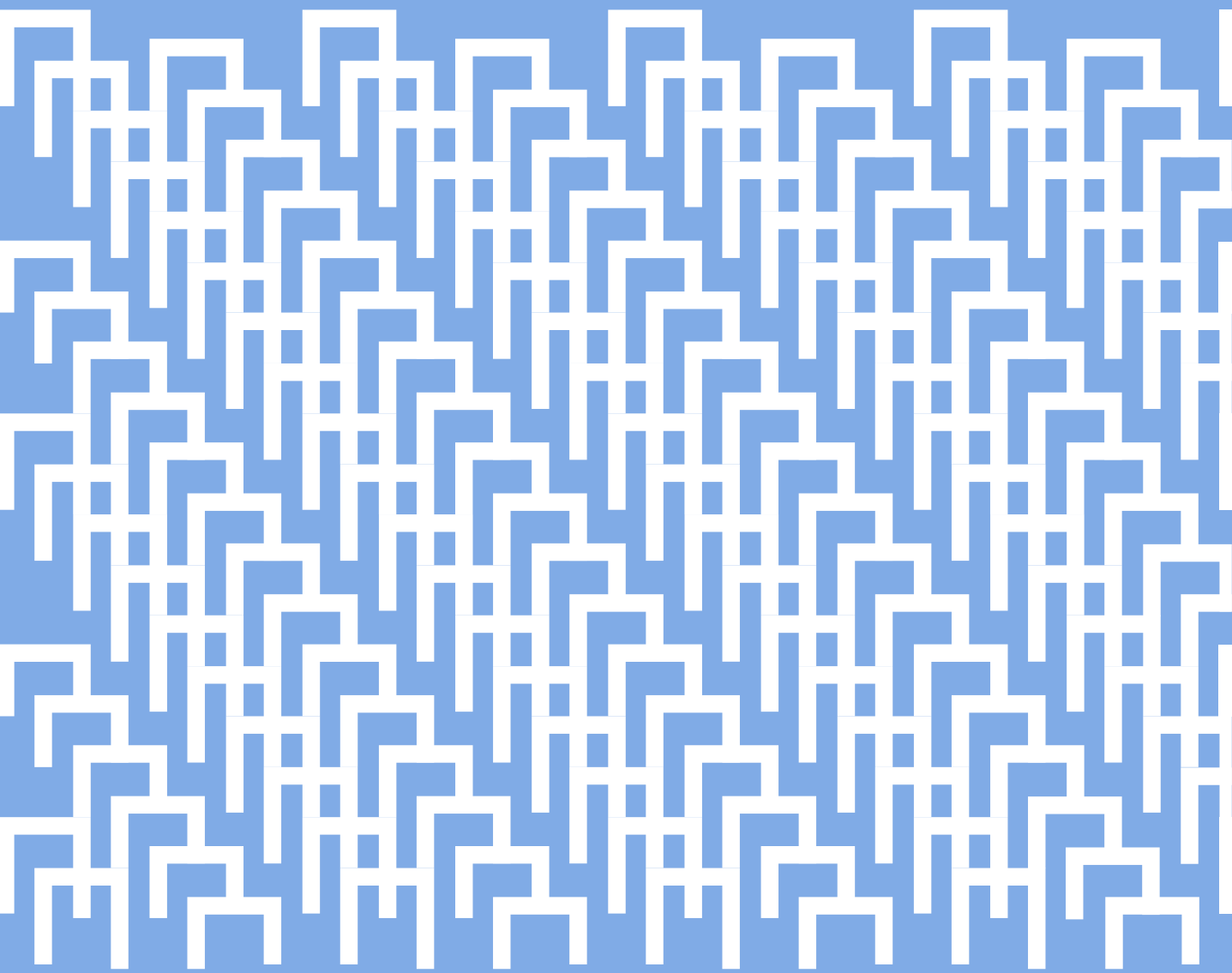
Working Group 1
MCMH Atlas

European Middle-Class Mass Housing: Past and Present of the Modern Community



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Editors

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Ana Vaz Milheiro Gaia Caramellino

Introduction

The COST Action entitled “European Middle-Class Mass Housing (MCMH-EU)” started in April 2021 with a challenging and compelling goal: creating a transnational and multidisciplinary network to carry out studies on residential buildings and neighbourhoods built for the middle-class in Europe from the 1950s onwards.

This far-reaching network aimed to develop new scientific approaches for the study of MCMH while bringing together researchers from different fields and with diverse skills. At the time of the project submission, the MCMH had generally been underestimated in architectural and urban studies. A structured understanding through a comparative analysis and a transnational perspective was thus long overdue. This shortcoming was also evident in the lack of cross-references in transnational publications and scholarly networks. By crossing different approaches, tools, and repositories of sources of Architecture, Urbanism, Planning, History, and Sociology, the MCMH-EU project sought to pave the way for fresh interpretative and methodological frameworks. The COST Action was thus committed to producing narratives that would contribute to a broader understanding of the shaping and diffusion of the MCMH phenomenon, deepening ongoing research and focusing on a set of existing case studies.

The methodologies shared by the 117 researchers who joined the project – with different backgrounds, perspectives and lines of research –, along with the surveying, cataloguing, and contextualisation tasks, allowed for an initial mapping of the relevant case studies as well as an assessment of their varying degrees of resilience and their adjustments to current (urban and social) conditions. In the meantime, the project also fostered an understanding of the interaction between spatial forms, social behaviours and inhabitants’ satisfaction by combining architectural analysis and sociological inquiry. The Action CA18137 was developed by three Working Groups: Documenting the MCMH (WG1); Development of a specific set of (new) concepts for MCMH analyses (WG2); and Leverage contemporary architecture interventions and Public Policies (WG3).

The MCMH-EU COST Action was concluded in October 2023. This book results from the work of the first group (WG1) coordinated by Inês Lima Rodrigues, with the collaboration of Dalit Shach-Pinsly, Kostas Tsiambaos and Vlatko P. Korobar. The two remaining groups were coordinated by Els De Vos with the assistance of Yankel Fijalkow (WG2) and Uta Pottgiesser with the support of Muge Akkar Ercan (WG3).

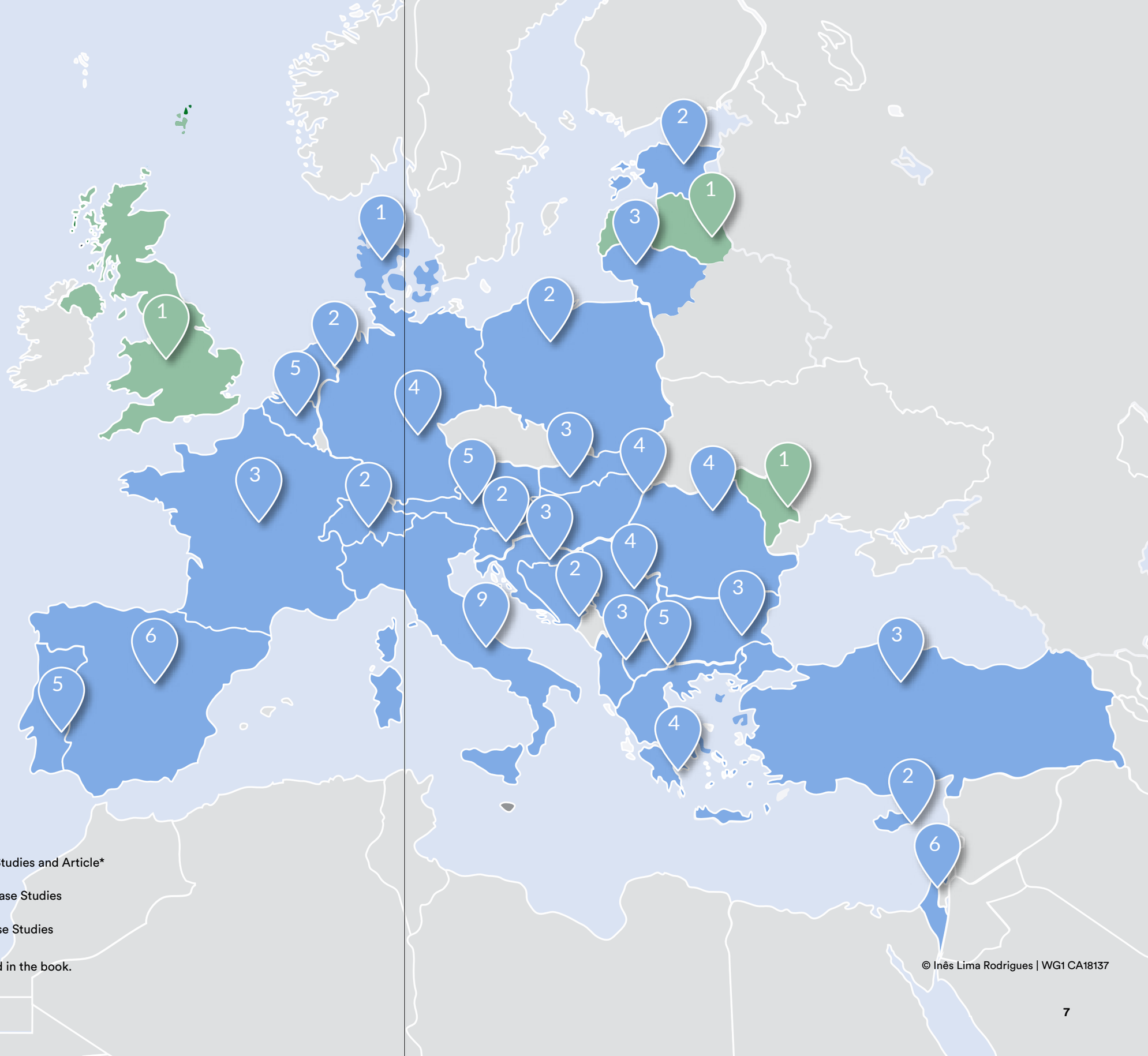
The MCMH Atlas gathers a set of 97 case studies across 27 European partner countries plus one Cooperative country. This wide-ranging group shows paradigmatic examples of how the MCMH was tackled in post-war Europe. A total of 170 researchers were involved in the production of this book, many of whom are from outside CA, revealing the topic’s expansive relevance and substantial interest. This atlas offers a first attempt to map the phenomenon of MCMH in Europe since WWII by grasping a varied set of typologies and scales of intervention. However, while intersecting quantitative and qualitative methods, it sheds light on the potentialities of cases-based studies and micro-analyses. Each case offers a lens to address broader narratives on the planning policies, architectural cultures, professional practices, and financial mechanisms that generated MCMH, questioning the strategies of regeneration and conservation inaugurated in the diverse Countries. While middle-class is considered an extremely complex object of study, due to its stratification and internal fragmentation, the cross-reading of case studies reveals also its homogeneity through the study of living patterns and housing solutions.

We strongly believe that this project has gone a step further in describing the phenomenon of MCMH by bringing together the various political, economic, and social geographies that Europe has embraced over the last decades. As a generator of urban landscapes, the MCMH reinforced its structuring role in the construction of the contemporary city. The studies gathered in this Atlas precisely show the impact of its architecture today.

European Middle-Class Mass Housing

Mapping case studies

Albania (3), Austria (5), Belgium (5), Bosnia and Herzegovina (2), Bulgaria (3), Croatia (3), Cyprus (2), Denmark (1), Estonia (2), France (3), Germany (4), Greece (3), Hungary (3), Israel (5), Italy (9), Latvia (1), Lithuania (3), Malta (0), Moldova (1), Montenegro (2), North Macedonia (5), Poland (2), Portugal (5), Romania (4), Serbia (5), Slovakia (3), Slovenia (2), Spain (6), Switzerland (3), The Netherlands (3), Turkey (3), United Kingdom (1)



CA18137 Members who submitted Case Studies and Article*

CA18137 Members who submitted only Case Studies

CA18137 Member who did not submit Case Studies

* Only countries which submitted articles are included in the book.

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Documenting the Past and Present of the Modern Community in Europe

For the emerging post-war middle classes of Europe, the modernisation process was reflected in their housing. European public mass housing became the symbol of progress, mobility and prosperity for the middle classes according to a new social contract that they signed with the post-war welfare state. Since the late 1940s the support of the middle class by the State was always based on its access to affordable housing and the quality of housing it was offered in terms of architectural and construction standards, public facilities, transport connectivity etc. This was not only something related to state-driven planning and housing policies but also a response to its evolving expectations, sensibilities, ambitions, habits etc., the new lifestyles of the evolving middle classes.

In the last decades of the 20th century, the decline in social policies across Europe and the development of a neoliberal real estate market have altered the dynamics of the buildings, estates and neighbourhoods of the European middle-class mass-housing (MCMH). At the same time, issues related to new ethnic, environmental, legal, technological, and other developments, have undermined the security, tranquillity and homogeneity of these modern communities. The increasing 'fragilisation' of European middle classes has raised significant challenges for the sustainability of the spaces they inhabit in terms of the preservation of existing estates and their infrastructure. Moreover, as the public sector's involvement in the production of space declines, the integration of MCMH estates into new masterplans and urban development projects is not seen as being as important as it used to be. However, these MCMH complexes are still valuable parts of a shared European identity by being representative forms of our 20th century. urban/architectural heritage and symbols of the modern welfare state. And insofar as the initial character of these estates is being tampered with, a discussion on their future and their importance for modern European societies is deemed crucial.

The aim of the MCMH Cost Action was to create a transnational network of researchers that would develop novel scientific approaches to the study of MCMH case studies from within Europe. In particular, Working Group 1 (WG1) aimed to document a large number of MCMH complexes using various tools and methods (GIS mapping, surveys, models, physical space data etc.) with the intention to:

a. identify, document and study the aggregations of buildings, other structures, and open spaces that are associated with the MCMH complexes.
b. launch a digital database, that will be publicly accessible online and that includes consistent technical and scientific information (historical, architectural, engineering, legal, environmental, administrative, etc.) related to MCMH case-studies, both at the building-complex level and the single-building level.

This study of MCMH complexes raised methodological challenges and questioned the existing tools and methods of documentation. The format of the template was chosen as the most applicable means of documentation. Each template, developed to document one particular MCMH complex, evolved from a simpler version, dealing primarily with the physical aspects, to one that was more advanced, aiming at a multi-disciplinary study of the MCMH complexes.

The first version of the template was presented at the II MCMH-EU event (Technion Israel Institute of Technology) in Haifa, Israel (November 2019) and included:

a. a general description of the complex (location, year of construction, project team etc.)
b. info on its typology (towers, blocks, single-story houses)
c. info on its density (built/open spaces)
d. info on its current state of preservation (demolitions, new additions, other alterations)
e. a few photographs
f. selected bibliography.

The second, more advanced, version of the template was presented during the height of the Covid-19 pandemic at the III MCMH-EU event, 8-9 March 2020 – that was exclusively online, and included, apart from the basic data related to the above-mentioned aspects, additional descriptions that further delved into the specificities of each presented case. In addition, other areas were added such as:

a. info on the quality of the complex's environment
b. info on the residents and their social status
c. info on housing policies and programmes related to the complex
d. a list of hyperlinks to additional digital material (archives, photos, drawings, interviews, videos etc.)

The format of the template is conducive towards being presented in book format. This publication, a kind of an 'Atlas of European MCMH', is organised into chapters by country (one chapter per country) and includes all the information present in the templates. An introductory text for each chapter guides the reader through the case studies by discussing the general context and the particularities of each country.

Indeed, there are already a number of books available related to the topic of mass housing, yet fewer of them deal with middle-class mass housing specifically. This is not surprising as both terms, "middle class" and "mass housing" prove difficult to define univocally, further complicated by the varying political, planning and architectural environments of post-WWII Europe and its new geopolitical reality. These mass-housing complexes permanently changed the existing urban structures under the influence of the Modern Movement. It would be fair to say that of all the grand ideas of the Modern Movement, mass housing had the biggest impact of all, as it provided fertile ground for the intertwining of different ideological, political, social and architectural visons.

Most books on mass housing are written either by just one author or a small number of them. The merit of this book comes from the fact that the huge number of 170 researchers from 28 European countries have contributed to its contents. A considerable number of chosen examples are presented for the first time and in a comprehensive manner, broadening our insight into the different approaches to mass housing in Europe in the period between the early fifties to the late seventies. At the same time, they pay witness to the overarching modernist 'doctrine' and the vastness of local variations and approaches that support the concept of 'multiple modernities'.

The importance of centrally-planned MCMH is not the same for all countries. First of all, the percentage of the population living in MCMH complexes has varied from 3%, in countries such as Greece, to 70%, in in some of the Baltic countries. Other differences relate to the residential status (renting vs. owning), the location (urban, sub-urban, peri-urban), the type of construction (traditional vs. prefab) and so on. While different contexts relate to different types and policies of mass housing, some common traits appear when looking at the forms these complexes take. And although neither the importance nor the resilience of MCMH is uniformly the same across Europe, what is common is a shared experience of these complexes as manifestations of a country's responsibility and solidarity towards its citizens. In a way, MCMH transcended the different political programmes and economical models of development and became positive symbols of a collective modernity from the East to the West, and from wealthier countries to the developing ones. Their current degradation provides an opportunity for us to rethink, at a European level, their importance as modern infrastructures and their cultural legacy as carriers of shared values.

Dalit Shach-Pinsly
Idan Porat

Inês Lima Rodrigues
Or Amir

Exploring digital tools for new analyses of Middle-Class Mass Housing in Europe

By progressively achieving the main aim of Cost Action 18137, to create a transnational network that brings together the work of European researchers studying Middle-Class Mass Housing (MCMH) built in Europe since the 1950s it has been possible to develop new scientific approaches through discussing, testing and evaluating various case studies and their different methodologies and perspectives among the several MCMH-EU events realised in the course of the Action.

In the WG1's target, the MoU stated:

> *The evolutionary agenda of WG1 aims to study, geo-reference and document the selected MCMH complexes, using the methodologies and tools of the Geographic Referencing System - GIS - and redesigning the case studies. The aim is to: a) identify, record and document the aggregations of buildings, other structures and open spaces that are associated with the building complexes selected throughout the Action, as well as the agents involved in the creation, promotion and construction of these architectural and urban objects; b) promote knowledge and public access to consistent technical and scientific data and record these specificities of the architectural and urban heritage on MCMH*[1].

Throughout the Action, beginning in April 2019, we developed a methodology for documenting MCMH case studies of the partner countries involved in the research, based on a rigorously-designed template, to create a comparative evaluation of urban and sustainable aspects that are part of the most relevant MCMH neighbourhoods in Europe. In addition, the project arose international recognition with the selection of the proposal "European Middle-Class Mass Housing - Cost Action: A tool to develop neighbourhood quality"[2] for the Neighbourhood Index at the Oslo Architecture Triennale 2022, whose intention was to share projects, practices and perspectives that contribute to better neighbourhoods[3].

As a result, it was possible to map 112 MCMH neighbourhoods spread over several cities in 30 European countries that were CA18137's partners. This Cost Action aims to identify the urban and architectural characteristics in dialogue with the concepts that define MCMH. Each country's housing policies are gone into in some depth, as well as, as well as the intervention or rehabilitation strategies realised. With the involvement of most CA18137 members from the three Working Groups, we gathered information on several neighbourhoods across 30 European countries. The analysis of the data added to the templates was inserted into mapping analysis systems, such as GIS (Geographical Information System), demonstrate different perspectives on about the built environment. Within this framework, a fascinating research project has been developed that is currently progressing with the exploratory research capabilities of new analytical tools, such as the integration of all case studies in GIS to achieve an original analysis based on different issues, including the distribution of uses (building typologies, open areas, green areas, parking etc.), and various statistics for all case studies. We used Cost Action's networking tools (meetings, STSM, workshops and DG) to rise to an essential WG'1 challenge, that of using GIS to create spatial analysis on the selected neighbourhoods, besides sharing the results of the digital studies developed across the Action.

The GIS's kick-off event was the organisation and coordination of the GIS workshop. "MCMH-EU Neighbourhoods in GIS: Analysing and Exploring Housing Renewal Alternatives" at Aristotle University of Thessaloniki, Greece (28, 29, 30 September 2022), where we had the opportunity to discuss the methodology, the potential of the digital analyses and how we could apply the methodology on the neighbourhoods mapped across the entire Action. The results achieved in Thessaloniki allowed us to put into practice and share the methodology by developing four STSMs. Or Amir followed up on the results achieved in the workshop and began managing the data entry in GIS according to the

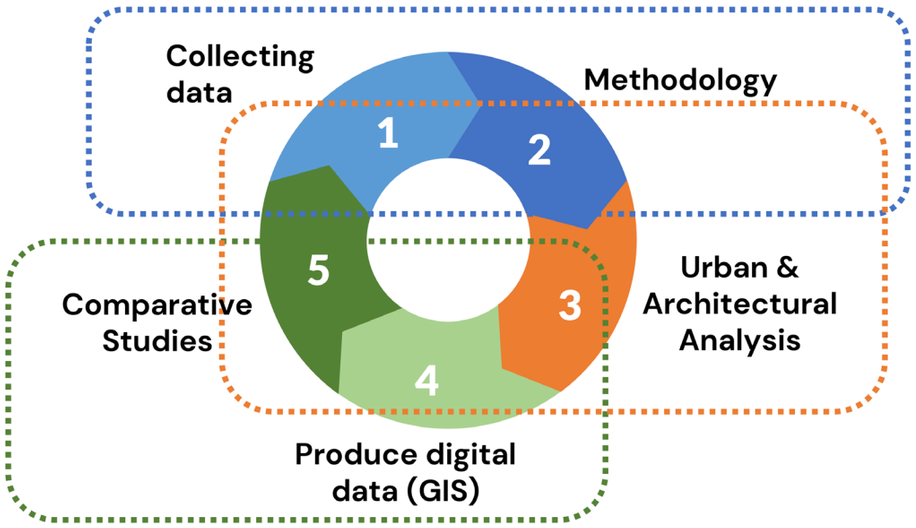

Figure 1

parameters set by the “Development of Spatial Composition of MCMH-EU neighbourhoods” by realising an STSM hosted by Desire Tilinger, Sandra Mitróvic (University of Belgrade, October 2022). The “Documenting the MCMH”: Development of the methodology based on GIS analysis parameters” led to the realisation of 3 simultaneous STSM by Dalit Shach-Pinsly (Technion -Israel Institute of Technology) and Idan Porat (Technion -Israel Institute of Technology) and Or Amir (Tel Aviv University), supervised by Paulo Silva (University of Aveiro), Inês Lima Rodrigues (ISCTE-IUL) and Ana Vaz Milheiro (FA-UL), respectively. The occasion also allowed participation in the AESOP Workshop “Thematic Group: New Technologies and Planning”, in Aveiro (March 2023).

The spatial and quantitative data on the case studies collected in the research template granted a unique opportunity to explore the patterns of a large group of MCMH neighbourhoods across Europe. The main question for the GIS analysis and quantitative tools of the MCMH case studies - according to the WP1 agenda - was “to identify the aggregation of buildings, other structures and open spaces that are associated with the (MCMH) buildings”. In other words, are mass housing neighbourhoods homogeneous and do they have similar characteristics in terms of their physical composition? Or do the mass housing neighbourhoods have a wide variety of physical structures? To answer this question, we developed three spatial tests: 1. Open space vs. built area; 2. nearest neighbour spatial distribution; 3. Geometrical diversity of buildings in a neighbourhood. The Open vs. Built analysis examines the percentage of built area in the district vs. the share of open spaces. The Nearest Neighbour analysis examines the spatial patterns of the buildings in the complex as being either clustered, random, or spread out. The Geometrical Research analysis examines the ratio between the length and the width parameters of buildings and the minimum boundary geometry of the buildings, dividing the neighbourhood according to its buildings’ geometrical types: homogeneous or diverse.

Our findings in each of these spatial tests reveal significant diversity. The analysis shows that mass housing neighbourhoods can be dense or not dense; they can be clustered, random or dispersed, and with a wide range of building mixes in neighbourhoods (homogeneous and diverse building types). According to the spatial GIS and quantitative analysis, mass housing neighbourhoods have various parameters, types, and shapes. The standard image of mass housing neighbourhoods as homogeneous buildings planned according to a fixed configuration and spread out at fixed distances and alignments strays from the typical scenario given in the template neighbourhoods of these research case studies. In

order to categorise and classify mass housing neighbourhoods according to their spatial and geometrical patterns, we need new and diverse terminologies to describe the mass-housing phenomenon.

Along with the quantitative analysis, the template includes additional data related to the quality aspects of MCMH neighbourhoods, as well as a variety of factors deemed to affect neighbourhood quality of life, including connectivity/accessibility, open public space, the surrounding landscape, building conservation and maintenance, urban/building transformation or rehabilitation, and more.

Concerning each topic, each researcher described the main characteristics of the neighbourhoods being surveyed. To evaluate the qualitative data, we developed a unique methodology that analysed similar aspects, different terminologies, diverse groups of attributes or patterns. The analysis revealed certain common traits, such as particular repetitive characteristics which appear in many MCMH neighbourhoods and those that appear only in specific ones: walkable neighbourhoods, less walkable neighbourhoods, neighbourhoods connected to central areas either on foot or by car or other public transport, etc.

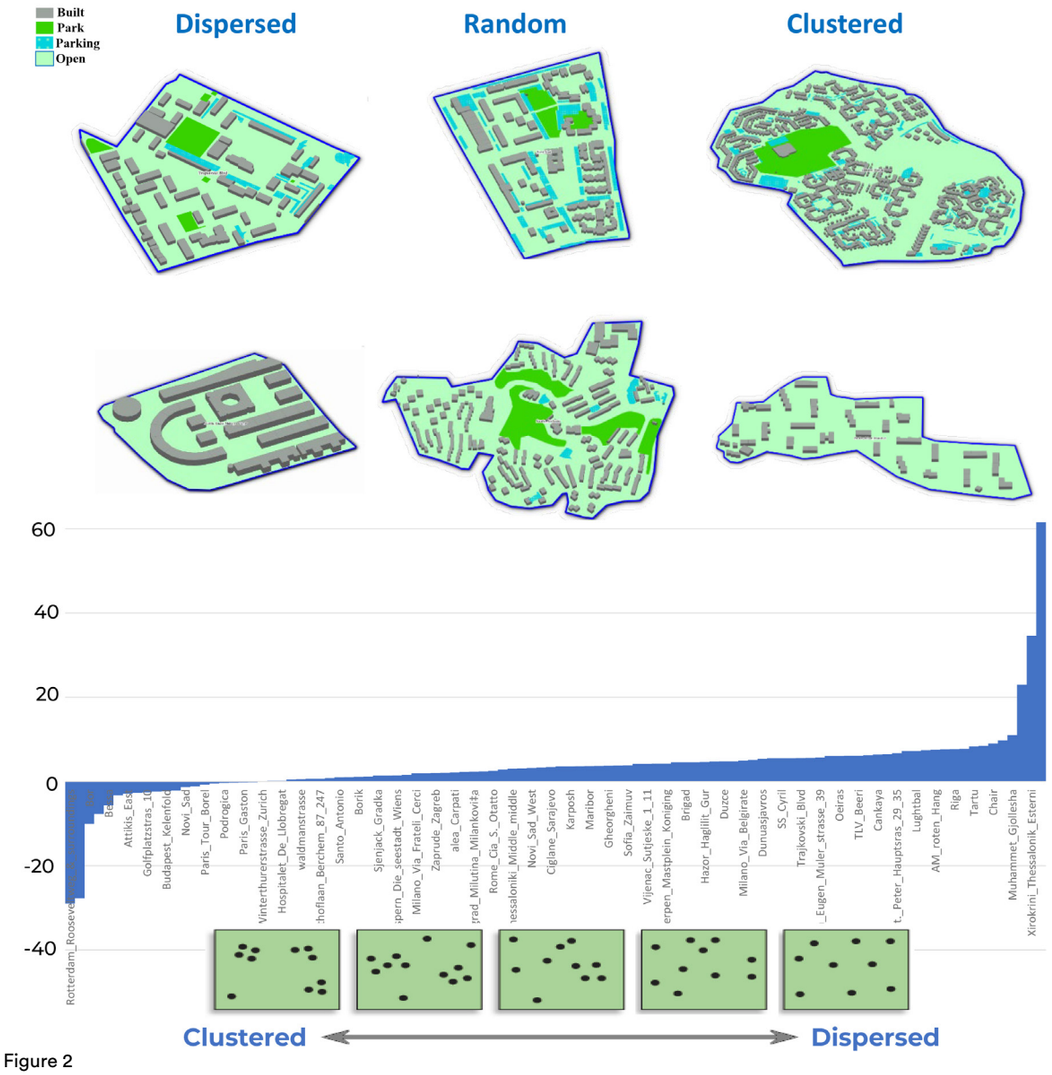

Figure 2

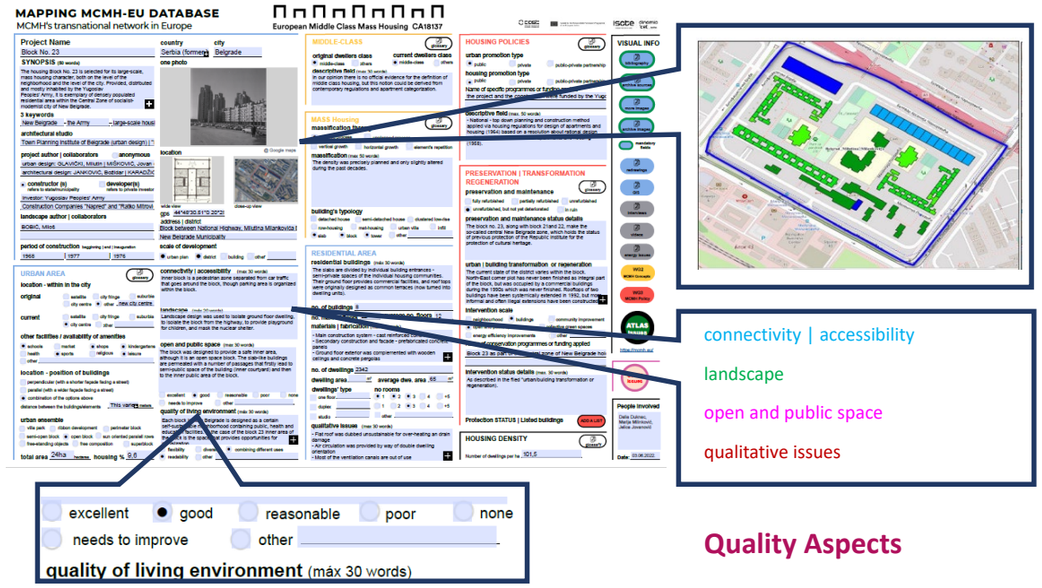

Figure 3

As a result of the findings, it became clear specific usages of open spaces are present in many MCMH neighbourhoods, public, semi-public, and private; the modest sizes of open areas in general; the fact that many MCMH neighbourhoods have recreational and sports facilities, and rivers nearby; many have playgrounds for children. Also, we discovered how "green" factors play a critical role in many MCMH neighbourhoods.

An analysis of 'quality of living' and other 'qualitative issues' revealed a "sense of identity" in many neighbourhood templates. This often occurs in tandem with additional factorial data, such as the existence of wide, open green spaces, different-sized apartments, or specific designs of open spaces, and so on. Furthermore, we analysed neighbourhood diversity and readability, where both topics were amply discussed in relation to MCMH neighbourhoods.

By disseminating the results of our digital tools for new analyses on mass housing for the middle class in Europe, it was possible to explore the analysis of the case studies through the statistical correlation of quality parameters with spatial geometric parameters, allowing us to understand the relationship between buildings, performance, and quality of space.

Beyond the specificities of each neighbourhood, it was possible to start outlining comparative studies between MCMH settlements in Eastern and Western Europe, North and South, with the expectation of being able to contribute to a better revitalisation and regeneration of these settlements. Therefore, in the light of the WGI's outcomes, we argue that the WG1's outcomes about urban development must consider digital innovations and integrate them into the new development processes for the built environment and decision-making approaches. Neighbourhoods must adjust to these changes and adapt current sustainable needs to the development process. There are various ways of analysing the spatial area of the built environment regarding housing and the public spaces surrounding it.

The digital analyses carried out with the advanced GIS tools are related to one of the challenges of the city of the future, regarding regeneration approaches and the quality of life in urban environments. One hundred and twelve case studies of middle-class mass housing neighbourhoods

were analysed, developing quantitative and qualitative statistical tools to define the different types of mass housing neighbourhoods, the relationship between the physical type and the quality of performance and the capacity and challenges of renewal.

The progress of the objectives led the authors to participate in three international scientific congresses in the following months to disseminate the results of the enormous work carried out through the MCMH network and support the hypothesis: could we define middle-class mass housing with geometric/mathematical spatial parameters? The first occasion was as part of the "New Technologies & Planning" thematic group at the AESOP congress held at the University of Aveiro (6-7 March 2023). The discussion and critique that followed, allowed us to develop our knowledge, and we presented the new, updated results at the International Conference on Urbanism and Urbanization, Jerusalem, Israel | 7-10 March 2023 and a few months after in the AESOP - Poland at the Faculty of Human Geography Poznań, Poland (5-8 July 2023).

"Exploring digital tools for new analyses on mass housing for the middle classes in Europe" was presented in the *9 EUGEO Congrés Geography for Our Common Future* (Barcelona, Spain | 4-7 September 2023), the last event to take place in the scope of the CA18137. It was part of the "Mass housing, high-rise and vertical cities - What else?" session, chaired by Dr Tamás Egedy, MC member from Hungary (Budapest Business School, University of Applied Sciences, Budapest).

It should be noted that this methodology of analysis is still ongoing, and the results will be published later this year in an international peer-reviewed journal. A special session on "Housing, Built Environment, and Technology" was also proposed for the 35th International Geographical Congress in Dublin 2024 to demonstrate the results of the GIS analysis of the MCMH neighbourhoods conducted by the WG1.

Notes

[1] Memorandum of Understanding for the implementation of the COST Action "European Middle-Class Mass Housing" (MCMH-EU) CA18137 (MoU), https://www.cost.eu/actions/CA18137/

[2] Inês L. Rodrigues, Teresa Rovira; Marta Chavarria. "European Middle-Class Mass Housing - Cost Action: A tool to develop neighbourhood quality", Oslo Architecture Triennale 2022, https://neighbourhoodindex.org/index/d2c0ca18-b9bb-416c-b55a-a69e2603859c/

[3] Oslo Architecture Triennale 2022, Neighbourhood Index, https://neighbourhoodindex.org/index/

Figures

Fig. 1 -Diagram on WG1's research strategy © Authors, 2022.

Fig. 2 - Template analysis: MCMH building compound analysis quantitatively © Authors, 2023.

Fig. 3 - Demonstrating the template data, emphasising 'quality of living' and other 'qualitative issues' data © Authors, 2023.

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MCMH-EU Template #2
Content analysis through comparison

To understand the complexity of the MCMH phenomenon, the compiling of case studies becomes an important tool that can lead to fresh insights into the current state of the art and the future of the legacy of the CA1817 network on housing across Europe and beyond[1].

The research was based on comparative analysis of the inventory of case studies collected within the WG1. Various methodologies, drawing from multiple perspectives, were applied to facilitate cross-case comparisons. By adhering to specific thematic tracks, it was possible to tease apart the complexity of the MCMH issue to make separate topics. In this logic of decomplexification, 3 methods were involved: Mass study_Method 01, Morphological analysis_Method 2, and Data analysis_Method 03[2].

Mass study_Method 01 analyses specifically the mass measurement scale, namely through three main processes: vertical massification, horizontal massification, and the repetition of individual buildings. Codes were defined to represent abstractly and diagrammatically the forms of the buildings, their typologies, and the process of their massification [Figure 01]. The diagrammatic sections measured the process of massification in a non-quantitative way. The result is mainly a visual and comparative overview between case studies with different origins and approaches.

By comparing a range of case studies, the chosen methodology shows their impact on the city allowing us to immediately identify critical issues. For example, it is possible to observe some case

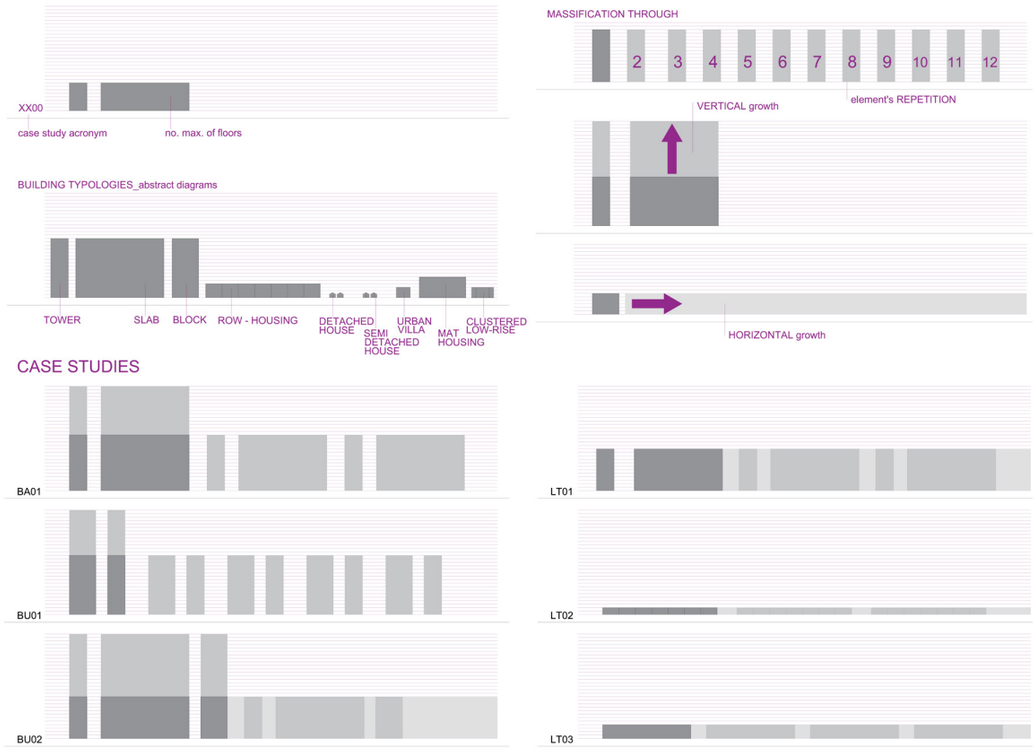

Figure 1

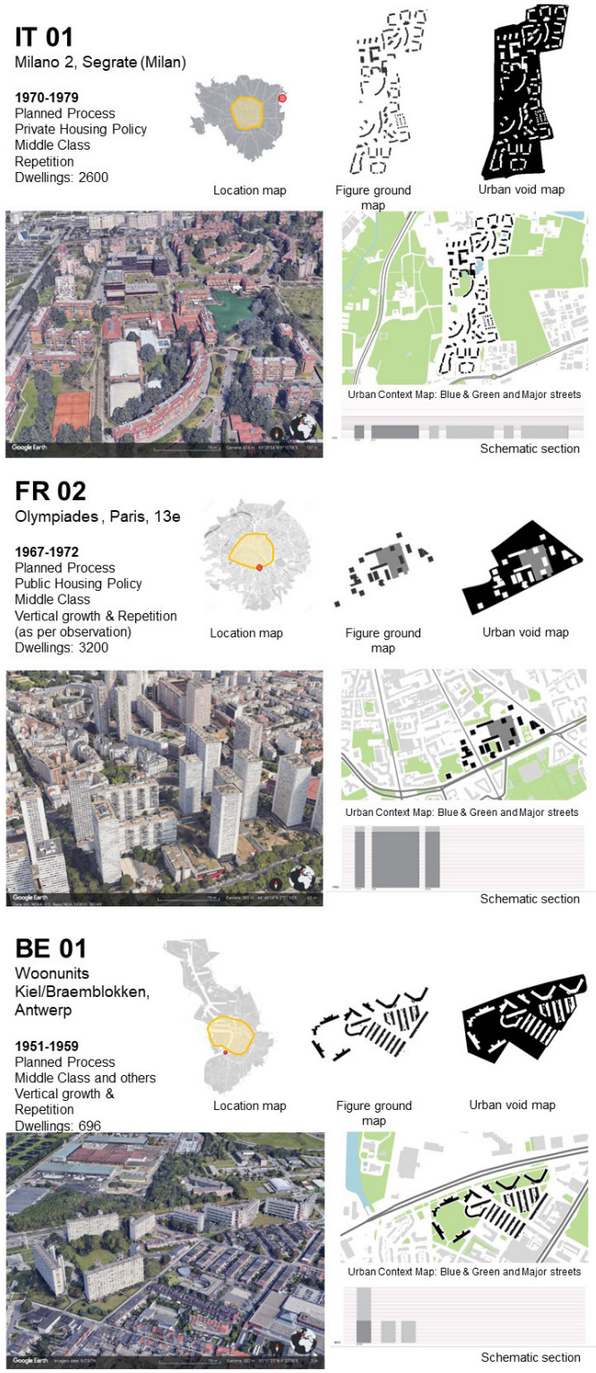

Figure 2

studies where horizontal growth is the main phenomenon, such as in Lithuania where repetition and horizontal growth are pre-eminent. In contrast, in Bulgaria for example the massification process is determined by vertical growth and repetition through high-rise, multistorey buildings, towers and blocks [Figure 01].

The mass studies clearly show visually and through comparison that in most cases the process of massification is manifold. In fact, only in a few cases is massification determined by a single process, i.e. by either vertical, horizontal, or repetitive growth. In most case studies, it is clear that the processes of horizontal growth and repetition or vertical growth and repetition co-occur. In fact, the common aspect of massification is the repetition of individual buildings even if the study makes the point that the process is more complex, and it is not possible to identify a single type of massification because it is often determined by a mixture of different conditions.

Morphological analysis_Method 02 analyses the role MCMH plays within the urban context; it is considered to be a useful means to compare the geometries and complexity of the urban districts in question. The study selected a representative number of case studies from the three categories of the massification process: vertical, horizontal, and repetitive. The 18 case studies chosen are redrawn according to the same scale, geographical orientation, and graphic technique. This approach makes it possible to formulate comparative ideas within the selection. For example, case studies such as Forellenwegsiedlung in Salzburg and Alto da Barra in Lisbon have a significantly smaller footprint in terms of housing density in comparison to other cases. It also observes the relationship of housing within the urban infrastructure, highlighting some key aspects, such as solids versus voids, blue and green spaces, main streets along the housing periphery and the principal transport connections. A simplified city map describes the geographical location of the housing within the urban environment, specifying if the housing is in the centre, or on the periphery or outskirts of the city [Figure 02]. For a deeper analysis, three of the most representative cases from each category of development are chosen, shown through diagrams. Two of these three projects were located on the city periphery and both cases in Paris and Antwerp had a similar yet distinct vertical and repetitive character. Discrepancies in the number of dwellings could not be more evident: for instance, the Olympiades in Paris has 3200 dwellings versus 696 in Woonunits Kiel in Antwerp and 2600 in Segrate, Milan.

Data analysis_Method 03 relies on supplementary data encompassing historical classification, expansion, private or public processes, etc. These data were carefully chosen based on their pertinence and significance, and then represented in the form of charts. Method 3 compares the period of implementation of European Mass Housing, mainly concentrated between the 1960s-1970s.

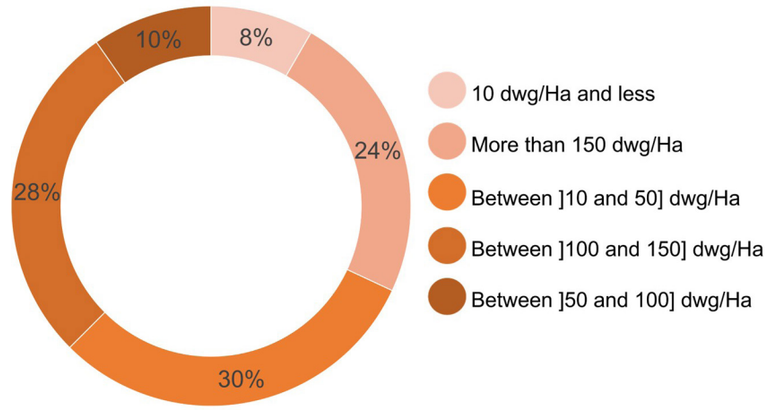

Figure 3

Based on the results shown, it is possible to conclude that the middle class is a fluctuating phenomenon, changing in time economically and socially. In fact, the social class of their occupants often changed; buildings which were originally social housing became homes for the middle-class; nonetheless over time there was a rebalancing of use. Data analysis also focuses on the location of the MCMH. In many case studies housing initially planned on the periphery, nowadays has mainly been absorbed within the city centre boundaries, due to the urban growth. Regarding density, countries in the west of Europe tend to have the highest and lowest densities, while in the east they are more in line with the overall recorded average [Figure 03].

The study reveals that each of the three methods yields distinct results. Consequently, within each track of investigation, specifically for each method employed, a comprehensive critical understanding of the MCMH phenomenon was not achievable. However, all methods did shed light on various aspects of it. In fact, architectural and urban issues became clear through **Methods 01** and **02**, while economic and sociological issues were revealed only in Methods 03. While the morphological analysis focused on some selected cases, the mass measurement diagrams, and the data analysis could make comparisons among a great range of case studies. Through comparative analysis and according to the current literature, it has been shown that the case studies collected do not always correspond to existing definitions of mass housing. This proves that the issue is still open as the complex definition of what constitutes the middle classes in Europe.

In the future, it is conceivable that this research will be enhanced by delving deeper into its implications. This could involve expanding comparative perspectives, thereby providing greater clarity on theoretical matters through the systematic collection and refinement of data. New and additional methods to be implemented can be developed from the establishment of cross-sectional links between data and create more interpretive possibilities. Additional tracks of investigation, within the existing inventory of case studies, could possibly be identified and eventually lead the way to further unexplored fields of research.

Notes

1 Pottgiesser U. & Quist W. (Eds.) (2023) ‘Middle-Class Mass Housing’. *Docomomo Journal*. 23. p. 113.

2 Benbernou A., Como A., Harea O., Pottgiesser U., Singhal K. & Smeragliuolo Perrotta L. (2023) ‘Evaluation and criticism, Transversal Comparative Approach to Middle-Class Mass Housing’. *Docomomo journal*. 23. 2023/1. pp. 76-88.

Figures

Fig. 1 - General rules for the diagrammatic re-drawing of the case studies in the section representation for the mass measurement with a selection of case studies. © Authors, 2022.

Fig. 2 - The visual fact sheets compare the three case studies from Italy, France and Belgium. © Authors, 2022.

Fig. 3 - Density of dwellings per hectare. © Authors, 2022.

Albania

Tirana

Edmond Manahasa Anna Yunitsyna Odeta Manahasa

Three Mass Housing Typologies in Socialist Period Tirana

This study focuses on the socialist period mass-housing typologies that emerged between the 1950s and 70s in Tirana, Albania. Being part of socialist block countries, Albania followed a selective policy regarding its mass-housing development strategies. In the majority they were based on Soviet and Chinese models and reflected propagandistic narratives as part of the socialist political agenda. Although mass housing was used as an accommodation strategy for different social strata to live in, there were few differences between the middle class and other classes because of the egalitarian philosophy of the regime. This study analyses and outlines the housing characteristics of three mass housing typologies in Tirana which are: "Shallvaret", "Partizani" and "21 Dhjetori". Each of the case studies is structured around three main aspects: Ideological strategy, housing design and technology and their current state. In the conclusion, the study sheds light on current debates about socialist period mass housing in Albania and recommends possible solutions regarding their problems.

As a result of World War II around 62,000 homes, or one-quarter of the country's total housing stock, were destroyed in Albania (Hall, 1990). As a result, in the 1950s the Albanian government began to supply housing by demolishing existing urban areas and erecting brand-new, three to four-storey apartment buildings. However, these buildings' architectural quality was quite poor (Aliaj, Lulo, & Myftiu, 2003). Besides this, housing demand increased also due to the post-war urbanisation of Albania, caused by the need for the development of industry and construction sectors for the country's workers.

In fact, by 1950, almost 20% of the population was living in cities, and by the 1960s, the rate of urbanisation had reached 30%. This was made possible by immigration, which the state regulated. To achieve their habitation goals, collective housing was adopted as the main form of accommodation, which beyond that aimed to furthermore establish an egalitarian society (Misja and Misja, 2004).

Housing planning and development in Albania was closely controlled by the state and centralised, and the development of "typical" housing projects was adopted. The Labor Party congress decided on the housing planning, over a five-year development plan. According to Bego (2009), among many proposed planning schemes, only approved typical residential blocks were built each year. Customarily, there were three types of apartments: two 1+1s, one 2+1, and one 3+1. There was always a propensity towards raising the number of 1+1 flats and decreasing the 2+1 and 3+1s, to fulfil the number of units stipulated by the Labor Party congress. Many architects and planners were aware that such projects did not address the issues of housing needs, but they were afraid to voice their opinions because of the non-democratic government in power (Manahasa, 2017).

The mass-housing strategies adopted in Tirana during the socialist period can be divided into three types (Aliaj et al, 2004). In the 1950s they relied on Soviet models based on Stalinist neo-classicist architecture. These residential blocks featured neo-classicist elements such as arches, columns and pediments, and were put up in central zones of Tirana. Examples of this type include the "Shallvaret"and "Agimi" residential neighbourhoods or the housing blocks on Zogu 1" Boulevard and Durres Street. The second type which started to be implemented in the 1960s consists of mass housing which was based on socialist doctrine, built for the "working class" and given the kind of names favoured by this ideology such as "Partizani", "Dinamo", "1 Maj", or WWII heroes like "Vasil Shanto". The third was based on a Chinese model of prefabricated panel housing adapted for satellite towns close to the factories. This approach developed based on the close relationships with China in the years of 1960 to 1978, which subsidised the country's industrialisation. On this basis, prefabricated housing construction started to be implemented in Albania after the prefabricated panel

Figure 1

production factory and the necessary technology were brought from China in the 1970s (Thomai, 2015). The use of this technology aimed to be time-saving and provide cost-efficient housing blocks, and the capacity of the factory was to produce 2000 apartments per year. This housing typology was adopted in nine different residential areas, which mostly served as homes for the working class, in the vicinity of industrial plants. These neighbourhoods were located beyond the “Middle Ring” zone of Tirana including Allias, Oxhaku, Mother Tereza Hospital, Varri i Bamit, Uzina e Autotraktoreve, Ali Demi, Shkolla Teknologjike, Ex-Uzina Mekanike - 21 Dhjetori and Lapraka (Jakupi, 2015).

“Shallvaret”: A Mass-Housing Typology Based on the Stalinist Model

Due to the different political affiliations that Albania developed during the communist period, the typology and style of mass housing show similar divergences. It all started after WWII, a time when Albania had strict links with the Soviet Union and started to import Soviet models in all fields of life (Vokshi, 2016). Soviet architecture began to strongly dominate the built landscape, by following the Stalinist neo-classical model. Such a model included the usage of classical elements like arches, columns, capitals and pediments, based on Imperial Russian historical architecture.

Construction on the “Shallvaret” Housing Blocks began in 1950. The architect Strazimiri supervised the project, which was based on a Soviet model created by Russian architect Aristov. It was made up of 20 blocks, most of which had five stories, although some had seven (Manahasa, et al., 2022).

The blocks are placed next to one another, forming wings, grouped around rectangular public piazzas, giving the entire estate a quasi-serpentine character. Arcades on two lower stories facilitate street connectivity. Shops were given ground-floor corner spaces, close to the thoroughfare. The façade’s first two stories are built in rustic red brick (Manahasa,et al, 2020). The first “L”-shaped block was built, followed by a second along the Lana River, and the third, “U”-shaped, in the centre (Figure 1). Except for the central section, the ground floor was free of shops since the basements were first used as storage spaces, then as flats for relocating the politically persecuted and poor families (Sakiqi, 2019).

The central block’s plan has a linear layout, with a corridor down the middle to access the flats on both sides. Four residential units are served by a set of stairs. The apartments are oriented facing the same direction (figure

Figure 2

1), depending on the block, and featuring 2 bedrooms, 1 living room + kitchen and 1 bathroom (Manahasa et al., 2020).

“Partizani”: Mass Housing for a Socialist Neighborhood

“Partizani” neighborhood is the second mass housing development, and construction began in 1968. This neighbourhood is found on the western edge of the city’s “Middle Ring”. The architects involved in the design phase of this neighbourhood were Femi Dishnica, Maks Velo, and Koço Miho. The designers used three apartment block building typologies. Two more substantial blocks are placed on opposite sides of a diagonal street, whereas the third one which is smaller is located to the west of the neighbourhood (Figure 2).

This study focuses on the largest unit which is found close to the “Middle Ring”. The apartment blocks have five stories and are built using silica brick. According to Pirro Vaso (Manahasa, 2017), this was used due to a higher production precision than red brick, endowing the building with a more visually pleasing aspect. Similarly, silica brick apartment blocks could be found in different parts of the city (Velo, 2019). Most of the residents were middle class, although lower and upper-class residents also had homes there.

The circulation core is accessed without an outer door. Three volumes make up the apartment building: one longer and horizontal and two smaller ones that are perpendicular to the first. The staircase cores are located between the three blocks’ adjacent façades. Two 2+1 apartments are found in each core’s longitudinal block, while one 3+1 apartment is found in the smaller section. The apartment block facades feature white silica brick and rectangular corniced window frames. The staircases in the façade are embellished by a perforated brick wall which works as a brise-soleil and forms a geometric compositional pattern (Manahasa, 2021).

“21 Dhjetori” Neighbourhood

The “21 Dhjetori” neighbourhood is located along the secondary street parallel to Kavaja street, which is an important axis road in the city. During the 1960s there was a great demand for housing construction in Tirana, and several neighbourhoods were planned to be developed

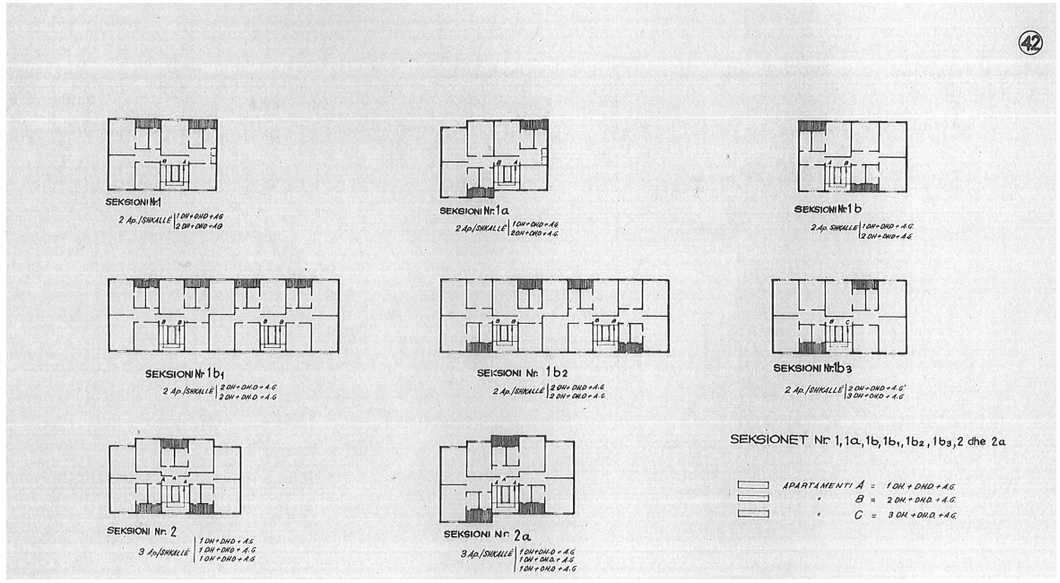

Figure 3

close to the city centre and along the main traffic streets. According to the regulatory plan, it was designed and implemented on an empty area to the west of Tirana, about 1 km away from the central square, along “Konferenca a Pezes” street, which leads to the “Kombinati” textile factory.

The “21 Dhjetori” block was designed as a town within a town, a small metropolis, a multifunctional estate where people from different social backgrounds lived together. The main crossroad, which is a landmark of the area, was called “December 21”, in commemoration of the birth of the Soviet dictator Joseph Stalin (Tema, 2023). With the implementation of the Tirana Ring Road, it became an important transport node that connected the area with the Kombinat-Kinostudio bus line.

The project was developed by the architects of the ISP No1 State Project Institute and was built by the “Josif Pashko” Office of Design and Construction. The whole construction process went on until 1980. The project comprises various 5-story panel residential buildings (Figure 3). Only two construction modules were used, which with minor modifications produced a variety of different apartment blocks. The resulting units were oblong, U and L-shaped.

Then the two residential blocks next to the intersection formed a symmetrical composition along two sides of the street toward the west and south. Four and five-storey buildings came with one or two staircases, providing access for 2–3 apartments per stairway. The two apartment layouts included a living room, kitchen annex, one bathroom, and one or two bedrooms. The plan composition is symmetrical, with two and three rooms and a kitchen over a total of 54 and 69 m2 accordingly. The residential units did not have balconies on the ground floor but provided access to basement floors used as storage spaces for keeping wood and coal.

The buildings are accessed from the backstreets, which are used both by cars and pedestrians. There is a clear distinction between the public gardens facing the noisy ring road, the semi-public gardens facing the interior street and the courtyards between the blocks. The U- and L-shaped buildings formed what were semi-public courtyards, while the public area next to the slab buildings was left undeveloped.

The ‘21 Dhjetori’ neighbourhood had a large infrastructure of public services, provided by the state, such as a bank, post office, ambulance service, dentistry, repair services,

a barbershop and hair salon. Retail services included grocery stores, a bakery, restaurant, and a self-service market. All these activities facilitated social interaction between residents. The neighbourhood also included two schools (Tema, 2023).

The Current Situation and Debates on Socialist Period Mass Housing in Tirana

At the end of the socialist period 36% of the Albanian population lived in cities and in the 1990s the population of Tirana had grown approximately 10 times higher than that of 1938. However, in the post-socialist period, due to socio-economic and political factors, which caused uncontrolled mass immigration, its population had increased 34 times by 2021 (Figure 4).

These socioeconomic-political changes led to the emergence of informal housing and the high-rise densification of the inner city of Tirana. As a matter of fact, mass housing developments were also affected.

After the change of the political regime, the mas-housing neighbourhoods suffered similar consequences, especially due to inefficient urban management and land ownership issues. Unauthorised construction occurred at all levels, starting with appropriations of the public green and open spaces. The other common green and open areas were used to construct high-rise residential towers. The open areas were neglected, their green spaces being replaced by informal parking areas or invaded by open cafeterias.

On the ground floors, apartments were converted into small businesses, some windows were widened, and the walls replaced with glazed facades. These informal additions, such as extensions, or enclosed balconies, were legalised at a later point. The addition of extensions to the façades has created vast discrepancies between the original façades and their appearance today. To accommodate such irregularities, the Municipality of Tirana between the years of 2000 until 2009 implemented a project called “The Rebirth of City”. The scope of this urban operation included a significant number of apartment buildings inside the zone known as the “Middle Ring”, whose façades were painted in vibrant colours (Manahasa & Özsoy, 2017).

Currently there are limited investments in mass housing in Tirana. There is only one social housing estate located on the northern periphery of the city, which is allocated to the socially

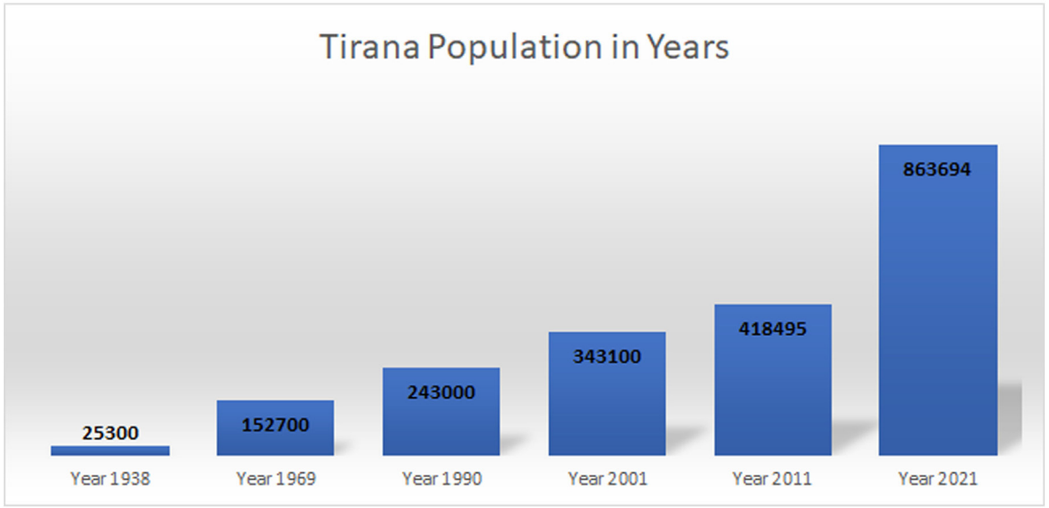

Figure 4

precarious and needy, including emigrants returned from abroad, immigrant workers, families of police officers killed during service, the disabled, and victims of domestic violence.

After the earthquake of November 2019, the government has undertaken mass-housing construction initiatives in the counties that were mostly affected. In Tirana the government decided to rebuild housing in 9 different zones of the city. Within this framework the council of ministers decided to build new mass-housing developments such as in the case of “5 Maji” neighbourhood, which required the expropriation of still intact detached houses. Although the owners opposed and protested the decision, the mass-housing developments at “5 Maji” went forward according to a project planned by Stefano Boeri. This mass-housing complex by April 2023 was partly finished, whereas in other zones the reconstruction process is still ongoing.

Figures

Cover - Partizani Neighbourhood in Tirana, ©Edmond Manahasa, 2023

Fig. 1 - Image of “Shallvaret” Residential Block (©Tirana Municipality, 2017).

Fig. 2 - Current Image of Partizani Neighbourhood (©Edmond Manahasa, 2023)

Fig. 3 - Typical plan schemes used for panel housing residential developments (©ISPN, 1980).

Fig. 4 - Tirana Population in Years (Misja & Misja; Population and Housing Census 2011; Tirana Municipality).

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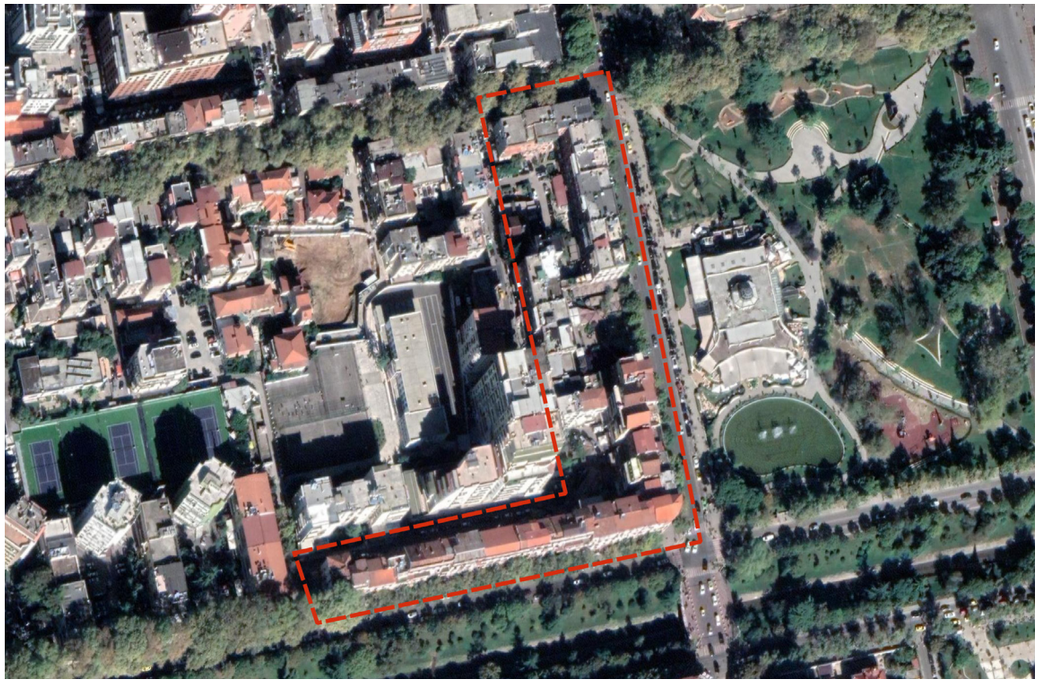
Shallvaret

Albania, Tirana



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It was designed as a mass housing residential complex based on a soviet model using neoclassical elements. It was designed by soviet architects.

Adress/District	Blbrahim Rugova - Gjergj Fishta - Myslym Shyrri st.		
GPS	41.323940, 19.816954		
Scale of development	District Building		
Architectural studio	Ndermarje proekti Tirane		
Project author	Skender Luarasi, Gani Strasimiri, Vorobjev		
Constructor **Developer**	Mutafolo Komiteti Ekzekutiv Tirane		
Landscape author	–		
Period of construction	beginning: 1952	end: 1964	inauguration: –

© Bashkia Tirane, 2018. [Source: https://tirana.al/pika-interesi/pallatet-e-shallvareve]

© Bashkia Tirane, 2022. [Source: https://tirana.al/pika-interesi/pallatet-e-shallvareve]

URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	sport / shops / leisure	
Location - position of buildings	parallel (with a wider façade facing a street)	
Urban Ensemble	open block	
	total area:	11.4 ha
	housing:	33%
Connectivity | Accessibility	The serpentine nuilding is located along the Blbrahim Rugova - Gjergj Fishta - Myslym Shyrri streets which are the central streets the city. The buildings accessed also from the secondary street which is used both by vehicles and pedestrians.	
Landscape	Landscape is organize as 3 pocket gardens, one extroverted and two introverted.	
Open and public space	Small urban piazza with a colonnade is facing the city center and part is formed due to the U-shape of on of the building. Two other piazzas are formed at the rear side of the building.	current condition: reasonable
Quality of living environment	The building is located at the city center next to the major park of Tirana, the neighborhood included sports fields and green spaces.	
Main Features	Combining different uses / central location	

RESIDENTIAL AREA

Residential buildings	The buildings are composed by repeating cores with 4 apartments per floor. Two symmetrical wings form the composition.	
No. of buildings	1	
No. max. of floors	6	
Average no. floors	6	
Materials | Fabrication	The buildings are constructed with the use of silicate brick load bearing walls and prefabricated panels for the slabs.	
No. of dwellings	250	
Average dwe. area	58m^2	
Dwellings' type	1 floor	3, 4 rooms
Qualitative issues	Each apartment is oriented one with exception of corner apartments.	
Housing density	Number of dwellings per ha:	22

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The neighborhood was designated to the workers of the ministry of defense and internal affairs. During the recent three decades the middle-class representatives populated the housing complex.

MASS HOUSING

Massification through: horizontal growth **Building's typology:** slab	The massification is achieved by extension of the building along the street edges and repeating the same building sections.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	–
Name of specific programmes or funding applied	The dwelling was owned by the state and rented to the inhabitants.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	The building facades partly appear currently in a way as they were built, while at the ground floor the spaces totally and in some cases 1st floor are dedicated to commercial activities and windows were widened and walls were replaced with the glazed facades. The voids in between the blocks are filled with new additions and also 1 to 2 floors are added in upper levels. There are informal additions by adding volumes or by closing the balconies, which are legalized in a later period. The open areas got degradated, the green spaces are replaced by the informal parking areas, or invaded by open cafeterias.
Urban | building transformation or regeneration	During the last 30 years the ground floors were converted from the apartments to the shops, cafeterias and offices.
Intervention scale	Buildings
Intervention status details	Since the buildings proportions and architectural composition degraded, the municipality realized a city scale project, which the complex was part, by painting the exterior facades with colorful pattern design, which somehow aimed to balance the chaotic composition, although it worked as an independent layer.

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Blloku Partizani

Albania, Tirana

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The project is composed by 5 compact 5-storey residential buildings with 2 entrances, 10 5-storey compact residential buildings with 1 entrance and 5 slab blocks. All buildings are following the same logic of organization: they are rotated in a way that the walls forms the 45 degree angle with the streets which allows to create the semi-public triangular and rectangular courtyards attached to each building.

Adress/District	rr. Sander Prosi - rr. Muhammet Gjollesha		
GPS	41.329725, 19.803826		
Scale of development	District, building		
Architectural studio	Byroja e urbanistikes e projektimit		
Project author	Fehmi Dishnica, Maks Velo, Koco Miho		
Constructor Developer	Gazmend Toska / Seksioni Komunal		
Landscape author	–		
Period of construction	beginning: 1967	end: 1972	inauguration: –

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© Edmond Manahasa, 2015

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	schools / shops / kindergarten	
Location - position of buildings	perpendicular (with a shorter façade facing a street) parallel (with a wider façade facing a street)	
Urban Ensemble	free-standing objects	
	total area:	35ha
	housing:	23.5%
Connectivity | Accessibility	The neighborhood is located along the Muhammet Gjollesha street which is an important ring road of the city. The buildings accessed from the secondary Sander Prosi street which is used both by vehicles and pedestrians. Each building is accessed from four sides via pedestrian paths.	
Landscape	Landscape plays an important role since each pair of the buildings is connected via the semi-public courtyard. The public triangular patches of greenery divide the buildings from the vehicular streets.	
Open and public space	There is a clear distinction between the public gardens facing the noisy ring road, the semi-public garden facing the interior street and the courtyards between the blocks.	current condition: good
Quality of living environment	The neighborhood is composed by identical blocks therefore it is needed to diversify the appearance of the buildings and spaces by adding the colors on the facades and the specific design of the open areas.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	The buildings are composed by one or two staircases providing the access for the three apartments per stair. The plan composition is symmetrical, the building elements are rotated at 180 degrees to shape the full building. The stair is accessed from the two sides at the ground level.	
No. of buildings	14	
No. max. of floors	5	
Average no. floors	5	
Materials | Fabrication	The buildings are constructed with the use of silicate brick load bearing walls and prefabricated panels for the slabs.	
No. of dwellings	360	
Average dwe. area	81.5m^2	
Dwellings' type	1 floor	3, 4 rooms
Qualitative issues	Each apartment is oriented to the two or three sides. Rooms have almost identical area and main dimension have closed to the square ratio	
Housing density	Number of dwellings per ha:	10

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The neighborhood was designated to the middle class. Currently the same families continue to live there.

MASS HOUSING

Massification through: element's repetition **Building's typology:** slab tower	The neighborhood is composed by the three repeating housing typologies. During the same time period the same prefabricated buildings were used throughout the whole country.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	–
Name of specific programmes or funding applied	The dwelling was owned by the state and rented to the inhabitants.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	The building facades appear currently in a way as they were built, while at the ground floor some windows were widened and walls were replaced with the glazed facades. There are informal additions by adding volumes or by closing the balconies, which are legalized in a later period. The open areas got degradated, the green spaces are replaced by the informal parking areas, or invaded by open cafeterias
Urban | building transformation or regeneration	During the last 30 years the ground floors were converted from the apartments to the shops, cafeterias and offices.
Intervention scale	Buildings
Intervention status details	The interventions rather than planned are spontaneous and fragmented by the dwellers. the municipality have partly intervened in the maintenance of public grren spaces and sportive field.

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21 Dhjetori

Albania, Tirana

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The project is composed by panel 5-storey residential buildings. There were used only two modules which with minor modifications produced variety of apartment blocks. The resulted units took linear, U-shape and L-shape.

Adress/District	rr. Babe Rexha - rr. Kavaja - rr. Kongresi i Lushnjes / rr- Ndre Mjeda		
GPS	41.325336, 19.796126		
Scale of development	District Building		
Project author	Byroja e Projektimit e Kantierit Josif Pashko		
Constructors or Developers	–		
Landscape author	–		
Period of construction	beginning: 1980	end: 1980	inauguration: –

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URBAN AREA

Location - within in the city	original:	satellite
	current:	city fringe
Other facilities / availability of amenities	schools / market / shops / kindergartens	
Location - position of buildings	perpendicular (with a shorter façade facing a street) parallel (with a wider façade facing a street)	
Urban Ensemble	open block free-standing objects	
	total area:	85ha
	housing:	31 %
Connectivity | Accessibility	The neighborhood is located along the secondary street parallel to rr. Kavaja street which is an important axis road of the city. The buildings accessed from the secondary streets which are used both by vehicles and pedestrians.	
Landscape	U-shape and L-shape blocks for the semi-public courtyards. Some slab buildings have undeveloped public area.	
Open and public space	There is a clear distinction between the public gardens facing the noisy ring road, the semi-public garden facing the interior street and the courtyards between the blocks.	current condition: poor
Quality of living environment	The neighborhood is composed by identical blocks therefore it is needed to diversify the appearance of the buildings and spaces by adding the colors on the facades and the specific design of the open areas.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	The buildings are composed by one or two staircases providing the access for the 2-3apartments per stair. The plan composition is symmetrical	
No. of buildings	38	
No. max. of floors	5	
Average no. floors	5	
Materials | Fabrication	The buildings are constructed with the use of prefabricated panels for the walls and slabs.	
No. of dwellings	1800	
Average dwe. area	69m²	
Dwellings' type	1 floor	2, 3 rooms
Qualitative issues	Each apartment is oriented to the two or three sides. Rooms have almost identical area and main dimension have closed to the square ratio	
Housing density	Number of dwellings per ha:	21

MIDDLE-CLASS

Original dwellers class: middle-class	The neighborhood was designated to workers. Currently, the same families continue to live there.
Current dwellers class: middle-class	

MASS HOUSING

Massification through: horizontal growth element's repetition	The neighborhood is composed by the repeating housing units. Alternation of the two modules shape the L-shape, U-shape, open and semi-open blocks and linear volumes.
Building's typology: slab tower	

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	–
Name of specific programmes or funding applied	The dwelling was owned by the state and rented to the inhabitants.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	The building facades appear currently in a way as they were built, while at the ground floor some windows were widened and walls were replaced with the glazed facades. There are informal additions by adding volumes or by closing the balconies, which are legalized in a later period. The open areas got degradated, the green spaces are replaced by the informal parking areas, or invaded by open cafeterias
Urban | building transformation or regeneration	During the last 30 years the ground floors were converted from the apartments to the shops, cafeterias and offices.
Intervention scale	Buildings
Intervention status details	The interventions rather than planned are spontaneous and fragmented by the dwellers. the municipality have partly intervened in the maintenance of public grren spaces and sportive field.

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Planning experiments - establishment of high quality living standards for a broad range of people

Austria has gone through dramatic immigration and resettlement phases in the course of its history due to geopolitical changes and the speed of industrialisation. As a result, rapidly growing cities have needed robust solutions for affordable and socially-inclusive living spaces. The article highlights a strategic evolution of mass-housing developments in Austria based on political objectives, as answers to a marked influx of people moving to Austrian cities during the 20th century. In this paper, examples from the cities of Vienna, Graz and Linz cover the main building developments in this sector and help explain the now widespread amount of quality housing for a broad range of people in Austria.

Austria's population growth in the cities of Linz and Graz went through an explosive increase in the 19th century. Due to mid-century mass industrialisation, the inflow of workers meant higher population densities and caused a housing shortage in the cities. Urban life as well as the cityscape itself fundamentally changed. Besides the need for new approaches to housing at this time, improvements to social and technical infrastructures (water supply, sewage, transportation) was vital for the growing cities (GrazMuseum, 2023; Stadtarchiv Linz, 2021).

In 1900, Vienna was home to more than 2 million residents (2023: 1.9 million) due to the high number of migrants from other countries ruled over by the Austro-Hungarian monarchy. Private investors facilitated the construction of buildings of an extremely low standard (with no bathrooms or access to fresh water), the so-called "Zins-Kasernen" (loosely translated as "rental barracks"), to meet the working-class housing shortage. This shortage drove speculations in the real estate sector and led to an increase in rents as well as vastly overcrowded tenements. More than 300,000 inhabitants were homeless at that time (Stadt Wien, 2021_b).

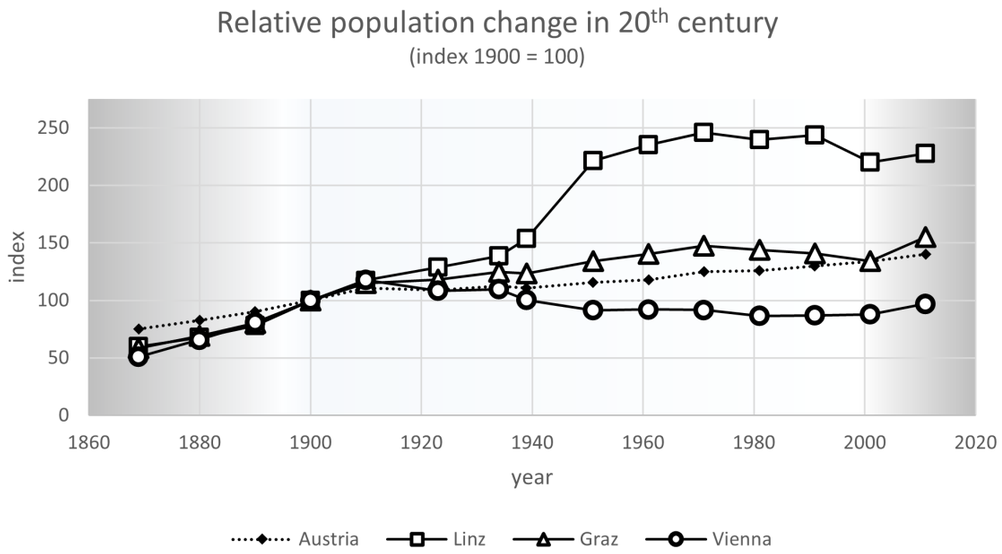

Figure 1

When in the 1920s, the first legal rulings concerning housing were introduced, such as the nationwide “Mietengesetz” (rent act) in 1922 and the appropriate, scaled taxation of renters or landlords, established by the government of Vienna in 1923 (SPÖ Wien, n.d.; Stadt Wien, 2021_b). These regulatory instruments of Vienna’s housing policy enabled the subsequent implementation of mass housing projects.

This paper will present prototypes of Vienna’s mass and social housing programmes, the “Wiener Gemeindebau”, which came about due to social grievances as urbanisation made its presence felt. Similar circumstances at this time led to a demand for affordable mass housing developments in Linz as well, what were called the “Arbeitersiedlungen” (workers flats).

Figure 1 shows population growth between 1870 and 2010 in Vienna as well as in Graz and Linz, which are now the second and third largest cities in Austria with about 210,000 (Linz) and 295,000 (Graz) inhabitants (Statistik Austria, 2023). In the much shorter period of exacerbated population growth in Linz and Graz (1939 to 1971), Linz grew by over 76,000 inhabitants and Graz by over 41,000. Different historical events, such as the amalgamation of Graz with surrounding municipalities in 1938, or the rise in the armament industry accompanied by an influx of workers during World War II in Linz as well as Graz, led to increased urbanisation. In comparison, this phenomenon had by then ceased in Vienna. The different phases of urbanisation with their undesired side effects heightened the need for mass housing projects with higher standards of comfort and more infrastructural facilities, all of which led to experimenting with a number of architectural ideas. The goal of raising the quality of life for residents gave free impulses to new planning visions and allowed the realization of different housing utopias . As a result, the paper focuses on four different approaches to mass-housing projects in Austria in the 20th century, dealing with new forms of housing qualities in urban contexts: Alt-Erlaa (Vienna), Am Schöpfwerk (Vienna), Gartenstadt Puchenau (Linz) and Terrassenhaussiedlung St.Peter (Graz). Beside new qualities for living, these projects allow to present participation processes creating the base for the involvement of the population in planning processes up to now.

The “Wiener Gemeindebau” as a typical prototype of mass housing serving a public-housing approach

Following a socially-driven public-housing approach, the typical municipal residential building was a perimeter block with a green courtyard, equipped with basic infrastructures such as community spaces but also kindergartens and leisure facilities, including swimming pools. The addition of common, shared amenities was made viable due to the high population density and led to self-sufficient infrastructures within the building complexes. The typical architectural concept was the development of inner courtyards offering light, fresh air and green space. Via these inner courtyards the buildings were accessed.

The first Viennese housing programme was for 25,000 flats in 1923, with an average size of 40 to 50 square metres, usually equipped with their own toilets and private water supply (Stadt Wien, 2021_a). Additionally, these social-housing developments included common amenities for tenants like shared bathrooms, lending libraries, healthcare facilities and laundry rooms. Although interrupted by the advent of World War II and the following period of reconstruction, many of these “Gemeindebauten” (municipal buildings) would continue to be built until the 1970s (Stadt Wien, 2021-b). In 1968, a legal precedent subsidizing the construction of housing for underprivileged citizens was set down, with the introduction of the “Wohnbauförderungsgesetz 1968” (Stadt Wien, 2021_b).

In 1974, a new legal framework for urban renewal including renovations of infrastructures was established in Vienna. Moreover, the first community urban renewal care initiative was launched and became a very distinctive element of Viennese mass-housing planning (Stadt Wien, 2021_b).

High quality standards for the middle-class – *Alt-Erlaa* and *Am Schöpfwerk*

The quest for high-quality, socially-driven housing development in Vienna was architect

Austria: Vienna, Puchenau, Graz, Salzburg

Figure 2

Harry Glück’s inspiration for the design of a housing park, on the one hand set in lush green surroundings with connection to natural water areas and on the other, the urban public transportation system. The project had 3,131 flats (AEAG, 2023). Alt-Erlaa (built 1970-1985) is a shining example of a certain idea of living standards for the many, that has yet to be surpassed to this day. Alt-Erlaa is middle-class mass-housing par excellence, that remained faithful to the typical Viennese social and public-subsidised approach to housing.

The housing park consists of 3 rows of high-rise buildings with an upward tapering shape. Each flat has either a terrace or a loggia. The first 12 floors come embellished with terraced green spaces which act as privacy shields for the apartments behind them (Figure 2). Besides the residential property there is a shopping area, schools, kindergartens, a church and a medical centre as well as various recreational facilities indoors and outdoors that were incorporated into the overall concept (AEAG, 2023). This ambitious project continues to be to the liking of residents to the present day. Its buildings and infrastructures are constantly being renovated and extended.

Not less ambitious is the housing project Am Schöpfwerk (1976-1980), which should be seen separately from the first projects by Franz Schuster in the 1950s. The buildings are oriented in square geometric layout while the overall estate is laid out based on a ring-shaped design. This is made possible thanks to inner courtyards connected by passages and pathways to the main circle-based accessibility system. The whole project was planned by an architectural team of 9 architects led by Viktor Hufnagel. Beside one high-rise building with 16 floors, the remaining have 5 floors, staggered on the upper 3. The stepped edges of the building blocks form terraces for the flats behind. The building complex is arranged in a U-form around an allotment area. Between these very different

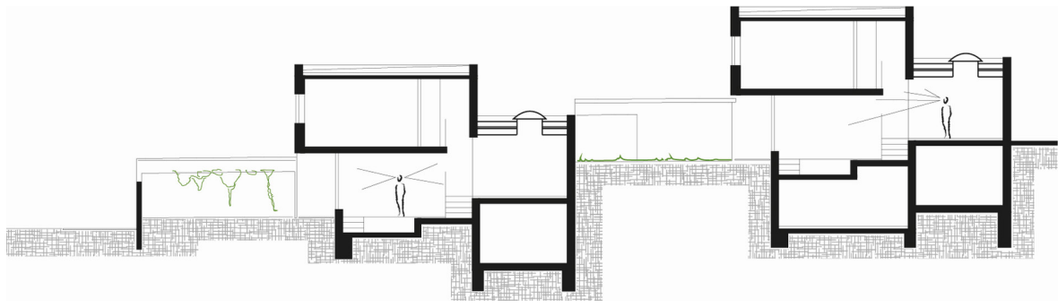

Figure 3

characteristic residential areas can be found a park, which serves as a connecting feature harmonising the entire village-like project.

In the early 1980s, there was a rise in criminal behaviour within the project perimeter. As a result, the public reputation of the neighbourhood suffered as a result, which led to the estate being used as a backdrop for an Austrian movie called “Muttertag”. The film is a provocative satire of the Viennese lower middle class. Soon afterwards efforts were made to improve the tarnished image of the complex, inviting the general public/residents to also get involved, an approach which was soon extended to other projects as well (Stadt Wien, n.d.).

Housing developments in Linz

Comparable to the housing developments in Vienna are the “Arbeitersiedlungen” (workers settlements) in Linz, which were offered as a solution for the many people who couldn’t afford any kind of accommodation in the 19th century. Towards the end, the city was compelled to set up a housing inspection programme to regulate housing standards (water supply and toilet in each accommodation unit, cooker, stove). Furthermore, a housing welfare fund for the construction of small flats, the so-called workers flats, was established. After signing off on the first project in an industrial area, the municipality decided to stop building substandard flats and rather fund more forward-thinking approaches. This decision worked in the favour of the fast-growing middle class. Despite the municipality’s efforts, bigger companies addressed the problem in the early 20th century by providing flats following a linked housing- and working contract (Kepplinger, 1989).

Beside public-funded projects also non-profit building associations developed middle class housing projects in Austria’s municipalities. One important example is Gartenstadt Puchenau located in Puchenau, 5 minutes by car from Linz, next to the river Danube. The Gartenstadt (garden city) Puchenau is Roland Rainer’s (architect) answer to the aspiration of many Austrians to live in detached single-family houses, surrounded by green space, facing the challenge of limited space resources. Thanks to this project, he set a well-known standard for the oft-repeated concept of densified low-rise buildings.

Architect Roland Rainer (1910-2004) was city planner of Vienna (1958-63) and was a strong advocate for horizontal densification in housing. He championed the need for quality private space and recommended modest public spaces for housing developments, based on his study of traditional courtyard houses in China and Iran.

Gartenstadt Puchenau was planned and built in two phases and in its final reiteration had 949 residential units. The complex was envisioned as completely car-free. Parking areas were located on a nearby street. The project incorporates different building styles in common apartment typologies. Beside buildings offering inner courtyards, there were also two different types of row houses. All blocks were south-facing and have directly connected to the living spaces, private terraces and/or courtyards with a small garden. Figure 3 shows a section plan and

presents the arrangement of houses with inner courtyards, offering private spaces for residents. The floor plans of the flats were designed to enjoy visual sightlines from living areas to the inner green spaces or terraces to the south (Rainer & Amiras, 1984: 42)

Rainer strongly urged for consistency between the development plan and the individual floor plans. In his opinion, a coordinated effort on this point was essential to developing dense low-rise buildings (Rainer & Amiras, 1984).

Terrassenhaussiedlung St Peter in Graz

Due to the different dynamics of municipalities in relation to their projects, the term middle-class mass housing ends up differing a lot. The terraced-house estate Terrassenhaussiedlung St.Peter in Graz is a well-known example of this type within its city boundaries. In comparison to mass-housing developments in Vienna and other Austrian cities, the overall building complex (4 buildings with 522 flats) is relatively small. In comparison to the planning history and context of Graz it can be seen, conversely, as a much larger project.

The project is visually organised according to staggered terraces offering private green spaces for residents (Figure 4). The project has 24 different types of dwellings with public green space between the building blocks and

Figure 4

embedded social infrastructures (GAT, 2004). The building design is similar to the above-mentioned Alt-Erlaa project in Vienna, with the steady taper upwards. On the 4th floor community facilities have been added. Ancillary rooms are arranged in the inner building where wing depth is high and natural solar exposure isn’t accounted for. The complex was designed and planned by Werkgruppe Graz (E. Gross, F. Gross-Ransbach, H. Pichler, W. Hollomey - (nextroom, n.d.)) and finished in 1978. The concept idea was to allow residents to create their living spaces in a participatory planning process. As a result, home owners were involved in the planning stages and could choose the flat type, the room arrangement around an installation shaft, the arrangement or even the choice of free areas such as loggias or balconies as well as the indoor furnishings of their own flat and community spaces (GAT, 2004).

Children’s playgrounds, and jogging paths as well as residential access are incorporated into the green public spaces, laid out according to a formal geometrical grid.

Common trends in Viennese housing and neighbourhood development in the 21st century

The above four Austrian mass-housing projects show very distinctive approaches to the challenges of population growth in the 20th century, favouring individual private space within horizontal or vertically-dense building structures, always focusing on the best possible quality of housing for a broad range of people. Besides the design of separate urban structures within a city, including social infrastructure, all projects have community spaces and private as well as public green spaces in common.

These features have granted an afterlife to the projects to the present day. Also, public participation in planning decisions from the beginning, as well as in later years within these projects created and create imitation character and have therefore led to new planning qualities.

Today, Vienna’s urban planning culture is dominated by a multi-stage process over large areas: firstly, an urban design tender, to

formulate the areas for development to the level of establishing building blocks. At a second stage, developers compete to be in charge of individual building blocks with their concept designs. This marked change in the planning competition procedure nowadays is a direct result of public procurement guidelines. As a result, projects with experimental or unusual approaches, such as the examples given in this article, have become of exceptional quality. The development of high-quality floor plans with the participation of future residents remains possible in assembly groups, an association of people who seek to create living space for themselves and as a community. Sometimes separate building sites are put aside for these purposes. The maximisation of living space and connected economic objectives are essential factors for further development. Building dimensions and height are set at the urban tender stage and define the main framework for all future architectural developments. Roland Rainer's urging of the need for a strong connection between the development plan and floor plan has been gradually forgotten at an institutional level, over the years.

Figures

Cover - © Walter Kuschel, 1979

Fig. 1 - Diagram of the relative population development during the 20th century (data: Statistik Austria, 2023; authors' illustration).

Fig. 2 - Alt-Erlaa – View from the roof (Photo by Ledl, Thomas, 2016 Wiki Commons, CC BY-SA 4.0).

Fig. 3 - Section of row houses in the Gartenstadt Puchenau (authors' illustration based on Rainer & Amiras, 1984: p45)

Fig. 4 - Bird's eye views of Terrassenhaussiedlung, in Graz (©Walter Kuschel).

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Wohnpark Alt Erlaa

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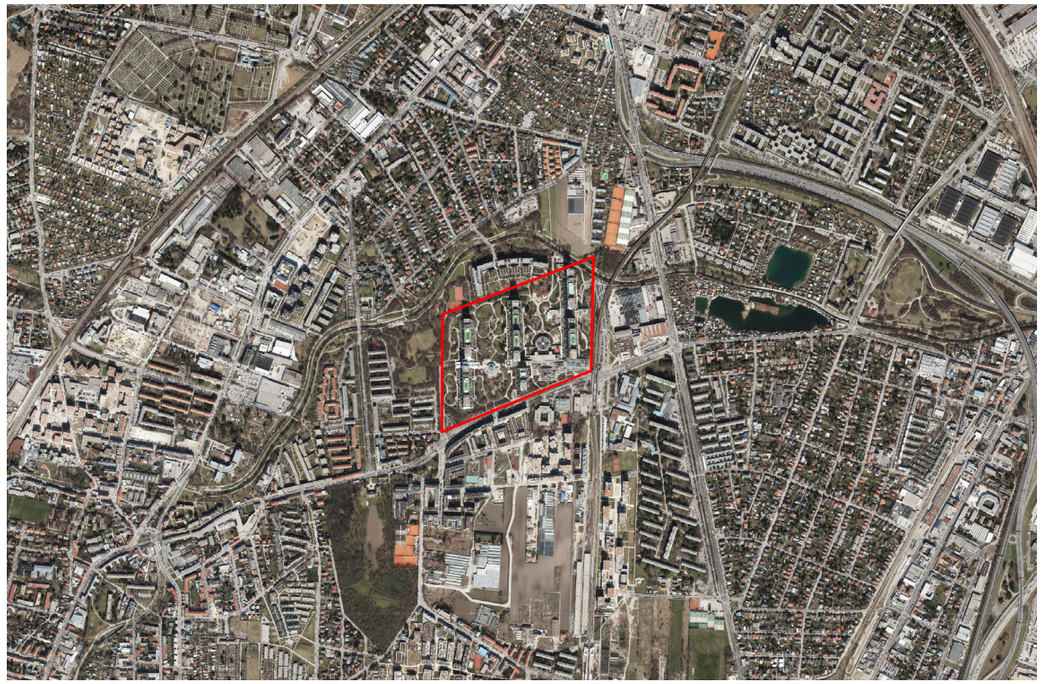

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With Wohnpark Alt Erlaa, Harry Glücks wanted to create big and cheap flats with a maximum of living standards. Therefore the whole complex is designed as a sattelite city and provides a lot of services such as healthcare, a shopping mall and pools on the roof. The urban concept was designed via three building rows oriented in North-Soth direction holding huge parks between as communication spaces.

