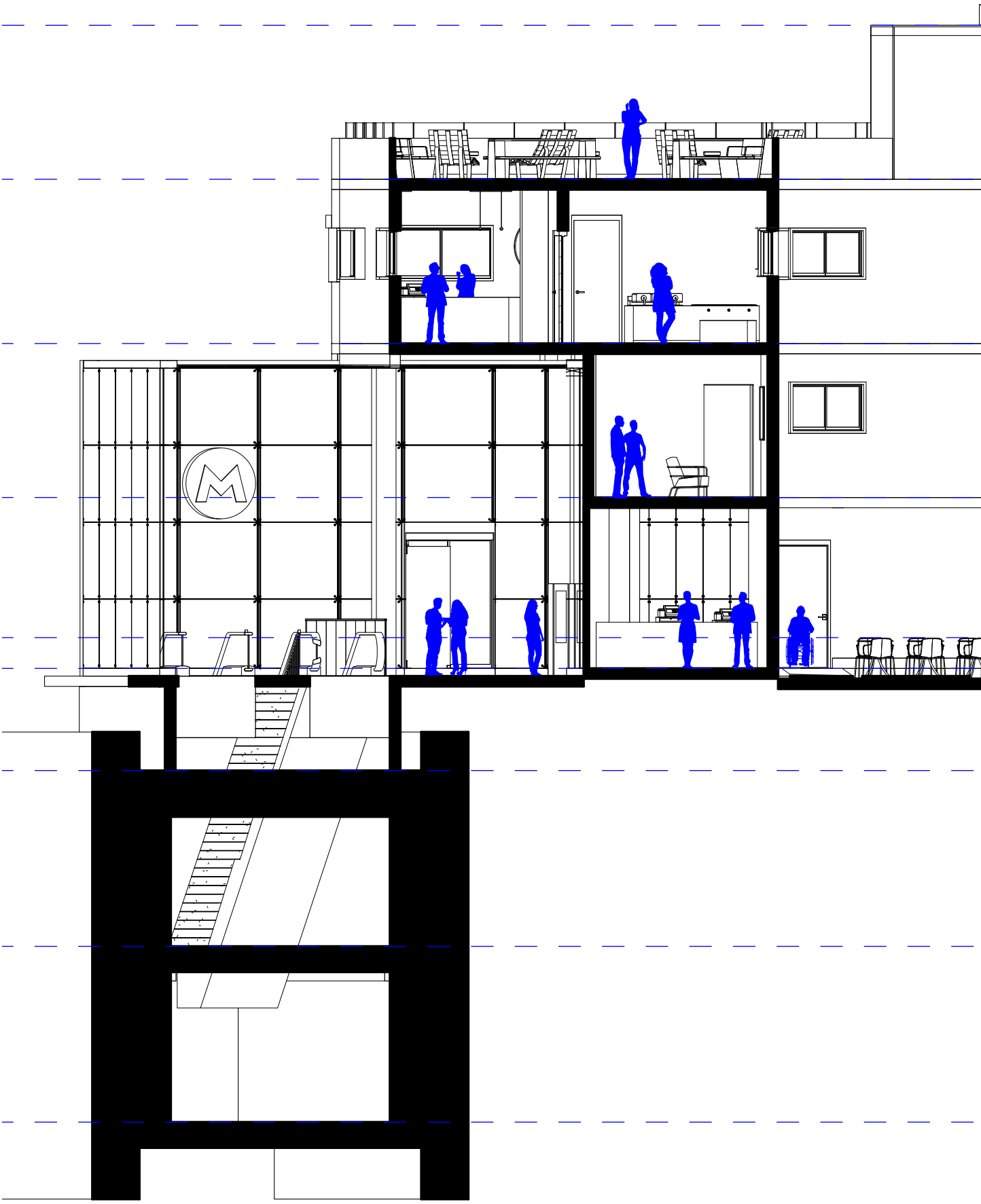
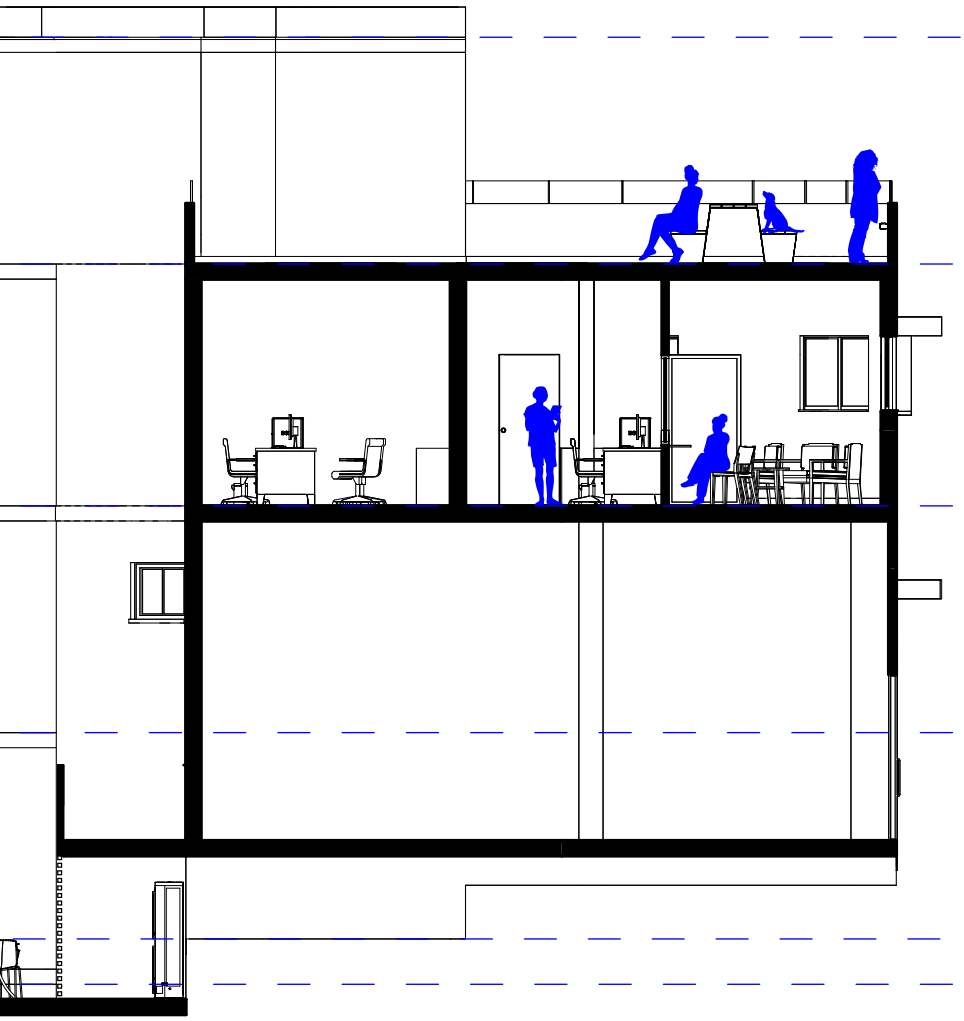


Fig.B.28 - Section E-E



Top
+11.93

Roof
+8.93

First
+5.73

Mezzanino
+2.73

Ground +-0.00m

Bottom
-0.60

Metro top
-2.59

Metro mezzanino
-6.01

Metro ticketing level
-9.44

Scale 1:100

0 1.25 2.5 5 m

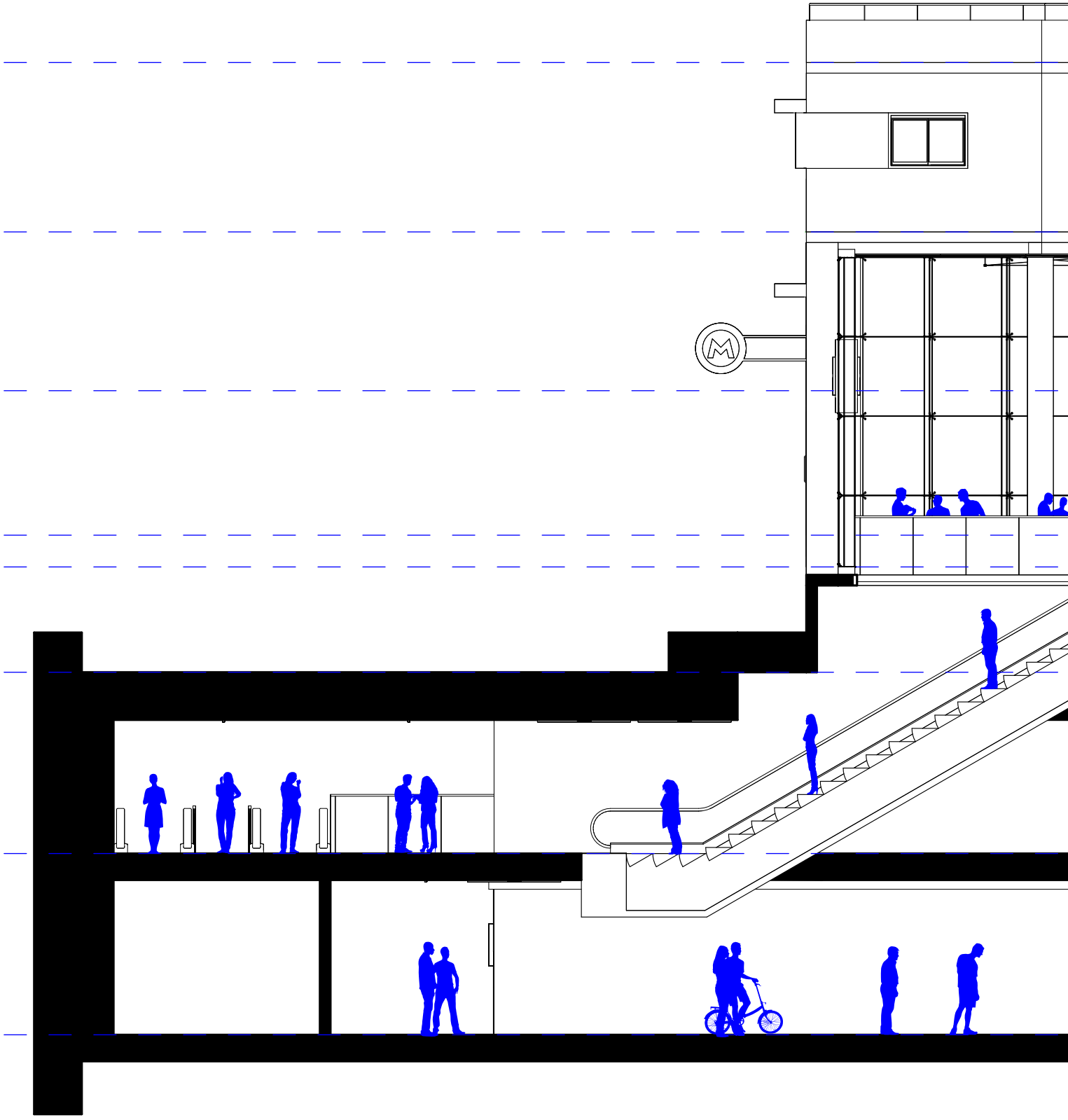
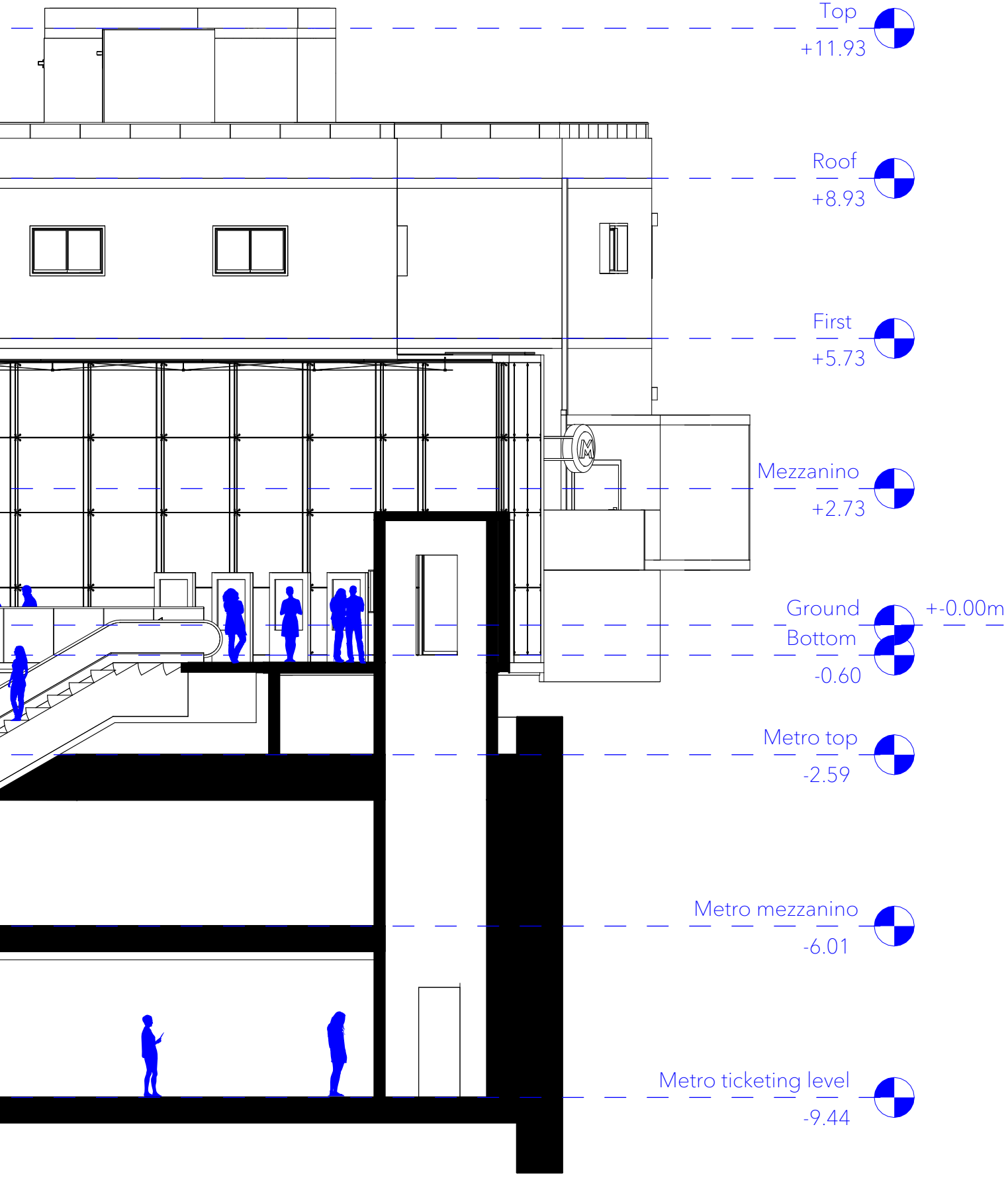