Adress/District	Anton-Baumgartner-Straße 44, 1230 Wien		
GPS	48.15254, 16.31391		
Scale of development	Building		
Architectural studio	Harry Glueck		
Project author	Harry Glück, Kurt Hlaweniczka, Requat&Reinthaller		
Constructor	GESIBA		
Landscape author	–		
Period of construction	beginning: 1973	end: 1985	inauguration: –

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URBAN AREA

Location - within in the city	original:	satellite
	current:	satellite city fringe
Other facilities / availability of amenities	schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows / free-standing objects / free composition	
	total area:	24 ha
	housing:	20 %
Connectivity | Accessibility	Located in the south of Vienna, between areas of production and settlements of dettached houses accessible by the subway and many busses, cycling paths are present but could be extended, pedestrians can walk easily around but have to cross several bigger streets.	
Landscape	Due to the concept of balconies and the approach of “good living for all” landscape played a role. The Project is embetted to the river liesing and provides bigger green spaces and playgrounds	
Open and public space	Spaces between the buildings are designed in a natural way, several playgrounds, “liesing” a small river is also accessible Area near is bit trafficy	current condition: good
Quality of living environment	Designed as a satelite city, the project originally was planned to function for its own. Nowadays the blocks and the green spaces between them function as landmarks and center of the enviroment. Due to the planning approach the community spirit is very high.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	There are many collective spaces, saunas and swimming pools in the respective building.	
No. of buildings	3	
No. max. of floors	27	
Average no. floors	25	
Materials | Fabrication	Reinforced concrete construction; Sandwich construction: interior plaster, 4cm Heraklith - interspace -.4cm Heraklith ("Vöstelement"), 10cm insulation (mineral wool), back-ventilation, 8 mm Eternit fiber cement boardLoad-bearing partition walls: 25cm to 20cm reinforced concrete.	
No. of dwellings	3200	
Average dwe. area	74.5m²	
Dwellings' type	one floor	3 rooms
	duplex	–
Qualitative issues	Following the approach of "Glück für alle" ("good living for all") the project is very community oriented and provides a lot of facilities, balconies, club rooms etc.	
Housing density	Number of dwellings per ha:	133.33

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class others	Due to the financing scheme, many people can afford flats at Wohnpark Alt Erlaa. Many services are community based and the satisafaction in generel is very high. Due the approach of creating affordable flats for the increasing number of people, the mix of people nowadays is very high.

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** tower	Many opportunities in spending free time, club spaces, targetting different uses of green spaces, providing a bunch of social services, social planning approach following good living standards for all.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Alt Erlaa is based on the idea to create a modern, environmentally oriented satellite city. GESIBA is a non profit housing association which allows tenant co-determination. This is organized as a tenants' advisory council and acts as an umbrella organization for all operating clubs in the housing development.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	–
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	Due to the growth of Vienna and its expansion alt erlaa is not an satelite city itself anymore and plays an important role for the (newly) built enviroment.

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Gartenstadt Puchenau

Austria, Puchenau

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Realised in the 1960s, the approach was to build densified low-rise combined with ecological attempts and following ressource saving policies. In contrast to many low building concepts the whole project is a positive example in economic and social views.

Adress/District	Golfplatzstraße 10, 4048 Puchenau.		
GPS	48.310848, 14.228041		
Scale of development	Urban plan		
Project author	Roland Rainer		
Constructor	Neue Heimat Oberösterreich		
Landscape author	–		
Period of construction	beginning: 1963/1978/1998	end: 1968/1995/2000	inauguration: –

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© Gemeinde Puchenau

URBAN AREA

Location - within in the city	original:	suburbia
	current:	suburbia
Other facilities / availability of amenities	schools / health / religious / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Villa park / free-standing objects	
	total area:	15 ha
	housing:	28%
Connectivity | Accessibility	Located between danube and state road and hourly railway line, it offers a lot of green spaces, walking and biking is possible and mostly easy, the state road represents a barrier.	
Landscape	By partly integrating the garden city movement, Gartenstadt offers a lot of (private) green spaces. Footpaths are lightly paved and not planned very widely. Cars and parking spaces are underground or at the edges.	
Open and public space	Public (green) spaces are present but not really defined due to the orientation towards quality private spaces.	current condition: reasonable
Quality of living environment	Quality living environment is contextually embedded in wider area but designed with its own identity. Which are the main characteristics to improve the sense of belonging and recognizability of environment?	
Main Features	Connecitivity / neighbourhood	

RESIDENTIAL AREA

Residential buildings	Less defined public spaces, due to the approach of getting connected through neighbourhood and private gardens next to each other.	
No. of buildings	1000	
No. max. of floors	3	
Average no. floors	1	
Materials | Fabrication	Hollow bricks and lime-cement plaster.	
No. of dwellings	949	
Average dwe. area	90m²	
Dwellings' type	one floor	–
	duplex	–
Qualitative issues	–	
Housing density	Number of dwellings per ha:	63.26

MIDDLE-CLASS

Original dwellers class: middle-class

Current dwellers class: –

Public-interest orientated financing schemes.

MASS HOUSING

Massification through:
planned process
horizontal growth

Building's typology:
clustered low-rise

Concerned with the problem of urban sprawl and the kwoledge about austrians want to live in green, low-rise structures, Rainer came up with the concept of densified low-rise.

HOUSING POLICIES

Urban promotion type: private

Housing promotion type: private

The need for affordable homes and housing units made communities look for socially acceptable housing models. In Puchenau, the housing cooperative "Neue Heimat" was able to realize a practical attempt at a garden city. After the evaluation of housing satisfaction in the first development phase of Gartenstadt I, an extension of the settlement (Gartenstadt II) could take place.

Name of specific programmes or funding applied –

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Partly refurbished by the owners of the houses.
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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Terassenhaus Graz-St.Peter

Austria, Graz

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The project follows a social approach from an architectural point of view, by providing a maximum of flexibility, there are 24 different types of flats which were planned with the future inhabitants.

Adress/District	St. Peter Hauptstraße 29-35, 8042 Graz.		
GPS	47.059770, 15.472366		
Scale of development	Building		
Architectural studio	Werkgruppe Graz		
Project author	E. Gross, F. Gross-Ransbach, H. Pichler, W. Hollomey, W. Laggner, P. Trummer		
Developer	Gemeinnützige Wohnabuvereinigung		
Landscape author	–		
Period of construction	beginning: 1972	end: 1978	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	health / market / shops / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Perimeter block / free-standing objects / free composition	
	total area:	4.5 ha
	housing:	34 %
Connectivity | Accessibility	Located on the cityfringe on a bigger main streat, next to a tram station, bikepaths are available, no cars within the project area.	
Landscape	The project is embedded in the mix of urban structures in the east of Graz, between detached houses and bigger green spaces to the east.	
Open and public space	Despite its age, the public space seems still used and loved by the habitants. Free spaces are very much used by children. Green spaces play a big role in the project. Provided with many community rooms the social aspect is deeply integrated in the project.	current condition: good
Quality of living environment	–	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	Well defined public spaces, open staircassses.	
No. of buildings	4	
No. max. of floors	14	
Average no. floors	10	
Materials | Fabrication	Ferroconcrete framework, partially pre-frabricated.	
No. of dwellings	528	
Average dwe. area	75 m²	
Dwellings' type	one floor	3 rooms
	duplex	–
Qualitative issues	Plant troughs, flexible layouts, green rooftops.	
Housing density	Number of dwellings per ha:	117.3

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class, others.	–

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** block	By developing 24 differnt types of flats while planning with the future inhabitants, the project could produce very different forms of flats by high living standards.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	At the time of planning and construction, the potential of a residential complex integrated into nature was critical of the use of exposed concrete. . Within the framework of sociological research, however, it was possible to establish that those who actually visited and lived in the settlement also recognized its attractiveness. In addition, however, the structuralist presentation and the participatory involvement process, in which the residents were involved in the planning, also contribute to the pioneering role of the terraced house settlement.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Continuously by flats' owners
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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Am Schöpfwerk

Austria, Vienna

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In 1967, the municipality of Vienna assembled a team of eight architects under the direction of Viktor Hufnagl to realize the construction project “Am Schöpfwerk”, which took a total of 13 years to complete. The large-scale project was divided into various construction phases and organized in rings.

Adress/District	Am Schöpfwerk 27-31, Lichtensterngasse 2-4, Zanaschkagasse 12-16; 12 district		
GPS	48.159, 16.326		
Scale of development	Building		
Architectural studio	Viktor Hufnagel (Lead)		
Project author	E. Bauer, L. Parenzan, J. Peters, M. Pribitzer, F. Waclawek, T. und W. Windbrechtinger		
Constructor	Gemeinde Wien		
Landscape author	–		
Period of construction	beginning: 1976	end: 1980	inauguration: –

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Free composition	
	total area:	18 ha
	housing:	c. 26 %
Connectivity | Accessibility	The buidling complex is designed for a pedestrian development. Passages connect inner courtyards of the building, organized in a raster. Public transport is available with subway, tram and bus.	
Landscape	Inner courtyards are connected via pathways and enable semi private green areas. A big allotment garden site forms the centre.	
Open and public space	Criminal incidents and medial polarisation have fuelled negative news. Variuos social projects changed this and it became a role model of participation processes. City in the City; car free.	current condition: reasonable
Quality of living environment	Am Schöpferk forms a village-like unit within the city.The complex and his inhabitants forams a unit, operates a radio frequency as well as a newspaper.	
Main Features	Flexibility / diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	The buidlig blocks are arranged to create inner courtýards which are cnnected via pathways.	
No. of buildings	c. 20	
No. max. of floors	16	
Average no. floors	3-4	
Materials | Fabrication	Skeleton construction with windows and balconys/lodgias as design elements.	
No. of dwellings	2151	
Average dwe. area	80 m²	
Dwellings' type	one floor	3 rooms
	duplex	4, +5 rooms
	studio	–
Qualitative issues	The building complexes cover 18 different types of flats (Maisonettes, barrier free living spaces, ateliers,...) Some have big terraces on the rooftops.	
Housing density	Number of dwellings per ha:	119.5

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** others	Social probelms occure mainly of monostructural inhabitant mix related to age and income (lower incomes).

MASS HOUSING

Massification through: planned process **Building's typology:** block tower terraced blocks	High pressure of investment market and political objectives forced high standard living developments. Clear structured planning process with ongoing social initiatives.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	In response to the housing shortage in the city of Vienna, the housing stock was renovated in the 1970s so that the housing standard could be raised. In the course of this, additional new apartments were built. The new facilities, such as the Schöpfwerk, were intended to provide residents with opportunities for local amenities. In addition, there was to be a well-connected public transport system. For the first time, the project involved a team of architects and was built with funds from the municipality of Vienna.
Name of specific programmes or funding applied	(1) Wiener Wohnbau (Vienna housing initiative)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	–
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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Antwerp, Wilrijk

Els De Vos

Selin Geerinckx

A Brick in the Stomach? Middle class mass housing in Belgium

This paper takes as its starting point the expression "Belgians are born with a brick in their stomach", a popular saying that refers to the fact that 70% of Belgians, mainly its middle class, build (or buy) their own homes. This has much to do with the somewhat ambiguous housing policy of the Belgian government, mostly run by the Christian-democrats. Now it is clear why middle-class housing consisted mainly of owner-occupied single-family homes, let us go on to define the term middle-class mass housing as it is perceived in Belgium. Two building types emerge, on the one hand much-admired social high-rise housing projects from the 1950s and 60s, and on the other, commercial high-rise projects done by private developers. This paper explains the different architectural design approaches that have been adopted according to the vision of the building and its inhabitants. After explaining the two approaches with in-depth case-studies as examples, the focus will shift towards the current state these housing complexes find themselves in today, and more specific issues of maintenance and renovation. Such as, for example, how home ownership, divided over several households, has made the renovation of commercial projects far more difficult, in comparison to social housing projects, where there is only one owner namely the housing company.

It's always said that Belgians are born with a brick in their stomach. This refers to the fact that home ownership, preferably self-built, but increasingly over the last few decades by remodelling, is the goal of most Belgians. As has been widely reported in studies until the present day, the brick in the stomach is not something just in the genes, but has been fiscally stimulated by the Belgian government making it an obvious decision to take. Belgium has indeed a very large owner-occupied housing sector due to its liberal housing policy. Already in the late 19th century individual home-ownership was stimulated by the "Loi sur les habitations ouvrières" (August 9, 1889) [Working-class Housing Act]. The act was the foundation stone in Belgian housing policy. Local authorities were encouraged to set up local housing and credit institutions and to urge people to save and get insurance. This provided a financial basis for citizens building or buying their own home. As such, the government pursued a housing policy that was somewhat ambiguous, as it did not provide housing directly. That changed partly in 1919, when the Nationale Maatschappij voor Goedkope Woningen en Woonvertrekken [National Company for Affordable Housing and Living Arrangements] was founded under the patronage of socialists in the national government, providing houses for the working class. However, once the Christian Democrats came again to power, priority was once more given to home ownership. The Moyersoen Act of 1922 clearly stimulated home ownership by introducing a system of premiums. After World War II, the influence of Christian Democrats in the government further created a favourable political climate for the massive spread of private home-building by providing substantial subsidies and facilitating mortgages. They pursued a policy advocating for detached single-family homes in the countryside, their main electoral campaigning ground. The highly influential De Taeye Act (May 29, 1948) – named after its main champion, Christian Democrat minister Alfred De Taeye – granted premiums to individual home builders as well as a state guarantee on mortgage loans. Requirements of a maximum 'habitable surface area' were prescribed. The imposition of such technical norms prevented apartment building from taking place. The house had to have direct and separate access to an existing public road. Up to one quarter of the gross area had to remain open, of which 20 m² had to be contiguous to ensure a garden. A minimum width and depth were set, so that not only a maximum, but also a minimum volume was stipulated. These conditions were often unfeasible in cities where high-rise housing was almost the only typology to account for the very high land prices.

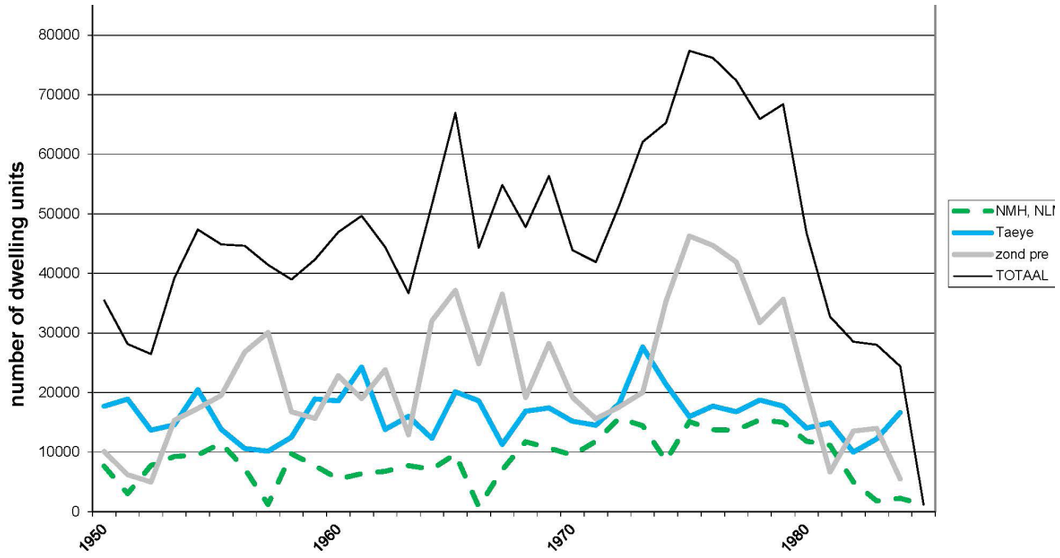

Figure 1

Financially, the fact that prospective builders could borrow up to 100% against the cost of their homes and the state guaranteed it, was an enormous incentive. As figure 1 shows, the De Taeye Act succeeded in kick-starting housing production. By 1953 89,782 grants for construction and 7,550 purchase grants had already been issued (Bottelbergs, 1954, p. 80). It allowed workers to build their own property, which in its turn served as a leverage to climbing the social ladder and becoming part of the middle class. However, the biggest spikes in housing production were due to private individuals building without a premium in the 1970s (Peeters, 1997, 57). As a result, the majority of middle-class houses are owner-occupied, detached single-family homes. Today 71.6% of inhabitants in Flanders are private homeowners, mostly in detached housing (Heylen & Vanderstraeten, 2019, p. 37).

However, in the post-war period a substantial amount of high-rise social housing was inhabited by the middle class. That was due to the fact that the rent for social housing was indexed to the building cost of the housing complex. Since there was initially no limit on the construction cost of the first social high-rise projects, the first apartments were quite expensive and occupied by the middle class, mostly civil servants working in the cities where they were built. That was for example the case with the Kiel estate of Renaat Braem et al., and the Luchtbal estate by Hugo Van Kuyck. In the post-war period, high-rise buildings and large housing complexes in urban areas were championed by the Social Democrats. On April 15, 1949, they introduced a second housing bill – the Brunfaut Act, named after the socialist member of parliament Fernand Brunfaut. It made provisions not only for the regular annual financing of the construction of housing clusters by semi-governmental and state-recognised social-housing associations, but also for street-level investment, including pavements, public utilities such as drainage, and open-space planning of grouped houses and flats. That bill was a means to encourage investment in social housing. By comparison with the Netherlands, however, social housing remained a rather marginal part of the housing stock, ranging from 2.9% in 1957 to a peak of 30.5% in 1972 and 7.3% today (Cools, 2004, p. 170; Heylen & Vanderstraeten, 2019, p. 37).

In the private sector, high-rise housing was mostly used as investment by the middle classes, and as homes for the elderly. The high-rise projects were often found in attractive locations, such as along the coast, or dotted around important parks, squares or boulevards.

To broaden the scope of houses eligible for the De Taeye premiums, Marguerite De Riemaecker-Legot, the first female minister in Belgium and responsible for family and housing (Gillard, 2017, pp. 74-75), made alterations to the De Taeye Act in 1976 (De Vlieger, 2020, p. 154). The De Riemaecker Act attributed a so-called 'degressive' premium for the acquisition of an owner-occupied first house that didn't meet all the requirements of a regular De Taeye premium. For apartments on a scale within the requirements of the prescribed maximum 'habitable surface area' such a smaller premium could be obtained. It made apartments affordable for more people, or even encouraged people to buy two (adjacent) apartments in order to have as many as four bedrooms. This happened regularly for example on the De Bist estate (De Vos, forthcoming 2023). However, high-rise buildings were conspicuous in their absence in Flanders. In 1980 about 25 % of the Flemish housing stock consisted of apartments (De Decker, Ryckewaert, Vandekerckhove & Pisman, 2010, p. 42).

The definition and architecture of middle-class (mass) housing

In short, middle-class housing consisted mainly of owner-occupied single family, detached homes. However, Belgians do not consider them to be mass housing since they are not built at once, and not commissioned by one or a few customer(s). High-rise projects on the other hand, such as the De Bist estate and the Fruithoflaan estate, which were built by private companies, are considered middle-class mass housing. Such high-rises were built for the middle classes as a means for investment, a (second) home, or accommodation for senior citizens. Besides this, in the 1950s and 60s a particular cross-section of social housing, more specifically high-rises, was often inhabited by the (lower) middle class. That was the case until 1978 when the rent was indexed to the construction cost of the actual building. Then in the late 1970s, it was indexed to the income of the inhabitants, which made the social apartments too expensive for the middle class. For the same budget, they could pay off a loan on a home of their own. From this moment on, we will limit ourselves to discussing high-rise projects since they are considered middle-class mass housing in Belgium.

Architecturally-speaking, these social housing projects were places for experimentation with modern technology and prefabrication methods, while open to the principles of the Modern Movement. It was often leading architects, such as Renaat Braem, Jul De Roover or Hugo Van Kuyck, who designed these complexes. They all had generous collective spaces, and often art was integrated into these projects. The apartments were equipped with modern domestic appliances, such as appointed kitchens and bathrooms with hot and cold running water. Green areas were enhanced by benches, play gardens and on occasion sports fields.

Commercial high-rise projects such as the De Bist estate and the Fruithoflaan blocks, epitomise a different vision and have a different focus. Their architecture is still modern, for example pilotis are sometimes integrated, or the so-called fenêtres en longueur - horizontal windows, but the buildings themselves are not particularly groundbreaking. They incorporate Modernist features to give the impression they are ahead of their time. More daring design decisions were taken to seduce potential buyers. For example, in the entrance lobby the feel is luxurious rather than cozy (Figure 3). Benches and tops in more chic materials such as marble appear. By the same token, in order to add to their appeal and status entrance halls were given the name of a celebrated artist or some other important figure. Some buildings come flanked with balconies that are more eye-catching from the street (Figure 2), than they are practical for residents. Meanwhile the green areas around the buildings are there to add value, rather than serve the population. It was even forbidden to walk or sit on the grass. As for internal communal spaces, such as its corridors, these are kept to a bare minimum, pokey and without natural daylight. As they are not property that people can buy, they are left bare in an attempt to discourage people from lingering and engaging in conversation with neighbours. Another feature typical of middle-class housing is the abundance of parking spaces in private mass-housing. They are an essential part of the property since they reflect the commonest means of transportation of middle-class families.

Figure 2

Figure 3

Their condition today

These days, the majority of projects have all been renovated. All the aforementioned social-housing projects of the 1950-1970s have received constant improvements. The Kiel estate was given a thorough but sensitive makeover, with respect for the quality of architecture. Moreover, the centenary of Renaat Braem in 2010, brought all his projects, including the Kiel, to the attention of a broader public. The renovation of the Luchtbal estate was rough going. Many details, such as the bronze window frames, were sacrificed in the renovation. The most radical of all, however, was the renovation of Jul De Roover's Silver Towers, which the architect intensely disapproved of. The building was clad in a new skin, eliminating the architectural quirks of the facade. The common interiors, however, remain as generous as before. The potted plants, placed on the window sills of the corridors, are a comforting touch intended to reflect apartment-living here.

The renovations of commercial projects such as De Bist and Fruithoflaan, hasn't happened on a consistent basis due to their divided ownership. Only *adhoc* interventions are ever done, such as repairing the roof or adding a sun canopy. Building maintenance is clearly an Achilles heel due to the division of ownership. A trustee of owners is in charge of the building and holds meetings to take decisions about its management and maintenance. It's not always an easy task. A large amount of residents are seniors who don't want to invest heavily, or even at all, in the upkeep of the building.

What all these MCMH projects have in common is the fact that they are still attractive to homeowners today. While they were ahead of their time then, their Modernist architecture still makes them tasteful today. A majority of the home owners are seniors who appreciate the abundance of amenities and public transport nearby. These apartments are still very much in demand. Several residents have stated that they want to stay there until the day they die.

Figures

Cover - © Els De Vos

Fig. 1 - Graphic of housing production based on Peeters, 1995, 80. © Els De Vos, 2012.

Fig. 2 - The facade of one of the three Mercator blocks at the Fruithoflaan by the construction companies Etrimo and Amelinckx nv, Antwerp (Belgium). © Tino Schlinzig, 2022.

Fig. 3 - A Mercator entrance hall with marble floor and walls. © Tino Schlinzig, 2022.

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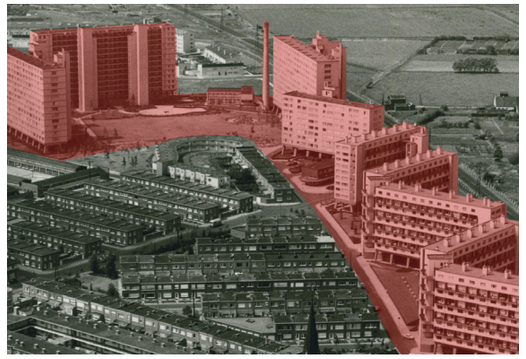
Woonunits Kiel/Braemblokken

Belgium, Antwerp

Google Earth Image © 2022 Landsat / Copernicus

Nine high-rise blocks on pilotis to cope with the housi\g shortage after WWII in the south of Antwerp.

Adress/District	Emiel Vloorstraat 11-15, 2020 Antwerp		
GPS	51.1131, 4.2225		
Scale of development	District		
Project author	Renaat Braem		
Developers	Social Housing Company Antwerp / Nowadays called Woonhaven		
Landscape author	Renaat Braem		
Period of construction	beginning: 1951	end: 1958	inauguration: 1959



Reworked image of ca. 1955 with arial view, 2023
(source: Felix Archive, City of Antwerp).

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	suburbia
other facilities / availability of amenities	Schools / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Free-standing objects	
	total area:	5.13 ha
	housing:	18.5%
Connectivity | Accessibility	The site is accesible with the car. There's also an underground car park provided. Many lines of public transport are nearby, and connect the site with the city centre.	
Landscape	The buildings stand in a zigzag formation. In between the buildings, there are big, open, green spaces. These spaces are very empty, and therefore hardly ever used.	
Open and public space	There is no infrastructure provided that invite passers-by to use the spaces. Also the walkways aren't maintained well. Art has been used by the architect to make generous entrances.	current condition: poor
Quality of living environment	It is a more green urban environment just outside the city centre. It is a diverse neighbourhood. At the time of the construction, the project was very innovative. But now the appartments no longer meet current standards.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	There are open galleries used as horizontal circulation to provide access to the individual housing units. The project is not very well connected with the other buildings and its surroundings	
No. of buildings	9	
No. max. of floors	12	
Average no. floors	10	
Materials | Fabrication	The three 12-storey buildings were built in first phase with superimposed reinforced concrete porches placed in situ. The six lower blocks were built in second phase with prefab elements in order to lower the building costs. Asbest was also a very popular material.	
No. of dwellings	696	
Average dwe. area	109.5 m^2	
Dwellings' type	one floor	1, 2, 3 rooms
	duplex	1, 2, 3 rooms
	studio	–
Qualitative issues	The appartments do not have any private outdoor space, they only can use the open gallery. In the flats, the living rooms and bedrooms are oriented to the south as much as possible, the wet rooms are located on the northern gallery side.	
Housing density	Number of dwellings per ha:	136

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** others	The project was constructed by the social housing company, but because of the high cost, it was inhabited by civil servants. Nowadays, the inhabitants are a mixed group of people with different ages and backgrounds.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab block	There are three identical 12-storey blocks and six identical 9-storey blocks. The height was used to create the required density. The blocks are largely constructed from prefabricated elements and are positioned in a zigzag formation to optimise the amount of sunshine in the flats.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The Brunfaut Act: to finance major infrastructure works for social housing estates at the expense of the state.
Name of specific programmes or funding applied	(1) Brunfaut Act and subsidies (social housing company)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The buildings show clear signs of decay, for example; Concrete degradation. There is a constant renovation of the different buildings going on.
Urban | building transformation or regeneration	The renovations started in 1988 an are still going. During this time period, they alreay replaced the sanitary installations. They also did a total renovation of the facade.
Intervention scale	Buildings
Intervention status details	Not finished. The renovations were not of this kind that they had an impact on the surroundings.

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Silvertoptorens

Belgium, Antwerp

Google Earth Image © 2022 Landsat / Copernicus

The project consists of 3 separate towers. The ground plan of the residential blocks is made up of 3 (or 2) crosses that are connected by a central corridor. The architect, inspired by Moshe Safdie, wanted a complex with cells build on each other. The façade is brutalistic and very expressive.

Adress/District	Jan Denucéstraat, 2020 Antwerp		
GPS	51.114300, 4.232295		
Scale of development	District		
Architectural studio	Jul De Roover (renovation: A33 architects)		
Project author	Social housing company c.v. De Goede Woning Gui Nolf		
Developer and Constructor	Social housing company c.v. De Goede Woning (now: Antwerpse Woonhaven)		
Landscape author	A33 Architects		
Period of construction	beginning: 1974	end: 1978	inauguration: –

Reworked image of 1979 with arial view, 2023
(source: Felix Archive, City of Antwerp)

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Sports / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Sun oriented paralell rows	
	total area:	3.1 ha
	housing:	17.4 %
Connectivity | Accessibility	Antwerp South Station is a 5-minute walk away. Tram and bus stations are nearby. Good connection to bicycle and pedestrian network. Easy accessible by car (A12 and Antwerp ringroad). The Mastvestpark is located next to the project.	
Landscape	The site has a big green space. A public park is located in the extension of the Silvertop Towers (the Mastvestpark).	
Open and public space	(After Renovation) The landscape was laid out with grass and paved areas with benches, a playground, a basketball court, a dog-walking area, etc.	current condition: reasonable
Quality of living environment	A lot of traffic noise. High towers are a landmark in the area. Close to city center, markets, etc. Some inhabitants feel unsafe. Inhabitants talk about robbers.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	The appartments don't have private terraces. The long corridor connects the circulation to the private areas. There are some functions in the plinth of the building .	
No. of buildings	3	
No. max. of floors	12	
Average no. floors	12	
Materials | Fabrication	Before the renovation, the building has a concrete skeleton with concrete surface panels. After the renovation the building has a concrete skeleton, wooden bearing structure for new façade with zinc and etherflex panels.	
No. of dwellings	608 (before renovation), 525 (after renovation)	
Average dwe. area	66.2 m^2	
Dwellings' type	one floor	1, 2 rooms
	duplex (after renovation)	2 rooms
Qualitative issues	After the renovation the building had good insulated sandwich panels and superinsulation glass with low sun penetration factor. The building also has a good acoustic isolation and a new ventilation system. The inhabitants say they miss a private terrace.	
Housing density	Number of dwellings per ha:	169

MIDDLE-CLASS

Original dwellers class: others

Social housing

Current dwellers class: others

MASS HOUSING

Massification through:
planned process
vertical growth

There are 3 parallel towers. 2 of them are 71 meters high, the third one is 68 meters high. This hight was requested because these buildings had to fit into a row of notable buildings along the Antwerp Ring Road forming the first impressions of the city.

Building's typology:
tower

HOUSING POLICIES

Urban promotion type: public

Housing promotion type: public

The Antwerp social housing company De Goede Woning [The Good Dweling] was founded in 1919 under the name Antwerpse Maatschappij van Goedkope Woningen. It was a progressive organisation that realised social housing with renowed architects. For the Silvertoptorens, the company asked for high-rise buildings as the capstone of the social district at Jan de Voslei and Kiel.

Name of specific programmes or funding applied

(1) Public funding by social housing company
(2) De Goede Woning (now: Antwerpse Woonhaven)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance

Fully refurbished.

Preservation and maintenance status details

The main structure was maintained. The façade was radically changed, giving the project a different appearance. By reorganising the flats, the general geometry of the towers was also adapted.

Urban | building transformation or regeneration

Both the building and the small surroundings were renovated. This resulted in better building physics, larger flats and more collective facilities.

Intervention scale

Neighbourhood / buildings / open and public spaces / collective green spaces / energy efficiency improvements

Intervention status details

The renovation of the first was completed in 2010. The third tower was renovated in 2012. The renovation replaced the brutalist façade with an almost unrecognisable new form. The surroundings were also changed and collective facilities were placed in the plinths.

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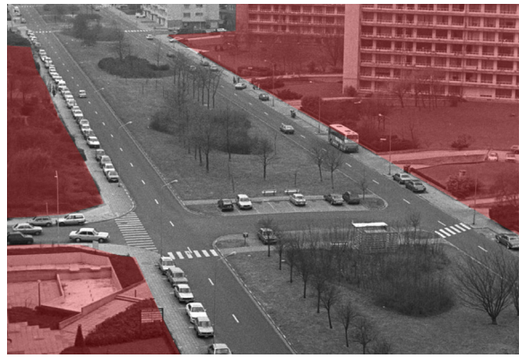
Fruithoflaan

Belgium, Antwerp

Google Earth Image © 2022 Landsat / Copernicus

The Fruithoflaan is located in the suburbs of Antwerp, next to an important street connecting the inner city and the highway. In the surroundings is a lot of greenery present. It has many commercial facilities in the bases of the buildings. They are built mainly by the private company Amelinckx nv. The blocks have wide balconies and the entrances are finished with high quality materials to attract middle class.

Adress/District	87-247 Fruithoflaan, Berchem, 2600 Antwerp		
GPS	51.184276192326614, 4.440116638454767		
Scale of development	District		
Architectural studio	Mercator: J. F. Collin, NV Group Urbanisme		
Project author	E. De Pessemier, Amelinckx: R. Goovaerts, Ambassador: E. De Pessemier		
Developer	Etrimo		
Landscape author	–		
Period of construction	beginning: 1963	end: 1986	inauguration: –



Reworked image (s.d.) with view into the street from an Amelinckx housing block, 2023 (source: Felix Archive, City of Antwerp).

© Els De Vos

URBAN AREA

Location - within in the city	original:	city fringe suburbia
	current:	city fringe suburbia
Other facilities / availability of amenities	Health / sports / shops / playground / art	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / sun oriented paralell rows	
	total area:	7.94 ha
	housing:	13.84 %
Connectivity | Accessibility	The streets are characterized by many cars and parking spaces. The location is also not far from the highway. There are three different bus lines and six stops in the street. There are also two shared bicycle stations and wide, safe pedestrian walk-ways with several crossings.	
Landscape	The greenery next to the buildings are forbidden to use and only serve to give a higher value to the buildings. The grass can't be entered. Only a small gravel path is there to cross it if needed. In the middle of the street there is an accessible patch of green with benches, walkways and statues.	
Open and public space	Behind the blocks is a park for sport and play. There is also green space between the two roadways decorated with tulips and tree blossoms. This gives a women-friendly arrangement of the surroundings. There is a good ratio between built and unbuilt areas.	current condition: good
Quality of living environment	The experience in the environment is safe. In the evening it is rather desolated because a majority of the residents are seniors. Sometimes burglaries happen on the ground and second floor, but a lot of facilities in the neighborhood make the living environment high quality.	
Main Features	Readability / safety	

RESIDENTIAL AREA

Residential buildings	The buildings have balconies on two facades, sometimes belonging to one apartment. There are multiple entrances to one block, splitting a block in two, but the hallways are narrow and dark and there are no communal spaces.	
No. of buildings	10	
No. max. of floors	13	
Average no. floors	13	
Materials | Fabrication	The facades are made of white maclit, Maas stone, white stone, smooth and painted concrete, blue stone and black quartz. The door and window frames are made of wood or aluminum. The entrances of the buildings are made with a natural stone for its rich image.	
No. of dwellings	1244	
Average dwe. area	98.63 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	studio	–
Qualitative issues	The circulation shafts and corridors are centrally located in the buildings, allowing little natural light to enter. Dark and narrow corridors make the space feel cramped. Also the balconies are narrow and not functional to use. They only serve to enhance their wealthy appearance and indicate of middle class living.	
Housing density	Number of dwellings per ha:	125.66

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	The blocks are built by private companies (Etrimo, Amelinckx). A lot of seniors live there. As it are large apartment blocks with a lot of greenery in the environment, it's clear that it were and are for middle class families.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth **Building's typology:** block	Private companies planned this process of mass housing. There is a vertical growth relating to the high building blocks but also a horizontal growth as the different blocks built followed up on each other.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Belgian housing policy in the cities was first to stimulate private home ownership, but mass housing construction in Belgian cities created a greater demand for urban development and high-rise buildings. This proceeded in two phases: densification of the city and then expansion of the city to the suburbs. Private construction companies, such as Amelinckx nv. and Etrimo, were encouraged to build large-scale high-rise flats in the suburbs.
Name of specific programmes or funding applied	(1) Amelinckx nv. and Etrimo

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	The buildings are in good condition and are maintained. There has been no preservations.
Urban | building transformation or regeneration	
Intervention scale	Neighbourhood / open and public spaces / collective green spaces
Intervention status details	In 2019, a green stroke was provided in the middle of Fruithoflaan. This intervention creates more greenery in the area and to ensure traffic safety in the street. This has also led to a more woman-friendly design of the area. The green strip is decorated with tulips, statues, tree blossoms and benches. A bike path has also been implemented for people to bike on. People also walk here, walk their dogs and sit on the grass.

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The Bist

Belgium, Wilrijk

Google Earth Image © 2022 Landsat / Copernicus

The Bist comprises three separate modernist residential blocks, surrounding a shopping center and cultural center. It is a middle-class housing project mainly inhabited by senior citizens.The site accommodates around 350 apartments, 60 shops. It is a politically charged project.

Adress/District	Bist, Bistweg, Heistraat, Mastplein, Koniging Elisabetstraat, 2610 Wilrijk, Antwerpen		
GPS	51.171195, 4.393899		
Scale of development	Urban plan		
Architectural studio	Eugene Leirens, Ronald Sepelie		
Developers	N.v. Van Kerkhove & Gilson / Munincipality of Wilrijk		
Landscape author	–		
Period of construction	beginning: 1967	end: 1979	inauguration: 1973

Reworked image (s.d.) with indication of housing and commercial area, 2023 (source: Felix Archive, City of Antwerp)

© Eda Albay

URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Health / market / shops / library / district - house	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Free composition	
	total area:	2.5 ha
	housing:	28.8 %
Connectivity | Accessibility	It is close to several major motorways, such as the A12, E19 and the R12, making it a well-connected centre. Public transport is easily accesible. There is a bus stop with canopy on the Bist square. Shared city bikes (Vélo) are at disposal on Bist square. There is plenty of parking space.	
Landscape	the site is hardened for parking lots and pedestrian streets. Only around Block A , left of the site, are some gras zones.	
Open and public space	The Bist square is a place for events and weekly markets, a playground and basketball field is placed on the square as well. In the slab of the project the shopping and cultural centre De Kern is located. There are underground and aboveground parking spaces.	current condition: reasonable
Quality of living environment	Every appartment has a terrace on both facades and every habitant is surrounded by shops and markets. Easy transport acces with car and public transport.	
Main Features	Combining different uses	

RESIDENTIAL AREA

Residential buildings	The buildings are connected to the outdoor spaces by being surrounded around the shopping center and having some shops on ground level. Each tower has several entrances connecting 2 units per floor level each time.	
No. of buildings	3	
No. max. of floors	21	
Average no. floors	15	
Materials | Fabrication	Concrete structure. Fully glazed curtain walls. The entrance halls of all residential towers are equipped with aluminum window frames. Entrance halls have granite tiles.	
No. of dwellings	350	
Average dwe. area	103.05 m^2	
Dwellings' type	one floor	2, 3 rooms
Qualitative issues	Each apartment has its own terrace where the floor slab of each level is extended to the outside. Almost each apartment has 2 facades with terraces on both side.	
Housing density	Number of dwellings per ha:	140

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	Even though this is a middle-class project, a lot of the dwellers are senior citizens, they prefer the apartments surrounded by the shopping center De Kern.

MASS HOUSING

Massification through: planned process **Building's typology:** slab tower	The massification was a planned proces by the municipality of Wilrijk. The addition of more floor levels was more unplanned because at first there was an agreement of max height of 10 floors. The highest block has now 21 floors. The three towers are similar in shape and units within but are different in heights and length. The slab is for the shopping and cultural center.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public-private partnership	There were subsidies of the province to upgrade the neighborhood and some private investments too. The wet (law) De Taeye and the law De Riemaecker were also applied for people abroad.
Name of specific programmes or funding applied	(1) Subsidies of the province and private investment (2) De law De Taeye and de law De Riemaecker

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The Bist square was regenerated in 2005, they made more space for greenery and placed a playground for children. Small renovation took place in the towers: in block C they replaced the wooden windows with PVC windows with triple glazing. First it was single glazing. The facade of the shopping center got renewed in 2009.
Urban | building transformation or regeneration	The transformation of the building is on smaller details such as in the windows. The shops are regenerated from time to time because they change owners and bussinesses.
Intervention scale	Neighbourhood / open and public spaces
Intervention status details	The regeneration of the facade of the shopping center and the Bist square only masquered the problems instead of solving it. The shops are still closing bussinesses and the apartments are not up to standard of the 21st century.

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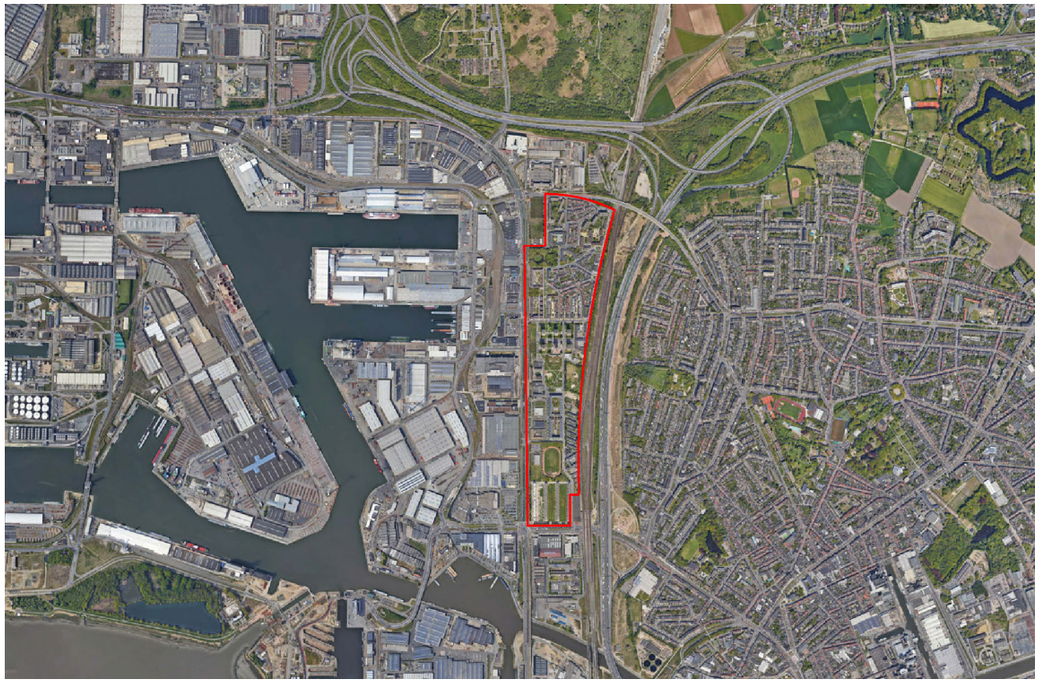
Luchtbal/Langblokken

Belgium, Antwerp



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Luchtbal is located north of Antwerp, next to the Noorderlaan. It is squeezed between the industrial port of Antwerp, the traintracks and the ring road, and was designed to accommodate the workers of the General motors plant nearby. The site is surrounded by busy transportation networks and consists of different housing typologies, such as the social housing ‘Langblokken’. Luchtbal is home to a mix of different cultures and ethnicities.

Adress/District	Luchtbal Antwerpen, 2030 Antwerp		
GPS	51.244358, 4.4248923		
Scale of development	District		
Project author	Hugo Van Kuyck		
Constructors	"Onze Woning" (client) (nowadays Woonhaven)		
Landscape author	Hugo Van Kuyck		
Period of construction	beginning: 1938	end: 1961	inauguration: –

Reworked image of 1955 with view to the dwelling units, 2023 (source: Felix Archive, City of Antwerp).

© Els De Vos

URBAN AREA

Location - within in the city	original:	industrial zone
	current:	industrial zone
Other facilities / availability of amenities	Schools / market / sports / shops / religious / kindergartens leisure / bowling / library / youth community centre	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block / free-standing objects / free composition	
	total area:	4.95 ha
	housing:	21.83 %
Connectivity | Accessibility	Luchtbal is situated north of Antwerp and is located next to the Noorderlaan. On the Noorderlaan, there’s a good connection with the public transportation and also well-connected streets and walkways for mobile traffic, cyclists and pedestrians.	
Landscape	Due to the mass housing production, there was more demand for parking spaces. But there’s not a lot of traffic on the streets (except on the Noorderlaan). Luchtbal also has a variety of green public spaces (parks, playgrounds, etc.).	
Open and public space	The open/public space of Luchtbal is very present and makes the buildings on the site feel isolated from eachother. Although some of these public spaces generate a qualitative living enviroment. Some are not being used and generate an unsave feeling.	current condition: good needs to improve, more activity
Quality of living environment	Luchtbal is mostly only living. The ratio between living- and commercial spaces right now is too big. More commercial spaces might not only increase the quality of life for the residents, but also the activity of the public spaces.	
Main Features	Diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	The Langblokken consists of four housing blocks. They each have a shared open courtyard in the middle, also accessible for passerby's. The slabs are inspired by Le Corbusier's pilotis, but at regular intervals cubic concrete blocks give acces to the appartments above. Van Kuyck organised the circulation in a more individual and internal manner. However, an open public space on the ground level provided free circulate for everyone.	
No. of buildings	4	
No. max. of floors	32	
Average no. floors	8	
Materials | Fabrication	The architect used as much as possible prefabricated materials that were already available. He used stones and tiles - with their fixed dimensions - as a design tool. In this way they ensured that as few as possible of the materials had to be processed afterwards. Result: reduction of labor hours.	
No. of dwellings	690	
Average dwe. area	88.68 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	duplex	–
	studio	–
Qualitative issues	Luchtbal knows a lot of different typologies. Each has their own identity. Hugo Van Kuyck had a big ambition to incorporate a lot of light and air in the architecture. We see this in the entrance halls of the buildings.	
Housing density	Number of dwellings per ha:	204

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** others	The housing in Luchtbal mainly focused on the working-class. Due to the expences and quality of the houses their price wasn't affordable anymore for the low-income working class. Later between 1976–1994 there was a change of inhabitants. And now there is an increase of culture and diversity.

MASS HOUSING

Massification through: planned process **Building's typology:** block	Hugo Van Kuyck designed a masterplan for the development of Luchtbal. He got a lot of inspiration from modernism but also from America. Using new and pre-manufactured techniques in his buildings. By experimenting with these new techniques he could press the cost of the project.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Luchtbal got its name from a German who landed in the field there with a hot air balloon. Houses were built shortly after. The city government wanted to provide a solution for workers who lived in the inner city, living in small and unhealthy dwellings. With an abundance of air, greenery and space, Luchtbal was promoted very attractively.
Name of specific programmes or funding applied	(1) "Onze Woning" / Woonhaven have supported the project

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Since 03/29/2019, the social housing area Luchtbal has been designated as established architectural heritage.
Urban | building transformation or regeneration	The facade of the towers are being partially renovated and preserved aswell as the slabs. Also the social row-houses have already been renovated and changed. They have put a new roof on top of the canadablocks. There are also new buildings rising in the voids of the site.
Intervention scale	Buildings / collective green spaces
Intervention status details	The slabs are at this moment being renovated aswell as the towers. These renovations cause a lot of noise pollution in the area. Also the accessibility alongside the slabs is being blocked due to the renovations.

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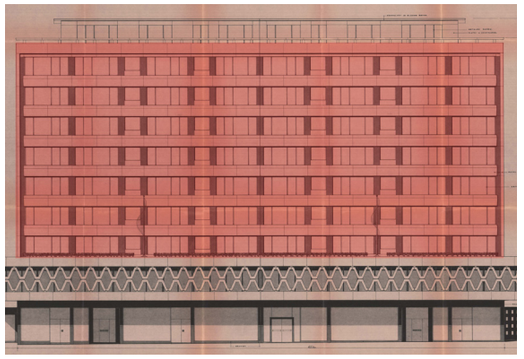
Vooruitzicht

Belgium, Antwerp

Google Earth Image © 2022 Landsat / Copernicus

The building ‘Vooruitzicht’ in Borgerhout was built in 1969 by and on behalf of the construction company Vooruitzicht as an investment. At the time, ‘Vooruitzicht’ established its offices on the first floor. The repeating logo on the facade of the first floor makes it easy to recognise the building. Above the offices, there is an 8-floor apartment block. On the ground floor there are several commercial premises.

Adress/District	Turnhoutsebaan 180-190, 2140 Antwerp		
GPS	51.12518, 4.26103		
Scale of development	Building		
Architectural studio	A. Van der Eecken		
Project author	n.v. Vooruitzicht		
Developer	n.v. Vooruitzicht		
Landscape author	–		
Period of construction	beginning: 1969	end: 1973	inauguration: –



Reworked image of 1968 showing the facade with indication of the dwelling units (source: Felix Archive, City of Antwerp).

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	Schools / shops / religious / kindergartens	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Semi-open block	
	total area:	0.09 ha
	housing:	79.37 %
Connectivity | Accessibility	There is a lot of traffic along the main road on which ‘vooruitzicht’ is located. The side streets with access to the underground car park give a remarkably quiet impression.	
Landscape	Smaller studios for younger inhabitants are located along the street. The back is for families and have a terrace.	
Open and public space	There is no green space, a cantilever does provide a spacious footpath, which is necessary along the busy turnhoutsebaan.	current condition: none
Quality of living environment	The building is located in the heart of the district. There is a vibrant urban culture, since the city of Antwerp invests in cultural integration.	
Main Features	Diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	Interior outdoor area connectivity and interior indoor space organization, highlighting characteristic elements such as interior streets, gallery access, interior patios, collective spaces or others. The plinth provides the impetus for communal access.	
No. of buildings	1	
No. max. of floors	8	
Average no. floors	8	
Materials | Fabrication	Facade: granite, quartz mortar motif, facade panels, metal windows over the entire width of the living area, concrete cornice. Structure: reinforced concrete, masonry.	
No. of dwellings	51	
Average dwe. area	82.5 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	studio	–
Qualitative issues	The builidng has a clear formal expression. It is a landmark for the neighborhood. There is a setback on the ground floor with public facilities. The building entrances are situated here. The orientation of the dwelling in the building has also an impact. Those on the corners have more light. But also the height of the ceiling plays a major role. Lower floors get less light within the urban context.	
Housing density	Number of dwellings per ha:	74.5

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** others	Originally it was for the middle class, but now days the building is inhabitants by low income people such as people with a migration background. For example a family with 7 children in a 1 bathroom apartment.

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** semi-detached house block	It is a project of 51 units in a Belgian context.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Vooruitzicht promotes the building mainly because of its location. On the one hand it is situating Turnhoutsebaan a street with a lot of retail. On the other hand it is close to the station and the slip road to the E3. Further, the material choices and facilities such as lifts and parking are praised as an important quality.
Name of specific programmes or funding applied	(1) Private investment by n.v. Vooruitzicht

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	The facade is still original, many inhabitants refurbished the windows and the interior. But there has been no general renovation.
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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Bosnia and Herzegovina

Sarajevo, Banja Luka

Nevena Novaković

Anita Milaković

Landscapes of Modern Housing. Middle-Class Mass Housing in Bosnia and Herzegovina

Middle-class mass housing is an essential part of urban identity and housing culture in Bosnia and Herzegovina. The planning and construction of housing 'for large numbers' represent an intensive transformation of urban landscapes, especially during the 60s and 70s, compared to the slower pace of urban development in previous periods. The architecture of Modernist ensembles, from simple compositions of slabs and towers to more complex structural clusters, contributed to the traditional dispersion and openness of cities in Bosnia and Herzegovina. The values and potentials of open urban layouts of mass housing estates, especially concerning the composition of the city and its surroundings, are underestimated and still unexplored. This essay depicts an overview of the urban landscape of modernisation during the socialist period, focusing on the collective housing produced on a mass scale. The morphological characteristics are summarily described according to the city scale – placement in the urban fabric, the block scale – the urban layout of a housing estate, and the building scale. The paper argues for an environmental consideration of housing landscapes, covering social and cultural aspects. By shifting the focus from modern architecture and aesthetic qualities to the use and perception of open spaces, this analysis highlights the relationship between dwelling and landscape as the essential value of middle-class mass housing in Bosnia and Herzegovina.

Landscapes of housing in Bosnia and Herzegovina

Urban housing culture in Bosnia and Herzegovina before the middle of the 20th century is dominated by single-family housing. Houses were organically arranged in small clusters on the sloped terrain (*mahala*) or in more regular patterns on flat land (*varoš*). The first examples of collective housing, built at the beginning of the 20th century and between the two wars, were detached buildings and buildings in a perimeter block. However, buildings in a perimeter block never become characteristic of Bosnian cities. Most housing configurations were defined by low population and built density and were noticeable for their lavish greenery, gardens, and orchards.

Housing construction 'for large numbers' began in the second half of the 20th century. It was set off by an acute lack of dwelling units following the devastation of the war and the shift towards industrialisation. Mass housing took two forms - planned collective housing of various types and non-planned (often illegal) single-family housing at the urban fringe. From the 50s until the 1990s, apartments in collective housing were systematically provided for manual workers and the middle class. However, a large percentage of the ruling class also lived in the same residential buildings, and a class mix was created that has remained relatively intact until today. Since the rate of apartment construction was not sufficiently fast to meet demand, illegal construction of single-family houses around the cities was tacitly accepted to keep the social peace and ensure an influx of manpower. As architectural critic Maroje Mrduljaš noticed, urban planners were publicly appalled by this phenomenon and did not draw such areas in their plans - the modernist imagination could not acknowledge the existence of anything beyond the plan (Mrduljaš and Kulić, 2012). Single-family housing construction was not planned and implemented *en masse* but improvised on a massive scale. In conclusion, middle-class mass housing (MCMH) in Bosnia and Herzegovina refers to the phenomena of systematically planned, designed and constructed multi-family apartment buildings (collective housing) arranged in ensembles.

The state and (middle) class as dynamic categories

Today's territory of Bosnia and Herzegovina has been part of different states throughout history.

It was the constituent land of two kingdoms and three states during the 20th century alone: the Austro-Hungarian Monarchy, the Kingdom of Yugoslavia between the two World Wars, the Independent State of Croatia during the Second World War, the Socialist Federal Republic of Yugoslavia, and in contemporary times, independent Bosnia and Herzegovina. In the period after the Second World War, the Social Republic of Bosnia and Herzegovina was one of the six republics that constituted the Yugoslav Federation. This historical layering and permeation of ideologies and cultures is an integral part of the design and construction of housing in Bosnia and Herzegovina's settlements. It is visible even today in the different spatial patterns of the residential culture, which stand mingled, one next to the other.

After the Second World War, Bosnia and Herzegovina underwent a rapid and drastic transformation from a dominantly rural society with an agricultural economy to a socialist and urbanised society with an industrialised economy. The centuries-long period of Ottoman rule and then annexation to the Austro-Hungarian monarchy at the end of the 19th century did not lead to the industrialisation and urbanisation characteristics of other parts of Europe. Radical socio-economic changes after the Second World War and the continuous population migratory flow from villages to cities strongly impacted upon the formation of social classes in socialist Yugoslav society.

Immediately after the Second World War, peasants (together with craftsmen) made up more than 70% of the population of Yugoslavia, then around 10.5 million people. After the first wave of agrarian reform and unsuccessful attempts to collectivise agriculture, the peasants remained landowners on legally defined small parcels of land. For the first time in Yugoslav history, in 1969, the peasantry fell below half the total population. In 1981 it was estimated that peasants made up only 20% of the Yugoslav population, with more than half of the peasant families having at least one member employed outside agriculture. Conversely, the number of paid manual workers grew from 460,000 immediately after the war to 3.2 million in 1971. The growing middle class consisted of scientists, teachers, social science academics, engineers, and numerous employees in the administration. In the Yugoslav official discourse, manual workers and the middle class are often referred to by the colloquial name of 'the working class' (*radnička klasa*) (all data from Suvin, 2014).

The Yugoslav framework for mass housing construction

Several key points in the Yugoslavia social and economic context stimulated and supported the mass construction of collective housing. The social ownership of land was introduced as part of the 1946 constitution, which freed up immense spatial resources. Land as state property had a different economic value than it does today. As a result, shared green spaces in the housing clusters were created in an abundance that is inconceivable to the contemporary profit-oriented culture. The key concept of the Yugoslav socio-political system - workers' self-management - was introduced through the 1953 constitution. As it developed, this concept would decisively influence the decentralised character of the planning and construction of Yugoslav cities. In 1955 mandatory contribution to the housing fund was instituted for every worker, which enabled municipalities to create housing loan funds and embark upon mass housing construction. The construction gained momentum thanks to applied systems of prefabrication. The Yugoslav constructor Branko Žeželj developed the IMS Žeželj system that was reminiscent of Le Corbusier's Maison Domino as a skeleton consisting of prestressed pillars and slabs (Jovanović, 2021). Prestressing technology and the IMS system were widely applied in mass housing in Bosnia and Herzegovina, Yugoslavia, and many other countries.

Decentralised housing construction was supported by establishing institutes for urban planning and housing construction on the republic and city level, as well as by a series of ideological concepts, such as 'housing community' (*stambena zajednica*), 'local community' (*mjesna zajednica*), and 'self-governing community' (*samoupravna interesna zajednica*). The development and assimilation of high architectural Modernist ideals was debated and advocated for by numerous architectural journals, at urban planning conferences and exhibitions throughout Yugoslavia. The *ARH journal for architecture,*

Figure 1

urban planning, applied art, and industrial design was published in Bosnia and Herzegovina by the Society of Architects of Sarajevo.

Concerning the aforementioned legislative and financing frameworks, one could specify four different phases in the construction of MCMH in Yugoslavia (and Bosnia and Herzegovina). These could be called the administrative-budgetary period (1945-1955), the period of housing funds (1955-1965), the period of market construction (1965-1975), and the period of 'directed housing construction' (from 1975-1990) (Skalicky and Čerpes, 2019). Housing policy was established and implemented at three administrative levels: federal, republic, and local (municipalities and cities). From the second phase onwards, mechanisms of regulation, funding, and housing construction become more focused on tasks and responsibilities at a local level. Mass construction of collective housing intensified after the beginning of the 70s and decreased from the middle of the 80s onwards. Both the case studies presented in this publication, the Borik neighbourhood and the Ciglane neighbourhood, were planned and constructed when housing construction was at its peak. Their urbanistic and architectural characteristics make the Borik a typical example (Figure 1) and the Ciglane a specific case (Figure 2) of MCMH in Bosnia and Herzegovina.

The spatial characteristics of modern mass housing

Housing construction in the 50s consisted of typical residential buildings incorporated into the urban fabric individually or in small clusters. From the middle of the 60s onwards, the neighbourhood concept began to appear in urban planning as a basic planning unit, which integrated social and cultural amenities into residential areas. The various urban services were planned and constructed within the neighbourhood as separated buildings. However, those were only partially implemented since although schools, kindergartens, and shops were built, other planned cultural and communal amenities mostly were not. The available funds did not extend as far as the construction costs of these other facilities, so neighbourhoods were never fully realised as planned. From the middle of the 1970s, housing estates were no

Figure 2

longer designed and equipped with other urban amenities, while residential architecture was built in increasingly higher densities.

The spatial layout of MCMH maintained a continuity of dispersed urban tissue and landscape integration. The openness of Bosnia and Herzegovinian cities' urban form (as their *genius loci*) was heightened by the Modernist principles of freestanding buildings in a green space (in the spirit of the times). The (smaller) human scale of open spaces in most collective housing clusters and neighbourhoods is a reflection of the medium size of cities in Bosnia and Herzegovina (with Sarajevo as a partial exception). There were two ways of placing collective housing buildings and clusters within the urban fabric. As for how well they were integrated into the city, they tended to fill unbuilt space or replace smaller structures (like individual housing) across a wider central area. Also, they tended to appear on the city outskirts but without breaking off the continuity of urban tissue. As a result of such placement, mass housing clusters and neighbourhoods are well connected and integrated with the rest of the city.

The first multi-apartment buildings, built after the Second World War, were constructed as single detached buildings with a yard. Simple in terms of space distribution (withdrawn from the street) and small, they are scattered throughout the urban fabric, sometimes in small clusters. These early days of modern mass-housing construction inherited 'continuation of living in a house with a garden' typical of residential habits from days past. Due to the low intensity of construction and the overall small number of apartments built in the first ten years following the Second World War, we would not classify these buildings as MCMH. But it is important to bear them in mind for a more complete understanding of the spatial characteristics of modern mass housing.

The construction of MCMH in Bosnia and Herzegovina started in the middle of the 1950s. Massification was accomplished through the development of typically functionalist clusters but also the construction of individual larger buildings. The same architectural type of buildings was built in various cities. The essential design criteria were sunlight, ventilation, and adequate distances between buildings. The architecture was simple and cubic in form, creating Modernist regular-geometric compositions of slabs and towers immersed in and surrounded by ample greenery. The open spaces marked out relatively small distances between buildings and rarely were on such a scale that they did not provide a feeling of closeness. Although these ensembles were designed on a human scale, one would classify them as being so-called' dormitories' due to the simplicity and plainness of their architecture and mono-functionality.

The 60s and 70s were the most dynamic period in the construction of MCMH. Following international criticism of Modernist housing while continuing to seek Socialist expressions of community in Yugoslavia, new residential configurations began to be explored. Planned concepts of housing communities and *mikrorejon* (microregions) introduced the integration of social and cultural amenities into housing ensembles from the mid-60s onwards (such as in the Borik neighbourhood). In the planning debate, the city was no longer seen exclusively through functional zones but also as a composition of residential microregions and their social centres. Since these centres were rarely built to completion, the (incomplete) neighbourhood was a new form of urban organisation as a spatial, social, functional, and symbolic whole.

During the 1970s, the concepts of the city street and the block yard were reintroduced into Modernist mass housing architecture in order to humanise the living experience (such as in the Ciglane neighbourhood). The new housing layouts were intended to integrate notions of human scale based on the walking distance between elementary school and residential buildings. A variety of typologies were incorporated, including detached buildings, slabs, towers, and the formation of semi-closed configurations of cascade row buildings (Figure 3). Modern housing became more context-sensitive, integrating local urban and architectural elements in the overall design. All residential buildings had apartments of different sizes to reflect the diversity of the middle class in Yugoslavia. Living together in collective apartment buildings was an act of emancipation for the working and middle class. From 1975, termed the period of 'directed housing construction', social amenities were no longer imagined as part of new housing but belonging to the broader urban context. Integration of other urban facilities (shops, bars, restaurants, offices) partially happened on the building level, on the ground floor. During the 80s, housing construction progressed at a slower pace, as we neared the end of a socio-ideological and economic epoch.

The (undervalued) landscapes of modern housing today

Today, Bosnia and Herzegovina is a complex state consisting of two separate entities and one district. There is no legal nor institutional framework, neither at the state nor the entity level, dealing directly with a housing policy in the broadest sense of the word. On the other hand, each entity has its legal precepts on housing issues (Hebib et al., 2020). Urban planning has not accompanied the frenzied pace of socio-economic change but instead has moved away from the previous system and been warped by

Figure 3

the pressures of private capital and the unclear definition of what is in the public good. That has affected MCMH qualitatively in two ways. Implanting new buildings onto the open spaces of Modernist housing estates is detrimental to the quality of urban fabric already existing. Secondly, the issues of maintenance, renovation, and protection of MCMH are neglected and, in several key aspects, unregulated. Housing is being renovated randomly and partly without any notion of urban integrity and the need for open space. Only a few housing complexes are under state protection for their architectural merit, having been built in the early Modernist phase.

The ecological and social value and potential of open mass-housing urban layouts, especially in relation to the composition of the city fabric and its surroundings, are underestimated and still relatively unexplored as an architectural solution. The openness of Modernist configurations has been instrumental to the inherited low building density of medium-sized Bosnia and Herzegovina cities (except for significantly larger Sarajevo). Due to their human scale, they have been instrumental in the persistence of the housing-with-garden typology so dear to the local tastes, where outdoor living is as important as what goes on behind closed doors. The construction of collective housing in the most recent cycle affects the inherently open character of Bosnia-Herzegovina's cities. Housing construction is inwardly focused on a plot level, contrary to the large-scale undertakings during the socialist period. New housing forms do not incorporate open space as a structural element but as a minimal functional component, which specifically breaks with the morphologically-open character of the cities till now. In the incoherent urban fabric of Bosnia and Herzegovinan cities, the legacy of MCMH is characterised by its lush green archipelagos.

Figures

Cover - © Tomas Damjanović, 2022

Fig. 1 - Borik neighbourhood, Banja Luka, Bosnia and Herzegovina, 1970-1973. © Tomas Damjanović, 2022.

Fig. 2 - Namik Muftić and Radovan Delalle, Ciglane neighbourhood, Sarajevo, Bosnia and Herzegovina, 1976-1989. © Days of Architecture Sarajevo. (2019) Bauhaus 100. Architectural-urban competition for conceptual idea of a square with viewpoint Ciglane, Sarajevo (booklet) [online]. Available at: http://www.daniarhitekture.ba (Accessed: 3 March 2023)

Fig. 3 - Borik neighbourhood, Banja Luka, Bosnia and Herzegovina, 1970-1973. © Tomas Damjanović, 2022

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Borik Neighbourhood

Bosnia and Herzegovina, Banja Luka

Google Earth Image © 2023 Maxar Technologies

Borik neighbourhood is the modernist housing ensemble of higher quality in the context of Bosnia and Herzegovina mass housing. It is undistinctive in terms of architecture and urban composition, drawing its quality from generous green space, diversity of residential units and human-scale feeling.

Adress/District	Bulevar vojvode Živojina Mišića| Borik neighbourhood		
GPS	44.46100, 17.12151		
Scale of development	District		
Architectural studio	Planning Institute of Banja Luka (urban plan) and four construction companies (buildings design)		
Project author	Pavle Paštar (initial urban plan) / Nikola Bogačev and Teodor Georgievski (architectural design of primary school complex)		
Constructors	The Socialist Federal Republic of Yugoslavia (SFRY), Socialist Republic of Bosnia and Herzegovina (SRBH) / Construction companies: “Krajina” Banja Luka, “Vranica” Sarajevo, “Hercegovina” Mostar, “Tehnika” Tuzla.		
Landscape author	–		
Period of construction	beginning: 1970	end: 1973	inauguration: –

Borik neighbourhood, Banja Luka, Bosnia and Herzegovina, 1970-1973. © Tomas Damjanović, 2022

Borik neighbourhood, Banja Luka, Bosnia and Herzegovina, 1970-1973. © Tomas Damjanović, 2022

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	schools / market / sports / shops / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / Superblock	
	total area:	40 ha
	housing:	64 %
Connectivity | Accessibility	The neighbourhood is in the eastern part of Banja Luka, closed to the historic city and embedded on the bank of the Vrbas River. Its eastern spatial border is a wide transit road and the southern border is the Vrbas River. The axis of the neighbourhood is the boulevard that connects it with the city centre.	
Landscape	The landscape is characterized by the flat, large and green surfaces between the residential buildings, with many pedestrian paths and trees. It is green, spacious, and functional, without a distinctive landscape design.	
Open and public space	The open public space is continuous but also subtly divided into smaller enclaves. Some of them are more often in use than others. There are several playgrounds. The open public space is lively in all seasons.	current condition: good
Quality of living environment	The quality of the neighbourhood originates dominantly from the human scale in its urban layout and luxurious green spaces. It is well integrated into the urban structure and urban life.	
Main Features	Diversity / readability	

RESIDENTIAL AREA

Residential buildings	The neighbourhood has several residential building typologies: slabs of different lengths and heights, towers, and terraced clusters. The white terraced clusters give the visual identity to the entire ensemble.	
No. of buildings	62	
No. max. of floors	16	
Average no. floors	6	
Materials | Fabrication	All residential buildings are made in a prefabricated construction system, with structural elements of concrete and prestressed concrete. In terraced building typology, the wooden windows originally were coloured red, blue, yellow and green.	
No. of dwellings	2700	
Average dwe. area	65 m²	
Dwellings' type	one floor	1, 2 rooms
	studio	–
Qualitative issues	The functionality of apartments is considered to be one of the best qualities of the Borik neighbourhood. The apartments are spacious, well organised, and have a pleasant amount of daylight.	
Housing density	Number of dwellings per ha:	75

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Apartment in the collective housing units and neighbourhoods is still the most desired living space in Banja Luka for all social classes. The social mix in neighbourhoods like Borik is still preserved. Many of the apartments are still owned by working-class families who received tenancy rights when the neighbourhood was built.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab tower	The Borik neighbourhood is planned as an urban unit according to the principles of modern planning and striving for a high standard of housing. The high population density, at least in the context of Banjaluka, was achieved with buildings up to 16 floors high and diversity in the size of apartments.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Housing construction in Yugoslavia and Bosnia and Herzegovina (as the constituent republic) was financed by the state and the sociopolitical communities of workers defined by the socialist system. The state or the working organisation were the owners of the housing. The apartments were allocated for use (tenant right) for small symbolic rent. The planning and design of housing estates had an exclusively top-down direction.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished. Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The neighbourhood is fully functional and lively. However, the facades, installations, and materialisation of the common spaces in the buildings and outside have deteriorated. The energy efficiency of the buildings is at a low level.
Urban | building transformation or regeneration	Now privately owned apartments are being renovated and transformed individually. Home-owner associations at the level of one residential building maintain common spaces and the building as needed. The maintenance and small-scale renovation of open and green spaces are organized and financed by the city and sometimes with private partners. The neighbourhood did not have a comprehensive renovation since construction.
Intervention scale	Buildings / open and public spaces.
Intervention status details	Spatial interventions in the neighbourhood are minimal, functional and usually urgent. There was no new building construction, but several slab-type buildings were upgraded with a new roof floor that changed the architectural physiognomy.

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Neighbourhood Ciglane

Bosnia and Herzegovina, Sarajevo

Google Earth Image © 2023 Maxar Technologies

This neighborhood is a specific megastructure where end-users were allowed to participate in the design of the building. The design idea behind Ciglane was rooted in the traditional housing area ‘mahala’. Design principles taken from ‘mahala’ are: designing for living on a slope where everyone has a courtyard - terraces and the right to a view, and the alleys with controlled traffic.

Adress/District	Ciglane, 71000 Sarajevo		
GPS	43.86366, 18.41003		
Scale of development	District		
Architectural studio	SOUR “Investoprojekt”, Zavod za studije i projektovanje “DOM”		
Project author	Namik Mufti, Radovan Delale / Nikola Maslej, Nihad Handži SOUR “Investoprojekt”, Zavod za studije i projektovanje “DOM” (architectural studio)		
Constructor	"PUT" Sarajevo OOUR Visokogradnja		
Landscape author	Branka Vukičevi		
Period of construction	beginning: 1976	end: 1989	inauguration: –

Days of Architecture Sarajevo. (2019) Bauhaus 100. Architectural-urban competition for conceptual idea of a square with viewpoint Ciglane, Sarajevo (booklet) [online]. Available at: http://www.daniarhitekture.ba (Accessed: 3 March 2023)

Days of Architecture Sarajevo. (2019) Bauhaus 100. Architectural-urban competition for conceptual idea of a square with viewpoint Ciglane, Sarajevo (booklet) [online]. Available at: http://www.daniarhitekture.ba (Accessed: 3 March 2023)

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	shops / religious /leisure	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Superblock	
	total area:	15.86 ha
	housing:	38,7 %
Connectivity | Accessibility	Neighborhood is positioned along one of the main Sarajevo traffic axes. It is well connected to public transport, pedestrian and cyclist network, as well as neighboring recreational areas.	
Landscape	Terraced residential area Ciglane is a continuous megastructure adapted to the topography of the terrain.	
Open and public space	A system of pedestrian streets and squares has been formed within the neighborhood, with variety of micro-ambiances and views to the slopes of the Trebević mountain and city center. The whole neighborhood is well positioned within the sports-recreational and green zone of the city.	current condition: good
Quality of living environment	This area is contextually related to traditional individual housing on slopes. Architectural ensamble of such cascading (mega)form makes the silhouette of Ciglane recognizable.	
Main Features	Flexibility	

RESIDENTIAL AREA

Residential buildings	The authors called their concept 'urbarchitecture' to describe specific megastructure formed by continuous volumes of terraced row buildings.	
No. of buildings	87	
No. max. of floors	9	
Average no. floors	7	
Materials | Fabrication	To provide easy pedestrian access in this steep hill housing district, diagonally moving elevator was installed.	
No. of dwellings	1451	
Average dwe. area	70 m²	
Dwellings' type	one floor	2, 3 rooms
	duplex	
Qualitative issues	Flexibility and adaptability of inner and outer dwelling space. Two sided orientation for some of dwelling units. Crossed ventilation. Variety of views. One to two big terraces per apartment.	
Housing density	Number of dwellings per ha:	91.49

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	This planned housing community was state-financed, state-owned, and it was given to the tenants (middle economy class) for use without paying rent.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** row-housing block	The neighbourhood emerged as a result of strategic social planning and urban planning processes started already in the 60s. It was planned process of mass housing design and construction with national architectural and urban design competition. The site was previously occupied by brick factory.

Ciglane Neighbourhood, Sarajevo

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Housing construction in Yugoslavia (Bosnia and Herzegovina was a constituent republic) was financed by the state, i.e. the socio-political communities of workers defined by the socialist system. The state/working organisation was the owner of the housing. The apartments were allocated for use without paying rent. The planning and design of housing estates had an exclusively top-down perspective.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The neighbourhood is fully functional and lively. However, the facades, installations and materials of the common spaces in the buildings have deteriorated. The energy efficiency of the buildings is at a low level.
Urban | building transformation or regeneration	The neighbourhood did not go through a complete regeneration. Privately owned apartments are renovated individually. Individual transformation (sometimes degradation of the whole) are mostly visible through variety of terrace's closings (since the 90s).
Intervention scale	Buildings
Intervention status details	Individual transformation (sometimes degradation of the whole) are mostly visible through variety of terrace's closings (since the 90s).

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Large Housing Estates Between the Common Good and the Private

The concept of MCMH estates in Bulgaria has shaped not only the skylines of its large cities since the 1950s but also the lifestyles of the generations born in the second half of the 20th century. It still influences the public debate on quality of living and the common good. As a result from four decades of mass housing projects delivered by the socialist state and more than three decades of housing provided by the free real estate market, the apartment living has become a norm for the middle class in Bulgaria. Despite the changes of scale, style, management, access to finance, regulations and construction typology, urban lifestyle in large cities today is predominantly in multi-family buildings. Urban historians in the country have adopted a chronological approach that distinguishes the decades from the second half of 20th century as different periods in architectural and urban planning. Therefore the descriptions in the chapter refer to those periods though with an attempt to generalize the characteristics and processes. The presented case studies refer to three different approaches from three different periods of mass-housing construction. Current priorities and interventions are briefly described while distinguishing new developments and improvements or transformations in existing housing stock.

Introduction: context

The concept of collective housing emerged in Bulgaria at the dawn of 20th century with the introduction of the first examples of mass housing - an iteration of the idea of garden cities – that was homes for workers in large factories or the mines, which to a great extent resembled living in a private house. It was the “construction” of a new society after the country came under the sway of communism after WWII that opened the path for MCMH in Bulgaria. The communist state promoted mass housing, since the 1950s, as an embodiment of the socialist lifestyle. It was this ideology and rapid industrialisation that drove urbanisation and therefore mass housing, rather than a post-war housing shortage, as was the case in many other European states. Though the form, aesthetics and urban scale of the mass-housing estates developed over the decades did change, they share some core characteristics: multifamily apartment buildings, plentiful open green spaces, uniformity of buildings, structures and layouts, and open space masterplans. This type of collective housing has displaced the traditional house in the cities and still dominates the urban lifestyle at city fringes.

A specific feature of mass housing in Bulgaria that distinguishes it from most other CEE (Central and Eastern Europe) countries was the private ownership of homes, even of the apartments in mass-housing estates when they first began to appear. Therefore, the privatisation of housing that was seen in other states never happened in Bulgaria. The private ownership of residential units within the collective forms of housing, with no clearly set frameworks for management and maintenance of the common parts such as the facades, roofs and staircases could be blamed for their deterioration and the buildings themselves over time.

Conversely, the public ownership of land that facilitated the development of large-scale housing estates was later seen as the major reason for the poor condition and low quality of these spaces, due to both a lack of investment in their improvement and maintenance as well as their being prone to vandalism. This discrepancy between the privately-owned apartment and the public ownership of land strengthened the perception of the home as a private fortress. It also deepened the difference between personal responsibility and the feeling of belonging, towards the home and the courtyard.

The changes of the regulatory and planning framework since the beginning of 1990s have imposed a different context for the development of mass housing. The proportion between public and private land has changed too and the focus of development has been placed rather on

privately-owned properties. While the publicly-owned and therefore freely-accessible open and green spaces were prevalent in developments from the previous period, recently-planned and built structures minimise the public space and limit free access to green areas. As a result, the two parallel processes – densification and minimisation of the public space create a new morphology of housing estates that is completely different and even opposite to what came previously in its form-defining principles. The co-existence of the two within residential districts is one of the present-day challenges for planning in large Bulgarian cities.

Historic overview

The post-war context in Bulgaria and the events shaping it are common for the states in CEE that were under the Soviet sphere of influence after the end of the Second World War. The state faced a radical shift in its political, social and economic development that inevitably affected every aspect of life including the arts and culture, architecture and the built environment. Nationalisation of ownership was a key event that shaped urban development and the new housing estates. The introduction of centralised planning and a state monopoly in construction were the leading factors that determined mass housing. According to the priorities of the communist state for a speedy and low-cost provision of a large number of housing units for the rapidly increasing urban population in the cities under fast-pace industrialisation, prefabricated housing structures were widely implemented and an economy of scale through repetition was imposed as a guiding principle.

The development of mass housing in Bulgaria followed a certain timeline closely related to the evolution of the ideas of the socialist state and subsequent to its fall – the state restructuring through the transition period and the evolution of the real estate market. The first two decades after the end of the WWII were a period of adaptation, of an introduction of mass housing and modernist principles of planning. This period was the time when the planning basis for the following urban expansion was laid out. The lasting debate about the aims and objectives of housing policies, between restructuring the existing, worn-out housing fabric and building new housing estates as greenfield developments ended in favour of the latter [Grekov,1968] and the implementation of a microraion (microdistrict) framework. The masterplans also provided comprehensive social and commercial services – a concept that was rooted in the ideology of the socialist state – its goal being a complete and equal response to the needs of its citizens [Tonev, 1971]. Housing estates from the period manifest a total and utter uniformity of building and layout style, where 4 to 5-storey high apartment buildings are set along vast free green spaces to compensate for the increase in density. Although the architectural plans uniformly implemented modernist ideas for healthy living including sunlight, air circulation and functionality, the construction technologies used still followed tradition including brickwork and involved a lot of intense labour. These, among other factors, implied keeping to a moderate scale in terms of building size, total area and planning ambitions. The Zaimov estate (Fig. 1) built at the end of

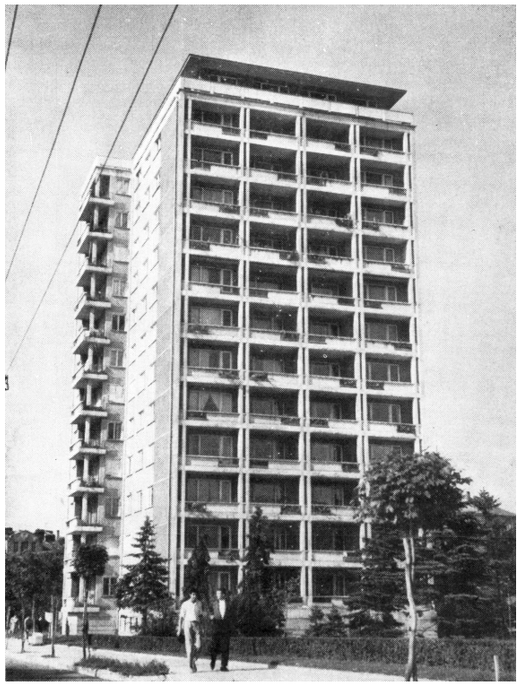

Figure 1

Figure 2

that period is considered the implementation that traced the path of the wider introduction of residential high-rises.

The typical mass housing estates in Bulgaria that introduced the term “complex”, which is widely used for residential areas even today [Zlatinova, 2020] began to appear in the late 1960s. The proportions and total area of the masterplans grew significantly as they included entire new large-scale housing estates - raions (enclosed by major streets and boulevards while providing all necessary social infrastructure and retail services) [Tashev, 1972]. Their main feature was the prefabricated structure of large concrete sections – entire walls and slabs. The first prefab housing estates in Sofia were planned earlier in the decade for 15,000-20,000 inhabitants [Tasheva-Petrova, Dimitrova & Burov, 2020] The largest development planned before 1970 comprised an area of 2 sq. km. and housing for 50,000 residents. Advanced studies on the new structural technologies allowed for the increasing of building heights – 6 to 8 storeys for the predominant typologies and up to 14 storeys for some towers. At the time there was much criticism of the monotony and lack of trees in developments from previous years and so some of the new masterplanners made an effort

Figure 3

to preserve and expand some of the existing greenery.

The 1970s and 80s witnessed the largest expansion of mass-housing estates in Bulgaria in terms of scale, number of dwellings, diversity of layouts, architectural forms and structural planning. The construction of projects based on large-scale master plans from the previous periods continued. The new layouts and architectural plans were still following the principles of “multiplication and uniformity” while aiming at diversifying the morphology of buildings and residential areas, especially concerning the semi-private courtyards of the latter. At the end of the period some experimental concepts of low-rise housing were being implemented but only in the case of small-scale developments as the economic assessment found them costly and ineffective. The priority for funding housing developments was set on the provision of housing and crucial social infrastructures (kindergartens and schools) while shopping and service centers and the design of open and green spaces were to follow. Therefore at the decline of the socialist state some large scale residential areas were still lacking some commercial services.

The 1980s witnessed the most diverse and sophisticated range of housing typologies. Some of the most prominent examples were completed then, although their planning began earlier. Zona B5 housing estate (Fig. 2) represents one of the few examples of the total restructuring of an existing urban fabric in the city centre of Sofia. Its plan was also considered a pilot scheme for the utilisation of underground levels and for the implementation of a greater-density area of residential high rises and slabs of more than 12 floors each.

This period is also the peak of housing construction in Bulgaria. Entirely new urban districts were established as greenfield developments, from scratch. According to planning concepts of the time they were envisaged to provide homes for about 100,000 inhabitants. One of the most well-preserved and therefore better-studied cases is the Trakiya residential district in the city of Plovdiv (Fig. 3). Its design implemented the concept of fractals [Toleva, 2016] and the urban plan aimed at tackling three major challenges: integration within the existing context, avoiding dull silhouettes and providing optimal functionality of flats [Pandjarova, 2022] .

Following the fall of the Iron Curtain and the radical transformations in every sphere of life during the transition period, at the beginning of 1990s the mass construction of housing ground to a halt. The construction sector was among the first to be reformed and revived driven by private sector initiatives but it never reached the previous levels of scale in terms of mass construction. Three key areas – real estate, fiscal and financial policies were the backdrop for the reforms of the housing sector [Tsenkova, 2005]. The typologies of buildings and developments changed accordingly. The restructuring of the existing old and historical housing fabric which had been discussed and discarded at the emergence of the mass housing phenomenon in the 1950s actually started in the 1990s and continues to this day. It was initially focused on market-driven densification and infill developments of the pre-war neighbourhoods where private ownership of land plots were not changed by the communist state, therefore the most widely implemented housing typology during the 1990s was a small-scale multifamily apartment block built on a single plot, formerly occupied by a single-family house.

The present moment and approaches to intervention

Changes in the real estate market and the access to increased funding during the first two decades of the 21st century, especially after 2014, underwrote the planning and implementation of larger housing developments compared to the transition period. The new projects resemble the scale and number of units some of the first ever mass-housing projects. However they are characterized by larger densities, larger building areas and heights and completely different structural and architectural plans reflecting market and financial realities rather than demands for improved quality of living. New residential developments are predominantly concentrated on the urban periphery and in large-scale housing estates, thus utilising the existing infrastructure and the vast open spaces. Some of these changes, facilitated by the lack of effective planning regulations, have negatively impacted on the physical space [Tasheva-Petrova, Dimitrova, Burov & Mutafchiiska, 2021].

During the previous decades the predominant approach to housing was focused on providing new housing in the form of green field development and planning for urban growth. The current trends in construction and real estate as well as urban management and legal requirements set a framework for new approaches and attempt at shifting the focus to the existing housing stock. With the tightening of energy efficiency standards, the major challenges today are the reconstruction and improvement of existing residential fabric, especially multi-family blocks from the peak of mass-housing construction. Dealing with private ownership of flats and co-ownership of common parts appears a hinder to the renovation of facades and structural elements as well as to improving insulation and overall energy consumption. Current state programmes and city initiatives provide funding and support for demonstration projects aiming at renovation and improved insulation. Present energy challenges in Europe also impact these programmes with the introduction of solar panel installations in the programmes.

Another contemporary intervention in large scale residential districts aims at improving the open green spaces. Once being overheated, now they are shadowed by the green canopy formed by the later planted trees. The land is still owned by the municipalities and in line with their goals for improving the quality of public spaces they develop small-scale projects for improving children playgrounds, open-access sports fields and providing new urban furniture as well as introducing nature-base solutions. The recent approach to these projects includes facilitating the participation of local communities and involving the residents in all stages of planning, design and developments of the interventions in the open spaces.

Conclusion/Discussion

The apartment buildings found in large-scale projects from the socialist period provided a new and modern lifestyle for the time, that was radically different from traditional lifestyles in rural areas where the majority of the population used to live before the industrialization and urbanization in the second half of the 20th century. Some researchers have come to the conclusion that the way the socialist government in Bulgaria allowed and stimulated private ownership of flats and homes through financial support programmes could be considered a socialist planning methodology uniquely adapted to the national trait of placing high value on home ownership. This is the most common explanation for the high proportion of privately-owned flats existing at the beginning of the transition period in 1989, compared to most of the other CEE countries [Parusheva & Marcheva, 2010].

The major differences between contemporary and 20th century middle class mass housing refer to master planning – in recent projects we see increased densities, reduced public space and open freely accessible green areas, smaller flats and less attention to microclimate characteristics like sunlight, shadow, natural ventilation and air qualities. The most obvious characteristics distinguishing the large scale mass-housing projects constructed between 1945 and 1990 – the lavish public spaces – are now seen as one of the most positive material legacies of the otherwise authoritarian communist regimes [Hirt 2014. This provides opportunity for comparatively easy responding to the contemporary demands for healthy, green and good quality of living in cities but only if the investment pressure on these areas could be regulated in a way that balances the quality of common good with the private interests.

Bulgaria: Sofia, Plovdiv

Figures

Cover - Playground in the kindergaden in Zona B5, 1980s. Source: © 2023 Спомени от Народната република

Fig. 1 - Zaimov housing estate, high-rise residential building, arch. B. Tomalevski. [Греков, 1968; fig. 51]

Fig. 2 - Zona B5 housing estate. High-density, high-rise housing estate. Source: https://stroiinfo.com/moje-li-zona-b5-da-bade-nasledstvo/ © сп. Архитектура

Fig. 3 - Trakiya residential district. Aerial view. Source: https://lostinplovdiv.com/bg/articles/koi-e-nai-dobriqt-kvartal-za-jiveene-v-grad-plovdiv © 2023 Lostinplovdiv.com

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Zona B5 (Зона Б5)

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The project was planned as a model for transformation of city center area into a high-density high-rise residential are of a high quality. It was intended to create a neighbourhood for the middle class and provided very good social facilities - kindergarten and school. The master plan included all necessary services and a car-free area inside the complex with underground parkings.

Adress/District	Sofia, Zona B5, Alexander Stamboliyski Blvd 101-147		
GPS	42.69806467370603, 23.3059511051533		
Scale of development	District		
Architectural studio	Sofproekt (now Sofiaplan)		
Project author	Vassil Petrov / SOFPROEKT (architectural studio)		
Constructor	Sofstroy		
Landscape author	–		
Period of construction	beginning: 1973	end: 1985	inauguration: 1985

https://stroiinfo.com/moje-li-zona-b5-da-bade-nasledstvo/ © сп. Архитектура

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city core
Other facilities / availability of amenities	Schools / sports / shops / kindergartens / leisure / underground parking	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street).	
Urban Ensemble	Superblock	
	total area:	14 ha
	housing:	70 %
Connectivity | Accessibility	The district is accessible by tram, and by the later finished metroline through one of the major radial boulevards tof the city, it takes 10 min walk to the city center. Recently built shopping mall , sports center and public park are located at the edges of the area.	
Landscape	The high density of the area and the underground parking limited the role of the greenery in the spaces between the buildings. The local park was finished 30 years after the housing complex.	
Open and public space	The spaces between buildings provide lanes for short pedestrian crossings, greenery and playgrounds surrounded by every subrgoup of 2-4 buildings thus resembling the traditional courtyards. Because of the high density it was not possible to completely separate cars, pedestrians, leisure and greenery.	current condition: reasonable
Quality of living environment	The specific architecture (in terms of materials and colours as well as form) and height of the buildings are the main features of its identity. The quality of living has improved through time with the construction of new public park and commercial buildings.	
Main Features	Accessibility	

RESIDENTIAL AREA

Residential buildings	The long slabs are cut by pedestrian tunnels provide short connections between courtyards and to the adjacent streets. The shopping and other servicies located at the first level of some buildings are accessible through a semi-interior gallery. Large entrance vestibules distingush the building typology.	
No. of buildings	16	
No. max. of floors	17	
Average no. floors	14	
Materials | Fabrication	The structural system uses large span formwork that creates the concrete structure. The facade finishes like brick cladding and visible concrete along with the exposed structural and grid elements on the facade are key characteristics of the identity.	
No. of dwellings	4283	
Average dwe. area	–	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	The plans provide minimum nimber of dwellings without cross-ventilation, the building are oriented in a way that all rooms of the flats get natural sunlight for at least few hours a day. At the level of the masterplan the buildings at the outer fringe of the area shelter the internal buildings and courtyards.	
Housing density	Number of dwellings per ha:	306

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The project aimed at the middle class but because of the inconvenience of living in high buildings and the unfinished public services it soon became a ghetto. Now, because of its centrality, accessibility and public services, it is attracting the middle class again.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** block tower	Zona B5 is one of the few examples of high density MCMH with high rises in Bulgaria. Massification was achieved through repetition of plans and industrial production of structural elements. The structural system was developed in Bulgaria and based on German standard and was applied for the first time in this project.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The project was planned and designed by the municipal department Sofiaplan and constructed by the municipal construction company of Sofstroy. It was funded by the municipal programme for housing and was supported by the state government. The project was a representative case study of the new trends in housing construction and planning in Bulgaria.
Name of specific programmes or funding applied	(1) Sofia housing programme (1970s and 1980s)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished / Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The complex is moderately preserved and with a decent quality of maintenance. The facades are partially refurbished with thermal insulation when inhabitants attempt to solve the issues of energy efficiency which is quite low in concrete buildings with exposed concrete on facades. some internal couyards have been recently reconstructed.
Urban | building transformation or regeneration	The regeneration is at a city district level and followed the late 20th century development of public transport (the metroline passes nearby) and the construction of a large shopping mall. The improved accessibility, commercial areas, parks and the convenient location at the fring of the city center attracted the middle class that had left the area in 1990s.
Intervention scale	Open and public spaces / energy efficiency improvements.
Intervention status details	The intervention was not planned in the large scale. the shopping mall was a private development that facilitated the gentrification of the area, but increased the traffic load. The reconstruction of the "courtyards" is implemented incrementally. It is funded by the municipality and improves the quality of the public spaces.

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Trakiya residential district

Bulgaria, Plovdiv

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Trakiya is one of the examples of holistically applied principles of microrayons at the largest scale in Bulgaria. It is still one of the residential districts valued for both the quality of living and the social context of the local community. Untill recently the urban fabric of the residential blocks was very well preserved.

Adress/District	Trakiya district, Plovdiv 4023		
GPS	42.132062, 24.784596		
Scale of development	Urban plan / district		
Project author	Ivan Popov		
Developers or Constructors	–		
Landscape author	–		
Period of construction	beginning: 1973	end: 1983	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / health / market / sports / shops / kindergartens / leisure / religious buildings (built recently)	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street)	
Urban Ensemble	Free-standing objects / free composition / superblock	
	total area:	566 ha
	housing:	40-45 %
Connectivity | Accessibility	The holistic design of the area provided all types of transport accessibility with a very well developed public transport network and major transport streets. Pedestrian paths were passing between the free standing buildings or crossed them throug tunnels. Cycling was not a planning issue at the time.	
Landscape	The major feature of the landscape of the district are the vast open spaces between the buildings and the mix of differents types of buildings, mostly high rises.	
Open and public space	The comprehensive masterplan provided abundant open areas and public spaces as well as areas for public services and facilities. One of the largest urban park is located beside the residential area. The landscaping works in the open spaces were not completed at the inauguration of the area.	current condition: good
Quality of living environment	The vast open spaces and the green public park are the most prominent characteristics of the districts identity. The height of the buildings and some architectural forms are also unique.	
Main Features	Diversity / readability	

RESIDENTIAL AREA

Residential buildings	The long rows of buildings were designed in a free composition aiming to distinguish the estate from the earlier designs with dull and uniform layouts. They were composed of smaller units (sections) with 3-4 flats on every floor. The spatial form is recognizable for the compositions of sections with different height in one block.	
No. of buildings	252	
No. max. of floors	16	
Average no. floors	9	
Materials | Fabrication	Prefabricated concrete elements on the facade and large span formwork for the structure dominate the architectural image of the district.	
No. of dwellings	23000 (aproximately)	
Average dwe. area	86 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	All the buildings were designed with the idea of providing sunlight and cross ventilation. Special attention was paid to the buildings located at the corners of the blocks. The structure and the facade were designed in the most cost effective way as a compensation for the comparatively low density.	
Housing density	Number of dwellings per ha:	40

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The project aimed at providing a high quality of living at the time of its planning and construction. Now it is attractive to the middle class because of the vast and green open spaces and the accessibility of public and commercial servises.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition **Building's typology:** slab block tower	The massification was imbedded in the masterplannig and the coprehensive plan of the city. It was reached through repetition of building typologies (units were called "sections" - a part of thebuilding served with a single staircase). most of the buildings were above 6 storey high and the layout of the groups of the building followed similar principles.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The scale of the project is one of the largest in Bulgaria. It was planned as a green field development intended to host about 100000 people. It was a part of the implementation of the ambitious programme for the industrialization and growth of the city of Plovdiv. The master planning started with a national competition. The project resulted in creating a new city in the city which later was given the status of a separate administrative district.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	Due to the private ownership of flats, some owners have refurbished the facades of their property creating a patchwork facade. These partial interventions are not uncommon in mass housing in Bulgaria. The master plan is still well preserved and the abundant green spaces attract new residents as well as investors and the district is under pressure for densification.
Urban | building transformation or regeneration	There is an incremental and unplanned process of transformation including urban infills at previously open green areas. The district is a subject of studies and gained the attention of the general public since the 2016 festival One Architecture Week when it was the area of small participatory interventions.
Intervention scale	Community improvement / collective green spaces / energy efficiency improvements
Intervention status details	The recent construction of new commercial buildings and other services is considered a positive impact on the entire neighbourhood. The densification with new residential buildings is accepted by the local community as a negative impact on the quality of living. The partial refurbishments of the facades are considered as a negative impact on the architecture although they are improving the energy efficiency.

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Zaimov

Bulgaria, Sofia

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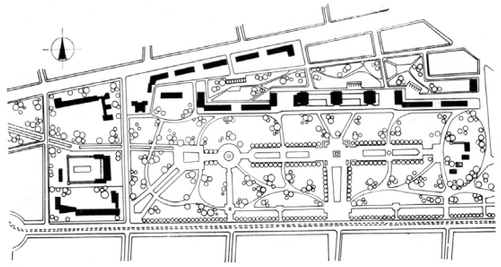
The Zaimov housing estate is a specific example of MCMH that marked the transition period from traditional construction technologies to industrialized ones and from traditional architecture to modernism. It traced the path to residential high-rises and introduced the mixed-use complex which was also reflected in the spatial form – with a ground level housing all services and presenting a "podium" for the residential towers.

Adress/District	50 "Yanko Sakazov" Blvd - Sofia, 1504		
GPS	42.69867488558119, 23.342585433647		
Scale of development	District / building		
Project author	Bogdan Tomalevski		
Developers or Constructors	–		
Landscape author	D. Mushev and others		
Period of construction	beginning: 1956	end: 1958	inauguration: –



Греков [1968; fig. 6, p.11]

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
	Shops / kindergartens / leisure / park / theatre / cultural centre / embassies	
Location - position of buildings	Perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Semi-open block	
	total area:	20 ha
	housing:	35 %
Connectivity | Accessibility	The buildings located in a way that minimizes the noise from the major boulevards nearby and passages in the low building with shops and restaurant provides convenient pedestrian connections. Convenient public transport connections are available.	
Landscape	The residential buildings are located at the periphery of a new urban park - a result of transformation of former military plot. The main axis of the park ends in a theatre designed in 1970.	
Open and public space	The layout of the buildings follows the parallel plan, aligning a public park with elements for leisure, sports and culture. The spaces between the buildings are comparatively small. The ground floor, occupied by leisure, culture and services forms a barrier between the inner open spaces of the neighbourhood and the park.	current condition: excellent
Quality of living environment	The park and the open public areas form the identity and the sense of belonging for the present and former inhabitants.	
Main Features	Combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	There are 4 apartments on each of the 8 floors of the buildings - 3 of them with 2 bedrooms and the other with 3. The staircase is lit from the Northern facade and its is open to a wide access room on every floor.	
No. of buildings	4	
No. max. of floors	13	
Average no. floors	8	
Materials | Fabrication	The structural elements of the buildings include reinforced concrete skeleton and brick walls. At the time prefabricated buildings are still investigated as an opportunity for Bulgaria regarding the seismic risk and the process of introducing the new technology.	
No. of dwellings	148	
Average dwe. area	90 m²	
Dwellings' type	one floor	3, 4 rooms
Qualitative issues	The qualities of the floor plan refer to the compact kitchen semi-connected with the dining room and the functional circulation route between the entrance, kitchen, dining and living rooms. A specific feature is the vestibule plan - where the bedrooms are accessible through the living room.	
Housing density	Number of dwellings per ha:	21

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class: middle-class others**	The buildings were planned as homes for the middle class and a model for socialist housing. Now its central location and the park are the factors that raise the cost of the apartments and they are accessible for high income citizens.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** tower	The project resulted from the planned process of transforming former military site, therefore the densification is massive. The most evident transformation refers to the building heights. There is repetition of apartment plans, of floors and of buildings - 3 buildings with 8 floors and one with 13 floors.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The process is top-down and centrally planned - both as transformation of deteriorated urban site and as provision of a new from of dwelling - e.g. in high rises. With the tallest residential buildings at that time in the country the project demonstrated the potentials of residential high rises for future implementations.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The commercial character of the ground floor levels is preserved and enriched with new typologies. Although the interiors are refurbished some specific names are preserved, like the "Racketa" restaurant. The dwellings are owned by different persons and no holistic renovation or refurbishment is applied yet. Facades of the residential buildings as well as the stone cladding of the ground floor are well preserved with the exceptions of some enclosed balconies and new windows.
Urban | building transformation or regeneration	Current interventions refer to the park and include the reconstruction of the sports area implemented by private investors. The latest project that is under development and is funded under EU programmes is controversial as the emblematic sandstone cladding of the theatre in the park was disassembled in order to install thermal insulation.
Intervention scale	Buildings / open and public spaces / energy efficiency improvements
Intervention status details	The interventions in the open areas - the park and the sports field are considered positive by the local community and the professionals in the fields of urban planning, architecture and architectural history. The project for renewal and insulation of the theatre building faces major criticism by both general public and professionals due to lost identity and quality.

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Croatia

Osijek

Ivana Brkanić Mihić

Dina Stober

Middle class mass housing in Croatia based on the example of the city of Osijek

The beginnings of middle-class mass housing development in Croatia can be traced back to the time when Croatia was part of the Socialist Federal Republic of Yugoslavia and when most multi-family houses were being built for the middle class. This article presents the different development phases of the housing construction model that was supposed to solve the housing shortage and describes the typologies that accompanied this development. Croatia's socio-political transformation and transition to a market economy changed the way of life and influenced the type of housing produced. Providing housing was no longer the state or local authorities' task but the citizens themselves, and over time various financing and co-financing models were developed by banks, local governments, funds and other interested entities. The structure and typology of housing is also changing towards offering higher-quality housing, while the provision of accompanying public services is decreasing. The article presents the genesis of residential areas in the city of Osijek and the changes in the typology of neighborhoods. The critique of middle-class housing is mainly aimed at pointing out the underdeveloped mechanisms for combating the housing shortage and creating affordable housing.

From 1945 to 1991, Croatia was part of the Socialist Federal Republic of Yugoslavia (SFRY) where the ruling communist party focused on accelerating industrialisation and abolishing agrarian society, which resulted in increased migration of the rural population to urban areas (Damjanović, 2006), thus leading to a major housing shortage. Strong industrialisation led to economic growth, which was reflected in the construction of numerous residential areas. It was during this period that most Croatian MCMH neighborhoods were built. Socio-political changes in the 1990s and transition from a socialist to a market system completely changed the neighborhoods planning process, the construction industry, and roles in the planning and construction process.

Housing policies

Most of the Croatian housing stock was built during the socialist regime. According to Tsenkova (2009), the period of socialist housing can be divided into three main periods: the period of construction of the socialist housing system, the period of revolutionary reforms, and the period of the market system. In Croatia, the first period, which lasted until 1960, was characterised by the massive construction of high-quality housing within the existing urban fabric. The second period of socialism was the period of revolutionary reforms. This period was characterised by changes in the choice of measures to address the housing shortage, rational planning, and the reduction of construction costs (Vezilić-Strmo et. al., 2013). Still, these changes unfortunately resulted in small apartments of inferior quality. In the mid-1970s, an attempt to solve the housing deficit problem was made by introducing a negotiated economy (Vezilić-Strmo et. al., 2013), and in 1976, a socially-oriented housing construction model was established. In the negotiated economy an essential part of the allocation of resources is conducted through institutionalized negotiations between decision-making stakeholders in state, organizations and corporations. This model was based on the construction of housing for known residents by self-sufficient communities of interest (Jelinić 1994) and was called the period of "worker self-management of housing construction". Despite all attempts by the socialist party to solve the housing problem, the final period of socialism (1981-1991) was characterised by an increase in inflation and housing prices (Jelinić, 1994) and a persistent housing shortage (Bežovan, 1997).

Of the nine housing programmes developed over the past 25 years, the most well-known and successful was implemented along the state suport– the POS , developed in the late 1990s.

The programme also defined the regulations for the bare minimum of technical conditions for the design and construction of housing from the programme of socially-subsidised housing (Bobovac & Mlinar, 2013), albeit criticised for the programme's weak commitment to social housing (Franić et al., 2005; Marčetić, 2020). This regulation was also applied in the commercial construction of buildings, but not as a technical minimum, but as a technical maximum (e.g. the minimum POS room size is taken as the maximum in commercial construction), which resulted in a large number of unsold apartments that were overpriced and poorly-built.

Today, Croatia is one of the countries with a high level of private home ownership. The transition period was characterised by new housing acquisition, where activity shifted from the state to the residents (Svirčić Gotovac, 2021). According to the 2011 census, 97.3% of housing is privately owned. This turnaround occurred in two stages. From 1991 to 1997, the social housing fund was privatised, while from 1997 to 1999, mechanisms for housing loans were established in collaboration with both privatised commercial banks and state social systems (Marčetić, 2020). The loans stimulated housing construction in completely different ways and with different effects on investors than in the 1990s. Some new standards have been established with the Act on the Fund for the Long-Term Financing of Residential Construction with Government Subsidy (1997). Adequate housing meant a living area with a functional floor area of 30m2, which is increased by 12m2 for each additional family member. A loan from the resources of the Fund for the Long-Term Financing of Residential Construction with Government Subsidy could be used to finance a purchase of real estate: flats and family houses, construction of flats and family houses, reconstruction, renovation and repair of flats and family houses, a purchase of a construction plot without construction or with a partly built construction and public utility connections at the construction plot (Tepuš, 2005).

MCMH in Croatia

The development of housing in the SFRY and in the Socialist Republic of Croatia followed the so-called socialist or Eastern European model (Petrović-Grozdanović et al., 2017). According to the 1963 SFRY Constitution, every resident was guaranteed the right to housing in so-called communal apartments. The apartments were the property of the state, a social organisation or later a union organisation, which the tenant usually received from his employer and for which he paid the minimum rent and had a lifelong right of residence. Until 1991 the state was responsible for all housing: planning, construction, and allocation (Tsenkova, 2009). In an effort to meet the housing needs of a large number of people, housing was mostly designed on the so-called "shelter housing" model (Vezilić-Strmo et. al., 2013). Shelter housing is a type of housing designed without being tailored to a particular demographic, but which can become housing for everyone in an emergency (Rogić 1987). Despite the great efforts invested in housing construction, the entire period of socialism was bogged down by a housing shortage (Bežovan, 1987).

New housing estates were mostly built on the city's outskirts. The mass production of apartment buildings in the socialist period was made possible by the modernisation of the construction industry, partial prefabrication and multiple constructions of the same building type (Brkanić & Atanacković-Jeličić, 2018). The most common type of residential building was a slab, comprising a ground floor and four upper floors, and in most cases, a basement. This type of residential building was initially built due to limitations in construction capacity, but subsequently, it was chosen in order to reduce construction costs, as no lift had to be installed. Apartment buildings from the socialist period are also noted for the existence of common spaces such as laundry rooms, bicycle and baby carriage storage areas, home counselling facilities, roof terraces, and war shelters (Brkanić & Atanacković-Jeličić, 2018). There is also a significant typological difference in housing construction according to the kind of financing mechanism chosen, where the construction of apartment buildings was supported with financing by state planning funds, while the typology resulting from the private construction of single detached and semi-detached family houses was financed with low-cost housing loans from companies in Yugoslavia (Marčetić, 2020).

In the period up to the mid-1980s, almost all planned complete housing developments were built with associated open spaces for recreational and park use and planned service amenities including stores, service amenities and educational infrastructures (Figure 1).

Figure 1

Socio-political changes in the 1990s completely changed the process of housing development planning, the construction industry, and the roles of participants in the planning and construction process. Rapid privatisation took place, and the market and private ownership emerged as new protagonists involved in decision-making. This led to a loss of governmental and architectural and construction expert control over housing and city planning. In the 1990s, housing construction by the entrepreneurial sector came under severe criticism, characterised by the fact that it was built "spottily, often illegally, of low quality and without the participation of architects" (City of Zagreb, 2019, p. 153), for non-residential purposes or against the rules of the city plan, i.e. illegally. In some cases, spatial planning regulations did not adequately satisfy market pressures or did not anticipate market potential, resulting in the destruction of homogeneous urban structures and the creation of morphologically incoherent parts of residential streets and neighborhoods (Njegač et al., 2011). The regulation intended to curtail the emergence of illegal construction did not penalise infractions but allowed and abolished them. In 2018 more than 85% of all legalised buildings were apartments (State of Territory Report, 2020).

Since the 2000s, completely new housing estates have been built in large urban areas such as Za-greb (Mlinar, 2009). As for the quality of housing, a survey was conducted in 2004, which revealed a satisfactory level of technical installations in housing in larger cities (macro-regional centres) and a lower quality of housing in rural settlements (Svirčić Gotovac, 2006). The housing trend follows market needs, but unlike in the previous period, housing is no longer planned in multi-apartment neighborhoods, but in disparate multi-apartment buildings with a heterogeneous apartment organ-ization. According to the data for 2017-2021, the construction of houses (11,641 apartments) is more intensive than that of buildings with 3 or more apartments (4,364 apartments). According to the 2011 census, 62% of apartments were in single-family houses with one apartment, while 37.7% of apartment buildings had 3 or more apartments (Croatian Bureau of Statistics, 2011). Mass hous-ing construction, where entire neighbourhoods are built, has completely disappeared in recent years (Croatian Statistical Office, 2022; Buturac, 2021).

MCMH in Osijek

Osijek is a medium-sized city in the Croatian urban matrix, located in eastern Croatia. It is a regional centre in a rural, agricultural district, and its demographic and consequently urban development took place, as in most Croatian cities, in the 1970s. The first MCMH residential buildings constructed after World War II were built into the unfinished urban environment. This was the chosen approach until the turn of the 1960s, when the construction of larger housing estates began. The first decades of socialism are recognisable for the construction of low-rise slab apartments, built to avoid the installation of lifts and thus to make construction cheaper. In the second half of the 20th century, more than 20 new apartment blocks were built (Figure 2). The first new neighbourhoods to begin construction in the late 1950s were Drvljanik (1957) and Vijenac Ivana Meštrovića (1958). They were built on larger undeveloped lots within the urban area, while most of the neighborhoods built after 1962 were built on undeveloped lots within large city blocks surrounded by single-family homes (Figure 3).

As for different building types, most of the buildings were built as four floor slabs while few areas incorporated tall buildings. In addition to the ground floor apartment, buildings had one to 14 floors and between two to 145 apartments arranged around a central hallway or staircase. Most often there were two to four apartments per floor, or 20 to 30 apartments within the building (Brkanić & Atanacković-Jeličić, 2018). The apartments with large net floor areas typical of the pre-war period were followed by the construction of multiple small apartments in order to solve the problem of housing a large number of families. These apartments often do not have an outdoor area (balcony or loggia). The corridor apartment was the most widespread and popular apartment floor plan from the socialist era and different variants of this apartment are being built to this day. The square footage of apartments began to increase only in the mid-1970s, and the increase in their area led to the division of the apartment into two areas: living area (day zone) and sleeping area (private zone). This division within the floor plan of the apartments comes to the fore in duplex apartments where one of the areas occupies one of the floors, the living areas being on the lower floor, while the private spaces are on the upper floor (Brkanić et. al., 2018). After 1991, corridor apartment eventually evolved into apartments with a central living room.

Today, a large number of residential buildings are in poor condition because the facades and communal parts of the buildings are not being maintained. There has been insufficient investment in the maintenance of the neighborhoods public spaces. Common spaces in the buildings (storage rooms, meeting

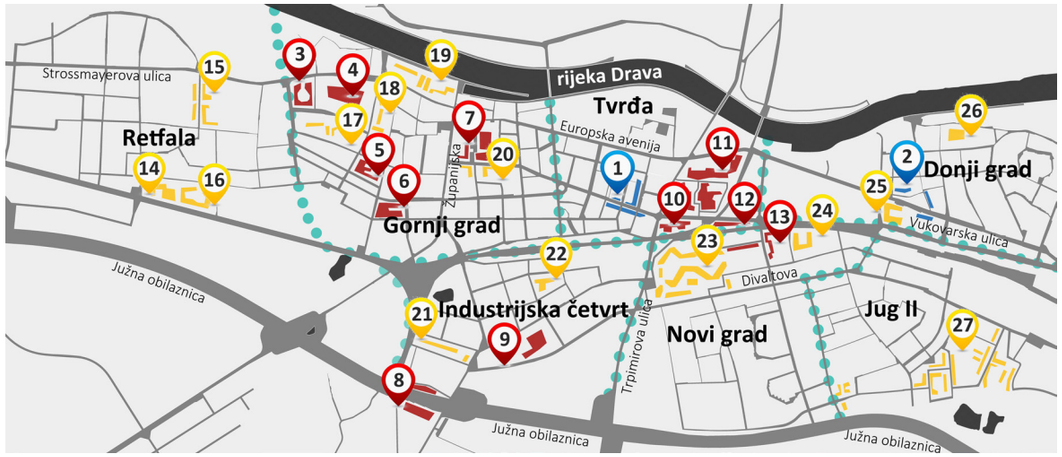

Figure 2

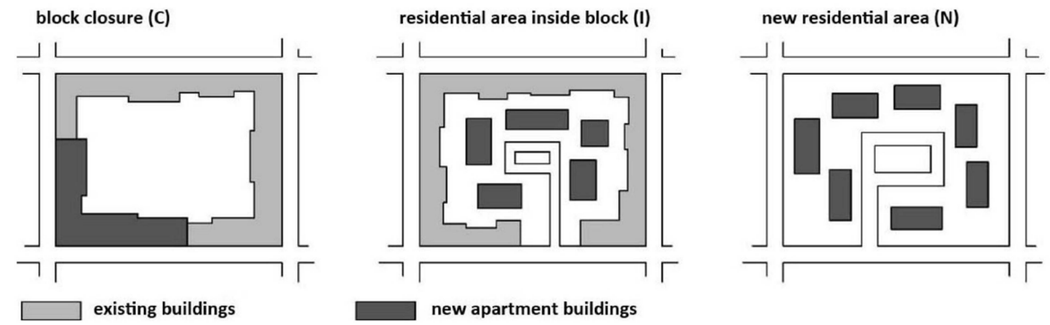

Figure 3

rooms, laundry rooms) and basements have often been converted into apartments, so the building lacks essential facilities that are important for the quality of living. Some of the buildings have been renovated for energy efficiency, but a great majority have not. There is also a need for redevelopment of the apartment buildings' surroundings: the parkland, pedestrian and bicycle paths, children's playgrounds and public amenities within larger residential neighbourhoods.

Conclusion

When we talk about the mass construction of residential buildings in Croatia, this refers to construction typologies developed in the 60s to the 80s of the last century. Integral residential neighbourhoods were designed as self-sufficient parts of the city. These settlement models and architecture with several apartments are still the archetypes of mass housing construction for the middle class. After the establishment of the Republic of Croatia, mass housing construction became rarer, with only a few new neighbourhoods being built in the capital of Croatia and several POS individual buildings or small building clusters. The mass construction of housing estates was replaced by individual residential buildings within the urban area, financed by private capital. Across all the periods discussed here, small apartments are the most widespread. These apartments contain one or two bedrooms and a living room, kitchen, and bathroom. Low-rise prefabricated buildings with small and medium-sized apartments remain the most common form of residential architecture being built. Middle-class housing in Croatia has transformed in line with the changes in socio-political conditions and, consequently, ownership. This change involved, on the one hand, the planning of entire neighbourhoods and, on the other hand, the construction of multi-family houses as middle-class housing, while the architecture shifted from buildings with a smaller number of different housing types to buildings with a greater variety of housing types. Row houses have disappeared from the middle-class housing market, as has the systematic construction of single-apartment buildings. In society, the problem of lack of housing and acceptable forms of housing financing for young families and marginalised groups has arisen. The city of Osijek, the fourth largest in Croatia, is a good example that serves as an overview of middle-class housing and current trends in housing construction. The genesis of the emergence of multi-residential settlements, as well as the transformation of the urban complex of multi-residential settlements in Osijek, has been amply demonstrated through the examples given.

Figures

Cover - Aerial view of Vijenac Ivan Meštrović, ©Ivana Brkanić Mihić, 2014

Fig. 1 - Promenade (architect, Radovan Miščević, 1965) and Elementary school (Vjekoslav Tadija-nović, 1981) in Sjenjak, © Ivana Brkanić Mihić, 2023

Fig. 2 - Residential areas of the city of Osijek: 1 Vukovarska ulica (west), 2 Trg bana Josipa Jelačića, 3 Vijenac Josipa Kozarca, 4 Vijenac Augusta Cesarca, 5 Vijenac Ljube Babića, 6 Naselje Stanka Vraza, 7 Blok centar, 8 Dragonjska and Dravska ulica, 9 Drinska ulica (Umirovljeničko naselje), 10 Drvljanik, 11 Vijenac Ivana Meštrovića, 12 Vukovarska ulica (east), 13 Svačićeva ulica i Ulica Ivana Gorana Ko-vačića, 14 Vijenac Dinare, 15 Ulica Ljudevita Posavskog, 16 Vijenac Petrove gore, 17 Naselje Vladi-mira Nazora, 18 Vijenac Gorana Zobundžije, 19 Gornjodravska obala, 20 Blok centar II, 21 Bosutsko naselje, 22 Vijenac Kraljeve Sutjeske, 23 Sjenjak, 24 Vijenac Ivana Česmičkog, 25 Vijenac Murse, 26 Vijenac Slavka Kolara, 27 Jug II, © Brkanić and Atacković-Jeličić, 2018

Fig. 3 - The method of interpolation of new residential areas within the urban fabric, © Brkanić and Atacković-Jeličić, 2018

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Vijenac Kraljeve Sutjeske

Croatia, Osijek

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Construction of residential settlements within blocks of single-family houses is a peculiarity of the city of Osijek. In the second half of the 20th century, more than 10 settlements were built according to this principle. Vijenac Kraljeve Sutjeske, built in the early 1980s, is a good example of such construction.

Adress/District	Vijenac Kraljeve Sutjeske no. 1-11, Industrijska četvrt, Osijek		
GPS	45.33018, 18.41050		
Scale of development	District		
Architectural studio	“Arhitekt” projektni biro - Osijek		
Project author	Vjekoslav Tadijanović		
Constructor	SSIZ Osijek		
Landscape author	–		
Period of construction	beginning: 1980	end: –	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	market / playground	
Location - position of buildings	Parallel (with a wider façade facing a street).	
Urban Ensemble	Open block	
	total area:	1.2 ha
	housing:	19 %
Connectivity | Accessibility	The development is located within a block of single-family homes. The internal T-shaped street is flanked by sidewalks. The public city bus stop is 450m away.	
Landscape	The buildings are arranged along the street, forming a barrier to the green spaces on the opposite side of the building with tall trees and children’s playgrounds.	
Open and public space	This is a small settlement where there is no public space. The open spaces are mainly backyards of buildings, which should be better equipped and maintained.	current condition: poor needs to improve
Quality of living environment	There are commercial spaces on the ground floors of the buildings that can accommodate various small services (bakery, café, etc.), but most of these spaces are vacant, although there are not many similar establishments in the neighbourhood.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	The buildings have a basement, ground floor, four upper floors and an attic. The single-story apartments are located from the first to the third floor and in some buildings on the ground floor. Duplex apartments are located on the fourth floor and in the attic. The buildings have two or four apartments per floor, arranged around the central staircase.	
No. of buildings	11	
No. max. of floors	7	
Average no. floors	7	
Materials | Fabrication	The basement is made of concrete walls, the walls of the above-ground floors are made of bricks, while the facade walls are made of a combination of common and facade bricks. The ceilings are semi prefabricated and consist of beams and clay infill to which 5 cm of concrete has been applied. The roof is a combination of a 15 cm thick sloped reinforced concrete slab and a flat roof. The staircases are made of reinforced concrete.	
No. of dwellings	144	
Average dwe. area	66 m^2	
Dwellings' type	one floor	2 rooms
	duplex	3, 4 rooms
	studio	–
Qualitative issues	The apartments are equipped with ventilation and central heating.	
Housing density	Number of dwellings per ha:	123

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Buildings of the same floor plan have been built in several other residential areas within the city.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab	The settlement consists of 11 buildings, some of which have the same spatial organization. In total, there are five different types of buildings. Buildings with the same floor plan were erected in several other residential areas in the city of Osijek.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Self-managed housing communities were responsible for the implementation of socially oriented housing. They were responsible for the organization and coordination of all housing activities.
Name of specific programmes or funding applied	Socially oriented housing construction

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	The brick facade is dilapidated, no major investments have been made in the renovation of the building. Some of the commercial space on the first floors has been abandoned. The backyard areas should be better maintained.
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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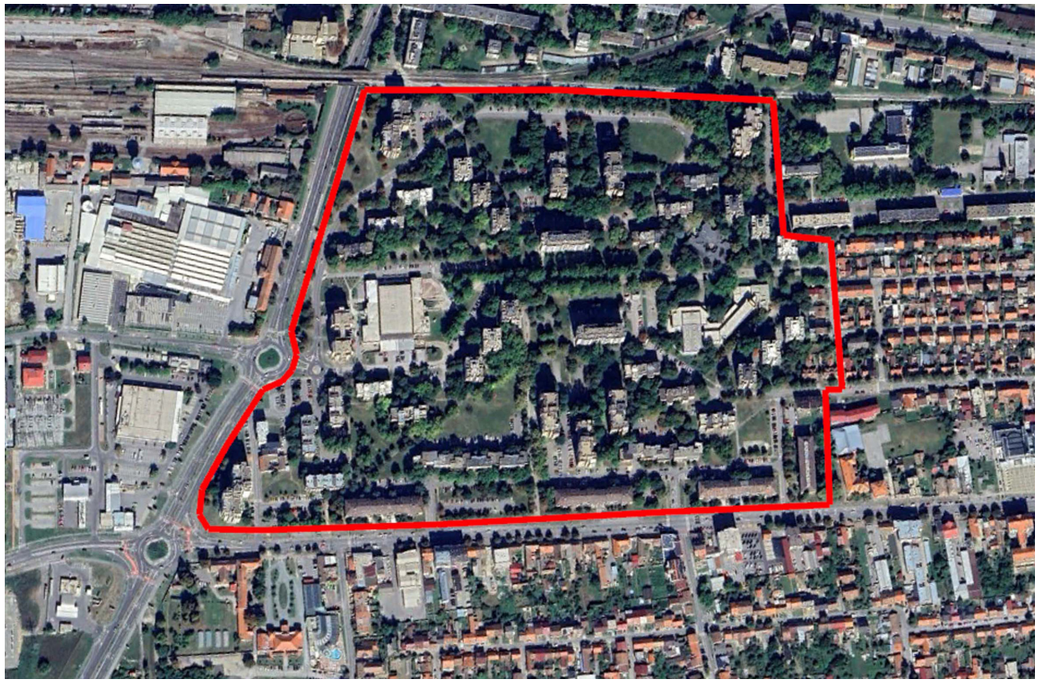
Sjenjak

Croatia, Osijek



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The plan of Sjenjak is of great importance not only for Osijek, but also for Croatian urban planning. The peculiarity of the settlement lies in the separation of traffic from the central pedestrian zone and in the architecture of the residential buildings, whose solutions were determined in an architectural competition in 1968.

Adress/District	Gradska četvrt Sjenjak (City district Sjenjak), Osijek		
GPS	45.33057, 18.41508		
Scale of development	District		
Architectural studio	Urbanistički institut SR Hrvatske		
Project author	Radovan Miščević		
Constructor	Tehnika beton, Vranica and Gradnja		
Landscape author	–		
Period of construction	beginning: 1965	end: 1980s	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / health / market / sports / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Free-standing objects	
	total area:	29.2 ha
	housing:	10 %
Connectivity | Accessibility	The layout of the settlement is characterized by the separation between the peripheral road traffic and the inner pedestrian zone. The residential area is accessible by public transport (tram, bus), and there are bicycle paths along the main promenade and surrounding streets.	
Landscape	Central pedestrian zone, consisting of two perpendicular sidewalks and many smaller footpaths. The buildings are freely laid out and surrounded by high green areas, playgrounds for children and meeting places for adults.	
Open and public space	In the center of the pedestrian zone there is a shopping center (west), a kindergarten (north) and an elementary school (south). There are many open spaces: two perpendicular promenades, children's playgrounds, sports fields and large meadows.	current condition: good
Quality of living environment	The high population density is mitigated by large green spaces and promenades separated from road traffic. These green and open spaces and the pedestrian walkways are the main carriers of the identity of the settlement.	
Main Features	Diversity / readability	

RESIDENTIAL AREA

Residential buildings	The buildings were constructed as towers and slab buildings. The internal communication of the buildings is through the staircase or corridor. The buildings have two to 12 apartments per floor.	
No. of buildings	43	
No. max. of floors	13	
Average no. floors	5	
Materials | Fabrication	The walls are built of brick or reinforced concrete. The ceilings are usually made of monolithic reinforced concrete, as are the staircases. One building is constructed from prefabricated elements of the MS system.	
No. of dwellings	2502	
Average dwe. area	60.5 m²	
Dwellings' type	one floor	2 rooms
	studio	–
Qualitative issues	The apartments are equipped with ventilation and central heating.	
Housing density	Number of dwellings per ha:	85

MIDDLE-CLASS

Original dwellers class: middle-class

High population density, buildings with a large number of apartments.

Current dwellers class: middle-class

MASS HOUSING

Massification through:
planned process
vertical growth

The settlement has 2,500 housing units in more than 40 residential buildings, some of which are up to 13 stories high. Some of the buildings have the same spatial organization. In total, there are 11 different building layouts.

Building's typology:
slab
tower

HOUSING POLICIES

Urban promotion type: public

Housing promotion type: public

Self-managed housing communities were responsible for the implementation of socially oriented housing. They were responsible for organizing and coordinating all housing activities.

Name of specific programmes or funding applied

Socially oriented housing construction.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Public spaces are well preserved and maintained.
Urban | building transformation or regeneration	Some buildings have undergone energy renovation.
Intervention scale	Buildings
Intervention status details	The apartment buildings were distinguished by their yellow brick facades. With the energy renovation, this characteristic element of Sjenjak's visual identity is slowly disappearing.

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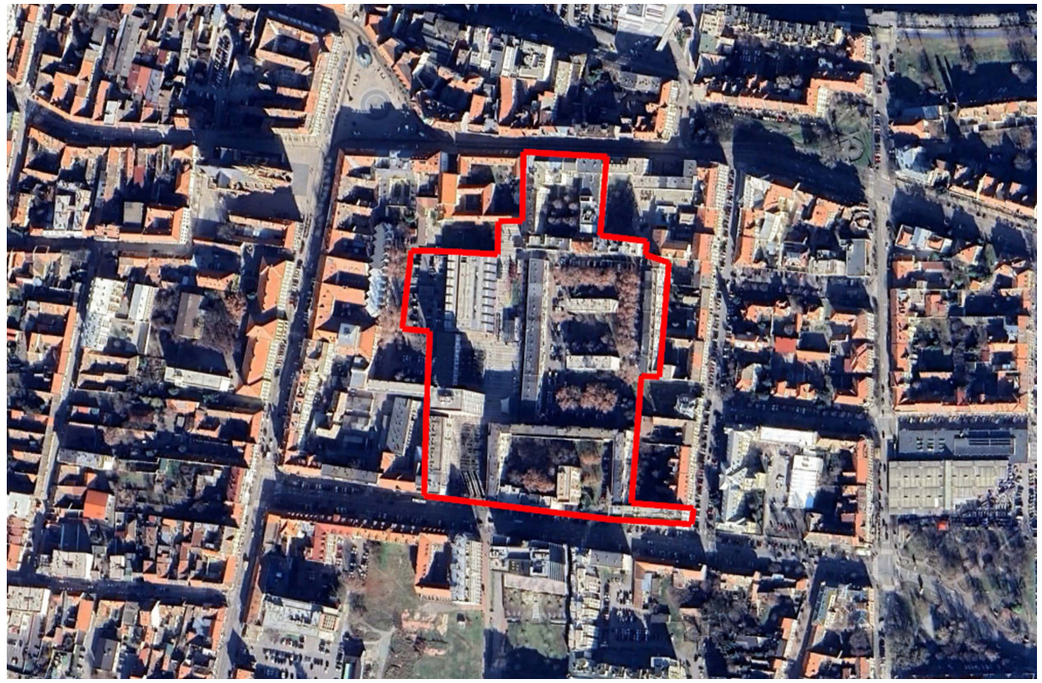
Blok centar

Croatia, Osijek



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The neighbourhood is located in the city center. It was constructed in the 1960s and 1970s and the buildings were investments of large state and local institutions, so the original residents belonged to the middle to upper class definition (socialist political regime environment). The apartments have a larger average area (70 m2) than in other parts of the city.

Adress/District	Trg slobode, Vijenac Paje Kolarića, Vijenac Jakova Gotovca, Blok centar, Osijek		
GPS	45.33343, 18.40428		
Scale of development	District		
Architectural studio	Urban Institute of Republic of Croatia, GP Vranica, Arhitekt d.o.o.		
Project author	Radovan Mišćević, Mirko Premužić.		
Constructors	GP Vranica, Sarajevo; Tehnika beton Osijek / Tehnogradnja		
Landscape author	Utility fund of Osijek Municipality / Komunalni fond općine Osijek Sculptors: Ivan Dumančić | Stjepan Gračan | Vanja Radauš | Koraljka Brebrić, Mirko Buvinić i Maja Furlan Zimmermann | Ante Jurkić		
Period of construction	beginning: 1957	end: 1972	inauguration: 1972

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Shops / leisure / public square / children playground	
Location - position of buildings	Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block	
	total area:	4.6 ha
	housing:	24 %
Connectivity | Accessibility	The residential block in the city centre is planned in an integrated pedestrian area with high urban identity and mixed use. The longitudinal square is equipped with street furniture and green infrastructure.	
Landscape	Green infrastructure is a combination of functional and aestetic greenery - row of trees, lawn, children playground in a park.	
Open and public space	The open space is divided into the public space - pedestrian zone with access to stores, then the green space - aesthetic rows of trees and functional park, as well as the children's playground in the park and the simple lawn. The pedestrian zone and the green space serve as open functional places both at the urban and neighbourhood level.	current condition: good, needs to improve
Quality of living environment	The neighbourhood is a unique urban space, perceived as a whole with a high urban identity. It has been partially renewed in the last 20 years (several buildings and the pedestrian zone), improving the quality of the environment.	
Main Features	Readability / combining different use / high urbanity	

RESIDENTIAL AREA

Residential buildings	There is no purely residential area in this neighbourhood, and about 80% of the second floors are retail spaces. There are several large passageways through elongated residential buildings that integrate the ground floor.	
No. of buildings	27	
No. max. of floors	14	
Average no. floors	5	
Materials | Fabrication	Some of the mass housing buildings were originally coated with ceramics, but the technology was not mature enough, so the facade panels fell off the building. The large shopping center in the center of the district represents steel construction as an earthquake-resistant structure.	
No. of dwellings	429	
Average dwe. area	70 m²	
Dwellings' type	one floor	3 rooms
Qualitative issues	Some buildings have extra big (long) balconies oriented toward public space. Generaly ratio of windows area in wall area provide good insolation.	
Housing density	Number of dwellings per ha:	298

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** others	The buildings constructed in the mid-20th century were investments of large state institutions, so the original residents were middle and upper class. Today, the new residents are those who can afford to remodel these larger apartments.

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** infill slab tower	The construction of the neighbourhood was major urban planning project under the direction of the Urban Institute of Republic of Croatia. The previous urban fabric could be defined as periurban and of low quality. Most of the small residential buildings were removed and the residents were given new apartments on the city fringe.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Prior to the District's planning activities, Yugoslavia (Croatia was a part of it) introduced the Law on Denationalization in 1958. With this law, all private land, houses, apartments and real estate were nationalized and distributed to all citizens. This was followed by the Housing Acts of 1959 and 1974, which introduced regulations and conditions for the purchase of an apartment.
Name of specific programmes or funding applied	(1) Law on housing relations in 1959 and 1974

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Nearly 25% of the buildings and almost 70% of the public space were renovated. The renovation of the buildings was organized by the building group or the building manager with financial subsidies from the state. Buildings were renovated for energy efficiency, with thermal insulation organized for the entire building, but replacement of openings was left to the owners.
Urban | building transformation or regeneration	Nearly 25% of the buildings were renovated. The renovation of the buildings was organized by the building group or the building manager with financial subsidies from the state. Buildings were renovated for energy efficiency, with thermal insulation organized for the entire building, but replacement of openings was left to the owners.
Intervention scale	Buildings / open and public spaces / energy efficiency improvements
Intervention status details	The new public space led to a revitalization of the city centre. Punctual elements such as a children's playground integrated into the pedestrian zone and services such as cafes improved the intensity and liveliness of the outdoor space. The renovated buildings did not lose their identity, as they were rather plain before the renovation.

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Cyprus

Nicosia

Byron Ioannou

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Middle Class self-built housing models in Cyprus

Housing reality in Cyprus does not reflect closely the typical European narrative due to the country's size, peripheral location, colonial past, and the specific socio-political conditions. The aim of the paper is to provide an understanding of the middle-class self-built housing model of Cyprus during the last eighty years. During this time there is an obvious abscess of the public sector involvement in the production of middle-class mass housing except from regulating what appears today as the contemporary urban reality. The extended dispersal of small land ownerships among the population, the favourable economic background of the middle class that allowed easy financing, in conjunction with the loose restrictions on zones within and out of the areas dedicated for settlements expansion, created today's housing development pattern. In parallel the standardisation of a flat plot size to 520 square meters with a strict regulation on the free-standing aspect of buildings, restricts decisively the variety of architectural typologies. More recently the shortcomings of this approach have been recognised by the planning community, especially in terms of sustainability and resilience of this model causing the overconsumption of land, the environmental harm on ecosystems, the loss of fertile agricultural land or the traffic increases and the associated lack for a feasible public transportation system which relies heavily on urban densities. At the same time, a lot of middle-class neighbourhoods retained over long periods of time the notion of incompleteness and emptiness because of many plots remaining undeveloped. Finally, and most importantly most subdivision of development lands does not allow/absorb any intensification trend without compromising key quality aspects.

The paper aims in providing an overview of self-built housing models in the area controlled by the Republic of Cyprus. Sakellaropoulos (2017) sums up the relevant literature on the class structure in Cyprus where he indicates that middle class was defined by several sources, more often by income criteria and includes around 60% of the population. Nevertheless, there is neither consensus among local scholars nor an institutional definition on the definition of a distinct class system. At the same time there is no tradition of the provision of Middle-Class Housing (complexes) through comprehensively developed lands. The only option open is the self-built-housing option by individuals or families on individually purchased plots or obtaining a home through the acquisition of part of small-scale developer-built blocks of flats or rent any of them. Social housing schemes and affordable housing incentives exist but cover a very small portion of the real demand. In these terms, the current Cyprus approach to housing provision differs significantly from most European practices since it does not elaborate on actual MCMH but on the dynamics and pervasive corresponding model of individual housing dominating the island's urban context.

Similarly, to all contemporary urbanities, its shape and character can be traced through the place history. Cyprus is small insular state of the South-Eastern European periphery, were the post war period narrative for its local political and socioeconomic evolution is unique. World Word II did not affect the island in the extend that it did in most European states, while the post war period was not a peaceful one. In this sense the pressure of political and military conflict has to an extend prevented perhaps the development of a central European model of a welfare state, especially in terms of housing provision. At the same time the late urbanisation of the '60s and 70's was shaped by violent population movement, followed by the vast growth of the tourism industry particularly at the coastal towns and the growth of the service sector, initially in the capital city and now across the island.

There are only two exemptions, were the state actively run integrated national housing programs from the stage of planning and design to construction: (i) 14.000 units (Governmental Housing Estates and Self-Housing, 2023) from 1974 to 2000 for the domestic refugees of the Turkish invasion, (ii) 5.000 units by the Cyprus

Figure 1

Land Development Corporation from 1980 to 2019 (Ltd, C.S., no date). Both cases, though it is not somewhere clearly stated, are mainly addressing low income, or working class and not actually middle-class population (Tselika, 2020).

MCMH timeline

The island of Cyprus was under the British colonial rule for the period 1878 to 1960. At beginning of the colonial period, the total population of the Island was 185.630 from which only 16% was living in towns while most of the population was rural. At the beginning of the 20th century urban population was residing in six medieval small towns of an average size from 1.500 to 12.000 inhabitants each and in more than 500 mostly small sized villages. During the first half of the 20th century until the independence of the island in 1960s, middle class emerged together with first urbanisation wave, when urban population reached 35% from a total of 577.000 (Censuses, P.and H., no date). Until 1945 urban population was accommodated within the boundaries of the historic towns (Ioannou, 2019). After WWII the dominant middle-class self-housing model of suburban sprawl development at the outskirts of the existing towns begun to develop. The colonial government supported only the construction of a small number of mass housing complexes for low-income population outside a comprehensively designed policy which could have ensure the continuation of a programme. Self-housing has begun as linear urban expansions, encouraged by the systematically constructed main road axes, and the zoning practices allowing plot parcellation and patchy development in an enormously extended land terrain. This was a very popular practice because it maximised the potential of landowners (a high percentage of the total population) by multiplying the value of green fields, agricultural land or even 'nature'. In this way, the state-supported sprawl together with the island's stable economic growth provided a real estate surplus that mainly funded MC self-housing. According to Haliassos et al (2003) up to 1999 almost 50% of the population has obtained their house as a gift from their middle-class parents.

In occasions, middle class self-built housing was during the first half of the 20th century directed through rough masterplans to specific suburban quarters of the main towns. Gradually, patchy and plot by plot parcellations of land, diffuses the boundaries of built areas with no visible edges of districts or neighbourhoods (Figure 1). These spatial distributions are primarily serviced by private cars where the neighbourhood centre (if any) usually takes the form of a ribbon developed along the main arterial access street through it (Director of Planning, 1959).

In term of the resulting housing urban morphology, options were also limited. Up to the early '90s the typical 520 square meters plot provided three options of self-housing developments (i) one single house, on top of which the next generations could add floors and units, (ii) Two semi-detached units, (iii) fourplexes over two floors. At the same period, multistorey flat buildings, built by developers were designed again within plots of 500-700 square meters and 6 to 15 flats each were rare at the time and referred to only specific social groups (bachelors, seasonal residents etc). Gradually and after the 90s young middleclass households began to be interested in this more affordable solution for their first period of 5-10 years before moving to one of the three earlier noted options above (Ioannou, 2019).

Figure 2 indicates the evolution of self-housing options within the consolidated size of a 520 square meters plot. At the beginning the simple the architectural typology of a 'bungalow' was quickly established creating and an

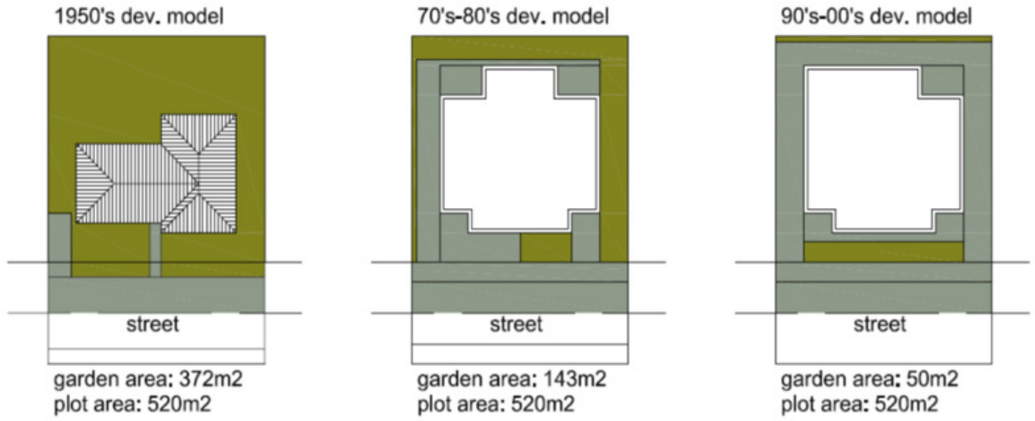

Figure 2

interesting small scale 'garden city' type suburbia dominated by private gardens and green. Later development pressures let to the once more unthoughtful replacement of bungalow housing with more massive structures erroring this way private urban green and garden space (Lianou, Christophinis & Sergides, 2015).

Earlier middle-class housing (in the 1960's) was also characterised by coherence in the design where all units were characterised by tiled roofs and cottage style shape of plan. Private green spaces were large and paved surfaces were limited. Gradually building size expanded, in a more modernist architectural style is established with less green, lots of concrete surfaces spoiling the notion of the early middle-class suburbia. Similarly, to the earlier period the main architectural typologies were (i) one or two levels freestanding single units of an average size of 50 square meters per resident, (ii) semi-detached two-level houses or fourplexes of an average size of 35 square meters per resident, (iii) flats in multistorey buildings with common lobby of an average of 25 square meters per resident. In this sense, the variety of architectural and tenant typologies is still limited and has not diverted much from earlier housing. At the same time the gradual replacement of older units with the developers' multistorey blocks of flats of usually three to six floors height creates a new generation 'homogeneity'. Each building is still free standing were terraced developments with continuous building frontage typologies are not favoured even today.

This urban and architectural morphology of patchy development and unplanned dynamic neighbourhoods deriving from the mid-20th century's colonial philosophy and standards has been totally consolidated in every urban or rural settlement in Cyprus (Ioannides, 2018, Patsavos & Pissourios, 2018). To safeguard the independence of small land ownerships a waste of 25-30% for the construction of public streets is another problematic issue compared to the higher efficiency if plans were comprehensively designed. Patchy street layout design guidelines prioritise at first the beneficial plot parcellation and profit maximisation for the landowner and the easy vehicular mobility before effectiveness, rationalisation of a plan or connectivity to the wider context. Road design practice has also impacted significantly on the random, disconnected, and often non-sensical layout of neighbourhoods and districts. The prevention of cross junctions, as an excuse to avoid road accidents, the dominance of cul de sacs as a tool for reducing the impact of local traffic, the absence of any sense of actual and visual connectivity across neighbourhoods, the lack of landmarks and designed destinations (mix of uses, open spaces) as well as the lack of clarity of the street layout, all harm irreversibly the walkability of the city for particularly suburban and peripheral housing areas (Antoniou et al. 2019).

Figure 3

The minimum standard of the ‘520 square meter’ plot became gradually the ‘norm’ and is regarded as the optimum of middle-class housing. Tailored financial viability models dictate the size of the developments as well as the scale of the capacity of developers, construction industry, and became standard practice and ‘a norm’ even for architectural and engineering firms. The construction and real estate stakeholders adapted to this kind fragmented small scale developments which is financed easier and reduces investment risk (Ioannou, 2019).

These street and plot standards (Figure 1) were supposed to suit a ‘garden city’ idea of green suburbia of 150sq.m. single dwellings. They are now ‘forced’ to accommodate three or four times this capacity within the exact same plan configuration. The individual and isolated character of each development, the absence of building coding, aesthetic control, or basic urban design as well as low rate of the build-up programme of an area (an average 1-2% increase of added built space per year) generates a ‘messy’ character to the overall built environment (Geddes et al, 2020).

The impaired walkability of neighbourhoods or the luck of good ‘space syntax’ principles prevent to an extend the building of new communities, spatial interaction, and the liveliness of the already insufficient public open space (Panayi & Charalambous, 2022).

Case studies

Aglantzia (postal code boundary: 2123, Figure 3) and Kallithea (postal code boundary: 2548, Figure 4) are two case studies in the outskirts of the capital Nicosia, reflecting on our narrative of the middle-class self-built housing in Cyprus.

2123 is a late 20th century suburban relatively affluent quarter of Southern Nicosia which started to develop at the late ‘60s, initially with single free-standing houses which became later attractive to small scale often flatted family developments. The average-built space in square meter per in-habitant is 65. The street network and the neighbourhood layout are at its greater extend com-pleted. There are no small neighbourhood parks since at this early stage there was not a compre-hensive regulation associated with the provision of public space as a part of planning gain. Luckily this neighbourhood is adjacent to the 840 hectares Athalassa National Forest Park which compen-sates to an extend the lack of open space provision. The maximum

allowed net-built density is 90% but is less than half of this built to date. There are in total 382 residential plots from which only 275 are partly developed, where the development rate per year is 1,3% of the total neighbour-hood area depends on the individual initiative of each one of the plot owners.

2548 is an early 21st century quarter at the city fringe at the southwest of the city centre, which started to develop in the ‘90s, initially of single free-standing houses and today also attracting to small family flatted residential buildings. The average built square in meter per inhabitant is 55. The street network and the neighbourhood layout are still incomplete and irregular. There are lots of dispersed very small neighbourhood parks (in the form of left over space) a result of a provision of up to 15% of land for public green. The maximum allowed net-built density is 90% but is less than one third completed to date. There are in total 1002 residential plots from which only 441 are partly developed, where the development rate per year is again 1,3% of the total neighbourhood area and depends on the capacity of the landlords to offer the plots a competitive real estate market. The scattered patches set of green spaces also is a missed opportunity to provide a coherent and useful network of public open space. This is again an indication of the incapability of the central state or local authorities to plan and regulate the accumulation of these lands in a meaningful way as part of continuous green network, a local park, or any kind of substantial active open space. Implications here as in Aglantzia is the apparent absence of an active local community that uses public space as the setting of its sociability.

Both neighbourhoods are suburban, there are not benefitting from any private sector policy scheme and took shape solemnly through private sector involvement and are therefore character-istic samples of the self-built housing model.

Conclusion/Discussion

The Middle Class self-built housing model has been for decades. a practical, flexible and a finan-cially sound way of responding efficiently and with not much effort by the public sector to cov-er the housing needs of middle class in Cyprus, particularly until the end of the 20th century. The unstable political conditions and the uncertainties in the region of the latter half of the 20th century provided a strong legitimacy to this emergency, laissez faire sort of housing provi-sion and planning. Nowadays it is clear that this was not a resilient way of addressing housing needs. Negative implications are numerus i.e. the tremendous overconsumption of land, the environmental negative impact on the peri urban ecosystems, the loss of fertile agricultural land, the subsequent traffic increases, the inability of establishing sufficient public transporta-tion capacity because of low densities etc. are some of the consequences of current practice at a strategic level. At the neighbourhood the model failed to build strong and liveable communi-ties, while the notion of emptiness and incompleteness dominates the urban landscape.

There is an urgent need a more sound and effective densification strategy and masterplans for neighbourhood redesign taking on critical aspects such as mobility, diversification of urban form, reduction of soil sealing the comprehensive organisation of green networks. The full ter-rain of suburban housing needs to reconsider the standard 520 meters square block along with the outdated layout design practices.

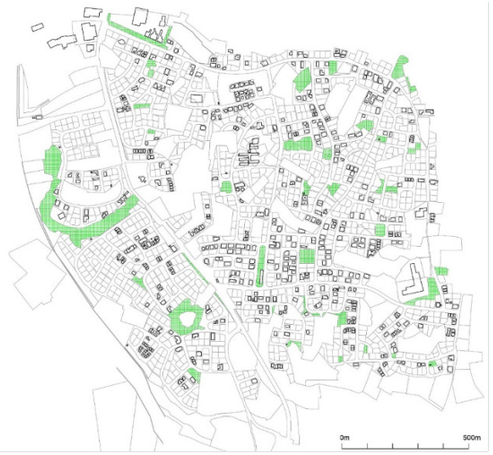

Figure 4

Figures

Cover - Aglantzia, Typical street view (Source: authors' archive)

Fig. 1 - Typical middle-class self-housing neighbourhood layout indicating the year and the boundary of the planning development zones extension over green fields and countryside (Source: authors' archive).

Fig. 2 - Typical development layout for a 520 square meters plot. (Source: author's archive).

Fig. 3 - Aglantzia 2123 layout. (Source: authors' archive).

Fig. 4 - Kallithea 2548 layout. (Source: authors' archive)

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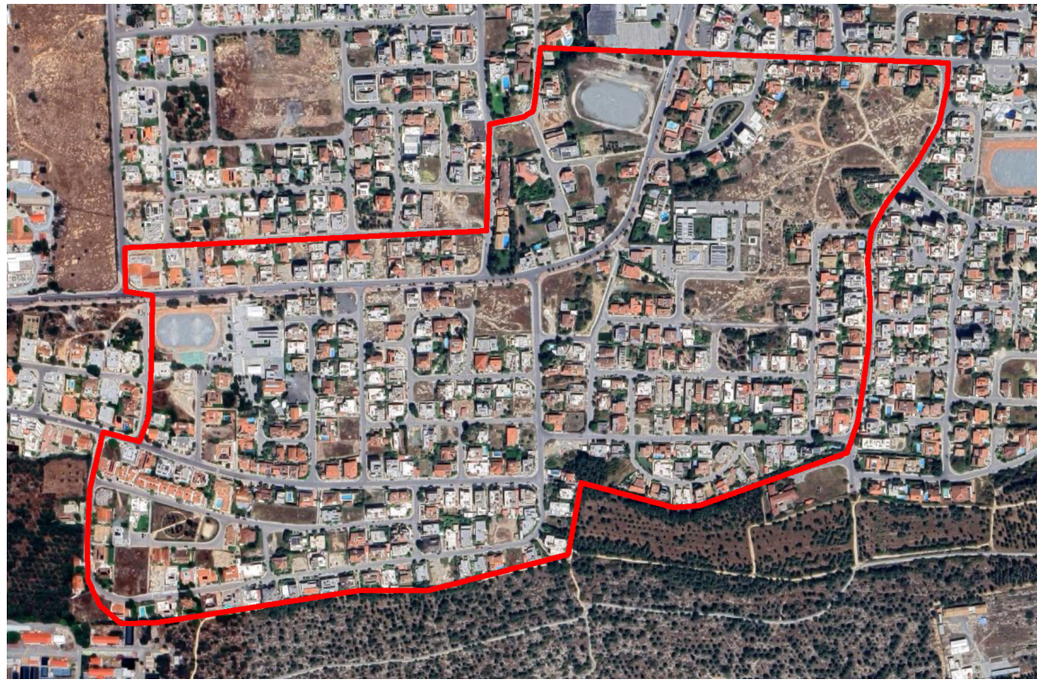
Aglantzia Residential Area

Cyprus, Nicosia



Google Earth Image © 2023 Airbus

Aglantzia is a new 20st century suburb at the city fringe (South Nicosia), constructed by mainly of single freestanding family houses. It is a purely self-housing residential area with an patchy layout with a number of plot (approx 20-30) still remaining undeveloped. The area was designated as a residential planning zone during the late 1960s. Private land parcels were individually subdivided into building plots one by one and under the provision of adequate road access.

Adress/District	Aglantzia, 2123 Nicosia		
GPS	35.143249, 33.385738		
Scale of development	Urban plan		
Project author	Byron Ioannou, Lora Nicolaou.		
Developers	Single plot private developer different for each building		
Landscape author	–		
Period of construction	beginning: 1960s	end: –	inauguration: compleated over time

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URBAN AREA

Location - within in the city	original:		suburbia
	current:		suburbia
Other facilities / availability of amenities	schools / market / shops / religious / kindergartens / the largest park and university facility in Nicosia		
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).		
Urban Ensemble	Villa park / semi-open block		
	total area:		96 ha
	housing:		97 %
Connectivity | Accessibility	Traffic is low since the developments have not reached yet the planned densities, pedestrians are safe to walk in the street but sidewalks. There is no singificant public tranport in general with one under used line passing though the area with a very infriquent time schedule.		
Landscape	Landscape design is limited to neighborhood pocket parks and are of some quality fit often with pay area equipment. Several private gardens have a higher standard of landscape design and contribute singificantly to the greening of the are. The presence of a park (forsest like areas) to the south give a sence of quality to the area with mature green framing a lot of streets.		
Open and public space	Vacant unbuilt plots generate a discontinouing of the buidling frontage and occationally become dumping grounds for tree cutting material and rubish. Local open space consists of 2-3 pocket parks between 500-1000 sqm (relaitvley small).		current condition: good reasonable
Quality of living environment	The sense of belonging and recogintion of the area as a neighourhood is relativley strong with a sence of good quality convyed but the quality of architecture, construction, land-scape design and to an extend the condition of the roads and pavememts.		
Main Features	Small scale, integration		

RESIDENTIAL AREA

Residential buildings	All individual buildings have a buffer of at least 3 meters from the plot boundary and face directly the public road. Interior streets, gallery access, interior patios and collective spaces are extremely limited. Some semi detached houses are smaller and built on the same approximatly 500sqm plots.	
No. of buildings	250	
No. max. of floors	3	
Average no. floors	2	
Materials | Fabrication	Conventional concrete or steel bearing system, brick masonry or light walls. Plaster and light coloring outside. Ceramic tiles, or laminate floorings. Limited prefabrications or core technology materials and structures.	
No. of dwellings	280	
Average dwe. area	150 m^2	
Dwellings' type	one floor	3 rooms
	duplex	2, 3, 4 rooms
Qualitative issues	The sense of the area is of a high quality conveyed by the quality of landscape buidlings and archtiecture. The issues of crossed ventilation, specific solar orientation, thermal insulation, ergonomic solutions, etc. are well secured by the morphology and the scale and the free standing nature of the buildings.	
Housing density	Number of dwellings per ha:	6

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Middle class housing in Cyprus was extensively based on patchy land subdivision and self housing in free standing or semidetached dwellings. During the last decade the same plot type of 520 square meters, used for previously for self housing, is mostly used for apartment buildings by small local developers.

MASS HOUSING

Massification through: planned process unplanned process horizontal growth **Building's typology:** detached house semi-detached house clustered low-rise block	Massification is a process running very slowly. There are quarters starting development in 1960 and they ae still at 50-60% of their capacity. This area is complete by 75-80% which is good rate of massification compared to others. In these terms massification is not achieved in the particular case study. The current density is approximately 10 inhabitants per hectare. the completion of the area is unpredictable since a lot of land in Cyprus is bought as an investment with an unpredictable turnaround timeframe. Semidetached dwellings and gradually some small apartment buildings. The process involved extended soil sealing and urban sprawl.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Middle-class housing is individually funded in Cyprus. There is only financial aid for the descendants of 1974 refugees or spatially designated incentives for rural, mountainous or marginalized areas which is not the rule for urban and suburban areas. this are is purly privately funded.
Name of specific programmes or funding applied	Self funded.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Fully refurbished.
Preservation and maintenance status details	The state of preservation of the building at the level of facades, material safeguard andenhancement, collective spaces, basic infrastructures facilities is good. Many buidlings are recently built but even ones from the 1970s seem to be regularly refurbished.
Urban | building transformation or regeneration	Very little change in this area which is regarded of high value privately owned with permanent population.
Intervention scale	Open and public spaces / energy efficiency improvements
Intervention status details	Slow and gradual massification, a) reveals mobility issues and the lack of public infrastructure for the neighborhood, b) increases the notion of a community notion.

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Denmark

Aarhus

Claus Bech-Danielsen

Mass housing in the Danish welfare state

In Denmark more than 1 million homes were built from 1950 to 1979. Housing constructed in the 1960s and the 1970s alone accounts for 30% of all Danish homes today. Two main types of housing went up in the postwar period: 1) Detached single-family houses and 2) Multi-storey housing blocks. The detached single-family houses are typically privately owned. The multi-storey housing blocks are typically non-profit housing owned by social housing associations. Both housing typologies are typically constructed in suburban areas. Half of the Danish population lives in detached single-family homes, while 20% of Danes live in social housing. This paper focuses on post-war social housing in Denmark. The ideals behind the Danish social housing projects are described as being important objectives of the Danish welfare state. Special mention is made of the architectural ideals and the physical conditions that went into them. However, these areas of social housing have developed numerous problems over the years – and they are today seen as being notoriously disadvantaged. They were once intended for everyone, homes for a social mix including the middle class. Today they have a high concentration of vulnerable residents, and the middle class has long since moved out of them. This led to a political debate on how to regenerate these areas, that is now being implemented. Gellerupparken in Aarhus was the first housing estate to see these changes, and a radical programme of regeneration is now taking place, the overall objective being to reintroduce a varied social mix in the area. It seems to be succeeding, but such physical changes and the developing social mix also come at a price.

Introduction - housing as a means to develop the Danish welfare society

In Denmark housing construction has been an important tool in the development of the Danish welfare society. After WW2 poor housing conditions were a serious problem, and also housing shortages was an issue challenging society. For the Danish Social Democrats, home building became a political imperative. Several laws and bills offering financial support for housing construction were implemented in the postwar period.

Two housing typologies were given financial support in Denmark. One was the detached, small scale, privately-owned single-family home. The government offered cheap loans for the construction of this type of housing

Figure 1

– a scheme established in 1938 that continued until 1958. As a result, the construction of private single-family homes received a significant boost.

The second housing typology was large-scale housing blocks in social housing areas. In Denmark social housing was written into law in 1933. As opposed to many other countries, social housing in Denmark was intended for a broad section of the population, and a lot of middle-class families moved into social housing estates in the postwar period. However, for various reasons that will be described later in this article, the areas have ended up having a high concentration of low-income groups, unemployed immigrant residents, refugees and others just as vulnerable.

Danish Social Housing from the 1950s

At the end of WW2 Denmark had an urgent need for new housing. In 1946 the Danish Ministry of Home Affairs calculated a housing shortage of 50,000 units and claimed that another 150,000 were not suitable for occupation. The need for new housing construction only became exacerbated further in the following decades, as the Danish population grew by approx. 740,000 people - from 3,844,000 in 1940 to 4,585,000 in 1960 (Aarhus University, 2021). Also the housing shortage grew due to the ever-ongoing urbanisation of society, which meant that existing homes were not always located where they were most needed.

In 1945 the government announced that social housing should be prioritised (Kristensen, 2017), and that was certainly what happened: A total of 240,000 units were built in Denmark from 1945 to 1959, and about 120,000 of these were social housing (ibid.). As far back as 1946, a 'Housing Support Act' and a 'Building Support Act' established the financial infrastructure for the construction of more social housing. In the following years and decades, the government increasingly pushed for the development of industrial-scaled building. Industrial construction – through a process of rationalisation and systematisation - was highlighted as the way to create a mass production system for housing populations.

In some social housing areas such as Engstrands Allé in Hvidovre (1954) and Milestedet in Rødovre (1953–1955) multi-storey housing was built using prefabricated concrete materials. However, most of the large-scale social housing estates from the 1950s were still being built in traditional masonry (with some elements e.g. balconies and stairways constructed in concrete).

Danish social housing from the 1950s was typically laid out and designed as park estates. Often, they are designed organically according to the site-specific conditions of the terrain. Topographical fluctuations and hills are integrated into the design to create a spatial interplay between buildings and landscape. The landscaping is developed along fundamental architectural lines, and the outdoor spaces are seen as important to the development of the housing community.

The construction of "healthy homes" is also fundamental to the architectural design. Housing estates from the 1950s are almost always laid out for optimal solar orientation, living rooms facing south/west, and the bedrooms and kitchens north/east (Bech-Danielsen, Bøgh and Østergaard, 2013, p. 18). Only on rare occasions was this not the case, and reasons were duly given. A leaflet to residents on a large-scale social housing estate (Tingbjerg) constructed in 1957 explained:

> The majority of apartment blocks are oriented so that the rooms face east and west, respectively. It is estimated that most residents mainly use their living rooms in the afternoon and evening most of the week and can therefore enjoy the sun the most if they have living rooms facing west. An exception, however, is the housing intended for the old-age pensioners, who are more likely to be home even in the middle of the day. Here the living rooms face directly south.[1]

Danish Social Housing from the 1960s and 1970s

Even though a great amount of housing was built during the 1950s, the housing crisis did not abate: In the early 1960s, the increase in birth rates from the 1940s-onwards led to the need for even more. At the same time the need for new housing grew apace as the average Danish household became smaller. Also mass urbanisation continued and in city districts such as Greater Copenhagen

Figure 2

the population did not stop growing. The need to establish a mass production strategy for housing became increasingly vital, and in the 1960s, industrialised construction methods took over once and for all, replacing traditional craftsmanship. Home building accelerated and reached 50,000 units per year in 1969 (Frost, 2015, p. 23).

Again, it was the politicians of the Danish Welfare State who incentivised the pace of development. Many regulations and legislative changes had been implemented during the 1950s. However, the most important of them all was enacted in 1960. The Parliamentary Industrial Building Act [Montagecirkulæret], as it was called, stipulated that housing projects were entitled to financial support only if they were built using prefabricated (concrete) elements. The Act states:

> Construction with prefabricated building elements and volumes and to thereby achieve maximum efficiency in the number of hours worked and quantities of material spent and, in general, the highest possible productivity. (...) The Act also presupposes that the design of each individual building is organised in such a way that, to the greatest extent possible, it is possible to use series-produced, generally usable building parts provided by continuous industrial production. This requires, for example, that the construction programme is simple to implement, that the design is carried out using modular systems, that there is as much repetition as possible, e.g. by resorting to uniform (standardised and typified) building components, that the chosen floor plans be thought through and applicable to the general area, and that the buildings are given an uncomplicated design.[2]

Industrial Building Act demanded new technical, architectural, and logistical approaches and the development of rational and systematised workflows was to be integral to the design phase. Also, the Act guaranteed construction of at least 7,500 homes. This created an important basis for the investment in standardised construction and the Act as a whole paved the

Figure 3

way for the most significant building boom in Danish history. In the same period – from 1960–1979 - the urban area in Denmark more than doubled, the expansion taking place in the suburbs (Bech-Danielsen, Mechlenborg and Stender, 2018, pp.129-131).

In contrast to the organically designed estates of the 1950s - located on soft rolling terrain and integrated into the local topography - social housing in the 1960s and 1970s was typically designed as cubic blocks laid out on a flat plane. Housing architecture of the 1960s and the 1970s was universalist in design, with few site-specific touches. The optimal site for a housing cluster was a flat field where crane rail tracks for the assembly construction could easily be deployed. Hills and other topographical variants on site were often flattened before construction began – and paths of the landscaped outdoor areas often followed the same layout as the crane tracks. Also common to housing projects from the 1960-1979 period, the outdoor spaces were common areas to be shared by all the residents. In the planning of the outdoor space, safety was an important issue. Separating cars and residents created peaceful conditions for children to play in safety in residential areas. Traffic was thus directed around the housing clusters, and parking located on the periphery. As in the case of Gellerupparken (see the following case study), such traffic separation systems were heavily criticised and revamped in most current regeneration projects in Denmark.

Criticism and problems

The industrialised social housing estates from the post-war era succeeded in alleviating the serious housing shortage of that time. The middle class moved in, and in general they liked what they saw - homes built to a high standard and surrounded by green areas and suburban landscapes that were seen as fine replacements for insalubriously

dense housing areas in the inner city. However, only shortly after building was completed the social housing estates came under increasing criticism, and they were challenged by serious problems:

- Already in the early 1970s many of the social housing associations experienced financial problems. They often had a large supply of huge family apartments, and the units ended up being too expensive in the economic downturn that followed the energy crisis of 1973.
- Soon after, constructional and technical problems arose. For instance, the concrete on the facades became damaged, and the flat roofs started leaking.
- Already in 1976 a report warned that the large scale social housing estates were attracting a high concentration of underprivileged, precarious residents. This became exacerbated in the following decades.
- The estates were designed along the lines of the welfare state's political ideals of equality. Later on, equality as an ideal was replaced by diversity and individualisation. Thus the housing estates appeared samey and oversized.
- In recent years, politicians have criticised the way these areas encouraged the growth of 'parallel societies' where norms and values develop distinct from the community-at-large. Most criticism focused on the dangers of social, and then physical isolation. It became common to fence off border areas and to build infrastructures to direct traffic flows beyond them.

Therefore, social housing estates from the post-war period are struggling with several problems at the same time – problems of very different character. As a whole, the aforementioned challenges have led to what is the most basic and important problem: These estates have becomes demonised and sit at the very bottom of the housing market hierarchy; if you can afford private home-ownership, you will gladly choose elsewhere to live (Bech-Danielsen and Stender, 2017, pp. 14-21). Although Danish social housing was originally meant for a broad section of the population, it has typically become a home to vulnerable residents.

Figure 4

The 2020s – The Parallel Society Act

Since the middle of the 1980s numerous efforts – both physical and social - have been made to improve the large-scale social housing estates of the 1960s and 1970s. Nevertheless, these very areas are still plagued with the same social issues now as they were in the 1980s (Dohlmann et al, 2016, pp.12-25). This was the reason why The Danish Parliament implemented the so-called Parallel Society Act of 2018.

The Parallel Society Act demands radical physical regeneration programmes for 15 disadvantaged housing areas in Denmark. Deciding on the 15 housing areas was based on five socio-economic and cultural criteria describing the residents: 1) a concentration of residents with non-Western background, 2) a concentration of residents with no access to the labour market, 3) a concentration of residents with no education, 4) a concentration of residents with low incomes, and 5) a concentration of residents convicted of crime. Also the scale and degree of self-ownership are factors: Only social housing is covered - and only

areas with more than 1000 residents.

By physical regeneration this means changing these social (and ethnic) conditions. The proportion of social family housing units, which today average 95% in the 15 housing areas, must be reduced to 40%. This can be achieved, for example, by demolishing a certain amount of social family homes, but also by densifying the residential areas e.g. by building new private-owner housing units or new commercial buildings on the estates.

Conclusion

The overall objective of the Parallel Society Act is to create more socially-mixed neighborhoods. Thus, it can be argued that it is a question of rediscovering the original concept behind Danish social housing: The establishing of housing areas meant for a broad section of the population.

At Aalborg University we are studying these physical and social transformations in a major ongoing research project, that will be following the 15 housing areas from 2018-2030. Initial results indicate that their social context will change, in at least in some of the areas. More socially mixed neighbourhoods will be developed, and the areas will be integrated into the urban fabric. However, there is also no doubt, that these results will come at a price. This price is being paid for by vulnerable residents - those that are forced to move out and find new homes due to their old one being demolished. As a result they lose their neighbourhood social network, where they have lived for many years. Politically, you might argue that 'the medicine is working'. However, the symptoms of the medicine are bound to include major side effects.

[1] The author's own translation from: Fsb (1957) Velkommen til Tingbjerg!,p.4.

[2] The author's own translation from: Bertelsen, Bellahøj. Ballerup. Brøndby Strand. 25 år der industrialiserede byggeriet, pp.60–61.

Figures

Cover - © Claus Bech-Danielsen

Fig. 1 - Middle-class mass housing in Denmark has been developed along two lines: Left: Detached single-family homes (privately owned). Right: multi-storey housing blocks (social housing). @ Claus Bech-Danielsen, 2007.

Fig. 2 - Bredalparken in Western Copenhagen was designed according to architectural ideals of the 1950s. The buildings are arranged on soft hilly terrain, and the landscape offers a beautiful spatial interplay between buildinga and landscape. @ Claus Bech-Danielsen, 2015.

Fig. 3 - In Danish social housing estates from the 1960s and the 1970s the housing blocks are constructed using standardized concrete elements. Outdoor spaces typically consist of flat lawns and huge parking areas. @ Michael Varming, 1972.

Fig. 4 - The 15 disadvantaged housing areas where the Parallel Society Act demands a programme of radical physical regeneration. The socio-economic data is very consistent across each area. However, the scales are drastically different. @ Claus Bech-Danielsen, 2020.

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A longer and more unfolded versions of this paper can be found in:

Bech-Danielsen, C. (2022) 'Ideology of the Welfare State in Solidified Concrete of Housing'. In Raahauge, K. M., Lotz, K., Simpson, D. & Søberg, M. (Eds.) *Architectures of Dismantling and Restructuring: Spaces of Danish Welfare, 1970–Present*. Baden: Lars Müller Publishers, pp. 400-411.

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Gellerupparken

Denmark, Aarhus

Google Earth Image © 2023 TerraMetrics

Gellerupparken was constructed in 1968-1972. It is one of the largest non-profit housing areas in Denmark, containing 2.400 housing units. Gellerupparken was originally planned as middle class mass housing. However, the area is now defined a ‘hard ghetto’. This implies that the housing area must be radically transformed by 2030.

Adress/District	Gudrunsvej, Bentesvej, Tinesvej, Jettesvej and Lottesvej, 8220 Brabrand.		
GPS	56.0943, 10.0753		
Scale of development	District / building.		
Architectural studio	Effekt, Tegnestuen Vandkunsten, SLA and more.		
Project author	Claus Bech-Danielsen		
Developers and Constructors	Brabrand Boligforening, Aarhus Kommune, A. Enggård and more.		
Landscape author	–		
Period of construction	beginning: 1968	end: 1972	inauguration: 1972

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kinder-gartens / leisure / municipal offices.	
Location - position of buildings	Perpendicular (with a shorter façade facing a street).	
Urban Ensemble	Free-standing objects	
	total area:	75 ha
	housing:	3.9 %
Connectivity | Accessibility	Gellerupparken has been critizised for being an isolated island in the urban fabric having no traffic in the area. In the ongoing transformation cars and public transport are led through the area.	
Landscape	A new park is designed in the middle of Gellerupparken. A public bicycle path runs through the park, connecting large nature areas north and south of Gellerupparken.	
Open and public space	Gellerupparken are being densified, and thus the open mod-ernist outdoor spaces will be developed into urban spaces, with new functions such as shops, offices and restaurants facing roads and boulevards.	current condition: good
Quality of living environment	In the current transformation Gellerupparken is being devel-oped into different neighborhoods, each with its own individual identity.	
Main Features	Diversity / readability	

RESIDENTIAL AREA

Residential buildings	All flats are functionally furnised and organized. Kitchen and bedrooms typically face north/east, while living rooms face south/west. All homes have access to a large balcony.	
No. of buildings	27 (in 2019)	
No. max. of floors	8	
Average no. floors	6	
Materials | Fabrication	The building from the late 1960s and the early 1970s are all constructed with visible concrete inside as well as outside. New constructions are typically constructed in concrete with traditional bricks in the facades.	
No. of dwellings	2400	
Average dwe. area	80 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
	duplex	–
Qualitative issues	The dwellings are being renovated. In this proces the comfort will be improved, and increased standars on isolation will reduces energy consumption. Many flats have an outstanding view.	
Housing density	Number of dwellings per ha:	0.03

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	Gellerupparken was originally planned as middle class mass housing. Since the 1980s the area has besome more and more socially deprived. Currently private housing (tenure-mix) is introduced to create a social mix.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** block	Gellerupparken's apartment blocks are industialized construction built with elemetns of concrete.Thus, mass production was realised using industrialized construction methods, for instance by laying out long crane tracks to operate by serial production. The same materials were repeated, and the same blocks and flats were repeated. It is thus through simplification and systematization that construction was made more efficient.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public, private	The tranformation is funded by 'Landsbyggefornden' [The National Construction Fund]. The research following the transformation (Claus Bech-Danielsen, Aalborg University) is also funded by 'Landsbyggefornden'.
Name of specific programmes or funding applied	(1) The tranformation is funded by 'Landsbyggefornden'.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	A radical transformation of Gellerupparken is taking place in 2010-2030: - Nine buildings (945 homes) will be demolised (300 homes demolished in 2022) The rest of the buildings will be renovated (two blocks completed.2022).
Urban | building transformation or regeneration	The transformation is seen as urban stratigic planning. It wil include: New private housing, students homes, municapal office buildin (1000 employees), infrastructure, cultural buildings, urban park, sports areas, common areas, new school, instittution et al).
Intervention scale	Neighbourhood / open and public spaces / energy efficiency improvements / buildings / community improvement / collective green spaces / infrastructure.
Intervention status details	The political objective is to improve the urban area aesthetically and socially. The area must be 'normalised'. This seems to succeed. However, some of the original residents pay the price for this.

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Estonia

Tartu, Võsu

Anneli Kährik

Kadri Leetmaa

Middle-class mass housing in Estonia: the case of large housing estates in Tallinn

Large-scale housing estates mainly consisting of prefabricated high-rise blocks of flats erected during the 1960s to the early 1990s were a dominant tendency in the provision of housing in Estonia, especially in urban areas. In Tallinn two thirds of residents live in these kinds of apartment buildings. Such housing typologies were attractive to mixed socio-economic status groups at the time they were initially built, due to high rent subsidies as well as the prevalence of modern conveniences in apartments. Depending on the time of construction, the size of apartments, height and type of buildings, as well as the level of amenities provided in the neighbourhood vary. The socio-ethnic trajectories of housing estates are intertwined with the country's immigration history — specifically, the extensive in-migration flows from Russia, Belorussia and Ukraine during the Soviet era, leading to high ethnic segregation in those mass-constructed areas. As of today, these high-rise housing estates have fallen into disrepair, exacerbating an urgent need for the rehabilitation of buildings as well as increased community resources to reverse the trend of increasing stigmatisation and outflight of wealthier strata from those areas. Urban policies increasingly target these areas. Despite their growing unpopularity, these housing estates still are predominant as a means to provide more affordable housing options.

From the 1960s to the early 1990s, the massive construction of large-scale housing estates (i.e. typical MCMH neighbourhoods in Estonia), took place in urban centres as well as in rural areas in Estonia (Leetmaa et al., 2018; Kährik et al., 2019). Cities became spatially dense and compact (U-shaped) with new extensive areas containing high-rise apartment buildings on the urban outskirts and infills also in the inner city, providing shelter for Soviet, mixed social stratas. The construction of housing estates was seen as the main instrument for the central government to alleviate the acute housing shortage existing in urban areas after WWII. In addition to war damage affecting the housing stock, the housing shortage was further exacerbated by policies fostering fast industrialisation-led urbanisation in Estonia (Tammaru, 2000). Besides the natural increase and local rural–urban migration flows, from the 1960s onwards extensive flows of foreign labour immigrants and their families arrived in Estonian urban areas from the other union republics of the Soviet Union. These flows were mostly incentivised to meet the labour-intensive needs of recently established Soviet industrial enterprises and to boost the ranks of military personnel. Later on, these ethnic groups grew in number as a result of family reunifications and demographic expansion (Tammaru and Kulu, 2003).

Housing policies

After Estonia lost its de facto independence under the Soviet occupation in 1944, the housing tenure composition and foundations for housing allocation changed completely. Existing dwellings were mostly confiscated from the private landlords by the state, and the new buildings erected were state-owned. The state played the main role in housing redistribution. The apartments in mass-housing areas were distributed based on queuing lists managed by state-owned entreprises or local authorities, using priority lists and various allocation criteria (Gentile and Sjöberg, 2006). The pre-WWII housing stock became physically and socially degraded, whereas the newly-built housing estates – with modern facilities and high state rent subsidies – became highly popular among young households and families.

After regaining independence in 1991 Estonia underwent a radical institutional transition from almost fully state-controlled socialist to a highly neoliberal market-oriented system (Tammaru et al., 2016). After the consummation of land and housing privatisation in the 1990s Estonia became a homeowner society (Kährik

and Tammaru, 2010). Only 2% of dwellings in apartment buildings remained publicly owned in Tallinn (overall, 96% of housing became privately owned in Estonia compared to just 36 % prior to the ownership reform) (Kährik and Kõre, 2013). The rate of privatisation in housing estates in Tallinn was near to 100 percent. The flats became owner-occupied without further subsidies from the state for regular maintenance. Apartment owners' associations have been established for the building management who were also supposed to take responsibility in the renovation of buildings.

The evolution of large housing estates in Tallinn

Housing estates were master-planned following the microrayon planning structure. Clusters of neighbouring microrayons formed larger urban districts. Some urban districts in Tallinn consist solely of large-scale apartment buildings.

The first *microrayons* were constructed during the 1950s and 60s in the inner city, followed by the construction of the first panel housing estate on the outskirts. The oldest segments of housing estates consist of five-story buildings with small apartments known as *khruschtschovki* (Fig. 1). On the outskirts more extensive construction took place from the 1970s to the 1990s (Fig. 2). The quality of the apartments improved and the flats were a more suitable size for families of that period. The neighbourhoods of housing estates included pedestrian zones, green areas, social infrastructure (including schools and kindergartens, music schools, youth centres, public libraries), and grocery stores with service infrastructures. A limited number of parking lots were planned near the buildings, while parking garage spaces were planned alongside the residential zones. The densest cluster of housing estate neighbourhoods was built in the Lasnamäe district from the 1980s to the early 1990s (Fig. 2). This newer panel housing district has the most spacious apartments and good connectivity to the city, even if the population density is high (5 to 9-storey buildings). A quarter of residents of Tallinn (i.e., almost 100 thousand inhabitants) live in this district. The district remained unfinished, the full infrastructure - implementing the original master plan – remained uncompleted.

Figure 1

Decent roads linked housing estates to the city centre, that were also well-connected to public transport. The main recreation areas incorporated ample greenery (in some cases with water features). Between the housing blocks there are public green spaces with playgrounds that tend not to be taken care of and have fallen into disuse today. Stadiums with football fields and basketball courts next to schools were often built. Relatively little greenery was permitted around the buildings due to legal restrictions (although in many cases the initial plans foresaw more flowers and greenery than was actually introduced).

Since 2000, new private multi-family building construction has been underway in housing estates (Fig. 3). As the property prices of the units are far above the average for housing estates, these new developments have had an impact also on the existing social structure of housing estates.

After 1991 the built infrastructure in housing estates became subject to certain changes – e.g. private business facilities were added (such as new office spaces, sports facilities), and grocery stores and previous service infrastructures were transformed into large-scale shopping malls which became magnets for attracting local residents. New community-oriented facilities including family medical clinics have been built. Public investments in large housing estates has remained modest, being limited to road repairs, public parks, playground sand sport facilities mainly.

Figure 2

Social and ethnic trajectories in large housing estates

Due to the high immigration rates at the time of the socialist era from 1960 to 1990 housing estates became ethnically segregated – new immigrants needed housing immediately after arrival and they usually were allocated new apartments (Kährik and Tammaru, 2010). The Russian-speaking blue-collar immigrant workers became most concentrated in the district of Lasnamäe. This inherited ethnic segregation has persisted until today (Mägi et al., 2016). Housing estates tend to differ from each other and the rest of the neighbourhoods, also by the age structure of residents as well, which was largely determined by the time the residential buildings were completed. At the time of construction, the prime target group for newly-built state housing was families with children.

Housing estates in general remained socially heterogeneous in Tallinn as the place of residence for the socialist 'middle class' in the main, but consisting of people from all social strata (Kährik and Tammaru, 2010).

Today, residential properties are slightly more affordable in large housing estates located on the outskirts as compared to the inner city. The most affordable prices are in the Lasnamäe district. A quarter of properties on housing estates are used as rental tenures rented out by private landlords.

Housing estates today are characterised by persistent ethnic segregation, continuing to be preferred by Russian speakers (Leetmaa et al., 2015). Estonian speakers are more likely to leave the housing estates (Kährik and Tammaru, 2010; Tammaru et al., 2016; Kalm et al., 2023). As for social progress data, trends reveal a gradual social degradation of housing estates but the situation varies according to neighbourhood – overall, the highest density district Lasnamäe has been most affected of all by middle-class leakage, whereas other districts have retained their middle-class status (Kährik et al., 2019).

Current issues and the reconstruction of buildings

Large-scale housing estates face multifaceted issues today – the buildings are in critical need of renovation, the layout of apartments does not often meet today's families' expectations of what constitutes a modern living space, while overall living conditions are physically and morally degrading. More specific problems mentioned by residents include the lack of greenery, too high densities, and the scarcity of parking places.

State-led housing renovation subsidy programmes have been launced to incentivise energy reduction, financed by the CO2 emissions trading funds. In Estonia, the KredEX funding agency started providing subsidies for energy efficiency improvements in buildings in 2010. The grants covered on average of 25% of the overall expenses, while apartment associations had to acquire the remaining finances from commercial banks. Furthermore, municipal programmes such as 'Repair the facade' and 'Tidy up the

Figure 3

yard' were launched in Tallinn (Leetmaa et al., 2018). Area-based programmes have not yet been implemented in large-scale housing estates offering a comprehensive reconstruction vision for neighbourhoods.

As a result of these measures building-based renovation has taken place (Fig. 4), but the processes of reconstruction are slow. Efforts are initiated by apartment owner associations. Building facades have been refurbished partially, collective spaces and basic infrastructure facilities have also been improved in the case of some buildings. Buildings are being better insulated to achieve energy efficiency, old plumbing systems have been replaced, balconies have been replaced, security doors installed for the staircases, and so on.

Although apartment owner associations were encouraged to apply for subsidies, the complexity of the technical, financial and economic burden of renovations was left to community members to address. Such barriers could be financial, the lack of skills of apartment association leaders, problems with reaching a collective decision among owners, or a strict definition of possible recipients of subsidies in some programmes (Leetmaa et al., 2018). Local authorities had no influence over subsidy handling.

Besides the buildings themselves, the quality of courtyards and green spaces (such as by adding more flowerbeds) has been improved, as have sports and playground facilities, and light traffic roads have been enhanced in some cases. Those regeneration efforts that have been completed have led to better-quality out-door recreation facilities, and an increase in social interaction.

Figure 4

Conclusion

Large-scale housing estates in Tallinn, and elsewhere in Estonia, face critical issues today. On the one hand they function as an important resource for more affordable housing, including rental opportunities, in cities. On the other, the physical and societal decline have negatively affected the popularity of the neighbourhoods, being now selectively attractive to certain population segments such as ethnic minorities, immigrant households and lower-income groups.

Tallinn still has many strongpoints including a high home-ownership rate on housing estates (making owners more responsible and motivated with regards to their upkeep and neighbourhood maintenance), and housing estates are well connected to the city center, while also the level of services and infrastructure available is good. These factors allow for the issues at hand to be tackled somewhat more easily compared to many Western cities.

Without comprehensive reconstruction visions it will be, however, hard to stem the outflow of the middle class from the housing estates. Urban policies should have more targeted area-based action plans to rectify the complex problems of housing estates. Physical restructuring projects could be undertaken to diversify the existing homogeneous urban fabrics. The freshly-built infills could bring in new inhabitants and provide more available housing options for existing middle-class residents to keep the social mix and prevent further middle-class leakage.

Figures

Cover - Lasnamäe district, Tallinn, (© Kährik, A., 2020).

Fig. 1 - Panel housing neighbourhood in the inner city of Tallinn from the 1960s, (© Kährik, A., 2018).

Fig. 2 - High-rise housing estates in Lasnamäe (left) and Õismäe neighbourhoods (right) in Tallinn, (© Kährik, A., 2019).

Fig. 3 - New private multi-family building construction (left) in Lasnamäe district, (© Kährik, A., 2018).

Fig. 4 - Refurbished buildings in Lasnamäe district, (© Kährik, A., 2019).

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Google Earth Image © Maxar Technologies

Housing estate built from 1970s to early 90s, with newer extensionsffrom the post-2000 period. The main building types are prefabricated 5- and 9-storey buildings. Four microdistricts (microrayons) were planned originally but only two of them were finished. Approx. 24,5 tho residents live in Annelinn today.

Adress/District	Kaunase pst, Tartu		
GPS	58.375229, 26.769651		
Scale of development	District		
Project author	Mart Port, Malle Meelak / Helmi Sakkov, Ines Jaagus (technical project author)		
Developers	Developers initiated the new construction projects after 2000.		
Landscape author	Mart Port, Malle Meelak		
Period of construction	beginning: 1971	end: 1990	inauguration: gradual

@ Pastak, 2019

@ TajuRuum, 2019

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	schools / health / market / sports / shops / religious / kinder-gartens / leisure / library	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block	
	total area:	540 ha
	housing:	–
Connectivity | Accessibility	Most of Annelinn has always been very well connected to the city centre and other parts of the city, also by public transport. Only the most remote parts of Annelinn were rather poorly connected to the city centre, but a new ringroad was built in 2010 which helped the accessibility.	
Landscape	Built on the bank of river Emajõgi. The district has curved shape. The district is divided by a major pedestrian arch into a lower part with mostly 5-storey buildings and a higher part with 9-storey buildings. Buildings have been planned in right-angled groups.	
Open and public space	Social and cultural institutions are located in Annelinn, e.g. Music School, Anne Youth Centre and a public library. The main recreation area is Anne canal and its surroundings with lots of greenery. Between the housing blocks there are pocket park size opened spaces that tend to be underused.	current condition: reasonable
Quality of living environment	Little greenery was allowed to plan in the courtyards due to the regulations. The 1st Anne microrayon has more green space in between buildings whereas the 2nd Anne microrayon is densely built with minimum space between houses and greenery. Only 40% of the parking was meant to be in the district.	
Main Features	–	

RESIDENTIAL AREA

Residential buildings	Normally there are no collective spaces inside the residential buildings, there are staircases where the doors of the apartments (4 apartments) open on each floor.	
No. of buildings	–	
No. max. of floors	9	
Average no. floors	5	
Materials | Fabrication	Massively produced prefabricated buildings. Buildings were mostly produced at Tartu Residential Construction Combine.	
No. of dwellings	–	
Average dwe. area	–	
Dwellings' type	one floor	2, 3, 4 rooms
Qualitative issues	Thermic insulation is used during the recent refurbishment of the buildings. In 9-storey buildings there are elevators.	
Housing density	Number of dwellings per ha:	–

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The housing had all contemporary facilities at a time it was built, and the size of new constructed apartments was adequate to the standards at the time. The status of the residents has slightly declined due to new housing that has been built in the outskirts.