Fig.B.29 - Section F-F



Scale 1:100

0 1.25 2.5 5 m

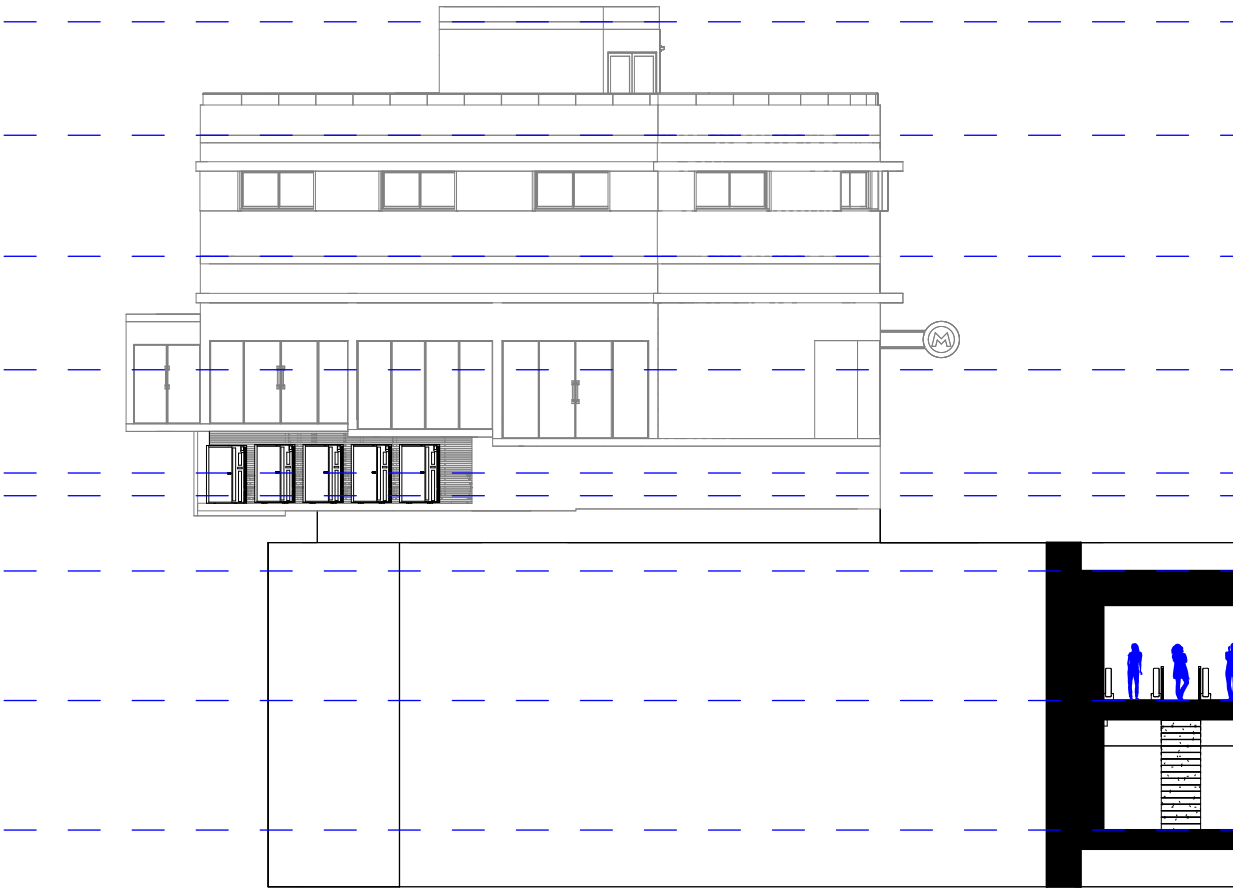
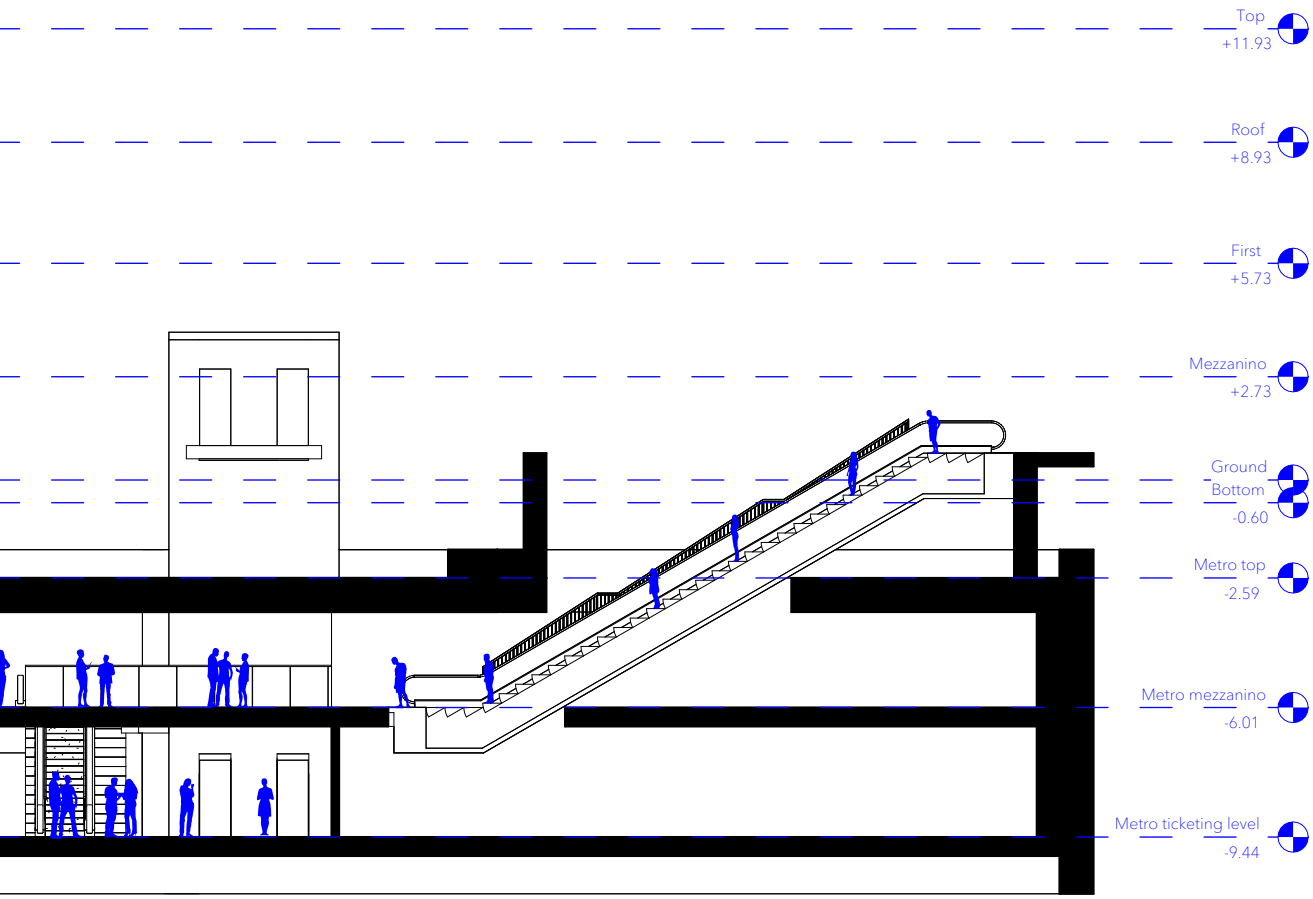


Fig.B.30 - Section G-G



Scale 1:200*

*Original scale 1:100 - Reproduced at scale 1:200 to fit an A3 page.

0 2.5 5 10 m

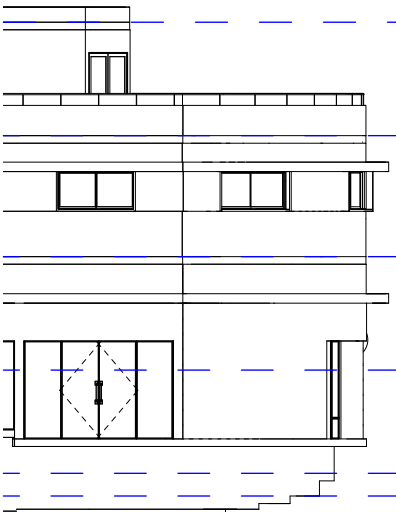
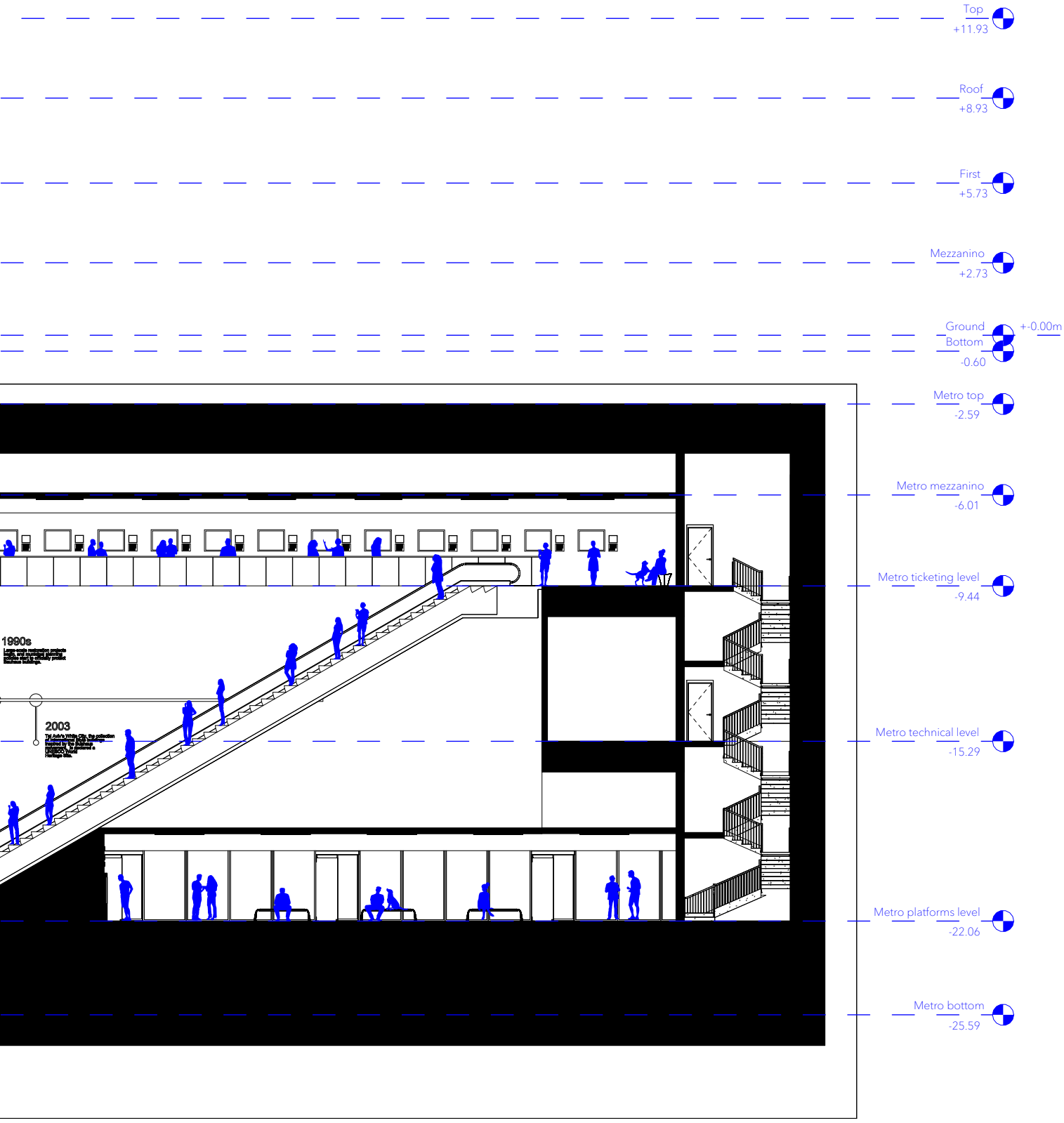


Fig.B.31 - Section H-H



Scale 1:200*

*Original scale 1:100 - Reproduced at scale 1:200 to fit an A3 page.