MASS HOUSING

Massification through: planned process **Building's typology:** block	The district was densely built compared to the traditional residential standards that existed before (due to planning regulations at the time). Mostly the 5-storey prefabricated panel houses until 1984, after that there were also 9-storey buildings erected. Two sectors were planned per each microdistrict. Each sector has its heavy traffic free central axis that was meant for pedestrians.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public, private	State-led housing renovation subsidy programme (in its current form from 2010) to initiate energy conservation, financed by CO2 emissions trading funds.
Name of specific programmes or funding applied	(1) Renovation grants for apartment buildings.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Building facades are refurbished partially, collective spaces and basic infrastructures facilities are also refurbished in some buildings, and the renovation works are ongoing. Buildings are being better insulated to achieve energy efficiency, replacing old plumbing systems. Renovating balconies using the same type for the whole building. Installing security doors for staircases, etc.
Urban | building transformation or regeneration	Regeneration of public space took place: light traffic road midst the housing district with lightening, sports ground and playground, flowerbeds, sitting places). The regeneration of open spaces led to better out-door recreation facilities, and initiated more social encounters. Big grocery stores have been established. New large public children playgrounds have been built as municipal investment, together with development of green areas, new pedestrian/biking routes, educational infrastructure, sports facilities.
Intervention scale	Neighbourhood / buildings / community improvement / open and public spaces / collective green spaces / energy efficiency improvements
Intervention status details	Interactions affected the community in a positive way: a) the neighbourhood quality improved, b) the landscape improved, c) the community facilities improved.

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Võsu Summerhouse District

Estonia, Võsu

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Alongside with the state-launched campaign of constructing new mass-housing estates, the postwar decades witnessed also the massive spread of small summerhouses close to bigger towns. Võsu summerhouse district is one of the largest examples of freely planned modernist wooden summerhouse areas combining both the ideas of standardization and exclusiveness.

Adress/District	Võsu, Haljala vald, Lääne-Virumaa 45501, Estonia		
GPS	59.573211, 25.949392		
Scale of development	District		
Project author	Elva Kilps		
Constructors	The area was cooperatively owned by the workers of forest management sector and other local enterprises.		
Landscape author	Elva Kilps		
Period of construction	beginning: 1970	end: 1980s	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe, resort town
	current:	city fringe, resort town
Other facilities / availability of amenities	schools / health / sports / shops / kinergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Free-standing objects	
	total area:	17 ha
	housing:	100 %
Connectivity | Accessibility	The summerhouse district is located on the fringe of the small historical resort town close to the Baltic Sea. The district is within the walking or biking distance from the center. As a leisure destination, it is accessed by car and public transport (bus) from the bigger cities.	
Landscape	The cottages are built in the pine forest and the natural setting is the most peculiar characteristic of the area. No fences, gardens or crop cultivation is allowed in the plots and in the area.	
Open and public space	The whole idea of the district is built up on the open landscape with natural not cultivated vegetation.	current condition: excellent
Quality of living environment	All the buildings in the area bear a trademark of dark wooden boarding, white window frames, roof cornices and terrace guard-rails. There are 3 types of cottages – A-frames, flat-roofed with wide cornices and low-gabled roofs.	
Main Features	Readability / natural landscape	

RESIDENTIAL AREA

Residential buildings	Small cottages up to 40 m2 + terrace+finnish sauna are located in the close distance from each other. There are narrow gravel roads/streets in the area.	
No. of buildings	220	
No. max. of floors	1	
Average no. floors	1	
Materials | Fabrication	Wooden structure as well as finishing (boarding) in the exterior and interior.	
No. of dwellings	220	
Average dwe. area	40 m²	
Dwellings' type	one floor	3 rooms
Qualitative issues	–	
Housing density	Number of dwellings per ha:	12/13

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	While the Soviet middle-class is essentially a problematic term, the residents/summer dwellers in the area could be said to have belonged in the upper sector of the middle-class as they worked in key positions in the forest management sector, local hunting society and other local state institutions.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** detached house row-housing	The summer cottages were not industrially produced nor were they standard designs that were used all over the country. There were however 3 types of houses prescribed in the plan of the area the architects had to follow. There are also several so-called local or site-specific standard designs as in some areas of the district all the cottages are built according to the same design thus creating streetscapes and quarters with an unified look.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type: –**	–
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	The buildings are still used for summer dwellings as the buildings are not insulated. Only very few buildings have been transformed into living all year round. Most of the cottages have preserved very well and retained its original materials (or replaced by similar new ones) and appearance. Local municipality recognises the area"s contextual or milieu value.
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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The ‘Grands ensembles’ mass-housing projects in France

The term "mass housing” (‘Grands ensembles’) " first appeared in June 1935 under the pen of town planner Maurice Rotival, in the title of an article published by the magazine L'Architecture d'aujourd'hui, devoted to the collective housing projects built by public authorities with a view to "modernising the suburbs" (Dufaux & Fourcaut, 2004). The aim was to give everyone access to modern comforts (hot and cold running water, central heating, sanitary facilities, lifts, etc.). This concerned both the workers in the working-class suburbs, the residents of insalubrious housing, and the middle classes. The aim is also not to build individual suburban housing (that are designed as “petit bourgeois’) but to organise this fabric for the masses (Magri, 2008).

Today, according to the services of the Ministry of Culture, a large complex is an "urban development comprising several isolated buildings which may be in the form of bars and towers, built on a masterplan constituting a design unit. It can be used for activity and housing and, in this case, comprise several hundred or thousands of dwellings". However, the large-scale complex has no legal definition: it designates an urban form characterised by a grouping of bars and towers in an area subject to zoning rules. Nevertheless, a limit of 500 dwellings is generally kept to insofar as it corresponds to the minimum threshold necessary for the programming of a Priority Urbanisation Zone, according to the 1958 law. We can therefore say that the large housing estate is defined on the basis of five criteria: the break introduced with the old fabric, the form (towers and bars), the size (more than 500 dwellings), the method of financing (state aid) and the globality of the design. In the Paris region, large housing estates are located on the outskirts of the city centre (Dufaux & Fourcaut, 2004).

La Muette, built in 1935 in Drancy by Lods and Beaudouin is the first example of a large-scale housing estate. In the project, it was to consist of a first group of ten parallel comb-shaped bars linked by five fifty-metre-high towers, a second group in the form of a redan, a third group of three U-shaped bars, and finally a fourth group to close them all. However, its ambitions were limited due to the economic crisis. During the Second World War, it was used as an internment camp for Jews. Afterwards, it was occupied by social housing (Bourillon & Pouvreau, 2022).

After the Second World War, in response to the country's huge housing crisis, home building gradually became a national priority (Mengin, 1999). The needs were considerable at the time: out of 14.5 million dwellings, half had no running water, three quarters had no toilets and 90% had no bathroom. There were 350,000 slums, 3 million overcrowded dwellings and a deficit of another 3 million. In addition to this need for housing, there were other arguments in favour of the construction of large mass-housing estates: the avoidance of urban sprawl (extension of the suburbs in the 1930s) (Clerc, 1967).

It's a question of building 320,000 dwellings per year for thirty years, while reviving the building industry in the throes of the housing crisis and while seeing before our very eyes "the horror of thousands of slums". This ambition, disproportionate to the reality of the situation, presupposes slashing costs, which must be achieved by simplifying, standardising and homogenising housing construction for both individual homes and apartment buildings; the cooperation of teams of architects, engineers and contractors, the simplification of building permits, the development of a modern materials industry – these are the prerequisites to make such an ambition reality, as well as ensuring the continuity of programmes over a number of years. This emergency programme leads first to the construction of single dwellings, without amenities, because the first stone has to be laid. As broadly planned by the architects, the addition of amenities is delayed due to a lack of adequate funding (Merlin, 2012).

Most of the large housing estates were therefore built over a period of twenty years, from 1955 to 1975, according to six principles:

Figure 2

pragmatism, massiveness, economy, short time of use, simplification of materials and prefabrication at a time when labour is scarce. In the 1950s, the "skyscrapers" in the centre of Villeurbanne, east of Lyon, announced the social ambitions of the city in favour of the principles of garden cities: hygiene, rationality, aesthetics and economy. Powerful technical, financial and legislative means were mobilised, particularly for social housing.

From 1953 onwards, the Ministry of Reconstruction launched several competition tenders, such as that for the Cité Rotterdam in Strasbourg, which was to include 800 homes. It was won by Eugène Beaudouin who built one of the first large post-war housing estates in 1953. The same year, a new law established a series of measures (called the "Plan Courant") facilitating the construction of housing both from the point of view of land and financing. Another law passed that year also obliged employers to mobilise 1% of their payroll for employee housing.

After 1954, several action plans were developed by the state: priority was given to large-scale collective housing and to prefabricated concrete, as the only solution to solving the lack of housing in France. The determination of the state was accompanied by a hard sell on the part of the Ministry of Reconstruction and Urban Planning. Propagandist films, radio and photographic material aimed to get the population firmly behind the reconstruction policy, for example by showing slums and then the promise of building sites.

Three types of large housing estates built in the 1950s and 1960s can be identified:

- New districts on the outskirts of old towns to rehouse people living in substandard housing in the town centre, or to accommodate people from the surrounding countryside
- Cities created from scratch due to the establishment of industrial activities
- Rehabilitation of old districts, particularly in Paris.

It should be made clear that a large housing estate is not necessarily a social housing estate: it can also be a condominium, as is the case for much of Sarcelles.

At the time of their emergence, urban geographers ferociously debated the capacity for self-determination of these new kinds of urban setting (Fijalkow & Lévy, 2008).

For Pierre George, “The large housing estate constitutes a new and original residential environment, which is characterised first and foremost by its geographical relationship with the previously existing city. It can only be autonomous if its residents have access to commercial and educational facilities, which is not the case. There is also no local labour market. Its residents must therefore travel to other parts of the city to work and shop. It therefore remains very dependent on the 'outside world' represented 'by the rest of the agglomeration, the city, its more or less functionally specialised suburbs'. As a result, the large housing estate cannot reach the 'first degree of autonomy', it remains 'strictly residential' and 'cannot therefore claim the rank of a city in its own right” (George, 1963).

The same arguments are taken up by Jean Bastié, who believes, for the Paris region, that "the large housing estate does not constitute a global urban environment and has no autonomy. For all purchases other than those for one’s daily needs, residents go to an older, established urban centre or to Paris, and even a small amount of the population buys its food further away. For work, they make long journeys with several transfers because the large complex is rarely directly connected to Paris. It is perhaps for the lack of leisure activities that the under-equipping of the large housing estate is most evident, especially in comparison with the Parisian neighbourhoods" (Bastié, 1964).

Finally, for Yves Lacoste, "the large-scale housing estate is largely based on a quantitative criterion, but also on another of (relative) autonomy, the two being closely linked today" (p. 500). Although the inhabitants declare themselves satisfied with their housing, they nevertheless criticise the lack of availability of transport and commercial facilities "because the presence of schools, shops and collective services was not yet considered to be an essential complement to housing". However, "today, this narrow conception of housing, inherited from the individualistic construction of the small residence or the detached house, has given way to a much broader conception which necessarily associates, above a certain threshold, the construction of housing and the provision of essential facilities" (Lacoste, 1963).

These debates were part of a very important critique of the large housing estates from 1963 onwards. The idea of the "sarcellite" refers to the supposed ill-health of the inhabitants of Sarcelles: depression, alcoholism, loneliness, loss of a sense of a life worth living. It is true that the first housing estates, built in a hurry to meet the pressing demand for housing, deteriorated very quickly. Hardships related to transport access are also real.

In 1965, a programme of new towns was launched to break with the insular urbanism of large housing estates. On 21 March 1973, a ministerial circular signed by Olivier Guichard,

Figure 2

Minister of Public Works, Housing and Transport, "aimed at preventing the development of urbanisation forms known as 'large housing estates' and at combating social segregation through housing", prohibited the construction of housing estates of more than 500 units. The construction of large housing estates was effectively abandoned and their image dragged through the mud.

From the beginning of the 1970s, the policy of social mixing between the middle and working classes was deemed by sociologists to be a failure (Chamboredon & Lemaire, 1970). The media denounced 'urban violence': the large housing estates were presented as the new slums.

From the 1980s onwards, neighbourhoods with large housing estates were targeted by a social development policy. At the same time, some high-rise buildings were demolished. With the creation of the National Agency for Urban Renewal (Anru) in 2004, this policy was expanded and accelerated. The state also provides aid for the rehabilitation of large housing estates (Baudin* & Genestier**, 2006).

Today, the urban form of the large housing estate - which was supposed to be the crucible of a new, more egalitarian society - polarises social tensions.

Figures

Cover - © A. MacLean / Landslides Arial Photography, "Tours Nuages, Nanterre (92)," 2010.

Fig. 1 - Aerial view of Courtillières with its original colors, 1971 ©E.C.P.A.D/ la Documentation Française/ Interphotothèque Photo: SODFL Michel Brigaud, Architecte: Émile AILLAUD.

Fig. 2 - Pantin, rue Méhul, Saine Saint Denis. ©AN.

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Gaston-Roulaud housing estate

France, Drancy

Google Earth Image © Landsat / Copernicus

The Gaston-Roulaud housing estate in Drancy was designed and built by Marcel Lods and André Malizard between 1954 and 1963 for the municipal OPHLM. The district consists of a tower and four bars, totalling 803 dwellings, a gymnasium and a crèche set in the heart of a vast outdoor space. Nearby there is a school, a youth centre-conservatory-covered market and shops.

Adress/District	Cité Gaston Roulaud, 93700 Drancy		
GPS	48.545888, 2.26134		
Scale of development	District		
Project author	Marcel Lods, André Malizard		
Developer	OPHLM of the city of Drancy		
Landscape author	–		
Period of construction	beginning: 1954	end: 1962	inauguration: 1963

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© Clara Sandrini

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / market / sports / shops / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Perimeter block	
	total area:	8 ha
	housing:	65 %
Connectivity | Accessibility	The housing estate is located on the outskirts of the town of Drancy. It is served by a motorway and numerous bus routes. Today, it is served by the tramway and soon by the new metro line 15.	
Landscape	The design of the large complex is laid out around a large garden, with tall trees and lots of vegetation.	
Open and public space	The central area is well laid out. It serves the various facilities. The public space surrounding the Gaston Roulaud housing estate is still in good condition.	current condition: reasonable
Quality of living environment	The buildings are characteristic of Marcel Lods' work on prefabrication in concrete. They are in very good condition and the inhabitants appreciate their interior and exterior spaces.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	The project is laid out around a central green space. The buildings have small stairwells and lifts. Each unit has a balcony overlooking the interior space or the street.	
No. of buildings	5	
No. max. of floors	8	
Average no. floors	–	
Materials | Fabrication	The buildings are constructed from prefabricated concrete made on site. The interiors are in good condition, with single orientation housing.	
No. of dwellings	803	
Average dwe. area	50 m²	
Dwellings' type	one floor	4 rooms
Qualitative issues	The accommodation was large for the time of construction. They offer a pleasant setting.	
Housing density	Number of dwellings per ha:	100.3

MIDDLE-CLASS

Original dwellers class: middle class	The Gaston-Roulaud housing estate includes a building for home ownership.
Current dwellers class: middle class	

MASS HOUSING

Massification through: planned process	The project was developed in response to the housing crisis. It is part of the PADOG: the master plan for the general organisation of the Paris region.
Building's typology: block	

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Social housing programm for middle and popular classes cleed HLM.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The Gaston Roulaud housing estate has been the subject of a diagnosis which shows that it is in good condition and that the inhabitants appreciate their spaces, even if they find the accommodation too small.
Urban | building transformation or regeneration	The urban renewal project includes the complete destruction of the Gaston Roulaud housing estate. It is planned to use reuse in the development of public spaces.
Intervention scale	Neighbourhood
Intervention status details	All the dwellings will be demolished to make way for new housing, close to the future station of the metro line 15.

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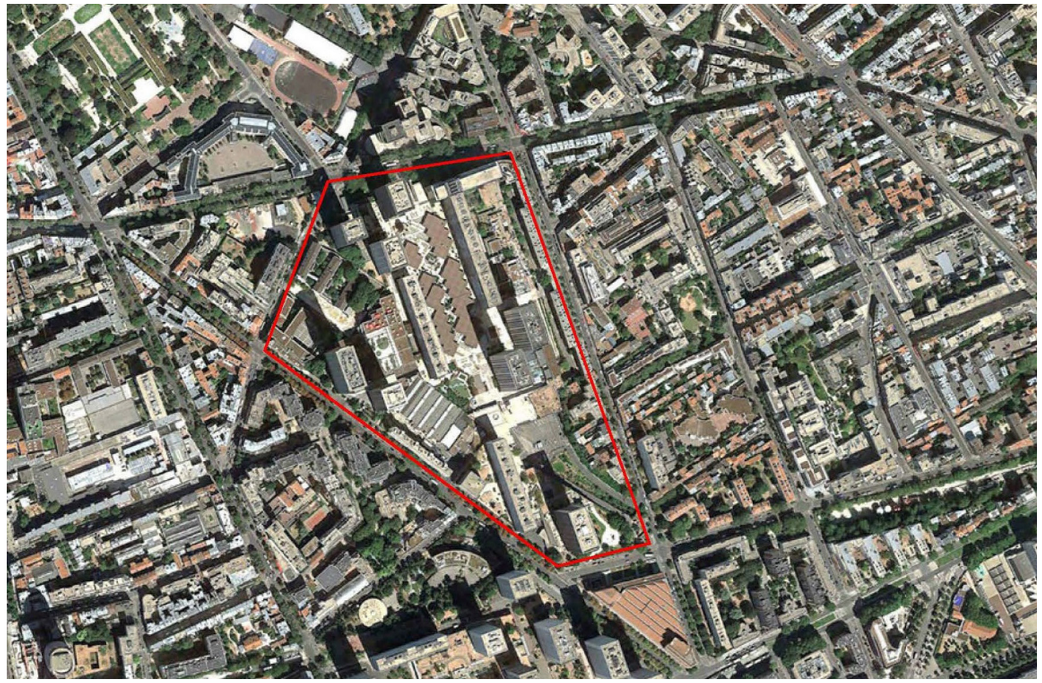
Olympiades, Paris, 13e

France, Paris



Google Earth Image © Landsat / Copernicus

This complex includes eight condominium towers and three low-cost housing buildings in the form of bars as well as shops and offices. There are also public facilities, such as the Stadium, the Olympiades nursery school and the Javelot municipal creche.

Adress/District	Rue de Tolbiac, Avenue d'Ivry Paris 13		
GPS	48.492693, 2.215651		
Scale of development	District		
Architectural studio	Michel Holley		
Project author	Michel Holley, Raymond Lopez		
Developer	City of Paris OPHLM. Rothschild bank		
Landscape author	–		
Period of construction	beginning: 1967	end: 1972	inauguration: –

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Perimeter block	
	total area:	10 ha
	housing:	6 %
Connectivity | Accessibility	The area is well connected to the metro station, which was installed around ten years ago, and several bus routes, not to mention cycle lanes.	
Landscape	This is a landscape of 8 to 32 storey high buildings, on a concrete slab overhanging a ground floor used for car parking and commercial storage.	
Open and public space	The slab is a place where all generations can meet and stroll, either on their way to school or on their way to a leisure facility. Younger people can cycle on the slab or enjoy a new public garden. The slab is jointly owned by all the buildings.	current condition: reasonable
Quality of living environment	Good quality public, commercial and transport facilities. Residents complain that the area is too mineral in appearance, and that the density of housing leads to noise pollution.	
Main Features	Diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	All the towers are derived from a single module of dimensions 600 × 600 cm, assembled 4 by 4 in a row. This single module is found in the fa9ade by the use of prefabricated sandblasted reinforced concrete panels.	
No. of buildings	20	
No. max. of floors	30	
Average no. floors	12	
Materials | Fabrication	–	
No. of dwellings	3200	
Average dwe. area	50 m²	
Dwellings' type	one floor	4 rooms
Qualitative issues	The accommodation was large for the time of construction. They offer a pleasant setting.	
Housing density	Number of dwellings per ha:	320

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	This tower is located in the Olympiades district, a sector resulting from the urban renewal process launched after the war to deal with insalubrious blocks. It took the name of Operation Italy to mark its architectural and urban modernity.

MASS HOUSING

Massification through: vertical growth **Building's typology:** slab block tower	At the time, the implementation of a concrete slab, bars and towers in the old housing fabric of the 13th arrondissement raised local opposition. This no doubt explains why the Olympiades project is presented as a "village in the city," well equipped with commercial and leisure facilities and equipment. As with the new towns project, which responded to the criticism of the large housing projects, the narrative of the future of the Olympiades project promised a community life in the shadow of the towers. The architect Michel Holley defended this inclusive modernity.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Social housing program for middle and popular classes HLM.
Name of specific programmes or funding applied	(1) Urban renewal operation of the 13th arrondissment

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PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The towers have been designated as 20th century heritage labels and rehabilitation work is underway (2022).
Urban | building transformation or regeneration	–
Intervention scale	Neighbourhood
Intervention status details	The construction of the Olympiades in 1972 is an important element of the city of Paris. It was the result of an original real estate collaboration between the SNCF, owner of 8 of the 10 hectares, and the Rothschild Bank. It marks the emergence of marketing by property developers, the organisation of residents into defence associations, and the first challenges to high-rise urban olanning.

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Tour Borel, Paris, 17e

France, Paris

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The Borel Tower was built as part of the urbanization of the north of the 17th and 18th arrondissements of Paris, following a property survey conducted by Raymond Lopez. Located near the circular ring at the Porte de Saint-Ouen exit, the building contained 96 social housing units, over 16 floors, to more than 200 people. This building is representative of the architecture of the post-war reconstruction.

Adress/District	Rue Borel, Paris 17e		
GPS	48.899705, 2.322484		
Scale of development	Urban plan		
Project author	Raymond Lopez		
Constructor	City of Paris OPHLM		
Landscape author	n/a		
Period of construction	beginning: 1957	end: 1963	inauguration: –

Barre Emile Borel. © Noobax, July, 2013

Tour Bois-le-Prêtre Paris. © Frédéric Drouot architecte

URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Schools / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Perimeter block	
	total area:	10 ha
	housing:	40 %
Connectivity | Accessibility	It's well deserved by public transports, at ten minutes by feet to the site. It is easier to travel to the center of Paris from this site, than travel to the suburb that is just in a few meters in front of the building.	
Landscape	The landscape is that of a French suburb, with towers, bars, green leisure areas and highways against a backdrop of greyness. The surrounding area includes all the facilities that central Paris doesn't want: a car pound, a public bus garage, a mortuary and a cemetery.	
Open and public space	The building is on a large open space aera, cimetery include. It is locate near sports ground (football essentially). Except green spaces, commercial mall center is far. A few meters around de buildings, we will find public and private schools.	current condition: reasonable
Quality of living environment	The tower is located in a peripheral district of Paris, with no shops and no transport links. It is close to the ring road and is therefore subject to air and noise pollution. However, the building is surrounded by green spaces and sports facilities.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	–	
No. of buildings	20	
No. max. of floors	15	
Average no. floors	8	
Materials | Fabrication	Raymond Lopez with Eugène Beaudouin, used an industrial construction system developed during the reconstruction after the Second World War. It is composed of prefabricated elements assembled on a standardised framework of 16 cm thick concrete walls and 26 cm thick concrete floors for a 7.20 m.	
No. of dwellings	200	
Average dwe. area	50 m²	
Dwellings' type	one floor	4 rooms
Qualitative issues	The accommodation was large for the time of construction. They offer a pleasant setting.	
Housing density	Number of dwellings per ha:	20

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	Social rental housing including middle classes.

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** slab block tower	The building's layout follows the principles of architectural modernism of towers and bars, built on a "free plan" on formerly industrial land. The density is high as the tower includes a high proportion of family housing.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Social housing program for middle and popular classes HLM. The renovation of this tower block (20059 has shown that it is possible to restructure large housing estates without demolition/reconstruction, a cycle that involves additional costs and the relocation of inhabitants.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	As part of the significant Porte Pouchet project, started in 2003, it was decided to demolish this tower. Its location too close to the Périphérique made it impossible to rehabilitate it sustainably, like the neighbouring Bois-le-Prêtre tower.
Urban | building transformation or regeneration	The tower was renovated in 1990 by the TECTEAM technical design office, as part of the campaign to bring it up to standard and renovate it undertaken by the OPAC. This work campaign included: external insulation, heating, facade repairs, etc. The 80-unit Borel tower was demolished (2003) and the 50-unit bar was rehabilitated.
Intervention scale	Neighbourhood
Intervention status details	Usually, residential buildings built in the 1960s and obsolete in terms of design and insulation are demolished. However, as part of the urban renewal project in Porte Pouchet (Paris, 17th), a tower of 100 social housing units was completely rehabilitated, in the presence of its inhabitants with the wining team: Frédéric Druot, Anne Lacaton and Jean-Philippe Vassal.

Author	Yankel Fijalkow	CNRS-National Centre for Scientific Research, Paris

Emile-Dubois-La Maladrerie

France, Auberviliers

Google Earth Image © Landsat / Copernicus

The Maladrerie's specificity lies in its historical significance, innovative urban design, integration with the surrounding landscape, and its focus on providing quality housing for the middle-class population in part through the private green spaces offered to all dwellings, and the unicity of each dwelling.

Adress/District	5 Allée Georges Braque 93300, Aubervilliers (FRA)		
GPS	48.914493, 2.396202		
Scale of development	District		
Architectural studio	Renée Gailhoustet architectes		
Project author	Renée Gailhoustet		
Constructor	OPHLM, Sodédat 93, ODHLM, Logirep, SA Coopérer et habiter		
Landscape author	Magda Thomsen, Yves et Luc Euvremer, Katherine Fiumani, Vincent Fidon, Gilles Jacquemot		
Period of construction	beginning: 1971	end: 1975	inauguration: 1986

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	satelite city fringe
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure / artist studios / architecture firm	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Villa park	
	total area:	4.5 ha
	housing:	– %
Connectivity | Accessibility	The Maladrerie fosters a car-free environment, prioritizing pedestrians and cyclists. It features an extensive network of pedestrian walks and promenades through the green spaces that surrond the buildings.	
Landscape	Landscape and greenery play a major role in the case of the maladrerie because a key element is that every dwelling has a private garden that can be planted.	
Open and public space	The organic shapes of the buidings create interesting outside spaces : a multitude of more intimate alcoves are connected through a network of promenades and more open green spaces.	current condition: good
Quality of living environment	–	
Main Features	Diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	The particularity of this project is that there is no division between the public space and the common spaces of the building. The interior gardens communicate with all the exterior networks of the private plots.	
No. of buildings	–	
No. max. of floors	–	
Average no. floors	–	
Materials | Fabrication	The main material of the entire building is raw concrete. Both the structure and all the exterior walls. The only enclosed space is the entrance hall of each building, everything else can be walked around without restrictions.	
No. of dwellings	1004	
Average dwe. area	150 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
	duplex	3, 4 rooms
Qualitative issues		
Housing density	Number of dwellings per ha:	223.1

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** –	There is a middle-class segment in home-ownership and the majority in social housing, which is subject to allocation rules. There is no evidence of impoverishment or gentrification.

MASS HOUSING

Massification through: planned process **Building's typology:** clustered low-rise mat-housing	The Maladrerie was built on a a former unsanitary housing district resembling a slum, the architect arranged a series of triangular volumes by working with models, this resulted in a proliferation of triangular shapes where every façade and every dwelling is different.

HOUSING POLICIES

Urban promotion type: public public-private partnership **Housing promotion type:** public public-private partnership	1,004 rental units, 53 for migrant workers, 52 for the elderly (foyer Soleil) and 51 home-ownership units
Name of specific programmes or funding applied	(1) Sites in QPV, Quartier Prioritaire de la Ville (Priority urban district) (2) - NPNRU (New National Urban Renewal Program)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	In 2008, through the DRAC d'Île-de-France, the French Ministry of Culture awarded the building the "Patrimoine du XXe siècle" and "Architecture contemporaine remarquable" labels.
Urban | building transformation or regeneration	One of the subjects currently being evaluated is "residentialization", which aims to close off the open spaces of the housing estate to isolate the buildings from each other. Above all, by closing off these areas, residentialisation helps to reduce maintenance costs over time.
Intervention scale	Neighbourhood / buildings / open and public spaces / collective green spaces / energy efficiency improvements
Intervention status details	This will involve major work on social and private housing, new construction. The municipality is also planning the demolition-reconstruction of several buildings, the treatment of parking lots at the foot of the buildings and the creation of new public facilities ("cultural and civic hub", structure dedicated to young children, school).

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	Yaneira Wilson	CNRS-National Centre for Scientific Research, Paris

Germany

Berlin, Bielefeld, Bochum, Frankfurt/Main,
Kronberg im Taunus, Wiesbaden

Anica Dragutinovic

Carmen M. Enss

Middle-Class Mass Housing in Germany

The article presents a study on the conceptual and contextual framework of the middle-class mass housing (MCMH) neighbourhoods in Germany, contributing to the cross-geographical debate at a broader European level. It complements the case studies presented in this publication, providing a wider framework for their better understanding. The aim of the study is two-fold: (1) to contribute to a broader awareness of the specificities of MCMH in Germany, compiling historical description that details background on its emergence and changes to MCMH over time, in particular in the second half of the 20th century; and (2) to provide basic information about the typologies and characteristics thereof, and to give an insight into the specific problems inherent to the conservation and renewal of the MCMH in Germany.

Middle-Class Mass Housing (MCMH) neighbourhoods represent a significant share of the urban and morphological image of European cities, and a significant share of total housing stock across Europe, ensuring access to affordable and appropriate housing for the general population. (Milovanovic et al, 2022) MCMH development was influenced by multifaceted factors, including social, economic and other contextually specific parameters.

The pre-World War II period in Germany was characterised by the establishment of non-profit housing and social housing as the main concern of the country in the 1920s, defining the central principle of the German housing system, which has been a constant ever since. Referring to the hyperinflation of 1923, which strongly affected the middle-class and housing legislation, Glendinning (2021) notes:

> "As always in Germany, unlike Red Vienna, the main client group was not the poor but the impoverished lower middle classes and skilled workers – many of whom then had to quit their expensive modern dwellings during mass unemployment in the Depression."
> (Glendinning, 2021, p. 42)

The strong tenant culture and ´tenant-friendly´ housing policies in Germany influenced the housing market and resulted in the fact that most of the urban dwellers in Germany, especially in the post-war period, tended to be rental tenants, including among the middle and upper middle class. (Milovanovic et al, 2022) Aerial bombings in World War II led to an extraordinary high loss of housing in Germany. The proportion of flats which were destroyed in relation to the number of flats existing in 1939 was above 33% in numerous cities with more than 100,000 inhabitants. (Bode, 1995, Figures 1 and 2, pp. 10-11) War damage maps of the 1940s and 1950s show that large city areas were slated for monofunctional residential areas according to functionalist planning principles, e.g., in Hamburg. (Enss et al, 2023, pp. 119-143)

The East-West polarisation of the post-World War II period in Germany accordingly led to different approaches to housing development. While West Germany was founded on a social market economy, avoiding unified principles at a national level, East Germany was structured around centralised governance and the socialist system (Glendinning, 2021). The scarcity of housing in West Germany was not class-specific and social housing did not necessarily mean working class accommodation – approx. 70% of the population was eligible for social housing in the early post-war years (Urban, 2018, p. 102). Thus, legitimacy and economic prosperity of the new state depended vitally on mass housing production. The largest non-profit housing association was called the "Neue Heimat". (Lepik et al, 2020) In East Germany, following nationalisation and the dismantling of the pre-war housing system, a workers´ housing cooperative system was established. In the 1970s and 1980s, East Germany saw its peak in housing construction with 2 million new dwellings built (Urban, 2018, pp. 103-4). As Urban (2018) notes, in 1989 only 5% of West Berliners were residents of a large housing estate, compared to about one-third of East Berliners. Thus, the political background and social significance of the Mass Housing Neighbourhoods (MHN) was completely different in West Berlin as opposed to East Berlin.

In the late 1980s and early 1990s housing

Figure 1

policies went through a series of important changes, due to the new socio-political context in Germany after reunification. This led to change in the legislation affecting housing associations, and therefore the tenants' profile. (Milovanovic et al, 2022) Nevertheless, in the case of the Märkisches Viertel in Berlin for example, the rate of unemployment and the number of people of other nationalities among the tenants were close to the Berlin average (around 15%) in 2014 (Urban, 2018, p. 113). This composition of tenants indicates a relatively high level of social integration in this mass housing neighbourhood in West Berlin, compared to other cases of social and rental housing in Western Europe. (Milovanovic et al, 2022).

The MCMH neighbourhoods have been socially shaped quite differently by changing and divided political histories. In their diversity they contain a capacity to contribute to the contemporary development of just, inclusive, resilient and sustainable cities and human settlements and the Sustainable Development Goal 11 (SDG11), established by the United Nations General Assembly in 2015.

Typologies and Characteristics of MCMH in Germany

Immediately after WWII, damaged or destroyed housing complexes of the 1920s and 1930s were repaired or reconstructed in similar configurations, such as in Hamburg's, Barmbek-Nord and Veddel districts. (Lepik et al, 2020, pp. 26-30) One of the first newly-developed examples of MCMH in Germany was the Ziekowkiez settlement in Berlin, built in the period between 1954 and 1957. It combined two different housing types, very common at the time: row housing and high-rise buildings. (see Mapping MCMH-EU Database: Ziekowkiez). Another example, whose construction started just 2 years later - the Sennestadt in Bielefeld, a district for 20,000 people - was built in the period between 1956 and 1973 (see Mapping MCMH-EU Database: Sennestadt). Besides row housing and high-rise buildings, it combined different single-family houses, aiming at a mixed local society.

In terms of physical structure, one of the core principles for planning mass housing neighbourhoods in Germany, e.g., Falkenhagener

Germany: Berlin, Bielefeld, Bochum, Frankfurt/Main, Kronberg im Taunus, Wiesbaden

Figure 2

Feld (1962–1975), Gropiusstadt (1962–1975) and Märkisches Viertel (1963-1975), was the urban planning paradigm of *Urbanität durch Dichte* (´urbanity through density´). The MCMH in West Berlin aimed at urbanity in this sense, following the principles of Athens Charter such as functional separation and a predominance of light and air. The neighbourhoods had communal facilities such as schools, kindergartens, shops and sport centres. (Urban, 2018; Milovanovic et al, 2022).

One of the largest housing estates in Germany is the Nordweststadt in Frankfurt/Main, built in the period between 1961 and 1972 (see Mapping MCMH-EU Database: Nordweststadt). It is one of the best examples of a Raumstadt (´city in space´) type development in Germany, and perhaps even Europe. This concept provides a harmonious spatial quality of the settlement.

The split-level house Girondelle in Bochum, built in the period 1965-1969, is an example of the terraced house type with a length of 200m (Figure 1). A great diversity of housing units aimed at achieving a high social mix, yet nowadays inhabited by predominately low-income households.

The typical architectural design of the "Neue Heimat" (Lepik et al, 2020) did not differ significantly from MCMH that were being developed by private companies (e.g., Norikus in Nürnberg/Nuremberg, see Figure 2, Enss et al, 2019) or city-owned associations (e.g., Heuchelhof in Würzburg, Enss et al, 2019).

Following German reunification and the shift of housing policy in the 1990s, both the local authorities and the national government provided subsidies and funds to renovate residential buildings, resulting in most large estates being renovated (Urban, 2018). As Urban (2018) explains, the kinds of renovation undertaken normally involved providing additional insulation, updated plumbing and often adding balconies; green spaces were refurbished and often semi-urbanised with shops and service buildings. At the same time, Germany gradually reduced its social programmes and non-profit housing associations had to operate according to market principles. As Urban (2018) notes, between 2000 and 2006, Berlin sold 100,000 housing units to international investors, "thus sacrificing a system working with long-term success for short-term profit"

(Focus, 2006; Berliner Mieterverein, 2006; cited in Urban, 2018, p. 112). This practice contributed to the polarisation of the housing market, and large housing estates were "gradually turned into a refuge for those who could no longer afford to live in attractive inner-city neighbourhoods". (Urban, 2018, p. 112) Those practices resulted in large housing estates becoming very unpopular and neglected neighbourhoods inhabited by "society´s poorer strata". Writing about East Berlin´s housing estates after the end of the socialist regime, Urban (2018, p. 115) notes: "The days in which the doctor lived wall to wall with the labourer are gone. Those who have stayed are mostly elderly, and those who come increasingly belong to the lower classes." Nevertheless, those estates are generally well maintained and cannot be dismissed as deprived neighbourhoods. The number of ethnic minorities and unemployed in large housing estates is still only slightly higher than in other neighbourhoods, as noted by Urban (2018), in the case of Berlin.

The number of large housing estates being listed as separate buildings or whole ensembles protected by monument protection law of the federal states is increasing. There is no consistent policy between the 16 federal monument preservation authorities. An overview on listing policies is given by Hasche (2019). Mostly their values are discussed between conservators, urban planners, architects and local politicians. This was the case for example, in München Neuperlach (Hild et al, 2018) and Bremen Neue Vahr. (Pahl et al, 2018) Nonetheless, there is a general lack of appreciation for the large housing estates and their qualities and cultural significance, as noted by Harnack et al (2021) in the introduction to a collection of essays on strategies for adaptive re-use of post-war modernist housing. This under-appreciation in combination with a scarcity of available construction land in cities, leads to a growing pressure on large-scale housing estates and their generous green spaces, thus leading to those neighbourhoods being casually sacrificed for the sake of urban densification. What makes the densification process easier is that the mass housing estates in Germany are usually owned by a single or a few large, often even public, landlords, making them "the easiest location to implement infill development". (Harnack et al, 2021)

Discussion

In the context of middle-class mass housing in Germany, three main issues arise: (1) policies – a generalised neglect and changes to the housing policies from the post-war period onwards, which previously had advocated for more egalitarian housing practices; (2) spatial – the neglect and physical alteration of the gradually, and systematically, deteriorating mass housing neighbourhoods or large-scale housing estates; (3) social – an increasing polarisation of society, and an increasing precariousness of the middle class, in particular related to housing options.

In many cases, although intended as middle-class mass housing or at least intended for "large parts of society", large-scale housing estates in Germany (high-rise buildings, slabs and other multi-family housing typologies) eventually became home to more vulnerable groups and low-income residents, as it is the case nowadays as well. Similarly, single-family housing estates and mat housing (low rise and high density), although intended for workers and middle-class, as in case of the Siedlung Roter Hang in Kronberg im Taunus (see Mapping MCMH-EU Database: Roter Hang), eventually became unaffordable for the vast majority of them. Recent, contemporary housing market practices are constantly and continuously contributing to the polarisation of the housing market and accordingly exacerbating the issue of middle-class citizens being able to find their place within it, which is reflected also in the increasing polarisation of society in general. Those practices are neglecting the basic principles and aims of the initial planning and development of these very mass housing estates – imagined as a way to enable more egalitarian and democratically constituted societies, nowadays gutted by landlord rental schemes and capitalist market principles. The reputation and role of the large housing estates in the current housing market has been negatively impacted and marginalised. Even when the mass housing estates are undergoing major refurbishment, the current radical thinking behind the interventions and the thoroughness of their makeovers are still only succeeding in contributing to the same outcome, making them no longer available to those for whom they were designed for in the first place (Harnack et al, 2021). It is vital to understand and assess different context- and case study-specific factors behind a possible rehabilitation of mass housing neighbourhoods, including heritage conservation, individual spatial qualities, social aspects, etc. (Dragutinovic et al, 2023) Accordingly, a more complex rehabilitation and governance approach is required, including better urban planning and heritage laws that protect the socio-spatial characteristics of mass housing estates, favouring continuous maintenance and repairs over comprehensive refurbishments, and thus preserving the original social and urban fabric as much as possible, with an emphasis on inclusive processes. (Harnack et al, 2021).

Germany: Berlin, Bielefeld, Bochum, Frankfurt/Main, Kronberg im Taunus, Wiesbaden

Figures

Cover - Woldenmey Siedlung in Dortmund (1963-1969). Source: Svenja-Christin Voß, photography taken for the student workshop MHN in Essen/Dortmund, February 2022.

Fig. 1 - Terrassenhaus Girondelle in Bochum (1965–1969). Source: Julia Bussen, Tessa Disse, Vanessa Pohl, Svenja-Christin Voß, and Zeynep Aksoy, from the student workshop results, 2022.

Fig. 2 - Norikus housing estate in Nürnberg/ Nuremberg. © Ralph Dobratz, 2019.

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Sennestadt

Germany, Bielefeld

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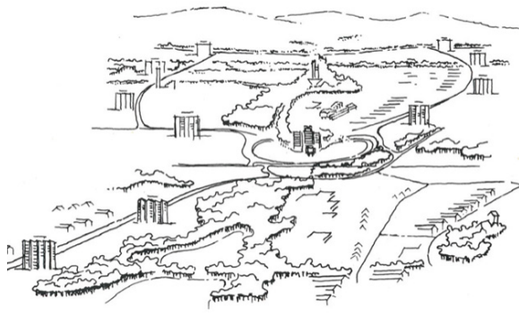
This city sattelite was developed according to the organic planning and car-friendly city principles of the 1950s. Built to overcome the housing shortage after WW2, Sennestadt combined different urban typologies (Zeilenbau, row houses, different one-family houses and high-rise buildings) aiming at a mixed local society. Through massive repitition of the typologies a district for 20.000 people was built.

Adress/District	Reichowplatz, 33689 Bielefeld, Germany		
GPS	51.94593163770837, 8.584956561934195		
Scale of development	District		
Project author	Hans Bernard Reichow		
Constructor	Sennestadt GmbH (founded by municipalities)		
Landscape author	–		
Period of construction	beginning: 1956	end: 1973	inauguration: –



Drawing Reichows - Construction of the urban space through high-rises (Sennestadtverein)

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URBAN AREA

Location - within in the city	original:	satellite
	current:	satellite
Other facilities / availability of amenities	schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street).	
Urban Ensemble	Sun oriented paralell rows / free-standing objects	
	total area:	400 ha
	housing:	50 %
Connectivity | Accessibility	Car-friendly city with mediocre bus public transport. As satellite district still detached from the rest of the city	
Landscape	Sennestadt has a large-scale green infrastructure both east-west and north-south, which has developed from partly existing nature conservation areas and has also been supplemented with sports facilities and water bodies.	
Open and public space	The artifical centre „Reichowplatz“ is touched by the green infrastructure, but still lacks pedestrian frequency due to the car-friendly structure of the district.	current condition: needs to improve
Quality of living environment	Sennestadt has an exposed location on the Teutoburg Forest, linked by a high-quality green infrastructure. Typical deficiencies of modern mass housing are evident: car-dependent lifestyle & homogeneous groups of residents.	
Main Features	–	

RESIDENTIAL AREA

Residential buildings	Zeilebau: Four entrances per typical building; two or three dwellings per floor and entrance. The ground floor is slightly elevated from the ground level, creating a mezzanine floor. Most dwellings consist of two-three rooms plus bathroom and kitchen.	
No. of buildings	1410	
No. max. of floors	11	
Average no. floors	3	
Materials | Fabrication	The plaster and clinker facades are colour-coordinated according to plan for the entire city. White window frames support and enhance the colour effect. Dark roofing material against the dark green of the forest and green corridors blends into the urban landscape.	
No. of dwellings	8100	
Average dwe. area	75 m^2	
Dwellings' type	one floor	2, 3, 4 rooms
Qualitative issues	–	
Housing density	Number of dwellings per ha:	20

MIDDLE-CLASS

Original dwellers class: middle-class	Partly inhabited by the original dwellers and partly by low income households.
Current dwellers class: others	

MASS HOUSING

Massification through: planned process horizontal growth element's repetition	Numerous repitition of key typologies: - low slab (Zeilenbau in Germen, see wideview on the right). - High-rise (see close-up) - One-family home (Row house, detached, double, Kettenhaus, villa).
Building's typology: detached house semi-detached house clustered low-rise row-housing slab tower	

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Eliminating the housing shortage with 1,8 million housing units in 6 years (1957-1962). Housing units should be constructed, designed and suitable for broad strata of the people regarding size, equipment and rents. (1) Funding (2) Guarantees (3) Tax benefits (4) Providing land for construction purposes (5) Measures to reduce construction costs.
Name of specific programmes or funding applied	(1) 1956 - Second Housing Law (National).

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Although some housing association building stocks have been refurbished, many units still have structural deficits.
Urban | building transformation or regeneration	Regeneration of green infrastructure. Plans to extend the tram line to the district and renew the district centre. plans to reduce lanes of the primary road going through the district. plans to develop sub-centres within the district (see Integrated District Development Concept Sennestadt 2017).
Intervention scale	Neighbourhood / community improvement / open and public spaces / buildings / collective green spaces / energy efficiency improvements
Intervention status details	Under constant renewal since 2008.

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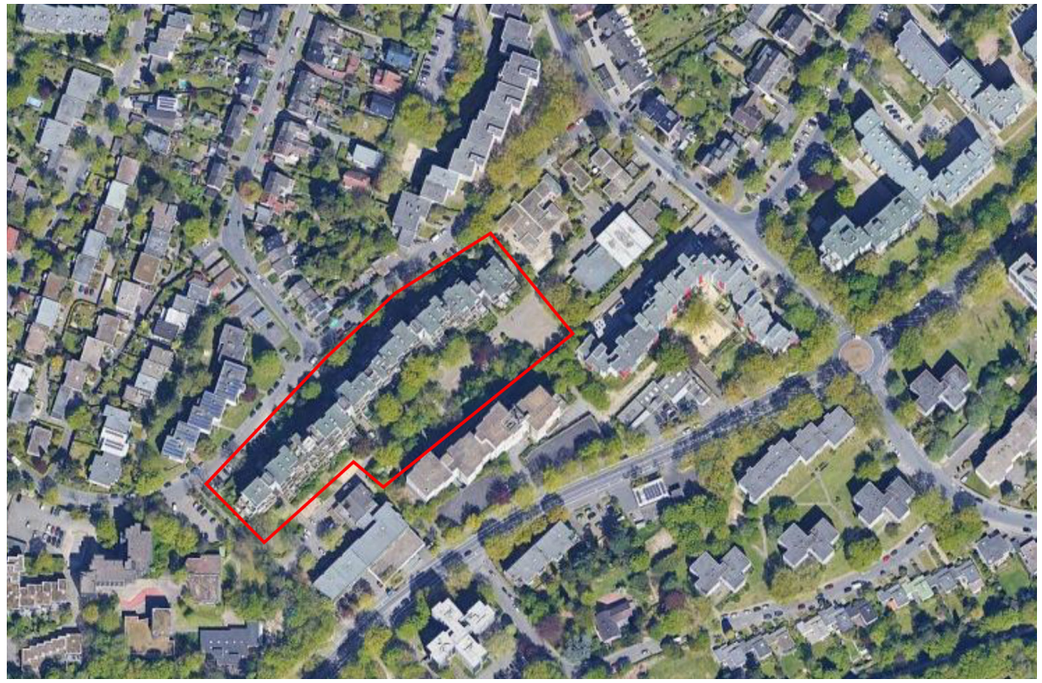
Split-level House Girondelle

Germany, Bochum



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The residential building “Girondelle” is an outstanding example of the terraced house type built in Bochum (Germany) in the period 1965-1969. With a length of 200m and 27m deep extension in the ground floor it dominates its surrounding. The residential units are very diverse with an aim of achieving a high social mix. Since 2019 it is protected as a monument.

Adress/District	Girondelle 84-90, 44799 Bochum, Germany		
GPS	51.455833,7.248206		
Scale of development	Building		
Project author	Albin Hennig		
Developers	Vereinigte Baugesellschaft Bochum-Langendreer		
Landscape author	–		
Period of construction	beginning: 1965	end: 1969	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Parallel (with a wider façade facing a street).	
Urban Ensemble	Free-standing objects.	
	total area:	–
	housing:	–
Connectivity | Accessibility	The building is located near the Ruhr University Bochum, therefore well connected with public transport - bus and metro, and close to the Autobahn. Public greenery, schools and other facilities are located nearby.	
Landscape	The building is surrounded by mature greenery and a courtyard with playgrounds. And a public park is nearby.	
Open and public space	The planning and design is focused on the building itself. The open space and green area surrounding the building are not well maintained and are under-used.	current condition: needs to improve
Quality of living environment	The area where the building is located provides amenities and possibility for leisure activities. The level of greenery in the area is relatively high (near the Laerholz). The condition of the building and open space needs to improve.	
Main Features	–	

RESIDENTIAL AREA

Residential buildings	The building has 211 residential units with different sizes - from small apartments to 6-room dwellings for the extended family. The apartments are accessed by central corridors, arcades and four stair towers visible on the outside, which divide the building into five sections.	
No. of buildings	1	
No. max. of floors	8	
Average no. floors	–	
Materials | Fabrication	The elements were prefabricated, which enabled efficiency and low-costs. Each apartment has a balcony which, in combination with the concrete grid visible from the outside, gives the building structured appearance.	
No. of dwellings	211	
Average dwe. area	–	
Dwellings' type	one floor	1, 2, 3, 4, 5+ rooms
Qualitative issues	The smaller apartments have only one-sided light and poor ventilation, the inner core with bathrooms and partly kitchens has no natural light.	
Housing density	Number of dwellings per ha:	–

MIDDLE-CLASS

Original dwellers class: middle-class	Partly inhabited by the original dwellers and partly by low income households.
Current dwellers class: middle-class	

MASS HOUSING

Massification through: planned process horizontal growth element's repetition	The massification was achieved through elements´ repetition and horizontal growth of the structure - a length of 200m and 27m deep extension in the ground floor. The building has 211 residential units. Prefabrication of the elements enabled efficiency and low-costs.
Building's typology: row-housing	

HOUSING POLICIES

Urban promotion type: – **Housing promotion type:** –	With the construction of the Ruhr University Bochum and "Opel-Werke" at the beginning of 1960s, the need for housing increased. The residential area for 25.000 residents was planned, and Girondelle with 211 diverse apartments was built to contribute to that aim.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished.
Preservation and maintenance status details	Small-scale individual interventions (such as windows replacement) can be noted, but the condition at the level of details is in general very deteriorated.
Urban | building transformation or regeneration	The building is not refurbished and the condition, in articular facade and other concrete elements, is very deteriorated. The open and green spaces are not well maintained either.
Intervention scale	–
Intervention status details	–

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Nordweststadt

Germany, Frankfurt/Main

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Nordweststadt is one of the biggest Estates in Germany and the only large Raumstadt type neighbourhood.

Adress/District	Praunheimer Weg, Bernadottestraße, Gerhart-Hauptman-Ring, Hammarskjöldring, Ernst-Kahn-Straße Praunheim / Heddernheim / Niederursel		
GPS	50.155735, 8.622623		
Scale of development	District		
Project author	Walter Schwagenscheidt, Tassilo Sittmann (urban design) / mainly by the developers' inhouse architects (housing).		
Constructors	Nassauische Heimstätte / Neue Heimat Hessen / Aktienbaugesellschaft für kleine Wohnungen		
Landscape author	Erich Hanke (landscaping) / Paul Leuner (traffic planning)		
Period of construction	beginning: 1961	end: 1972	inauguration: 1972

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URBAN AREA

Location - within in the city	original:		city fringe
	current:		city fringe
Other facilities / availability of amenities	schools / health / sports / shops / religious / kindergartens / leisure / originally also police and fire stations, polythechnic.		
Location - position of buildings	Perpendicular (with a shorter façade facing a street).		
Urban Ensemble	Open block		
	total area:		170 ha
	housing:		58.8 %
Connectivity | Accessibility	Underground link to Central Frankfurt, otherwise buslines. Separate pedestrian network, partly in green belts, artery road connects Nordweststadt to Central Frankfurt and the Autobahn 661.		
Landscape	Generally ondulating landscaping leaving motorised traffic in recessed streets.		
Open and public space	Martin Luther King Park in the centre of the development, many semi-public spaces around the houses. Green lines run through the entire neighbourhood connecting the housing with the park, schools, amenities as well as with each other. A small and a large centre offer pedestrian public urban spaces.		current condition: excellent
Quality of living environment	Nordweststadt is the largest and best examples of a Raumstadt type development in Germany (or even Europe). This creates a very specific spatial quaility distingt from any other in the Frankfurt area.		
Main Features	Readability		

RESIDENTIAL AREA

Residential buildings	All flats have balkonies, some ground floor flats have terraces directly linkes to the semi-public spaces.	
No. of buildings	750 (including 360 single family houses)	
No. max. of floors	17	
Average no. floors	6	
Materials | Fabrication	Either rendered or clad with fibre conrete panels. colour concept by Walter Schwagenscheidt still visible today.	
No. of dwellings	7000	
Average dwe. area	m^2	
Dwellings' type	one floor	1, 2, 3, 4, 5+ rooms
	duplex	4, 5+ rooms
Qualitative issues	very good quality layouts: 5% 1–1,5 rooms / 20% 2 rooms / 60% 2,5–3 rooms | 15% 3,5+ rooms.	
Housing density	Number of dwellings per ha:	87,5

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Initailly social housing was intended for "large parts of society" and many middle class families moved in. Many of tese moved on into single family homes in the 1970s and 1980s an were replaced by more vulnerable groups / poorer people.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition **Building's typology:** slab block tower	Largely repetitive housing types that have been optimised over the years. Also repetitive combinations of housing clusters combines of differend housing types.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	–
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Some insulation added, new windows, various extensions and alterations to the centre (Nordwestzentrum), mainly to accommodate more shopping. Otherwise the structure and spatial setup is intact and recognisable.
Urban | building transformation or regeneration	Some buildings have been externally insulated. Public spaces are "updated" losing their specific qualities and design features, such as stepped paths, period benches etc. Footbridges have also been under discussion with residents keen to keep them.
Intervention scale	Buildings / open and public spaces.
Intervention status details	–

Author	Maren Harnack	Frankfurt University of Applied Sciences

Ziekowkiez

Germany, Berlin

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The settlement was developed in the times of housing shortage after WW2 and combines two different but typically housing types of the time: Zeilenbau and high-rise buildings that form the center.

Adress/District	Ziekowstraße 89-99, 101-118, Breitachzeile 1-13, Illerzeile 1-55, Oeserstr. 1-44, Eschachstr. 58; Berlin-Tegel		
GPS	52.589098, 13.293166		
Scale of development	District, building		
Project author	Herbert Noth and Edgar Wedepohl		
Developers or Constructors	Gagfah (Gemeinnützige Aktiengesellschaft) für Angestellten-Heimstätten)		
Landscape author	–		
Period of construction	beginning: 1954	end: 1957	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	schools / health / market / shops / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Sun oriented paralell rows / free-standing objects.	
	total area:	16.5 ha
	housing:	–
Connectivity | Accessibility	Well connected to public transport via train, underground and bus and to the Autobahn A111. Public greenery and a lake are located in the nearby neighbourhood as well as a hospital, schools and shopping facilities.	
Landscape	The greenery is spacious and well-grown with old trees. according to the principle of light, air and sun.	
Open and public space	The public or common open spaces such as distance greenery and playgrounds don't seem to be used frequently. Small pathways parallel to the wider facades connect the streets with the building entrances.	current condition: needs to improve
Quality of living environment	–	
Main Features	–	

RESIDENTIAL AREA

Residential buildings	Four entrances per typical building; two or three dwellings per floor and entrance. The ground floor is slightly elevated from the ground level, creating a mezzanine floor. Most dwellings consist of two rooms plus bathroom and kitchen.	
No. of buildings	47	
No. max. of floors	14	
Average no. floors	4	
Materials | Fabrication	Saddle roof, plaster facade, masonry.	
No. of dwellings	1100	
Average dwe. area	53 m²	
Dwellings' type	one floor	2 rooms
Qualitative issues	Crossed ventilation possible in most dwellings, orientation to the east and west, greenery in front of the windows.	
Housing density	Number of dwellings per ha:	66.67

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** others	Partly inhabited by the original dwellers and partly by low income households.

MASS HOUSING

Massification through: planned process horizontal growth element's repetition **Building's typology:** row-housing tower	The development was conctructed in two phases, starting with the Zeilenbau buildings and ended with the two high-rise buildings.

HOUSING POLICIES

Urban promotion type: – **Housing promotion type:** –	To densify this area, the municipality of Berlin-Reinickendorf put some legal requirements on the developers: no increase of the rent for 5 years and protection of exhisting inhabitants, A town planning agreement will be imposed.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	–
Urban | building transformation or regeneration	The settlement is right now (2022) in the process of densification. One or two storeys should be added to the exisiting Zeilenbau and annex buildings are planned next to the residential streets. Furthermore, a new shop and leisure and educational additions are planned.
Intervention scale	Neighbourhood / community improvement / open and public spaces / buildings / energy efficiency improvements.
Intervention status details	In process.

Author	Lisa Kaufmann	Research Campus of Central Hessen (FCMH), Giessen

Siedlung Roter Hang

Germany, Kronberg im Taunus

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Initially concieved for Braun workers, modelled on Halen / Bern. Dieter Rams, the most famous Braun designer still lives in Roter Hang and supposedly was involved in the early stages of the design. The project went through many stages with much higher density before being approved.

Adress/District	Am Roten Hang, Schirnbornweg, Kellergrundweg, Am Forsthaus, Viktoriastraße		
GPS	50.190880, 8.502845		
Scale of development	District		
Project author	Rodolf Kramer		
Developers	Polenskyi & Zöller (patio housing). IBM Deutschland Unterstützungskasse (Slabs).		
Landscape author	–		
Period of construction	beginning: 1966	end: 1971	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Kronberg lido	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	–	
	total area:	3.3 ha
	housing:	100 %
Connectivity | Accessibility	Local Bus, suburban train to Frankfurt 1,5 km away, town centre ca 1 km away.	
Landscape	The houses are stacked on top of each other following the slope of the Altkönig. South-facing patios offer views of Frankfurt in the distance. Residential streets run parallel to the slope, pedestrian public staircases connect them uphill.	
Open and public space	Residential streets are low traffic with cars parked centrally. A playground was initially equipped with CCTV so mothers could supervise their children while doing housework. The neighbourhood is adjacent to the large forested Taunus mountains popular for hiking and other outdoor activities.	current condition: good
Quality of living environment	Very distinctive, highly recognisable spatial setup	
Main Features	Readability / privacy	

RESIDENTIAL AREA

Residential buildings	51 patio houses on minimal plots, mostly with the patio as the ony private outdoor space. Outer facades bordering directly on public space or the neighbouring plot. 19 terraces and 4 multi family houses with ca 24 flats.	
No. of buildings	72	
No. max. of floors	4	
Average no. floors	2	
Materials | Fabrication	Patio houses have concrete base and machine plastered upper stories. Multi familiy houses are clad with fibre cement panels and yellow bricks.	
No. of dwellings	90	
Average dwe. area	–	
Dwellings' type	one floor	3, 4, 5+ rooms
Qualitative issues	Generally very high quality standards. Currend standard bins do not fit into the assigned spaces and have inceased in numbers, which still needs to be solved.	
Housing density	Number of dwellings per ha:	27.3

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** –	Rising house prices have lead to a more affluent population, the neighbourhood has become unaffordable for the middle class

MASS HOUSING

Massification through: planned process horizontal growth element's repetition **Building's typology:** mat-housing	Repetitive patio-housing types.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	–
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	fully refurbished / partially refurbished unrefurbished / unrefurbished, but not yet deteriorated
Preservation and maintenance status details	Generally houses are in good shape.
Urban | building transformation or regeneration	Some buildings have been significantly altered before the neighbourhood became a conservation area, including full outside insulation and new window shapes, but the overall impression is still close to the original. Public spaces are largely in original condition and in good shape.
Intervention scale	Buildings / Energy efficiency improvements.
Intervention status details	The significant changes in some buildings comprimise the overall quality of the neighbour hood, but since the neighbourhood became a conservation area it ca be expected to slowly become more colse to its original state.

Author	Maren Harnack	Frankfurt University of Applied Sciences

Schelmengraben

Germany, Wiesbaden

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Schelmengraben was conceived as part of Ernst May's 1960 general development plan for Wiesbaden. It is one of four large scale estates that were part of the plan, of which three have eventually been built. Although some changes have been made in the process of building the estate, the final layout ist very close to the original version.

Adress/District	Dotzheim, 65199 Wiesbaden, Germany		
GPS	50.069665, 8.186329		
Scale of development	District		
Architectural studio	Ernst May		
Project author	–		
Constructors or Developers	Neue Heimat Südwest, Volksfürsorge		
Landscape author	Erich Hanke (landscape design) / Kurt Leibbrand & Rolf Schaaff (traffic planning)		
Period of construction	beginning: 1968	end: 1971	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / shops / youth club	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Free composition	
	total area:	43 ha
	housing:	–
Connectivity | Accessibility	Schelmengraben is located on a hill in the Dotzheim district of Wiesbaden. It is connected to the city centre by bus (25 minutes). Due to the topography cycling is not a good option and many residents rely on private cars.	
Landscape	The name is derived from an incision called "Schelmengraben", which has been integrated into the landscaping. Towards Dotzheim a generous green belt connects Schelmengraben to the surrounding with an attractive, park like space.	
Open and public space	Houses enclose communal green spaces in which a seperate pedestrian network connects the different parts of the neighbourhood to each other.	current condition: –
Quality of living environment	Schelmengraben has a very recognisable layout. The original centre and its red tower ("Rotes Hochhaus") are a well known landmark throughout Wiesbaden.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	Residential buildings mainly have balconies as outdoor spaces, even on the ground floor.	
No. of buildings	43	
No. max. of floors	17	
Average no. floors	6	
Materials | Fabrication	The high rise blocks and the 8 storey slabs are constructed of pre-fabricated slabs finishes with washed-out conrete. The 4 strorey slabs are plastered and were initially boldly coloured. The facades are slightly porfiled to accentuate the stairwells	
No. of dwellings	2500	
Average dwe. area	70 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
	duplex	3 rooms
Qualitative issues	Schelmengraben provides 47,5% 1-bedroom flats and 38,7% 2-bedroom flats making it difficult for larger or other nonstandard families to live adequately.	
Housing density	Number of dwellings per ha:	78

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** others	The neighbourhood was built by Neue Heimat, who provided socail housing for broad parts of society and in practice often housed middle class families.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** slab block tower	The neighbourhood was built with medium density. It contains almost exclusively multi-storey residential buildings, often standardised and similiar to each other.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public-private partnership	Initially social housing, but as usually in Germany after 30 years it has become free market. The landlord ist committed to follow a socially inclusive policy and residents are not subject to rent spikes.
Name of specific programmes or funding applied	1) Recently funding through "Soziale Stadt" for improvements.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	partially refurbished
Preservation and maintenance status details	Many buildings have been insulated, changing some of the archtectural details. The open spaces are being adapted to the needs of people with reduced mobility. A plan for the maintenance of the oopen spaces has been developed in 2017 and the original colorscheme is being reintroduced.
Urban | building transformation or regeneration	The neighbourhood hs received funding by "Soziale Stadt" to improve energy efficiency, public and green spaces and social cohesion. The programme is run by the city and supported by a locaised neighbourhood management.
Intervention scale	Neighbourhood / buildings / community improvement / open and public spaces / collective green spaces / energy efficiency improvements
Intervention status details	–

Author	Maren Harnack	Frankfurt University of Applied Sciences

Greece

Athens, Thessaloniki, Chania

Despina Dimelli Konstantina Kalfa Dimosthenis Sakkos Kostas Tsiambaos

‘Polykatoikia’: what’s in a name?

After WWII, Greece’s economy, as well as its built environment, was severely damaged. The state’s efforts for reconstruction led to a clientelist type of welfare state, in which housing con-struction became a profitable enterprise for the many, mobilising the country’s development for the upcoming several decades. In this context, the mid-rise apartment building-type became a symbol for upward social mobility. Indeed, the two interrelated yet distinct expressions of apart-ment housing types, namely, A. the few state-produced apartment buildings (‘workers’ polykatoikies’) and, B. the privately-built ones (‘polykatoikies’) stand for the country’s ‘becoming middle-class’. Clearly, the most important apparatus for the construction of a middle-class in Greece was the privately-produced ‘polykatoikia,’ spread throughout Athens and other Greek cities and defining their urban iconography. Polykatoikia thrived through a uniquely Greek land-for-flats practice called ‘antiparochi’ (meaning in-exchange) which not only secured affordable housing for the many, but also functioned as a means for profit for both small-scale landowners and small-scale entrepreneurs/contractors. Thus, it would be fair to say that the massively pro-duced apartment housing, as realised in the unique form of the polykatoikia, rather than massive housing complexes became Greece’s MCMH par excellence. In what follows, we present not only the particularities of the Greek polykatoikia as a MCMH type but also the main characteris-tics of the few centrally-produced apartment building complexes for a period that spans from the mid-1950s to the mid-1980s.

Nazi Occupation in Greece left the country’s built environment with extensive damage. Almost one quarter of the prewar building stock, mainly in rural areas, had left 18 percent of the popula-tion homeless (Doxiadis, 1946). By 1950, following the conclusion of the Greek Civil War (1946-1949), violent anticommunist purges throughout the countryside had triggered rural-to-urban mi-gration, leading to a 22 percent population growth in big urban centres, and especially in Athens. Within the next decade, burgeoning flows of migration would be such that by 1961 more than one fifth of the country’s total population resided in Athens (Hellenic Statistical Authority, 1951 and 1961). As aid from the United States flowed primarily into the countryside, where the Civil War took place, urban centres were left in the hands of private entrepreneurship backed by regula-tions enabling tax exemptions, and other fiscal reliefs for entrepreneurs (Kalfa, 2021). Eventually, in line with U.S. consulting on housing (Kalfa, 2021), the state’s share of Gross Capital Formation in housing ranged from only 2 to max. 15 percent in the 1950s, and from only 1 to 3 percent in the following decades (Economou, 1987), while massive access to homeownership were cham-pioned as means of political and economic stability. Even the few apartments in the country’s mere thirty-one state-planned housing complexes (among which the ones presented in Tem-plates GR01, GR02 and GR03) were given to beneficiaries directly for ownership, rather than for rent; a fact which makes Greece the only European country with no social rent policy (Myofa, 2021; Emmanuel, 2016). Arguably, Greek centrally-produced welfare housing never served the lowest-income strata, which had to seek other solutions for their housing, such as semi-squatting on peri-urban land (the so-called ‘afthereta’). Extended mortgage lending from various state agencies to white-collar civil servants (which during the period 1944-1983 amounted to a total of 113,000 loans), is indicative of the fact that priorities went to the construction of a social ‘sense’ of well-being via homeownership rather than to addressing the housing question (Kotzamanis and Maloutas, 1985).

In the lines of this unusual type of welfare framework, the apartment building – called ‘polykatoikia’ (meaning multi-residences) –, both state- and privately- financed, signified and promoted upward social mobility. Privately-built *polykatoikies* (plural for *polykatoikia*), thrived through a uniquely Greek land-for-flats practice called ‘antiparochi’ (meaning in-exchange), sup-ported by the Greek state through various fiscal measures (Figures 1 and 2). ‘Antiparochi’ not only secured affordable housing for purchase

Figure 1

or rent for the many but also functioned as a means for considerable profit for those involved in the land-for-flats contract (invariably small-scale landowners and small-scale entrepreneurs/ contractors), as they invested their small capital (land and money) in a liberalised market for both rents and sales. In this context, it would be fair to say that the Greek type of MCMH actually constructed the country's middle-class by securing both a source of income to those engaged in *antiparochi* (through rents and sales) and a social status emanating from the modern-inspired *polykatoikia* and its richer amenities (com-pared to the pre-war obsolete housing stock).

After the mid-1990s, the Greek middle-income strata benefited from increased state-supported bank lending to gradually abandon the *polykatoikies* and create self-financed private villas in Athenian and other cities' suburbs. This marked a shift in the history of the *polykatoikia* as it be-came increasingly discredited and occupied by lower-income strata and, in particular, immi-grants. Today, the steady rise of city-break tourism, particularly in Athens, marks yet another shift in the *polykatoikia's* history. Airbnb and short-term rentals are becoming a transformative force for both the urban landscape and the city's social constitution, leading to the reviving of the urban tissue but at the same time, 'processes of residential segregation, gentrification and touris-tification' (Balampanidis et.al 2021; Emmanuel 2014).

The two typologies

The two interrelated yet distinct expressions of middle-class housing in Greece, namely, A. the few state-produced apartment buildings (henceforth 'workers' polykatoikies') and, B. the privately-built ones (henceforth, simply 'polykatoikies') are here discussed separately, as they stand for different 'becoming middle-class' processes. Clearly, the most important apparatus for the construction of a middle-class in Greece was the privately and

Greece: Athens, Thessaloniki, Chania

Figure 2

massively produced 'polykatoikia,' for reasons that are to be explained below.

A. Workers' polykatoikies

A part of the state-produced apartment building supply in Greece was delivered by the Worker's Housing Organization (in Greek OEK) mainly in the two largest cities, Athens and Thessaloniki, and mostly between the mid-1950s and the mid-1970s. Templates GR01, GR02 and GR03 present typical case-studies of OEK mass-housing complexes.

The New Philadelphia housing complexes, in Athens (GR03), consist of four consecutive construction projects. At first (project A), the complexes consisted of two types: a) the two-story detached house with a total unit area of approximately 65m2 and b) the three-story 'workers' polykatoikies,' with a rectangular floor plan consisting of two apartments on each floor with a total area of 40m2 to 65m2. In subsequent projects (B, C and D), construction of higher, four-story, 'workers' polykatoikies,' aimed at a greater spatial utilisation of the plot. The urban area of the complex was organised by a combination of sun-oriented parallel rows in a free-standing composition, providing several squares and parks for the residents, according to European models of welfare housing.

At the Axios housing complex in Thessaloniki, constructed ten years later, design principals were different. The central core dividing the complex into two parts includes public amenities, such as education services, a church and administration offices. The buildings' typologies are four-story 'workers' polykatoikies' with a rectangular and h-shaped floor plan (the former with maximum three apartments, the latter with maximum two apartments per floor). These types of buildings were repeated, forming south-facing parallel rows, while providing green areas, playgrounds, pedestrian zones, and parking

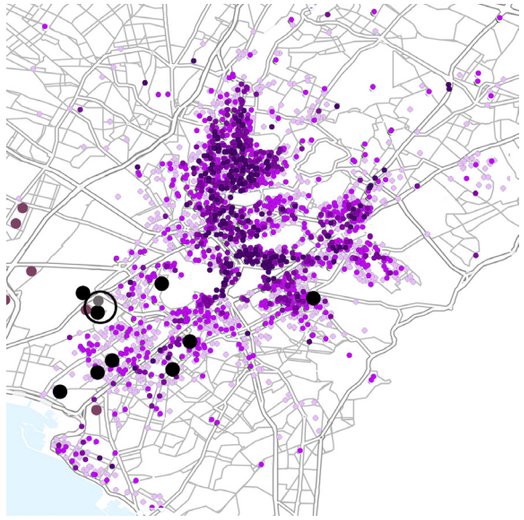

Figure 3

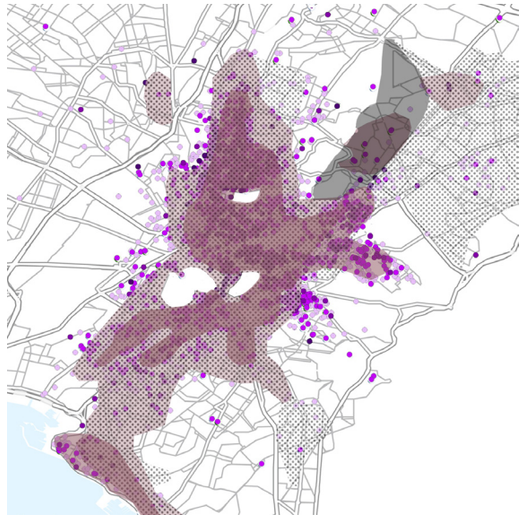

Figure 4

spaces. The demand for even more efficient land use, by increasing the number of housing units on the same site, eventually led to the construction of twelve-story workers' *polykatoikies*. This typology is found only in Axios' housing complex. Over the years, consecutive alterations and tweaking by the residents led to the privatisation of the complexes' public space for the purpose of creating private courtyards or enlarging the units' interior space (by, for instance, enclosing balconies), significantly transforming the complexes' originally uniform and modernist appearance.

In Chania, where WWII destruction were massive, the OEK initially created mass-housing neighbourhoods with single storey houses with courtyards, in approximately 200m^2 plots, organised in orthogonal building squares. Over the next decades, bigger complexes with green spaces and public infrastructures, such as playgrounds, kindergartens, and parks were also constructed. Today, these housing complexes have undergone many changes to their facades, or by the additions of small-scale structures (sheds, fences, etc.). Some of them were demolished and replaced by *polykatoikies*.

B. Polykatoikies

The first post-war privately-built *polykatoikies* appeared in Athens and, shortly after that, in the country's second biggest city, Thessaloniki. As in Athens, in other cities too, polykatoikia buildings first appeared in the most central, and highly-valued, areas to soon spread all over the city and its nearby suburbs. In Athens, this distribution further exacerbated the city's east/west socio-spatial division, established since the mid-19th century: *polykatoikia* first (1950-1965) thrived northeast of the Acropolis, where the city's administrative services and its middle-to-high-income strata were concentrated. It was only after 1965 that the *polykatoikia* spread outside the limits of the city's municipality, towards its southern suburbs (see Figure 3), not only as a result of land speculation but also guided by a series of legislative measures issued by the country's successive governments (such the royal decree 24/6/1960, 'on maximum building heights' and the mandatory law 395/1968, on 'building heights').

Polykatoikia's typological/morphological characteristics were dictated by both the Greek construction sector's low-tech techniques and the provisions of the successive General Building Regulations (1955, 1973), leading to the characteristically generic form of the *polykatoikia* building-type. Apartments were valued more for their number of rooms (rather than for their actual size or their rational/functional arrangement) and

their 'luxurious' interiors —as measured by their 'fully furnished baths,' 'European sanitary ware,' spacious reception rooms and beautiful views (Kalfa and Theodosis, 2022).

Undeniably, this sort of 'luxury' in each individual apartment, albeit with the added benefit of common spaces and expenses (a shared entrance, elevator, staircase, outdoor spaces, etc), provided the essential material 'distinction' for those who could afford to buy, or rent, an apartment (the middle-class). Thus, the *polykatoikia* apartment became the locus for showing off upward social mobility and status —each time according to fleeting lifestyle trends and decorative fashions— for, at least, up until the 1980s (Panagiotopoulos 2016; Tsiambaos 2017). More than that, the *polykatoikia* had been an actual means for financially shaping the middle-class: the country's high degree of land ownership (which was established ever since Greek Independence from the Ottomans, and further endorsed by interwar governments), and the fast rates of post-war urbanisation, provided profit opportunities for great numbers of landowners and small speculative construction firms, and subsequently job opportunities for many, as the housebuilding sector gradually thrived as a booming industry. It is not by chance that Greek planner Constantinos Doxiadis's mapping of the middle-classes' settlement in the city of Athens in mid-1970s actually overlaps with the spread of the *polykatoikies* (Figure 4).

In closing our discussion on the particularities of the Greek *polykatoikia*, as a middle-class housing type par excellence, we should mention that, in spite of its mostly generic form, there were a few, exceptional morphological experimentations, the work of celebrated Greek architects, and usually feted as paradigms for providing an alternative to the *polykatoikia*'s banality. One such example is the *polykatoikia* designed by architect Alexandros Tombazis, built by the building company Difros, with apparent Metabolist and Brutalist influences. Another famous example is critical regionalists Suzana and Dimitris Antonakakis' *polykatoikia* at 118 Benaki Street, which not only paid homage to the typical design of the Athenian *polykatoikia* but also suggested alternative approaches to the financing of *polykatoikia* construction (beyond *antiparochi*) and for the sharing common spaces (Giamarelos, 2022, p.278-308).

Conclusion

Given the idiosyncracies of middle-class housing in Greece, manifested in *polykatoikia* building-type, we chose to present only state-produced middle-class housing complexes. Templates GR01, GR02 and GR03 present 'workers' polykatoikies' built by the Worker's Housing Organi-sation in Athens, Thessaloniki, and Chania. Template GR04 illustrates a case-study which is of particular interest. It is of a housing complex produced in the mid-1980s. By then the Greek state had practically abandoned all welfare policies for housing construction. Thus, this housing com-plex at Tavros constructed by the Public Enterprise of Town Planning and Housing (which was founded in 1976 with the purpose of providing affordable housing for middle-income social stra-ta), is one of the last examples of centrally-produced mass housing in Greece. Interestingly enough, in contrast to the other agencies, DEPOS's involvement began at the request of the area's residents (Myofa 2021) and it was brought to fruition by means of the *antiparochi* system: residents and the municipality who shared property on the plot offered it to DEPOS, who acted as an *antiparochi* contractor to built *polykatoikies* and offer, in exchange, an agreed number of apartments (with the rest of the apartments being of its own ownership, DEPOS was hoping for amortisation rather than profit). It is not by chance then that the complex's typo-morphological characteristics are similar to the typical form of the Athenian *polykatoikia*. This process is proof of the fact that *antiparochi*, and its product (the *polykatoikia*) ensured an affordable, and socially desirable, solution to improving the housing supply.

Figures

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Fig. 1, 2 - *Antiparochi* as a profit-oriented process led to the prevalence of a unique type of MCMH: the mid-rise (4 to 8 floors), high-density and mixed-use *polykatoikia*, the rapid spread of which throughout Athens and other cities defined Greek urban iconography. © Christos Georgios Kritikos.

Fig. 3 - Map shows the *polykatoikia*'s spread (purple dots) in Athens and its suburbs as well as the locations of 'workers' *polykatoikies*' (bigger black, dark red and

grey dots—circled are GR03 and GR04). Deep purple indicates the *polykatoikies*' spread in the year 1955 and, as the colour gets lighter, in the years 1960, 1965, and 1970. Map produced by Konstantina Kalfa and Eleni Gadolou, based on Kalfa's archival research. Data on 'worker's polykatoikies' was researched by Myofa (2021).

Fig. 4 - Greek planner Constantinos Doxiadis's 1973 mapping of the *polykatoikies's* spread (in dark red, areas where polykatoikies prevail, in light red, areas with a lower density of *polykatoikies*) and of middle-income (dotted) and higher-income (grey) strata settlement (Doxiadis Associates, 1976). Note that the spread of *polykatoikies* by the mid-1970s overlaps with the middle-income strata's settlement in the city. Map redrawn, and overlapped on fig.3, by Konstantina Kalfa.

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4 Housing Projects at New Philadelphia

Greece, Athens

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These projects are among the very few examples of state-led housing in Greece, in general, and Athens, in particular.

Adress/District	Nea Philadelphia Attikis, Athens		
GPS	38.02488, 23.44427		
Scale of development	District		
Project author	Aris Konstantinidis, project A (A and B), 1955 Georgios Skiadaresis, project B (B), 1958 Skiadaresis, G. Varveris, G. and Kritika, E. (col.) project C (C), 1962		
Constructor	Workers' Housing Organization [O.E.K.]		
Landscape author	–		
Period of construction	beginning: 1955 (A)	end: 1965	inauguration: 1967 (D)

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	schools / health / market / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Sun oriented paralell rows / free composition.	
	total area:	18.1 ha
	housing:	26 %
Connectivity | Accessibility	Independent, continuous freeways within the settlement, with local public transport and sidewalks/pedestrians roads.	
Landscape	The complexes were organized according to the modern "plan libre" principles. The general layout of the mostly rectangular two-storey to four-storey blocks is governed by geometric purity in rectangular plots, while in the cases of irregular plots the adaption creates internal courtyards with asymmetries.	
Open and public space	The overall public space design, which included large areas of public and green spaces as well as enclosed municipal spaces (commercial and other) could provide the possibility to transform these projects into prototype neighborhoods today.	current condition: needs to improve
Quality of living environment	In general the quality of living environment is good. The neighborhood is calm, without traffic and a very characteristic small/human scale. The alterations/additions are not of a big scale. In general, there is a good degree of integration between these MCMH complexes and the other apartment buildings of the area.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	Various types spanning from two-story detached houses in rows (A) to three to four-story apartment blocks. Blocks are mainly rectangular but their shape was in case altered to fit to irregular blocks. In project C there are also square four-floor blocks. Blocks are generally formed by the repetition (2-3 times) of a housing unit consisting of a semi-outdoor staircase in its center. On each side of the staircase there is an apartment of three rooms. As a general rule morphological features refer to the Greek traditional architecture.	
No. of buildings	165	
No. max. of floors	4	
Average no. floors	3	
Materials | Fabrication	Common reinforced concrete and bricks structures |unplastered concrete skeleton and fill-in brickwork walls painted in light earth tones: terracotta, ochre, brown.	
No. of dwellings	1489	
Average dwe. area	40-64 m^2	
Dwellings' type	one floor (apartment)	2 rooms
	duplex (houses)	2 rooms
Qualitative issues	A percentage of the public space between the buildings is privatized (private yards) or used as storage and car parking space. Some public space areas are underused.	
Housing density	Number of dwellings per ha:	82

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class, others	The main system through which middle class got access to housing was the "antiparochi" system. However, middle class employments could have access to state - led housing programs of Social Housing Agency.

MASS HOUSING

Massification through: planned process **Building's typology:** detached house row-housing block	New Philadelphia is the only area in Athens where different and successive housing projects got materialized in such a concentration. Indeed these projects became among the main characteristic features of the municipality of New Philadelphia and are still considered successful.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	In general state-led housing, in Greece, did never reach more than 5% of the total housing construction while, in other European countries, this percentage was sometimes close to 50%. Organized (state-led and centrally planned) housing has been produced in Greece but in a very small extent from the early 1920s until today.
Name of specific programmes or funding applied	(1) Social Housing Agency [O.E.K.]

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	The general condition of the buildings is good.
Urban | building transformation or regeneration	Most of the building stock has been degraded and partly altered by their residents.
Intervention scale	Buildings / Open and public spaces
Intervention status details	Pitched roofs added (complex A). Changes in original colors. In many cases parts of the pedestrian roads between the buildings became yards or gardens or parkings for the apartments. Exterior sheds added in some apartments. Some balconies were altered to closed spaces.

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Axios Housing Complex

Greece, Thessaloniki

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The social housing issue evolution that took place in Greece between 1950 - 1970 is displayed by Axios Housing Complex design. The oldest typologies (A, B, C, D) are based on Aris Konstantinidis' plans and are similar to other housing complexes in Greece. Additionally, the 12-floor social-housing type is used only here.

Adress/District	55 Lagkada Street, p.c. 54629 Xirokrini, Thessaloniki		
GPS	40.38508, 22.56064		
Scale of development	District		
Project author	Social Housing Agency [O.E.K.]		
Constructors	Social Housing Agency [O.E.K.]		
Landscape author	–		
Period of construction	beginning: 1967	end: 1971	inauguration: 1971

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URBAN AREA

Location - within in the city	original:		city fringe
	current:		city centre
Other facilities / availability of amenities	schools / sports / religious / kindergartens / leisure		
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).		
Urban Ensemble	Sun oriented paralell rows / free-standing objects / free composition		
	total area:		5.5 ha
	housing:		31 %
Connectivity | Accessibility	Axios Housing Complex has access to 19 bus lines of public transportation (OASTH). There are two bus stations on Lagkada Street (Ergatikes Katoikies and Dragoumanou) and two other bus stations on Gr. Koloniari Street (Strofi Xirokrinis and Ag. Nikolaou). There is an extended pedestrian network and several recreational areas in this settlement, but no infrastructure for cyclists.		
Landscape	There is no specific role of the landscape and there is not any connection between landscape and urban environment. At this settlement, housing blocks were constructed after previous existing slum had been destroyed and the whole area had been emptied.		
Open and public space	Axios' Housing Complex unbuilt urban space is an open green park. Most of settlement's urban space is covered with plants and large trees, giving place for recreation, leisure activities etc. However, many problems occur, associated with poverty, safety and bad buildings' condition.		current condition: needs to improve
Quality of living environment	Combining different uses besides residential such as commerce and collective spaces could improve inhabitants' intimacy feeling. Buildings' customization potentialities could improve the sense of belonging.		
Main Features	Combining different uses		

RESIDENTIAL AREA

Residential buildings	Connection with local public transportation, sidewalks and pedestrian zones | Independent freeways within the settlement.	
No. of buildings	58	
No. max. of floors	13	
Average no. floors	4	
Materials | Fabrication	Common structure of reinforced concrete and bricks | Wooden window frames | Terrazzo exterior floors and combination of terrazzo and wooden floors in the interior of the apartments | Metal railings (type 4004), metal and reinforced glass railings at type 12001 and a few prefabricated concrete blocks for the railings at types A, B, C, D.	
No. of dwellings	722	
Average dwe. area	66 m^2	
Dwellings' type	one floor (apartment)	2 rooms
Qualitative issues	Axios housing complex was organized according to the modern "plan libre" principles, taking note of ventilation and optimal solar orientation. Mostly,four- storey blocks are arranged around internal green square courtyards. Low density built environment and large area for recreation improve inhabitants' living conditions.	
Housing density	Number of dwellings per ha:	131

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** others	All employees were subjected to monthly salary duties, and therefore had the right to apply for housing by Social Housing Agency. Furthermore, there were income and property restrictions. Employees with higher salaries were rejected. The lifestyle and the needs of the middle class in Greece have changed over the last 20 years. Limited space apartments could not adapt to these changes.

MASS HOUSING

Massification through: planned process **Building's typology:** mat-housing block tower	This settlement offers apartments for 1108 families over a total area of 5,5 hectares. It was planned and constructed in five sectors. 83 buildings were constructed following the modern "plan libre" principles. (14 type A, 10 type B, 8 type C, 11 type D, 36 type 4004, 4 type 12001).

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	This settlement, which is one of the very few examples of state-led housing in Greece, was constructed in cooperation between ministry of Social Welfare and Social Housing Agency. Program's name was Axios Housing Complex and aimed to provide apartments for employees and this areas ex-inhabitants who used to live in slum.
Name of specific programmes or funding applied	(1) Social Housing Agency [O.E.K.]

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished.
Preservation and maintenance status details	There is not any organized preservation and maintenance program. Buildings' condition depends on inhabitants' financial condition. Generally, buildings are preserved in a medium condition and very few of them are badly preserved. Public space and basic infrastructure preservation is at municipality's care. Preservation condition is medium.
Urban | building transformation or regeneration	Most of the building stock has been partly altered by their residents in order to improve buildings energy efficiency and interior living conditions. However, there is not any specific organized transformation or regeneration process, either for the buildings or public spaces and the area generally.
Intervention scale	Energy efficiency improvements.
Intervention status details	Some of inhabitants' changes, such as extending interior space at balconies, change openings dimension and frames, exterior thermal insulation etc. affect negatively buildings facades.

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Redevelopment in Tavros replacement of old housing

Greece, Athens

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This renewal housing project in Tavros aimed to the radical modernisation of housing conditions through demolition of the old housing stock. It was a significant environmental upgrade of the wider area through the supply of additional public spaces and facilities. DEPOS regeneration project is very interesting for the means it used. It actually made use of the system of “antiparochi”.

Adress/District	Tavros Attikis, Athens		
GPS	37.58011, 23.41527		
Scale of development	District		
Project author Architectural studio	Association of DEPOS in collaboration with Tavros Municipality Aristidis Romanos (Director of Studies and Researches department of DEPOS) / George Bratsos (Architect at DEPOS), Varoutsis Stavros (Civil engineer at DEPOS).		
Constructors	Association of DEPOS in collaboration with Tavros Municipality		
Landscape author	–		
Period of construction	beginning: 1984	end: 1986	inauguration: 1991/1994

©DEPOS, “Redevelopment in Tavros”, p.7

©DEPOS, “Redevelopment in Tavros”, p.11

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	shops / kindergartens / leisure / open-air theatre	
Location - position of buildings	Parallel (with a wider façade facing a street).	
Urban Ensemble	Perimeter block	
	total area:	1 ha
	housing:	54 %
Connectivity | Accessibility	Walkways within the settlement| with local public transport and sidewalks/ pedestrians.	
Landscape	Enclosed collective green spaces with clusters of trees.	
Open and public space	The overall buildings’ design lets large collective green spaces for the residents.	current condition:
Quality of living environment	The areas’ coverage is 54%, which falls below the permitted limit of 70%. Thus, the architects managed to provide ample green collective spaces for the residents to enjoy. The overall quality is better than that of the typical Athenian building block.	
Main Features	Combining different uses	

RESIDENTIAL AREA

Residential buildings	Housing type: 8 T-shaped, 6-story block / Commercial-of-fice building follows the post-modern form and typology which was mainstream at the era and form three volumes on the perimeter of the area. Concerning housing, it should be stressed that it resembles the form and architecture of the typical multi-story apartment block that was developed in the Greek cities (called “polykatoikia”) by the private sector through a system called “antiparochi”.	
No. of buildings	9	
No. max. of floors	7	
Average no. floors	6	
Materials | Fabrication	Common reinforced concrete and bricks structures |concrete skeleton and fill-in brickwork walls painted in light colours.	
No. of dwellings	144	
Average dwe. area	90 m²	
Dwellings’ type	one floor (apartment)	2 rooms
Qualitative issues	Silia Nikolaidou made a social research in the three areas of Athens where DEPOS used the system of antiparochi for the regeneration of housing (Kaisariani, New Philadelpheia, Tavros) and she showed that residents were pleased as they could also acquire an antiparochi apartment (at the typical Greek polykatoikia) in more favorable terms. In fact the very form of the new building resembled the Greek polykatoikias, the typical form of mass middle class housing in Greece.	
Housing density	Number of dwellings per ha:	144

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	The plot initially housed refugees, with 136 households residing in six apartment buildings in 1936, later expanding to eight by 1950. Utilizing antiparochi, DEPOS acted as the “constructor” instead of relying on public financing. Former refugees and the municipality became “landowners,” offering their plot. This demonstrates the social acceptance of antiparochi in facilitating MC housing.

MASS HOUSING

Massification through: planned process **Building’s typology:** block	The renewal project sought to deliver fully functional apartments, replacing the previous small units of 40-45 sqm without proper kitchens and bathrooms. Lack of facilities, outdated infrastructure, and haphazard expansion hampered public space utilization.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public-private partnership	Antiparochi was a common reciprocal arrangement where landowners provided plots to constructors in exchange for one or two apartments. Initially, dwelling owners had 40% plot ownership while the state owned 60%, later transferred to DEPOS. To finance the project, DEPOS and Tavros Municipality secured a loan from the Loans and Consignations Fund, backed by the Greek State’s guarantee.
Name of specific programmes or funding applied	(1) Antiparochi

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished.
Preservation and maintenance status details	The overall condition of the buildings is satisfactory.
Urban | building transformation or regeneration	The newly constructed apartments are fully equipped and require minimal modifications. Currently, there is no organized program for regeneration or renovation in place.
Intervention scale	–
Intervention status details	–

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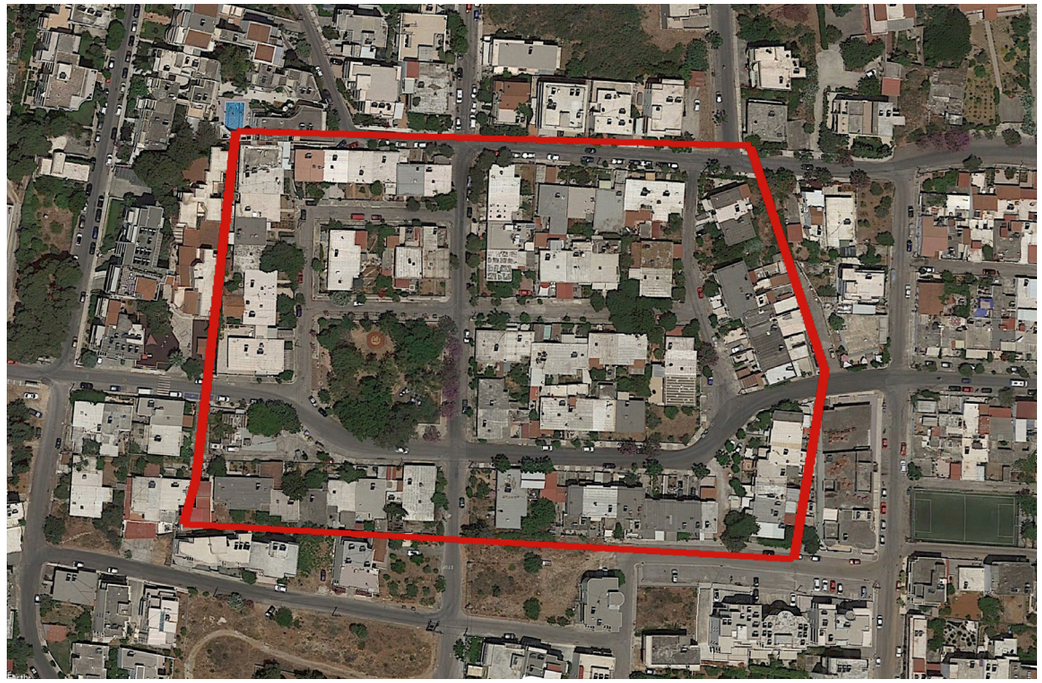
Chania 1

Greece, Chania



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The first programme of social housing in Chania city from the Greek state. Allocated in the borders of the city, by that period which in the next decades became an organized neighborhood with the necessary urban facilities. It was organized by three different housing types.

Adress/District	Chania 1, Ai Ghiannis Chania		
GPS	35.507237, 24.036620		
Scale of development	District		
Project author	Stamatis, Skiadaresis, Giamalaki		
Constructors	Greek State, Organization of Social Housing		
Landscape author	Stamatis, Skiadaresis, Giamalaki		
Period of construction	beginning: 1956	end: 1958	inauguration: 1958

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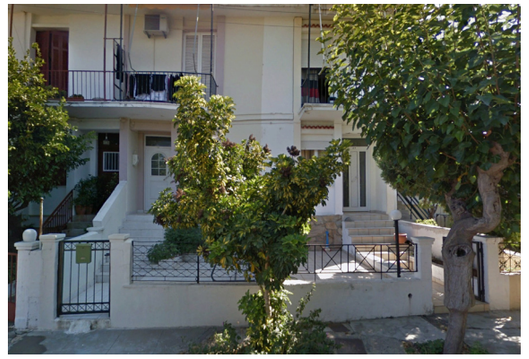

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URBAN AREA

Location - within in the city	original:	satellite
	current:	city fringe
Other facilities / availability of amenities	schools / market / kindergartens / leisure / open public square	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block / sun oriented paralell rows	
	total area:	3 ha
	housing:	75 %
Connectivity | Accessibility	Initially the project was based on a network for pedestrians which would lead to the basic open public square. Today this network does not exist as it is used mostly by cars. The area is served by one bus station which connects it with the center of the city.	
Landscape	Planning is based on the segregation between the private an the public space. The area is today surrounded by medium density built environment.	
Open and public space	The basic idea was the creation of a public open space which would be the center of public life. The rest 10 public squares are planned in a way which would reserve private open spaces as each building covered almost 50% of each plot.	current condition: reasonable
Quality of living environment	The area keeps its identity and small scale interventions are added. The wider area is characterized by a denser environment and less private open spaces.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	Every dwelling is connected with the main public square through public roads. Each dwelling has a separate open private space.	
No. of buildings	35	
No. max. of floors	2	
Average no. floors	1	
Materials | Fabrication	The construction procedure was typical as there was no prefabrication constructive system applied. The bricks that were used were produced by the local quarry.	
No. of dwellings	100	
Average dwe. area	60 m²	
Dwellings' type	one floor (66)	3 rooms
	duplex (34)	3 rooms
Qualitative issues	The main bio-climatic principle applied is the orientation of buildings for their optimum ventilation and solar orientation.	
Housing density	Number of dwellings per ha:	33

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The project was the first for middle class housing in Chania city. The original dwellers have not changed, most of them demised their property to their children, who remain there today.

MASS HOUSING

Massification through: planned process **Building's typology:** semi-detached house	The basic idea was the creation of a typical neighborhood of 100 houses in a small scale Greek city, with a main public square and low-height, medium density constructions. The basic idea was the construction of duplex houses which would allow private open spaces for each dwelling.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** private	The national policy programme developed during the 1954-1993 period, was the typical for medium sized cities with lower densities compared with Athens of Thessaloniki. It was a top-down approach as the Greek State constructed houses that were distributed after a draw to citizens with certain income criteria.
Name of specific programmes or funding applied	(1) Organization of Social Housing programme

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The area is well preserved due to its inhabitants' efforts. The facades have been painted with different colors, fact that shows the trend for place-making and small-scale additions as shelters and thermal insulation new frames are the new additions. The public square is enriched with a playground.
Urban | building transformation or regeneration	There are no organized regeneration programmes applied in the area. Small scale transformations - interventions are involving the buildings and are driven by their inhabitants.
Intervention scale	Buildings
Intervention status details	The small-scale private interventions are financed by their inhabitants for their own houses' preservation. Their effect is evaluated as positive in terms of preservation, but these non-organized changes threaten the basic architectural elements of the area as a total construction and may cause the loss of its identity. The addition of the playground in the main open public square is considered as a positive

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Budapest, Dunaújváros, Miskolc

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Country of Small Housing Estates: the case of Hungary

In Hungary, the first housing-estate-like neighbourhoods appeared before World War I, but modern housing estates appeared in Hungary only after World War II. Based on their planning, architecture, and construction technology, we can distinguish different generations of mass housing neighbourhoods from the state socialist period: late modern in the 1940s, socialist realist in the 50s, socialist modern in the 60s and 70s, and postmodern in the 80s. In this chapter, we discuss these housing estates and the main features of their development. They were built for the officially homogeneous worker class. And yet, due to political and economic change and the total privatisation of the housing stock in the 90s, today they provide homes for the middle class, in general. Twenty per cent of the Hungarian population lives in these inherited mass housing neighbourhoods composed of primarily small housing estates. Market trends over the past decade suggest that housing estates will be one of the dominant segments of the housing market in the long term.

In 2022, of the 4.4 million dwellings in Hungary, 927,000 are on housing estates, which makes up 20% of the housing stock. About 600,000 homes were built using prefabricated large panel technology, while another ca. 300,000 units of the housing estate are in traditional brick cubes or slabs or cast concrete buildings. The average size of housing estates in Hungary is relatively small, compared to other Central and Eastern European (especially post-Soviet) countries, because 71 percent of the Hungarian housing estates have less than 1,000 dwelling units. Large housing estates of more than 10,000 apartments are very rare, only nine such giant mass housing areas having been documented and only two of them (in Miskolc and Pécs) are located outside of the capital city of Budapest (Egedy, 2000).

In terms of dwelling size, Hungarian housing estates are dominated by two-room (one bedroom) apartments with 50-59 m2 (44 percent), while apartments larger than 80 m2 are very rare (1.8 percent). As a trend it can be said that the more recent the housing estate, the bigger the average floor space is. The average level of modern comfort (utilities) on the housing estates has always been higher than for the rest of the housing stock. This has been the main factor that attracted younger and better-educated people to housing estates in the state-socialist period between 1949 and 1989. After the change of the political and economic regime in 1990, despite the common past, former mass housing areas present divergent stories due to the socio-economic position of the city where the housing estate is located (e.g., the capital city of Budapest vs former industrial socialist new towns), and in addition their location within the city (Benkő, 2015).

Historic overview

In Hungary, the first law on state housing construction was passed in 1908 and aimed to build app. 10,000 workers' flats in Budapest's urban agglomeration. The most significant result of this initiative was the Wekerle Garden City planned and built as a conceptionally and architecturally harmonised district with 4000 units. Later, in the 1930s and 40s, state-subsidised housing programmes facilitated the construction of 12,000 family houses in the country, but after the World War II, mass-housing-meeting modern criteria appeared. In 1948 the first projects were launched to create residential neighbourhoods, composed of 3-4 storey-high cubes and slabs with small flats in green urban parks. In 1949, Hungary became a People's republic, a state-socialist country, and consequently, most of the land and app. 50% of the housing stock were nationalised. First and foremost, the communist regime concentrated most state revenues on post-war reconstruction and forced industrialisation, including the development of socialist new towns

Figure 1

(see the Dunaújváros' center housing estate case study). State housing policy, urban design and the architecture of the buildings changed following the soviet mass housing "guidelines" and the introduction of a centralised economy and planning system. Forced Coercive urbanisation demanded mass housing everywhere, not just for the middle-class, but all workers in a society officially without classes.

Housing estates in the 1950s were most often developed on sites close to the inner city, which had already been provided with public utilities or/and were easily accessible by public transport. These housing estates stood out for their relatively small size comprising between 300 and 800 apartments, and their physical 'human scale'. Planning and design incorporated mandatory requirements of the socialist realist style, presenting something historical and national as opposed to the Western European classical modernism. Open courtyards, 3-4 storey high buildings with pitched roof, high (52%) share of one-room apartments, and traditional brick technology were the norm (Kovács et al., 2018).

Then, following the turn of the Soviet model, the national mass-housing policy based on prefabrication and construction of housing estates was ushered in by the first "Fifteen-Year National Housing Development Plan" (1961–75) which was intended to satisfy housing needs in full by building one million new dwellings in Hungary (with its then population of 10 million), out of which 250 thousand was planned for Budapest alone. Ultimately, during the whole so-called 'panel period' between 1960 and 1990, about 800,000 small (average 52 m2) dwelling units were built in the ca. 600, mostly relatively small quantities (less than 2500 flats), mass-housing neighbourhoods across the country.

In the 1960s, principles of socialist modern architecture were adopted all over Hungary, and besides their theoretical endorsement, their perceived economic efficiency led to standardisation and prefabrication. The land was owned by the state, which first tried to reuse unbuilt urban areas located not far from the urban core (e.g., see Budapest's Kelenföld housing estate case study). Subsequently, several historic urban centres or surrounding traditional residential districts were demolished to make way for modern development. And finally, mass housing was developed in green field areas on the outskirts of cities (e.g, see Miskolc's Avas housing estate case study).

Thanks to unified large panel technologies, apartment buildings in housing estates started to 'rise'. 9 to 10 storey high slabs and towers became a common sight. In addition, some 45-80m high

residential towers, as landmarks symbolised the political power behind the development, and at the edge of the housing estates, sometimes 3-4 storey-high panel cubes provided extra housing solutions. Compared to previous decades, the layout of the accommodation was more liveable, whereby the share of two-room apartments (one for parents, other for children) with bathroom and central heating considerably increased.

In Hungary, the average size of housing estates also climbed from 1,000 to 2,000 units, while in the capital city of Budapest and in other bigger cities several large-scale housing estates, with 6000-8000 flats were built. The prestige of the housing estates was considerably higher than that of the run-down existing historic housing stock, for which they became very much favoured by young middle-class families with children, who often decided to move out from their unfashionable inner-city homes to the new housing estates (Csanádi and Ladányi, 1992). At that time, living in a panel flat, using nearby amenities and having access to open green public space was simply the norm for everybody.

Nonetheless, social criticism did arise following the construction of the first such ensembles (Szelényi and Konrád, 1969). Density, monotonous appearance, and lack of common space were the main facts leading to stigmatisation of these modern urban housing solutions. The mass housing production was coordinated at a national level, and in the process, the industrial sector had a much stronger political and economic position then the planners and architects. Nevertheless, in the run-up to the second fifteen-year housing policy (1976–90), some new planning and design initiatives appeared. Architects sought out more flexible design solutions at a neighbourhood, individual building, and single flat level, as well. In 1976, a new catalogue for panel buildings was published, offering small-scale changes in the dimension and the shape of the prefab elements to allow more complex urban compositions, as well as diverse range of apartments for different households to accommodate multi-generational or large families, or for single inhabitants.

The 1970s were the peak of housing construction in Hungary due to the spread of large-scale prefabrication technology provided by panel factories. By 1976, as many as 10 housing factories and 6 panel plants were in operation, producing 35,000 dwelling units per year in the country (Egedy et al., 2022). Most of these mass-housing districts increasingly shifted to the periphery of the cities, where excessively urbanised areas on the green field offered

Figure 2

Figure 3

easier construction opportunities. However, the 1970s also brought about changes in the social composition of housing estates. Poorer and less educated people found it easier to get access to this kind of public housing, and the average social reputation of the new housing estates declined accordingly (Rietdorf et al. 1994; Szabó, 2013). In the 1980s, thanks to research on better living conditions, the size of new housing estates rarely exceeded 2-3,000 dwellings. New improved technological standards came into being, the efficiency of thermal insulation had to be improved upon. Postmodernism made its mark on the planning and design process, and consequently streets, squares, and semi-private courtyards reappeared on housing estates, and several panel buildings came equipped with a pitched roof. The size of flats generally increased providing more heterogenous spatial and functional inner organisations.

Present situation

After the change of political and economic regime in Hungary in 1990, housing policy and the status of the housing estates changed completely. The last working panel factory was closed in 1991, and over the years, the national housing stock, including app. 95% of the flats in mass housing areas, was privatised. Every residential building became an independent condominium composed of private flats. Since the number of owners varied between 16 (in smaller four-storey panel tower blocks) and 886 (in the biggest ten-storey Hungarian slab buildings), the housing market embarked on a new era of residential development with the mushrooming of residential parks and upmarket residential compounds (Kovács and Hegedűs, 2014).

These new owners acquired not only their own flats, but also all the problems inherent to ageing panel buildings. They had to assume responsibility for building maintenance and the potential development of common spaces and amenities, including staircases, façades, roofs, technical and electrical installations (Birghoffer and Hikisch 1994). But the open space around private buildings remained public, owned, and maintained by the municipality. Moreover, the way of thinking about housing and the living conditions of most Hungarians also changed, directly reflecting the new political, economic, cultural, and social context of a post-industrial and post-socialist society. In consequence, the large prefab housing estates earned a largely negative reputation for their socialist origins. At the same time, the utility (central gas heating,

Figure 4

water) and common (maintenance, elevator, waste, etc.) costs rose dramatically in the 1990s, and people who had the chance moved away from these housing estates to live in detached houses or flats in new gated communities (Csizmady and Csanádi, 2009). Those who have been unable to do so continue to reside there and have tried to adapt, for example, by making small gardens and adding cosmetic alterations to their balconies, yet they still feel segregated from the rest of society (Benkő at al., 2018). Since the mid-1990s, shrinkage of the population and ageing, both buildings and of its residents, , have been the abiding factor in most Hungarian housing estates.

At the present time, the share of the population living on housing estates is around 20% in Hungary and about 30% in Budapest. Generally, these residential neighbourhoods provide homes for the lower middle class. Single people, young couples, and single parents are more likely than the national average to be living on housing estates. In older housing estates (especially those of 1950s socialist-realist period), an influx of younger, better-educated residents has been noticeable since 1990. Since that time, an ageing population process and evident social-economic decline have beset the prefabricated housing estates of the 1960s, 1970s, and 1980s. And yet, these estates fulfil an important housing market function, as they provide an affordable solution for young people entering the housing market and buying their first home or an alternative for elderly people who want to reduce their living expenses. This is basically because house prices in prefabricated buildings are, on average, 15 to 30% lower than in brick houses. Although the share of residents with tertiary education is growing across all generations of mass housing neighbourhoods, this still lags the Budapest average.

Following the transition period between state-socialism and today's post-socialist capitalism, the Hungarian government introduced a national Panel Housing Programme in 2000 to begin the rehabilitation of the inherited panel-housing stock. The first phase focused solely on technical improvements to privatised prefab buildings, to invest in energy-efficient solutions. Any building could, as a condominium, participate in this programme, co-financed by the State, the municipality, and the private owners themselves, to add colourful insulation to the exteriors, sometimes change wood windows to plastic ones or replace parts of the technical and electrical installations. Between 2001 and 2007, about one quarter of all prefab flats were covered by the Panel I programme, and the

Hungarian State spent the equivalent of around €100 million on these renovations. When the country joined the European Union in 2004, several municipalities and the residents of prefab buildings wasted no time in tapping into new funding opportunities for further, more complex renovation works. Between 2007 and 2011 the national Panel II programme sought to offer more comprehensive technical improvements, but the focus remained on the buildings themselves. In 2011 the government suspended the Panel programme mainly because of budget cuts, but also because it was developing a new housing policy that favoured single-homes construction. Meanwhile at the same time, some municipalities, which owned the open space of mass-housing neighbourhoods, were renovating green spaces, areas for children, recreation, and other public amenities, as well.

In 2012, Hungary had a new Constitution which spoke of providing decent housing for all. But since housing policy has no national or political institution guiding it, decision-making is driven by macroeconomic and family policy considerations. The policy is founded on the protection of a housing system favouring private homeownership and a principled rejection of the public or non-profit rental sector. In this process, some well-located housing estates of Budapest, with good public transport and amenities have become more attractive for younger home seekers who are after sustainable urban living conditions.

Towards case studies

The global economic crisis of 2008 brought the housing market to a standstill for years, and the demand for housing estate living fell. However, after 2014, housing prices have skyrocketed and since then housing estates have been enjoying a renaissance (Kovács et al., 2018). By the early 2020s, housing estates represent one of the most sought-after segments of the housing market in Hungary, especially in the bigger cities.

The three selected Hungarian cases represent different housing estate generations. Dunaújváros, the first Hungarian socialist new town has an urban core developed mainly in a socialist realist style, at the beginning of the 1950s. Its urban and architectural legacy is well recognised at an international level; however, this former industrial city is suffering by an ageing and shrinking population (Kissfazekas and Benkő, 2022). The second case study, Kelenföld housing estate in Budapest, is the most dynamically changing large, prefabricated housing estate in the country. It was the first Soviet-type modern neighbourhood to be built in Budapest at the end of the 1960s, and today, due to its perfect location within the capital city and 21st century urban public infrastructure development (new metro line, new tram line, transport hub, etc.) in general, this former mass housing area became a much sought-after residential district (Antypenko and Benkő, 2022). The third example is in Miskolc, an Eastern middle-size industrialised city from the state-socialist period, at a time (the 1970s) when mass housing was being developed everywhere, but which today are facing with problems of population ageing and shrinkage, infrastructure degradation, and so on (Pirity and Kissfazekas, 2020).

These three case studies effectively illustrate how, despite different planning, architectural, and technological specificities and trends, housing estates continue to offer affordable housing for a wide range of the Hungarian population.

Figures

Cover - Pesterzsebet Center housing estate in the outskirt of Budapest, that replaced the historic urban core of the former independent town, ©Benkő, M., 2023.

Fig. 1 - Inner courtyard of a 70-year-old socialist realist housing estate in Dunaújváros. ©Benkő, M., 2021

Fig. 2 - Ajka's center, developments of a former socialist industrial city in the 1960-70s destroyed the past, ©Benkő, M., 2019.

Fig. 3 - One of the largest housing estates in Hungary, Debrecen's Újkert (New garden). ©Benkő, M., 2019.

Fig. 4 - The central park of the first large housing estate built in Budapest at the end of the 1960s, Kelenföld / see the case study. ©Benkő, M., 2019.

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Kelenföld Housing Estate

Hungary, Budapest

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Kelenföld was the first large-scale prefabricated housing estate realized in the Hungarian capital city of Budapest. Today, more than 50 years later - thanks to its location, the quality of the urban space, the actual urban infrstructure and private real estate developments in the area -, it could be classified as one of the best housing estates of Budapest.

Adress/District	Budapest, 11th district, Újbuda		
GPS	47.46512, 19.03325		
Scale of development	Urban plan / district / building		
Project author	Albert Kiss, Balázs Kovács (planning) / Csordás, T; Árkai, I., Farkasdy, Z., Zilahy, I., Bada, J.		
Architectural studio	BUVÁTI, LAKÓTERV & TTI		
Constructors	1. BHK / 43. State Constructor		
Landscape author	László Dalányi		
Period of construction	beginning: 1964	end: 1980	inauguration: 1967

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URBAN AREA

Location - within in the city	original:	next to the centre
	current:	next to the centre
Other facilities / availability of amenities	schools / health / market / sports / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Open block / sun oriented paralell rows / free-standing objects / free composition / superblock	
	total area:	119 ha
	housing:	18 %
Connectivity | Accessibility	At the time of the construction there was just a bus connection (10m) to the historic city center. But today, a new metro line (2014), and a new tram line (2018) provide perfect public transport facilities in any direction.	
Landscape	Kelenföld housing estate is divided into for neighborhood units by two perpendicular axis. Since 1980 the public center and the huge green park function there.	
Open and public space	The built-up area ratio (20%) and the floor area ratio (app. 2) are low (20%). The open space was developed simultaneously with the construction of the buildings, so today, a 50-year old vegetation gives a strong atmosphere to the neighborhood. After the privatization in the 1990s, the open space between buildings remained public, so owned and maintained by 11th district and Budapest.	current condition: excellent
Quality of living environment	Kelenföld housing estate is a really well developed and maintained area, thanks to its position and contemporary gray and green infrastructure developments.	
Main Features	Diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	Kelenföld housing estate the first to be built with large pre-fabicated panels using Soviet panel-factory technology. The neigborhood is composed of 10-storey high slabs and 10, and 15-storey high towers.	
No. of buildings	45	
No. max. of floors	15	
Average no. floors	11	
Materials | Fabrication	Prefabricated large scale concrete panels prepared in a soviet type housing factory. But 3 15-storey high residential towers were realisez as exceptions.	
No. of dwellings	8836	
Average dwe. area	54 m²	
Dwellings' type	one floor	2, 3 rooms
	studio	–
Qualitative issues	Compact, well orientated and organized flats composed of small rooms and separete kitchen with window. Due to the technology used, the spatial trasformation is almost impossible.	
Housing density	Number of dwellings per ha:	75

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	During state socialism officially the whole society functioned without social division. The worker-class received the new flats as a gift from the state till 1971. But in the 1990s, after the change of the regime, the housing stock became private and Kelenföld's flats are owned by the middle-class.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** slab tower	The per capita quantitative norms gave the compulsary guideline for the whole planning and design process. The massification was based on typification, standardisation, prefabrication on every scale: buildings, flats, interior design.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public/private	Until the economic and political changes of 1990, a special ministry coordinated national spatial planning and construction. Since then, this professional field has often been subordinate to various political institutions, and now housing policy has no special institutional or organizational background. Since 2000, a national program facilitate the technical renovation of the panel buildings.
Name of specific programmes or funding applied	(1) Open space renewal (2) Panelprogram (State, district)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	Every residential building can apply for technical renovation fond to make exterior insulation and modernize the heating system or change the windows. But at least a third of the cost of the work must be covered by the condominium, so the actual condition of a building, refurbished or not, reflects the social-economic status of the inhabitants.
Urban | building transformation or regeneration	Last years, private investors started to realize new buildings in Kelenföld, as higher educational center, shopping mall, new residential complex, using the well developed infrastructure, the position and the condition of the modern housing estate.
Intervention scale	Neighbourhood community improvement / buildings / open and public spaces / collective green spaces / energy efficiency improvements / city
Intervention status details	The whole area has an important value, not its buildings. From architectural point of view the 3 residential towers (design by Z. Farkasdy) are mentioned and nowadays a discussion started about the demolition/replacement or the transformation of the former public center (architect: I. Zilahy & J. Bada).

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Belváros

Hungary, Dunaújváros

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Dunaújváros (originally Stalin-city) was the first Hungarian new socialist industrial town, a “model” and testing ground for new urban planning ideas. The first neigbourhood unit was built close to the planned city centre, therefore included a number of important public building as well.
The ‘socialist realist’ urban design and architecture principles were mixed with modernist ones.

Adress/District	Dunaújváros (inner city)		
GPS	46.961529, 18.938884		
Scale of development	Urban plan / district / building		
Project author	Weiner, T. (planning), Schall, J., Tiszer, I., Deák, E., Zilahy, I., Vági O., Lovász, Gy. Jálics, J. Szhrog, Gy. (architecture)		
Constructors	NBV (Nehézipari Beruházási Vállalat)		
Landscape author	–		
Period of construction	beginning: 1950	end: c.1954	inauguration: –

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	schools / market / shops / kindergartens / leisure / day nursery / post office / theatre / cinema / hotel	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block / open block / free-standing objects / free composition	
	total area:	30 ha
	housing:	80 %
Connectivity | Accessibility	The neigbourhood unit is bordered by the 2 main axes of the city, which connect the city centre with the railway station and the Ironworks.	
Landscape	The natural and urban landscape of the new city – the location of the Ironworks, the Danube, the railway – was the precondition for the choice of site for construction.	
Open and public space	Well-designed airspace ratios between buildings, plenty of green space, pedestrian paths, and the quality public realm and micro-architectural elements that still exist in many places can offer a very pleasant residential quality.	current condition: excellent
Quality of living environment	Its proximity to the main square and many urban public buildings means that it has excellent amenities. Not only buildings of primary services but also the most important public buildings are within walking distance.	
Main Features	Diversity / readability / combining different uses / axiality	

RESIDENTIAL AREA

Residential buildings	The residential buildings in the area are typically 3-4 storeys high. However, along the urban main road, 6-storey facades have been built for conceptual reasons, with corner tower accents in places.	
No. of buildings	60	
No. max. of floors	9	
Average no. floors	4	
Materials | Fabrication	Brick-built houses are built with traditional technology.	
No. of dwellings	4800	
Average dwe. area	50 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	studio	
Qualitative issues	The varied housing structure is favourable. Disadvantages are the closed character of the buildings, the lack of connection to the garden and the lack of or the very small size of terraces, balconies and loggias.	
Housing density	Number of dwellings per ha:	160

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	The city was originally built for workers. However, the variety of flat-sizes suggests that in the past, it was not just workers who lived here. Because of the excellent location of the district may have happened changes in the social composition of the population after the change of regime.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** slab block semi-frame	It was a time of experimentation: a wide variety of building and housing types were used. The architectural image was a very important issue. The neigbourhood unit was built during a period of stylistic change between modernist and socialist realistic. The change of attitude is also strongly visible in the building typology. The first phase of the Belváros was characterized by slab constructions, but the part of the district that was built later has a semi-frame layout.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** private	Because the buildings had to be constructed quickly, they had many technical problems just 10 years after they were built. However, the privatization made after the change of the regime in 1990, nowadays the flats and the buildings as condominiums are owned by the inhabitants, but the open spaces remained public. As consequence, the potential renewal of the residential buildings depends on its residents.
Name of specific programmes or funding applied	1) Renovation of one of the most important public buildings of the socialist realist area, the Dózsa cinema.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	The Municipality is seeking to place the architectural and industrial ensembles under local protection through its 'value register'. In 2018, the Municipality introduced a so-called 'Architectural Promenade', guiding visitors, by the help of similar panels, between 35 relevant buildings, open space, and artworks of the 'New Town' district from the 50's.
Urban | building transformation or regeneration	Thanks to EU funding, public buildings and some parts of the open space systems renew.
Intervention scale	Buildings / open and public spaces / energy efficiency improvements / public buildings
Intervention status details	Along the Vasmű Road, the city's socialist realist heritage public buildings continue to live on in renewed form. Among them, the Health Centre (1951) and the Dózsa Cinema (1952) have been classified as historic monuments since 2004. In 2021, the cinema, as a contemporary multiplex cinema was fully renovated preserving the original concepts and details.

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Avas Housing Estate

Hungary, Miskolc

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The Avas housing estate was built on the south-southeast slopes of Avas between 1973 and 1985, in three phases. The housing estate - with 10,448 flats - is one of the largest housing estates in the country. About a quarter of the population of Miskolc lives in the district.

Adress/District	Miskolc, Avas District 3529		
GPS	48.082505591467374, 20.78048319886059		
Scale of development	Urban plan / district / building		
Project author	Péter Heckenast, István Horváth (urban planning) / Adrienn Szakonyi , Pál Krisztik, László Thury, József Dufala, Károly Liszkay, Antal Révy,Imre Bortnyák		
Constructors	BÁÉV		
Landscape author	Mária Issekutz		
Period of construction	beginning: 1973	end: 1985	inauguration: –

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URBAN AREA

Location - within in the city	original:	next to the centre
	current:	next to the centre
Other facilities / availability of amenities	schools / health / market / shops / kindergartens	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Ribbon development / sun oriented paralell rows / free-standing objects	
	total area:	123 ha
	housing:	8 %
Connectivity | Accessibility	In the 70s and 80s, bus transport was the only form of public transport to reach the historic city center. This condition is unchanged to this day. The motorway routes dominating the area, the pedestrian routes are underrepresented.	
Landscape	The design of the housing estate was mostly determined by the hillside situation.	
Open and public space	The open space was developed simultaneously with the construction of the buildings, so today, a 40-year old vegetation gives a strong atmosphere to the neighborhood. After the privatization in the 1990s, the open space between buildings remained public, so owned and maintained by Miskolc.	current condition: reasonable needs to improve
Quality of living environment	The Avas district is in an advantageous position in terms of infrastructure and institutional facilities. The traffic is mainly car-centric, pedestrianized sidewalks and spaces are underdeveloped	
Main Features	Diversity / readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	The Avas is one of the largest panel housing estates in the country.The neigborhood is composed of 5- and 10-storey high slabs and 5- and 11-storey high towers.	
No. of buildings	260	
No. max. of floors	11	
Average no. floors	7	
Materials | Fabrication	Prefabricated large scale concrete panels prepared in a soviet type housing factory. The panels had some regional modifications (BVPR system).	
No. of dwellings	10448	
Average dwe. area	54 m²	
Dwellings' type	one floor	2, 3 rooms
	studio	–
Qualitative issues	Compact, well orientated and organized flats composed of small rooms and separete kitchen with window. Due to the technology used, the spatial trasformation is almost impossible.	
Housing density	Number of dwellings per ha:	85

MIDDLE-CLASS

Original dwellers class: others

Current dwellers class: middle-class

During state socialism officially the whole society functioned without social division. The worker-class received the new flats as a gift from the state till 1971. But in the 1990s, after the change of the regime, the housing stock became private and the flats of Avas are owned by the middle-, lower middle-class.

MASS HOUSING

Massification through:
planned process
element's repetition

Building's typology:
slab
tower

The per capita quantitative norms gave the compulsary guideline for the whole planning and design process.
The massification was based on typification, standardisation, prefabrication on every scale: buildings, flats, interior design.

HOUSING POLICIES

Urban promotion type: public

Housing promotion type: public

Until the economic and political changes of 1990, a special ministry coordinated national spatial planning and construction. Since then, this professional field has often been subordinate to various political institutions, and now housing policy has no special institutional or organizational background. Since 2000, a national program facilitate the technical renovation of the panel buildings.

Name of specific programmes or funding applied

(1) Panelprogram (State, city)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance

Partially refurbished.

Preservation and maintenance status details

Every residential building can apply for technical renovation fond to make exterior insulation and modernize the heating system or change the windows. But at least a third of the cost of the work must be covered by the condominium, so the actual condition of a building, refurbished or not, reflects the social-economic status of the inhabitants.

Urban \| building transformation or regeneration

Due to the favorable infrastructural situation and institutional supply within the city, the construction of condominiums continued in various parts of the Avas district even after the change of regime. The church functions that had been missing until then also appeared in the district. Community initiatives have also appeared (community café, community gardens)

Intervention scale

Buildings / community improvement / energy efficiency improvements

Intervention status details

Following the regime change, the panel program was the most important area-wide development that remained unfinished.

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Israel

Tel Aviv, Haifa, Kiryat-Gat, Hatzor HaGlilit, Beer Sheva

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Israeli Middle-Class Mass Housing

Middle-class housing in the context of post-independence growth in Israel, where urban growth was guided by the massive construction of new neighbourhoods and buildings, produced various types of shared dwellings for the diverse strata of the middle class, which became the prevailing type of urban housing. This introduction posits Israeli middle-class housing architecture as a means for characterising the Israeli middle class, demonstrating that planning and architecture were not just the outcome of its rise, but also contributed to its consolidation. In the framework of urban growth and national consolidation starting in the 1960s, housing for the middle classes emerged as the by-product of diverse phenomena, including urban and national policy, private contractors, neighbourhood associations, financial systems, architects, and planners. In this brief introduction, we present the transition from largely self-developed middle-class dwellings to the involvement of diverse actors and mass-housing design solutions as key aspects of the consolidation of the Israeli middle class. We outline the historical framework for five middle-class mass-housing estates presented in this volume that span a broad twentieth-century timeframe and include mass-housing neighbourhoods that were designed specifically for the middle-classes and others that were inhabited by them over the years. Asking what constitutes the mass housing of the Israeli middle class, we point to these characteristics within the estates discussed. We further reveal MCMH as a design product that engages the complexity of class distinctions in the context of shared urban dwellings.

In Israel, whose nation-building and immigrant housing apparatus has been state-dominated since statehood in 1948 (Allweil 2017), the introduction of mass housing for the middle classes, which previously chose detached or apartment housing, was a distinct transformation, invoking the design and development of a *sui generis* building type and urban-architectural premise (Allweil and Zemer, 2022).

Following statehood, Israel's post-independence-built environment served as a civic vehicle for consolidating the nation state based on the principles set in the pre-state period. Israel's housing-based nation-building ideology and apparatus defined mass housing as a national goal, administered via the Ministry of the Prime Minister and later the Ministry of Labour and a dedicated Ministry of Housing. Mass housing therefore proved to be the chief focus for Israeli architects in the 1950s-1960s, creating an architecture culture largely premised on housing as a key mechanism for sovereignty and nation-building (Allweil, 2017). The pressing socio-political needs and economic constraints of mass housing at the pace and scale required by vast post-World War II Jewish immigration from all over the world, produced an unprecedented number of housing programmes in the country's first five years, integrating them into a national policy of mass housing known as the Sharon Plan (Sharon, 1951). Many housing estates were therefore intended as social-housing complexes monitored by the state and disseminated by it via various administrative conditions, akin to an explicitly reformist, socio–democratic policy. These estates were to provide for new Jewish immigrants who were to be nationalised as citizens via homes in the homeland and who, as newcomers and refugees, were of limited means. The establishment of Jewish settlements in all regions of the state, which intended to densify Jewish presence in unpopulated regions, as well as in places conquered by Israel or towns and villages from which Palestinians were expelled, was an additional major policy that called for mass housing.

The construction of mass housing intended for new immigrants can be roughly divided into two phases, or "waves": in the "first wave", which can generally be dated to Israel's first decade (1948-1958), neighbourhoods were designed with a rather uniform planning approach that

reflected architectural modernism and the post-war international style, and produced the mass housing neighbourhood termed in Hebrew the *Shikun* (Gitler & Geva, 2020). The buildings and neighbourhoods were built with efficient and inexpensive building technologies in a very short period of time (Tovia & Boneh, 1999).

The "second wave" of public mass housing began in the early 1960s and received further impetus following the Israeli annexation of Jerusalem in 1967 and immigrant waves from the Soviet Union in 1971-73 (Remennick, 2015). Housing during the "second wave" presented a reassessment of planning approaches, as a consequence of the social, structural and climatic problems that arose from earlier schemes (Rozin & Watzman, 2011; Tovia & Boneh, 1999).

It is during this "second wave" that we identify the rise of urban mass housing designed for the middle classes. This mass-housing architecture represented a distinct transformation with a distinct building type and urban-architectural premise (Carmon, 1990; Allweil & Zemer, 2022). Middle-class mass housing (MCMH) differed from social housing in three major aspects: first, the modular and repetitive design of the single apartment of the social mass housing provided by the state, was replaced with a diversity of apartments that catered to diverse family sizes and varied economic means. This dictated the design of significantly larger apartments within the framework of MCMH. The design of the social housing estate, characterised by row buildings of two to four stories, was not adopted in MCMH. For the middle class, a variety of building heights, sub-divisions into different building arrangements within the estate and sophisticated landscaping, contributed to new spatial values. The relationship between pedestrian access and motor vehicle access and parking – hardly ever dealt with when considering the meagre means of many new immigrants – became an integral part of designing for the middle class.

Secondly, higher living standards were included in the provision of higher-quality construction materials, improved modern plumbing, lighting, climatic adaptations, electricity, appliance infrastructure, and more.

Thirdly, the state's role in development and subsidies for mass housing for the middle classes involved a market-based mechanism for large-scale development. This new mechanism was based on private contractors – rather than the Ministry of Housing as developer and contractor – who provided the economic framework and financial planning for executing the estate; and the dramatic development of the mortgage market and private financing of the apartments to produce a real estate market wherein the apartment became the middle-class's chief financial asset and form of investment (Allweil & Ben-Asher Gitler, 2023). As such, and to a great extent, the Israeli urban middle class was articulated by design, namely via the design, construction, finance, operation, and habitation of urban mass housing estates. These urban mass-housing frameworks served as spaces for examining, articulating, and shaping the middle class as a way of life and social strata, and thus as a communal identity.

Planning for Middle-Class Mass Housing

Israel's planning mechanism is centralised and managed via national planning bureaucracy per nation-building policies set by the government. Top-down planning and standardised laws are provid-ed by centralised and hierarchical planning, (Alterman, 2002). According to the Planning and Construction Law of 1965, the National Council for Planning and Construction (NCPC) is the legal authority that governs the national planning institutions. Over the years, the Planning and Construction Law of 1965 has undergone patchy modifications depending on the policies the government chooses to promote.

The NCPC determines the outline of the national plans on the physical and policy levels, by prescribing policies through the district planners and through operative actions. These policies are specified in the Planning and Construction Law and serve as the foundation layer for determining policies for the lower planning layers. Whenever the council wishes to outline a planning policy of a theme, the council drafts a National Outline Plan, known as TAMA. For example, TAMA no. 3 deals with state transportation routes, while TAMA no. 35 deals with urban patterns and textures (http://iplan.gov.il/).

Planning actions and decisions are implemented through the State's operative branch, the "Planning Administration" (Minhal

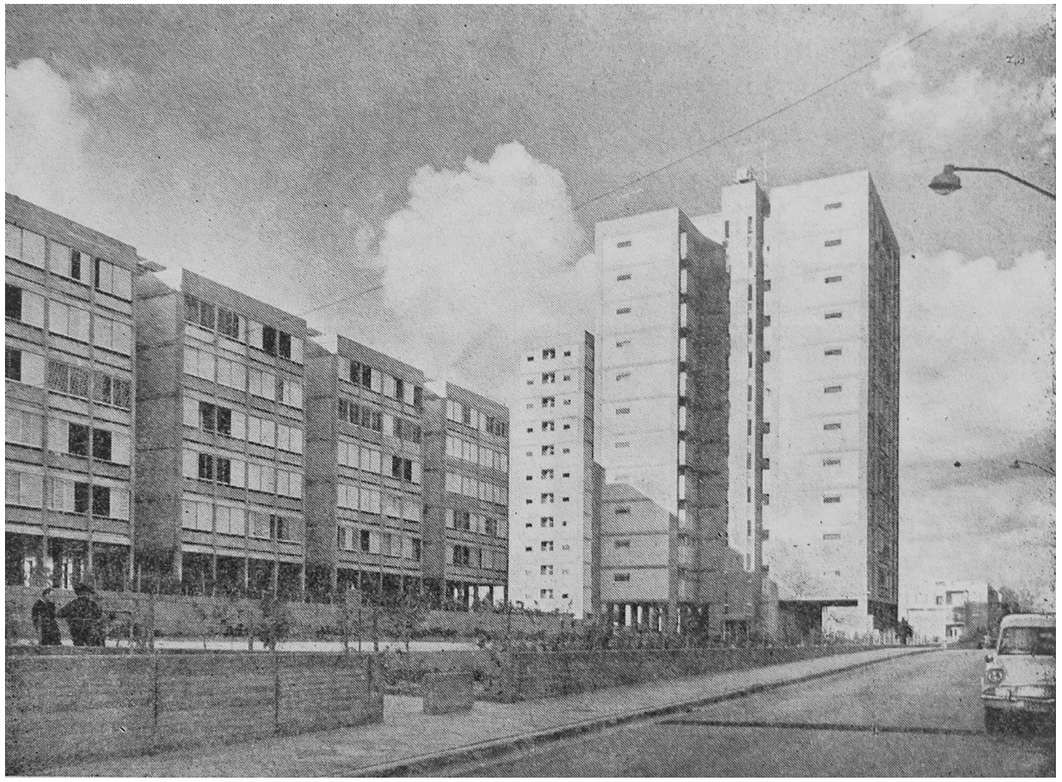

Figure 1

Hatichnun), under the Ministry of the Interior. The Planning Administration, formulates planning policies, initiates and promotes national, district and local outline plans. There are four main areas of focus: 1. Spatial planning, infrastructure, and housing; 2. Strategic planning; 3. Licensing and construction regulation; and 4. operation and control. The Planning Administration is responsible for residential planning in the State of Israel, where decisions are made about the distribution of residences in Israel's cities, peripheries and more (http://iplan.gov.il/).

In Israeli planning hierarchy, six district committees distributed according to planning areas are subordinate to the NCPC. These are the North, South, Center, Jerusalem, Tel Aviv, and Haifa committees, which are responsible for approving comprehensive outline plans for diverse themes, local outline plans, and detailed plans.

The district committees oversee comprehensive outline plans and local outline planning committees. In the planning authority hierarchy, local committees are the lowest echelon, in charge of executing national and regional policy via detailed planning. Each local area is governed by a local planning and construction committee. The Minister of Interior determines the local planning area, which usually includes one local authority. In the case of several (smaller) settlements, the local committee will be called a regional committee. Local committees have a wide range of authority, in-cluding licensing, planning, supervision, and enforcement (http://iplan.gov.il/).

The variety of MCMH building's typologies, their layout organisation in the urban vicinity, their overall orderly and repetitive aesthetic (reflected in the examples' templates), as well as their fast construction, were all perfectly integrated and

Figure 2

well-suited to the centralised and hierarchical residential building policy and decision-making as was (and still is) implemented in Israel (Porat & Shach-Pinsly, 2021). As a result, local committees of many municipalities in many cities were able to quickly develop MCMH neighbourhoods in a fast and wide norm.

Middle-Class Estates in Israel

Early examples of middle-class mass housing, developed in the 1950s, were not intended exclusively for working-class inhabitants or new immigrants; rather, they aimed to provide housing for young couples of veteran Israelis, and for citizens of various professions and newcomers from multicultural backgrounds. Examples for this period included here are of Bat Galim Neighbourhood in Haifa and Glickson Neighbourhood in Kiryat Gat, where explorations of typological diversity would become a key characteristic of the Israeli middle-class. The "integrative habitation unit" developed by Arthur Glickson included row houses designed alongside clustered low-rise housing and detached housing (Barak, 2020). In Bat Galim, new designs for shared living in apartment houses presented row and clustered low-rise housing, adding to Kauffmann's earlier plans for detached housing.

In the 1960s, when Israel's cities densified, a variety of more concentrated urban and architectural typologies were developed. This can be seen, for example, in Be'eri estate in East Tel Aviv (figure 1), built for the purpose of housing more middle-class urban dwellers on agricultural land annexed to the city upon statehood (Allweil & Zemer, 2022). Designed by an exceptional design team composed of architects Arieh Sharon, Dov Karmi, Ram Karmi, Benjamin Idelson, Isaac Melzer, and landscape architects Lippa Yahalom and Dan Zur, Be'eri estate was explicitly designed to target a new and growing section of the Israeli housing sector: open-market urban housing for the middle class, by offering vast shared amenities such as parks and parking lots, and a community of white-collar professionals. Be'eri marks the transition from small-scale developers of market-produced urban apartment houses for the middle-classes, such as in Bat Galim, to the design and production of mass-housing estates by state-owned construction companies (semi-private) and on large tracts of land formerly characterising social housing.

Another example is Neighbourhood Bet ("Shchuna B") in Be'er Sheva (Figures 2 and 3), a state-sponsored experiment that reflected the

Figure 3

Ministry of Housing's new policy of encouraging the construction of middle-class mass housing. Neighbourhood Bet was intended for young families, veteran Israelis, and middle-class immigrants and included apartments larger than the earlier lower-class neighbourhoods in the town. Designed by architects Arieh and Eldar Sharon, and constructed between 1968-1978, Neighbourhood Bet also marked a turning point in the Ministry's approach to Be'er Sheva and the Negev region, previously planned as a peripheral urban center for the housing of new immigrants.

The Sharons designed Neighbourhood Bet in roughly the same period as their participation in the design of Be'eri Estate. Sharons' scheme for Neighbourhood Bet proposed a mass-housing neighbourhood of 925 dwellings in several building blocks planned on a grid, while Be'eri's architects designed 187 dwellings. Both estates integrated diverse housing types: Neighbourhood Bet included long slab-type apartment buildings, apartment buildings surrounding an inner court and rows of two-story townhouses. Towers were planned but eventually were not built. Be'eri Estate included two long slab-type apartment buildings and two towers.

On the northern periphery of Israel, the clustered low-rise housing of the Gur Neighbourhood at Hatzor Haglilit, presents a different case – one that underscores the variety and diverse iterations of middle-class mass housing in Israel. Four hundred dwelling units for the ultra-orthodox Jewish community were designed here. Most members of this ultra-orthodox community had large families and limited income and hence assigning to them a middle-class identity would be erroneous. However, relocating to the small peripheral town of Hatzor Haglilit afforded significant improvement in quality of life, reflected in the architecture of apartments, apartment buildings, and clusters. Architect David Reznik designed duplex apartments of one to two stories with adjacent private parking lots. He included internal courtyards and pedestrian paths, as well as numerous public courtyards with vegetation, and a group of central communal services, such as preschools (Shachar 2020, pp. 43-68). Providing this community, which is of reduced financial means, with the possibility of owning spacious four and five room duplexes nestled among gardens, squares, and paths, applied middle-class design standards for a lower-class community. However, the design ignored several specific attributes of this community – such as the decreased access to private vehicle ownership and hence lesser need for parking. Its design demonstrates that in Israel, mass housing that

offers middle-class characteristics and amenities is not necessarily lived in by the middle classes themselves. In the case of Gur Neighbourhood, the estate's design conceals the lower economic means of its residents, perhaps generating class mobility, and certainly revealing the complexity of class distinctions in the context of shared urban dwellings.

Just as the neighbourhoods discussed here vary in their evolvement – some had begun with different target settlers and others manifested a middle-class consciousness from the outset – so their habitation and conservation differ today. The Be'eri, Bat-Galim and Bet Neighbourhoods have preserved most of their middle-class characteristics. Although none have been identified or listed for conservation, their residents maintain a high level of communal awareness of the need to look after their surroundings and take care of the communal assets that contribute to day-to-day wellness. The Gur Neighbourhood has undergone drastic change, although the basic principles of Reznik's plan can still be discerned (Shachar 2020).

Conclusion: Designing the Middle Class

As in other cases in Europe, the social category of the Middle Class is often messy and particular. We therefore have undertaken an architectural, urban and planning analysis of mass housing estates designed for the middle classes in order to delve deep into this diverse built landscape and offer insights into its characteristics, history and urban scale influences. Examining the architecture and planning of significant examples of housing for the middle class reveals the capacity of the built environment to unpack the social, economic and political category of the middle class via its primary asset: the residential unit.

Israel: Tel Aviv, Kiryat-Gat, Hatzor HaGlilit, Beer Sheva, Haifa

Figures

Cover - Be'eri Estate, Tel Aviv, 1970. © Rokach Award booklet. (1970, September 13). Rokach Files (Item No. p-6048). The City of Tel Aviv Archive, Tel Aviv, Israel.

Fig. 1 - Be'eri Estate, Tel Aviv, 1970. Source: Rokach Award booklet. (1970, September 13). Rokach Files (Item No. p-6048) © The City of Tel Aviv Archive, Tel Aviv, Israel

Fig. 2 - Shchuna B, Be'er Sheva. © Inbal Ben-Asher Gitler, 2023.

Fig. 3 - Shchuna B, Be'er Sheva. © Inbal Ben-Asher Gitler, 2023.

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Be’eri estate

Israel, Tel Aviv

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A distinguished team of Israel’s ‘first generation’ architects, highly involved in CIAM meetings and the international discourse on modern housing environments, collaborated in designing Be’eri estate in Tel Aviv. Frequently related to postwar public housing, the designers locally developed Brutalism’s urban and architectural vocabulary in this private-led middle-class housing estate.

Adress/District	36-56 Be’eri st., Tel Aviv		
GPS	32.082188, 34.790734		
Scale of development	Building		
Architectural studio	Arieh Sharon-Benjamin Eidelson architects, Dov Carmi-Tzvi Meltzer-Ram Carmi architects		
Developer	Solel-Boneh construction company		
Landscape author	Dan Zur, Lipa Yahalom landscape architects		
Period of construction	beginning: 1962	end: 1965	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	–	
Location - position of buildings	Parallel (with a wider façade facing a street).	
Urban Ensemble	Open block / sun oriented paralell rows	
	total area:	1300 ha
	housing:	18 %
Connectivity | Accessibility	The estate includes an internal system of multileveled, partly roofed walkways that reach the surrounding streets in four different points and connect them to the city’s street network. An inner service road leads to two resident-owned parking areas.	
Landscape	The landscape’s role was to promote resident interaction, while at the same time enabling a sense of privacy and space within the urban environment. It includes a street-level open park of three km2, and four smaller parks, each one attached separately to each building, as more intimate spaces for resident leisure and interaction.	
Open and public space	The estate’s four buildings, two slabs and two towers, do not enclose its open space but form an open structure, facing its parks to the urban surroundings. The open space is multileveled and divided by a walkway system, gradiating the dwellers transition from urban to domestic space.	current condition: good
Quality of living environment	The estate’s designers sub-divided the single-shared house of 190 units into four separate buildings, designing the longitu-dinal slabs as a merge of several individual apartment houses, thus providing a sense of privacy and individual identity within a group.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	The estate includes an internal system of multileveled, partly roofed walkways, connecting its four separate buildings. Both slabs include 'streets-in-the-air' - expansive shared roof terraces, enabling upper passage between the slabs' sub-sections, and offering an upper leisure area. A long ground-floor open arcade connects the slab's sub-sections.	
No. of buildings	4	
No. max. of floors	11	
Average no. floors	8	
Materials | Fabrication	The facades expose the buildings' reinforced concrete construction of beams and columns. Exposed silicate bricks - a traditional Tel Avivian building material - serve both as a building material and a finishing material of external walls. The internal walkways use 'granolite' pavement - made from local stone.	
No. of dwellings	190	
Average dwe. area	96 m²	
Dwellings' type	one floor	3 rooms
	studio	–
Qualitative issues	The slabs longitudinal facades face north and south directions. The units use cross ventilation. Recessed balconies, complemented with sliding shutters, were designed to protect internal space from rain and sun rays. Double silicate brick walls, including a central air gap, were designed to improve thermal isolation.	
Housing density	Number of dwellings per ha:	7

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Some of the estate's first residents were associated with the city's workers party leadership, others with white-collar labors, including doctors and architects. As a local development of Brutalism's architectural and urban vocabulary, the landscape's design includes a series of parks open to residents interpretation.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab tower	Both towers use an H-shaped floor plan of four units, resulting in a compact building width that allowed rising them up to eleven floors high. Both slabs use the Tel Avivian typical housing typology, merging 5-6 floor separate apartment buildings into longitudinal slabs. Be'eri's Floor Area Ratio (FAR) is 1.3, differing from 1.1 FAR typical to the surrounding neighborhood until then.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** private	Starting from the early 1960s, the city of Tel Aviv's leadership promoted building bigger and higher housing projects, providing semi-public construction companies with higher building percentages, to direct the increased incomes towards reformist city plans. This municipal process led to a typological shift in housing production in Tel Aviv - transitioning from individual 3-4 floor apartment buildings on 500 m2 lots to housing clusters on extra-large building lots.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Through the years, residents collectively maintained the estate and kept it close to its original appearance. However, original building details, such as horizontal wooden windows, or the balconies' sliding shutters, are gradually disappearing through apartment renovations. The shared parks and walkways are highly kept by residents, expect of the walkways where residents replaced the original 'granolite' pavement with a contemporary pavement.
Urban | building transformation or regeneration	Be'eri's surrounding neighborhood is due to several urban regeneration projects. Withstanding this process, Be'eri estate is protected by the municipal conservation department, although not yet officially listed. Additionally, residents state they have refused entrepreneurs' offers to replace the estate with lucrative housing complexes, owing to their current benefits from the spacious and green estate and its now central location in the city.
Intervention scale	Buildings / community improvement / collective green spaces
Intervention status details	Residents chose to enclose the estate's central park. Reflecting the estate's community will to minimize the wide-shared ownership, this action canceled the park's original function as a neighborhood gathering space, together with facing an unpleasant fence to the neighboring street.

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IHU Glikson

Israel, Kiryat-Gat

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The IHU in Kiryat-Gat is an ideal case study for tracing such utopian aspirations that were based on a detailed social-political-ideological programme, and which were architecturally realized. It further enables an examination of the human results of such social engineering.

Adress/District	Hashomron, Hacarmel and Har Meron streets		
GPS	31.61410344665313, 34.77459252937948		
Scale of development	Building		
Project author	Artur Glikson, Robert Marans		
Developer Constructor	Israeli government, the Integrative Habitation Unit (IHU) project.		
Landscape author	–		
Period of construction	beginning: 1958	end: 1960	inauguration: –

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URBAN AREA

Location - within in the city	original:		city fringe
	current:		city centre
Other facilities / availability of amenities	Schools / health / sports / shops / kindergartens / leisure		
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)		
Urban Ensemble	Sun oriented paralell rows / free composition		
	total area:		9.74 ha
	housing:		c. 52 %
Connectivity | Accessibility	Each of the six sub-units is interconnected through a series of pedestrian walkways, linked to the two main pedestrian axes. The two axes link the neighborhood to the town center and towards the recreation area, out of the neighborhood.		
Landscape	The development and construction of the area was according to its topography. Construction was adapted to it without any groundwork. This meant that each difference in height, for example, became stairs or even a covered path along the buildings.		
Open and public space	Unusual and irregular ratio between the open space and the built-up area. 70% was open space, playgrounds, inner pedestrian paths, public gardens, internal ‘tunnels’ along the ground floors, and wide public stairs.		current condition: good
Quality of living environment	Each sub-cluster planed as a traditional Mediterranean unit - intimate, small, narrow street that accommodates social interaction. People sit together in the public space in a familiar atmosphere. Social engineers were involved with the plan details.		
Main Features	Diversity		

RESIDENTIAL AREA

Residential buildings	Internal 'tunnels' along the ground floors, wide public stairs. Each sub-unit was determined by the optimal capacity of its secondary services like a playground for children and a small, well-designed open space that would form the main social area for informal social contact among the families in the sub-unit.	
No. of buildings	50-60	
No. max. of floors	4	
Average no. floors	3	
Materials | Fabrication	–	
No. of dwellings	1000	
Average dwe. area	70 m²	
Dwellings' type	one floor	2, 3, 4 rooms
Qualitative issues	Roofed passages along the main promenade, which provided shaded and ventilated public paths. The staircases of the long central blocks in each sub-unit were exposed to enable the penetration of light and air into the buildings. The breeze also functioned as natural air conditioning and, hence, lowered temperatures inside the apartments during the hot summers. A shaded pedestrian path under the ceiling of the first floor used the natural ground height differences.	
Housing density	Number of dwellings per ha:	0.009

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Overall characteristic of the town in general, i.e., did not have a significant upper-class population. The state/developer targeted middle-class. There has been some turnover in the population due to social mobility.

MASS HOUSING

Massification through: planned process **Building's typology:** detached house clustered low-rise row-housing block	Jewish settlement in the Lakhish region was intended to guarantee the territory as Israeli land. As immigration from North African countries ceased in 1952, the government chose to populate the region by renewing immigration from Morocco in 1954, as that Jewry remained the biggest available community for such massive immigration. Direct transference of the immigrants from the ships that arrived from Morocco to the Kiryat-Gat.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	State-sponsored government-funded housing intended to encourage settlement of the development town Kiryat Gat, the intended urban center for an agricultural region. The neighborhood provided diversified apartment types to families with varied economic means and different cultural backgrounds (immigrants as well as veteran Israelis).
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	No preservation, not listed for preservation.
Urban | building transformation or regeneration	–
Intervention scale	Neighbourhood / buildings / open and public spaces / collective green spaces
Intervention status details	Public building were added at a later phase such as Ben-Zvi elementary school. Many enlargements of the apartments by the neighborhood's middle class residents.

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Gur

Israel, Hatzor HaGlilit

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The planning of the Hasidic neighbourhood was grounded in an architectural model that hierarchically organized the systems that mediate between private and public premises, individual and community, and the apartment and the neighbourhood as a whole. The uniqueness of this pattern owed much to the informal contact between the architect and the Gur community in the course of the planning process.

Adress/District	Ta'am Hatzvi and Yonatan Sheber Streets		
GPS	32.988305830324975, 35.547405632522505		
Scale of development	Building		
Project author	David Reznik, Ministry of Housing, Israel government		
Developer and Constructor	Ministry of Housing, Israel government		
Landscape author	–		
Period of construction	beginning: 1970	end: –	inauguration: 1976

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	city fringe
Other facilities / availability of amenities	Schools / health / shops / religious / event hall / hostel	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Free-standing objects / free composition	
	total area:	16.63 ha
	housing:	c.38 %
Connectivity | Accessibility	Pedestrian system - based on two internal axes connecting the neighbourhood with the rest of the town. The vertical axis was connected to the existing centre of Hatzor, to the south, and to the north to a hotel and residential area. The horizontal axis connected the public buildings in the east to the olive grove in the west.	
Landscape	Reznik insisted on preserving and developing the olive grove to the west of the neighbourhood. In addition, construction was spacious, allowing green spaces to extend between the houses, a value Reznik saw as important also in building high-risers.	
Open and public space	The neighborhood was planned to take advantage of the hilly surface - the hills created few levels and housing system which was divided into an upper level for spiritual functions (religious and educational), while keeping a lot of open spaces in between the clusters of the houses and the panoramic view.	current condition: reasonable
Quality of living environment	The white plaster and rough, black natural basalt-stone terraces framing the gardens, all contributed to creating a space that conveyed a sense of intimate locality that blended with the local landscape.	
Main Features	–	

RESIDENTIAL AREA

Residential buildings	4 sub-neighbourhoods each sub neighbourhoods contained 80-100 housing units in groups of 6 clusters.	
No. of buildings	24 (clusters)	
No. max. of floors	3	
Average no. floors	3	
Materials | Fabrication	Black natural basalt-stone, white plaster, concrete. Use of materials and elements such as concrete, stones, and prefabricated elements that interpret building traditions identified as local.	
No. of dwellings	400	
Average dwe. area	70 m²	
Dwellings' type	one floor	2 rooms
	duplex	4 rooms
Qualitative issues	–	
Housing density	Number of dwellings per ha:	0.04

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Overall characteristic of the town in general, i.e., did not have a significant upper-class population. The state/developer targeted middle-class - The Hasidic community couldn't afford living in central Israel, and the unpopulated peripheral areas in the country, answered their unique identity and community values.

MASS HOUSING

Massification through: planned process **Building's typology:** clustered low-rise	The neighborhood was built as an organized customized plan for one of the largest ultraorthodox communities in Israel, which has unique way of life, and settled as a group in Israel's socio-geographical periphery. Hatzor-Haglilit suffered from economic hardship and social isolation and welcomed the Hasidic community, with its close-knit social structure, that finds in the Galilee a suitable residential area with government-subsidized employment, in proximity to the holy Jewish cities of Tiberias and Safed. This community was a massive boost to the "Judaization of the Galilee".

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	State-sponsored project delegated to partially state-owned construction companies, intended to encourage settlement of the peripheral town Hatzor and improve the quality of life of young couples from the ultra-religious "Gur" Hassidic Jewish community.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	No preservation, not listed for preservation.
Preservation and maintenance status details	–
Urban | building transformation or regeneration	–
Intervention scale	Neighbourhood / buildings
Intervention status details	Numerous interventions and extensions have been made by the neighborhood's residents, such as gable roofs, closure of balconies and more. Most of the original neighborhood can no longer be identified.

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Neighborhood Bet (B)

Israel, Beer Sheva

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The array of housing units in Neighborhood Bet presents the full assimilation of the principles of Brutalism and Structuralism in public housing in Israel. The integration of the common planning principles with the geometric aesthetics of Structuralism, the new materiality of Brutalism and the sensitivity to environmental conditions, have created impressive assimilation of these trends are to the place and desert environment of the Negev.

Adress/District	Between Eliezer Ben-Yehuda st, Bialik st, Shim'oni st and HaMeshahrerim Road		
GPS	31.25518211281392, 34.78778405002434		
Scale of development	Building		
Project author	Arieh Sharon, Eldar Sharon		
Developeror Constructor	Shikun Ovdim and Shikun u Pituach l'Israel LTD State of Israel		
Landscape author	–		
Period of construction	beginning: 1960	end: 1972	inauguration: –

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Schools / health / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Perimeter block / free composition / superblock	
	total area:	10.14 ha
	housing:	c.44 %
Connectivity | Accessibility	Sidewalks, pedestrian paths between the surrounding buildings connected to the main streets.	
Landscape	Sparse vegetation for climatic adaptation to the desert	
Open and public space	Several open squares, pedestrian passages	current condition: good, poor
Quality of living environment	Islamic and Middle-eastern architectural elements where embedded to improve the sense of belonging for the migrates from north Africa countries. These answered their cultural needs - Their individual and collective memories as new immigrants whose roots lay in the surroundings of their lives in the Diaspora.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	Shared Gardens, patios, pedestrian paths between the buildings, interior patios, several squers, collective spaces.	
No. of buildings	4	
No. max. of floors	4	
Average no. floors	3-4	
Materials | Fabrication	Raw concrete and rough plaster, soil/ground colors	
No. of dwellings	600	
Average dwe. area	65 m^2	
Dwellings' type	one floor	3, 4, 5 rooms
Qualitative issues	Deep windows, open stairs, wind corridors and shutters and other architectural elements based on Structuralist approach used for shading and ventilation.	
Housing density	Number of dwellings per ha:	0.02

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Overall characteristic of the town in general, i.e., did not have a significant upper-class population. The state/developer targeted middle-class. There has been some turnover in the population due to social mobility and proximity to university campus.

MASS HOUSING

Massification through: planned process **Building's typology:** row-housing mat-housing block	–

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	State-sponsored project delegated to partially state-owned construction companies, intended to encourage settlement of the peripheral city Be'er Sheva, that was quickly becoming the regional center of the Negev. The project reflected the policy of encouraging middle-class mass housing in Israel's periphery, by promoting larger apartments intended to provide diversified apartment types to families with varied economic means and different cultural backgrounds (immigrants as well as veteran Israelis).
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	No preservation, not listed for preservation.
Urban | building transformation or regeneration	–
Intervention scale	Neighbourhood / Buildings
Intervention status details	Low level of intervention, most of the neighborhood has been left intact with minimal external alterations by its middle class residents.

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Bat-Galim Neighborhood

Israel, Haifa

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The neighborhood of Bat-Galim was established in 1921 in accordance with the Garden City principles. Buildings are three to four stories tall with large open spaces that serve as residents' social "living rooms." The neighborhood is positioned close to Haifa's main road, a train station, a hospital, and a bus stop. A majority of its residents are immigrants, students, and elderly people.

Adress/District	Hamitnadvim st, Bat-Galim, Haifa		
GPS	32.833063476756465, 34.977876150616815		
Scale of development	District / building		
Project author	Richard Kauffmann		
Developers or Constructors	–		
Landscape author	–		
Period of construction	beginning: 1950	end: –	inauguration: –

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URBAN AREA

Location - within in the city	original:		city centre (old centre)
	current:		city fringe
Other facilities / availability of amenities	–		
Location - position of buildings	Perpendicular (with a shorter façade facing a street).		
Urban Ensemble	Sun oriented paralell rows		
	total area:		1.5 ha
	housing:		90 %
Connectivity | Accessibility	The MCMH project and the Bat-Galim neighborhood have a strong connection. The project is located within walking distance of a main road, where all major transportation passes. Also nearby are shops, schools, hospitals, and other neighborhood amenities.		
Landscape	Although the project is located close to the beach, it lacks a view of it. The east side of the project offers a wide view of Carmel Mountain.		
Open and public space	There are wide, well-maintained green spaces between the buildings where cars are not permitted. This open space is used as a social "living room" by residents of the project. Between the buildings, there is a distance of approximately 18-20 m, allowing a panoramic view of the Carmel mountain.		current condition: good
Quality of living environment	The quality of the building is very poor, and a renewal process is necessary. Building layout includes many walking paths between buildings with no cars, resulting in a high-quality open space that is well connected to the main neighborhood, resulting in a desirable neighborhood.		
Main Features	Flexibility / readability / diversity		

RESIDENTIAL AREA

Residential buildings	A total of 21 buildings with a height of 3-4 stories are planned for the project. Between buildings, there is a distance of 18-20 meters. There are 2-3 entrances in each building, with each entrance leading to two apartments on each floor. In the apartments, there are no terraces or patios.	
No. of buildings	21	
No. max. of floors	4	
Average no. floors	4	
Materials | Fabrication	The buildings contain small apartments measuring 50-60 square meters each. Construction materials, as well as infrastructure, are of very poor quality.	
No. of dwellings	280	
Average dwe. area	60 m^2	
Dwellings' type	one floor	2, 3 rooms
Qualitative issues	–	
Housing density	Number of dwellings per ha:	220

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The first inhabitants were immigrants. Several years have passed since Bat-Galim neighborhood was a center, and it has become a peripheral neighborhood, with upper-class residents moving away to surrounding areas. Today, middle-class, student, and other residents are returning to the neighborhood.

MASS HOUSING

Massification through: planned process horizontal growth element's repetition **Building's typology:** row-housing clustered low-rise block	The planning process was developed during the 1950s and has remained unchanged ever since. There hasn't been any urban renewal yet.

Bat-Galim Neighborhood, Haifa

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Private owners developed the project before the establishment of the state of Israel.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	There has been no renewal act implemented over the years, and the buildings and infrastructures are in poor condition. The open space between buildings is well maintained.
Urban | building transformation or regeneration	Buildings and infrastructures are not well preserved, and no renewal act has been implemented.
Intervention scale	Neighbourhood / community improvement / open and public spaces / collective green spaces
Intervention status details	Buildings and infrastructures are not well preserved, and no renewal act has been implemented.

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MCMH in Italy: perspectives and narratives on the national residential landscape

The Italian middle classes enjoyed a particularly defining moment of self-affirmation in the post-war period. The residential landscape plays a significant role in this process, embodying through the built environment – at the different scales of the flat, buildings, urban space, infrastructures and services – a socio-cultural imaginary that responds to the desire for representation in the urban context of a social group that claims a prominent cultural and economic role (Caramellino and De Pieri, 2015; Caramellino and Zanfi, 2015, 2013) in the period that from the Reconstruction will lead to the so-called Economic Boom (1940s to 1970s). Homeownership became an instrument of middle-class affirmation, supported by economic incentives related to credit that flanked the national policies related to affordable, social or subsidised housing plans, which before were mainly aimed at housing the working classes.

While public housing, together with certain iconic buildings of post-war architecture masters, is nowadays the main focus of the consolidated narratives related to the post-war Italian cities (Di Biagi, 2001), the complex, yet 'ordinary' (Avermaete, 2015; Robinson, 2006) residential landscape, mainly built for the middle class – resulting from the layering of urban processes and policies, spatial forms and models, disciplinary tools and different actors – is rarely investigated in its interrelations (Caramellino and De Togni, 2022). This oversight does not do justice to their role in building the postwar city considering that the cities grew and changed through the new housing complexes, mainly built for the middle class.

The peculiarities and differences in the international scenario but also nationally in the application of policies and social and economic dynamics, make the phenomenon one of great complexity, in need of thorough investigation.

The characteristics and features of a complex phenomenon

Middle-class housing in Italy took on different qualitative and quantitative characteristics compared to other contemporary European contexts. It is in fact characterised essentially as an urban (and not always isolated peripheral, suburban, or anti-urban as in many central European countries) and collective (as opposed to the proliferation of individual houses in green contexts scattered across northern European) building process. Moreover, it has taken on peculiar features in different regions by variously interpreting typologies and policies on a local level.

The *condominium* is the category of housing that best represents the middle class in Italy, with multi-storey collective buildings of two or more flats per floor. On the one hand, they are often inserted into already well-developed infrastructural contexts, equipped with a comprehensive range of services within the framework of organised neighbourhoods [figure 1], but they have also been the basis for new public programmes focusing on new metropolitan districts [see case studies Casilino and Gallaratese] or – in particular from the 1970s onwards – of privately-founded, semi-autonomous, green enclaves in peripherical areas of the major cities.

In addition to the *condominium* – known as *palazzina* in central Italy [figure 2], emphasising the subdivision of a single building into several flats rather than the co-ownership of a building consisting of several units – the category of the *parco urbano* is very common among the middle class spread, across Southern Italy in particular. Consisting of multiple buildings, with a fence that divides the inner area from the outside, with housing blocks, green spaces, parking lots and spaces for community use, the *parco urbano* encloses a portion of the city within itself. Progressive, intensive developments through *parco urbano* led to the privatisation of large parts of cities [see case study "Chinese Wall" Buildings in Ugo Ricci street].

It would be difficult to define both these phenomena strictly speaking as mass housing, given the scale of the interventions, but the

description of this residential stock as ‘massive’ seems instead appropriate. It would recognise the crucial role in quantitative terms that middle class housing has played in the post-war urban transformation of Italy's main cities, going on to build significant residential fragments within the cityscape that have been able over time to maintain their own recognisability while integrating into the surrounding urban environment [see case study Centro Romana]. In some instances, the phenomenon of frequently uninterrupted repetitions of individual buildings or condominiums [figure 3] is an informal process that has resulted in the massive urbanisation of portions of the city which, when observed on a broad scale, has created urban pockets of mass housing (Como, 2023; Ingrosso, 2017) [see case study “Chinese Wall” Buildings in Ugo Ricci street]. In other cases, the size of new developments is so large [figure 4] that new neighbourhoods can be compared to newly founded, modern cities consisting mainly of middle-class housing (Como et all, 2023) [see case study Monteruscello District].

Equally difficult would be identifying a single typological definition, given that this collective housing has taken on different forms and constructional characteristics over time and in different local contexts. In this very diversified state of affairs, it is our interest to recognise the middle class’s influence in the equipping of living units – with ample space for family life and receiving, dual entrances, toward the kitchen and the living room, balconies and a reconsideration of the spaces dedicated to servantry (which are gradually disappearing) – and of the buildings, which are noted for their ample, luxurious atriums, the proliferation of conciergerie, and large communal gardens or accessible roofs, eventually private parking.

Another widespread feature is the process of negotiation between public and private actors at urban planning and building levels: many middle-class neighbourhoods are the outcome

Figure 1

Figure 2

Figure 3

of planning agreements resulting from a mixing of architectural models and design cultures, entrepreneurial strategies, local and national regulation and administrative and bureaucratic organisation (De Togni, 2022, 2018; Caramellino and Renzoni, 2016; Zanfi, 2013). Despite having long been considered a tool of economic as well as land speculation (Graziosi and Viganò, 1970), they offer a critical perspective that is much richer than a merely technical summary would be [see case studies Milnosa Neighborhood and Corso Roma / Sangone Po District]. In fact, even if these are often considered to be real estate deals implemented without the depth of architectural research that is symptomatic of social housing in the same period, carried out in some cases without taking into account landscape value and by pursuing profit over quality (De Fusco 2017, 175) [see case study “Chinese Wall” Buildings in Ugo Ricci street], emerging studies are suggesting the significance of some cases in contributing towards the high quality and high standards of certain parts of post-war Italian cities (starting from Caramellino and Zanfi, 2013; De Pieri et al., 2013).

Within the framework of a growing social interest in the middle class (Bagnasco, 2008), an analysis based on the exploration of the relationship between residential architectural and urban features, and social status and representation (or its perception by the inhabitants) can be useful in the increasingly materialistic post-war climate and thus be able to open up new perspectives on the residential choices of the emerging middle class, broadening an understanding of this social group mainly perceived through income-related or professional rankings. However, research on housing for the employees of large Italian corporations – a consolidated representative sample of the middle class – remains a cornerstone in the field (Marini and Santangelo, 2014; Deschermeier, 2008), shedding light on the relationships between the forms and meanings residential spaces take, corporate strategies and public policies, looking into the long unexplored but crucial relationship between public and private agents that characterises the majority of cases (Caramellino, 2013; Caramellino and Sotgia, 2014) [see case study Quartiere Don Bosco-Tuscolano].

Figure 4

Conclusion

The Italian middle class ‘massive’ housing constitutes today a very significant and still poorly- researched material archive covering more than half a century, which can be explored through perspectives of architectural, urban (Foot, 2007), social (Portelli et al. 2006), legislative (De Pieri, 2013) and economic history (Martin, Moore and Schindler, 2015). The predominance of owner-occupied flats, even after rent-to-own processes having ended a few decades ago, has limited residential mobility and favoured generation-to-generation transitions within the household, with the consequent transformations of the living space to adapt it to ever-changing family, social and cultural dynamics (De Pieri et al., 2013). This housing stock is facing the challenges of modernisation and adaptation to today’s safety, energy consumption and environmental regulations but also to current standards of indoor and outdoor comfort. Nevertheless, some realisations are surprisingly well suited to the needs of contemporary inhabitants – questioning the widespread interpretation of low material and design quality associated with post-war construction. Moreover, middle-class housing must deal with the enormous generational and social fabric transformations that have affected Italian cities from the immediate post-war period to the present. Many are the critical issues that need to be managed, but also lacking are the resources for investigating our unexplored material and immaterial heritage.

Figures

Cover - Middle-class housing in Turin, Corso Roma neighborhood © Michela Pace, 2012.

Fig. 1 - Middle-class housing in Turin, via Peano © Michela Pace, 2012.

Fig. 2 - Middle-class housing in Rome, Prenestino neighborhood © Stefano Graziani, 2012.

Fig. 3 - Middle-class housing in Naples, “Chinese Wall” ©Alessandra Como, 2019.

Fig. 4 - Middle-class housing in Pozzuoli, Monteruscello neighborhood © Luisa Smeragliuolo Perrotta.

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Centro Romana

Italy, Milan

Google maps Image © www.google.com/maps, July 2023

Centro Romana is a residential neighbourhood consisting of a tower and 8 tall buildings on an area of 160,000 square metres. It was built in 1961-67 for middle and upper-class residents in the central Porta Romana area of Milan, offering a wide range of services and a well-developed transport infrastructure.

Adress/District	Viale Angelo Filippetti n.28-36 | Porta Romana		
GPS	45.27050, 9.11571		
Scale of development	District		
Architectural studio	Architect Paolo Chiolini		
Project author	Paolo Chiolini (Architect) and Società Generale Immobiliare		
Developers	Società Generale Immobiliare / Immobiliare Fleo / Immobiliare Pao		
Landscape author	–		
Period of construction	beginning: 1961	end: 1967	inauguration: –

View of tower and blocks from North-West, 1967. SGI (1967), Relazione Società Generale Immobiliare, p. 36.

View of tower and blocks from North-West, 1965. SGI (1965), Relazione Società Generale Immobiliare, p. 49

URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Shops / offices / warehouses	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Open block / free composition	
	total area:	16 ha
	housing:	33 %
Connectivity | Accessibility	Developed between two main streets and connected by an internal circulation system, from which the buildings are accessed. Served by bus, tram and metro connecting to the rest of the city.	
Landscape	In direct connection with the surrounding public green spaces, which are located on the site of the old Spanish walls.	
Open and public space	Characterised by parking spaces and public greenery lacking urban furniture or playground. Some commercial spaces at the ground level, strengthening the street as a communication space.	current condition: reasonable
Quality of living environment	The living environment offers a good variety of services, proximity to the centre and good infrastructural connections; the identity of the neighborhood is strengthened by the uniformity of formal aspects of the facades.	
Main Features	Diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	All the blocks have balconies and interior staircases. Main entrances are on the internal streets and buildings equipped with underground garages. No private green spaces, some commercial and office facilities.	
No. of buildings	9	
No. max. of floors	24	
Average no. floors	8	
Materials | Fabrication	Tall buildings' facades in dark red tiles or beige brick. The tower façades are articulated by light vertical beams, while the intermediate space is covered with dark green tiles.	
No. of dwellings	232	
Average dwe. area	80 m²	
Dwellings' type	one floor	4 rooms
	other	2 to 4 rooms
Qualitative issues	Different lighting and ventilation conditions according to the blocks' orientation and height. The quality of the public green space could be improved by creating attractive possibilities for social gathering.	
Housing density	Number of dwellings per ha:	14.5

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	Designed as a residential centre of middle and upper class flats, interesting as an investment property. Many flats are owned by the residents from the beginning, limiting the replacement of residents also due to the constant good maintenance conditions.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab tower	One of the largest residential developments by Società Generale Immobiliare in Milan. Massification was achieved by the construction of eight 5-to-9-storey blocks and one 24-storey tower through industrial production, concentrating the management of the complex, from the ideation to its realisation and marketing, in a single operating structure.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	In agreement with the municipality, the developer Società Generale Immobiliare also realised the primary urbanisation services, which were then ceded free of charge to the municipality as urbanisation fees.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Good general condition: good state of preservation of façades, made of durable materials, balconies and windows have been partially renovated; public green spaces are well maintained; basic amenities are good; the original settlement layout has not changed.
Urban | building transformation or regeneration	No significant transformation beyond routine maintenance
Intervention scale	Buildings / open and public spaces / collective green spaces
Intervention status details	–

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	Nicole De Togni	Politecnico di Milano

Milnosa Neighborhood

Italy, Milan

Google maps Image © www.google.com/maps, July 2023

Built for Milan's middle class, the neighbourhood is centrally located near the railway station Centrale and includes 35 residential buildings, a school complex, a church, an underground car park and various commercial activities. The dense neighbourhood offers living space for 20,000 inhabitants and creates a new urban residential landscape for its time.

Adress/District	Via Cagliero, Via Melchiorre Gioia, Via Ressi, Via Belgirate, 20125 Milan		
GPS	45.29416, 9.12182		
Scale of development	District		
Architectural studio	Gualtiero Casalegno		
Project author	Gualtiero Casalegno, and others. Collaborators: E. Ferrero, E. Follis, C. Frugoni		
Developers	Soc. Milnoasa - S.A. Milano Nord Ovest		
Landscape author	Gualtiero Casalegno, and others. Collaborators: E. Ferrero, E. Follis, C. Frugoni		
Period of construction	beginning: 1956	end: 1965	inauguration: –

View of the row of buildings on Via Cagliero, 1961. Perogalli, Carlo (ed) (1961), Case d'abitazione a schiera e d'angolo, Milan: Gorlich, p. 50.

View from the garden of one of the buildings on Via Ressi, 1961. Perogalli, Carlo (ed) (1961), Case d'abitazione a schiera e d'angolo, Milan: Gorlich, p. 58.

URBAN AREA

Location - within in the city	original:		city centre
	current:		city centre
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure / offices		
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).		
Urban Ensemble	Open block / sun oriented paralell rows		
	total area:		12 ha
	housing:		25.5 %
Connectivity | Accessibility	The neighbourhood enjoys a central location and is well connected to the rest of the city by public transport and bike lanes. An internal network of roads provides access to the buildings and crosses the neighbourhood.		
Landscape	The communal gardens of the buildings are conceived as "green living rooms", adding aesthetic and recreational value to the neighbourhood also thanks to the open blocks.		
Open and public space	The buildings' communal gardens connect the open blocks. Commercial spaces are located on some ground floors, using the street as communication space. A service complex includes a school, church and various commercial and office spaces.		current condition: reasonable
Quality of living environment	Differences in the buildings and individual façade design strengthen the residents' identification with the district. The mix of functions and diverse range of services has a self-contained effect despite the central location.		
Main Features	Combining different uses / readability		

RESIDENTIAL AREA

Residential buildings	Flats are organised in linear buildings; flat blocks include communal gardens and underground garages; long balconies and galleries open onto private green spaces; commercial and office space is located on the ground floor of some buildings.	
No. of buildings	35	
No. max. of floors	10	
Average no. floors	9	
Materials | Fabrication	The design of the façades is variable and accentuated by shading, but the district is characterised by a consistent colour scheme due to the extensive use of plaster and tiles. Flat roofs are equipped.	
No. of dwellings	c. 1575	
Average dwe. area	70 m²	
Dwellings' type	one floor	3 rooms
Qualitative issues	The prevailing east-west orientation ensures good radiation, with shading elements providing privacy and temperature control. Balconies overlook private green spaces. The size and articulation of the flats guarantee ample living space.	
Housing density	Number of dwellings per ha:	131

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	In the post-war period the fast-growing city of Milan was attractive for the middle class and state policies encouraged the purchase of housing. Many properties have been transferred between generations of the same family, with some internal adaptations of the flats.

MASS HOUSING

Massification through: planned process **Building's typology:** slab tower	The neighbourhood was already designed to be very dense with its 35 residential buildings that were to house 20,000 people. Massification was achieved through strict planning, ensured on the one hand by the choice of building typology and on the other hand by an average height of 30 metres per building hosting an average of 45 flats.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	The complex was designed through a long process of negotiation between a plurality of actors (architect, developer, landowners and Municipality), that took shape through a series of planning agreements in order to be compliant with the Milanese General City Plan. After its approval the development was put into action through the private initiative by the developer Milnosa.
Name of specific programmes or funding applied	Milanese General City Plan (approved 1953)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The façade cladding materials are very durable and the external condition of the buildings is generally good, with some balconies and window frames having been modernised. Green spaces are well maintained and basic services are present. The absence of changes to the settlement structure results in a lack of public gathering spaces suitable for the current inhabitants.
Urban | building transformation or regeneration	The process of regeneration was mainly focused on single buildings and not on the urban area or layout. Necessary modernisation of buildings occurred, with owners being responsible for the renovations of the residential units. The missing urban regeneration leads to a lack of public spaces and services that is especially criticised by the younger inhabitants.
Intervention scale	Buildings / services
Intervention status details	–

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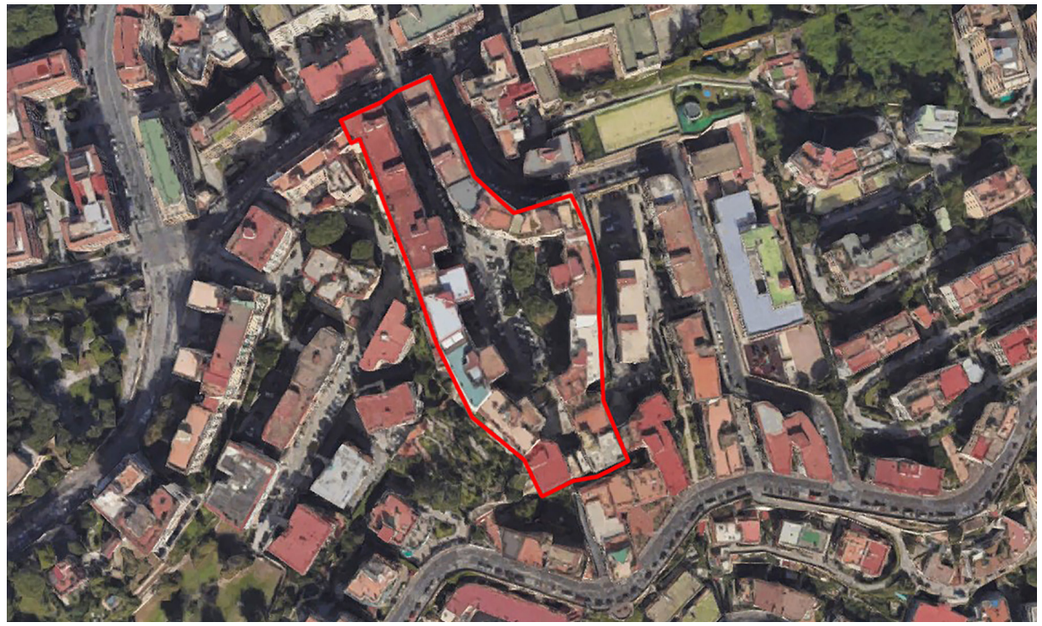
“Chinese Wall”
Buildings in Ugo Ricci street

Italy, Naples



Google maps Image © www.google.com/maps, June 2023

Known as the “Chinese wall”, the buildings were built one next the other as an exploitation of the Vomero hill in the city of Naples during the building speculation of ’50-60s. The land developer – Mario Ottieri – was fictionally depicted in the movie “Hands over the city” (1963).

Adress/District	Via Ugo Ricci, 80127 Naples		
GPS	40.50259, 1413091		
Scale of development	Building / series of buildings		
Project author	–		
Constructor Developer	Mario Ottieri		
Landscape author	–		
Period of construction	beginning: 1958	end: 1961	inauguration: –

The Chinese Wall from via Caracciolo. ©Alessandra Como, 2022.

Inside the Chinese Wall. ©Alessandra Como, 2022.

URBAN AREA

Location - within in the city	original:	Hill of Vomero
	current:	city centre
Other facilities / availability of amenities	–	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Ribbon development	
	total area:	1.2 ha
	housing:	63 %
Connectivity | Accessibility	Buildings are accessed by a common road. The buildings are surrounded by a high containing walls showing the exensive hill transformation.	
Landscape	Just some trees among the buildings.	
Open and public space	No public space, just a common road with parking lots and few trees. At the lower side a pedestrian path runs through stepped terraces leading to other buildings.	current condition: needs to improve
Quality of living environment	–	
Main Features	Diversity / combining different uses / opening views and connections	

RESIDENTIAL AREA

Residential buildings	Undesigned Blocks with simple entrances, common staircase, maximum number of apartments per floor.	
No. of buildings	14	
No. max. of floors	9	
Average no. floors	9	
Materials | Fabrication	Concrete structure, external walls in stucco, ordinary frames.	
No. of dwellings	500	
Average dwe. area	100 m²	
Dwellings’ type	one floor	4 rooms
Qualitative issues	There are no qualitative elements, nor in each block, nor in the aggregation, obtained by the sequence of blocks following the hill line.	
Housing density	Number of dwellings per ha:	416

MIDDLE-CLASS

Original dwellers class: middle class, others **Current dwellers class:** middle class, others	Private properties wth hgh prices today.

MASS HOUSING

Massification through: unplanned process element’s repetition **Building’s typology:** block sequence of blocks	Buildings were built one next the other with high density and many levels occupying the most land they could through a massive hill transformation with cuts and retaining walls.

HOUSING POLICIES

Urban promotion type: – **Housing promotion type:** –	Building Speculation. Private intervention. In lack of public regulations, buyildings were realised out of rules, with no green areas and right distances between buildings.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	Average status of preservation.
Urban | building transformation or regeneration	–
Intervention scale	–
Intervention status details	–

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Monteruscello District

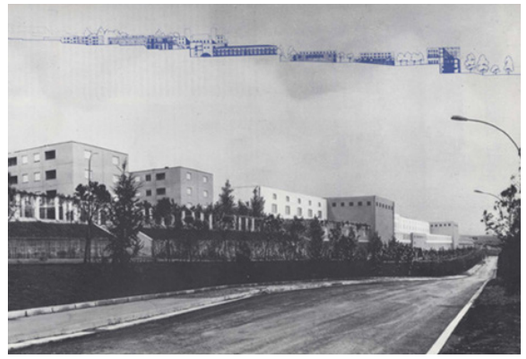
Italy, Pozzuoli (NA)

Google maps Image © www.google.com/maps, October 2021

Monteruscello's case-study is interesting for its large scale dimension and public ownership. It is a public intervention of the '80s for 20.000 inhabitants: a quarter with the scale of a city. Here all the inhabitants of the historic city of Pozzuoli were moved (lower and middle class).

Adress/District	Monteruscello, Pozzuoli (NA)		
GPS	40.5213.55, 14.051014		
Scale of development	Urban plan / district		
Architectural studio	University of Naples - Federico II		
Project author	Uberto Siola (in charge of the project) Agostino Renna (in charge of the design project)		
Constructor	Consortium of construction companies		
Landscape author	–		
Period of construction	beginning: 1983	end: 1987	inauguration: 1987

Monteruscello district aerial view from the North, 1985. Siola, U. 1985. Progetto Pozzuoli: rapporto di sintesi sul lavoro svolto al 30 giugno 1985. Ercolano: La Buona Stampa. p. 26.



Collage with section, housing and model of the high school project. Romano, M. 1986. "Agostino Renna. Monteruscello (Pozzuoli)". Domus, n.674, p. 26.

URBAN AREA

Location - within in the city	original:	satellite
	current:	satellite
Other facilities / availability of amenities	Schools / market / sports / shops / religious / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Open block	
	total area:	245 ha
	housing:	40 %
Connectivity | Accessibility	The design is based on a hierarchy among pedestrian passages, streets, and large roads that connect the district with the other parts of the city of Pozzuoli.	
Landscape	The neighborhood was planned as a garden city but the landscape project has never been completed. The planned green areas were urban voids in a state of neglect today involved in transformations.	
Open and public space	The neighborhood was planned with green areas, parks, and public spaces such as squares, plazas for markets, and similar. The green areas and several public spaces were not finished so they are not used by the community.	current condition: needs to improve
Quality of living environment	The environment needs to build strong relationships with the city and with the Campi Flegrei's landscape.	
Main Features	Connections	

RESIDENTIAL AREA

Residential buildings	The buildings were designed with different typologies. In general, the ground floors were allocated commercial activities and shops. Pedestrian streets connected all the buildings in the district.	
No. of buildings	204	
No. max. of floors	6	
Average no. floors	4	
Materials | Fabrication	The buildings were build with prefabrication technique.	
No. of dwellings	3573	
Average dwe. area	80 m²	
Dwellings' type	one floor	3, 4 rooms
Qualitative issues	The quality of the buildings could be improved through the transformation of the environment, trying to change the scale of the buildings and addressing it closer to the human scale and to the inhabitants	
Housing density	Number of dwellings per ha:	14.5

MIDDLE-CLASS

Original dwellers class: middle class, others **Current dwellers class:** middle class, others	The neighbourhood was built under the emergency of bradyseism to allocate about 20,000 inhabitants moved from the ancient city of Pozzuoli (lower and middle class). Since its establishment, the Urban Authority has promoted inhabitants to become owners through economic incentives.

MASS HOUSING

Massification through: planned process **Building's typology:** detached house row-housing mat-housing block	The district was realised all together. So it was a process of massification in terms of occupancy of the area with a large number of residential buildings.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The district was designed under the emergency of bradyseism in order to allocate the people moved from the ancient city. The policies were defined specifically to address the house's emergency.
Name of specific programmes or funding applied	(1) Urgent Measures for the cities affected by the bradyseism of the Phlegraean area and by the earthquake on 1980 (2) Special plan for public housing in Monteruscello

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The neighbourhood has never been completed. The highest degradation can be found in the unrealized structures of the original design project, which create urban voids, interruption and abandonment. A further level of degradation is represented by the realized but still un-used buildings, which are today in a state of neglect.
Urban | building transformation or regeneration	Nowadays the district is involved in the transformation of the green areas into a new agricultural landscape through the Urban Innovative Action MAC-Monteruscello Agro City. And also buildings are partially involved in energy renovations.
Intervention scale	Community improvement / open and public spaces / collective green spaces / energy efficiency improvements
Intervention status details	The transformation of the green area into a new agricultural landscape could be an opportunity for the district to have a green core, a garden to cross with also productive activities. The refurbishment of the buildings addresses the new urban agenda based on energy efficiency and green transition.