0 2.5 5 10 m

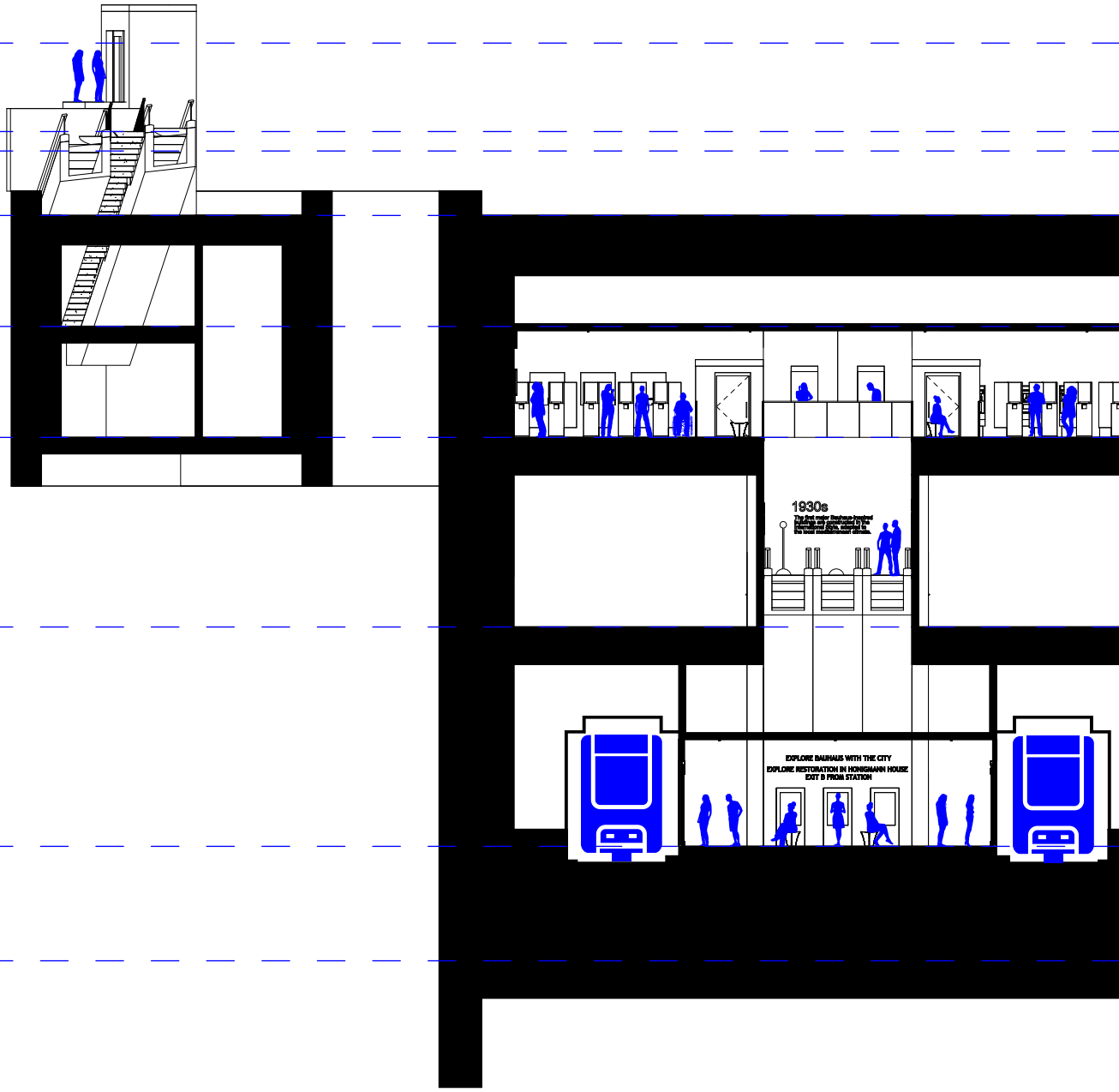
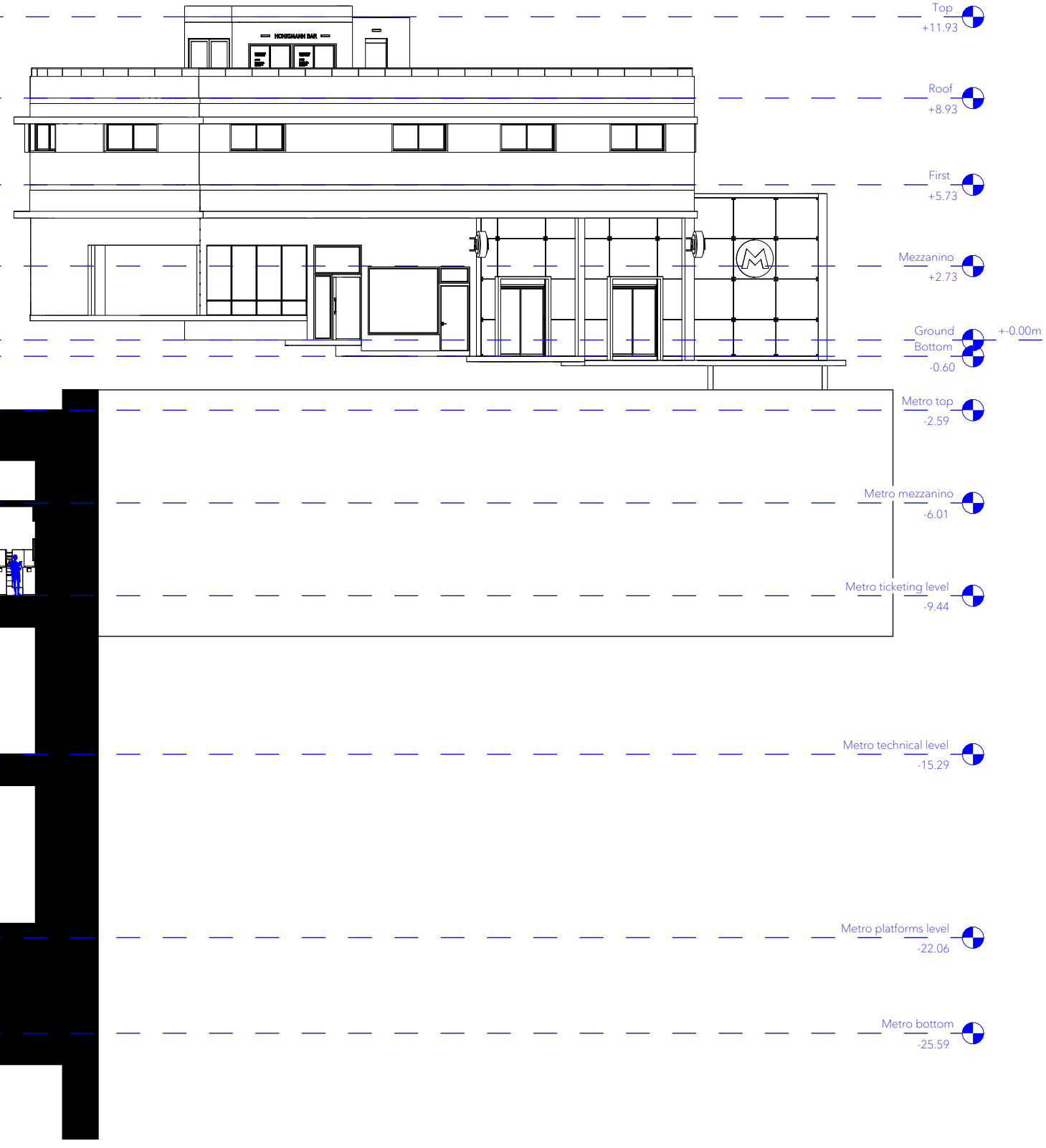


Fig.B.32 - Section I-I



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*Original scale 1:100 - Reproduced at scale 1:200 to fit an A3 page.

0 2.5 5 10 m

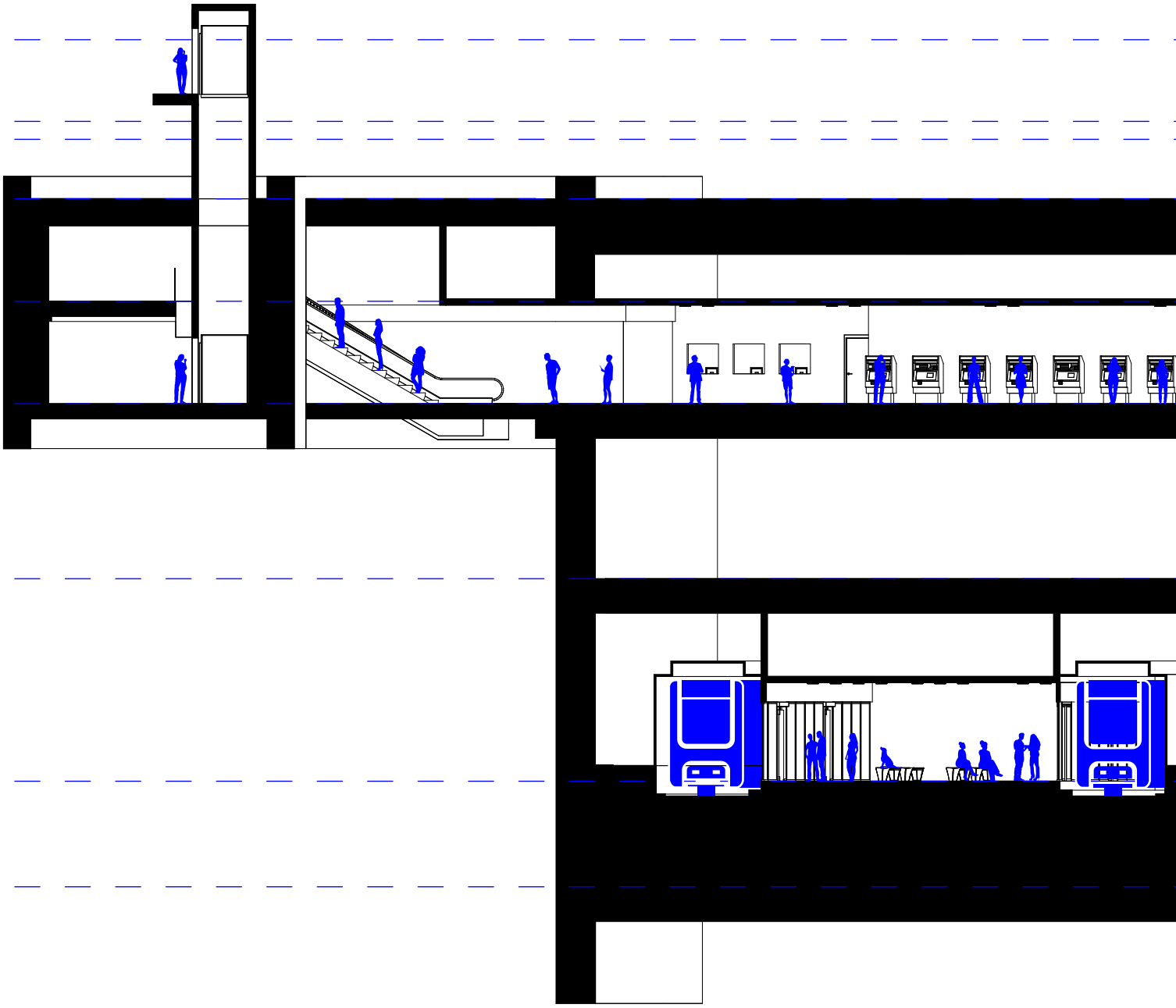
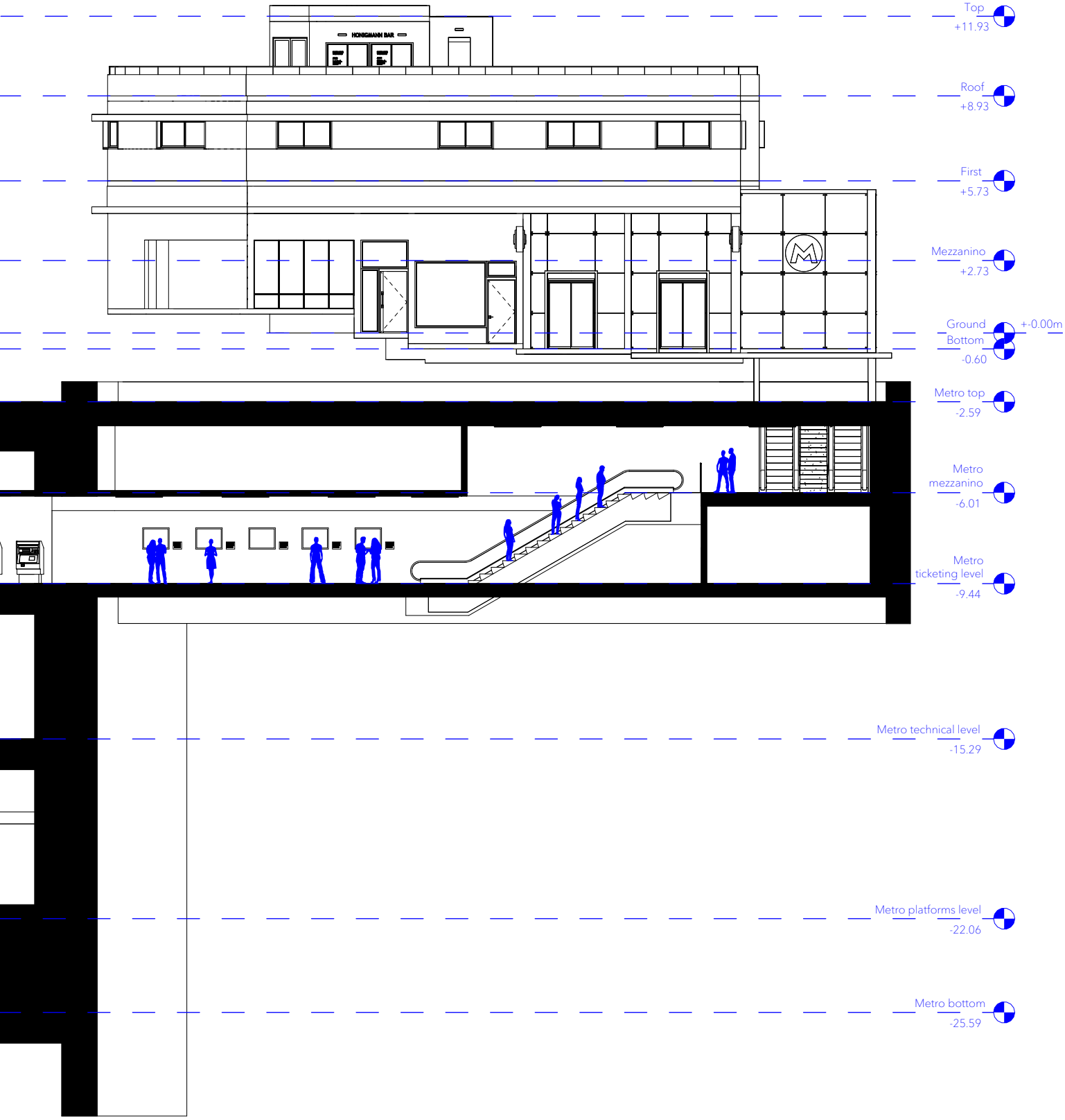


Fig.B.33 - Section J-J



Scale 1:200*

*Original scale 1:100 - Reproduced at scale 1:200 to fit an A3 page.

0 2.5 5 10 m

B.6: *Axonometric Views*

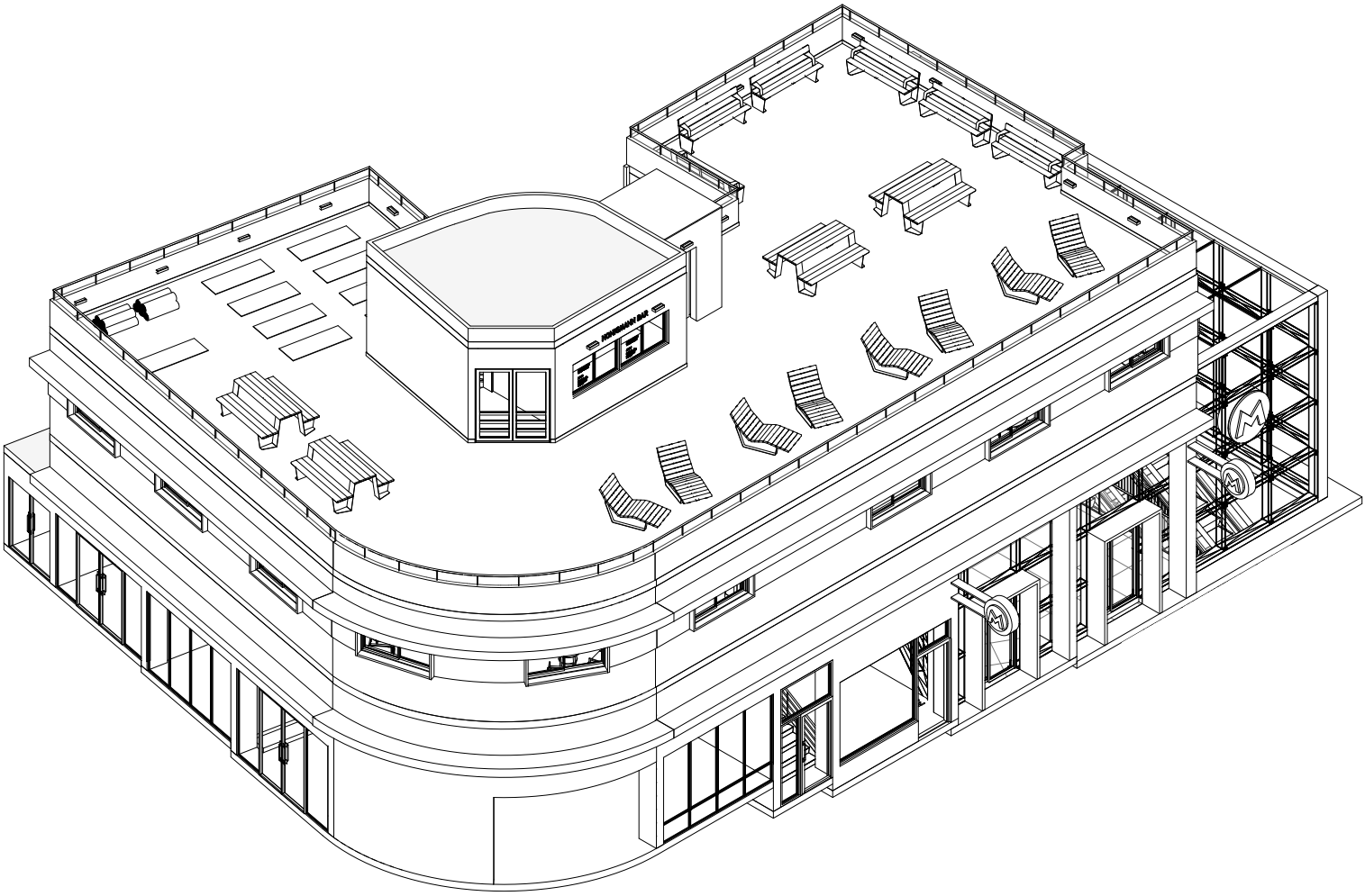


Fig.B.34 - Axonometric view, from the intersection of King George St and Allenby St.

Scale 1:200

0 2.5 5 10 m

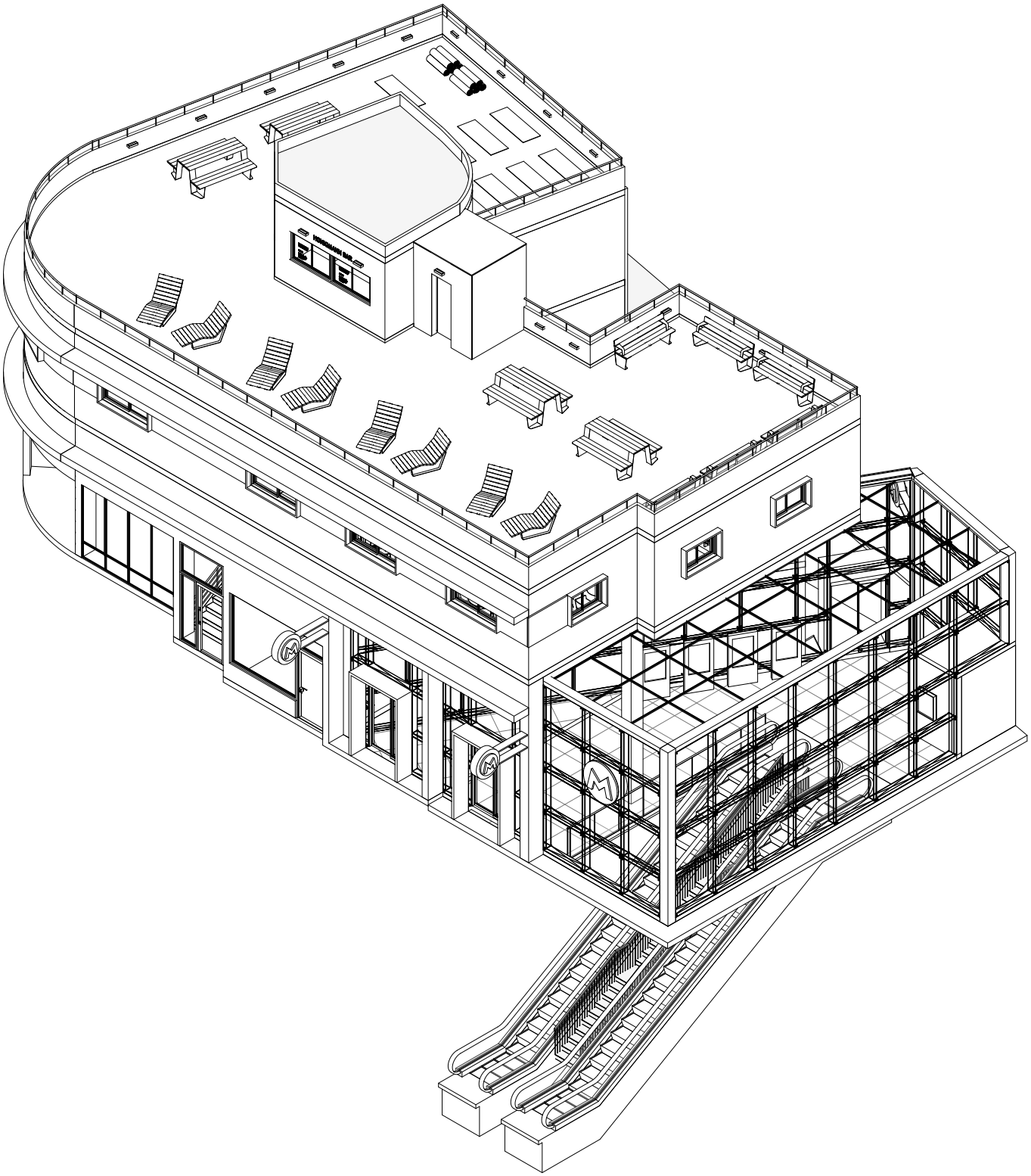


Fig.B.35 - Axonometric view, from King George St.

Scale 1:200

0 2.5 5 10 m

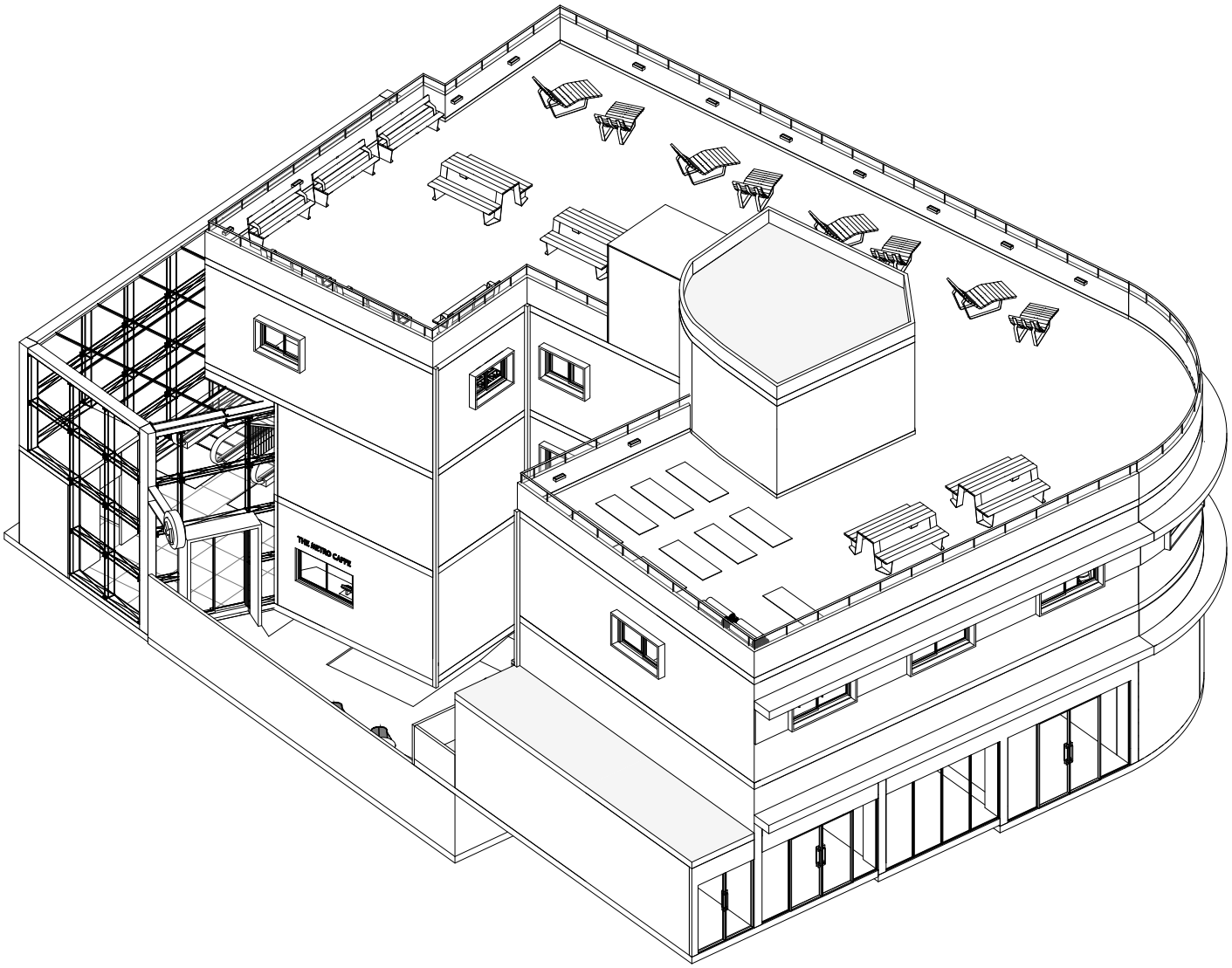


Fig.B.36 - Axonometric view, from Allenby St.

Scale 1:200

0 2.5 5 10 m

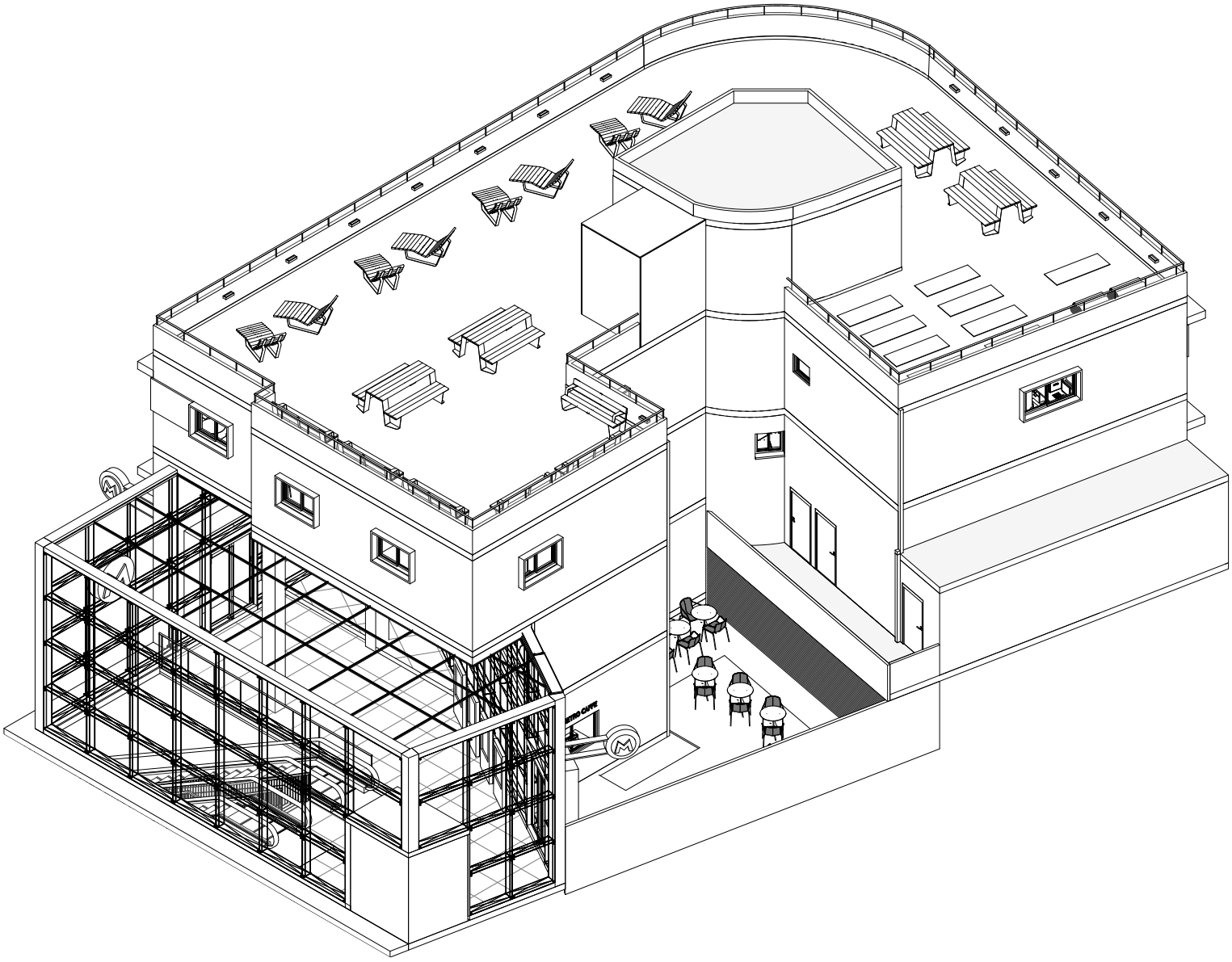


Fig.B.37 - Axonometric view, from the back of the building.