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Parco Manzoni

Italy, Naples

Google maps Image © www.google.com/maps, June 2023

One of the so called “parchi”, that is residential complexes realised in Italy by private intervention on private areas. The “parchi” are characterised by fenced bounderies, common areas and a series of residential buildings. The “parco Manzoni” was realised on the top of the hill of Posillipo in Naples.

Adress/District	via Vincenzo Padula, 2		
GPS	40.48221, 14.11218		
Scale of development	Building / series of buildings		
Architectural studio	Stefano Paciello architect		
Project author	Stefano Paciello, Giovanni Malatesta		
Developers	Società Edilizia Romana Immobiliare		
Landscape author	–		
Period of construction	beginning: 1961	end: 1965	inauguration: –

The view from Parco Manzoni. De Fusco, R. 2017. Architettura a Napoli del XX secolo. Napoli: Clean. p. 191.

Inside Parco Manzoni. De Fusco, R. 2017. Architettura a Napoli del XX secolo. Napoli: Clean. p. 191.

URBAN AREA

Location - within in the city	original:	Hill of Posillipo
	current:	city centre
Other facilities / availability of amenities	Sports / leisure / parking places and common green areas and open-air sports facilities	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Open block	
	total area:	18 ha
	housing:	38 %
Connectivity | Accessibility	Area is accessed by a gate. There are inner roads leading to the buildings.	
Landscape	Trees, bushes, common green areas, roof spaces.	
Open and public space	Common facilities: swimming pool, tennis court, children play ground, parking lots.	current condition: good
Quality of living environment	The Parco Manzoni is of high quality of life for greenery, facilities and landscape views.	
Main Features	Diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	The complex is composed of 6 terraced blocks (from 3 to 5 levels) following the slope and of other regular 5 blocks of different size and of 3 or 4 levels.	
No. of buildings	11	
No. max. of floors	5	
Average no. floors	4	
Materials | Fabrication	The complex is composed of 6 terraced blocks (from 3 to 5 levels) following the slope and of other regular 5 blocks of different size and of 3 or 4 levels.	
No. of dwellings	200	
Average dwe. area	140 m²	
Dwellings' type	one floor	4, +5 rooms
	duplex	+5 rooms
Qualitative issues	The Parco Manzoni is of high quality for the quality of construction, greenery, sports facilities and landscape views.	
Housing density	Number of dwellings per ha:	44.4

MIDDLE-CLASS

Original dwellers class: middle class, others	Middle and higher middle class. Private properties wth hgh prices today.
Current dwellers class: middle class, others	

MASS HOUSING

Massification through: planned process element's repetition	The buildings are not high nor large horizontally. The intervention is massificated due to the realisation of multiple blocks within the same private area.
Building's typology: block	

HOUSING POLICIES

Urban promotion type: private	The intervention is all private.
Housing promotion type: private	
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	Private ordinary maintanance (from owners).
Urban | building transformation or regeneration	No transformation.
Intervention scale	Buildings / collective green spaces
Intervention status details	–

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Quartiere Don Bosco-Tuscolano

Italy, Rome

Google Earth Image © 2023 Maxar Technologies

The settlement in the Don Bosco neighbourhood was developed as a State subsidized programme by the insurance company INA for its employees in a peripheral area of Rome. The project consists of 20 low-cost housing buildings spread over 4 plots. This case study allows us to gain a deeper insight into the plurality of actors, forms of financing, and the recipients of the construction of a middle-class housing estate.

Adress/District	Via Chiovenda, Via Bellone, Via S. Ottato, Via P. Togliatti, Rome		
GPS	41.85831757090254, 12.569760670852926		
Scale of development	District		
Architectural studio	Studio Valle		
Project author	Tommaso Valle / Ufficio Tecnico INA Assicurazioni		
Developers or Constructors	Ufficio Tecnico INA Assicurazioni / (private/public)		
Landscape author	–		
Period of construction	beginning: 1957	end: 1968	inauguration: 1975

Aerial view of the housing estate, 1976. © Archivio storico INA Assitalia | Fondo Storico Immobiliare.

View of the facade on the internal green courtyard, 1976. © Archivio storico INA Assitalia I Fondo Storico Immobiliare

URBAN AREA

Location - within in the city	original:		suburbia, peripheries
	current:		city fringe
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / leisure / underground parking garages		
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).		
Urban Ensemble	Sun oriented paralell rows / free composition		
	total area:		7 ha
	housing:		21 %
Connectivity | Accessibility	The neighbourhood is located in a peripheral area with a well-developed road network and public transportation connections – metro and several bus lines in immediate vicinity – to the centre of Rome.		
Landscape	Private equipped green courtyards between buildings, where-by configuration differs in the plots due to the building layout. In plot 3 are used for parking; in plot 1 are terraced due to the ventilation of the underground car parks.		
Open and public space	Due to the density of the neighbourhood, public spaces are limited to the services on the ground floor of some buildings and the private courtyards on the plots. An isolated core of facilties (plot 1) includes schools, a bank, and the market hall providing a meeting place.		current condition: poor needs to improve
Quality of living environment	The provision of services and educational facilities as well as infrastructural connections is good; however, the presence of public green spaces and recreational areas is low and in need of development.		
Main Features	Combining different uses		

RESIDENTIAL AREA

Residential buildings	Configuration of the flats varies from plot to plot, as building typologies differ, but mostly medium-sized flats of 3-4 rooms with balconies. Some buildings have commercial ground floor uses and different courtyard design depending on the plot.	
No. of buildings	20	
No. max. of floors	7	
Average no. floors	7	
Materials | Fabrication	The 12 buildings on plot 2 are characterised by the brown exposed concrete façade of vertical prefabricated elements; the buildings on plot 3 have a white/ beige plastered façade; the buildings on plot 4 have hipped roofs with red tile roofing and a white plastered façade.	
No. of dwellings	560	
Average dwe. area	80 m²	
Dwellings' type	one floor	4 rooms
	other	3, 4 rooms
Qualitative issues	The orientation of the buildings varies, resulting in different lighting and ventilation conditions. The flats are equipped with balconies or loggias and have quite generous dimensions.	
Housing density	Number of dwellings per ha:	80

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The project was realised for the employees of the insurance company, targeting a lower-middle class. Since many of the flats were sold, the same social groups still live in the neighbourhood today.

MASS HOUSING

Massification through: Planned process **Building's typology:** slab tower	Massification was achieved through planning; as many INA employees were waiting for housing, the dense neighbourhood was planned containing 20 residential buildings with a maximum height of 25m built on 7 hectares of land. This project contributed to the development and urbanization of a peripheral area of Rome.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public-private partnership	Grant state subsidies to Italian insurance companies to deal with the housing emergency through the construction of new housing for their employees. In 1957 INA obtained a 4% subsidy from the Ministry for the construction of buy-to-let houses for its employees, and an authorisation for direct construction in that way releasing the pressure on the public housing stock.
Name of specific programmes or funding applied	Tupini Law (1949); Law n. 167, approved in 1962.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	The general condition of the estate is good, including the preservation of the facades made of concrete prefabricated panels. Some private loggias and balconies have been closed, while private green spaces are well maintained but rarely used by dwellers. The original layout has not changed.
Urban | building transformation or regeneration	No significant interventions of transformation beyond routine mantainence.
Intervention scale	–
Intervention status details	–

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Corso Roma / Sangone Po District

Italy, Moncalieri (TO)

Google Earth Image © 2023 Maxar Technologies

The neighbourhood is located in the southern periphery of Turin and represents an urban extension of the city into the neighbouring municipality of Moncalieri. The residential district was planned as a modern satellite town including services, commercial, sport and educational facilites. It includes 600 dwellings in two housing complexes.

Adress/District	Corso Roma/Corso Trieste/Via Bosso, Moncalieri (Turin)		
GPS	45.00279, 7.40166		
Scale of development	District		
Architectural studio	Arch. Enzo Dolci		
Project author	Enzo Dolci I Società Generale Immobiliare		
Developers	Private actors: small building companies, building cooperatives, insurance companies (INA Assicurazioni), national developers (SGI)		
Landscape author	–		
Period of construction	beginning: 1958	end: 1968	inauguration: 1974

Aerial view of the construction site with the housing estate, 1972. Archive INA Assitalia, © photo by Alinea.

Aerial view of the housing estate with the core of facilities (the park, the kindergarten and the school), © Photo by Michela Pace, 2012.

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / shops / kindergartens / leisure / private green areas	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block / sun oriented paralell rows / free composition	
	total area:	8.6 ha
	housing:	22 %
Connectivity | Accessibility	The district is limited by a main road that runs into the motorways. In immediate vicinity are several bus lines + the Bengasi metro station, connecting it to Turin center.	
Landscape	The landscaping differs from the southern to the northern complex: the northern complex is characterised by private, enclosed gardens, whereas the southern complex is built around a public green space.	
Open and public space	The southern complex encloses a public area with playground, a kindergarten and a school. In the northern complex public green spaces are are on the banks of the Sangone river.	current condition: reasonable needs to improve
Quality of living environment	The presence of a core of green spaces, facilities and recreational areas have a positive effect on the quality of life of the neighborhood community.	
Main Features	Combining different uses	

RESIDENTIAL AREA

Residential buildings	In the southern complex residential towers connected through a continuous commercial platform articulated around a core of facilities. In the northern complex 5 towers and 7 slab-blocks created enclosed private courtyards.	
No. of buildings	19	
No. max. of floors	15	
Average no. floors	8	
Materials | Fabrication	The southern complex has a uniform façade design with dark brown, small-scale wall tiles. The northern complex is characterised by clinker-clad blockslabs with red-tiled hipped roofs.	
No. of dwellings	600	
Average dwe. area	70 m²	
Dwellings' type	one floor	+5 rooms
	other	2, 3, 4, 5 rooms
Qualitative issues	Orientation of the buildings varies, proucing different light and ventilation conditions. The flats are equipped with balconies and have various layouts; the location on the main road is an extreme restriction on quality as well as the location of above ground garages in the private courtyards.	
Housing density	Number of dwellings per ha:	69.7

MIDDLE-CLASS

Original dwellers class: middle-class

Current dwellers class: middle-class

The complex was built for a growing Turin middle class in the 1960s. The diverse housing solutions and flats' layouts, generated today a heterogeneous and fragmented social fabric.

MASS HOUSING

Massification through:
planned process

Building's typology:
slab
tower
commercial decks

Massification was achieved through planning. The settlement was planned as a southern extension of the city of Turin and the project was implemented in 2 phases and produced 600 new dwellings. The building typology and the settlement model enabled a high building density and contributed significantly to the urbanisation of the southern periphery of Turin.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** private	The project was built through a protracted negotiation between the architect, the municipality, the landowners, and the developers and was implemented through the submission of multiple master plans. The planning agreements (*convenzioni urbanistiche*) regulated the negotiation between public and private actors. They produced a revision of buildable volume and the area's urbanization by private actors.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished.
Preservation and maintenance status details	The buildings are affected by technological obsolescence due to the low standards introduced by the developers initially involved in the construction. However, the diverse building strategies produced diverse degrees of decadence. The insurance company INA Assicurazioni had to renovate the facades of the 15-storey tower in the '80s.
Urban | building transformation or regeneration	The shifting condition from tenants to owners of many inhabitants produced the refurbishment and layout modification of apartments. Communal spaces like the main entrance or the private gardens have lost their original symbolic meaning and have high costs of routine maintenance.
Intervention scale	Buildings
Intervention status details	–

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	Nicole De Togni	Politecnico di Milano

Casilino

Italy, Rome

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The Casilino is a modernist district developed within the public housing program defined by law 167 of 1962. It was entirely built by middle-class housing cooperatives. The neighbourhood is characterised by a "fan" pattern urban design scheme. The settlement is equipped with all important services and represents an island in the surrounding urban landscape.

Adress/District	Viale della Primavera, Via Ferraironi, Via Balzani, Rome		
GPS	41.881076 12.556716		
Scale of development	District		
Project author	Ludovico Quaroni, Gabriella Esposito, Roberto Maestro, Luciano Rubino (masterplan) / several other archietcts for the individual buildings erected within the scheme		
Constructors	Cooperative housing, 167 public housing program		
Landscape author	–		
Period of construction	beginning: 1964	end: 1980s	inauguration: –

Ludovico Quaroni's masterplan for the neighborhood, 1964. © Associazione Archivio Storico Olivetti, Ivrea.

View of the Casilino in 2019. © Filippo De Pieri.

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	schools / health / market / sports / shops / religious / kinder-gartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street).	
Urban Ensemble	Sun oriented paralell rows.	
	total area:	40.32 ha
	housing:	48 %
Connectivity | Accessibility	The neighborhood is surrounded by large roads (Via Casilina, Viale della Primavera) that provide direct connections to the centre of Rome and to other districts. An internal network of circulation, with separate pedestrian and vehicular paths, allows to easily reach collective services. A recently completed metro line stops in the vicinity (Mirti station).	
Landscape	The design treats the residential buildings as a unique topo-graphical entity, emphasizing the visual unity of the neighbor-hood from the perspective of Viale della Primavera.	
Open and public space	The slabs converge towards a public park that hosts public schools and other services. A plurality of smaller open areas and semi-public spaces are situated within the slabs. A public square, with a church and a covered market, has a central posi-tion in the scheme. Shops are aligned along pedestrian streets that run between the residential units.	current condition: reasonable
Quality of living environment	The urban design of the scheme makes it easily recognizable within a disorderly urban environment, where it appears as a relatively peaceful middle-class enclave. The neighbourhood is equipped with essential services and offers good infrastruc-tural connections, although some of the spaces for commercial and public activities are presently vacant.	
Main Features	Readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	All residential buildings followed a similar typology - slabs of apartment houses with inclined roofs that result in a variable number of floors. Buildings are equipped with either underground garages or parking facilities in private courtyards.	
No. of buildings	36+	
No. max. of floors	14	
Average no. floors	7	
Materials | Fabrication	Individual buildings were designed independently, within the space of nearly two decades, following only a broad set of spatial regulations. The chosen materials may therefore vary. Concrete+bricks structures are prevalent, but systems of concrete prefabrication were experimented in some areas.	
No. of dwellings	around 2.000	
Average dwe. area	70 m^2	
Dwellings' type	–	– rooms
Qualitative issues	The masterplan encourages the use of standard solutions for the design of the individual apartments. Given the plurality of actors involved in the implementation of the plan, the quality of the design and construction varies from building to building.	
Housing density	Number of dwellings per ha:	50

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	One of the many schemes erected in Italian cities within the public housing programs defined by law 167 of 1962, Casilino was a markedly middle-class sector mostly built by housing cooperatives.The public funding process was aimed at promoting homeownership. The neighborhood is today entirely made up of private condominiums.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** slab	The scheme was part of a large-scale effort for providing mass housing - in this case for the middle classes - in the expanding periphery of Rome. The overall design aimed at facilitating the implementation of standard, consolidated solutions in housing design and construction, while ensuring a visual and social unity to the whole.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:**	The area was chosen for the development of one of the 73 area plans of the "Piano per l'Edilizia Economica e Popolare" (PEEP) regulated by Law 167 of 1962, and approved by the City of Rome in 1964. The funding for the construction of the scheme came from a mix of private contributions (the capital collected by the housing cooperatives) and public support in the form of tax exemtptions, loan facilitations, etc.
Name of specific programmes or funding applied	(1) Law 167 (2) Piano per l'Edilizia Economica e Popolare (PEEP)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	The neighbourhood is in a good overall condition. The situation of highly fragmented private ownership makes that the preservation and maintenance of individual buildings (or parts of them) results from piecemeal private initiatives.
Urban | building transformation or regeneration	The central square square was recently reorganised. A shopping mall was erected on Viale della Primavera in the early 2000s. Other, less visible forms of regeneration have concerned the change in the tenure status of the homeowners (for example by turning leasehold properties into freehold properties, or removing the limitations to subsequent sales that had been originally introduces).
Intervention scale	Open and public spaces / services
Intervention status details	No major overall regeneration activity is currently in progress.

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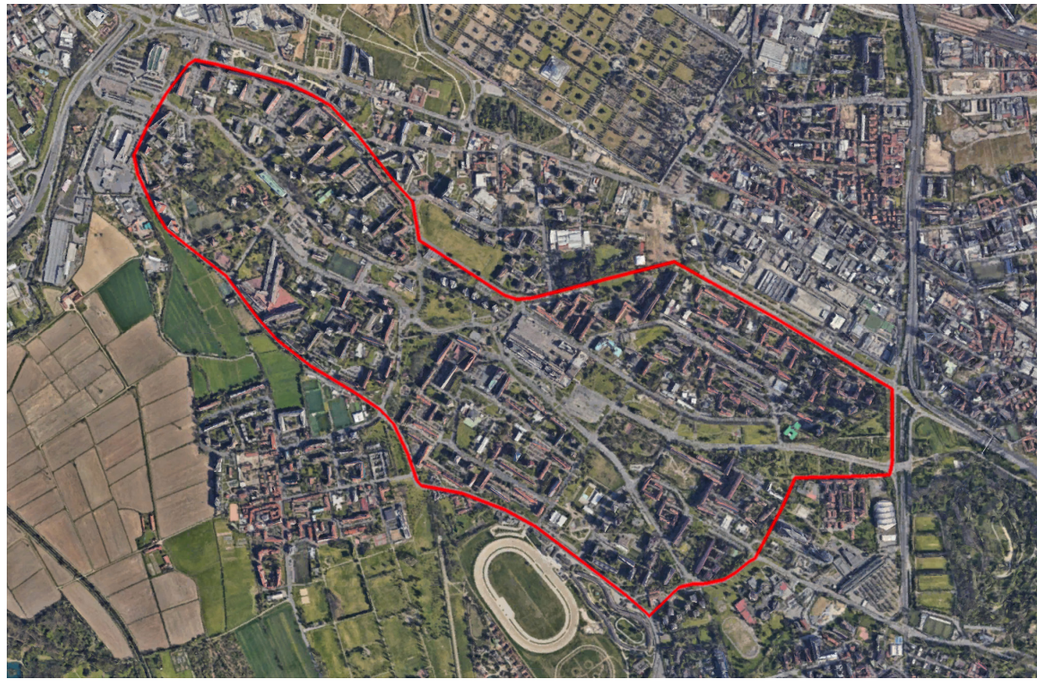
Gallaratese

Italy, Milan



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Gallaratese is a large district in the N-W fringe of Milan, built from the mid ‘50s until the late ‘70s through different public housing programs and mainly promoted by the City, the IACPM, and housing cooperatives. Designed by several relevant professionals of post-war architecture and urban planning panorama.

Adress/District	via Lampugnano, via Checov, via Trenno, via Croce, via Appennini, 20151 Milan		
GPS	45.49659855636453, 9.108696069677258		
Scale of development	District		
Project author	Piero Bottoni, Gianluigi Reggio et al., Ezio Cerutti, Vico Magistretti; Carlo Aymonino, Aldo Rossi and many others.		
Achiterctural studio	Piero Bottoni, Gianluigi Reggio, Technical Office - Municipality of Milan		
Developers or Constructors	IACP (Istituto Autonomo Case Popolari) Milan / Municipality of Milan / Housing cooperatives		
Landscape author	–		
Period of construction	beginning: 1957/1964/1969	end: 1964/1972/1974	inauguration: 1964/1972/1974

Aerial view of the G1 Unit during the '70s. © Antonio Erba, Il Gallaratese città satellite di Milano, Masson Italia Publisher, Milan, 1979.

Residential Complex Monte Amiata in Gallaratese (Carlo Aymonino, Aldo Rossi et al. 1967-1972 ©credits Cristina Renzoni.

URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	schools / health / market / sports / shops / religious / kinder-gartens / leisure / university student residence	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Semi-open block / open block / free-standing objects	
	total area:	200 ha
	housing:	15 %
Connectivity | Accessibility	The masterplan was organized through a central “vibrant street” connecting QT8 district through public parks and col-lective facilities. In the late ‘70s the district was provided with a commercial center (Bonola) and a metro line with some metro stations. There is an articulated pedestrian and cyclist network.	
Landscape	Monte Stella in the southern part represents, since the origi-nal masterplan, the beginning of a continuous central spine of open and green areas connecting QT8 with Gallaratese G1, G2, and San Leonardo districts.	
Open and public space	Gallaratese is provided by a generous amount of public facili-ties (mainly sports and schools) open spaces, both within the open residential blocks and along the main street. The large amount of open space is not matched with its quality as far as urban design and environmental issues (green and imperme-able surfaces, water management, public uses) are concerned.	current condition: good, needs to improve
Quality of living environment	A robust quality element is the presence of the courtyard systems around which the residential complexes are articulated and the central spine. While the former could combine different uses, the latter could enhance diversity and flexibility. Except for the shopping center, the neighborhood is marked by sporadic and weak neighborhood commercial activities.	
Main Features	Flexibility / diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	Most residential buildings are articulated in open blocks and vast semi-public courtyards, with green areas and impermeable surfaces devoted mainly to parking lots. The towers (30+) are mainly localized along the central spine.	
No. of buildings	236	
No. max. of floors	15	
Average no. floors	8	
Materials | Fabrication	The district, built over a long time, features a wide variety of materials and construction techniques. A significant part of the residential buildings were constructed using large-scale prefabrication techniques.	
No. of dwellings	11.000	
Average dwe. area	70 m²	
Dwellings' type	one floor	3, 4, 5+ rooms
Qualitative issues	Given the multiplicity of spatial arrangements, settlement patterns, and distribution models, Gallaratese's residential space is exceptionally articulated as far as both dwellings and condominiums are concerned.	
Housing density	Number of dwellings per ha:	49

MIDDLE-CLASS

Original dwellers class: middle-class, others

Current dwellers class: middle-class, others

The district is a mix of different interventions that include public and private actors, targeting different population groups, both middle and low-classes. This difference persists in some parts of the neighborhood (mainly between the northern and the southern areas).

MASS HOUSING

Massification through:
planned process
element's repetition

Building's typology:
slab
block
tower

The Gallaratese district represents one of post-war Milan's most extensive planned interventions through several public housing programs and policies. The main parts of the neighborhood (Cep G1 and G2) were meant to dwell respectively 50.000 and 30.000 inhabitants. Large-scale prefabrication of some parts of the district.

HOUSING POLICIES

Urban promotion type:
public
private
public-private partnership

Housing promotion type:

Because of the extended time it covers, the Gallaratese neighborhood offers significant insight into how public housing policies have stratified over time, producing synergies between public and private actors and building a very multifaceted urban environment. Furthermore, the Monte Amiata residential complex (by Aymonino and Rossi) gives the occasion to observe the interwave between private developers, inhabitants, and public housing programs.

Name of specific programmes or funding applied	CEP - 167 and other public programs

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Preservation and maintenance of the buildings are strictly related to dwelling ownership: today, the district is mainly characterized by private owners while maintaining several social housing sectors (public owner), especially in the northern area of San Leonardo.
Urban | building transformation or regeneration	The Gallaratese area has been improved with two new social housing districts in the early 2000s (via degli Appennini and via Gallarate) through a Municipal housing program (Abitare Milano), confirming the residential role entrusted to this part of the city by local public policies.
Intervention scale	Neighbourhood
Intervention status details	n/a

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Lithuania

Vilnius

Marija Drėmaitė

Mass Housing and the Middle Class in Lithuania, 1960s–1980s

When the term "middle class" is used in the context of the countries where State socialism was the official ideology, a contradiction arises because society there was officially proclaimed as classless. This paper examines several mass housing cases in Lithuania in the period of 1960s-1980s when the country was occupied by the Soviet Union and annexed to it as the Lithuanian Socialist Soviet Republic. By viewing the class structure from the perspective of housing consumption, in this paper a hypothesis is proposed that co-operative housing helped to shape a Soviet middle class. Politically and economically, house-building co-operatives were seen as a solution to the difficult situation posed by the well-known Soviet apartment shortage. The important social change that housing co-operatives offered was the possibility for better-off citizens to obtain housing luxuries that were previously available only to the privileged Communist Party ruling elite.

Mass Housing and the Question of the Middle Class in Lithuania, 1960s–1980s

The development of residential architecture in the Soviet Union became a critical planning issue following the Communist Party's 1957 pledge to provide every Soviet family with its own apartment (Decree No. 591 'On the development of housing construction in the USSR' of the Soviet Communist Party's Central Committee, 1957). Indeed, the Soviet industrialised housing reform that was started in 1955 brought radical change to the entire housing sector, lasting until the break up of the USSR in 1991.

In the late 1950s two types of housing tenure existed in the Soviet Union – state-owned and private. State-owned housing was administered and provided by two types of entities: local councils and large industrial enterprises or state agencies. Council-appointed apartments were the most common and were assigned to residents on waiting lists according to family size. Such small-size apartments were designed according to a concept of "minimal dwelling" and were given free of charge; however the shortage of such units resulted in long waiting lists.

Private housing, on the other hand, was built by individuals who were assigned a plot of land by local councils or state agencies once building plans had been approved by the city executive committee (equivalent to the municipality) and credit had been obtained from the state bank to pay for construction. With increasing post-war urbanisation, single-family home construction was declared ineffective for taking up too much urban land, and therefore prohibited in large cities from 1958 onwards.

Co-operative housing emerged as a substitute for the curbing of private single-family houses in large cities, as well as a solution to the apartment shortage. First introduced in the 1920s as a suitable type of housing tenure to encourage collective living, it was abolished by Stalin in 1937, chiefly so that political supervision of state housing allocation could be tightened (White, 1979: 200-205). The urgent need for housing, effected by the chronic Soviet housing shortage, prompted the reintroduction of house-building co-operatives, where residents contributed their own funds to the construction of their homes. Co-operative housing was revived and officially sanctioned in 1961 at the XXII Communist Party Congress, followed by a decree 'On Individual and Co-operative Housing Construction' in June, 1962.

In his prominent study, Gregory D. Andrusz (1984) presented the actual construction data for co-operative housing in the USSR and in each of the 15 national republics respectively. It showed that co-operative housing in the Lithuanian SSR from 1963 to 1975 was the largest on a percentage basis in the entire Soviet Union, reaching at its peak 18.7% of all new housing construction in 1970 and 1973, and was considerably higher than the Soviet average of 2.4% in the USSR compared to 6% in Lithuania in 1963, and 6.9% in the USSR

compared to 16.8% in Lithuania in 1971–1975 (Andrusz, 1984: 91).

Several historical reasons might explain this. Lithuania, as well as Latvia and Estonia, were the last countries to be incorporated into the Soviet Union after the Soviet occupation of June 15, 1940. The long tradition of private property ownership and higher housing standards prevailing in the Baltic countries explain the attraction of a larger population to house-building co-operatives. The Lithuanian case is special also because the provisional capital of Kaunas (1919–1939) was renowned for the superior quality of its housing, and after 1940, when Vilnius became the capital once again, this time of the recently-established Lithuanian SSR, the lack of comfortable apartments there required urgent intervention. All these considerations provide the groundwork for the study of cooperative housing construction in Lithuania in the 1960s–1980s as a period of social and architectural experimentation, gradually challenging and changing the Soviet housing standard.

Co-operative housing as social advancement

House-building co-operatives were allowed to be established within local councils or under the jurisdiction of industrial enterprises and professional organisations. Co-operatives operated on the basis of a group of households sharing the cost of the down payment for an apartment block and taking out state credits that corresponded to 60 to 70 per cent of the total cost, repayable over ten to twenty years at an interest rate of 0.5 per cent. The updated version of regulations issued in 1967 stated that house-building co-operatives must be provided by the state (municipality) with a plot of land for indefinite use, to obtain credit from the state bank, and to carry out construction under a contract (Resolution No. 150 by the Lithuanian SSR Council of Ministers 'On the Regulations of House-Building Co-operatives' (April 1, 1967). Each member of the co-operative could only build one apartment, not exceeding the 60 m2 quota of living floor space.

It is important, however, to review what ideological underpinnings stipulated the legalisation for the payment and ownership of individual apartments, which were to be provided by the State. Alt-hough the official ideology still emphasised collectivism, the rejection of the class struggle within the USSR in the late 1950s, which manifested itself in the new Soviet Union Communist Party Programme (1961), was the beginning of a discourse on individuality. It can be presumed that this ideological turn not only eased the introduction of a new form of co-operative housing acquisition by 1962, but also accelerated the concentration of more affluent urban dwellers under the same roof.

Andrusz noted that if the stated objective of co-operative housing was to help meet the demand for housing not already being met by the state, in practice it proved to be a popular housing solution for those sections of Soviet society that were able to afford the necessary down payment on an apartment. This type of housing afforded a means of channelling significant amounts of money directly from the populace into housing, thus relieving the state from this burden (1984: 90). Before 1977, the down payment for a two-room cooperative unit was 5,000 roubles, or 45% of the 11,111 rouble cost, the rest to be paid off at low interest rates over a 15-year period. In the 1980s, the down payment was increased to 6,500 roubles, a sum which took an industrial worker earning 175 roubles a month on average 37 months to pay (Morton, 1984: 20-24).

For example, in 1962, the local press announced that the first residential construction co-operatives in Vilnius were coordinated by institutions whose employees received high salaries, yet not be-longing to the highest rank of the ruling elite (nomenklatura). The main advantage of building a co-operative apartment was the ability to avoid waiting lists and, even more importantly, to live in a better neighbourhood. The interviews conducted for this research study reveal that the social aspect of house-building co-operatives was paramount, and residents placed the most value on a good neighbourhood, by avoiding "strangers in their housing co-operative" (Personal conversation, Vilnius Academy of Fine Arts, April 26, 2016).

House-building co-operatives as a challenge to architectural experimentation

In the early 1960s, co-operative apartment buildings were to be built following standardised designs provided by the State Planning institutes.

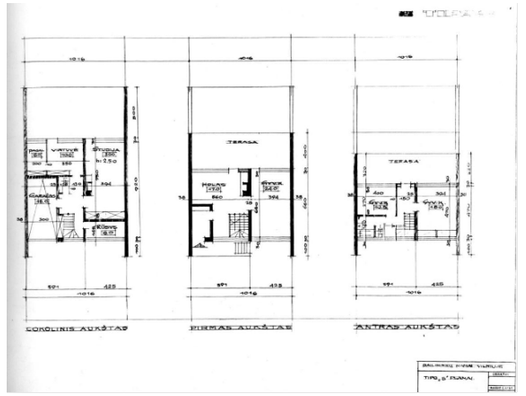

Figure 1

Usually these referred to five-storey apartment blocks containing 40, 60 or 70 standardised flats ranging in size from one to three rooms (one-room apartment covered a total of 30 m2 of useful floor space, including 19 m2 of living floor space – a residential floor area measurement specific to the USSR; a two-room apartment 43 m2 and 31 m2; and a three-room apartment 52 m2 and 39 m2 respectively). Standardisation was a economic means to maintain the budgeted construction cost of 118–128 rubbles per square meter of a floor space.

Lazdynai mass housing area

This can be seen in Lazdynai, a large-scale housing estate for 40,000 residents built using five-, nine-, and twelve-storey standardised houses (series I-464-LI) in 1967-1973. The area, designed by two young architects and built in a picturesque landscape was awarded the Lenin Prize in 1974 – the highest Soviet honour given to mass housing in urban design (see case study template "Lazdynai"). It is important to be aware that 20 percent of standardised houses were built by house-building cooperatives in Lazdynai.

In late 1960s Vilnius, it was noticed that because of improving material conditions more and more house-building co-operatives started demanding modification of the standardised designs. In the beginning, the house-building co-operatives demand to modify the standardised designs was closely linked to an attempt to improve pre-existing floor plans: (1) to eliminate walk-through rooms (the need for isolated rooms, especially in two-room apartments, was a commonly expressed demand); (2) extra utility space (a small utility room for storage); (3) a kitchen exceeding the standard 6-square-metre quota of floor space; (4) the great demand for separate rooms for WC and bathroom, especially by larger families (Drėmaitė, 2017: 203-210).

The increasing demand for custom designs from house-building co-operatives gradually encouraged urban planners and construction officials to draw up more experimental designs for housing blocks and apartments with better layouts. The privilege of being able to choose a better plot for the location of the house, a better standard of comfort reflected in the floor plan, or even better construction materials depended on available finances, the position of the sponsoring institution in the social/political hierarchy, and the informal ties between the house-building co-operatives and the local bureaucracy (Drėmaitė, 2022). Though custom designed co-operative apartment buildings were multi-unit structures (instead of private single-family homes), they nevertheless had better designs and creature comforts. The diversity of co-operative housing design increased in the late Soviet period, with an ever-growing number of petitions.

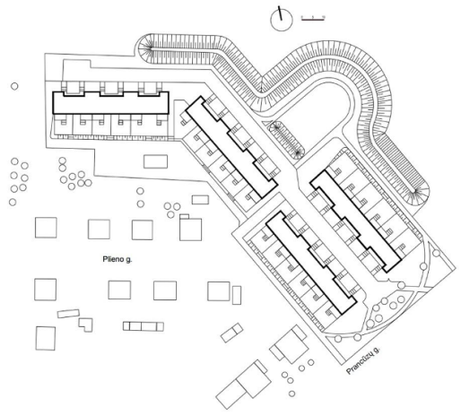

Figure 2

House of the Lithuanian SSR Council of Ministers

In 1974, architect Aida Lėckienė designed a multi-unit apartment building in Vilnius (Šeimyniškių g. 30, completed in 1977, see template x) for the house-building co-operative of the Soviet Lithuanian Council of Ministers. Socially, it demonstrated an important shift within the local 'nomenclatura' which, together with the lower-ranked employees of this privileged agency, decided to 'invest' their own incomes in the construction of a better apartment. Architecturally, the structure was a clear illustration of 'improved comfort', both internally and externally. It consisted of volumes of different heights, with apartments boasting 'improved layouts'. Joining four 5 to 8-storey blocks, each with their own lift, the complex housed 52 non-standard apartment units (3 two-room units, 27 three-room units, 17 four-room units, and 5 five-room units – a true luxury by Soviet standards). In addition to taller ceilings and larger kitchens, each apartment also had an additional small room with good daylight exposure, which could be used for a number of different purposes – a storage/utility room, a servant's room, or a small home office. The building's brick walls were finished in terrazzo plaster.

After 1962, members of local artistic organisations were allowed to form house-building co-operatives and were granted the right to apply to the local authorities for land plots to build their homes. They continued to request permits for custom-designed houses based on their special needs for a creative room or a studio (see case study template of Composer's Union in Vilnius). Architects supported such arrangements, because it was a tempting creative field to test and practice non-standard housing approaches.

As socialism progressed, artistic unions advantageously used the possibility to build co-operative apartments with studios, which translated into highly-desirable extra space. True to their name, artistic and cultural workers, together with architects, showed much more creativity than the Communist Party officials or the technical community. Their projects yielded exceptional living spaces in the context of the Soviet urban co-operative housing schemes, such as semi-detached or row houses of two or three floors with separate entrances, fireplaces, and halls.

Row-houses of the Artists

In 1967, thirty artists, sculptors, and designers formed a house-building co-operative under the name 'Menas' (Art) and proposed the construction of creative workshops with adjoining flats. The group managed to secure a land plot near a wooded area in Vilnius, a permit for a custom design issued by the Lithuanian SSR State Construction Committee (republican branch of Gosstroi), and design requirements issued by the chief architect of Vilnius city municipality.

Architect Algimantas Mačiulis designed 28 modernist cottages, arranged in a row. Each house had three floors and covered 56 m2 of living space (four rooms distributed over the first and second floors), a kitchen, storeroom and garage on the ground floor, and a 30 m2 studio with fireplace (Figure 1).

Row-houses of the Architects. Ever bolder approaches taken by artistic organisations were also observed in other Lithuanian cities in the late Soviet period. In the early 1980s, the young architect Algirdas Kaušpėdas founded a house-building co-operative for architects in Kaunas and applied for a land plot. He also designed a complex of twenty-four houses with small front gardens, set out in four rows. Apartments like these, with living space distributed over two floors, were still rare, and their construction was evidence of increasing possibilities and the growing quest for individuality in residential construction (Figure 2).

Conclusion

The changes that were brought about by the co-operative housing construction, show that late socialism provided options and possibilities for individuals to choose to which collective identity they wanted to belong. In viewing class structure through housing consumption, the 'owners' of co-operative flats, with their better incomes and choice of apartment, can be hypothetically interpreted as representative of a Soviet middle class. Yet, class definition in Soviet society remains complicated and attempts to mechanically copy European historical lexicons, without being doubly careful with respect to the social conditions of the circulation of concepts and the historical distance when reconstructing their meaning, give very problematic results (Bikbov, 2014: 37). Even if the term 'Soviet middle class' remains controversial, the social changes associated with the formation of house-building co-operatives show the increasing social layering of the late Soviet society. It can be concluded, that the possibility of becoming a member of a house-building co-operative in the late Soviet period enabled larger sections of the population to gain access to material wealth in the form of a better apartment, regardless of their position in the ruling political elite, especially in the late 1970s, when the house-building co-operatives became even more popular. In this regard, the co-operative housing sector served as a field of experimentation for architects, eager to express more varied planning ideas in the well-known framework of standardised Soviet mass housing.

Figures

Cover - Romualdas Rakauskas, Lazdynai residential district in Vilnius, Lithuania, 1970s (personal archive of Rakauskas).

Fig. 1 - House-building cooperative "Art" after construction (north façade), Šilo g. 29, Vilnius, 1975 and floor plans for "Type B" apartment (Photo and drawing: Personal archive of Algimantas Mačiulis).

Fig. 2 - House-building co-operative for architects (Plieno Street, Kaunas), designed by Algirdas Kaušpėdas, 1984–1985. Photo: Česlovas Mazūras, 1985 and site plan.

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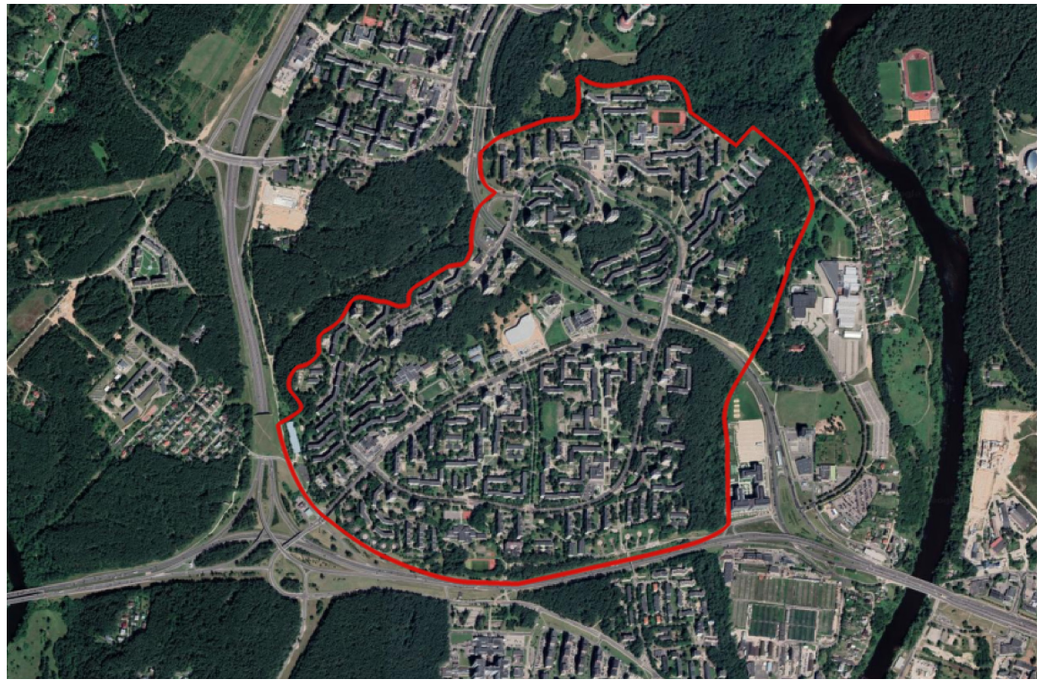

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Lazdynai, a large housing estate for 36,000 residents, grouped into four microrayons, first design in 1962, redesigned in 1967, constructed in 1967–1973. Influence of Finnish (Tapiola), Swedish (Vällingby, Farsta) and French (Toulouse-Le Mirail) suburban projects. Lazdynai became the first mass housing urban design to be recognised with the most prestigious Soviet Lenin Prize in 1974.

Adress/District	Lazdynai, Vilnius, Lithuania		
GPS	54.675348, 25.209329		
Scale of development	Urban plan / district / building / landscape		
Architectural studio	State Urban Design Planning Institute (Vilnius)		
Project author	Vytautas Edmundas Čekanauskas, Vytautas Brėdikis		
Constructors	State Construction Company		
Landscape author	Vytautas Edmundas Čekanauskas, Vytautas Brėdikis		
Period of construction	beginning: 1967	end: 1973	inauguration: 1974

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URBAN AREA

Location - within in the city	original:	satellite
	current:	city fringe
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Semi-open block / free-standing objects / free composition	
	total area:	174,23 ha
	housing:	69 %
Connectivity | Accessibility	Lazdynai was the first of a series of suburban communities ringing Vilnius, threaded together by a principal highway and isolated avenue away from residential areas by a ring road that connected four microrayons and provided pedestrian access to all building groups.	
Landscape	The site for Lazdynai was naturally hilly and well forested – features that would be preserved as elements in the final landscape design - 20,60ha of pine forest and parks.	
Open and public space	Although planners were committed to adapting the standard design in public buildings, the centres of the three microrayons were each given a unique layout complete with public art.	current condition: reasonable
Quality of living environment	Integrated construction of the environment, low density of houses, public spaces, infrastructure and landscape design, made Lazdynai different to Russian large housing estates where incorporation of these features was never completed.	
Main Features	Flexibility / combining different uses	

RESIDENTIAL AREA

Residential buildings	Lazdynai district consisted of 5 story (62%), 9 story (22%) and 12 story (7,8%) blocks (improved series I-464-LI). Later 16 story towers (7,3%) were added.	
No. of buildings	272	
No. max. of floors	16	
Average no. floors	5-9-12	
Materials | Fabrication	Mass produced prefabricated concrete panels. Mostly two and three-room apartment units (42.9% and 33.3% respectively) were built, followed by one-room (approximately 13.3%) and four-room (10.4%) units.	
No. of dwellings	10.300	
Average dwe. area	40 m^2	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	The average residential unit floor space was approximately 35.9 m2. Floor space per capita was not the best indicator of convenience and comfort, but rather the number of inhabitants per room. In Lazdynai, this number reached 1.43 by 1974.	
Housing density	Number of dwellings per ha:	64

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	Lazdynai was a mixed area following the egalitarian housing policy and provision of communal housing for free, however Lazdynai was inhabited by a larger percent of professionals and 20 percent of houses were built by house building co-operatives (with personal financial contributions).

MASS HOUSING

Massification through: planned process horizontal growth element's repetition **Building's typology:** slab tower	Architects collaborated closely with the Standard Design Department of the Vilnius Urban Construction Planning Institute and developed 15 improved versions of an existing standard building series (the I–464–LI), adding nine types of five-story buildings, three new types of nine-story buildings, and twelve-story towers.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	–
Name of specific programmes or funding applied	(1) State and municipality funded (State socialist period)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Listed in 1984 (Lithuanian SSR List of cultural monuments). Re-listed in 1993 Lithuanian Cultural Heritage List (unique no. 16079).
Urban | building transformation or regeneration	Several new buildings were added and a church was built in 1995. The public spaces gradually were abandoned and not cared well.
Intervention scale	Neighbourhood / building / open and public spaces
Intervention status details	–

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The Composers' Village

Lithuania, Vilnius

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The Composer's Village in Vilnius was a unique in the history of housing construction in the Soviet Union. The Lithuanian Composers' Union managed to obtain both an empty plot of land by the Neris River in 1958 and approval for a custom design. They also succeeded in securing initial funding from the All-Union Music Foundation that oversaw the composers' unions of all the Soviet republics.

Adress/District	A. Mickevičiaus g. 29, Vilnius, Lithuania		
GPS	54.690459, 25.249171		
Scale of development	Building / group of buildings		
Architectural studio	State Urban Design Planning Institute (Vilnius)		
Project author	Vytautas Edmundas Čekanauskas (architect), Česlovas Gerliakas (engineer)		
Constructors	State (The Music Foundation of the USSR)		
Landscape author	Vytautas Edmundas Čekanauskas		
Period of construction	beginning: 1959	end: 1966	inauguration: 1966

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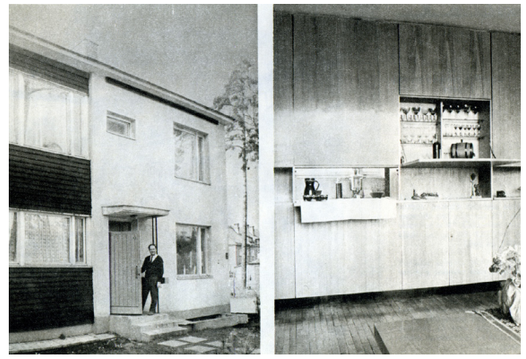

© Czech architectural journal *Domov*, 1968, No. 2

URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Music hall (professional)	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	sun oriented paralell rows	
	total area:	0.8 ha
	housing:	19.8 %
Connectivity | Accessibility	The architect's study trip to Finland in 1959 helped him to decide both on the use of predominantly traditional, natural, and locally available building materials (red brick, pale plaster and timber) and the incorporation of the buildings into the natural landscape, preserving surrounding pine trees.	
Landscape	The incorporation of such a structure into its natural surroundings and the modernism of local materials came to be considered as an expression of a unique Lithuanian national architecture.	
Open and public space	The incorporation of the buildings into the natural landscape, preserving surrounding pine trees with private gardens and isolated drive-ways.	current condition: excellent
Quality of living environment	The complex became renowned throughout the Soviet Union for its unique typology and integrated architectural expression.	
Main Features	Combining different uses	

RESIDENTIAL AREA

Residential buildings	The complex included two types of duplex apartments: three-room (totalling 55 m2 in living space) and four-room units (66 m2). Each unit had a kitchen with an adjacent pantry, a living room, one or two bedrooms, a den, two bathrooms (one with a bath), and a spacious balcony and terrace.	
No. of buildings	16	
No. max. of floors	2	
Average no. floors	2	
Materials | Fabrication	Balconies looked out on the forested banks of the Neris River. The dividing wall between kitchen and living room was a shelving unit with a window open in the middle to allow food to be passed from the kitchen to the living room.	
No. of dwellings	16	
Average dwe. area	66 m^2	
Dwellings' type	duplex	3, 4 rooms
Qualitative issues	The individualism and innovative planning used in the design of the Composers' Village, including the incorporation of outside decks beside each house, clearly spoke to the superior comfort of the unique housing development.	
Housing density	Number of dwellings per ha:	16

MIDDLE-CLASS

Original dwellers class: middle-class	The residents of the neighborhood were carefully selected members of the Lithuanian Composers' Union.
Current dwellers class: middle-class	

MASS HOUSING

Massification through: element's repetition	Row houses - repetition of type cottages (attached; semi-attached).
Building's typology: row-housing	

HOUSING POLICIES

Urban promotion type: private	Terraced houses were never popular in Lithuania, which proves the direct Nordic postwar influence.
Housing promotion type: private	
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Listed in 1985 (Lithuanian SSR List of cultural monuments, no. AtV939), re-listed 1993, updated 2004, 2016 (Lithuanian Cultural Heritage List, unique no. 39539).
Urban | building transformation or regeneration	Renovations of individual houses
Intervention scale	Buildings
Intervention status details	Some renovations contain major changes of exterior and interior.

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Montenegro

Podgorica, Budva

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Between Modernism, Postmodernism and Transition: Mass Housing in Montenegro

Housing policy and the construction of new settlements and residential buildings in Montenegro adhered to federal housing policy, albeit with slight delays, and was similar to residential housing construction in other parts of the then-Socialist Federal Republic of Yugoslavia (SFRY). Self-governing socialism pursued the principles of collectivism and egalitarianism ("to all according to their needs"), clearly determining the so-called middle class and adequate housing policy. Mass construction of new settlements and residential buildings dates back to the 60s, 70s, and 80s, with a noticeable paradigm shift in architecture and urban design, from universal modernist postulates to a return to traditional values in postmodernism, especially after the devastating earthquake (1979). The transition period, which followed the dissolution of the SFRY (1991) and implied a change of system to neoliberal capitalism, was dominated by the privatisation of residential units that brought about devastating structural damage to residential buildings and settlements due to unauthorised and uncontrolled extension construction. Residential buildings and settlements from the socialist period are therefore still undervalued and unprotected. Two select case studies ("Blok 5" in Podgorica, 1977-83 and "Pod Dubovicom" in Budva, 1980-81) represent housing concepts that are different in form, but similar in the predominance of social values of space and also in changes over time.

With an area of 13,812 km2 and a population of approximately 620,000 people, Montenegro belongs to the category of the so-called "small states" of Europe. Although Montenegro acquired its statehood in recent political history (the 2006 Independence referendum marks the dissolution of the state union of Serbia and Montenegro, the successor state to the former SFRY), Montenegrin independence dates back to the Berlin Congress of 1887 , which marks the beginning of a period of more dynamic urban development. Prior to WWII, Montenegro was the least urbanised region in the Kingdom of Yugoslavia (the urbanisation rate was 6.5% in 1921 and 7.1% in 1931) with a dominantly agricultural population (Ivanović, 1979, pp.85-91).

The appearance of the first examples of multi-family housing in Montenegro, with standardised units, dates back to the period between the two World Wars, in Cetinje (the old capital of Montenegro), which was then the centre of Zeta Banovina (a province of the Kingdom of Yugoslavia). They included several small residential buildings, designed in a simplified, academised style and built to accommodate clerks and officers (Radović, 2012, pp.160-180). A boom in multi-family housing construction began after the end of WWII, when Montenegro became part of the SFRY. The industrial development of Montenegro in the post-war period gave rise to fast economic and social development, accompanied by mass migration from rural to urban areas, which also led to rapid but largely uncontrolled urbanisation. As the rural population significantly decreased by 1971, the city population became approximately two and a half times larger than it had been previously, and even more so in the largest urban areas, such as Podgorica (then Titograd, the new capital of Montenegro) , and Nikšić, the developing industrial centre (Bojković, 2019). Until the mid-1950s, the architects from the interwar period mostly designed low-rise residential buildings characterised by modified academicist concepts based on symmetry, classical facade composition, use of stone, four-sided roofs, etc.

The most extensive production of multifamily housing took place in the 60s, 70s, and in early 80s. A significant change in the architectural and urban paradigm in Montenegro occurred in the early 80s, after the devastating earthquake in 1979 (Rovčanin Premović, Doderović, 2020, pp. 412-425).

Mass Housing in Montenegro – past and present

Based on universal values, the ethical idea of

Figure 1

modernity corresponded to the egalitarian principles of post-war socialism, which aspired to rational, economical, efficient, functional, and geometrised architecture. Industrialisation and rapid urbanisation, based on CIAM functionalism and the Athens Charter, were the cornerstone of the development of Yugoslav and Montenegrin cities in the post-war period (Stamatović Vučković, 2018, p.318).

At that time, the housing policy in Montenegro predominantly followed federal housing policy whose development was initiated only after the introduction of central planning (1951) and marked by constant change (Vezilić, Delić and Kincl, 2013): the establishment of republic and municipal funds and contributions for housing construction (1955-1960); *the first housing reform* - the establishment of housing companies followed by an increase in investments in housing construction, housing typification, multiplication (1960-1965) (Vujović, 1980); *the second housing reform* – enterprise-provided funds for employees' apartments (housing contributions) and the establishment of banks - the adoption of so-called "market socialism" (Bežovan, 1987, p.18); mass construction of high-rise buildings; industrialised house-building construction - prefabrication, etc. (1966-1975); the establishment of self-governing common-interest communities and communal activities (the so-called SIZ) and *socially-oriented housing construction* (DUSI); "agreement economy" - greater participation of users in the housing construction process (1976-1990) (Vukelić, 2019). Individual (private) construction or purchase was one of the ways to provide housing, but the majority of the population was interested in receiving socially-owned flats, since the rents were extremely favourable.

Intensive housing construction in Montenegro began in the early 1960s. Although

the idea of collectivism and equality was an important generator of housing policies, it was the social elite (primarily members of the Yugoslav People's Army-YNA) that obtained the largest number of apartments especially during the 60s (Alihodžić, Stamatović Vučković and Ašanin, 2019, pp.118-131). The construction of a new housing complex in the city took place on the right bank of the Morača River (the so-called "New Town") (Stamatović Vučković, Bajić Šestović and Ćaćić, 2019, pp.99-118) in an orthogonal urban matrix, with semi-open residential blocks (from 4 to 8 floors, several solitaires max. to 14 floors), using a modernist-functionalist vocabulary with emphasised cubic masses and flat roofs.

Very soon, systems of industrial production of buildings (prefabrication) were being introduced in the SFRY with the aim of providing faster, more economical, and standardised construction. The Apartment Factory in Spuž was built in Montenegro (1968-69) with manufacturing technology and equipment imported from what was then the German Democratic Republic. Using a large-panel system as a construction method and having a capacity of 500-600 apartments per year, the factory produced only 970 apartments (215 per year) between 1970-74. Contrary to housing typification, architects in the late 60s and early 70s preferred original architectural design (eg. the works of S. K. Radević in Petrovac and Mojkovac (Alihodžić, Stamatović Vučković, 2019, pp.4-17); M. Vukotić, J. J. Milošević, V. Vukotić in Podgorica; N. Jovović in Budva; M. Bojović in Žabljak, etc.) (Radević, 1981, pp.19-22).

After the first housing census in 1961, the housing fund in Montenegro experienced an increase of 41% by 1977, but less than in other regions of the SFRY, as a result of a slower capacity for construction (Martinović et al, 1979). In the same period, the average living space area per person increased, from 7.8sqm to 11.3sqm (the SFRY average was 14.1sqm). *Socially-oriented apartment construction* in the 70s is characterised by uniformity and functionality, as well as a parameter standardisation as part of the "social agreement" (Svirčić Gotovac, Podgorelec, Kordej-De Villa, 2021). A similar kind of standardisation was implemented in Podgorica (1978), setting down mandatory amenities, especially in terms of the common areas.

One of the largest and most complex residential construction projects in Montenegro at that time was unquestionably the residential area Blok 5 (1977-83) in Podgorica, designed by architect Mileta Bojović (Blagojević, 2017, pp.204-224; Markuš, 2008, pp.31-34). With 13 buildings of different typologies, this residential complex was the first-prize-winning design in an architectural competition (1977), based on the already adopted detailed urban plan (1975) by architect Vukota Tupa Vukotić. The favourable ratio between open space and built-up area, the emphasised expressiveness, attractiveness, and dynamics of volumes and architectural forms, as well as the functional self-sufficiency of the complex make this residential area a model case of an indisputably comfortable living space even today, whose users developed a strong sense of belonging. A very demanding project with an area of 190,000 m2, offering 1800 apartments for 6000 inhabitants, it could have been a predictably monotonous unification of both buildings and apartments, but the ambitions of the architect were quite the opposite - all buildings were individualised, down to the

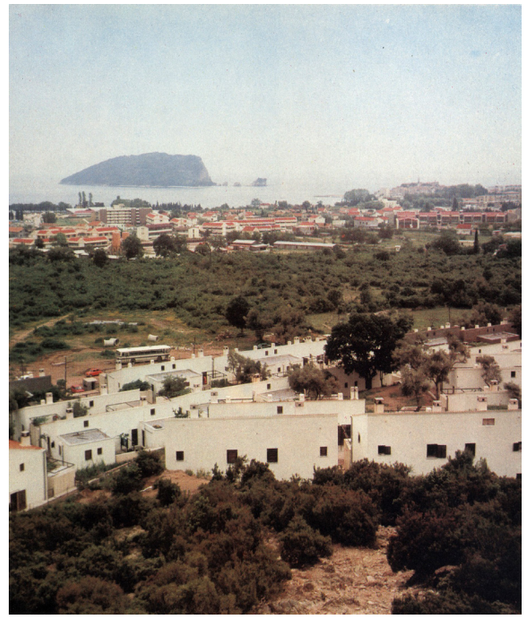

Figure 2

Figure 3

smallest of units (Bojović, Bajić Šestović, 2020).

The competition programme required an exact number of apartments and strict compliance with the designated square footage, within the standards for socially-oriented residential building construction. What distinguished the first-prize-winning design was the two-level flexibility of the buildings. The first level manifested itself in the apartment type, which allowed the investor (SIZ) to adjust the structure of the required residential units, from a studio to a four-bedroom apartment, within the same building volume. The second level resided in the possibility of adapting the apartment units to the needs and desires of their end users, due to a carefully considered modular design, with the possibility of adapting the facade. In order to allow for modifications over time, the residential units were designed in such a way that only the plumbing system was permanent, whereas all other partition walls were (re)movable. The design provided a large variety of possible solutions, and the architect made himself available to future users during the design phase and after the construction, all with the aim of creating a living space more tailored to their needs. In such a sociologically and politically specific setting such as Montenegro, where the state policy of self-governing socialism implied the participation of users in decision-making, the procedures still could not be implemented without representatives. The Investor (SIZ) at the same time became a bureaucratic obstacle to any direct contact between the architect and future users. Its officials were making decisions on their own, choosing, by themselves, variants of the apartments to be constructed.

The growth of residential buildings and districts during the 1980s was largely a result of the reconstruction and construction effort after the devastating earthquake of 1979, especially in the coastal region. One of the more successful examples is the construction of residential area “Pod Dubovicom” in Budva (1980-81) by Serbian architects D. Ivančević and V. Macura, which was inspired by the vernacular architecture of the Paštrovići region. The human-centred design of forty semi-detached houses and the

Figure 4

“ambientisation” of pedestrian streets combined with mini-squares show a return to traditional qualities of space, which corresponds to the postmodern value system characteristic of the 80s. Other post-modernist residential blocks in Montenegro, which were built at the end of the 1980s, have actively used ground floors with terraces, piazzas and green gardens, row housing, etc (arch. N. Jovović and P. Popović; A. Keković and N. Drakić, all in Podgorica).

Shortly after the dissolution of the SFRY (1991) and the independence of post-socialist countries including Montenegro, radical changes in the social, economic, and political systems were taking place. Thirty years of transition from self-governing socialism to neoliberal capitalism laid waste to all the complexity of society and space, downgrading it to something tradeable, measured by market instead of use value (Bojović, Rajković and Perović, 2022). This also implied privatisation of social rental housing, when almost the entire housing stock in Montenegro was sold to residents. This process led to numerous shortcomings, primarily the lack of building maintenance as well as public infrastructure. Very soon, the country faced illegal construction at the fringes of urban areas but also in the city centres (construction on existing multifamily buildings), followed by a decline in urban public areas due to the residential building construction market. Spatial planning policy in transition had short-term goals and gave precedence to private over public interest, as well as the market over the use value of the spatial capacities. This led to a boom in investment in residential building construction, but new residential settlements haven’t been equipped with community facilities and, therefore, had to make use of the existing social infrastructure.

The issue of current socio-spatial manifestations of a society in transition is apparent in the example of the transformation of the two residential complexes presented in a case study (Blok 5 in Podgorica and Dubovica in Budva). Regarding the residential complex Blok 5, the first independent, unregulated interventions carried out by tenants, arose in

response to the poor quality of execution of some of the buildings, which created a certain state of anarchy, leading to an inexorable decline in physical conditions. The main illegal alterations occurred during the social upheavals of the period of transition – the construction of new apartments on common rooftop terraces, additional residential space on cantelivers, and in the front gardens of ground floor apartments. This uncontrolled and uncontrollable usurpation and appropriation of public communal spaces by users poses a problem not only to the aesthetics and (non-existent) copyright protection for works of architecture but also to constructive safety. The residential settlement Dubovica in Budva has met a similar fate. The entire residential area has undergone significant changes, particularly the public spaces, and individual users' illegal interventions on the existing buildings have had a negative impact on the surroundings. Unfortunately, this has severely impaired the quality of the residential environment.

Conclusions

This brief overview of multifamily housing in the second half of the 20th century in Montenegro aimed at including both exact data relevant to the topic, as well as the specific characteristics of the socialist, subsequently self-governing society and the housing it produced. The multilayered complexity of the thematic framework has been illustrated by separate case studies of residential areas in Podgorica and Budva.

Furthermore, this concise analysis of the transformations of the two settlements has outlined the current social and spatial issues affecting housing in Montenegro. Such degradation and decline stem from a number of different causes, the most important being the absence of an adequate system of values, and of state institutions and policies related to the protection and valorisation of the architectural heritage of the 20th century. In addition, the current Law on Copyright and Related Rights does not protect the interests of the architects since owners are allowed to modify or even demolish architectural works. Evidently, besides strategically-oriented comprehensive renovation and revitalisation programmes, it is crucially important to establish adequate spatial (architectural) policies based on the precedence of the public over private interest or long-term goals over the short; law enforcement, preventing the emergence and leading to eventual rehabilitation of informal settlements (being a major problem); the protection and valorisation of architectural heritage, as well as copyright protection for works of architecture.

Figures

Cover - © Marija Bojović, 2022

Fig. 1 - Arch. Mileta Bojović, Residential complex Blok 5, Podgorica, Montenegro, 1977-1983. © (and courtesy) arch. Mileta Bojović, 1984

Fig. 2 - Arch. Dimitrije Ivančević and Arch. Vladimir Macura, Residential complex "Pod Dubovicom", Budva, Montenegro, 1980. Appearance of the complex after construction. © (and courtesy) Ljubica Ćorović private archive, 1983.

Fig. 3 - Arch. Dimitrije Ivančević and Arch. Vladimir Macura, Residential complex "Pod Dubovicom", Budva, Montenegro, 1980. Illegal interventions on buildings today – devastation. © Slavica Stamatović Vučković, 2022.

Fig. 4 - Arch. Mileta Bojović, Residential complex Blok 5, Podgorica, Montenegro, 1977-1983. Illegal interventions on buildings in the period of transition. © Marija Bojović, 2022.

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Blok 5

Montenegro, Podgorica

Google Earth Image © 2023 Airbus

Blok 5 is residential block in Podgorica dating from self-managing socialism. This first-prize architectural competition winning entry represents unique social-spatial experiment of its time, advocating participation of individuals in decision-making. Due to flexibility of the apartment layouts, changes are enabled over time.

Adress/District	Block between Blvd Džordž Vašington, Blvd Mihailo / Lalić, Meša Selimović Street and Dalmatinska Street.		
GPS	42.44701, 19.24284		
Scale of development	Community (6 thousand inhabitants)		
Architectural studio	RZUP - Republic Office for Urbanism and Design		
Project author	Mileta BojoviĆ		
Constructors	OGP - General Construction Company (construction) / SIZ - Self-Managing Interest Community and JNA - Yugoslav People's Army (one building) (investors)		
Landscape author	Božidarka Markuš (landscape author) / Municipal Housing Agency (institution)		
Period of construction	beginning: 1977	end: 1984	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	wider city centre
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block	
	total area:	25 ha
	housing:	76 %
Connectivity | Accessibility	The inner space of Blok 5 is mainly a pedestrian zone, as the car traffic (streets and parking space) are both on the outlines of the block, with the exception of central parking. The underground garage has been envisioned by original design, but has never been built - parking was built instead.	
Landscape	Blok 5 has two large inner courtyards that "divide" this open block in two halves. In addition, ground floor apartments in two buildings were designed with the belonging gardens in front, providing residents with direct contact with nature.	
Open and public space	Two large green open spaces in Blok 5 significantly increase the overall quality of life, providing residents with safe and pleasant environment for living, as they are designed as "inner courtyards" of an open block. Additionally, all thirteen buildings are surrounded with green, open space.	current condition: good
Quality of living environment	Due to functional self-sufficiency of Blok 5, higher quality of built environment (for the time), flexibility and the attractiveness of its architecture, its residents developed intense sense of identification and belonging.	
Main Features	Flexibility / combining different uses / self-sufficiency	

RESIDENTIAL AREA

Residential buildings	Entrance building hallways in Blok 5 were designed spacious, and eight buildings were equipped with collective (open) spaces for gatherings. In recent decades these collective spaces have been converted into private office space (ground floor spaces) or residential space (spaces for gathering on higher floors).	
No. of buildings	13	
No. max. of floors	16	
Average no. floors	12	
Materials | Fabrication	Load-bearing reinforced concrete panels as structural elements and demountable interior wooden partitions instead of interior walls in the apartments - enabling flexibility of the apartment layouts and their change over time, characterise the Blok 5.	
No. of dwellings	1800	
Average dwe. area	75 m^2	
Dwellings' type	one floor	1, 2, 3, 4 rooms
	studio	–
Qualitative issues	Flexibility of apartment layouts and possible change of organization over time; pre-gardens of ground-floor apartments and concrete planters in every dwelling; loggias with possibility of closing over time, as well as double dwelling orientation significantly contributed to the overall quality of living in Blok 5.	
Housing density	Number of dwellings per ha:	72

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Blok 5 was designed under parameters for social housing. The dwellings were distributed to the residents through the institutions they worked for, and via the Investor SIZ - Self-managing Interest Community. Large percentage of the original residents of Blok 5 still live in the area.

MASS HOUSING

Massification through: planned process **Building's typology:** block	Blok 5 was designed as a local community (between five to six thousand inhabitants), therefore its massification was a result of a planned process. However, the additional, second, kindergarten, that was not the part of the original planning and design, was built over last decade, significantly reduced one of the two open, green courtyards of the block, largely due to its inadequate capacity.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Blok 5 is the realization of first-prize winning entry at national architectural competition by invitation, organized by municipal Housing Agency. The competition programme was created under parameters for Socially oriented housing construction - Yugoslav (state) housing programme.
Name of specific programmes or funding applied	1) Blok 5 was funded by unification of total housing funds of state-owned companies, on the level of municipality.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Blok 5 was proposed for protection, as cultural heritage, but it didn't get the status, due to the inability of the Municipality to accept the obligations that would arise from that status. However, maintenance and refurbishment of the building facades is done partially, funded by Municipality and residents together.
Urban | building transformation or regeneration	Blok 5 undergone significant transformation, especially in past two decades. The process has been degrading on many levels - collective spaces were privatized; illegal extensions and superstructures have been constructed on the original buildings' volumes and rooftops.
Intervention scale	Buildings / open and public spaces / collective green spaces
Intervention status details	Transformation processes in Blok 5 have negative effects on architecture of the block and on overall urban landscape, although dwellers have benefited of enlarging their personal living space, by building illegal superstructures. This illustrates predominance of private over the collective interest.

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Dubovica I and II (“Under Dubovica”)

Montenegro, Budva

Google Earth Image © 2023 Airbus

Dubovica I and II were built in 1980-81 for residents who lost their houses in the catastrophic earthquake of April 1979. It is a unique model of a Mediterranean residential area with repetition of two types of semi-detached houses inspired by local vernacular architecture (Paštrović’s house) and with a focus on pedestrian zones, without car traffic.

Adress/District	Mimoza Street, 85310 Budva, Montenegro		
GPS	42.173369, 18.501392		
Scale of development	District		
Architectural Studio	Center for urban planning (CEP, “Belgrade project”)		
Project author	Vladimir Macura, Dimitrije Ivančević, Zoran Badnjević M. Ferenčak, M. Bobić, P. Perović (consultants)		
Constructor	“Hidrotehnika”, Belgrade, Serbia (Yugoslavia)		
Landscape author	Vladimir Macura, Dimitrije Ivančević		
Period of construction	beginning: 1980	end: 1981	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	wider city center
Other facilities / availability of amenities	Common public space, without car traffic	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / sun oriented paralell rows	
	total area:	1.8 ha
	housing:	20-25 %
Connectivity | Accessibility	Settlement was located on the outskirts of the city at the foot of the Dubovica hill. Due to the development of the city through uncontrolled construction, mainly for tourist purposes and the shifting of the central zone, the settlement today belongs to the wider city center.	
Landscape	Semi-detached houses were built on sloping agricultural land (15-20%) Large number of olive trees were previously marked, and buildings were placed in such a way that more than 80% of the trees have been preserved.	
Open and public space	The specificity of this residential area is the focus on common, public space: pedestrian zones, intimate squares (piazzas) with greenery, for sitting and children’s play. Parking is provided at the foot of the zone along the perimeter street (1 parking/per apart.), but today it is insufficient.	current condition: excellent
Quality of living environment	The settlement was unique and recognizable. The strong presence of public space created a sense of community, safety and identification, but today, due to the transformation, this is no longer present in the same way.	
Main Features	Flexibility / diversity	

RESIDENTIAL AREA

Residential buildings	In Dubovica was created interior atmosphere of “small neighborhood” with a common public space between the houses (pedestrian streets, small piazza) without cars. Each unit has a “terrace-garden” facing south/southeast with typical Mediterranean “summer kitchen” for for being/living outside.	
No. of buildings	38	
No. max. of floors	2	
Average no. floors	1-2	
Materials | Fabrication	A cheap material (concrete block) was used for construction, visible in some parts (unplastered), to resemble the Mediterranean stone. Project received acknowledgment at the 1981 Salon of Architecture (Belgrade) for its environmental values and the use of simple and rational building materials.	
No. of dwellings	76	
Average dwe. area	65 m^2	
Dwellings’ type	one floor	1 rooms
	duplex	2, 3 rooms
Qualitative issues	The settlement “according to people”: houses are either single-story (2×50m2) or duplex (2×70/80m2), with a favorable orientation adapted to the sloped terrain. Natural ventilation is provided in both directions, longitudinally and transversely. Originally, satisfactory thermal insulation was not foreseen.	
Housing density	Number of dwellings per ha:	42

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Socialism in the former Yugoslavia meant precisely the formation of the “middle (working) class” as the basic and dominant one. Thus, all the inhabitants of this settlement/ houses were “middle class” - employed in state institutions and tourism sector then current in the city.

MASS HOUSING

Massification through: planned process horizontal growth element’s repetition **Building’s typology: semi-detached house**	The settlement Dubovica I I II (or “Pod Dubovicom”) is a unique model of a planned “horizontal type” residential neighborhood in the peripheral, agricultural zone of Budva of that time, with semi-detached houses inspired by vernacular architecture, which was created as a quick solution for 76 families (~ 250-300 people) whose houses were demolished in earthquake (April 15, 1979).

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	There are no adequate housing policies. A large number of houses were illegally extended (often with another floor added) in order to obtain additional space for the expansion of the family. Some families legalized those additions through the Legalization Project launched by the Ministry of Spatial Planning of Montenegro (2018).
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The settlement is not protected and has undergone various changes over time, both in shape and in the addition of new materials to the buildings (extensions, insulation, replacement of windows/doors, etc.). The public space, which is owned by the municipality, is in a particularly bad condition and is quite neglected.
Urban | building transformation or regeneration	The renovation of the houses was done partially and individually, without professional supervision, according to the needs of the owners. There has never been a planned reconstruction of the buildings or the entire urban area, especially visible in the public space, which is in a pretty bad state.
Intervention scale	Buildings / energy efficiency improvements
Intervention status details	All interventions are exclusively individual (and illegal), mostly on buildings, and have a negative impact on the context. The original qualities of this unique residential area have been deformed over time (especially in the public space, greenery, etc.) and, unfortunately, almost completely lost.

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North Macedonia

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Jasmina Siljanoska

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New cityscape for a new society

Mass-housing complexes are an urban-planning phenomena that arose when the Republic of Macedonia was part of ex-Yugoslavia, influencing both the housing design and the rapid development of the construction industry. Consequently, this article deals with the post-WWII period until the end of the seventies, when mass-housing was the prevailing solution to satisfying housing needs. It is divided in two parts, the first of which covers the period from 1950 to 1965, and the second from 1965 to 1980. This periodisation is based on the different planning concepts which guided the development of mass-housing complexes. While the first period primarily follows the ideas of modernist post-war planning, satisfying the urgent need for a rapid expansion of the housing supply, the second period is characterised by the search for new planning solutions, improved housing standards and public spaces, with the intention of overcoming the repetitiveness and monotonous design of the earlier complexes, which were subject to widespread criticism. The text also presents an overview of housing policies across these two periods, with special attention paid to the changes imposed by the establishment of a system of self-management and its different development phases. At the end, the text briefly touches on the current state of mass-housing complexes and their fate under the new socio-economic conditions in the Republic of North Macedonia.

Post-WWII reconstruction brought crucial changes in the structure, development and expansion of urban settlements in the Republic of Macedonia, which in 1945 became a constitutional part of Yugoslavia. Large investments were made in infrastructure and new urban areas to provide favourable conditions for migration to cities, a result of the transformation from an agricultural to an industrial society.

The early 1950s marked the beginning of a new phase of economic and social development, after the distancing from the Soviet socialist model in 1948, which initiated a completely new discourse in Yugoslav culture and architecture with the International Style becoming, de facto, the recognised style of socialist modernisation. (Mrduljaš, 2012)

The process of rapid urbanisation and transformation of the cityscape, implemented according to modernist principles of the functionalist city, were most visible through the large construction projects of mass housing in new housing settlements across the entire country.

With the establishment of worker self-management, which was considered a unique trademark of Yugoslav ideology and the socio-political system, an egalitarian idea of social ownership was established. Socialist housing policy viewed large apartment housing blocks as the most appropriate way to meet the housing needs of rapid urbanisation.

The prevailing ideology of a classless society made it difficult to speak of a “middle class”, as it was labelled part of “bourgeois sociology”, and therefore incompatible with the new reality. However, the emergence of a new business and social category of small owners and entrepreneurs, managers and a highly skilled and educated labour force, later contributed to the recognition of a “new middle-class”. This type of social stratification bypassed traditional class definitions and the differentiation between the working and middle class based on a criteria of manual/non-manual work. Unfortunately, instead of contributing to the formation of a classless society, the social-housing sector fuelled new social inequalities, contributing to the stratification of the “working people”.

Mass-housing developments in the period from the late 1940s to 1980s went through several phases of conceptualisation, following the leading European trends, while over time transitioning to a system of societal self-management, reflected in the establishing of local communities as territorial and political units, self-managed at the place of living. While the period between the 1950s and 1960s was characterised by large housing developments built along the lines of the functionalist city paradigm, the period of the 1970s and 1980s reflected the influences of

changing discourses on the international scene, generally conceived as a revision of the principles of functionalist urbanism and consequently the layout of housing complexes.

However, economic decline in the eighties and the dissolution of Yugoslavia brought to an abrupt end the building of new mass-housing complexes, the decline of existing ones and finally, in the independent states that emerged from its demise, their replacement by market-driven speculative housing developments, more concerned with building afresh for private financial gain than making best use of existing vacant spaces for the common benefit of all.

Pragmatic Modernism: urban planning from 1945 to 1965 as initiator of mass-housing

In the two decades following WWII the country was thoroughly transformed. One of the major driving forces in the development of the country was the process of intensive industrialisation. Due to the large influx of new labour forces to the cities, the country was hit by a severe housing crisis. The obvious solution was the introduction of mass-housing areas which were to increase the quantity and quality of housing and everyday living standards.

The post-war period paved the way for large developments and intensive construction, especially in the bigger cities. The new approach to urban planning affected the spatial organisation of cities, dividing them into strict functional zones in which housing areas predominated. The expansion of new housing areas was characterised by collective mass-housing complexes owned by the state that later transferred to social ownership. For the most part, they occupied peripheral locations of cities. However, because of the radical post-war reconstruction of city centres, some housing developments were planned in city centres.

The housing development of the 1950s and 60s fully embraced the ideas of Modern urbanism, reflected in the planning and development of housing communities of 5000-6000 inhabitants. Their common features were multi-dwelling housing blocks of different sizes surrounded by ample green areas and spaces for open-air recreation, the separation of pedestrian and motor traffic, complemented with local community centres, schools, kindergartens and nurseries. The concept of housing community was based on a model of self-efficiency, complemented with social amenities, often referred to as “extended housing”. When several units were combined, a larger housing development/district came into being which was complemented by community centres, commercial and leisure facilities, and a higher level of educational, health and cultural services.

As far as the design quality and typology of the apartments is concerned, it is important to point out how, despite the investment in higher architectural standards, there were no standard typologies for the apartments designed and built at a state level, which was not the case in other socialist countries.

Following the new modernist paradigm, conceptual models reconfigured the form of the traditional Balkan city as a mosaic of subcultures with an organic composition, to embrace an orthogonal and longitudinal grid. Explicitly functionalist transformations of the cities in Macedonia followed strict masterplans prepared by planning teams led by well-known architects and urban planners from other Yugoslav republics (Vlado Antolić, Branko Vasiljević, Antun Ulrih and Nikola Dobrović) for the cities of Bitola, Prilep, Sveti Nikole, Resen, Ohrid, and Štip, while a team led by Ludjek Kubeš from Czechoslovakia prepared the masterplan for Skopje in 1948 (Figure 1).

Many new settlements were built according to these masterplans and, without exception they all adopted concepts of mass housing and functionalist city principles (Figure 2).

The first two case studies presented here belong to the early functionalist period in Skopje. They were the first housing developments to be drafted according to the 1948 Skopje Masterplan and, being located in peripheral areas, they were instrumental in the shift towards suburbanisation.

Housing Development 11 Oktomvri (NMK_01) consists of two neighbourhood units separated by a major collector street. One of the neighbourhood units consists of only housing blocks of different sizes while the other features a tower, housing blocks and single-family houses. The Chair housing development (NMK_02), on the other hand, is part of a wider housing complex - Skopje Sever - which was to replace

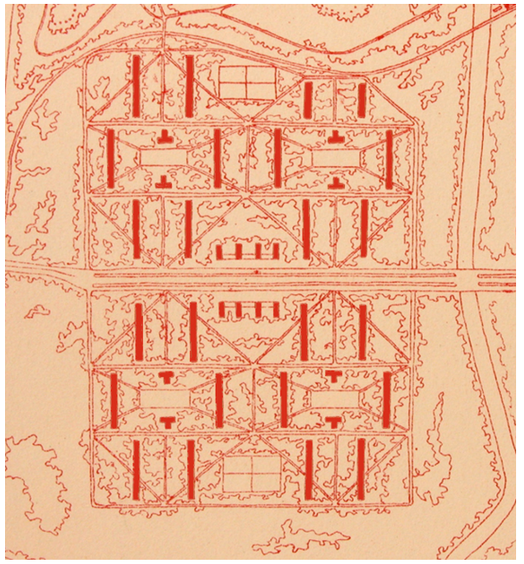

Figure 1

Figure 2

the existing substandard traditional single-family houses with 7778 newly-designed dwellings for 33,100 inhabitants. After the earthquake a wider area was developed with housing communities of free-standing housing blocks. Other facilities incorporated into both areas include commercial structures, schools, kindergartens and nurseries, parks and open-air recreation areas, with the recent addition of places of worship.

The “Partizanska” housing development, (NMK_04), although built after the earthquake in 1963, belongs to the same functionalist paradigm. It consists of high-rise towers and linear free-standing blocks laid out directly along the southern part of Blvd. Partizanska, which is the main longitudinal east-west artery for transversing the city. On the ground-floor of the buildings there are offices and commercial spaces. In addition, greenery, parking lots, underground garages and social infrastructure are dotted between the towers.

These early complexes went through major changes after the change of the political system in 1991 and the transition from social to private property, with a decline in building maintenance and in the quality of common spaces and facilities. The original plans and buildings were subject to transformations which increased building density, by adding new structures or widening the original footprint with additional floors built over the blocks. The quality of all common spaces, both green and grey, has deteriorated dramatically and they are in dire need of rehabilitation.

The search for new paradigms: mass-housing from 1965 to the 1980s

The second half of the 60s witnessed Yugoslavia’s accelerated opening up to foreign experience and expertise in urban planning. In Macedonia this process was further intensified by the involvement of the international community in the rebuilding of Skopje. On the one hand, this was reflected in the contribution of well-known architects and urban planners from abroad, while on the other hand it resulted in a considerable number of local architects being offered study visits and stays in many West European countries and especially in the USA, where they acquired

a direct insight into the current architectural and planning trends. Upon their return they made a major contribution to the emerging new architecture.

This influence was also reflected in the housing sector. Although the housing community remained the basic social cell in the structuring of housing areas, a search began for new spatial forms that would replace or improve upon earlier housing models.

The project which set this process in motion was the City Wall housing development (NMK_05) which was part of Kenzo Tange's team's plan for the redevelopment of Skopje's city centre. Although high-rise apartment buildings had been constructed in the city centre before the earthquake, they were scattered randomly and not planned as integral to mass-housing projects.

The City Wall housing development represented a completely new conceptual approach, intended to increase the number of residential units in the centre, establishing a basis for a functional variety of the CBD it encircled. It represented the then prevailing concept of placing striking physical structures along major traffic arteries. It was planned along the inner ring, which already existed in previous plans, hence providing a new prominent urban feature, while respecting elements of the existing urban tissue.

The housing development consisted of towers and blocks, which were placed in parallel lines enclosing an inner space which was to serve as a green haven for residents, shielding them from the hustle and bustle of the busy city centre. The ground floor and the mezzanine were planned for commercial businesses accessed by pedestrians from the main road. Several kindergartens were planned for the complex, while an existing primary school was incorporated within its boundaries. This housing concept and the proximity of the city centre attracted interested parties primarily from the "new middle class'.

It is interesting to mention, that after the Skopje earthquake, as part of the relief programme to house the homeless, the dominant type of housing was in prefabricated single-family homes. They were distributed in a number of settlements located on the outskirts of the city, planned as fully-equipped housing communities. At one point, over 70 % of the inhabitants lived in single-family houses, making this the dominant form of "mass-housing".

In order to provide accommodation for the rapidly-increasing population of the city, a completely-new housing district for 80-100,000 inhabitants was planned. Initial plans were drawn up by the firm of Doxiades Associates, but the final design was chosen through a national Yugoslav urban design competition won by JUGINUS from Belgrade. This housing complex, called Aerodrom (NMK_03) as it occupied the former airfield area, was divided into several housing units of 12.000 inhabitants, which represented the highest level of the three-tier structure of the housing district. These were further divided into two lower-tier housing units with 6000 inhabitants, each with its own primary school. The units of 6000 inhabitants were further divided into two lowest-tier housing units per 3000 inhabitants, each with its own kindergarten and shops for daily needs. It was the central areas which, as a whole, integrated the housing area, surrounded by ample green space which, from the central part spread into all units of the lowest level.

The major feature of the Aerodrom housing area was that all units were laid out along pedestrian streets which represented a defining element of the spatial concept. The pedestrian streets were marked by high-rise housing blocks located at the perimeter, towards the traffic areas, with low-rise housing blocks located within the inside area, bordered with greenery. Towers were designed to accentuate the central commercial and business areas. All entrances to the residential units were located on the inside pedestrian street. This separation of pedestrian and motorised traffic was a plus point for residents.

By the end of the 70s, it became obvious that the plan to replace the prefabricated houses with multi-story buildings was not feasible, as residents had begun doing alterations to their prefab homes, adding more area and making them into more permanent structures. For this reason, a new mass-housing complex was built, known as Kapištec (Fig.3), but without the same willingness to experiment with new forms of spatial organisation. It was primarily built to house as many people as possible, in a maximum number of residential units. Apartments were planned in towers and high-rise blocks in a step-like configuration from 14 to 24 stories. They formed a rhombus-like inner green space

with children's playgrounds, below the accepted standard for green areas of the time. This housing complex was among the last ones to be built, as from the 80s onwards, mass-housing developments were abandoned, primarily for fiscal reasons, and big housing complexes became a feature of the past, replaced by free market speculation manifested through the construction of high-rise buildings, dispersed through the city, without any intention of grouping them into complex concomitant housing aggregations.

The housing policy and its influence on mass housing

In order to understand the housing policy, it is important to make clear that "the right to housing" was proclaimed a basic human need "and social good – (a) collective asset that belongs to the whole nation as opposed to (…) the concept of housing as a commodity". (Bežovan 2004: 89 in Milanovska, 2020). This concept underwent different transformations in the period from the late 1940s to the 1980s, reflecting the wider social, political, economic and legislative landscape of the time.

The housing policy in the early post-war period, before the introduction of the self-management system in 1953, was under the dictates of strict ideological influence (Bežovan, 1987). This period is also called the administrative-budgetary period, as housing was financed from a housing fund incorporated into the state budget, while housing allocation was carried out administratively.

The introduction of worker self-management, as the basis of the socio-political system, strengthened the egalitarian idea of social ownership, with housing policy becoming part of

Figure 3

the general policy framework of nationalisation where housing rights were referred to as a basic constitutional right. In the entire period in question here, social land ownership in cities helped see urban planning projects to completion and led to more efficient mass housing construction.

In the following period, according to the principles of self-management, the role of the state was gradually replaced by companies being responsible for providing housing for their employees. The period from 1960 to 1975, is also referred to as the period of the first and second instances of major housing reform. With the reforms undertaken, Yugoslavia became one of the first countries to implement the decentralisation of housing policy. In the first period, the commissioning of apartments in the public rental sector was transferred from state bodies to housing companies, whose founders were socio-political and associated labour organisations. All companies and employees were obliged to set aside 4% of their net income for housing investments in order to contribute to the apartment supply. Once the general concept was established, the second period was largely geared towards greater industrialisation, standardisation and prefabrication, in other words, towards everything that could speed up and increase the housing construction process.

The last period from 1975 to the dissolution of Yugoslavia was marked by the introduction of yet another initiative, known as 'socially-oriented housing construction', which was based on the so-called 'contractual economy'. In the logistical sense, self-management communities of interest in housing and communal activities (SIZs) were founded, and they were expected to liaise between all participants in the process of housing construction through a system of agreements and negotiations. The main intention of the SIZs was for working people to have a say in the location, size and structure of the apartments, as well as the price and duration of construction. This was actually the first time in the history of housing construction, at least on a conceptual level, that users were fully integrated into the process of designing and building of apartments and housing complexes. Unfortunately, these communities did not live up to their expectations. (Petrović, 2004)

In the middle and late 1980s, when the economic crisis intensified the discrepancies and showed the hybrid nature of society, a new policy of systematic privatisation of housing was slowly implemented, resulting in converting residential statuses from rental to owner-occupied.

Although social housing was a prioritised model as a by-product of the dominant collectivist ideology, the truth is that during the entire socialist period, two basic types of ownership existed simultaneously: social and private. Social ownership did not reach even the majority share in the overall housing stock. This tendency was exacerbated in the 1980s as a result of the conversion of residential status by individuals purchasing socially-owned apartments. In 1991 it was reported that in the cities in the Republic of Macedonia, the share of socially-owned apartments was 19.4 %, compared to 80.4 % that were privately-owned. (Seferagić, 1992)

"The failure of the housing policy of Yugoslavia to resolve the housing issue universally and in an egalitarian way according to the ideology it advocated contributed to the de-legitimisation of the very principles of universality and egalitarianism". (Milanovska: 259, 2020)

Conclusion

The intensive planning and building of mass-housing complexes extends from the early post-WWII period until the late seventies/ early eighties. It was initially triggered by the accelerated process of deagrarisation and the expansion of urban populations, while in later periods it was additionally fuelled by the raising of housing standards and the need for improvement of living conditions.

The existing mass-housing complexes show a variety of approaches to their spatial and functional design. Starting with aggregations of housing blocks in a rigid modernist planning configuration, the housing developments gradually grew into complex physical, functional and social structures with the intention of embracing all aspects of everyday living.

Housing policies went through a number of changes, primarily influenced by the changes resulting from the various institutional self-management reforms in the housing sector concerning not only the ways in which housing needs were evaluated, but also the ways in which financial support for their completion were achieved.

The gradual decline of economic conditions in the 80s and the scarcity of funding for building large housing developments lead to abandoning the idea of planned housing communities altogether, while the major socio-economic changes of the 1990s gave way to speculative housing projects, which favoured the construction of individual multi-storey buildings, rather than rigorously planned large mass-housing communities.

Figures

Cover - © Boris Jurumovski, 2019

Fig. 1 - New mass housing areas as planned in the Master plan for Skopje from 1948, © Private archive, Original print 1948, Graphic intervention Vlatko P. Korobar, 2023

Fig. 2 - Karposh 2 mass housing district in Skopje of the 1960's with a supermarket, theatre, elementary school, and nursery in the central area, © https://mk.wikipedia.org/wiki/%D0%9F%D0%BE%D0%B4%D0%B0%D1%82%D0%BE%D1%82%D0%B5%D0%BA%D0%B0:Karposh_2.jpg Accessed 10.06.2023 at 19:30

Fig. 3 - Kapištec mass-housing development from the late 1970's: an area of extreme housing density, © Vlatko P. Korobar, 2023

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Housing Development 11 Oktomvri

North Macedonia, Skopje

Google Earth Image © 2023 Airbus

The housing development is one of the early examples of a completely new housing area built as a greenfield development on the then outskirts of the city. It was planned in 1961 and its construction began before the 1963 earthquake. The post-earthquake Master Plan almost fully incorporated the original plan.

Adress/District	Boris Trajkovski Blvd 11 Oktomvri		
GPS	41.584664, 21.263877		
Scale of development	District		
Project author **Architectural studio**	Buildings type A: Malenkova, Lj. / buildings type B: Malenkova, Lj., Zlatkovikj, G., Kjoseva, V., architects. Urban planning: Institute for Town Planning and Architecture - Skopje		
Constructors	GP “Pelagonija” Skopje		
Landscape author	–		
Period of construction	beginning: 1961	end: c. 1965	inauguration: c. 1966

The two parts of the housing development separated by a major urban thoroughfare, © Vlatko P. Korobar, 2022

An apartment block with visible changes to the façade executed by the dwellers, © Vlatko P. Korobar, 2022

URBAN AREA

Location - within in the city	original:		city fringe
	current:		wider area of the city centre
Other facilities / availability of amenities	Schools / market / sports / shops / religious / kindergartens / leisure		
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).		
Urban Ensemble	Open block / free-standing objects		
	total area:		23.2 ha
	housing:		9.18 %
Connectivity | Accessibility	This is a rare case where the housing area is divided by a major city road. The several public transport bus lines, running along this road, provide excellent connection with other urban areas. There is easy pedestrian access to all major areas and buildings within the housing area.		
Landscape	The north-eastern part of the development has a large green park centrally located and most of the buildings are facing ample green areas.		
Open and public space	This is a straight forward implementation of the early modern concept of individual housing slabs immersed in ample green areas. Within the existing park there are organised public spaces for residents’ interaction and recreational activities.		current condition: reasonable needs to improve
Quality of living environment	The north-eastern part enjoys the ease of access to all available amenities, which is not the case with the separated south-eastern part of the area. The increased ownership of vehicles produces problems with parking areas.		
Main Features	Combining different uses		

RESIDENTIAL AREA

Residential buildings	Most flats are exposed to green areas and have southeastern to southwestern orientation. The number of flats in each segment, served by one stairway/lift, is from 2 to 4 per floor. All flats were designed with clear separation of the 'social' and private areas. The roof terraces house common spaces.	
No. of buildings	49 (original development plan)	
No. max. of floors	16	
Average no. floors	7	
Materials | Fabrication	The buildings were constructed with reinforced concrete structure to high seismic standards with plastered facades and characteristic prefabricated undulated metal sheets on the balconies.	
No. of dwellings	2636	
Average dwe. area	56.59 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	studio	–
Qualitative issues	For the standards at the time of building, all flats were fully equipped with all necessary services. Most flats have cross ventilation. At the time of building, no attention has been paid to issues of thermal comfort and improved insulation.	
Housing density	Number of dwellings per ha:	113.62

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The housing development was built during the socialist period and the flats were distributed through a complex process involving self management communal institutions and firms. The original dwellers were members of the 'working class'. New dwellers also belong to the middle class social stratum.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** detached house semi-detached house slab tower	The massification was achieved through the repetition of three types of buildings and a tower which served as a landmark of the housing area. The initial development plan provided sufficient space among the buildings. In recent years, through a process of replanning of the area, a number of new buildings were added which in certain areas decreased the quality of green space and the quality of living in the area.