Scale 1:200

0 2.5 5 10 m

B.7: *Sectioned Axonometric Views*

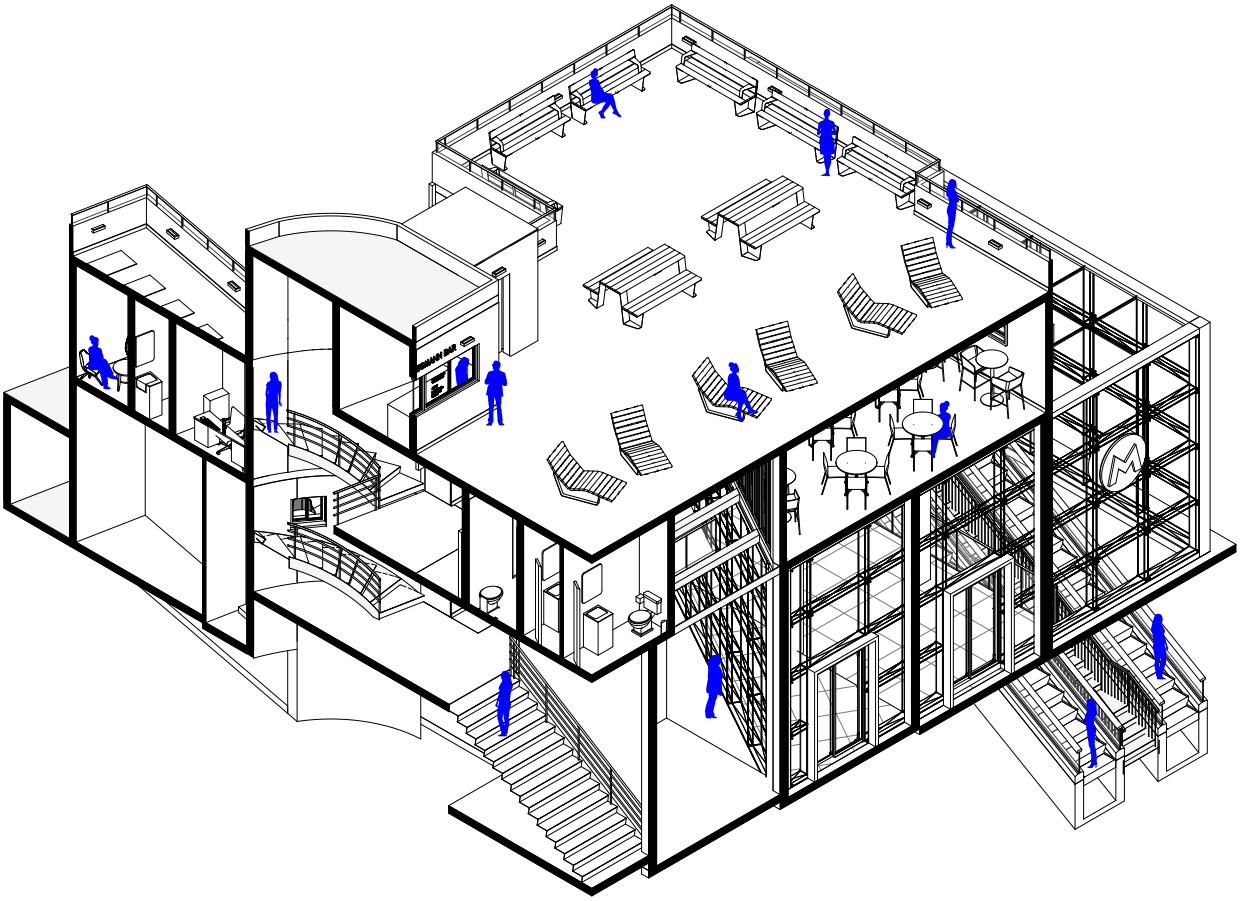


Fig.B.38 - Sectioned axonometric view of Honigmann House, from the intersection of King George St and Allenby St.

Scale 1:200

0 2.5 5 10 m

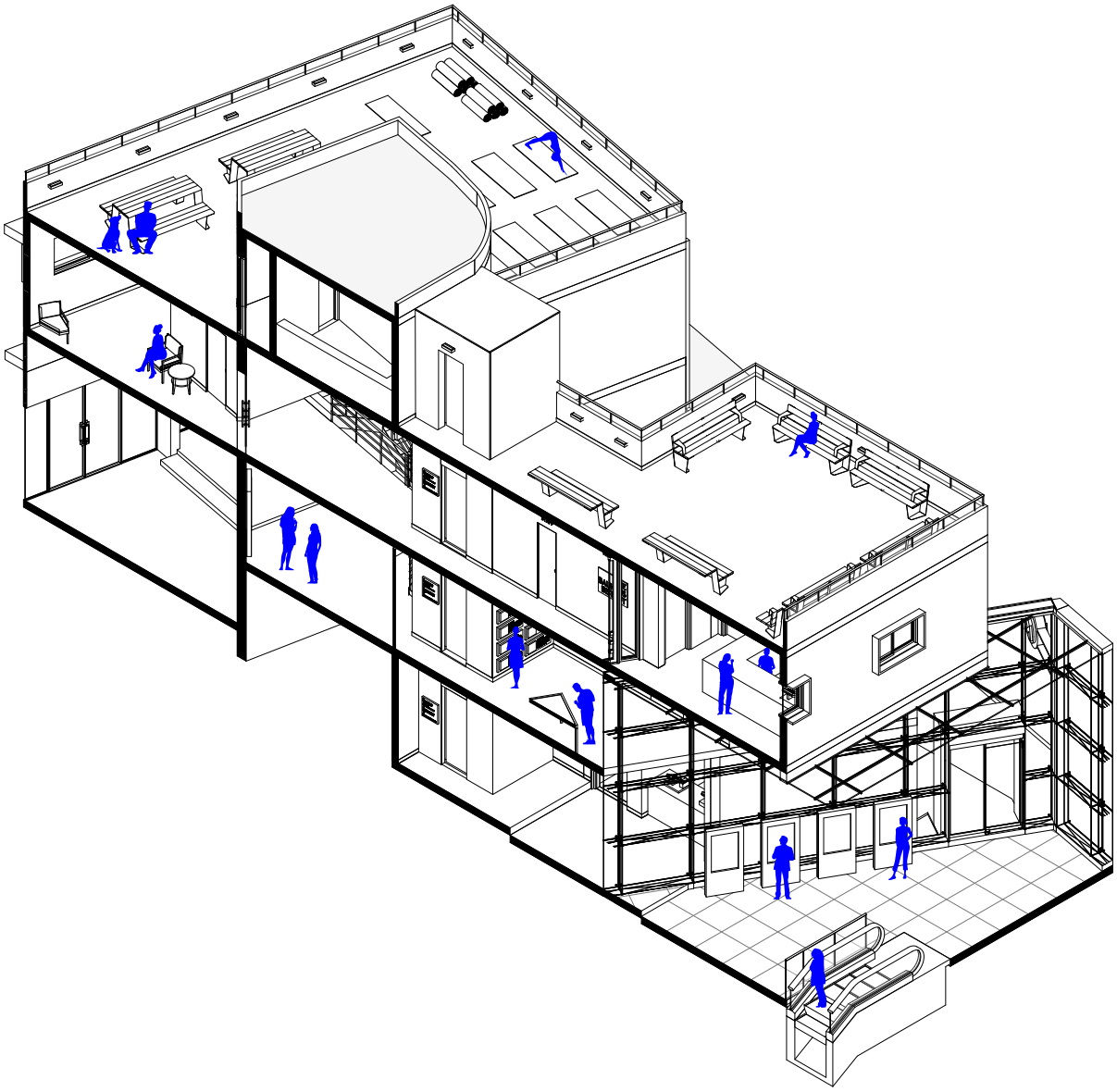


Fig.B.39 - Sectioned axonometric view of Honigmann House, from King George St.

Scale 1:200

0 2.5 5 10 m

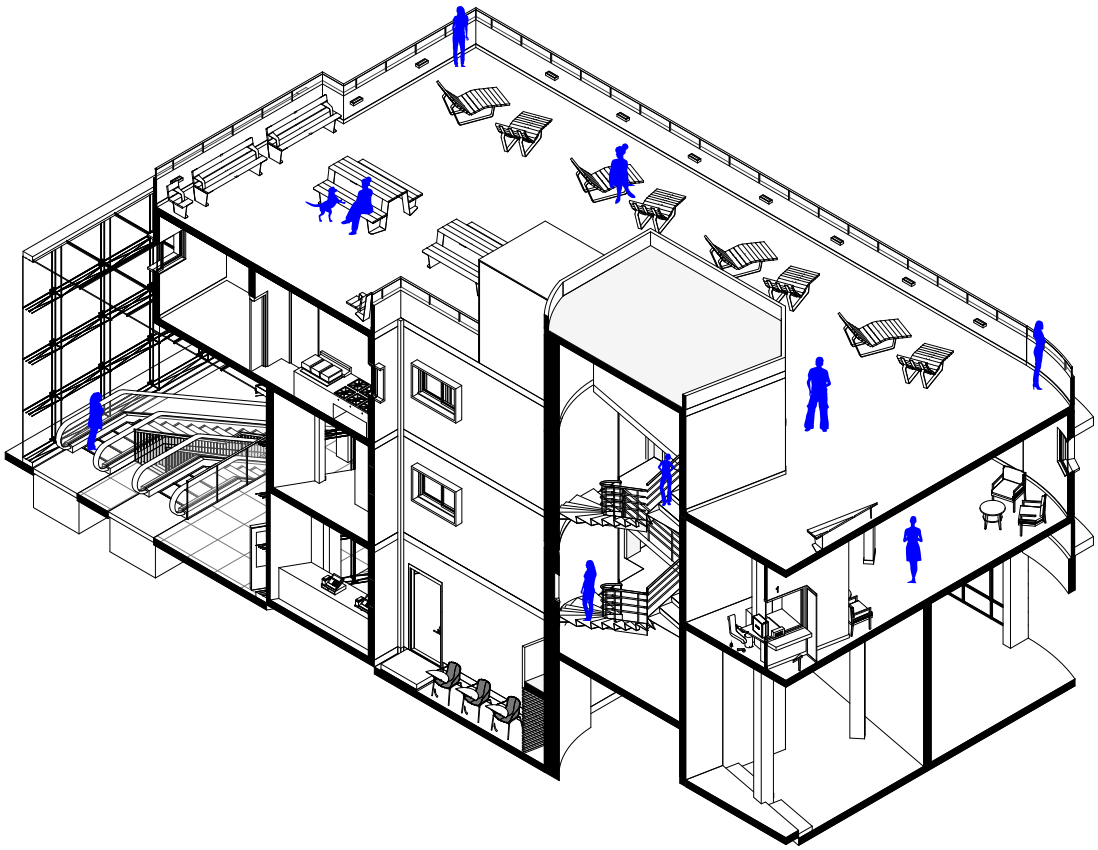


Fig.B.40 - Sectioned axonometric view of Honigmann House, from Allenby St.

Scale 1:200

0 2.5 5 10 m

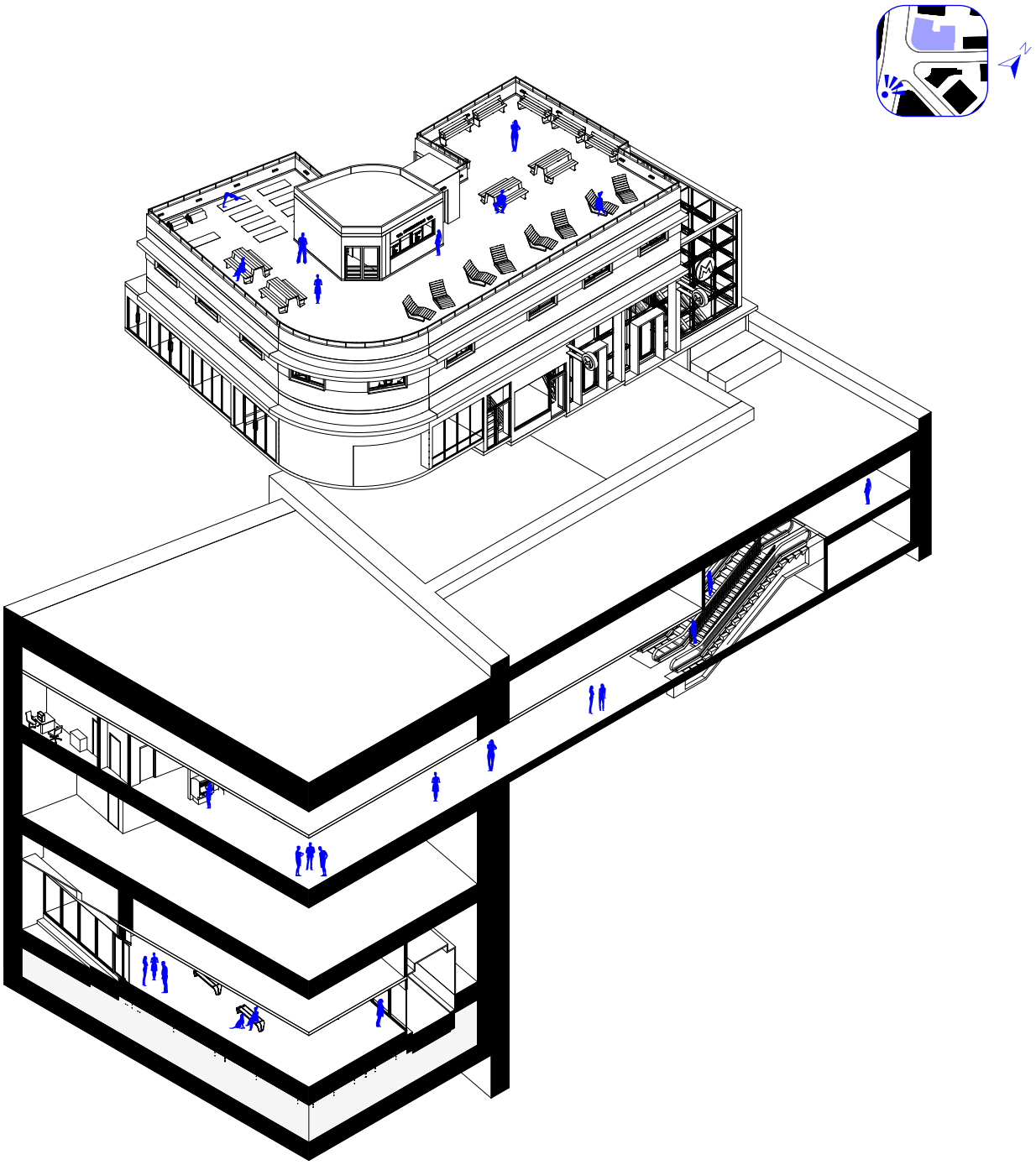


Fig.B.41 - Sectioned axonometric view of Magen David Metro Station with Honigmann House, displaying exit B from metro station to Hongimann House, from the intersection of KingGeorge St and Allenby St.

Scale 1:400*

*Original scale 1:200 - Reproduced at scale 1:400 to fit an A4 page.

0 5 10 20 m

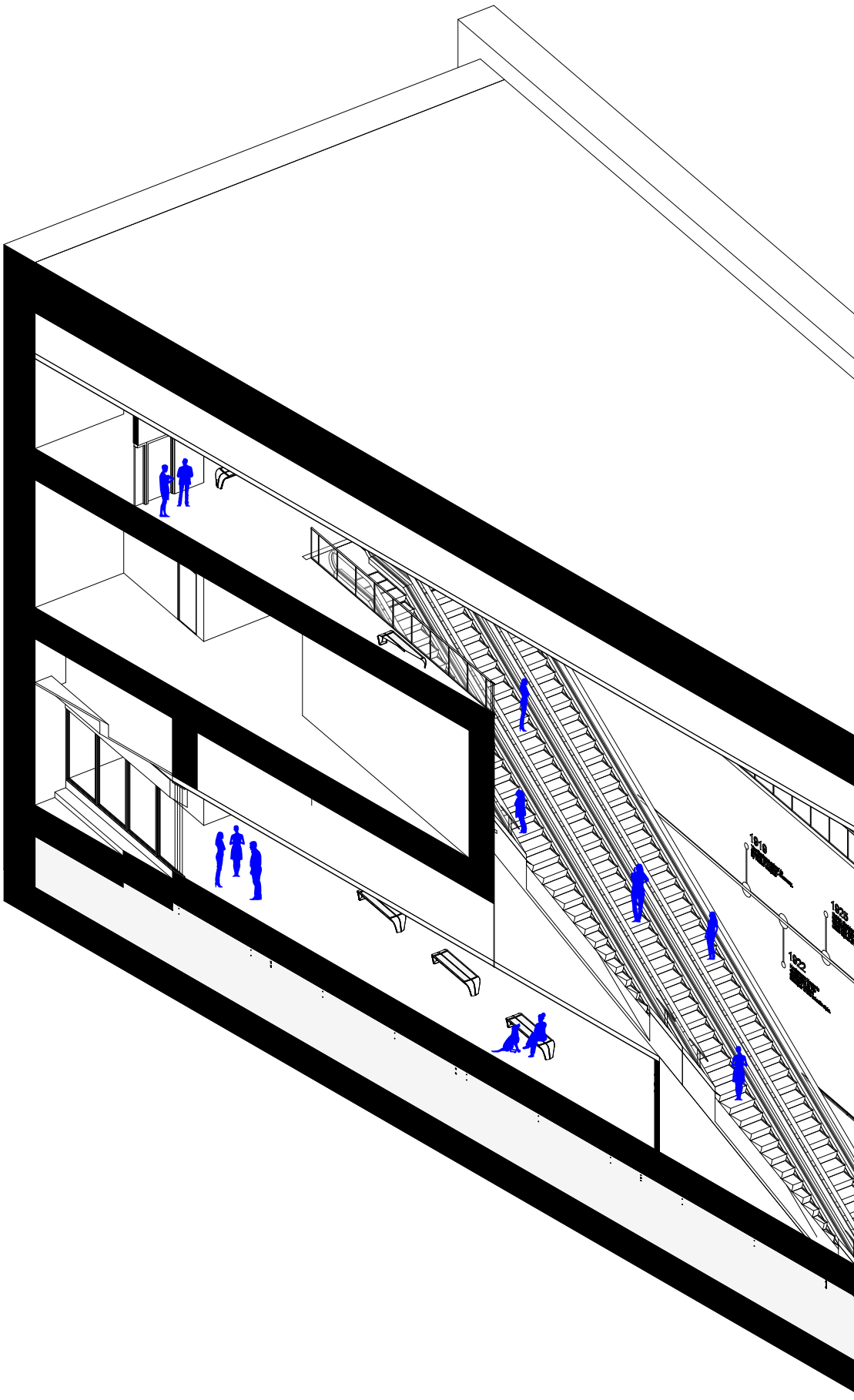
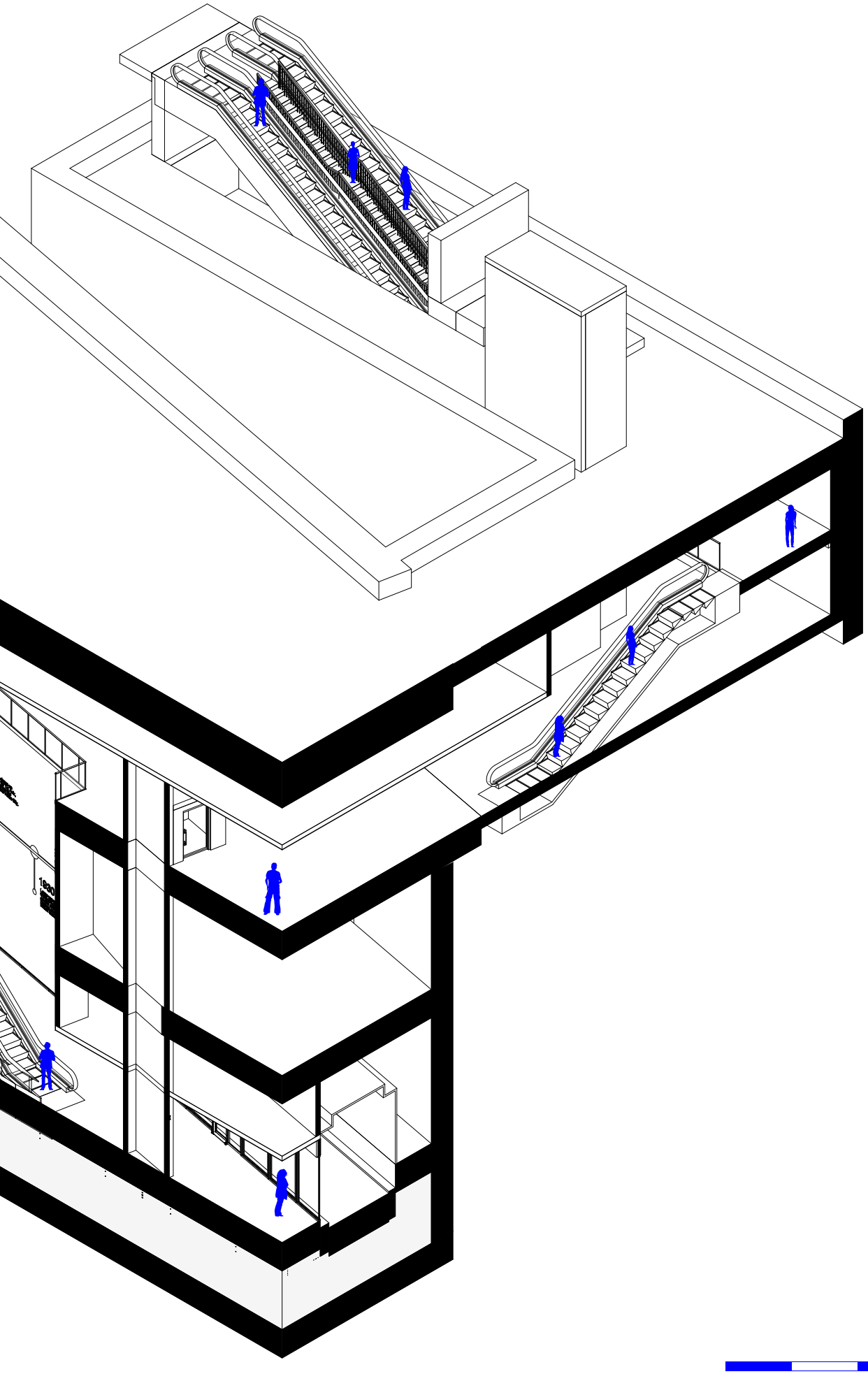


Fig.B.42 - Sectioned axonometric view of Magen David Metro Station, from the ntersection of King George St and Sheinkin St.



Scale 1:200

0 2.5 5 10 m

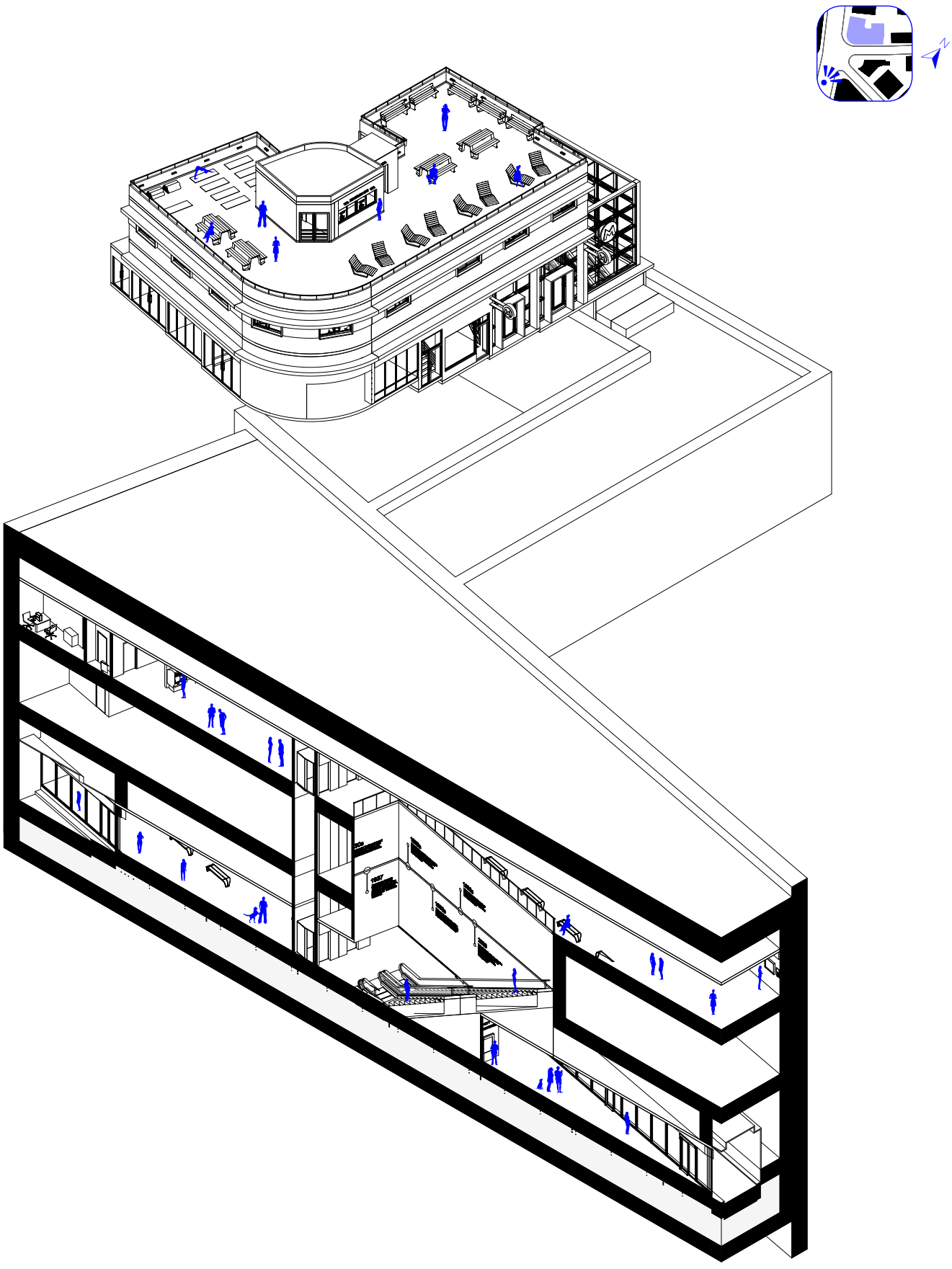


Fig.B.43 - Sectioned axonometric view of Magen David Metro Station with Honigmann House, displaying main volume of the metro station, from the intersection of King George St and Allenby St

Scale 1:400*

*Original scale 1:200 - Reproduced at scale 1:400 to fit an A4 page.