Housing Development 11 Oktomvri, Skopje

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The buildings were constructed by a "socially owned" construction company, which in the later phase were bought by the Institute for Housing Development and Management of the city. The Institute was responsible for the distribution of the flats under established rules.
Name of specific programmes or funding applied	(1) Land Management Fund (2) Programme of the Institute for Housing Development and Management - Skopje

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	After the privatisation of the housing stock in the 90's, the maintenance of the buildings has been very poor and alterations to flats and facades have been made by the dwellers themselves in a loosely controlled process.
Urban | building transformation or regeneration	The transformation of the buildings was carried out by individual dwellers without any kind of coordination. On the bases of replanning of the area, new housing buildings have been added. The only improvement has been made in the upgrading of part of the public spaces.
Intervention scale	Buildings / open and public spaces
Intervention status details	The interventions on the original buildings completely altered their facades and added new housing space on the roof terraces. The newly inserted buildings reduced the existing green area and worsened the existing problem with parking areas. Public spaces have been improved, while the green areas, although well developed, are in need of upgrading.

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Housing Development Skopje Sever - Chair

North Macedonia, Skopje

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The first plan was developed in 1962. The plan replaced the tightly knit urban tissue of one of a traditional housing area with a modernist housing concept. After the earthquake of 1963, a new plan was proposed for a wider area, but it retained the basic elements of the initial plan. The plan has been partially completed with parts of the old tissue still existing at the edges of the new development.

Adress/District	Kemal Sejfula Str. Chair		
GPS	42.010721, 21.263620		
Scale of development	District		
Project author	buildings type A: Malenkova Lj., Georgievski T. buildings type B: Petkova D.		
Constructor	GP Ilinden, GP Beton, GP Novogradba Skopje		
Landscape author	–		
Period of construction	beginning: 1963	end: 1969	inauguration: 1970

One of the well-developed inner green areas which are distributed evenly throughout the housing development, © Vlatko P. Korobar, 2022

The current state of the apartment blocks immersed in an ample green area, © Vlatko P. Korobar, 2023

URBAN AREA

Location - within in the city	original:		suburbia
	current:		between city centre and suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure		
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)		
Urban Ensemble	Open block / free-standing objects		
	total area:		44 ha
	housing:		6,61 %
Connectivity | Accessibility	The area is very well connected with other parts of the city being situated along major city roads. The internal pedestrian traffic is hampered by the new development and the ever increasing need for large parking areas.		
Landscape	The plan provided large green spaces throughout the housing area, but in recent years part of these areas have been used for new construction, reducing the quality of the living environment.		
Open and public space	The open space and large green areas have huge potential which has not been utilised to its maximum. The initially planted greenery has fully developed, but little care has been taken for its maintenance and further improvement as valuable open and public space in the area.		current condition: poor needs to improve
Quality of living environment	Further densifying of the area, through insertion of new buildings, reduces the quality of the environment, especially through the impairment of pedestrian and bicycle movement, due to unresolved issue of increased parking needs.		
Main Features	Combining different uses		

RESIDENTIAL AREA

Residential buildings	Interior outdoor area connectivity and interior indoor space organization, highlighting characteristic elements such as interior streets, gallery access, interior patios, collective spaces or others.	
No. of buildings	68	
No. max. of floors	8	
Average no. floors	5	
Materials | Fabrication	The buildings were constructed with reinforced concrete structure to high seismic standards with plastered facades without special attention to their aesthetic values.	
No. of dwellings	2611	
Average dwe. area	55.69 m^2	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	For the standards at the time of building, all flats were equipped with all necessary services. Few flats, usually the bigger ones, have cross ventilation. At the time of building, no attention was paid to issues of thermal comfort and improved insulation.	
Housing density	Number of dwellings per ha:	59.34

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The housing development was built during the socialist period. The original dwellers were members of the 'working class' as well as inhabitants whose houses were demolished to make room for the new development. New dwellers also belong to the middle class social stratum.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** slab	The part of the city, where this housing area was planned and partially erected, was previously occupied with densely built traditional single family houses. The new housing area was to provide flats for the existing population as well as for a large number of new inhabitants which resulted in higher housing density than in similar housing areas. Massification was achieved through repetition of several planning patterns.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The buildings were constructed by several "socially owned" construction companies, which, after completion, were bought by the Institut for Housing Development and Management of the city. This Institute was responsible for the distribution of the flats under established rules. A considerable number of flats were distributed among owners of houses which were destroyed in the process of new development.
Name of specific programmes or funding applied	(1) Land Management Fund (2) Programme of the Institute for Housing Development and Management

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	After the privatisation of the housing stock in the 90's, the maintenance of the buildings has been very poor and alterations to flats and facades have been made by the dwellers themselves in a loosely controlled process.
Urban | building transformation or regeneration	The new development plan has provided for enlarged footprints of existing buildings and insertion of new ones. This has been done through reduction of green areas. Although partial efforts for improvement of public space has been made, the general transformation of the area bears a negative connotation.
Intervention scale	Buildings / open and public spaces
Intervention status details	The planned enlargement of the footprint of existing buildings changed completely their initial appearance. Individual owners of flats have undertaken privately financed thermal insulation of facades, thus changing the buildings beyond recognition.

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Housing Development Aerodrom

North Macedonia, Skopje

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This was the largest housing area to be built in Skopje after the 1963 earthquake. It was planned for 100.000 inhabitants. The concept for the development plan was selected through a Yugoslav competition and later developed by the Institute for Town planning and Architecture of Skopje. The winning concept introduced new ideas in housing development.

Adress/District	Jane Sandanski Blvd., Aerodrom (Jane Sandanski and Novo Lisiche)		
GPS	41.590794, 21.275914		
Scale of development	District		
Project author **Architectural studio**	Various architectural teams from PB Beton and PB Ilinden. Towers by Filevski Voislav. Initial urban planning by Doxiadis Associates (GR) / winning competition entry by JUGINUS, Belgrade / development plan by Institute for Town Planning and Architecture, Skopje.		
Constructors	GP Beton, GP Ilinden Skopje		
Landscape author	–		
Period of construction	beginning: 1965/75	end: c. 1980	inauguration: c. 1981

Early phase of development of Aerodrom, © SkyscraperCity (https://l1nq.com/V4mF5)

Pedestrian street between apartment buildings of different height with private gardens on the ground floor © Vlatko P. Korobar, 2018

URBAN AREA

Location - within in the city	original:	city fringe
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kinder-gartens / leisure	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Semi-open block / free-standing objects	
	total area:	141.3 ha
	housing:	5.52 %
Connectivity | Accessibility	Although the area is located at the outskirts of the city it is well connected with major roads and public transport. The fact that the concept of inner planning units is based on pedestrian traffic, the accessibility of various functions is very good.	
Landscape	Inclusion of landscape and man-made water streams was one of the major features of the concept, The built area was locat-ed between the traffic flows and the ample central green area. The man-made water streams were never completed.	
Open and public space	The entire concept was based around the idea of pedestrian movement as a major element of design solution. It was even implied that this would have a beneficial effect on social con-tacts. The pedestrian streets still provide a safe environment for different age groups.	current condition: good
Quality of living environment	The design idea that all entrances should face the pedestrian street provides for increased pedestrian communication. The combining of different building types allows for different social groups to coexist in the same housing environment.	
Main Features	Readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	Interior outdoor area connectivity and interior indoor space organization, highlighting characteristic elements such as interior streets, gallery access, interior patios, collective spaces or others.	
No. of buildings	520	
No. max. of floors	19	
Average no. floors	8	
Materials | Fabrication	The buildings were constructed with reinforced concrete structure to high seismic standards with plastered facades, coloured exposed concrete and brick facades, while the major distinction between the basic area units was sought through their different colour.	
No. of dwellings	7985	
Average dwe. area	78.2 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	For the standards at the time of building, all flats were fully equipped with all necessary services. Some flats have cross ventilation. At the time of building, no major attention was paid to issues of thermal comfort and improved insulation. All ground level flats have their own gardens.	
Housing density	Number of dwellings per ha:	56.51

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	As in other presented cases, originally this was a housing area for members of the "working class". However, the initial population was comprised mostly of younger adults ready to move to the outskirts of the city looking for a better housing environment.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** row-housing slab tower	All housing areas are a a somewhat altered repetitions of the basic housing unit, which after four such repetitions, forms the major housing complex for approximately 6.000 inhabitants. The process of massification is continued by the repetition of these housing complexes to form the entire housing area. Due to an intensive process of building informal settlements in the area, the entire plan was never completed.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The construction was part of the programme of "Socially targeted housing construction" developed through the Self-management Community of Interest in Housing which accumulated funds from all working organsations/firms and later distributed the flats accordingly, depending on the share in the investments. There was also a possibility to buy directly from the construction company involved.
Name of specific programmes or funding applied	(1) Socially Targeted Housing Construction (2) Programme of the Self-management Community of Interest in Housing

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	In relative terms, the area is one of the better preserved housing areas, although signs of ageing are already visible. Efforts have been made to improve some public areas, but further efforts are needed, especially in the regeneration of green areas.
Urban | building transformation or regeneration	in most cases alterations have been made to the low-rise buildings, and the ground levels of high rise buildings. These alterations have been mostly related to the new economic activities in which households have been involved. A major concern is the intrusion of parking space in the existing green areas.
Intervention scale	Buildings / open and public spaces
Intervention status details	It is expected that the insufficient parking space, related not only to the increase in the ownership of cars but also to the increase in commercial spaces, will further invade the existing green areas, reducing their size and quality.

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‘Partizanska’
Residential slabs and towers

North Macedonia, Skopje

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‘Partizanska’ residential ensemble was built long one of the major traffic arteries and served a double purpose. On one hand it was to establish the urban look of the street facade along Partizanski odredi Blvd, while on the other it served the purpose of increasing the housing density in the area, predominantly occupied by prefabricated single family houses.

Adress/District	Partizanski odredi Blvd, Karposh		
GPS	42.00132, 21.23293		
Scale of development	Residential linear block ensemble		
Architectural studio	PB Beton - Skopje		
Project author	towers: Filevski Vojkan / slabs: Janev Trifun		
Constructors	GP Beton - Skopje		
Landscape author	–		
Period of construction	beginning: 1967	end: 1974	inauguration: 1974

Partzanska Blvd. View toward the Liner Composition of Blocks & Towers_ Wide View, © source-commons.wikimedia.org, (Accessed 2021)

Partzanska Blvd. close up view towards the towers, © Andrej Dojchinovski, 2021

URBAN AREA

Location - within in the city	original:	suburbia
	current:	between city centre and suburbia
Other facilities / availability of amenities	Market / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / free-standing objects	
	total area:	7.7 ha
	housing:	16.35 %
Connectivity | Accessibility	The buildings are well connected with public transport to major city areas. The main circulation city artery enables easy vehicular, cyclists` and pedestrian accessibility. Easy communication and access through this residential ensemble and the housing areas is provided.	
Landscape	The landscaping supports the permeability of the area, while at the same time providing conditions for safe pedestrian and bicycle traffic along Partizanski odredi Blvd.	
Open and public space	The elongated shape of the area provides abundant open and public spaces especially for leisure. These areas are connected with the shops, offices and cafés on the ground level of each building, and function as lively common spaces.	current condition: good
Quality of living environment	Linear configured structures define recognisable street and cityscape, with structural facades inspired by the Japanese Metabolism. The quality green and public spaces distributed among the buildings serve as a unifying spatial element.	
Main Features	Readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	Most flats have south-north orientation, while several of the towers have east-west orientation. All ground floor levels are exposed to green areas. The number of flats served by one stairway/lift, varies from 2 to 4 per floor. The slabs have 48 ateliers for artists on the top floor.	
No. of buildings	19	
No. max. of floors	10	
Average no. floors	7	
Materials | Fabrication	Structure to high seismic standards. The buildings have plastered facades with characteristic elements which resemble the Japanese influence in the post earthquake development of Skopje.	
No. of dwellings	596+48 ateliers	
Average dwe. area	81 m²	
Dwellings’ type	one floor	1, 2, 3, 4 rooms
	studio	–
Qualitative issues	The highest quality of the ensemble is its well developed green area in which they are immersed. The flats were fully equipped with all necessary services. Great quality of different residential typology units and urban life still prevails. Bigger flats have cross ventilation. No attention has been paid to issues of thermal comfort and improved insulation.	
Housing density	Number of dwellings per ha:	61.44

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	While it would be safe to say that the initial dwellers were members of the upper middle class of the time, the ageing of the building, their alterations and inappropriate maintenance has led to decreased popularity of the buildings and some changes of the inhabitants and their social status.

MASS HOUSING

Massification through: planned process **Building’s typology:** slab tower	The massification was a result of repetition of four types of buildings, two types of towers and two types of slabs. The repetition is utilised in the planning layout, as well, as the buildings are located in the same manner in both segments of the development.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The Institution for Housing Development and Management of the city invested in the construction of the buildings or directed funds of the public enterprises and industries. This Institution was responsible for the distribution of the flats under established rules and programme. A number of flats were available for purchase through commercial bank loans.
Name of specific programmes or funding applied	(1) Programme of the Institute for housing development and management (2) Land management fund

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	After the privatisation of the housing stock in the nineties, the maintenance of the buildings worsened, but they are still in an acceptable condition. The green and open public spaces are still of good quality, although better maintenance of the common facilities is needed.
Urban | building transformation or regeneration	The transformations are mostly visible at the ground level when the shops have been sold and privatised which has led to a livelier surrounding, while the pedestrian and cycling areas have been improved. The well developed greenery has been taken good care of and form an enjoyable space for the local residents.
Intervention scale	Open and public spaces / collective green spaces
Intervention status details	Compared to other housing buildings, these ones have retained its original appearance with smaller number of individual interventions concerning the facades. The public spaces, although sometimes invaded by the new owners of the shops and parking lots extensions, have still retained its quality and are periodically improved and regenerated.

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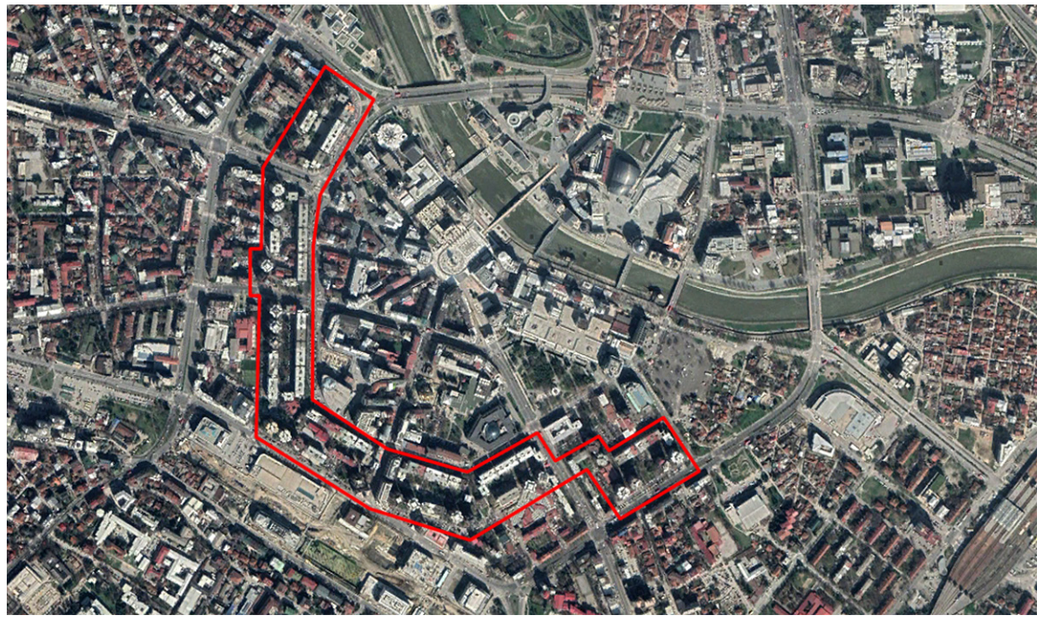
City Wall

North Macedonia, Skopje



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The City Wall housing complex was part of the Kenzo Tange's winning design for the redevelopment of Skopje city centre after the 1963 earthquake. The housing area served a double purpose. It was envisioned to clearly separate the CBD from the rest of the wider central area, providing the basis for a full daily cycle of activities, while the idea of a wall gives meaningful image and city symbol.

Adress/District	Major streets: VMRO Blvd; Dame Gruev Str.; Kocho Racin Blvd SS Cyril and Methodius, City Wall, City Centre		
GPS	41.59429, 21.25532		
Scale of development	District		
Architectural studio	Urban planning: URTEC Team of Tange, Kenzo and Institute of Town Planning and Architecture-Skopje		
Project author	Slabs: Bogachev, N., Gjurikj, S., Malenkova, Lj., Serafimovski, A., Simovski, S., Kjoseva, V. architects / Towers: : Dimitrov, D., Gjurikj, S., Ladinska, V., Mincheva, R., Serafimovski, A., Smilevski, A. architects		
Constructors	GP Beton, GP Granit, GP Mavrovo and GP Pelagonija		
Landscape author	–		
Period of construction	beginning: 1966	end: 1976	inauguration: 1976

Inner space and greenery between the two rows of elongated blocks, © Maja Jovanovska, 2022

Towers Type 2 on the intersection between the blocks and towers of the City Wall © Boris Jurumovski, 2019

URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Schools / market / shops / kindergartens / leisure / workplaces	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / superblock	
	total area:	20.2 ha
	housing:	31 %
Connectivity | Accessibility	The City Wall was built along the inner ring road that defined the city centre developed on the right bank of the Vardar river at the beginning of the 20th century. It allows for easy pedestrian access to the centre through the numerous passageways while the front of the wall is oriented to the busy city streets.	
Landscape	The inner area of the double folded residential structures is designated as green/open public spaces with underground parking. In most cases the landscaping provides for quality green spaces, children's playgrounds and shared amenities.	
Open and public space	Open and public space are important segments of the entire concepts. They serve a dual purpose. They enhance the permeability of the ensemble and the connection of the city centre with its immediate surrounding, while at the same time providing green areas and public spaces in the more intimate rear for the dwellers who live in the apartment buildings.	current condition: good
Quality of living environment	The ensemble enhances the readability of the CBD and with the office and commercial space on the ground and mezzanine level of all buildings blends with the city centre. It is still a symbol of the city and its irreplaceable element.	
Main Features	Diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	All residential buildings had office and retail spaces on the ground and mezzanine levels, while the residential units ranged from studios to five room apartments, satisfying a wide range of housing needs. The slabs are planned with internal courtyards for ventilation.	
No. of buildings	29	
No. max. of floors	13	
Average no. floors	10	
Materials | Fabrication	The blocks and towers are high seismic standards construc-tions of reinforced concrete, where towers are treated as a frame system. Prefabricated wall panels and bricks with low efficiency heat and sound insulation were used.	
No. of dwellings	1814	
Average dwe. area	84 m²	
Dwellings' type	one floor	1, 2, 3, 4, +5 rooms
Qualitative issues	The City Wall ensemble shares the best of both worlds, enjoying the proximity of the city centre, on one side, and the quiet of the inner well developed green areas within the confines of most of its segments of the double folded residential structures.	
Housing density	Number of dwellings per ha:	89.80

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The initial dwellers of the City Wall were members of the upper middle class, while its attractive position within the city fabric has retained its appeal and the City Wall housing complex is still one of the preferred housing locations within the city.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** slab tower linear block	In order to serve its urban design function, the City Wall was based on the concept of repetition of characteristic elongated slabs and insertion of two types of towers. This approach made the City Wall a highly recognisable part of the city centre. Together with the City Gate, which was never completed, it form a major part of Kenzo Tange's urban design proposal for the city centre.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The Institute for Housing Development and Management of the city and several "socially owned" construction companies invested in the construction of the buildings. The flats and office and commercial spaces were available for purchase to the private owners, while supported with commercial bank loans.
Name of specific programmes or funding applied	(1) Programme of the Institute for Housing Development and Management

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Despite the fact that the housing complex has not yet been subjected to a major regeneration or preservation effort, the ensemble is in an satisfying condition. The maintenance of the buildings has largely deteriorated after the privatisation of the entire housing stock in the country.
Urban | building transformation or regeneration	All transformations have resulted from individual efforts. Some of them have altered the original appearance of the buildings, such as the installation of sloped roofs, the closing of balconies, replacement of existing windows, or at the ground level changed initial design with the renewal of the facades of the shops. Although the "City Wall" has undergone many alterations, yet its symbolic image is still preserved today.
Intervention scale	Buildings / open and public spaces
Intervention status details	Individual interventions on the facades and intrusion into public spaces have corrupted some of the original ideas. Individual interventions by the inhabitants have altered the facades of the blocks. The continuity of pedestrian circulation through the inner green and public spaces have been interrupted and invaded by increased motor circulation and parking spaces. The green area, although well developed is in need of rehabilitation.

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Poland

Cracow

Filip Suchoń

Eliza Szczerek

Amidst the Codes and the Creativity

Prefabricated housing estates from the second half of the 20th century comprise a significant portion of Poland's housing stock. Mass construction on such a large scale was an extraordinary effort for a weak socialist economy. While the underwhelming square footage of apartments held back architects, they were creative in shaping the urban design framework, sometimes producing intriguing landscaping compositions. The apartments were well served with sunlight, ventilation and suitably ergonomic. Attention was paid to providing a large amount of green areas, pedestrian accessibility, and segregation of traffic and people flows. Still attractive to this day is the wealth of complementary amenities, such as local commerce, schools and health care, provided within the framework of the functionalist architecture of late modernism. A contemporary challenge is the technical obsolescence of buildings and investment pressure on unbuilt common spaces.

Mass housing estates – a legacy of the communist era and late-modern urban planning theory, are an essential and inseparable element of the spatial structure of Polish cities, firmly embedded in their landscape and identity. It is estimated that more than 3.5 million housing units are in prefab large-panel housing (Gorczyca, 2009). The creation of such neighbourhoods was mainly associated with the need to satisfy the extreme housing deficit, a consequence of the post-war housing shortage, the rapid development of industry, and the related influx of people from the countryside to the cities. Mass 'production' of housing on an unprecedented scale, took place within the framework of the communist regime's central planning through a top-down housing market and was made possible by intensively-developing industrialised technologies.
The first block of flats in Poland constructed with industrialised prefab technology was built in 1957 in Jelonki near Warsaw. Still, the development of large-panel housing estates in Poland began in the early 1960s, with its apogee in the 1970s and ended in the late 1980s and early 90s with the collapse of the communist system and its transformation, accompanied by crucial political, economic and social shifts.
In a communist regime under centralised economic planning, an important role in the administration of housing resources was played by the Central Housing Cooperative Union (CZSBM). Established in 1961, it was a central cooperative union with the power to interfere with the charter and composition of the board of directors of cooperatives forcibly affiliated with it. Enrolling in a housing cooperative was the primary way to get oneself an apartment to live in. However, this system had a number of pitfalls. In many cities, one had to wait several years for a cooperative apartment. For example, in one Warsaw cooperative, 20% of the flats were placed at the disposal of the national councils, 30% for the militia and the army, and 20% were allocated by the management. Another way to receive a housing assignation was to open a housing savings passbook. This form of saving was mainly aimed at young people (passbooks were opened even for children still in their infancy).
Mass-housing estates in Socialist Poland were open to all social classes. Due to the radical nature of social change in Poland after World War II, the issue of classism in real socialist society came to the fore among other sociological problems (Wesołowski and Słomczyński, 1977). The hierarchy of social classes, established after the war, remained unchanged in the 1970s and until the change of regime in 1989. In the period preceding the transition, the social structure stabilised with a tendency for the most privileged groups to find ways to bypass the system. Its upper level invariably consisted of the so-called 'social property managerial elite' and professionals. At the opposite extreme were farmers and the unskilled working class. Other categories, namely white-collar workers, the so-called private-initiative class (craftsmen and small entrepreneurs), and the metropolitan working class, occupied intermediate tiers or the middle class (Janicka and Słomczyński, 2014).

Past and present

Certain economic, political and social conditions during the communist period influenced and determined the construction and running of large-panel housing estates in Poland. The 1960s was a period of so-called 'economic construction'. At that time, the net building intensity in residential areas was increased, which, according to the 1961 ordinance, was to be 0.7-1.2, and in 1964 even 1.0-1.9. There was also a drastic reduction in the standard of housing. Many poorly-equipped apartments of a small size were built during this period, often with an alcove instead of a full kitchen and a tiny bathroom. The average area of an apartment in 1970 was about 43.7 sq m., down from 1959 when it was 48.6 sq m. (Chmielewski and Mirecka, 2007).

Between 1950 and 1970, the population of Poland increased from 24.6 million to 32 million. The 1970s and part of the 1980s were characterised by an increase in the urban population, primarily caused by an influx of people from the countryside. Such dynamics of demographic change were the driving force behind further intensified efforts to meet housing needs. Therefore, the 1970s also saw a significant acceleration in developing industrialised prefab technologies and building large-scale housing developments. This occurred under the banner of building the so-called 'Second Poland' after E. Gierek became the first secretary of the Central Committee of the Polish United Workers' Party (PZPR) in 1971. The number of housing units increased from 59.5 thousand in 1950 to 283.6 thousand in 1978. After that, the number declined to 189.7 thousand in 1988 and 80.6 thousand in 1998. Between 1971-78, 2.2 million housing units were completed (Jeżak, Nejman and Wierzchowski, 2011).

During the communist period, so-called housing norms were introduced. One of them was issued in 1959, another in 1974. The 1959 norm placed the scale of apartments in Poland at the bottom of the table compared to all other European countries. Every room in such apartments was impracticably small – each person only had 11 sq m. of usable housing area. Compared with other countries, the 1974 housing standard brought the size of apartments closer to the 1967 Belgian norm. Within each type of housing (M-1 for one person to M-6 for six), residents of Bulgaria, Czechoslovakia and the USSR, as well as Great Britain, Norway, Finland and France, could expect to be living in larger apartments than in Poland (Korzeniowski, 1974).

According to the 1974 housing law, the living space norm to which one person was entitled to was 7-10 sq m. In 1982, this guideline was revised. The need to segregate the sleeping area from the living room was addressed, and it was considered wise to set apart a functional, more generously-proportioned room for the parents. The need to provide an eating area in the kitchen was also taken into account. It was vital to increase the size of the bathroom and toilet, hallway and storage space. The permitted usable area of such an apartment could be: M-1 up to 37 sq m., M-2 up to 44 sq m., M-3 up to 63 sq m., M-4 up to 78 sq m., M-5 up to 88 sq m., M6 up to 97 sq m.

Settlements were still being built in the 1980s, but these processes gradually lost significant momentum as the weak socialist economy plunged into crisis. Also noticeable was a tendency to densify neighbourhoods by adding yet more buildings. This was due to the policy of housing cooperatives, for which it was more economical to sell off parcels of land than to keep them undeveloped (Chmielewski and Mirecka, 2007). There was also an increasing demand for parking spaces due to the growing number of cars.

The spatial layouts of large-scale housing estates have evolved over the years, and specific trends in the articulation of urban forms can be observed. Initially, an arrangement of blocks with their gables parallel to the street was commonplace. Then one began to see a tendency for very long and tall buildings, as exemplified by the several-hundred-meter-long buildings in the Przymorze housing estate in Gdańsk (figure 1). In the 1970s, one noticed an effort to produce street-like forms. The pedestrian street system became the basis of the Ursynów Północny development plan (Przestaszewska-Porębska, 1987).

In Poland, it was mainly five-story buildings without elevators and 11-story blocks with elevators that were built. Several types of prefabricated building systems were used, which over the years, with the development of technology, were improved. Initially, these were so-called closed systems, in which the elements were assembled into a single specific unit and were severely restricted in terms of the size of apartments. The most common system of this

Figure 1

type was the OWT-67 system, adopted from the second half of the 1960s onwards, with which more than 30% of buildings were built. In addition, the Domino, WUF-T, Dabrowa 70, Jelonki, Winogrady, and Szczecin 1 systems, among others, were also used. From the 1970 onwards, so-called open systems began to appear, noted for their greater flexibility through the possibility of different configurations of their respective elements. They were also adapted to suit a larger area standard. The leading open systems were the W-70 and its improved version, the Wk-70. In 1970 Poland had 15 large-panel prefabrication plants (most were OWT-67). Between 1971 and 1983, as many as 134 plants were built (including 60 W-70 and Wk-70 plants and 40 OWT-67 and OWT 75 plants) (Jeżak, Nejman and Wierzchowski, 2011). So-called 'field fabrication plants' were a common phenomenon incorporated into the housing projects under construction to reduce transportation costs.

Before the construction of housing estates took on a massive character in Poland, it is worth mentioning the concept developed in the 1930s of the so-called 'social housing estate', which was a response to the economic crisis and the search for a cheap way to increase the housing stock of the interwar period. It was solidly 'pro-social' and fostered the creation of spaces and infrastructures conducive to building social ties. In the postwar period, one began to hear references to a ‚social housing estate' community. However, with the arrival of mass housing in the 1960s and 1970s, based on prefabricated technologies, the concept fell into disfavour (Gronostajska, 2007). Top-down set indicators and norms for the size and layout of settlements and individual apartments were essential determinants of the character and quality of residential areas, severely limiting the visions of architects and urban planners. One should also make clear that construction was mainly focused on building as many apartments as possible within the intended framework. The

programme of services and amenities was usually not fully implemented and often reduced to a bare minimum. The monotonomy of the housing estates increasingly became an object of criticism from various circles, which intensified in Poland by the second half of the 1970s.

At the same time, it is important to be aware and appreciate how there was an extensive effort to come up with new approaches to habitation and to develop a residential environment that was attractive for the time. It is also worth recalling the amount of architectural and urban planning competitive tenders for a comprehensive, model 'settlement of the future', which, in addition to providing places to live, were intended to revolutionise the way of thinking about the city. The Association of Polish Architects, the Society of Polish Town Planners and the Polish Union of Construction Engineers and Technicians devised and hosted these competitions mainly in the 1960s and 1970s.

The breakthrough mentioned above that was responsible for the demise of large-panel construction came in 1989, when, with the change in the political system, free market economics took over. The construction of such structures was discontinued, and most housing units were privatised. The mass thermal modernisation of apartment blocks has been a significant, gradual process since the 1990s. This was due to stricter energy standards and the desire to make apartments more comfortable. These efforts were fostered by the state thermal-efficiency improvement programme, implemented in the mid-1990s, which subsidised, among other things, such measures as insulating external walls, replacing window frames and replacing heating systems (Dobrucki, 2015).

Nowadays, large-panel estates in Poland, although not commonly classified as in decline, are increasingly recognised as crisis areas (Jarczewski, 2010). They struggle with problems characteristic of this type of structure, such as mono-functionality, monotony, so-called 'no-man's lands', and often the associated negative image of the neighbourhood. A low standard of building construction and their degradation over the passage of time is also frequently seen, with the need for comprehensive and systematic repairs. Modernisation efforts tend to be selective, such as replacing elevators. Social problems are not uncommon. However, the threat of physical and social decline is less significant than in similar neighbourhoods in Western Europe, mainly related to the housing market shortfall and the demand for relatively-inexpensive housing (Gorczyca, 2009).

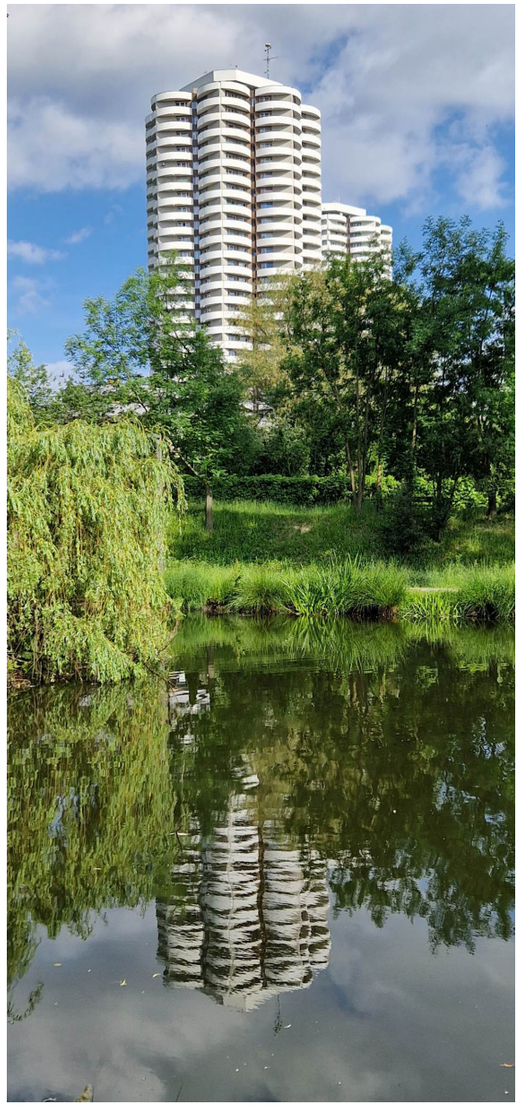

Figure 2

At the same time, the virtues of such communities are increasingly being appreciated. Many are functionally and spatially distinctive, thoughtfully designed and, above all, with an abundance of green spaces. They are equipped with vital infrastructural elements, such as schools, kindergartens, and nurseries. In contrast with many examples of residential development nowadays, as a result of the aggressive practices of developers – increasingly referred to as 'pathological development' – they often present a more pleasant residential alternative. Many housing developments built in the second half of the 20th century draw on and reflect local conditions, such as the area's topography and proximity to popular scenic landmarks.

One such example is the Mistrzejowickie housing estates in Kraków, whose composition reflects the down-sloping terrain. Linear buildings repeat the map contour lines and look as if they are cascading. They are contrasted by clusters of high-rise buildings with their generous height providing excellent views over the surroundings. Green wedges constituting a recreational zone are also an integral element, as well as the proximity of former forts and their green belt. We have presented one of the settlements as part of the case study.

Particularly noteworthy is the Tysiąclecia housing estate in Katowice with a complex of iconic tall buildings commonly called 'corn cobs' (figure 2), which is considered by many to be a perfect example of an implementation of the provisions of the Athens Charter, a manifesto for a modernist concept of the city (Cymer, 2019). This is also an example of an experimental approach, for its time, to residential architecture, as is the elongated 'Falowiec' building in the previously-mentioned Przymorze housing estate in Gdańsk.

Conclusions

Lately, a worrying phenomenon in large-panel settlements is their chaotic overdevelopment, as a result of intense pressure from developers. Newly-constructed buildings, mainly residential, not only exacerbate the mono-functionality of the residential clusters but also ruin the existing spatial composition, wipe out green areas and degrade the public space, introducing fences and leading to breaks in flow (Szczerek, 2018). They also reinforce the current problem of sufficient parking spaces due to the increased number of cars taking up space between blocks.

Against such a backdrop, more and more professional and activist voices are drawing attention to the need to bring such processes to a halt and perhaps even protect certain structures. At the same time, many of them are being recognised as valuable testiments to the urban planning achievements of late modernism (Gyurkovich et al, 2021). These include the two Kraków mass-housing estates presented here as a case study.

The increase in population led to the establishment of large-panel residential communities in Kraków. However, the need to rebuild the war-damaged urban infrastructure, including replenishing housing stock, passed Kraków by, as heavy war damage did not happen here. Settlements built over more than three decades were in the so-called northern and southern ranges of the city (Seibert, 1983). The main impetus for the emergence of communities in the northeastern part was the expansion of the Nowa Huta metallurgical plant, founded in the 1950s. Such neighbourhoods in the area include the Złotego Wieku estate shown here. The southern strip, on the other hand, is where the Piaski Nowe estate is located.

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Cover - © Eliza Szczerek

Fig. 1 - © Marian Szczerek

Fig. 2 - © Mateusz Kamieński

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Osiedle Piaski Nowe

Poland, Cracow

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One of many mass housing estates on the southern outskirts of Krakow. Built on former agricultural land, with industrialized prefab technology typical of its period (1970s). Despite this, great landscape and urban composition values of a user-friendly scale with segregated pedestrian traffic, providing a unique identity, scenic qualities and appropriate solar exposure of the flats.

Adress/District	2-12 Podedworze / 47-69 Lużycka streets, district XI Podgorze Duchackie		
GPS	50.0128, 19.9721		
Scale of development	Housing estate		
Architectural studio	Miastoprojekt (large state-owned project office)		
Project author	Anna Sierosławska (and her team)		
Constructor	KPB (Krakowskie Przedsiębiorstwo Budowlane)		
Landscape author	Anna Sierosławska (and her team)		
Period of construction	beginning: 1976	end: 1978	inauguration: 1978

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	suburbia
Other facilities / availability of amenities	Schools / sports / religious / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows / Free-standing objects	
	total area:	17 ha
	housing:	8 %
Connectivity | Accessibility	Segregation of pedestrian and vehicular traffic, all services available within walking distance, in the pedestrian route direct continuation in the Drwinka river park. Public bus terminal and fast tramway line connecting with the city center.	
Landscape	The residential buildings arranged around a central public park greenery: adequate sunlight in the apartments and scenic qualities from the upper floors.	
Open and public space	The urban space provides an attractive, healthy and pleasant living environment through an impressively large proportion of open green spaces. The greenery is landscaped, and in addition to walking trails there are sports areas (tennis courts, outdoor gyms, basketball and football fields).	current condition: good
Quality of living environment	Very clear spatial layout around the main axis of green areas and pedestrian route. A composition that provides scenic openings and clear spatial boundaries at the same time. Separated community ornamental gardens cared for by residents.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	Lack of outdoor spaces such as interior streets, galleries, patios. Buildings are entered through vestibules leading to stairwells. Common spaces are pedestrian routes and green areas.	
No. of buildings	17	
No. max. of floors	11	
Average no. floors	11	
Materials | Fabrication	Prefabricated reinforced concrete elements (large-panel). The interior load-bearing prefab walls are 15 cm thick of reinforced concrete, exterior prefab walls are a layered structure with mineral wool insulation inside. The hollow-core floor slabs are 16 cm high with a 2.40 to 6 meters span.	
No. of dwellings	1859	
Average dwe. area	50.3 m^2	
Dwellings' type	one floor	2, 3, 4 rooms
Qualitative issues	The crossed ventilation, specific solar orientation and ergonomic solutions were carefully crafted in the original project. Lack of sufficent thermal insulation was the main issue from the beginning.	
Housing density	Number of dwellings per ha:	155

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	The housing estate targeted the middle class of the time - white-collar workers, skilled laborers, small businessmen. The original residents have changed, as there has been a generational shift - but many of them are heirs and relatives of the original residents.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab tower	Massification was achieved through the use of prefabrication and repetitive stairway sections and multi-storey buildings. The settlement was built according to plan, the original intensity of development has not changed since then. It was a period of spatial expansion of the city towards the suburbs and the transformation of agricultural land into urban.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The greatest development of housing, based on prefab large-panel technology, was in the 1970s. This was a period of state central planning and the construction of new mass housing estates. Many years waiting time for flat assignement.
Name of specific programmes or funding applied	(1) Central Association of Housing Cooperatives (1956) (2) Housing Savings Booklet programme (1956)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Fully refurbished
Preservation and maintenance status details	The buildings were thermally upgraded and the facades were plastered (1996-2001). The lifts have been replaced with modern ones. A central hot water system was brought in instead of gas boilers.The green communal spaces are landscaped and well maintained, and residents arrange shared gardens.
Urban | building transformation or regeneration	On the outskirts of the settlement, intensive new residential development is emerging, taking advantage of the existing service infrastructure. The main problem is the lack of an adequate number of parking spaces for residents.
Intervention scale	Buildings / open and publis spaces / collective green spaces / energy efficiency improvements
Intervention status details	The intervention has increased real estate prices; The buildings have received aesthetically pleasing facades, although the colour scheme may be debatable. The community is consolidated and aware of the local distinctiveness of the neighbourhood and is involved in community life.

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Osiedle Złotego Wieku

Poland, Cracow

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Osiedle Złotego Wieku belongs to a complex of four housing estates under the name of Mistrzejowice designed to accommodate 40 000 residents. With its landscape values, it was the winning design selected in a competition in 1963 and nowadays is regarded as one of the most consistent and original housing estates built in Cracow in the second half of the XX century.

Adress/District	31-610, district XV Mistrzejowice, Kraków		
GPS	50.0966, 20.0023		
Scale of development	Housing estate		
Architectural studio	Miastoprojekt (large state-owned project office)		
Project author	Witold Cęckiewicz (general concept and consultant) Maria Chronowska, Jerzy Chronowski (Design Principals) and team		
Constructors	Przedsiębiorstwo Budownictwa Miejskiego w Nowej Hucie – PBM-NH		
Landscape author	Witold Cęckiewicz, Maria Czerwińska and team		
Period of construction	beginning: 1968	end: 1973 (1978)	inauguration: (1973)

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious kindergartens / leisure / community cultural centre	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows / Free-standing objects	
	total area:	32 ha
	housing:	9.7 %
Connectivity | Accessibility	The estate is well connected with the rest of the city by public transport running along the main street on the edge of the estate. Internal circulation consists of a system of streets for both cars and pedestrians, as well as a system of landscape pedestrian routes only.	
Landscape	It is a housing estate with high landscape values located on a hilly terrain near the 19th-century fort and surrounded by lush vegetation. Fully integrated with the greenery, existing topography and scenery.	
Open and public space	The main public spaces are the open green areas between the buildings, as well as the green areas of the neighboring fort and park with recreational facilities. Some kinds of urban enclosures can be observed between parallel elongated buildings; however, nowadays, they are heavily occupied by cars.	current condition: good
Quality of living environment	The landscape character with scenic openings and immersion in greenery make the quality of the residential environment high, despite the lack of a clear definition of public and private space. An important advantage of the estate is also a very clear spatial layout and numerous places for recreation.	
Main Features	Readability / landscape	

RESIDENTIAL AREA

Residential buildings	Lack of outdoor spaces such as interior streets, galleries, patios. Outdoor common spaces are pedestrian routes and green areas mostly. Residential buildings are entered through vestibules leading to stairwells. Each apartment has a balcony or loggia. The sizes of the apartments are in the range of 28,3 sqm.- 77,1 sqm.	
No. of buildings	49	
No. max. of floors	12	
Average no. floors	6	
Materials | Fabrication	There are three main prefabricated systems based on reinforced concrete elements (large-panel) applied in the housing estate.	
No. of dwellings	2981	
Average dwe. area	44.50 m^2	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	The crossed ventilation, specific solar orientation with most of the balconies/loggias facing south (or south-west, south-east) proper distance between the buildings (mostly around 30 meters). All buildings have undergone a thorough thermal modernization. The problem may be the lack of lifts in the five-storey buildings, which are the majority.	
Housing density	Number of dwellings per ha:	92

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	Złotego Wieku, like many other mass housing estates in Nowa Huta district, was built as a continuation of the creation of a workers' city associated primarily around the metallurgical plant in Nowa Huta, constructed in the 1950s. The population of Nowa Huta during this period was predominantly made up of the highly qualified working class (can be also called middle class of that time). Many of them were migrants who came from rural areas and smaller towns, seeking employment opportunities in the industrialized urban areas.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition **Building's typology:** slab tower	The housing estate was completed in 1973, but after that time, until 1978, several more residential buildings were built. Massification was achieved through the use of prefabrication and repetitive stairway sections, as well as multi-storey buildings. There are 29 five-story elongated buildings (48-110 meters long), and twelve five-story and eight twelve-story point buildings. Six additional residential buildings were built in the '90s at the fringe of the estate (they don't belong to the 'Mistrzejowice' Housing Cooperative).

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The development of the housing estate was mainly related to the ongoing expansion of the metallurgical plant at that time. Mostly cooperative and company apartments were built. The main actors in this process were the state-owned monopoly investor - the Directorate for the Construction of Workers' Housing Estates Krakow I (DBOR KM I), changed in 1965 to the Directorates of Urban Investments I (DIM I) (I - refers to Nowa Huta district), as well as the Inter-Enterprise Housing Cooperative 'Hutnik'.
Name of specific programmes or funding applied	(1) The Directorate for the Construction of Workers' Housing Estates Krakow I (Nowa Huta) (2) Housing Savings Booklet programme (1956)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	All buildings were thermally upgraded (walls and roofs), the facades were plastered and roof materials were replaced. The door in the vestibules, the windows in the stairwells and the basement rooms were replaced, the balconies were renovated. Internal power line in the stairwells, as well as lighting protection installation were modernized. Starting in 2020, work is also being carried out on installing the central hot water system, along with the partial removal or modernization of the internal gas installation in apartments. Current renovations of buildings are also carried out on an ongoing basis.
Urban | building transformation or regeneration	Streets, car parks, sidewalks and access roads to buildings are being renovated successively. Common spaces are also revitalized, such as renovating playgrounds, constructing outdoor gyms and jogging paths.
Intervention scale	Buildings / community improvement / open and public spaces collective green spaces / energy efficiency improvements
Intervention status details	Ongoing maintenance and the renovations carried out have improved the quality of the housing environment. In addition, the 'Mistrzejowice' Housing Cooperative (which administrates and manages the estate) supports cultural and educational activities - by supporting the activities of the community cultural center, schools and kindergartens located in the estate, as well as artistic activity (there are some art studios on the 12th floor of the 'towers', where artists can work).

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Decentralising the core: notes on middle class mass housing in Portugal

The impetus for mass housing complexes was entirely linked to the expansion of Portuguese cities to the periphery. This process overlapped with the aspirations of a heterogenous middle class – on the one hand, those who could not find in the sought living conditions in the historical city; and on the other, those who could not afford to settle in the centre. The text focuses on neighbourhoods developed in Lisbon, Oporto and Coimbra after the second half of the 20th century to demystify the urban peripheries' planning histories by analysing an "optimistic architecture" that helped shape the built environment and echoed its time's urban and political concerns. Examples range from Oeiras to Portela in Lisbon, Boavista in Oporto and Calhabé in Coimbra, to provide an overview across geographies and time. The chronological framework extends to the late 1970s, with a pivotal moment in 1974, when the dictatorial regime fell and democracy was established in Portugal. To reflect the aspirations of the middle classes, new housing solutions were sought with high architectural standards in housing in line with the landscape as a fundamental part of the residential project. The following sections consider the characteristics (urban layout, architecture, and interior design) of some key neighbourhoods, their role as a testimony to the social and political aspirations of the time, and the quality of life and lifestyles of their current population. Taking the overview of the MCMH panorama through the Lisbon case and how the city has grown through western, north-eastern, and northern urban expansion, the article aims to open new strands of research outlining other cities such as Oporto and Coimbra (in the third section) or the Algarve. It also briefly addresses the current state of mass housing complexes and how they can be drafted in future strategies for housing revitalisation.

Until very recently, the periphery of Portuguese cities was seen as the outcome of an essentially chaotic urbanisation process, carried out without qualified professionals and effective public intervention. Although there may be some truth to this perspective, recent studies show that this urban development phenomenon was a much more complex mosaic of competing intentions and concerted action (Cardim & Rodrigues, 2021; Ferreira, 2015).

From the late 1950s onwards, demographic pressure in the main cities and the relatively reduced public investment in housing meant that the task of solving the housing problem in the country was mostly left to the private sector – apart from social housing. Although there was regional and municipal urban planning, the demand for new housing on the periphery and the speed of free market speculation meant that public institutions assumed a less relevant role, concentrating their efforts on delivering infrastructure, public facilities and legislative measures, such as the horizontal property regime (Decree Law 40333, 14/10/1955).

Within this context, the collective housing block promoted by private investors – which was first tested in the city centre – became a crucial element in the growth of suburbia, synonymous with vertical density, modern urbanism and international architecture, where it – literally – found the ground to flourish upon. These blocks were many times arranged in what became known across the world as the *grand ensembles*, initially hailed as triumphant glimpses into an optimistic future, a new narrative between building and landscape, a symbolic and functional affirmation of turning utopian dreams into reality. They were heralded as "new ways of life" for a new middle class that no longer wanted to live in a crowded city. By taking advantage of road and railway infrastructure, most of these neighbourhoods were seen as an opportunity to have a more comfortable life in the suburbs while still working in the centre (Rodrigues, 2022: 130). A similar influx of new residents to the city periphery was already happening, although for different reasons, triggered by an emerging middle class, mostly newcomers from the neighbouring districts north of the capital looking for better ways of life. They settled on the northern city fringes

(as opposed to the previous cross-section, which sought housing mostly in coastal bathing areas to the west), since they could not afford real estate rental values, for example, in new central residential neighbourhoods, such as Lisbon's Avenidas Novas.

Reflecting the subtle openness to modernity of the Estado Novo dictatorial regime, housing ensembles for the middle class represented the possibility of introducing certain trappings of contemporary life (the elevator, the *solarium* etc., and sometimes the concierge apartment and the garage). However, the internal layout of most of the first dwellings to be built still betrayed a conservativeness of imagination, as per Portuguese middle class social convention – such as a maid's bedroom – that was reflected throughout the building through the duplication of accesses or means of internal circulation (Els et al., 2023; Pacheco, 2022).

This expansion of the cities via the establishment of new middle class neighbourhoods is more clearly seen in the metropolitan areas of Lisbon and Oporto, but it has also occurred on a smaller scale in medium-sized cities such as Coimbra, Braga, Viseu and Faro. This article intends to explore some case studies that are representative of this phenomenon in Portugal.

Across Lisbon's periphery

Expansion to the west

The suburbs of Lisbon grew in a radial fashion along old access roads and, in particular, the railway lines. Apart from a certain amount of 'impromptu' building construction, urban planning played an important role in this development. One of the essential elements of strategic expansion was the *Urbanisation Plan of Costa do Sol* (1935-1948, Donat-Alfred Agache and others). The plan aimed to structure the western area between Lisbon and the Cascais-Estoril touristic zone. It had two main circulation lines options, both following the coastline: the inland highway and the 'Avenida Marginal', a lengthy thoroughfare of almost 30 km along the sea and riverfront. Both roads paved the way for the suburbanisation of small towns *en route*. After the Second World

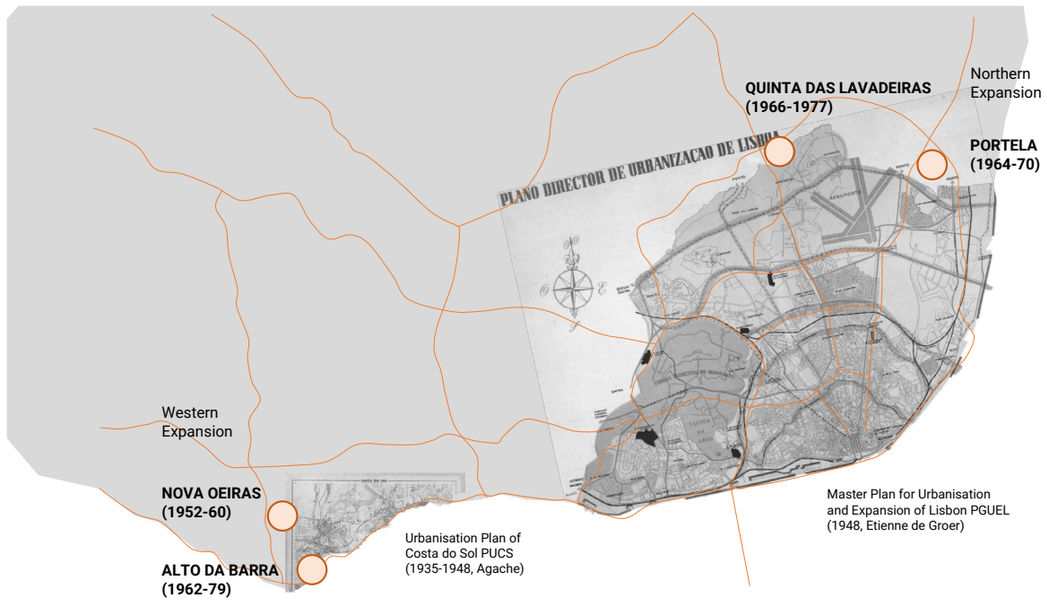

Figure 1

War, when a particularly progressive spirit and a zeal for industrialisation took hold, urban proposals for this area changed from low-rise and low-density typologies to multifamily buildings of greater height and population density. Continuous demographic growth in and around the capital meant that the ever-present housing shortage was too severe to be ignored and could not be solved by so-called 'garden suburbs' characterised by single-family houses.

The first big residential development located in this area (about 20 km from the city centre) was the Nova Oeiras neighbourhood (1952-1960), a private initiative that made use of imported the grand ensemble model even before the public-sector-sanctioned neighbourhood of Olivais Norte (1955) did. The *Urbanisation Plan for the Nova Oeiras Residential Unit* (1953) was drawn up by the architect Luís Cristino da Silva, with the architect Pedro Falcão e Cunha and the landscape architect Gonçalo Ribeiro Telles. Comprising two distinct zones – one punctuated by towers and blocks, and the other by single-family residences –, this neighbourhood also offered spaces for commercial, recreational and religious purposes, creating a new urban environment with an emphasis on integration with the landscape. Resulting from a combination of European modernist principles of various origins – namely the Corbusian *ville radieuse*, the English new towns and the primacy of the *existenzminimum* –, Nova Oeiras stood out for the "integrity" and "clarity of the complex", all of which today remains fairly intact (Milheiro et al., 2015: 141).

Also in Oeiras, the Alto da Barra Neighborhood (1962-1979) is another essential case study in Lisbon's western area. It incorporates different housing typologies for a considerable range of social classes, although it was a private initiative with clear commercial goals. This diversity was an explicit intention right from the start. In close cooperation with public authorities, the promoter sold a very large part of its land to the State, at a specially-negotiated price, in order to add a public school and to expand a nearby affordable-housing neighbourhood. The rest of the land was developed in three different sections: one for single-family houses; one for middle class blocks; and another one for upper middle class blocks. This last sector adopted the name Alto da Barra in 1974, for commercial and marketing purposes. Other additions were made over the

Figure 2

years, such as a shopping centre and support services. Architect Fernando Silva designed the urbanisation plan and some of its sections, specifically the five upper middle class blocks that stand in a large green area landscape designed by Ribeiro Telles. These blocks made use of innovative building technologies imported from abroad, namely Sweden, introduced by Mercator (the private real-estate promoter of the plan). Although this large project – called the Casal da Medrosa Urbanisation Plan – underwent several revisions over the years, it never lost touch with its original vision, born of a spirit of generous negotiation between the parts, and which resulted in a stable, multi-social and heterogeneous neighbourhood (Cardim & Rodrigues, 2021).

Expansion to the north

The visionary modernism of the Alto da Barra project was echoed two years later by Fernando Silva in his Portela Complex (1964-1970), located on the north eastern outskirts of Lisbon. The emulation of Portela's functional layout – and even its aesthetic – by other architects and developers working until the 1980s is a testament to its relevance. Its urban plan was based on the Athens Charter, with large, freestanding housing blocks and differentiated circulation for cars and pedestrians. A central area was designed for the community, with commercial, educational, cultural, religious, sports and leisure facilities. Although the main promoter (Manuel da Mota) sold the individual parcels to a total of

Figure 3

garages. Altogether there were 350 apartments for an estimated population of 1,750 people. Despite the reduced areas (approximately 60m2), in addition to a shared bathroom, each apartment included a second one en suite, hinting at the aspirations of a middle class on the rise and the progressive affirmation of its own culture. The plan was a composite of the urban visions of Ludwig Hilberseimer and Le Corbusier. On the one hand, the geometric order and the composition seem to aim for a vertical organisation of the city through *unités* perpendicular to the main roads and elevated on *pilotis*. On the other, the need to define an urban front visible from the highway is recognised, giving it the character of a boulevard without being directly accessible. The monumentality of the complex, composed by "L" structures linked by stairways and intended to repeat *ad infinitum*, thus underlined the accentuated character of the topography and embraced the presence of the adjacent highway in a consistently-conscious manner, heralding a new gateway to the city (Pacheco, 2022).

134 builders, which then made alterations to the original apartment layouts, the neighbourhood has a strong identity and homogenous character (Ferreira, 2010).

Concurrently, the expansion of the city to the north required the widening of the existing road crossing the valley, Calçada de Carriche. In the mid-1960s, an urban plan and housing scheme for private profit along this new road infrastructure were promoted by the owner of the land on its east side — the Quinta das Lavadeiras – beginning a period of major transformation to the site. The project, designed by Thébar Rodrigues Frederico, can be described as three large blocks perpendicular to Calçada de Carriche with three lower floors for commerce, an intermediate access core (with a one-room duplex for the concierge house) and eight floors of housing built on *pilotis*. These intersect the other blocks, perpendicularly defining the view from the main road but without access from it, and were intended for stores, warehouses and

Middle class mass housing experiences in Oporto and Coimbra

Even though this study has chiefly addressed middle class mass housing developments in the Lisbon Metropolitan Area, it is essential to highlight some examples in smaller cities that share similar characteristics. In their 'conquest' of the outskirts through transportation infrastructures, opportunities for adding specific residential neighbourhoods emerged, defining new centralities. This was common in Portuguese cities such as Oporto and Coimbra, which experienced fast population growth until the 1960s. It is important to stress that, in both cases, large private developments responded to urban plans previously or simultaneously produced by public entities. Differences between what was initially planned and the end result stemmed from the desire to maximise profit, the need for a larger housing supply, and increased demand for middle class neighbourhoods.

Figure 4

Oporto

Since the 1950s, the urbanisation plans of Oporto (1952, 1962) were mostly concerned with circulation and roads infrastructure, facilitating the growth of the medieval urban centre to feed into new areas of expansion. Most pertinently, the 1962 Urbanisation Plan by Robert Auzelle pinpointed two main road axes, South-North and East-West, which linked major infrastructures such as bridges and train stations. The East-West axis outlined a second urban core, on the Western side of the city (Boavista), where the Grande Parque Residencial da Boavista (1962-1979) was built. The emergence of the new urban core relied on two fundamental infrastructures: a new road resulting from the construction of the Arrábida Bridge (1963); and the future ring road of the city. The Parque Residencial da Boavista, by architects Agostinho Ricca, João Serôdio e José Magalhães Carneiro, was located at the intersection of the future ring road and the arterial 'boulevard' that shaped the area. The project was advertised as a modern, exceptional setting in which to live, stressing how calm and relaxed it was, even if it was close to important traffic roads. It was conceived as a neighbourhood unit, satisfying the needs of an upcoming middle class, where great attention was given to the design of the outdoor spaces, building accesses, privacy, ground floors and collective facilities. Leisure areas were promoted as a desirable commodity for the community, such as the recreational centre with indoor and outdoor swimming pools, the restaurant and the cinema, together with a church and the kindergarten. Even if a contemporary lifestyle was the image, the interior layout of the apartment-units – with their spacious divisions, heavily decorative furnishings, a maid's bedroom with separate entrances, and oversized kitchens – suggested the Oporto bourgeois apartments from the 1940s (Lameira, 2014). High-rise apartments, single-floor living, which were a novelty for the city of Oporto and for potential buyers, may have been the promoters' selling point, but without letting go of the idea of comfort in a detached house.

Coimbra

Smaller cities all around the country, such as Coimbra, also went through similar phenomena, albeit on a more contained scale. One such case was the Solum Neighbourhood (1964-2004). The area, first established as the Calhabé Residential Unit in Étienne de Gröer's 1948 Plan

for Coimbra, served as a hinge point between uptown (Coimbra's "Alta") and the city's expansion to the east. The need to draft other plans to accommodate the city's growth quickly put the Calhambé Plan under revision. The architects, Rogério Alvarez and Carlos de Almeida, worked on it between 1959 and 1963. It was from this latter year onwards that the private promoter Solum started the construction of the area (giving its own name to the neighbourhood), in partnership with the municipality. Most of the plan was finished by 1976 (over five phases), although the last buildings were not concluded until 2004, with the construction of the Municipal Stadium and the new urbanisations of Casal da Eira and Brotero.

Similar to some of the above-mentioned examples, the Solum neighbourhood was designed on the principles of the Athens Charter and the Neighbourhood Unit. It presents a great variety of typologies (e.g. dwellings in horizontal and vertical combinations), as well as different ways of combining buildings (isolated, in continuous blocks, and staggered). The façades were designed incorporating large glazing and solar protection features, such as metallic grids. The buildings were separated by landscaped green areas, which sometimes allocated space for private vehicles, and the neighbourhood offered a few schools as well as a church (Santos, 1995; Simões, 2008; Fernandes, 2008).

Conclusion/Discussion

The case studies presented in this article are representative of the adaptation of international urban and typological models to Portuguese society, namely to an emerging middle class that, for a number of reasons, established itself on the periphery from the 1960s onward. Large residential ensembles were built by private promoters to answer this demand, following urban plans commissioned by public institutions.

This being the case, how can we define, architecturally, middle class mass housing in Portugal? Based on research to the present, the article allows to highlight some characteristics that seem to be paradigmatic of this housing phenomenon. Firstly, these ensembles - occupying large agricultural estates on the peripheries - followed modern urban guidelines and made use of high-density housing blocks with a modernist, international aesthetic, in response to a progressive ideal. Responding to new ways of living, these ensembles frequently included facilities for public use, such as shopping centres, sports areas and green parks, and usually reflected the rise in private car ownership. Secondly, housing typologies, although presenting some overall layout innovations, could still be conservative in the interior. More significant innovations were the preserve of the building systems that allowed for more efficiency in the swift construction of these mass-housing estates - maximising speed, supply and profit.

The planning and construction of these estates were complex endeavours and involved a great number of public and private participants. Over the years, these neighbourhoods' image has been consolidated by their solidly homogenous character. Today, they are easily identifiable landmarks on the suburban landscape, sustaining their core integrity, even after sporadic alterations and the natural appropriation of space by successive generations of residents.

Figures

Cover - Fernando Silva, Alto da Barra Neighbourhood, Oeiras. © Inês Lima Rodrigues, 2018.

Fig. 1 - Location of Lisbon case studies (transposed over Agache and de Groer's original urbanisation plans). © Drawing by Beatriz Serrazina.

Fig. 2 - Fernando Silva, Portela District, Lisbon, Portugal. © João Cardim.

Fig. 3 - Thebar Frederico, Quinta das Lavadeiras, Lisbon, Portugal. © Mónica Pacheco, 2022.

Fig. 4 - Commercial brochure for the Parque Residencial da Boavista, Oporto. Project by Agostinho Ricca, João Serôdio and José Magalhães Carneiro. © Agostinho Ricca Archive.

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Portela

Portugal, Lisbon

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Urban plan based on the Athens Charter, with emphasis on circulation, living and leisure. A central area was defined to be the center of the community, with commercial, educational, cultural, religious, sports and leisure facilities. These were built over a long period of time, and some of them were never built.

Adress/District	Rotunda Nuno Rodrigues dos Santos, 2685 Portela		
GPS	8.46571, 9.06402		
Scale of development	District		
Project author	Fernando Silva		
Developer	Fernando Silva		
Landscape author	–		
Period of construction	beginning: 1964 (pre-plan) 1969 (plan)	end: 1970-1993 (construction)	inauguration: –

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	suburbia
Other facilities / availability of amenities	Schools / health / sports / shops / religious / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows	
	total area:	44 ha
	housing:	15.45 %
Connectivity | Accessibility	The neighbourhood is very well connected by express roads that cross the city. The proximity to the airport also marks the urban relationship. All the buildings have private parking (garages) and some spaces in the collective patios.	
Landscape	The neighbourhood takes advantage of its proximity to the Tagus River on one side and to the airport on the other. The surrounding green areas (seminary or parque das nações) are complemented by the green spaces within the neighbourhood.	
Open and public space	The main structuring followed modern principles defined by a rational and hierarchical road scheme, and by establishing functional clusters. The central core concentrated the commercial, cultural, and recreational amenities; the remaining public space was privatised.	current condition: good
Quality of living environment	The distance from the buildings allows all the rooms to have good light and ventilation conditions (cross ventilation). The collective spaces in each building (patios) and the public green spaces surrounding the central area (commercial) provide good urban living conditions.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	The internal organisation of the apartments favours the distribution of utilitarian space according to daytime/night-time routines; in the addition of a maid's room adjacent to the kitchen area. Most of the buildings are well oriented towards the sun (mainly the ones facing E-W) and have cross ventilation inside. The height and distance between the buildings allows you to take advantage of the views (especially in the higher apartments).	
No. of buildings	52	
No. max. of floors	12	
Average no. floors	12	
Materials | Fabrication	The materials used are based on prefabricated construction systems and components and contribute to the homogeneity of the neighbourhood, as the horizontal stripes and long windows accentuate the horizontality of the façades.	
No. of dwellings	700	
Average dwe. area	100 m²	
Dwellings' type	one floor	3, 4 rooms
Qualitative issues	All flats are well designed with comfortable living areas and fully equipped with all necessary services. Most apartments have cross ventilation, benefiting from sunlight and prevailing winds. The large windows allow you to enjoy the views of the surrounding green areas and, in some cases, the Tagus River.	
Housing density	Number of dwellings per ha:	21.5

MIDDLE CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	The district was designed for the middle class (which still remains today) who were determined to seek a better quality of life in the suburbs. The high quality of the flats, as well as the collective spaces, has increased the price of the dwellings.

MASS HOUSING

Massification through: planned process **Building's typology:** block tower	It was a planned mass housing development. Type designs were used on a large scale for the middle class. The construction was awarded to different private developers changed the interior layout envisaged by the architect FS. Nevertheless, it was possible to maintain the uniform and abstract character that marks the urban composition of the neighbourhood.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** private	The neighbourhood was built in the early 1970s, taking place during a period marked by political and economic upheaval and a significant shrinking of real estate activity. The subsequent handing over of the plots to 134 different private developers did not question the semblance of the neighbourhood; its only impact was in making changes to interior layouts in certain cases.
Name of specific programmes or funding applied	(1) Decree-Law 47344, of 25 November 1966 (horizontal property regime in Portugal

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Fully refurbished
Preservation and maintenance status details	The main public investment is in the improvement of green spaces and also at the level of public facilities (sports, church and commercial area). In the last few years social housing has been built around the urbanisation.
Urban | building transformation or regeneration	The condominiums carried out the main changes and maintenance work in the buildings. On the other hand, the public spaces under the responsibility of the municipality have been progressively improved over time.
Intervention scale	Buildings / community improvement / open and public spaces / collective green spaces
Intervention status details	The interventions in the buildings are carried out privately, driven by the condominiums and refer essentially to maintenance works. The most visible transformation of the lack of coordination is the lack of unity in the window frames. In terms of interiors, the main changes are improvements in kitchens and bathrooms.

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Alto da Barra Neighbourhood

Portugal, Oeiras

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Alto da Barra is the main area of the Casal de Medrosa Urbanisation Plan. It stood out for its premium location, in front of the sea, the innovative building system and the surrounding facilities (one of the first freestanding malls in Portugal, a swimming pool, schools). It was a “new way of life” to be promoted in Lisbon’s outskirts for a modern middle class society, born of the post-war optimistic winds.

Adress/District	Alameda Alto da Barra, Oeiras		
GPS	38.679237,-9.319152		
Scale of development	District		
Project author	Fernando Silva		
Developers	OSAPIL / MERCATOR / LUSECA / Rodrigues & Mattson		
Landscape author	Gonçalo Ribeiro Telles (1972)		
Period of construction	beginning: 1962	end: 1979	inauguration: 1979

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URBAN AREA

Location - within in the city	original:	suburbia coastline
	current:	suburbia coastline
Other facilities / availability of amenities	Schools / market / shops / leisure	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows	
	total area:	13.1 ha
	housing:	16.8 %
Connectivity | Accessibility	With very good connections to Lisbon, via roads and a train line. Every facility in the neighborhood was in walking distance of its residents. Each building has its own car parking underground garage, whose entrance merges into the landscape.	
Landscape	The landscape project took advantage of the topography, while aiming to protect the buildings from the northern winds, ensuring air breeze and connecting the functional programs.	
Open and public space	Following Modern Architecture’s principles, the plan has a functional zoning; separation of circulation routes; landscaped outdoor areas and public facilities.	current condition: good
Quality of living environment	The insertion of an angle in the central zone of the blocks accentuates the inflection towards the interior of the complex. The ground floors are open, inviting people to move through. Moreover, high-quality overall construction and good exterior finishings qualify the project.	
Main Features	Diversity / readability	

RESIDENTIAL AREA

Residential buildings	Although built over the course of many years, the five blocks are formally alike and have uniform characteristics, being marked by a structural clarity. The module of the balconies presents itself as the structuring element of the blocks' shape. Against the surrounding gardens, different geometries are highlighted throughout the day.	
No. of buildings	34	
No. max. of floors	6	
Average no. floors	6	
Materials | Fabrication	The construction materials were of current use, but the structural conception was innovative. The "tunnel formwork system", clearly showing the influence of foreign know-how, required specialized labor and prior preparation of the work, but served well the underlying profitability logic.	
No. of dwellings	476	
Average dwe. area	110m²	
Dwellings' type	one floor	1, 2, 3 rooms
	studio	–
Qualitative issues	The pragmatism of the internal organization is evident, being clearly influenced by the construction system, with a scheme of two symmetrical dwellings per floor. A ventilation grille, applied in block B, allowed for the ventilation of the rooms without the need to open the windows.	
Housing density	Number of dwellings per ha:	37.7

MIDDLE CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	With a very fortunate location, large panoramic views, sizable floor areas and high-quality construction, this multi-family ensemble attracted a high-income middle class.

MASS HOUSING

Massification through: Planned process Horizontal growth Element's repetition **Building's typology:** Block	The modular repetition of the concrete walls (built, in some of the blocks, via a tunnel formwork system), made it possible to take advantage of the large horizontal glazed surfaces that characterize the façades. Construction also used some pre-fabricated elements, denotes a rationalized approach and benefits from an economy of scale.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** Private	Its location was integrated in the Urbanization Plan of Costa do Sol (1935-1949), which structured the western area between Lisbon and the Cascais-Estoril touristic zone. Concession of private land for the construction of adjacent public facilities and affordable housing (1). NATO's installations nearby the limits of the site meant urban and architectural changes to the complex. Another key factor was the creation of the horizontal property regime in Portugal (2).
Name of specific programmes or funding applied	(1) Decree-Law 23052, of 23 September 1933 (2) Decree-Law 40333, of 14 October 1955

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated.
Preservation and maintenance status details	The maintenance and rehabilitation of the buildings are the responsibility of the apartment owners. The green spaces retain their original character and are well managed, a current responsibility of the municipality.
Urban | building transformation or regeneration	Today, the whole urban complex has an essential architectural and urban value, mixing housing for the upper-middle and middle class (arch. FS), and affordable housing of various typologies (semi-detached houses, multi-family blocks), supported by public facilities in full use and by its distinctive setting. The several housing types are witnessing a wave of refurbishing by individual owners, both for homeownership and renting regimes.
Intervention scale	Buildings / community improvement
Intervention status details	The main changes in the façades concern windows' frames and/or closed balconies (popularly named a "marquise"), and also improvements in the ground floor of the blocks and in the collective infrastructures.

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Nova Oeiras Neighbourhood

Portugal, Lisbon

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The central nucleus of the plan follows the “Athena’s Charter” as defined by Le Corbusier - 6 towers, 3 blocks and a complex of equipment and commerce surrounded by green public spaces with separation between road and pedestrian system. Furthermore, this neighbourhood is structured within an afforested complex following an innovative and modern landscaping project.

Adress/District	Alameda Conde Oeiras		
GPS	38.412869, 9.191504		
Scale of development	District / building		
Project author	Luís Cristino da Silva		
Developer	Sociedade Nova Oeiras, Lda		
Landscape author	Gonçalo Ribeiro Teles, Edgar Sampaio Fontes (colaborator)		
Period of construction	beginning: 1953	end: 1962-1965	inauguration: 1960

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / youth centre	
Location - position of buildings	Perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Sun oriented paralell rows	
	total area:	40.8 ha
	housing:	9.5 %
Connectivity | Accessibility	The complex is near the railway line and has a privileged view over the sea. Several pedestrian accesses exist to all principal areas and buildings within the housing complex and the commercial area.	
Landscape	The complex, framed by a landscape made up of vegetal species native from the Mediterranean implemented by Ribeiro Teles, acquired a defining body and presence after 50 years of growth	
Open and public space	The generic layout of the buildings, orderly and based on principles of functional rationality, contrasts with the sinuous forms of the boundaries of the urban complex. Equipment, shops and services are concentrated in the centre of the neighbourhood, allowing for the creation of open green spaces, covered galleries and small squares that promote community among residents.	current condition: excellent
Quality of living environment	The global design of the neighbourhood has tried to articulate aspects and forms of architecture town-planning, mainly influenced by northern Europe, with typologies of the southern urban tradition. Two artistic interventions value the public spaces (Tile panels by Rogério Ribeiro (1960) and the “Mural Construction” by Carlos Nogueira (2005-2006).	
Main Features	Flexibility / diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	The modern guidebook, the external configuration of the towers (ten-floors height) and the "Y" configuration reflect the internal organisation of the dwellings. The semi-detached blocks (four-floors height) follow the same rational logic. From a structural point of view, the rational use of constructive systems by using prefabrication principles and bearing walls are conjugated with current systems of pillar/beam.	
No. of buildings	9	
No. max. of floors	10	
Average no. floors	6	
Materials | Fabrication	The plastic potentialities of points, straight lines and architectural elements make up the essence of modern shape. The continuity of surface and texture of the prefabricated grids of the kitchen and service areas characterise the residential buildings.	
No. of dwellings	145	
Average dwe. area	–	
Dwellings' type	one floor	1, 2, 3, 4, +5 rooms
	duplex	3 rooms
Qualitative issues	All flats are well designed and were fully equipped with all necessary services. Most apartments have cross ventilation, with south-east to south-west orientation benefiting from less light and prevailing winds. The balconies allow to control the sunlight and enjoy the views of the surrounding green areas.	
Housing density	Number of dwellings per ha:	3.75

MIDDLE CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	The proximity to transport (mainly the train), the large green spaces, the panoramic views and the high-quality construction of this multifamily complex has attracted the middle class to live in the suburbs with a high standard of living.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** block tower	The massification was achieved through the repetition of architectural elements in the different types of residential buildings (towers, blocks) and equipment since the amplitude of green spaces was preserved with an architectural quality.

HOUSING POLICIES

Urban promotion type: private public-private partnership **Housing promotion type:** public-private partnership	GALNOV opening and commencement of operations – Gabinete de Apoio a Nova Oeiras (Cabinet of Local Support to Nova Oeiras) by Oeiras City Hall, following the existing regulation, based on the recuperation process and various works carried out (2002-2003). Approval of the RENOV Award regulation - Nova Oeiras Recuperation (foreseen in the recuperation plan) by Oeiras City Hall (2007-2008).
Name of specific programmes or funding applied	(1) GALNOV- Gabinete de Apoio a Nova Oeiras (Cabinet of Local Support to Nova Oeiras)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Regular supervision of recuperation and alteration works, from mild interior and exterior recuperations such as the recovery of the original colours of the towers (D, E, F) during 2014, in works resulting from the owner's initiative coordinated by the municipal office to ensure compliance with the regulations.
Urban | building transformation or regeneration	The functional reconversion of the small square located between the Commercial atrium, residential Block A and tennis court carry out by the City Hall (2004-2007) Launching the so-called "Community vegetable gardens" (2015) in an area of free and public lands to the north of the complex.
Intervention scale	Buildings / open and public spaces / collective green spaces
Intervention status details	In 2013-2014 the City Hall planted over 50 specimens within this consolidated/ renovated framework, thus gradually annulling the presence of invading species. Application for UNESCO patrimonial heritage for the Nova Oeiras Residential Neighbourhood (2015).

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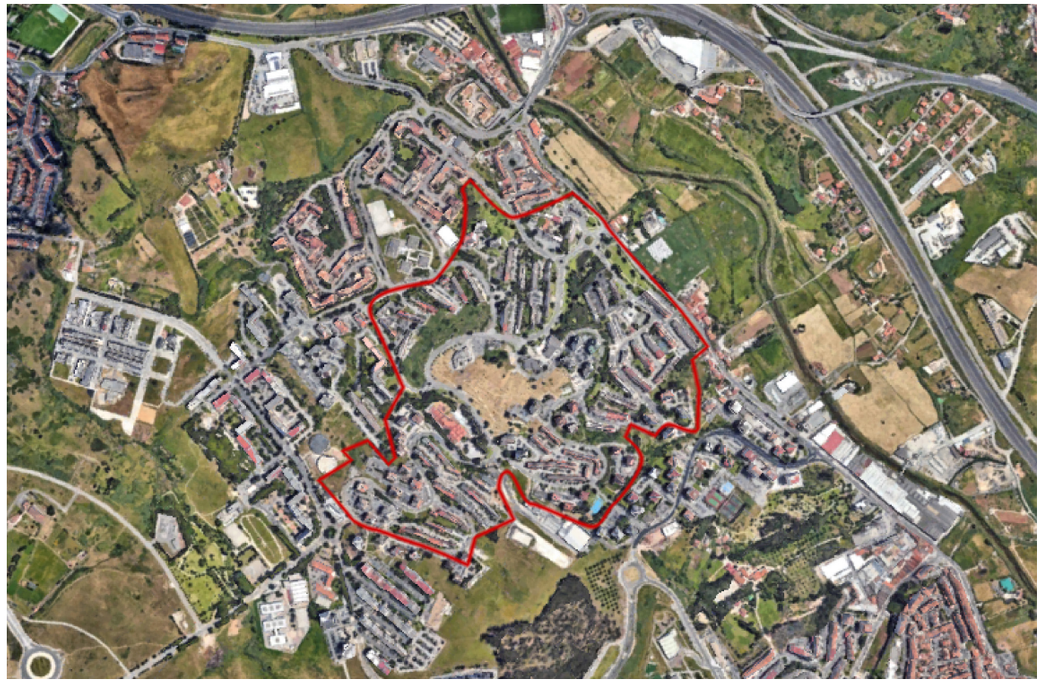
Santo António dos Cavaleiros

Portugal, Loures



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SAC Urbanization is considered the first heavy-prefabrication experience in Portugal, and It makes use of the French Fiorio system. The project, supported by consultants in France, began in 1964. Aimed at a solid middle class and located in a suburban area (20-minute drive from the city center), it was presented as a satellite city in a park.

Adress/District	Largo Francisco Morais, 2660-310 Santo António dos Cavaleiros		
GPS	38.814446, -9.160385		
Scale of development	District		
Architectural studio	Studies and Projects Office of ICESA		
Project author	Alberto Reaes Pinto (coord.), Fernando Ressano Garcia and others		
Developers	ICESA - Indústrias de Construção e Empreendimentos, SARL		
Landscape author	Gonçalo Ribeiro Telles		
Period of construction	beginning: 1966	end: Early 1980s	inauguration: 1969

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https://app.cm-loures.pt/portalarquivo/agenda.aspx?displayid=691
courtesy of Joaquim Augusto dos Santos

URBAN AREA

Location - within in the city	original:	satellite
	current:	satellite
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure.	
Location - position of buildings	Perpendicular (with a shorter façade facing a street). Parallel (with a wider façade facing a street).	
Urban Ensemble	Sun oriented paralell rows / free-standing objects	
	total area:	42 ha
	housing:	–
Connectivity | Accessibility	Mostly a self-referenced, isolated ensemble, SAC benefits from a high degree of road connectivity (fostering car ownership). Public transportation limited to buses. Pedestrian traffic separated from vehicles and taking advantage from the landscape. Roads frequently end in 'cul-de-sacs' to limit car speed.	
Landscape	The concept of the neighborhood as a 'city in a park' was fulfilled by the landscape project, which includes not only the treatment of the land between the roads and the buildings, but large parked areas, both in the lower area and along the sloped terrain, where some of the public facilities are located.	
Open and public space	The siting of the residential buildings, following the contour lines, was dependent on technical issues regarding the assembly process of the prefabricated panels, namely the crane paths and their range. This question led to a uniform and somewhat fragmented public space that mostly consists on the gardens and access streets between the rows of buildings.	current condition: reasonable
Quality of living environment	SAC was promoted as a garden-city close to Lisbon, and the landscape project was key in softening the hardened aspect of the prefabricated buildings and in providing a qualified public space, with the intention of offering "a new way of life", in contrast with the traditional city, which was considered congested, too dense and polluted.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	Slab blocks (S) have two dwellings per floor, and Towers (T) have four dwellings per floor. The typologies vary between 1 and 4-bedroom apartments in both building types, which have fairly conventional access and distribution schemes.	
No. of buildings	183	
No. max. of floors	11	
Average no. floors	–	
Materials | Fabrication	The system uses one-story-high wall panels and room-sized floor panels of concrete and brick, prefabricated at the factory and assembled in-situ. Foundations and support structure are in reinforced concrete.	
No. of dwellings	c. 3000	
Average dwe. area	75-93 m^2	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	There is cross-ventilation in the slab blocks but not in the towers. The dwellings have different typologies and quality of finishes, with the objective to respond to the various social and economic patterns of the potential users.	
Housing density	Number of dwellings per ha:	71.4

MIDDLE CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	The referred "new way of life" was also reflected in the layout of the apartments, aiming at a new middle class which wanted a more open and less segregated layout, based in the modus vivendi of the nuclear family. The developer offered payment plans so that the families could pay the house over the years. The marketing strategy tempted prospective buyers to leave everything behind and "bring only the family", selling apartments decorated by Olaio, a Portuguese brand of modern furniture.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition	The objective was to build the greatest number of dwellings in the least time possible, without compromising the quality of construction and providing different typologies and finishes to appeal to a wide range of residents. The French heavy total prefabrication system Fiorio (patented in 1951) was chosen by ICESA to meet this objective.
Building's typology: slab, tower	

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Part of the plan, in the northern area, was built by ICESA as affordable-rent houses to be given and managed by public institutions related with housing. This area comprised 760 dwellings in 15 buildings.
Name of specific programmes or funding applied	(1) CRE - Casas de Renda Económica (affordable-rent houses) (2) Habitações Económicas - Federação de Caixas de Previdência (HE-FCP)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The maintenance and rehabilitation of the buildings are the responsibility of the apartment owners. Thus, they present different levels of preservation, normally in accordance with the economic capacity the dwellers. The overall care for the buildings façades is good. The maintenance of green spaces is a responsibility of the municipality.
Urban | building transformation or regeneration	There were no significant transformation or regeneration actions in the neighborhood, at least of a broader level. Some building rehabilitation has occurred, promoted by private, individual owners or organized groups of residents, but only at the building level (especially repairing and painting of façades).
Intervention scale	Buildings
Intervention status details	The neighborhood is included in an ARU (Área de Reabilitação Urbana – Urban Rehabilitation Area), a (national-wide) program where the various municipalities (in this case the City Hall of Loures, since 2016) support private regeneration initiatives of individual owners (especially via tax cuts). However, there is no information of the impact of this measure in the neighborhood.

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Quinta das Lavadeiras

Portugal, Lisbon

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Designed in 1966 by Thébar Frederico in the city fringe, three large blocks perpendicular to its northern entrance, an intermediate access core and eight floors of housing built on pilotis, intersect another one with three lower floors for commerce. There are 350 apartments for an estimated population of 1750 people.

Adress/District	Rua Quinta das Lavadeiras | Rua Cidade de Tomar, Lisbon, Santa Clara		
GPS	38.4637, 9.0940		
Scale of development	Urban plan		
Project author	Thebar Rodrigues Frederico, Raul Branco, Fernando Monteiro Grilo, Horácio Silva Rodrigues, Domingos Veloso Garcês, António B. Abreu Miranda, Margarida Lopes Alves		
Constructors	Sociedade de Construção Copetrus, Lda / Santelo Investimentos Imobiliários Lda ; Precifer - Construtora de Edifícios Lda ; SPOC , SEUL ; INIL - Investimentos Imobiliários Administrativos Lda ;		
Landscape author	–		
Period of construction	beginning: 1966	end: 2000	inauguration: 1973

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Shops / stores / offices / garages / warehouses	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Semi-open block / free-standing objects	
	total area:	2.5 ha
	housing:	80 %
Connectivity | Accessibility	Located on a hill on the sidewalk of Calçada de Carriche, main connecting artery between the city and the peripheral neighborhoods, with a secundary street that makes a domestic connection.	
Landscape	3-storey plinth, connecting the split levels between them, with five apartment blocks with eight to six floors built on “pilotis”.	
Open and public space	The mediation spaces, above, at the level of the housing units, are linked by secondary roads and enclosed by the rows of warehouses and workshops, creating levels of public space.	current condition: good / needs to improve
Quality of living environment	This megastructure provides spaces for shops, warehouses and workshops, exterior patios and galleries of public use, and parking. It offers duplex houses for concierges, and a roof terrace with clothesline in open pergolas.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	At the ground level the blocks are connected in both corners, creating a kind of outside enclosed space through a lower row building for industrial activities (workshops) and warehouses.	
No. of buildings	30	
No. max. of floors	8	
Average no. floors	7	
Materials | Fabrication	The blocks are built with a reinforced concrete structure with brick filling. Non-combustible materials were applied, and outwardly marble, stone, and ceramics define que ensemble.	
No. of dwellings	350	
Average dwe. area	60 m²	
Dwellings' type	one floor	1, 3, 4 rooms
	duplex	–
Qualitative issues	Despite the reduced areas (approximately 60 m2), each apartment included, in addition to a common sanitary installation, a second "en suite" one, revealing the aspirations of a rising middle class and the progressive affirmation of its own culture.	
Housing density	Number of dwellings per ha:	269

MIDDLE CLASS

Original dwellers class: middle class	Emergent middle class.
Current dwellers class: middle class	

MASS HOUSING

Massification through: planned process element's repetition	Each of the three large blocks consists of four lots, that in turn consist of two dwellings per floor, with four rooms each. On the penthouse floor, each tenant has their own clotheslines under open pergolas, eliminating the popular clotheslines at the façade, projecting the image of a new urbanity
Building's typology: slab	

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** private	In the mid-1950's, in order to regulate the construction sector, the state provided incentives to private investors (e.g. reduced construction taxes for those building low-income housing).
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	All the buildings are occupied and have been partially refurbisged, both in the interior and exterior, although not always following de original layout (i.g. balconies closed) or materials (windows and doors).
Urban | building transformation or regeneration	From the original plan, more than 60% has been built.
Intervention scale	Neighbourhood
Intervention status details	–

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Grande Parque Residencial da Boavista ‘FOCO’

Portugal, Oporto

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The Parque Residencial da Boavista constitutes an emblematic middle class residential project within the city of Oporto regarding both housing, collective facilities and outdoor space. Built in the expanding area of the Western side of the city, FOCO neighbourhood aimed to supply a modern way of life which was unprecedented within the city of Oporto.

Adress/District	Avenida da Boavista - Bessa, 4100-100		
GPS	41.161911, -8.647192		
Scale of development	District		
Project author	Agostinho Ricca Gonçalves, João Serôdio, José Carlos Magalhães Carneiro		
Constructors	Banco Português do Atlântico / Sociedade de Construções William Graaham SARL		
Landscape author	Technical Office lead by Eng. Helder Ribeiro da Silva		
Period of construction	beginning: 1962	end: 1973	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	sports / shops / religious / kindergartens / leisure / hotel / offices / recreational centre / residential club / restaurant	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / free-standing objects	
	total area:	7 ha
	housing:	28 %
Connectivity | Accessibility	The neighbourhood is quite enclosed due to the location in an important cross roads. Accessible mainly by car and by public buses, the pedestrian circulation only occurs within the neighbourhood.	
Landscape	Because of its proximity to congested roads, landscape design was crucial to connect the buildings creating good quality outdoor environment.	
Open and public space	The buildings are organized around a big void which was designed as a central gardened piazza where collective life occurs: the commercial gallery, cinema, and church overlook this square.	current condition: reasonable
Quality of living environment	The diversity of the leisure facilities (cinema, church, swimming pool, gardens) activated as gathering places, enable a strong sense of belonging within the community of the neighbourhood.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	The design of the apartments reveals conservative signs aimed at meeting the demands of the middle class, such as the introduction of the maid's room, ambiguous spaces, and separate entrances. The plasticity of the balconies set the pace in the horizontal rhythm, evidenced by the marking of the slabs.	
No. of buildings	12	
No. max. of floors	22	
Average no. floors	11	
Materials | Fabrication	While the building construction was in reinforced concrete, the interior finishes materials of both common areas (halls, corridors, etc.) and apartments varied from marble to tropical wood. Acoustic and thermic isolation was achieved by cork panels.	
No. of dwellings	547	
Average dwe. area	190 m²	
Dwellings' type	one floor	1, 2, 3, 4, +5 rooms
Qualitative issues	'Foco' presents a high-standard housing program, combining housing and services organized linearly on both sides of the garden. Ricca could test the modern models influenced by the nordic experiences. Construction in height, green space and self-sufficiency are the key elements of the project, subordinated to precise visual compositions.	
Housing density	Number of dwellings per ha:	78

MIDDLE CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	The advertising brochure suggested a modern, elegant and sophisticated way of life, stressing the quality of collective facilities, construction materials and public spaces. Middle class features are also expresses in the way different degrees of privacy, but also in the unit apartaments layout based on the characteristic Oporto bourgeois apartments from the 40s (Lameira, 2014).

MASS HOUSING

Massification through: planned process vertical growth horizontal growth **Building's typology:** slab block tower	The neighbourhood was built in the city outskirts between vacant lots and swampy areas. It was part of the western expansion of the city, aiming to urbanize potential areas through the construction of new residential nucleus. In this case, the massification of the previous areas was achieved by balancing open space and high-density buildings (slabs and towers) never undermining the quality of collective spaces.

Grande Parque Residencial da Boavista 'FOCO', Oporto

HOUSING POLICIES

Urban promotion type: n/a **Housing promotion type:** private	The neighbourhood construction, design and management were strongly characterized by the influence of the private promoter and its goals. However, the success for the neighbourhood was enabled by the 1955 Decree-Law of horizontal property. Apartments were sold emphasizing the commodities of a detached house "without its inconveniences".
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The maintenance done by the inhabitants and the owners of commercial activities was sufficient to keep the neighbourhood in a good state of conservation. However, some of the windows have been substituted
Urban | building transformation or regeneration	The neighbourhood has been preserved until nowadays, including gardens and exterior arrangements. However, some of the collective facilities (hotel, cinema, residential club) have been closed down, which provoked their accelerated state of degradation and their availability on the market.
Intervention scale	Buildings
Intervention status details	The vacant spaces of the hotel, cinema and residential club which are part of one of the central buildings of the neighbourhood, were about to be converted into a private hospital, then into an office centre. Together with an art intervention by a renowned Portuguese urban artist on the façade of one of the building (planned in 2018), a public debate has been triggered on the preservation and the protection of the site. Since that the area of the Parque Residencial da Boavista is enlisted as "Area of Urban and Architectonic interest", while the church complex is enlisted as "Propoerty of heritage interest". (Decree-Law 310/03, December, 2012). The artist decided not to move forward.

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Romania

Bucharest, Cluj-Napoca, Târgu Mureș, Brăila

Irina Tulbure Dana Vais Romeo Emanuel Cuc Cristian-Andrei Bădescu

Post-war large housing estates in Romania

This article addresses post-war housing in Romania, focusing on the post-Stalin period, when the first large mass housing estates emerged throughout the country. It addresses the political context of their emergence, their urban and architectural typology, and the social profile of their residents. It offers a possible interpretation of “middle class” in the specific context of socialist society. Eventually, the text offers a brief historical overview of the construction and further transformations of the mass housing estates and their environments.