0 5 10 20 m

Fig.B.44 - Touch screen kiosk, user interface, restoration game

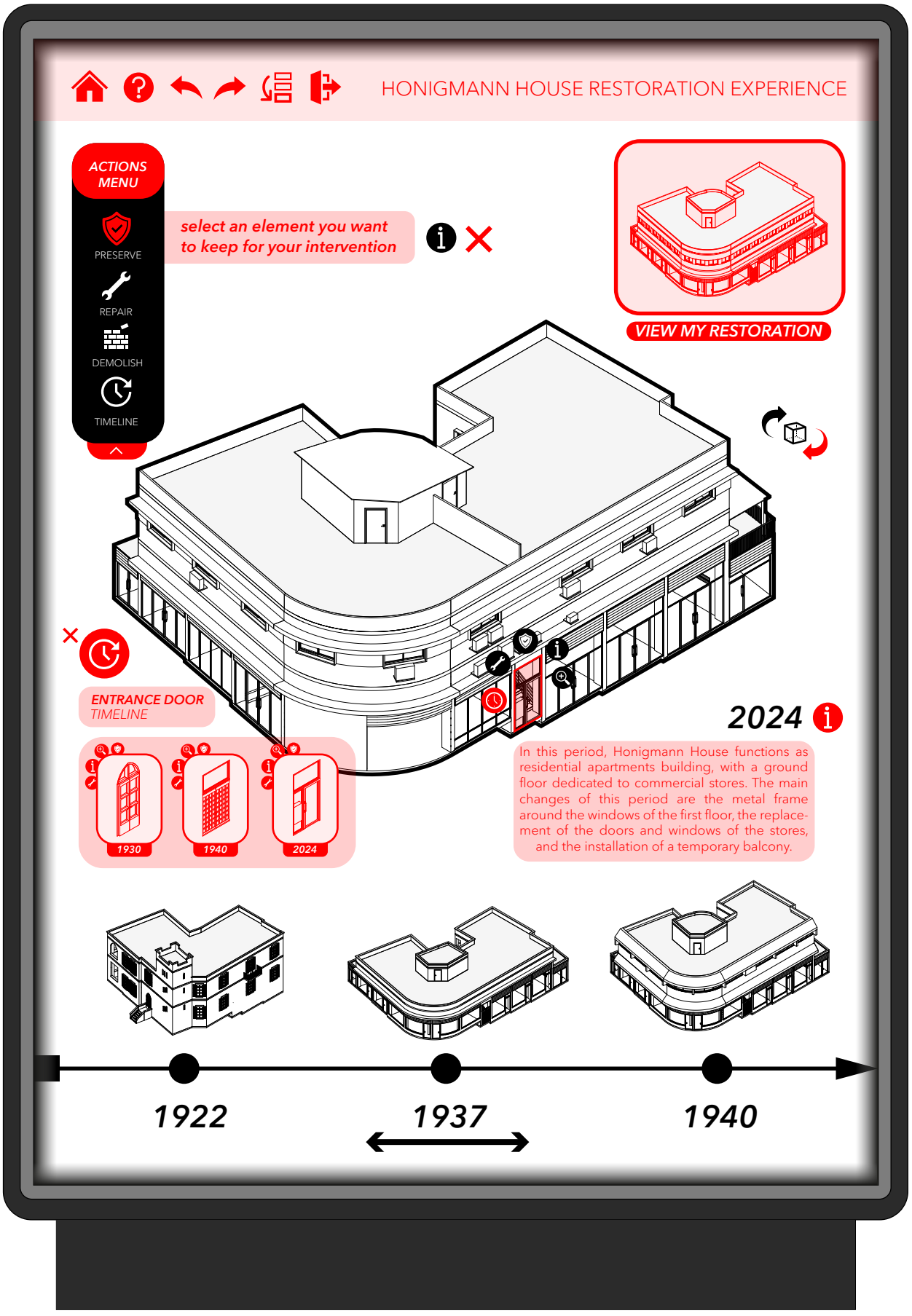


Fig.B.45 - Touch screen kiosk, user interface, interactive map

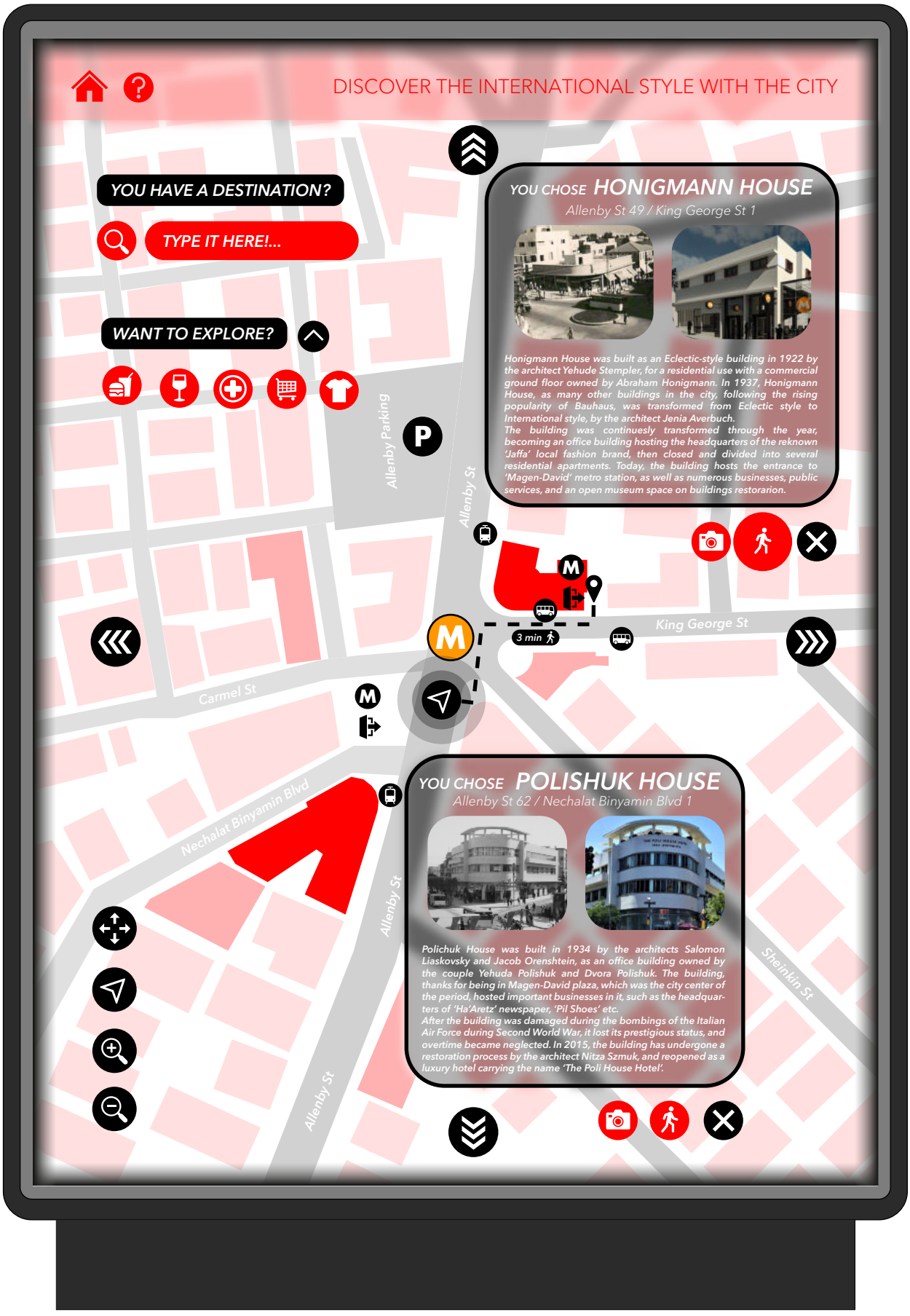
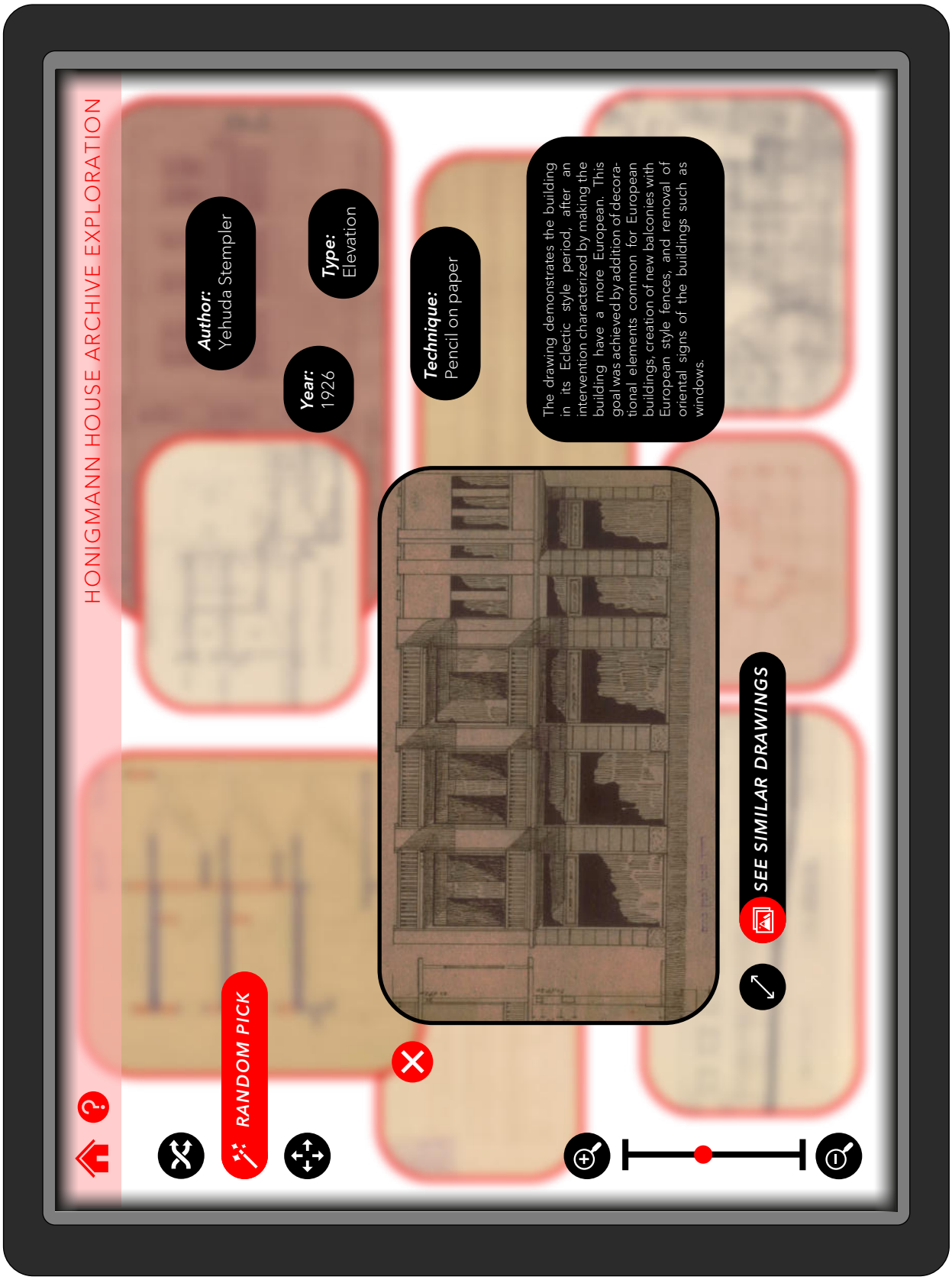


Fig.B.46 - Touch screen table, user interface, digital archive



B.9: *Visualisations*

Fig.B.47 - Magen David Metro Station, platforms level, view behing elevators.

Fig.B.48 - Magen David Metro Station, platforms level, view behind escalators.

Fig.B.49 - Magen David Metro Station, ticketing level, circulation area.

Fig.B.50 - Magen David Metro Station, ticketing level, ticket validation area.

Fig.B.51 - Magen David Metro Station, descent to platforms.

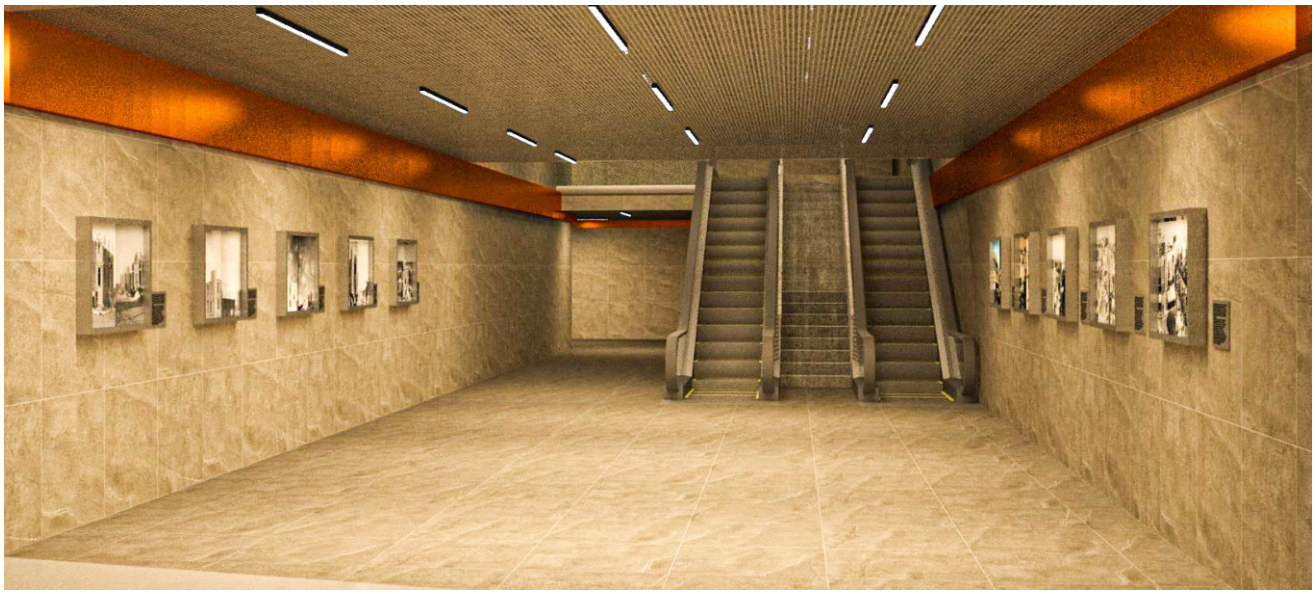


Fig.B.52 - Magen David Metro Station, ticketing level, exit B to Honigmann House.

Fig.B.53 - Magen David Metro Station, mezzanino level, exit A to Piazza Magen David.

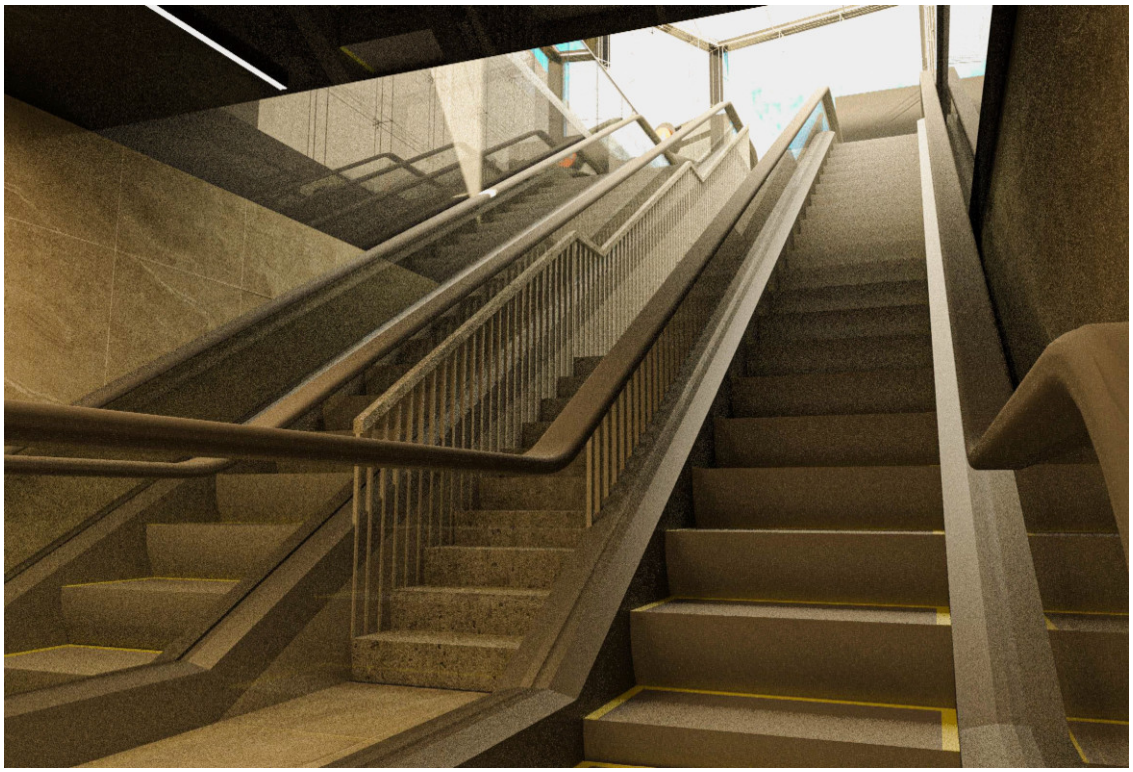


Fig.B.54 - Magen David Metro Station, mezzanino level, exit B to Honigmann House.

Fig.B.55 - Honigmann House, entrance to metro station, facing street.

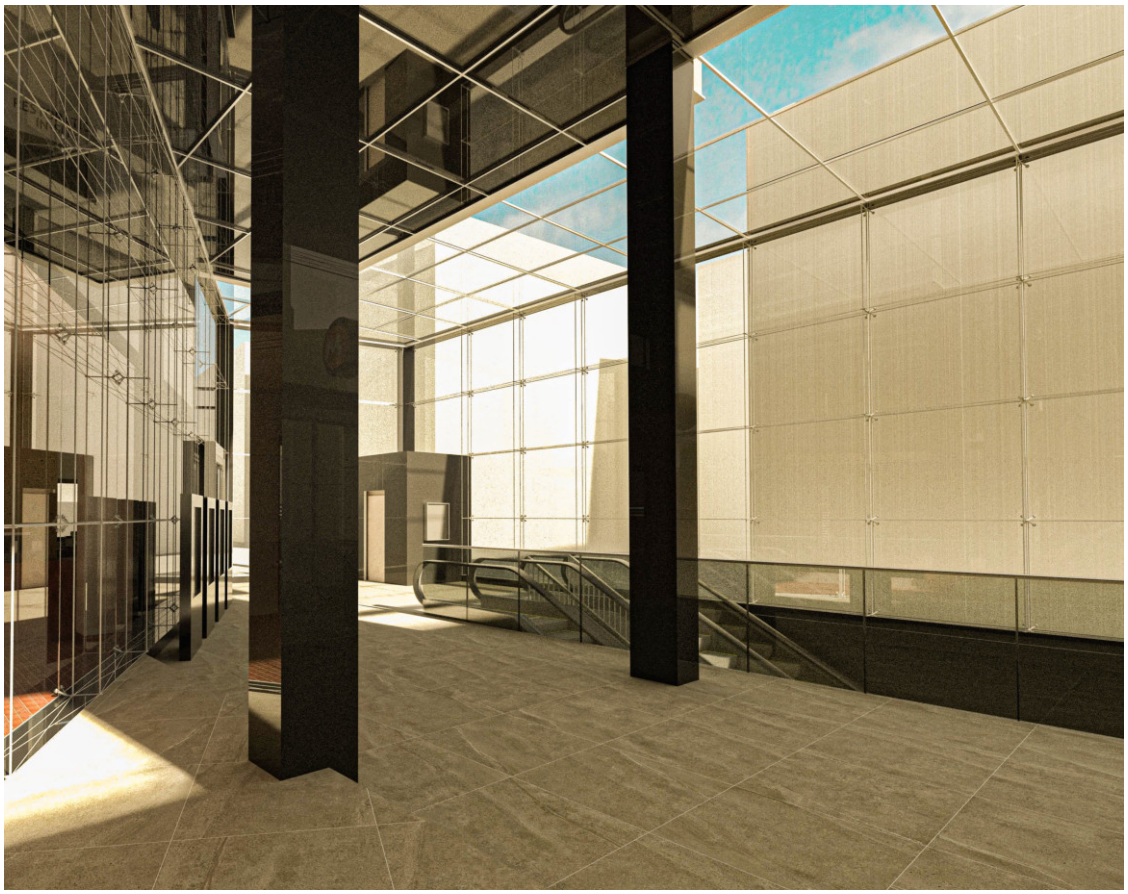


Fig.B.56 - Honigmann House, entrance to metro station, facing descent to station.

Fig.B.57 - Honigmann House, main lobby and caffe.

Fig.B.58 - Honigmann House, back garden with caffe's outdoor seating area.

Fig.B.59 - Honigmann House, original building's lobby.

Fig.B.60 - Honigmann House, mezzanino floor, restoration educational area.

Fig.B.61 - Honigmann House, mezzanino floor, restoration educational area, facing entrance to metro station.

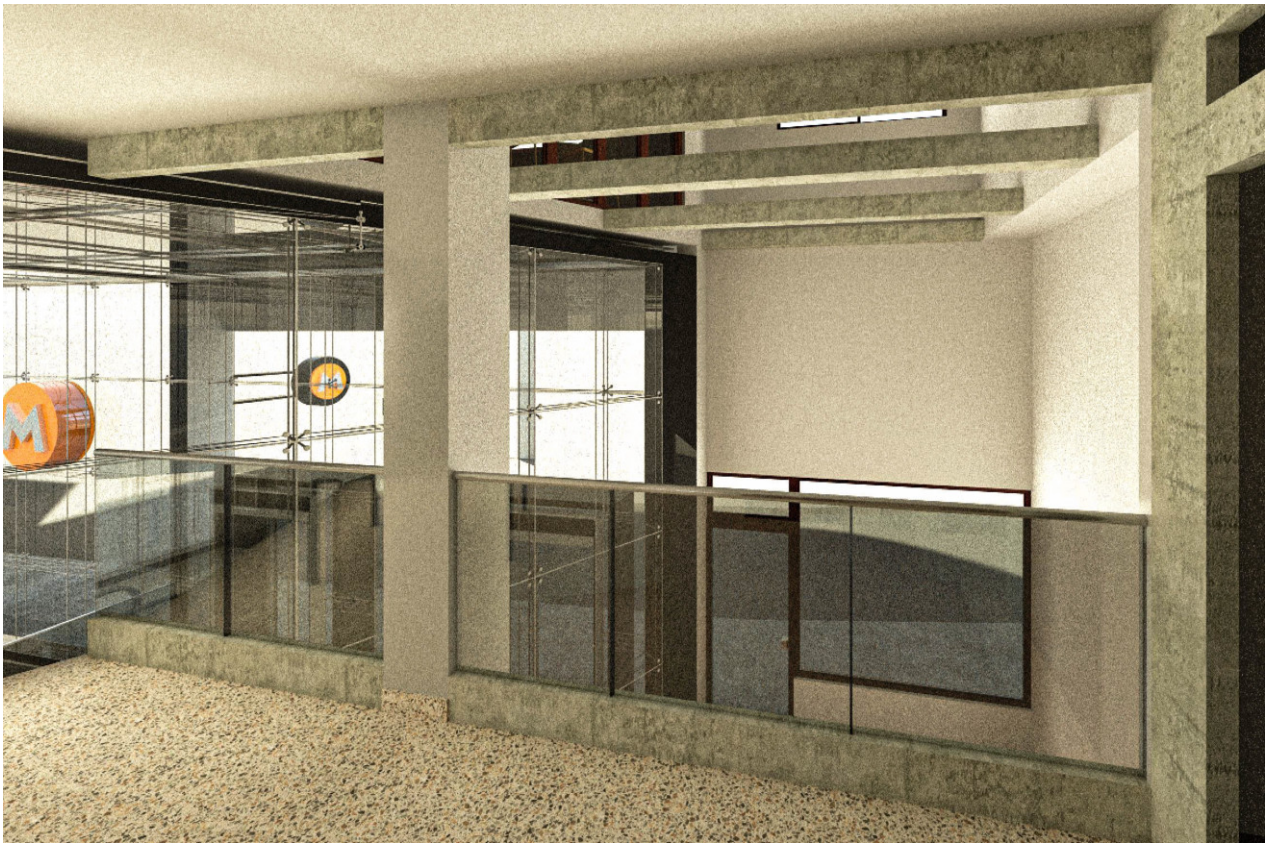


Fig.B.62 - Honigmann House, mezzanino floor.

Fig.B.63 - Honigmann House, mezzanino floor, restoration educational area, film room.

Fig.B.64 - Honigmann House, first floor.

Fig.B.65 - Honigmann House, first floor, municipal help desk, waiting area.

Fig.B.66 - Honigmann House, first floor, municipal help desk, service counters.

Fig.B.67 - Honigmann House, first floor, circulation towards the restaurant.

Fig.B.68 - Honigmann House, first floor, restaurant.

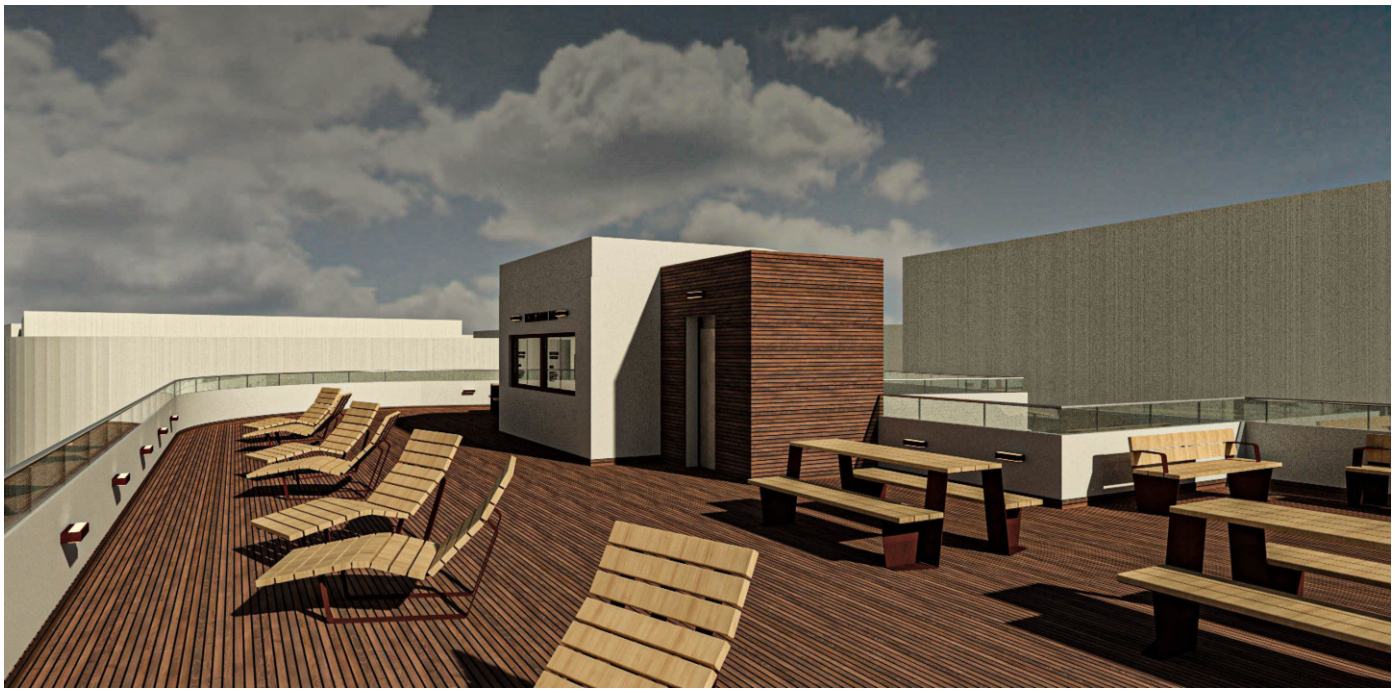


Fig.B.69 - Honigmann House, roof, seating area.

Fig.B.70 - Honigmann House, roof, events area (scenario of open-air yoga).

Fig.B.71 - Honigmann House, roof, seating area, bird's-eye view.

Fig.B.72 - Honigmann House, roof, bird's-eye view.

Fig.B.73 - Honigmann House, roof, panoramic view.

Fig.B.74 - Honigmann House, front view from King George St.

Fig.B.75 - Honigmann House, pedestrian view from King George St.

Fig.B.76 - Honigmann House, pedestrian view from King George St towards Allenby St.

Fig.B.77 - Honigmann House, pedestrian view from road intersection.

Fig.B.78 - Honigmann House, pedestrian view from Piazza Magen-David.

Fig.B.79 - Honigmann House, bird's eye view of the back.

Fig.B.80 - Honigmann House, bird's eye view of the front from King George St.

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