Introduction: Premises

Following the swearing in of the communist regime, radical changes occurred in Romanian housing policies, which shifted to focus significantly upon proletarian workers, disregarding the middle class as potential beneficiaries of social housing. Although interwar thinking inherently survived (due to the involvement of the same corpus of architects and urban planners), the institutions and practices connected to middle-class housing development and construction were gradually dissolved and replaced by state institutions in charge of designing, building and administrating dwellings and collective housing. Interwar housing estates mainly consisted of residential units of single family homes (Voinea, 2018), but the policies implemented after the war gave almost complete priority to collective housing. Housing construction became mainly the centralised initiative and investment of the state, with occasional exceptions.

Mass housing construction coincided during the 1950s with the first communist economic plans and strategies for industrialisation, and a focus on the construction and expansion of industrial cities (Ionescu, 1969; Derer, 1985). It also coincided with policies centred on raising living standards (focused on the working class), another argument for concentrating major investment on mass housing in the industrial towns (traditional, or new industries). In this respect, towns in Hunedoara and Valea Jiului region are maybe the most illustrative, but others such as Reșița, Baia Mare, Medgidia (scattered around the country) can be mentioned. The official target for 1955 (in terms of housing construction in industrial towns), was an amount of 50,000 apartments (Tulbure, 2016, p.270).

In the first few years, in most cases, housing estates were developed on the periphery, overlapping and extending the areas designated, during the interwar period, for individual residential units (as in the case of Bucharest: Derer, 1985; 2011). This was in response to economic practicalities, thus permitting the use of the existent infrastructure, and it reflected the lack of a new strategy for urban development.

By the mid 1950s, the new plans for systematisation followed the Soviet model of urban development: the typology of the street system, public areas, housing estates and the overall urban landscape, with highly decorated facades. It is to be noted that the 1950s plans for systematisation were not granted official political and municipal recognition, represented only in rough sketches and drawings in a variety of different versions. And although the projects hinted at large-scale investments and urban transformations, only minor interventions took place due to limited resources (Tulbure, 2016, p. 147).

Since the early 1950s, in Romania, terminology referring to administrative units followed the Soviet model: *cvartal/cuartal, microraion* and *raion*. The urban design of these housing clusters was based on a specific urban unit (*cvratal*) with a recommended surface of 2 to 20 hectares, delimited by major roads and defined by a closed-block typology with inner green courtyards. Except for industrial towns, subject to major investment, most of the completed construction projects barely attained 20 hectares. The block of flats was the go-to typology of the urban units and 2 or 3 floors represented the average height with exceptions for key locations (street corners, important buildings, civic centre) (Figure 1). Collective services (social – cultural) were part of the urban layout concept, based on standard-design for free standing structures. These types of buildings were rarely implemented, planned as later stages

Figure 1

of the housing complexes. Complementary commercial services in the *cvartal* unit were situated on the ground floor of the block units, facing towards main thoroughfares.

The structure of the apartment comprised a kitchen, one bathroom and living spaces; the two-room apartments (± 16 and 20 sqm) being the most frequent solution. In 1952, the average living space per person was 8 square metres, with exceptions granted to those entitled to receive additional living space thanks to their political affiliations (Suditu, 2016, p.187; Tulbure, 2016, p.272).

Construction materials consisted of brick masonry and concrete structural elements (including pinched roofs). By the mid-1950s, several experimental building sites were opened with the specific purpose of testing the use of large precast elements for construction, paving the way for larger investments in the mass-housing construction that occurred after 1960.

Socialist Large Housing Estates

Large mass-housing estates (named *cartiere* in Romanian) began to appear in Romania in the 1960s. They were presented as a true "qualitative leap" – a new way to conceive the socialist city, based on a larger scale approach (Ionescu, 1969, p.58-59). They combined the Soviet concept of the *microraion* with the functionalist principles of the Athens Charter and open urbanism (Lăzărescu et al., 1977). As they were mostly built on new land on the city outskirts, they helped create extensive urban residential developments. They were almost cities in themselves, provided with collective services (educational, health, and commercial) at the *microraion* level and leisure centres (commercial, cultural, green) at the cartier level (only partially seen to fruition).

Unlike the smaller housing estates built during the 1950s, the larger versions of the 1960s were planned at a national level and they introduced a true mass perspective on urban living. They were not meant to accommodate workers only, but to become a universal form of inhabiting the city. In the capital Bucharest, some of the estates reached city scale indeed: for instance, Titan - Balta Albă in Bucharest was planned for accommodating 220,000 residents. In the rest of the country, they were smaller, but still considerable; for instance, the cartier Gheorgheni in Cluj would be home to over 30,000 residents in the 1970s. The average population per *microraion* (later called housing complex) between 1960 and 1975 was around 10,600 inhabitants (Derer, 1985, p. 181).

Housing development, as per architecture in general, followed strict political directives (Stroe, 2015). Several governmental decisions enacted after 1958, and especially a governmental decree of 1960, had a major impact upon housing production, establishing floor area limitations, sanitary facilities and norms for finishing materials. The building typology was limited to blocks of flats of either 5 or 10-11 levels, freely implemented in a generously-planted open space (Figure 2). During the 1960s and early 1970s, construction technology was still a mixture of traditional techniques and forays into prefabrication. Although industrialised methods and especially large-scale prefabrication were strongly advocated for politically, they were implemented haphazardly across the country and were not yet commonplace during the 1960s; the use of prefabricated panel systems in state housing construction would remain below 50% as late as the mid-1970s (Vais, 2013). The standardisation of residential units, on the other hand, was easily imposed; more than two thirds of the units produced were a few simple variations on one standard kind of fixed-cost apartment. All over the country, apartment designs were based on type-designs produced by IPCT, the *Design Institute for Type Constructions* in Bucharest (created in 1956). The floor area norms

Romania: Bucharest, Cluj-Napoca, Târgu Mureș, Brăila

Figure 2

implemented until 1966 kept apartments small, with 16-18 sq m for the main room, 12 sqm the second, 10 sq m the third and fourth, 6 sq m the kitchen, and 3.5 sq m the bathroom (Ionescu, 1969, p.108). Most apartments had only one or two rooms. In 1968, the single standard would be replaced with four so-called "comfort categories" (i.e. four standards) , which decreased surface areas in lower-category apartments even more.

Several government decisions in the second half of the 1960s prompted major changes for housing design. The infamous anti-abortion decree of 1966 led to an increased production of larger apartments, with three or four rooms, for larger families. Another decree of 1966 introduced the possibility for tenants to buy the apartment they lived in – a specific form of private ownership in the socialist countries, called "personal property"; since private individuals self-financed to a certain extent, apartment type designs increasingly diversified (Vais, 2020). The habitable area per person also increased, from 7.7 sqm in 1966 to 8.3 sq m in 1975 (Lăzărescu et al., 1977, p. 44).

By the late 1960s, issues like limiting the city perimeters, using existing infrastructure, diversifying types, and avoiding monotony would emerge. Some of these estates have been densified by the insertion of new buildings into the green space (Figure 3). Increasing density became a major issue after a law in 1968 reconsidered the use of land and a new housing programme was drawn up. The year 1971 marked a turn in Romanian communism and the relative liberalisation brought about by Khrushchev's Thaw started to dissipate. The worsening of the political situation changed urban development too. The 1968-1975 respite – culminating in the Laws "of Systematisation" and "of Streets" in 1974 and 1975 – was a transition period during which the 1960s' open urbanism approach gradually came to an end. Towards the end of the regime, housing estates became an issue of quantity and economy almost exclusively.

Socialist “middle class”?

The expansion of Romanian cities during the 1960s was based on intensive industrialisation and massive rural-urban migration. The residents of the large housing estates were mostly immigrants from rural areas – about three quarters of them, by the mid-1970s (Dascălu, 2021). This implied a certain amount of social progress: by moving from the countryside to a new apartment in these new *cartiere*, peasants’ living conditions were raised to those of urban residents; geographic mobility became social mobility, as sociologist Henri Stahl (1972) put it. The social structure was reset and social classes were replaced by social categories defined by one’s occupation. The former peasants often became workers in state enterprises, but free education also opened up their access to all kinds of professions. In time, people of all social strata came to inhabit the equalitarian environment of the large housing estates. The official narrative that initially referred to the “working class” was replaced with one about the “working people”. This was the “social efficiency” of these large housing estates: “the homogenisation of the social structure of Romania” and the defining of the “socialist lifestyle” (Sebestyen, 1975, p.74).

Only “working people” lived in the state housing estates, as apartments were distributed via the workplace as a form of social wage. Housing units were administered strictly by statistical criteria, a certain number of rooms being allocated depending on the number of family members, with a priority for families with children. Working class inhabitants prevailed in smaller mono-industrial cities, but in larger cities, the social profile of the inhabitants was mixed. In cities like Bucharest or Cluj, doctors and university professors could share the same housing building with industrial workers. In this socialist context, the notion of “middle class” encapsulates the idea of the norm: most of the urban population with a state job would live on these estates. As most of the apartments would be eventually sold to their inhabitants, a middle-class “sheen” would indeed emerge. The party elite – the high end of society – would rather live in upscale villas, while at the low end some people would continue to live in substandard houses, especially in rural areas. The large housing estates would be defined, at least in larger cities, by the social mix of an extremely large social median – the state employees’ spectrum – and it is this mix that would save them in time from becoming urban ghettos.

Figure 3

Present-day transformations

After 1989, rapid privatisation of the previously state-owned housing stock occurred, including the apartments of the large mass-housing estates. In 2021, 98.2% of housing units was mostly privately-owned (Gheorghe & Alexevici, 2022, p.7). The responsibility for the maintenance of the mass-housing buildings was thus transferred to the owners. The diverse range of interventions is closely related to the large number of co-owners of each building and generally outside the law (replacement of the original window-frames, random closure of balconies or loggias, addition of attics or extra floors on building tops, ground-floor apartment conversions into commercial and service spaces, conversion of public space into parking lots and other kinds of appropriations).

The most important post-socialist intervention is the (ongoing) state-subsidised improvement of the energy efficiency of the buildings. This resulted in improvements in thermal insulation and facade colours, while necessary structural alterations and the updating of technical installations remain mostly untreated. Several national thermal rehabilitation programmes have been implemented by the Romanian state. According to a governmental decree of 2009, 20% of the cost of rehabilitation

Figure 4

is supported by owners' associations, 50% by the state budget through the Ministry of Regional Development and Public Administration, which annually approves the funds for the programme, and 30% by the local administration budget, through annually approved funds (MDLPA, 2023).

Green public space appropriations

Throughout the socialist period, public and green space had a variable importance in the development and planning of the new housing estates, from the modernist-fuelled generosity of green areas in the developments of the early 1960s to their gradual decline until the late 1980s. Even before 1989, inhabitants' sense of ownership led to a certain 'caretaker' attitude towards the green area adjacent to private apartments (Tudora & Mihăilescu, 2020, p.63) (Figure 4). Small-scale DIY enhancements found their way into the green areas next to the buildings, mainly through planting flowers or installing small benches. In some cases, these interventions were made through the efforts of more than one resident, leading to a common appropriation of the space and endowing it with domestic 'warmth' (Mihăilescu et al. 1994).

Following rapid privatisation after 1989, the informal appropriation of public space, especially by ground-floor residents, increased. Gardens, shacks and built extensions with separate entrances suggested in some cases a "house with a garden" lifestyle (Tudora, 2009, p.76). Not all residents were privy to the same opportunities, leading to quarrels and a breakdown in the social connections within the building. The public space that was not informally privatised became separated from the surrounding pathways by large natural barriers, resulting in no man's land type of spaces. Authorities lacked a comprehensive approach, adding parking or playgrounds without addressing the underlying urban issues at stake (Ghenciulescu, 2015). Nevertheless, these areas sometimes thrived in spite of themselves, especially because in some cases, the lack of administration has allowed for vegetation to grow in the wild, paradoxically fulfilling the modernist ideal of free-standing buildings surrounded by green space.

Conclusion

Large mass housing estates evolved in various ways throughout the country. Those in larger cities, which enjoyed a broad social mix, and especially those from the 1960s, with a relatively high quality of construction and generous green space, are still desirable residential areas today. They function as condominiums and have become "middle-class mass-housing" areas. The emergence of suburban areas of family houses around the larger cities during the post-socialist period did not empty them; it is precisely the keeping of the social mix that has saved them from decay and ghettoisation. Some of them – like the ones selected here – would deserve to be considered for heritage status and be protected. Unfortunately, no such consideration is being given in Romania today.

Figures

Cover - © Cuc Romeo.

Fig. 1 - Housing estates in the 1950s, Hunedoara. © Irina Tulbure, 2013.

Fig. 2 - Gheorgheni housing estate, Cluj. © Dana Vais, 2007.

Fig. 3 - Aerial view of Aleea Carpați Neighbourhood, Târgu-Mureș. © Romeo Cuc, 2019.

4. Current public space in Hipodrom Neighbourhood, Brăila. © Vlad Dumitrescu, 2019.

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Romania: Bucharest, Cluj-Napoca, Târgu Mureș, Brăila

Cartierul Floreasca - I

Romania, Bucharest

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Cartierul Floreasca represents for Bucharest one of the first state investments for mass housing that mark both the transition from interwar practices (a higher density and an increased of height of the construction) and from socialist realist esthetic standards (a more modern architectural expression; advanced construction techniques: prefabrication, large precast elements).

Adress/District	Glinka Mihai Str/Barbu Văcărescu Str/ Ceaikovski Str/ Calea Floreasca Str Floreasca		
GPS	44.275204, 26.61715		
Scale of development	Urban plan		
Architectural studio	Institutul Proiect București (Bucharest State Design Institute)		
Project author	Corneliu Rădulescu (main architect)		
Constructor	Bucharest Municipality - Investment Section		
Landscape author	Dan Bacalu, Silvia Granet, Elena Andone, Irene Gewölb		
Period of construction	beginning: 1956	end: 1958	inauguration: 1959

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	northen periphery/ close to city center
Other facilities / availability of amenities	Schools / health / shops / kindergartens	
Location - position of buildings	Parallel (with a wider façade facing a street) Perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Semi-open block	
	total area:	37 ha
	housing:	30 %
Connectivity | Accessibility	Accessibility to public surface transportation, poor pedestrian alleys, no cyclists network, close to a vicinity park, close to the large green area in the north of the city.	
Landscape	Initial landscape design was limited to insertion of green public areas in connection to a network of pedestrian alleys. Actual condition presents an increased privatization of the green areas.	
Open and public space	See previous description open and public areas were designed in opposition to the rigorous grid of the street system and street aligned blocks. Such an aspect is still present, despite the high degree of appropriation of the public green areas.	current condition: needs to improve
Quality of living environment	High percentage and diversity of green space, variety of the public open space and of building typologies gives the specificity of the area and the attachment of the inhabitants.	
Main Features	Flexibility / diversity	

RESIDENTIAL AREA

Residential buildings	Commercial areas protected with wide concrete canopies. Initial design included deep balconies for the residential units. Spatial structure of the (2 or 3 room) apartments organized in frames of 3/5 meters.	
No. of buildings	45	
No. max. of floors	4	
Average no. floors	3-4	
Materials | Fabrication	For the 3 storey buildings: brick masonry, for the 4 storey buildings: large precast elements for vertical closures. For both: precast beams and slab, terrace roof.	
No. of dwellings	2621	
Average dwe. area	50 m^2	
Dwellings' type	one floor	2 rooms
	others	2, 3 rooms
Qualitative issues	Current process of exterior thermic insulation.	
Housing density	Number of dwellings per ha:	70

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	Despite the modest surface of the apartments, the area is still attractive for the middle class due to the vicinity of the northern outskirts of Bucharest, the green and public space / facilities.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** semi-detached house urban villa block	Floreasca represents an early experiment for the planned mass housing estates. The goal of the experiment was the identification of a proper typology(height/density/materials/costs) to be applied further in the large mass housing estates. Therefore Floreasca displays a composition of several housing typologies including small units and blocks.

Cartierul Floreasca - I, Bucharest

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Top down development (1954-1959): State funding for housing coordinated by the Municipality. The Floreasca post war residential estate includes areas of former (interwar) residential parks based on individual and semi-detached units of individual houses. The interwar estates were also top down investments (private: SNIC and State: Ministry of Labor).
Name of specific programmes or funding applied	(1) State's Centralized Investment Fund (includes) fragments of interwar private and state investments

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	No legal protection status.
Urban | building transformation or regeneration	Considerable transformation of both private (closing balconies/building extension) and public areas (privatization of gardens/fencing of green surfaces). Current thermic insulation national program applied to the apartment blocks.
Intervention scale	Buildings / Energy efficiency improvements / collective green spaces
Intervention status details	Insertion of new construction increased the initial density. Thermic insulation national program applied to the majority of the apartment blocks resulted in serious alteration of the architectural expression.

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Gheorgheni - microraions I and II

Romania, Cluj-Napoca

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This is a representative case for the first large housing estates in Romania, organized after the microraions principle, in the spirit of the Athens Charter: open space urbanism, functionalist, with modernist architecture. It has been selected for the purity of these principles and the general quality of its spatial realization.

Adress/District	Cluj-Napoca I Gheorgheni, Unirii street (main thoroughfare)		
GPS	46.76, 23.62		
Scale of development	District		
Architectural studio	DSAPC Cluj		
Project author	A. Presecan, V. Mitrea, A. Buzuloiu (urban) C. Iacobi, D. Litvin, A. Nemeș (housing)		
Constructors	TRC - Regional Constructions Trust		
Landscape author	DSAPC Cluj		
Period of construction	beginning: 1964	end: 1969	inauguration: 1965-1970

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / health / market / ports / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / free-standing objects / free composition	
	total area:	65 ha
	housing:	15 %
Connectivity | Accessibility	Pedestrian and occasional car traffic lanes in the open space between buildings; surrounding the microraions, two-way streets assure the major traffic, including public transportation (bus) connection to the city centre.	
Landscape	Landscaped vegetation (grass, bushes, trees) fills the large open space between buildings; the green space is homoge-neous and public.	
Open and public space	The green space is used collectively. In immediate proximity with the buildings, it is maintained by the inhabitants. Play areas for children are shared by a group of 4-6 blocks.	current condition: good
Quality of living environment	Open space is homogeneous, few types of buildings; but building compositions and vegetation are varied and assure recognizability. The sense of belonging to the district on the whole is strong.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	Private balconies the only “interior” outdoor spaces. Mostly 2, 3 and 4 room apartments, minimal floor area (“existenzminimum”), hygenic (double oriented). Block of flats modules with interior staircases shared circulation.	
No. of buildings	86	
No. max. of floors	11	
Average no. floors	8	
Materials | Fabrication	Low tech construction (brick and mortar walls and reinforced concrete elements), with prefabricated elements for horizontal slabs only. Building height: either 5 or 11 floors.	
No. of dwellings	5194	
Average dwe. area	60 m²	
Dwellings’ type	one floor	1, 2, 3, 4 rooms
Qualitative issues	Attention to solar orientation and cross ventilation. special attention to thermic insulation was not an issue in the 1960s (thermic insulation refurbishment is applied today).	
Housing density	Number of dwellings per ha:	79

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	The district had (and still has) a good mixture of social categories (equivalent of “middle” in socialist society). Privatization has put apartments on a heated marked and they became expensive.

MASS HOUSING

Massification through: planned process **Building’s typology:** slab tower	It was a planned mass housing development. Type designs were used on a large scale for purposes of low cost. Rapid industrialization and urbanization brought large number of people from the countryside. The density in Gheorgheni was relatively high from the start, it has not been densified later.

Gheorgheni - microraions I and II, Cluj-Napoca

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Top down development (1964): national program of housing investment, then planned investment at county level
Name of specific programmes or funding applied	(1) State housing program (2) Yearly plan of housing / five year plan

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	–
Preservation and maintenance status details	Buildings and green spaces are well preserved. The estate is not listed, but it deserves to be. Its modernistic urban and architectural concept has not been altered, although the thermal insulation has so far altered the original architecture of the buildings.
Urban | building transformation or regeneration	In progress: thermic insulation program (program at national level, involving combined financing, including European funds. Distribution of costs: 50% national government, 30% municipal /local council and 20% inhabitants-apartment owners). The facades are rehabilitated, but are suffering significant transformation.
Intervention scale	Buildings
Intervention status details	Apartments have been privatized (public housing became condominiums). Open green space is closed with small fences and given in charge to owners associations. Some ground floor apartments have been transformed into small shops, medical services, fitness and beauty shops etc.

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ALEEA CARPAȚI (initial named Karl Marx)

Romania, Târgu Mureș

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Aleea Carpați is built in the late 1960s in the logic of modernist urban planning in a medium-sized city in central-Romania, Târgu-Mureș, a city lived by two ethnic groups (Romanians and Hungarians), with a strong cultural emulation as a basis for socialist developments related to the postwar political context.

Adress/District	Aleea Carpați, Târgu Mureș		
GPS	46.555870, 24.559478		
Scale of development	Urban plan		
Architectural studio	COUNTY DESIGN INSTITUTE (IPJ) - state institution		
Project author	Emil Truță (urban planner), Havas Andras, Varnai Andras		
Constructors	CONSTRUCTION AND ASSEMBLY TRUST / TCM MUREȘ (state institution)		
Landscape author	–		
Period of construction	beginning: 1964	end: 1970	inauguration: 1970

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / market / sports / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Free composition	
	total area:	12.5 ha
	housing:	13.6 %
Connectivity | Accessibility	The housing complex is located at 1.5 km from the city center, there are public transport stations, pedestrian alleys and a promenade along Mureș River, there are no bike lanes.	
Landscape	The buildings are oriented so that the inhabitants enjoy the favorable positioning between the Mureș river and the Turbina canal.	
Open and public space	The buildings layout creates partial green enclosures, while leaving a free view towards the river from the apartments. The public space is used for leisure, play or park the cars.	current condition: good
Quality of living environment	The main qualities of the housing complex are the position along two watercourses, the abundance of green spaces, the recreational spaces, educational buildings and commercial spaces located in the complex.	
Main Features	Readability / diversity	

RESIDENTIAL AREA

Residential buildings	The access to the outside area or to public facilities is unrestricted. The apartments have common halls, stairs and storage rooms with filtered access. The 10-storey buildings have common light-yards.	
No. of buildings	22	
No. max. of floors	10	
Average no. floors	7	
Materials | Fabrication	The construction system used for residential buildings was made of reinforced concrete with sliding formwork and prefabricated slab floors. Prefabricated panels and brick masonry were also used in the low-rise buildings.	
No. of dwellings	1705	
Average dwe. area	55 m²	
Dwellings' type	one floor	2, 3, 4 rooms
	studio	–
Qualitative issues	The buildings are mostly oriented east-west, all rooms have natural light and are ventilated. The dwellings were financed from the state funds for a maximum economic efficiency (spatial and financial).	
Housing density	Number of dwellings per ha:	136

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	For the society, the communist regime meant uniformity, dwellings were built for the working class (at all levels - from engineers, doctors, to workers). The social mix has kept its proportions.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** block	The initial project (1963) consisted of 1080 apartments in 11 buildings. Now, there are 1705 apartments in 22 buildings. The number of dwellings was first supplemented during the design process, in 1968 6 personally owned buildings were built (120 apartments), and in 2005 a social housing was built (25 apartments).

ALEEA CARPAȚI (initial named Karl Marx), Târgu Mureș

HOUSING POLICIES

Urban promotion type: n/a **Housing promotion type:** public	At national level, the process of building the housing complexes under pressure and systematization stopped abruptly in 1990, leaving behind vast neighborhoods that, by a decree issued by the National Salvation Front Council, passed on to responsibility of residents by selling apartments previously received for insignificant rents.
Name of specific programmes or funding applied	(1) DECREE-LAW no. 61 of February 7, 1990 (2) Sale of housing built from state funds to the population

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Aleea Carpați was built in the late 1960s. Meanwhile, construction technologies and materials that were used no longer meet contemporary energy efficiency standards. In time the buildings have been partially degraded and as unplanned individual reactions some owners closed their balconies and thermally rehabilitated their dwellings.
Urban | building transformation or regeneration	Thermal rehabilitation was limited to thermal insulation (polystyrene) and windows replacement. The installation of apartment heating plants led to abandoned buildings (former common plants). Some ground floor apartments became commercial spaces, changing the facades. The public space was partially occupied by garages and parking lots.
Intervention scale	Buildings / energy efficiency improvements
Intervention status details	Increasing energy efficiency and "repairing" the facades have improved the image of the neighborhood in the collective mind, but the rehabilitation reduced to polystyrene, colored paint and PVC windows, along with closing balconies or interventions that parasitize facades risk causing a loss of historical and cultural identity.

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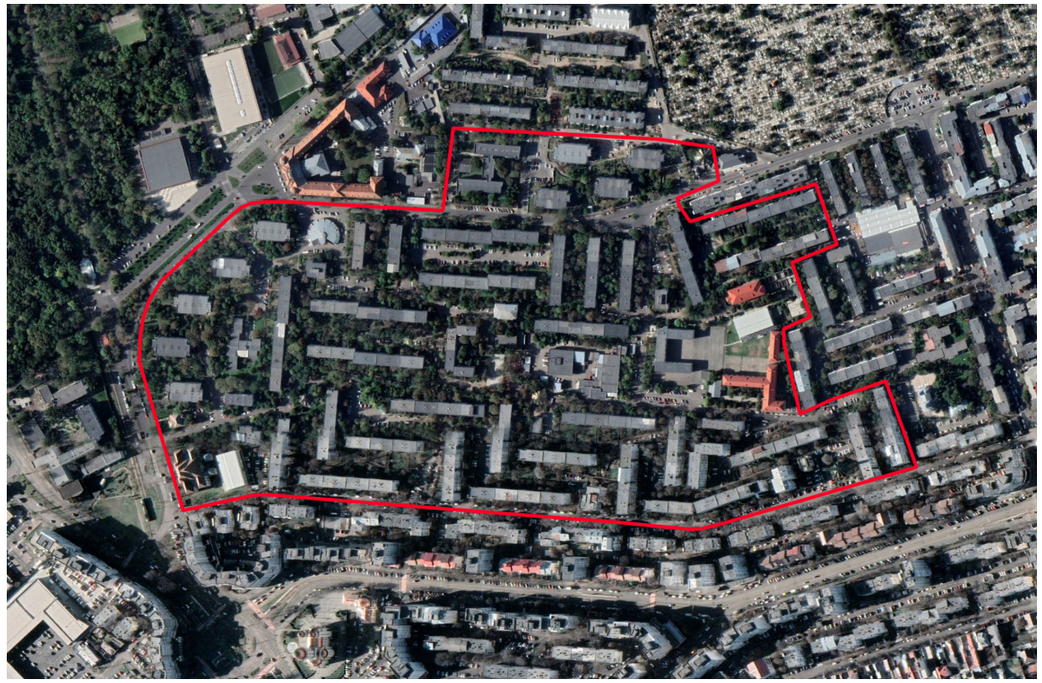
Hipodrom Neighbourhood

Romania, Brăila



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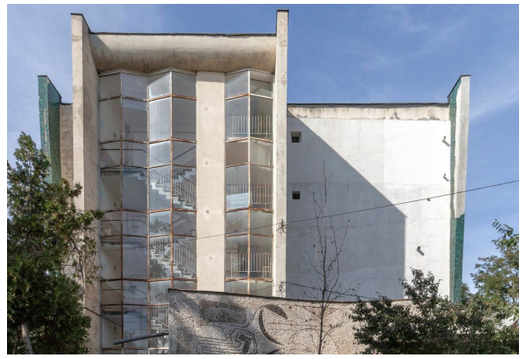
The selected project is part of the large scale urban developements of the communist period in Romania. It was selected for both its architectural value and coherence, and its current state of the green space.

Adress/District	Hipodrom Neighbourhood		
GPS	45.15333, 27.57219		
Scale of development	District		
Architectural studio	DSAPC Galați		
Project author	Ștefan Cocioabă, Maria Cocioabă (lead architects) / Liviu Cezar Durbacă (collaborator)		
Constructor	IGLAC Brăila		
Landscape author	–		
Period of construction	beginning: 1965	end: 1970	inauguration: 1965



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URBAN AREA

Location - within in the city	original:	suburbia
	current:	city centre
Other facilities / availability of amenities	Schools / health / market / shops / religious / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Free-standing objects	
	total area:	46.5 ha
	housing:	18.65 %
Connectivity | Accessibility	Hipodrom is very accessible for both public transport and privately owned cars. It is positioned next to one of the main entrances in the city, near the largest public park in Brăila, and at 30 minutes by foot from the historical center.	
Landscape	The landscape was a primary element of the original layout of the project. It has influenced further developments of the green space, and many features such as alleys remained in their original condition.	
Open and public space	The entire ensamble was designed following the modernist credo of free-standing buildings in a green area. As the area has not been under any real estate pressure all of the public green area has remained intact. In its current condition though it is not used at its full potential, being reduced solely to green space which is in most of the times unavailable for the residents.	current condition: reasonable
Quality of living environment	Most of the inhabitants reported that he attention given to the exterior of the buildings, their scale and their relationship with the green space is a major factor in the quality of living.	
Main Features	Diversity / green area	

RESIDENTIAL AREA

Residential buildings	There are 3 main typologies of buildings: - 5 floors high slabs with 3-5 entrances with 2-4 rooms apartments - 5 floor high slabs with one room apartments - 5 floor high small, squared-planned buildings	
No. of buildings	42	
No. max. of floors	5	
Average no. floors	5	
Materials | Fabrication	All of the buildings have been constructed using prefabricated elements. A special attention has been given to the facades which employ the use of ceramic tiles in order to distinguish and decorate the entrances. Their design has been determined in collaboration with a team of local artists.	
No. of dwellings	5007	
Average dwe. area	50 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
Qualitative issues	The apartment layouts were designed by the Institute of Type-Projects during that period. The rooms follow a standard design, with a notable feature being the inclusion of loggias in the majority of the apartments instead of balconies	
Housing density	Number of dwellings per ha:	200

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** –	Most of the original dwellers who were assigned housing in the neighborhood were young university graduates. Their general profile was of engineers, doctors, and teachers.

MASS HOUSING

Massification through: planned process horizontal growth element's repetition **Building's typology:** slab tower	Massification was achieved through a centralized planning process. The building density exhibits variations throughout the project. The building density exhibits variations throughout the project. In the initial stages, a lower density was implemented, allowing for the preservation of ample green spaces. However, as the urban strategies of the communist regime shifted during subsequent stages, the layout necessitated a higher density of buildings.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The project was developed as part of the communist party in Romania strategy of increasing the housing capacity of the cities. Initially, all of the apartments were state-owned, but in the latter stages of development, a percentage became available for buying.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	At the moment of writing there is no general strategy of refurbishment for the whole neighbourhood. The state of many of the buildings is quite deteriorated but the main decorative elements such as the ceramic tiles are well preserved. The urban layout is, with small variations, identical to the original design and so is the layout of the public space.
Urban | building transformation or regeneration	In recent years two types of interventions have been present in the neighbourhood: - private interventions of the owners of the apartments in making them more energy efficient by applying a layer of thermal insulation on the exterior. - local public investments in the creation of new parking spaces & playgrounds.
Intervention scale	Neighbourhood / energy efficiency improvements / open and public spaces / collective and green spaces
Intervention status details	–

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Serbia

Belgrade, Novi Sad, Bor, Subotica

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(Middle Class) Mass Housing in Serbia. Within and Beyond the Shifting Frames of Socialist Modernisation

In many aspects MCMH development in Serbia/ Yugoslavia was unprecedented, determined by a growing and unacknowledged formation of a middle class in the context of Yugoslav so-cialism, and a widely proclaimed but elusive social ideal of "housing for all". Two types of MCMH were the most prevalent in the period considered here (1945-1991): a multi-storey col-lective residential building, in or outside the city centre, and the individual private house, built in formal and informal or so-cold "wild" settlements. The Yugoslav housing experiment emerged mostly within the collective residential estates. The appropriation, innovation and even invention of different industrial building methods was further enhanced by excellent standards in urban planning and architectural design, exemplified in this study by selected MCMH cases in New Belgrade, Novi Sad, Bor and Subotica. Due to aging, lack of maintenance and the impoverishment of its inhabitants, the present state of this large housing stock is poor, its future uncertain, and yet, its lessons are of vital importance today.

During the Golden Age / *les Trente Glorieuses*, European countries witnessed unprecedented economic growth followed by massive housing production and Serbia, then a constitutive part of Yugoslavia, was no exception. In the 1950s and 1960s, Yugoslavia was one of the fastest growing economies in Europe that, at its peak in the mid-1970s, produced around 150,000 homes a year (*Jugoslavija* 1918-1988, 1989, p. 275).
The initial circumstances for the emergence of middle-class mass housing (MCMH) in Yugoslavia was dictated by immense war damage. In the aftermath of the Second World War the number of home occupants was decimated, twenty five percent of the population left without shelter, and material losses were among the highest in Europe, exceeded only by the USSR and Poland (Petranović, 1988, p. 179). A deficit of housing units with adequate standards of comfort and hygiene was already a factor in pre-war Yugoslavia (1918-1941) (Vidaković, 1932), when the housing needs of the growing middle class were addressed mainly through the development of single, privately-owned houses and rental apartment buildings. The question of good quality affordable housing was to be systematically dealt with only after the war, in the radically changed social, political and economic situation of post-war Yugoslavia.

Discussing MCMH in a socialist country, however, implies a contradiction in terms and needs additional clarification. Namely, socialist Yugoslavia (1945-1991) was not a genuine class-differentiated society and class formation was purposefully discouraged. Although formally unrecognised and undesirable, a new middle-class strata gradually developed in the production and services sectors, encompassing twenty five percent of the active population by the early 1980s (Mrkšić, 1987, p. 203). The first mass housing complexes appeared as part of a policy of "housing for all", with emphasis on a working class that encompassed all working people regardless of their level of education and profession. This remained the official housing policy of the state till the collapse of the socialist economic and political system.

After WWII, the strong anti-fascist resistance movement, led by the Communist Party of Yugoslavia (CPY), asserted unlimited political power and undertook massive social reforms. The initial alignment with the politics of the USSR significantly changed after 1948, when the Tito-Stalin split occurred, and Yugoslav post-war modernisation and architectural modernism developed through a dual critique, distancing from both Western and Eastern paradigms. This historical "in-betweenness" (Kulić, Mrduljaš, Thaler, 2012), sublimated in the 1960s policy of non-alignment, formed the socio-economic and political background for the emergence of MCMH in Serbia.

Figure 1

The shift to a socialist system was built on the massive expropriation and nationalisation of land and housing stock. The country initially adopted Soviet-type economic planning based on state ownership. In the words of historian Branko Petranović, industrialisation in Yugoslavia became “the new religion of the Party”, derived from the USSR’s model and imposed upon mass organisations and citizens by state authorities (Petranović, 1988, p. 152). The main focus was on heavy industry, and particularly on mining and metal processing, while massive housing construction was likewise based on industrialisation and serial production, in other words precision-planned, rationalised and mechanised construction procedures. At its peak, highly productive procedures of housing development were applied through the adoption and invention of different systems of prefabrication, enabled by the systemic educating of domestic professionals and an international transfer of skills and knowledge.

This particular mode of serial production generated different types of collective housing that consisted mainly of apartment buildings organised into large new residential clusters. Furthermore, in cities that were highly damaged during the war, a large number of apartment buildings and towers were built upon and interpolated into the old city fabric. As a result, the most prevalent type of MCMH was a multi-storey collective residential building within a planned housing estate, in or outside the city centre. These housing estates were typically planned and the construction was financed under the auspices of socially-owned enterprises (the state budget, the municipal budget, etc.), in accordance with the policy of self-management.

Established as the top priority of the socialist community, investments in housing production reached up to 25% of the total national income (Vujnović, 1973, p. 3). Statistics indicate that 1,483,607 housing units were built in Serbia in the period between 1953 and 1987, out of the total number of 3,907,870 that were constructed statewide. More than one third, 556,170 units, were built within the public sector, reaching almost 25,000 units annually by 1976. Alongside this dominant trend, the number of detached, privately-owned single-family houses steadily increased, coinciding with the growth of an upper middle-class strata and a lack of socially owned apartments for all. As a result, this type of individual, privately-owned housing units massively proliferated at the time, so that collective, socially owned housing units have become significantly outnumbered. Consequently 89,014 self-built units went up in 1976, compared to the 60,921 housing units that were built by the public sector during the same year (*Jugoslavija*

Serbia: Belgrade, Novi Sad, Bor, Subotica

1918-1988, 1989, pp. 275-276). It is also important to point out that private/individual housing could be both formal and informal, or so-called “wild” settlements built without authorisation. Entire formal neighbourhoods of single-family houses picked out from catalogues rose on city peripheries. The catalogues were an assortment of different types of single-family houses designed by various state-owned design studios. This was more convenient way to solve housing problem for those families who found themselves outside the system of allocation of socially owned apartments.

In terms of architectural design and urban planning, there are many similarities, interrelations and common grounds between MCMH in Serbia and corresponding housing estates both in Eastern and Western Europe. A certain distinctiveness arose from the massive scale of housing production in this case, and the specific mechanism of the apartments allocation. It stands out for its high architectural quality achieved despite poor prefabrication performances and customary monotony of architectural elements in mass housing production. Notwithstanding, this process resulted in some exemplary apartments, especially those of the so-called *Belgrade School of Housing* (Bajlon, 1975), and a strong emphasis on common facilities, open spaces and social amenities (Stojanović, ed., 1975). While detached houses in private ownership could be found all over Socialist Eastern Europe, the housing sector in Yugoslavia shows particular diversity in this matter. Due to the relatively liberal economy of housing, both the social and private sector were evolving apace with each other[2].

The first mass housing settlements were conceived according to Soviet models and their design mostly counted on architects employed by the municipalities and the Ministry of Construction, which absorbed the inter-war agency belonging to these bodies. A number of semi-prefabricated worker settlements were put up on the outskirts of Belgrade from 1947-1949, such as Železnik, “the new industrial city for 18,000 inhabitants”, with Branko Maksimović at the helm, or Karabur-ma, “microrayon for 6,000 inhabitants”, with so-called Russian Pavilions, designed by Jovan Bje-lović, (Sekulić, 2008, p. 125).

After the “Resolution on Prospective Construction Development” was announced in 1957, an un-preceded amount of funding was invested into the country’s construction sector, providing the ba-sis for a thorough industrialisation of housing construction. Besides, funding was also allocated for organisation of architectural and urban planning competitions, patent development and overall in-novation. This led to many companies creating proprietary prefabrication systems, such as the skel-etal prestressed system IMS Železlj or the large panel system Jugomont, precursors for the creation of industrialised mass housing on a grand scale and pivotal technologies for the building of housing developments in their respective communities. An open prefabrication system was adopted, uni-formising structural elements while leaving the envelopes and layouts completely open for archi-tects to experiment with, within the proscribed guidelines related to size, amenities and finishes. Mass housing construction sites became veritable laboratories of the housing economy, with many innovations cropping up within new housing estates of all sizes and in all aspects of their develop-ment: from the layout design of the units to the technology-based urban and architectural design (often called crane or gabarit urbanism) (Jovanović, 2017).

The most notable examples in this regard are the residential blocks of New Belgrade’s Central Zone (Blagojević, 2012), Block 23 being the most celebrated of all. The layout of this block incorporates sophisticated modernist typologies - strategically positioned towers and slabs in a way that leaves to a central area to accommodate the infrastructures, services, playgrounds, all

Figure 2

Figure 3

nestling within lav-ish greenery. The residential building consist of modular flats of various sizes, assembled in a two-tract system, with double slabs at regular intervals connected by vertical services. By expanding the building's width to create atriums, this design allows for two and three-sided orientation, cross ventilation and a more flexible spatial organization of dwellings. The façades of the block's buildings feature intricate details in exposed concrete, earning the block its reputation as "concrete ba-roque" and also as an iconic expression of brutalism. The concepts pioneered within the blocks of New Belgrade's Central Zone continued to be further developed, as every new development would build upon the experiences and designs of its predecessors, forming the complex and multifaceted corpus of MCMH architectural heritage.

For example, residential complex built in Vojvodjanska Street on the eastern fringe of the Grbavica neighbourhood in Novi Sad, relied on a project imported from Sarajevo, adapting the design prin-ciples to suit the local context. The mass construction of repetitive and uniform high-rise panel housing in the Liman II housing estate in Novi Sad continued until the late 1970s, when Yugoslav architects took down "the portrait of Le Corbusier off the wall" and made a clean break with or-thodox modernism (Hirt, 2008, p. 801). The housing blocks built afterwards exhibit a shift to an 'an-ti-modernist' design, characterized by smaller building scales, pitched roofs and brick façades, dis-tinguishing Liman II as a 'less conventional' socialist housing estate. The particularly notable exam-ple is recently protected Cerak Vinogradi 1 & 2 housing estate, that epitomized a total design ap-proach, while also improving the structural framework to accommodate pitched roofs and large cantilevered balconies. This estate is widely regarded as a highlight of Serbia's housing production during its peak.

Furthermore, housing served as a city building incentive for new cities such as Bor, which emerged around the mining industry, and a reconstruction stimulus for older cities such as Subotica. Their post-war development and growth as regional industrial centres had to be supported with an ac-cording replenishment of

housing stock to accommodate the growing influx of workers flocking into the cities. These cities grew one housing community at a time, leaving examples of ambitious and often unfinished regional housing developments such as IV Local Community or Prozivka scattered all over the country.

At the fringes of this movement some exceptional forms of MCMH appeared. As the first response to the housing crisis in the immediate post-WW2 years, the government pushed for the production of prefabricated barracks, predominantly made of timber, as well as for individual housing made of brick, while also utilizing other traditional materials and techniques, such as adobe, wattle and daub, timber and stone construction, depending on the region. These were built according to typified design, supplied through housing catalogues, that were distributed to the local offices and companies. Many of these estates have long since been replaced with permanent housing, but there are also places where they are still in use, after substantial modernisation, such as Staro Selište in Bor.

Over the last thirty years disinvestment in housing has been evident: both new construction and the upkeep of the existing housing stock have significantly dropped, as a consequence of war, isolation, and political transition, augmented by pervasive privatisation and commodification. Any comprehensive renovations and retrofitting are quite rare, while repairs are done only when absolutely necessary, as the tenants-turned-homeowners have been effectively priced out of doing it themselves. There have been recent instances of the most prized examples of housing developments being protected as cultural heritage: examples being the Genex tower, the Central Zone of New Belgrade and Cerak Vinogradi, but their restoration process is still in the early stages.

Housing policies supporting such developments in MCMH evolved accordingly. After the initial, temporary laws from 1947 and following the *First Five-year Plan* (1947-1951), a huge set of regulations nudged housing construction towards industrialisation and mass production. The early 1950s were marked by a desire for decentralisation and moved towards a concept of self-management. The "Residential Unit Administration Decree" of 1953 implemented the constitutional "right to housing" by granting a subjective right to the permanent use of the allocated apartment in an act of social ownership. Investment in construction of housing stock was decentralised through making available a range of funds, the Solidarity Housing Fund first and foremost, with each employee contributing with a part of their personal salary. In terms of housing design, most influential of all was the "Construction Manual by the Yugoslav Peoples' Army" (1955) that defined strict building norms and, coupled with advancements in prefab systems, eventually was able to offer spacious and flexible apartments to residents.

The 1963 Constitution marked a turn towards a liberalised market economy and consolidated the previously introduced idea of self-governing housing communities. Business associations and construction companies competed to provide mass housing on the still-regulated housing market. The 1974 Constitution further decentralised economic power. The "Law on Spatial Planning and Design" established the concept of self-management and interest-based communities and sought to further improve mass construction and dwelling design on the basis of advanced research practices. The Yugoslav housing economy, although striving to eliminate the *de facto* existence of class differences and contradictions, paradoxically became an instrument for middle-class community building. Affordable housing (either rented or purchased) once allocated to the resident(s) would free up a significant amount of one's income, previously put aside for commercial rent or travel expenses, which could then be spent on a consumerist lifestyle, which further aggravated class divisions.

During the disintegration of Yugoslavia, from 1991-2003, the Republic of Serbia passed through a process of turbulent social transition and turned towards a neoliberal democracy. Following the new "Law on Housing Relations" of 1990, almost the entire socially-owned housing stock was initially nationalised and turned over to state ownership, and with the 1992 "Housing Law", flats were then privatised by offering them to their tenants for purchase at bargain rates. Except for the social housing sector, over the next thirty years this sector was almost completely left to market whims and housing policy in Serbia today is still based on the same paradigm. The present day is again characterised by high but insufficient and inadequate housing production, without thorough planning strategies and ultimately, out of reach for

Figure 4

a middle class in decline.

In response to what would be the lessons and contemporary implications of the Yugoslav housing experience, in this brief review we have outlined the specificities and the unique historical conditions of the emergence of middle class mass housing in Serbia. The insights they contain are epitomised through studying the following select case-studies of MCMH projects. Block 23 in New Belgrade stands as a remarkable housing development that transcends the borders of Serbia and Yugoslavia, demonstrating progressiveness and innovation. Liman 2 in Novi Sad signifies a departure from orthodox modernism and the creation of more human-scale neighbourhoods. IV Local Community in Bor and Prozivka in Subotica are representative examples of specific local manifestations of the dominant paradigm. These case studies offer valuable insights that can guide contemporary approaches to housing development and shape housing policies and practices, addressing critical issues such as affordability, sustainability, community integration and the importance of long-term maintenance. By comprehending the challenges and successes of the past, we can strive to create more inclusive, resilient, and sustainable housing solutions for the future.

[1] The very notion and critique of the formation of the middle class in 1970s was the reason for temporarily forbidding one number of the renown international journal for philosophy and social theory, Praxis (Kangrga, 1972).

[2] While there is no denying the social sector built an enormous number of apartments, it is important to mention that “the private sector has accounted on average for 60-70% of the total annual production” (Mandic, 1992, p. 238).

Serbia: Belgrade, Novi Sad, Bor, Subotica

Figures

Cover - New Belgrade, Central Zone, Blocks 21-23 © TANJUG, Archives of Yugoslavia, 1972.

Fig. 1 - Block 28 (I. Arnautović, O. Milićević-Nikolić, C. Davičo), New Belgrade, 1968-1974 © Petar Petričević, 2022.

Fig. 2 - Block 61-64 (D. Marušić, M. Marušić, M. Miodragović), New Belgrade, 1971-1976 © Jelisaveta Petrić, 2020.

Fig. 3 - IV Local Community, Bor © Ljubomir Markov, Public Library, Bor, 1983.

Fig. 4 - Town of Bor © Dejan Motić, 2020.

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Block No. 23

Serbia, Belgrade

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The housing Block No. 23 is selected for its large-scale, mass housing character, both on the level of the neighborhood and the level of the city. Provided, distributed and mostly inhabited by the Yugoslav Peoples' Army, it is exemplary of densely populated residential area within the Central Zone of socialist-modernist city of New Belgrade.

Adress/District	Block between National Highway, Milutina Milankovića Boulevard, Milentija Popovića Street and Proleterske Solidarnosti Street. New Belgrade Municipality		
GPS	44.483051, 20.252752		
Scale of development	Urban plan / district		
Architectural studio	Town Planning Institute of Belgrade (urban design) | "Inženjering OSNOVA" (architectural design)		
Project author	Urban design: GLAVIČKI, Milutin, MIŠKOVIĆ, Jovan (collaborator) / Architectural design: JANKOVIĆ Božidar, KARADŽIĆ Branislav, STJPANOVIĆ Aleksandar		
Constructors	Investor: Yugoslav Peoples' Army / Construction Companies "Napred" and "Ratko Mitrović"		
Landscape author	BOBIĆ Miloš		
Period of construction	beginning: 1968	end: 1977	inauguration: 1976

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URBAN AREA

Location - within in the city	original:	new city centre
	current:	city centre
Other facilities / availability of amenities	Schools / sports / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block	
	total area:	24 ha
	housing:	9.6 %
Connectivity | Accessibility	Inner block is a pedestrian zone separated from car traffic that goes around the block, though parking area is organized within the block.	
Landscape	Landscape design was used to isolate ground floor dwelling, to isolate the block from the highway, to provide playground for children, and mask the nuclear shelter.	
Open and public space	The block was designed to provide a safe inner area, although it is an open space block. The slab-like buildings are permeated with a number of passages that firstly lead to semi-public space of the building (inner courtyard) and then to the inner public area of the block.	current condition: good
Quality of living environment	Each block in New Belgrade is designed as a certain self-sustainable neighborhood containing public, health and education facilities. In the case of the block 23 inner area of the block is the space that provides opportunities for socialization.	
Main Features	Readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	The slabs are divided by individual building entrances - semi-private spaces of the individual housing communities. Their ground floor provides commercial facilities, and roof tops were originally designed as common terraces (now turned into dwelling units).	
No. of buildings	8	
No. max. of floors	22	
Average no. floors	12	
Materials | Fabrication	Main construction system: cast reinforced concrete. Secondary construction and facade: prefabricated concrete panel. Ground floor exterior was complemented with wooden ceilings and concrete pergolas. Inner common space of the buildings combine concrete panels and red brick. Roof extension was built using steel construction and corrugated metal sheets.	
No. of dwellings	2342	
Average dwe. area	65 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	duplex	3 rooms
Qualitative issues	Flat roof was dubbed unsustainable for over-heating an drain damage. Air circulation was provided by way of double dwelling orientation. Most of the ventilation canals are out of use. Most of garbage canals are out of use. In a number of cases, informal appropriation of common space took place within the staircase areas.	
Housing density	Number of dwellings per ha:	101.5

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	In our opinion there is no official evidence for the definition of middle class housing, but this notion could be derived from contemporary regulations and apartment categorization.

MASS HOUSING

Massification through: Planned process **Building's typology:** slab block tower	The density was precisely planned and only slightly altered during the past decades.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	National - top down planning and construction method applied via housing regulations for design of apartments and housing (1964) based on a resolution about rational design and economical construction of apartments and housing (1958).
Name of specific programmes or funding applied	(1) The project and the construction were funded by the Yugoslav Peoples' Army.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The block no. 23, along with block 21and 22, make the so-called central New Belgrade zone, which holds the status of previous protection of the Republic Institute for the protection of cultural heritage.
Urban | building transformation or regeneration	The current state of the district varies within the block. North-East corner plot has never been finished as integral part of the block, but was occupied by a commercial buildings during the 1990s which was never finished. Rooftops of two buildings have been systemically extended in 1992, but more informal and often illegal extensions have been constructed since then on top of the flat rooftops of the towers and in the ground floor. More informal changes have been introduced onto the facades as a consequence of apartment extensions and alterations.
Intervention scale	Buildings / open and public spaces
Intervention status details	As described in the filed "urban/building transformation or regeneration).

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Liman 2, housing estate

Serbia, Novi Sad

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Liman 2 is located near the Danube River, 1.5km from the city center. Although large housing estates in CEE cities typically provide more affordable housing options and serve as 'springboards', Liman 2 stands out as one of the most expensive neighborhoods in the local housing market.

Adress/District	bordered by: Cara Lazara Blvd, Fruškogorska St, Despota Stefana Blvd and Oslobođenje Blvd		
GPS	45.241214, 19.846329		
Scale of development	District		
Architectural studio	Various architects, including Mihailo Čanak, Milosav Mitrović, Leonid Lenarčić, Milosav Mitić, Djurica Nedeljkov & Dušan Krstić		
Project author	Plan developed by the local public institution in charge of urban planning		
Constructors	Self-managing (i.e. socially owned) housing enterprises		
Landscape author	–		
Period of construction	beginning: early 1960s	end: late 1980s	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	inner-city
Other facilities / availability of amenities	Schools / market / sports / shops / kindergartens / leisure / restaurants / bars	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / sun oriented paralell rows / free-standing objects / free composition	
	total area:	24.4 ha
	housing:	55 %
Connectivity | Accessibility	Well connected to other city districts; well-developed traffic network, pedestrian, and cycling infrastructure; direct access to public transport.	
Landscape	No specific or distinctive landscaping features in the area.	
Open and public space	Abundance of open public spaces, including sports fields, playgrounds, and open-air gathering spaces, both planned and spontaneously developed, as well as green spaces, can be found within and between housing blocks. However, these areas are relatively unmaintained and have degraded over time.	current condition: reasonable needs to improve
Quality of living environment	The prefab housing stock requires physical upgrading. The open public spaces are relatively unmaintained and have de-graded over time.	
Main Features	Flexibility / diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	All residential buildings are managed by housing communities (under condominium ownership). Those located along the main streets feature commercial spaces on the ground floor.	
No. of buildings	34	
No. max. of floors	18	
Average no. floors	7	
Materials | Fabrication	Prefabrication and the typical modernist design were employed in the construction of housing within Liman 2 during the 1960s and 1970s. In the 1980s, there was a transition to a more 'unorthodox' modernist design, characterized by smaller building scales, pitched roofs and brick façades.	
No. of dwellings	2830	
Average dwe. area	63 m²	
Dwellings' type	one floor	1, 2, 3, 4 rooms
	studio	–
Qualitative issues	All residential buildings require energy efficiency upgrades.	
Housing density	Number of dwellings per ha:	114

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	The original population primarily consisted of clerical workers with university degrees. In 1971, Liman 2 was formally categorized as an 'elite' neighborhood. All dwellings were privatized in the 1990s, and there were no out-migrations of the middle class.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition **Building's typology:** row-housing slab block tower	Planned urban sprawl beginning with the late 1950s (low-density city periphery prior to construction); unified architectural design (or two designs) and multiplication of towers and slabs within a housing block.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Top-down policy during the socialist period (based on the East-European housing model).
Name of specific programmes or funding applied	1) planned by the state (public institution) and constructed by self-managing (socially owned) enterprises

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	Residential buildings: energy efficiency issues (poor wall and window insulation); some buildings also face problems with leaking flat roofs, damaged and decaying facades, and outdated infrastructure. Open public spaces: poorly equipped (old or no urban furniture) and insufficiently maintained.
Urban | building transformation or regeneration	During the post-socialist period, a share of the collective spaces within residential buildings has been converted into dwellings or commercial space, while some buildings got rooftop dwelling annexes (both legal and illegal). There are no regeneration policies, strategies or programmes, indicating a "laissez-faire" attitude of the local government.
Intervention scale	Buildings
Intervention status details	No planned or city-funded interventions were implemented. All interventions were piecemeal and privately financed.

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Vojvodjanska St. in Grbavica neighborhood

Serbia, Novi Sad

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In the mid-1950s, Grbavica represented a low-density, low-rise neighborhood located on the outskirts of the downtown area. During the 1960s, the residential complex in Vojvodjanska Street was developed on the vacant eastern fringes of this neighborhood, taking inspiration from the Grbavica neighborhood in Sarajevo (this is how Novi Sad's Grbavica acquired its name).

Adress/District	Vojvodjanska Street and Vladimira Nikolića Street		
GPS	45.14439, 19.50184		
Scale of development	Street		
Architectural studio	Various architects, including Zora Mitrović-Pajkić		
Project author	Plan developed by the local public institution in charge of urban planning		
Constructors	State / city		
Landscape author	–		
Period of construction	beginning: early 1960s	end: late 1960s	inauguration: late 1960s

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URBAN AREA

Location - within in the city	original:	centre periphery
	current:	inner-city
Other facilities / availability of amenities	market / sports / restaurants	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows / Free-standing objects	
	total area:	4.4 ha
	housing:	80 %
Connectivity | Accessibility	Located 1 km from the city center and adjacent to one of the city's main boulevards (Oslobodjenje Blvd.); excellent connectivity to other city districts; well-developed pedestrian and cycling infrastructure; convenient access to public transportation.	
Landscape	No specific or distinctive landscaping features in the area.	
Open and public space	Residential buildings surrounded by green spaces; spontaneously developed open-air gathering spaces.	current condition: needs to imrpove
Quality of living environment	The prefab housing stock requires physical upgrading. The open public spaces are relatively unmaintained and have degraded over time.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	All residential buildings are managed by housing communities (under condominium ownership). Some of those located along the Vojvodjanska street feature commercial spaces on the ground floor.	
No. of buildings	13	
No. max. of floors	15	
Average no. floors	7	
Materials | Fabrication	Prefabrication and the typical modernist design.	
No. of dwellings	542	
Average dwe. area	65 m²	
Dwellings' type	one floor	1, 2, 3 rooms
	studio	–
Qualitative issues	All housing buildings need energy efficiency upgrade.	
Housing density	Number of dwellings per ha:	123

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, others	This residential complex accommodated both industrial workers and middle-class members, thus featuring a social mix. During the 1990s, all dwellings were privatized, but the social heterogeneity was maintained.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition **Building's typology:** slab tower	The massification was achieved by repeating towers and slabs with a unified architectural expression. All dwellings were socially owned.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Top-down policy during the socialist period (based on the East-European housing model).
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	Residential buildings: energy efficiency issues (poor wall and window insulation); some buildings also face problems with leaking flat roofs, damaged and decaying facades, and outdated infrastructure. Open public spaces: poorly equipped (old or no urban furniture) and insufficiently maintained.
Urban | building transformation or regeneration	During the post-socialist period, a share of the collective spaces within residential buildings has been converted into dwellings or commercial space, while some buildings got rooftop dwelling annexes (both legal and illegal). There are no regeneration policies, strategies or programmes, indicating a "laissez-faire" attitude of the local government.
Intervention scale	Buildings
Intervention status details	No planned or city-funded interventions were implemented. All interventions were piecemeal and privately financed.

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IV Local Community

Serbia, Bor

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The IV Local Community is a housing estate selected as a case study because of its peculiar position between middle class an workers housing. The estate was built in order to provide housing for the workers of the Mining and Smelting Basin of Bor, but introduced higher standard of living such as complete central (city) heating, at the time, still a commodity in Yugoslavia.

Adress/District	Block between 9. Brigade, 3. Oktobra and Doktora Milovanovića streets, Bor Municipality		
GPS	44.057897328232464, 22.097379759817397		
Scale of development	Urban plan / district		
Project author	KITANOVIĆ Ivan (Gračevinar), ĐAKOVIĆ Predrag (Energoprojekt)		
Constructors	Construction company “Crna trava” / “Energoprojekt”		
Landscape author	BOBIĆ Miloš		
Period of construction	beginning: 1975, 1979	end: 1977	inauguration: –

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URBAN AREA

Location - within in the city	original:	planned urban expansion
	current:	city centre
Other facilities / availability of amenities	Schools / sports / shops / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block	
	total area:	40 ha
	housing:	10.5 %
Connectivity | Accessibility	The district is located close to the mathematical center of the linear matrix of the town of Bor, thereby being accessible from almost any part of the town. (The town is divided via 7 city kilometers, and the IV Local Community is located with the 4th km).	
Landscape	The slope of the terrain was used to immerse the building into the natural layout and break them into fragments, and hence visually tone down their volume and hight.	
Open and public space	The district contains large areas of greenery, playgrounds and public spaces, especially around public facilities included within the block.	current condition: good
Quality of living environment	The block has been built to higher standard than previous housing construction present in the town of Bor. This included a modernist model of a self-sustainable community containing all necessary facilities.	
Main Features	Readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	The slabs are divided by individual building entrances - semi-private spaces of the individual housing communities. The block also includes an area with low-rise row housing of similar higher standard design. The towers built within the block were designed by different company (Energoprojekt).	
No. of buildings	61	
No. max. of floors	10	
Average no. floors	7	
Materials | Fabrication	Different materials were applied throughout the block in regard to the type and constructor of the building. The slabs and low-rise row housing were built to higher standard with red brick facade finishing, while the towers were built using more modest materialization.	
No. of dwellings	1540	
Average dwe. area	60 m²	
Dwellings' type	one floor	1, 2, 3 rooms
Qualitative issues	The estate was most notable for incorporating the central / city heating into all dwelling units and thus setting a trend in Bor. Bor is now the city with highest percentage of dwelling units covered with central heating in Serbia (95%).	
Housing density	Number of dwellings per ha:	38.5

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	In our opinion, there is no official evidence for the definition of middle class housing, but this notion could be derived from contemporary regulations and apartment categorization. This example also balances between middle class and workers class housing.

MASS HOUSING

Massification through: planned process **Building's typology:** row housing slab block tower	The density was precisely planned and only slightly altered during the past decades, due to the decline of the Bor Basin production and subsequent privatization.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	National - top down planning and construction method applied via housing regulations for design of apartments and housing (1964) based on a resolution about rational design and economical construction of apartments and housing (1958).
Name of specific programmes or funding applied	(1) Socially-directed housing construction via Self-interest housing community of Bor in the case of towers.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	–
Urban | building transformation or regeneration	–
Intervention scale	Buildings / open and public spaces
Intervention status details	There hasn't been any significant interventions or alterations within the block.

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Housing complex Prozivka

Serbia, Subotica

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Prozivka is a socialist mass housing project located in the southeast part of the city. It is placed on an axis that goes through the city centre and connects to another mass housing project in the northwest - Radijalac. Prozivka was never fully realised and as it was built from the periphery to the centre, part of the axis remains unfinished.

Adress/District	Perimeter: Bajnatska street, Braće Radića street. Blaška Rajića street and Skerlićeva street		
GPS	46.05159, 19.40292		
Scale of development	Urban plan		
Architectural studio	Department of Urbanism and Geodesy - Subotica		
Project author	Čipa Jožef, Pletikosić Agneš, Braun Gavro, Poljaković Derfler Silvija, Abraham Janoš		
Constructors	Company for communal arrangement of the city - Subotica		
Landscape author	anonymous		
Period of construction	beginning: 1975	end: early 90s	inauguration: late 70s

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Free-standing objects / free composition	
	total area:	35.8 ha
	housing:	10.25 %
Connectivity | Accessibility	Prozivka's huge building volumes and superblocks clash with the small single-house city grain surrounding it. However, it is surrounded by wide streets and has a good traffic network for all its participants.	
Landscape	The centre of the complex consists of a 400m long and 100m wide park that contains and focuses on an anti-fascist WWII monument from the Yugoslavia period which was to give the new housing block a sense of identity.	
Open and public space	The public space is planned around the monument, also named Prozivka, built in honour of the people from Subotica who were part of the 8th Vojvodina brigade. Buildings are placed symmetrically on each side of the park forming its boundaries and emphasizing the monument and the linearity of the space.	current condition: excellent
Quality of living environment	The quality of the living environment lies within the walking distance of various public programmes like schools, kindergartens, markets, sports areas and leisure activities, all gathered around and close to the central park area.	
Main Features	Combining different uses	

RESIDENTIAL AREA

Residential buildings	Wide pedestrian paths surrounded by plants and benches lead to the building entry space. The interior consists of a simple hallway with elevators, naturally lit staircases and trash chutes that are mostly no longer used.	
No. of buildings	51	
No. max. of floors	11	
Average no. floors	7	
Materials | Fabrication	The first buildings' facades are a combination of prefabricated fluting concrete elements and either orange or yellow brick. The concrete panels are a few meters wide and have a floor-to-floor height. Later added buildings no longer have brick facades.	
No. of dwellings	3927	
Average dwe. area	75 m^2	
Dwellings' type	one floor	1, 2, 3 rooms
Qualitative issues	Most buildings have insufficient thermal insulation by today's standards, but the alarming issue is the plumbing and sewer system spillages. In some buildings it is a recurring problem.	
Housing density	Number of dwellings per ha:	110

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Prozivka is a popular part of town for the upper middle class because of the vast public spaces and proximity to the city center. This is shown by high apartment prices and original dwellers not being keen on moving out.

MASS HOUSING

Massification through: Planned process **Building's typology:** slab block tower	Pre-existing conditions are shown in the 1974 urban plan on which the complex is based. The documentation consists of photographs of the 436 single family houses which were inhibited by 2226 residents and a table that shows the existing vs. the planned outcome of residents, number of buildings and dwellings in order to justify the massification process.

Housing complex Prozivka, Subotica

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	In the post-war years Yugoslavia focused a lot of effort in providing housing for everybody in all parts of the country. Subotica was no exception and the local government planned and executed several mass housing projects in the city, Prozivka being tha last but also the largest of them.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished, but not yet deteriorated
Preservation and maintenance status details	The state or law does not preserve the buildings in any way or offer any funding for their renovations, leaving the dwellers to deal with the needed refurbishment themselves. Most of the terraces have been walled or glazed up to add extra closed sqm to the apartments, which disrupts the visual integrity of the buildings
Urban | building transformation or regeneration	Unfortunately, the central green zone was an unattained grass patch until the 2000s because of a lack of funding. The transformed space of the park contains walkways, bike paths, sports areas, playgrounds and greenery, making it one of the most popular public places in town as it was once planned to be.
Intervention scale	Neighbourhood / community improvement / open and public spaces / collective green spaces
Intervention status details	The positive affects of the transformed central zone were improved living conditions and a new sense of community that occurred. The negative is the increase in apartment prices and the appearance of new apartment buildings close by that clash with the original concept.

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Slovakia

Bratislava, Nitra

Barbora Čakovská

Mária Bihuňová

Mass housing in Slovakia-Panelstory

Mass housing in Slovakia refers to large-scale residential developments built during the Communist era, particularly in the 1950s-1980s. These housing projects were designed to provide affordable housing to the masses, with a focus on functionality and efficiency over aesthetics. One of the most notable examples in Slovakia is the Petržalka housing estate in Bratislava, which was built in the 1970s and 1980s and is one of the largest such real estate developments in Central Europe. Other examples can be seen in all Slovak cities, one of them being the Chrenová development in Nitra, where the original footprint was maintained. While these developments were initially seen as a solution to the housing shortage in Slovakia, over time they became associated with a number of social and economic problems, including crime, poverty, and a lack of community spirit. In recent years, there have been efforts to revitalise these areas and improve living conditions for their residents, including the renovation of buildings, improvement of public spaces, and investment in community activities.

In 1948–55 basically only two typologies of housing construction existed: the municipal (state), and the private (which amounted to 36.3%). All housing construction was based on traditional technology. From the urbanistic-architectural point of view it was either single homes or block buildings, which were finished to a relatively high standard in comparison with the pre-war period. The allocation of flats in towns was strictly controlled by the municipal authorities (Michalovic, 2005).

At the beginning of the 1950s, a programme of industrialisation, similarly to other East European countries, began in Slovakia (former Czechoslovakia). It brought heavy migration to the cities and consequently a high demand for housing. The industrialisation process meant a return to Constructivist concepts from the 1920s, and to the gradual development of prefabricated buildings, which took place alongside the continuing recourse to traditional construction methods. Some important urban districts (housing estates) were built, intended to be mirrors of a socialist style of living. Apartments with two bedrooms, kitchen and living room began to be more common in new construction, and be seen as a standard of middle class living. In 1970 politicians vowed to make the housing problem a priority, and housing policy became one of the crucial items of state social policy (Michalovic, 2005). The construction of large residential complexes and prefabricated panel housing estates solving the demand for housing is one of the most characteristic features of urban development in Slovakia in the socialist period of the second half of the 20th century. Urban planning gained particular importance, and in the design of large-scale mass housing estates, modernist home design in multi-storey buildings, free-standing in the middle of extensive green areas, and modernist approaches towards the creation of public space, came to the fore (Kristiánová, 2016). Housing was defined primarily as a social right, designed to meet housing needs, and not be a commodity. In other words, it was to provide shelter, not just serve the purpose of financial investment (Mandič, 2010). Between 1975 and 1989, as much as 97% of all apartment buildings were constructed using prefab technology; in this respect, Slovakia took the lead among Eastern European countries. In the new type of superblock housing structure - designed as the contrast to single houses - their open spaces often followed a particular pattern - outsized, uniform and often left unfinished, without services, amenities or other essential outdoor features (Figure 1) (Kasala, V., & Smatanova, K.,2019).

In 1981–1988 house building in Czechoslovakia decreased and cooperatives again had the biggest share of new construction (Michalovic, 2005). Generally, a private person could legally own only one unit (with some exceptions). It was often legally possible for a household to own two or three homes, particularly when they served a different purpose such as a vacation home or farm. On the other hand, there were different ways and means to become a homeowner; besides buying one on the

Figure 1

market, inheriting and - here and there – joining a cooperative, also another course of action was to build your own house. (Mandic, 2001).

The way in which the state (or its state institutions) played the role of builder, investor and architect eliminated natural market competitivity and it caused immense damage to the Slovak building industry, with the shirking of responsibility for what was built, a decrease in work production and poor quality of work as a consequence (Moravčíková, 2011).

Construction systems

The appearance of Slovak mass-housing estates was determined by the construction technology used for apartments blocks. By the mid-1960s, the most widely-used systems were the types T0 6 B and T0 8 B. The building facades were no longer quite as lively, if just as tectonic in appearance, with a variety of entranceways and access points. In 1966, the design institute Stavoprojekt Bratislava created, through merging the T0 6 B structure with the interior layout of T0 8 B, the new construction system ZT (from the Slovak abbreviation for “unified type”), permitting a wider range of sections and types of apartment blocks. Exterior facades was marked by striking horizontal lines of loggias, often in rich colours. A second prefabricated system, ZTB, a successor to ZT, was intended as a response to the demand for “open standardisation”- though, bearing in mind the ever-increasing amount of flats being produced and the sluggish response of the suppliers, it did not lead to much of a notable change. In the hopes of improving the quality of panel construction, the Czechoslovak state at the end of the 1970s purchased several different licences for panel manufacturing. During the 1980s, another two panel systems were developed, to become the newest (and simultaneously the last) generation, P 1.14 and P 1.15. This construction system was a response to the increased need for saving agricultural land, conserving energy and materials, limiting of noise and other new demands ensuing from the updating of standards and government directives (Moravčíková, 2011).

Housing estate Petržalka, Bratislava (Moravčíková et al., 2011)

Panel housing neighbourhoods of enormous sizes were built in many cities all over the country. Without any doubt, Petržalka (city district of Bratislava) is the biggest one in Slovakia (If we consider its population, Petržalka would be the third biggest city in Slovakia with over 100,000 inhabitants) (Kasala, V., & Smatanova, K.,2019). It is the largest prefabricated housing estate in Central Europe and one of the most ambitious projects of the former Communist regime. The political circumstances under which this process took place influenced then, and has continued to impact upon mass-housing construction in Slovak society. When developer, builder and architect was replaces by the state (or more precisely state organisations), this had many negative repercussions: the crippling of natural economic competition, a gradual undermining of liability, a drop in work productivity, and declines in building quality.

For the design of Petržalka an international competitive tender was held to find the best solution for the new Petržalka city district, in 1966. It was meant to eliminate once and for all what was previously a generally rural area and build a new modern city district for 100,000 people on top.

There was no eventual winner of the competition. Because of the political instability ensuing from regime change at the time, there was no opportunity to plan properly and the team of architects and engineers from the “Stavoprojekt”, led by Jozef Chovanec and Stanislav Talaš, started engineering works based on the design of three Slovakian urbanists Tibor Alexy, Ján Kavan and Filip Trnkus (3rd prize winners in the international competition). As a result the estate has remained until today primarily mono-functional, excessively dependent on the city centre.

Construction of the estate radically transformed the character of the original village of Petržalka and the riparian forests of the bank of the Danube into a highly urbanised environment. The estate was built as three sectors, which in turn were divided into smaller residential units with their own kindergarten, a primary school, a medical clinic, a shopping centre and certain cultural amenities. There were also several recreational and sport areas.

Chrenová housing estate, Nitra (Kubíčová, 2011)

At the end of the 1960s, hundreds of family homes were demolished and the building of the largest of Nitra’s housing estates – Chrenová - began. The construction took place in 4 stages, starting in 1964. Architecturally, the most prized would be the first district – Chrenová I. Ing. arch. Michal Maximilian SCHEER, who was a very well-known Slovak architect. The urban architectural project of residential area Chrenová I. was drawn up

Figure 2

between 1962 and 1965. The construction phase took place between 1964 and 1968. A total of 1589 housing units were built using TO6B technology on an area of 28.5 hectares.

The housing estate is characterised by its generous spatial dynamics with large areas of greenery. Using stilts, the architect M. M. Scheer was able to give the prefabricated block different dimensions to offset the simplicity of the composition in the shape of an isosceles letter “Y”. On the higher floors of these buildings, a spacious triangular hall was created in the middle of each floor. For the four and eight floor buildings, prefabricated design elements were used to vary the look of the balconies and loggias. The colour schemes of the facades, besides their attractiveness, also helped identify each individual building. To get around, artfully designed information panels with marked entrances to the buildings were placed by the towers (Figure 3). Due to the generous layout and non-standardised apartment building designs, the housing estate became one of the most revered post-war residential complexes in Slovakia. The residential area is dominated by large areas of greenery cupping the Nitra River and meandering outcrops of vegetation between the residential buildings.

Figure 3

Mass-housing development after 1989

In post-1989 Slovakia, many influential changes would come into force, including a shift in economic priorities, political leanings and the social system. These changes also had a significant influence on the development of Slovak housing policy. The priorities of the housing policy had changed, which had an impact upon the mandatory preconditions that housing policy were supposed to follow (Kiss 2014). These changes had a direct influence on the development, renovation and character of the housing stock in Slovakia. After massive privatisation of apartments, public spaces around the apartment blocks fell into decline because the state was unable to take care of the maintenance of all the publicly-owned housing stock (Kiss 2014). All tenants living in properties owned publicly by the state, municipalities or joint cooperatives, were granted the right to buy them at very reasonable prices. At the same time, it was prohibited by the same law to pass ownership of these properties onto another person, this offer only being applicable to the actual tenant (Hojsík, 2013). In this way most of the formerly publicly-owned housing stock became privatised and privately-owned (Michalovic, 2005). Single flats ended up in the hands of individual families, and public spaces were optioned by different city offices and institutions. The change in ownership was accompanied also with a change in management. Currently, the repercussions of these changes are still there for all to see and together add up to being one of this day’s main urban design challenges – first-time ownership, on top of the sudden desire for private ownership and self-expression has led to neglect of the public (shared) spaces in these housing estates, and a lack of maintenance. The impact on the physical fabric can be observed in the rapid degradation of these spaces and their amenities, and the limited use of them by local residents, only when absolutely necessary (Kasala, V., & Smatanova, K.,2019).

Satellite cities

After the “privatisation” of the apartments, the trend of residents moving out of the apartments into new buildings peaked. People longed for a house with a garden, for a more private view than the one they had in a block of flats, where the neighbours could be heard through the walls (Sýkora, 2002). This aroused the interest of developers, who began to buy such land in large quantities for profit, carving out a new land network, which led to the emergence of the so-called residential suburbanisation (Sýkora, 2002). Newly-built residential areas began to be called “satellite towns” (Ouředníček, 2014). Satellite housing was a major phenomenon in Slovakia between 2004 and 2008. Even today, municipalities are still expanding with new residential areas, but at a slower pace. The current trend of moving into family homes in satellite villages is also very significantly influenced by the economic circumstances of residents. With the current housing situation in big cities, satellite cities are an intrinsic part of the market offer. Today, the price of a three-room apartment in the capital is equal to a family house in the suburbs. However, rising real estate prices do not affect demand, which is a boon for developers. Although apartment buildings still predominate in absolute numbers, the pace of construction of single-family homes speaks to their greater popularity and availability than in the past. The number of family houses in the vicinity of larger cities has grown many times faster than apartment buildings in recent years (Rajničová, 2021).

Conclusion

Post-war development of mass housing in Slovakia and its construction was not without challenges. Many of the apartment blocks were built quickly and without much attention given to architectural design or quality of construction. As a result, the buildings often suffered from issues such as poor insulation, mould, and structural problems. Additionally, the uniformity of the housing complexes and the lack of individuality in their design resulted in a certain level of social homogeneity, which some argue contributed to a sense of isolation and detachment among residents.

Despite these challenges, the construction of mass housing was an important part of social and economic policy in Slovakia during socialism. It helped provide affordable housing for many families and contributed to the modernisation of cities across the country.

Housing in Slovakia today is generally characterised by a mix of different types of housing, including both privately-owned and publicly-funded. The country has experienced significant changes in its housing market since the fall of socialism in 1989, and these changes have had a significant impact on the availability and affordability of housing for Slovakians.

One of the most significant changes in the housing market has been the transition from state-owned housing to the privately-owned. Following the fall of socialism, many state-owned apartments were privatised and sold to their occupants, while new private housing developments were built to meet growing demand. This has led to a significant increase in the number of privately-owned homes and apartments in the country. The modification of public spaces around panel apartments was left to the city and its financial possibilities. Some cities also use European community funding to renovate public spaces and improve the quality of life of residents, and projects for these areas have been sensitive to sustainable development and climate change. However, they happen only in certain parts of the city, often depending on the availability of cycle paths. An example of the revitalisation of such public spaces is their restoration on a housing estate. The proposals create a space to support social interactions (examples being the design of gardens and barbecue areas in one of the inner blocks).

Figures

Cover - Klokočina housing estate in Nitra, (©Dávid Dežerický, 2023).

Fig. 1 - Unfinished public spaces and panel house estate residents going about their business (©Jaromír Čejka, 2020).

Fig. 2 - Ground-floor construction created using the load-bearing inclined concrete pillars of high-rise buildings with a glass entrance to the lobby. The Y-shaped design was used only in the case of the Chrenova development. (©Barbora Čakovská, 2023).

Fig. 3 - Professionally-designed information panels marking the entrances to the buildings (©Barbora Čakovská, 2023).

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Chrenová I.

Slovakia, Nitra

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Chrenová I was built as the first part of the Chrenova district on the left bank of the river Nitra. The housing estate is characterized by a generous spatial solution with large areas of greenery. Due to the generous urban composition and non-standard apartment buildings, the estate became one of the best post-war residential complexes in Slovakia.

Adress/District	Ľudovíta Okánika, Lomnická a Nábrežie mládeže		
GPS	48.314059, 18.097020		
Scale of development	District		
Project author	Milan Maximilián Scheer		
Constructor	Pozemné stavby Nitra		
Landscape author	–		
Period of construction	beginning: 1963	end: 1965	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / market / shops / kindergartens / health / sports / religious / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Semi-open block / open block / sun oriented paralell rows / free-standing objects	
	total area:	28.5 ha
	housing:	36 %
Connectivity | Accessibility	The housing estate Chrenova I is very close to the city centre, there are several bus lines and cyclo road salong the main traffic road and river Nitra.	
Landscape	The concept of the building blogs is semi open, in half hexagonal groung shape, enable placement of great amount of the greenery with recreational equipment.	
Open and public space	The urban concept was built on a clear differentiation of functional areas in a balanced meander layout of a 4 floors building and a concentrated 8-floors and 12-floors tower building, which was created on the main compositional and traffic axis and in the center of the residential complex.	current condition: excellent
Quality of living environment	Angličtina Sheer was inspired by Le Corbusier's idea of community living.The lower floor is made of glass, it was supposed to serve as a winter gardens. In the districts are restaurants, services, schools, shops, etc.	
Main Features	Flexibility / diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	The architect M. M. Scheer was able to give the prefabricated houses a lift and an optimistic lightness with the simple composition of typical houses in the form of the isosceles letter Y (13 and 15 floors blocks of flats).	
No. of buildings	15	
No. max. of floors	14	
Average no. floors	6	
Materials | Fabrication	A total of 1589 housing units were built using TO6B technology. The concept of residential complex Chrenová I was largely influenced by emerging trends in urban planning and construction technologies	
No. of dwellings	1589	
Average dwe. area	65 m^2	
Dwellings' type	one floor	2, 3, 4, +5 rooms
Qualitative issues	The appartments are very modern, comfortable for living. Attention is put on specific solar orientation, thermic insulation and ergonomic solutions. There is also art and sculptures in public open spaces.	
Housing density	Number of dwellings per ha:	56

MIDDLE-CLASS

Original dwellers class: middle-class

Current dwellers class: middle-class

There are mostly young families and peopl e in middle age. Some of the appartments are for rent. It is a great possibility for community life development.

MASS HOUSING

Massification through:
planned process

Building's typology:
detached house
semi-detached house
tower

The most spectacular part of housing estate Chrenova is Chrenova I., built between 1963 - 1965. The quality of this residential area is also confirmed by the publishing in the UNESCO urban-architectural book.The apartment buildings are composed in clusters, which are complemented by the services, civic amenities, schools, shopping malls and leisure centres.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	–
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished / unrefurbished
Preservation and maintenance status details	–
Urban | building transformation or regeneration	The buildings are thermally insulated, the color of the facades is not regulated. It is the place with high environmental quality withing the Nitra city.
Intervention scale	Neighbourhood / Community improvement / open and public spaces / collective green spaces
Intervention status details	The housing estate offered very friendly and comfortable standard of living with a lot of greenery, There is a problem with lack of parking plots. The dwellers established the community gardens.

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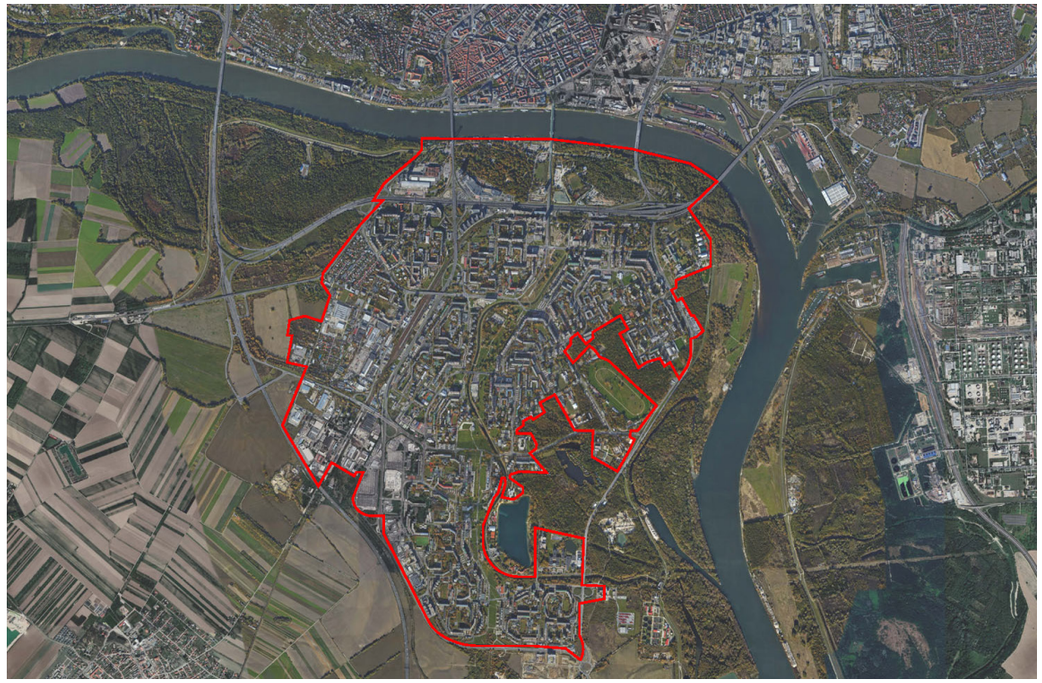
Petržalka

Slovakia, Bratislava



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Petržalka is one of the largest districts in Bratislava, located on the right bank of Danube river. It´s one of the most densely populated areas in Slovakia and Central Europe (100 000 inhabitants). It was originally a rural village, called Engerau. There are also two lakes Veľ ký Draždiak and Malý Draždiak.

Adress/District	Bratislava		
GPS	48.121356, 17.105944		
Scale of development	District		
Architectural studio	Stavoprojekt Bratislava		
Project author	Jozef Chovanec, Stanislav Talaš, A. Dandárová, J. Fabiánek, E. Horková, I. Kedrová.		
Constructors	–		
Landscape author	–		
Period of construction	beginning: 1967	end: 1980	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / market / shops / kindergartens / health / sports / religious / leisure / cultural centres / recreational parks	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Perimeter block / semi-open block / open block / sun oriented paralell rows / free-standing objects / superblock	
	total area:	911.05 ha
	housing:	73.77 %
Connectivity | Accessibility	The housing estate has great connection by public transports (buses, trams, trains), cars and also by bikes. Its location is near Austrian border, so there are also international bike roads and train connections to Vienna.	
Landscape	Petržalka is situated on the right river bank of Danube. It is based on the original village of Petržalka and the riparian forest.	
Open and public space	There are several recreational areas (Malý and Veľký Draždiak), sports areas serving the entire city (football stadium, rowing clubs, horse track, tennis courts), plenty of open public spaces and children playgrounds.	current condition: good
Quality of living environment	There are mainly the high block of flats, which has been thermally insulated, still there are places, which are not good maintained, but most of the localities are revitalisated and the living standard is guite high.	
Main Features	Flexibility / diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	The conception of construction for this new urban sector in Bratislava, grounded in the principles of the Athens Charter. The city held an international urban - design competition in 1967, attracting 84 architectural teams from 19 countries.	
No. of buildings	–	
No. max. of floors	12	
Average no. floors	8	
Materials | Fabrication	The building are made of concrete blocks. Standardised apartment blocks BA - NKS, BA-NKS - S, P1.14-6. PR, P1.14-7.RP, P115, P1.15-7.5RP, ZTB	
No. of dwellings	158000	
Average dwe. area	67.44 m²	
Dwellings' type	one floor	2, 3, 4, 5+ rooms
	duplex	2, 3, 4, rooms
	studio	–
Qualitative issues	The great advantage of the housing estate is first public park in Middle Europe - Sad Janka Kráľa (established in 1774, 42 hectares), 2 big lakes and close connection to Danube river.	
Housing density	Number of dwellings per ha:	173

MIDDLE-CLASS

Original dwellers class: middle-class, others **Current dwellers class:** middle-class, pthers	There are mostly young families and people in middle age Some of the appartments are for rent.

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** detached house semi-detached house clustered low-rise row-housing blok tower	Petržalka is the largest prefabricated housing estate in Central Europe and one of the most ambitious projects of the former Communist regime. he old part of Petržalka was built in 2 phases - 1967 - 1971 and 1973 - 1980. Currently there is new development on the Western and Eastern part of the district. There are 49 829 flats, free open space per dweller is 0,0052 hectares.

HOUSING POLICIES

Urban promotion type: public, private **Housing promotion type:** public, private	The apartments are mostly in private ownership, many of them are rented out by private individuals. Some are also rented from housing associations.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Fully refurbished / partially refurbished / unrefurbished
Preservation and maintenance status details	There have been done surface insulation of facades, in some apartment buildings the distribution systems were replaced. Open public spaces are under revitalisation. New public orchard have been established and several community gardens.
Urban | building transformation or regeneration	The old part of Petržalka was built between 1967 and 1980. Currently there is new development within the built up areas (new modern administrative buildings but also residential building arrised) and huge development could be seen on the fridge of district (for example parts: Slnečnice and Nesto). The old buildings have been thermally insullated.
Intervention scale	Neighbourhood / buildings / community improvement / open and public spaces / collective green spaces / energy efficiency improvements
Intervention status details	The new districts of blocks of flats do not only offer a high standard of living, but also high quality of open public spaces and good traffic connection to the city. Hájpark represents on of the example, where the dwellers have own garden, children garden, activities and the open space is environmental friendly.

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Slovenia

Maribor

Vanja Skalicky Klemenčič

Metka Sitar

Residential quality in light of the Mass Housing Development after World War II

Considering the synergies within the context of the MCMH COST Action, the historical overview of housing development in former Yugoslavia after World War II (WWII) will be presented with a focus on the specifics of housing policies in the decades of most intense mass-housing construction in Slovenia. In 1991, i.e., the year of independence, Slovenia introduced a new political and socio-economic system of structural changes with a strong impact on housing. Two case studies based on previously conducted research (the neighbourhood along Gosposvetska cesta from the 1950s and the Jugomont housing estate from the 1960s), both located in Maribor, underline the differences in the residential quality as an echo of social, economic, and cultural developments over the decades. Additionally, the discussion on current conditions addresses architectural and urban renewal with implications for the open space as an important element of residential environment quality.

A specific Slovenian urban network of almost 6,000 settlements is the consequence of a polycentric urban development concept introduced in the 1960s. Currently, the existing housing stock reflects two main typologies, i.e., the minority of multi-family residential buildings characterised by mixed ownership and located on the outskirts of cities and towns, and a majority of owner-occupied family houses in dispersed urban patterns (Sendi et al, 2007). Before 1945, there had been almost no rural-urban migration because of the low level of industrialisation and accordingly low demand for new homes. After WWII, in the era of former Yugoslavia, the political and socio-economic system substantially changed demographic trends and brought new demands for a centrally-organised provision and redistribution of new places to live. Firstly, this historical overview explains the key development stages of housing policies between 1945 and 1990. In 1991, the newly-established independent state of Slovenia, and the transition from a socialist system to a market system were the turning point that extremely affected the housing supply. Two case studies from Maribor, i.e., the neighbourhood along Gosposvetska cesta from the 1950s and the Jugomont housing estate from the 1960s, underline similarities and differences within the two residential concepts with the central focus on the neighbourhood quality observed as a high-value of the housing environment also in light of current renewal and regeneration processes.

Historical Overview

Housing development 1945–1990

In former Yugoslavia after WWII, an adequate and qualitative housing supply has been one of the most representative criteria for welfare policies in addition to jobs and employment conditions. As a part of it, the housing supply was one of the strongest central government instruments, focusing on reforms of the economic and social system (Sitar, 2008). Generally, the housing policy was a dual system consisting of traditional owner-occupied mostly one- or two-family houses and publicly owned rentals or the so-called social housing. Because of the restrictions on home ownership, privately-owned homes for rent almost did not exist (Sendi et al, 2007). From 1945 to 1955, the rapid industrialisation of cities triggered an increasing demand for housing, for migration from rural to urban areas. In parallel, the federal state expropriated and confiscated private property, including land, family houses, and residences. However, financial resources were less than adequate for the rapidly growing urban population and the urban landscape was rife with monotonous residential buildings following rigid urban concepts with almost no open spaces. Typical socially-rented multi-family buildings were constructed on plots of non-built-up areas, providing homes for the labouring class,

i.e., a status that included the working class and the new middle-class employees. (Skalicky and Čerpes, 2019).

Between 1956 and 1965, federal legislation first introduced a contribution towards housing in the form of special taxes. With this, the so-called solidarity system of housing provision was established, which continued to be implemented in a modified form until independence. The new system decentralised the responsibility for distributing, maintaining, and constructing residential buildings for rent to the local level of the municipality housing management and credit funds (Sendi et al, 2004). In Slovenia, influences of functionalist architecture were adopted in mass-housing design. However, the engagement of architects and urban planners played an important role in the improvement in quality of housing. For the first time, social services, traffic networks, and recreational and green areas were integrated into new urban schemes following Scandinavian "human-friendly" concepts of residential neighbourhoods (Skalicky and Čerpes, 2019).

Between 1965 and 1972, market-oriented housing construction was an answer to the weaknesses in housing policies (RESTATE, 2004). The reform further decentralised the public's responsibilities to companies and banks, providing affordable housing loans for privately-owned one-family houses to the benefit of the middle class, and publicly-owned multi-family buildings for rent for the mostly working-class population (Sendi et al, 2007). Several large mass-housing estates of 3,000 to 5,000 inhabitants were built, most of which were located in the suburbs and on the outskirts of larger towns. The goal of the monopolistic local construction companies was to maximise the number of units and the density of areas in the shortest possible time. In most cases, very little (if any) attention was paid to the quality of the neighbourhood environment. However, privately owned one-family houses gradually raised the quality of housing standards in general (Skalicky and Čerpes, 2019).

During the 1972–1990 period, new principles of social housing development were introduced through federal constitutional reforms alongside a new model of financing organised by the self-managed housing interest communities. The option of renting affordable homes was limited to low-income families and only in part to the middle class under special regulations. The 1970s and 1980s experienced a boom in mass-housing construction, most of which was in the suburban areas of larger cities (Sendi et al, 2007). A new housing loan policy, together with an extremely high inflation rate, created favourable conditions for private one-family home investment. After 1985, housing construction began to decline rapidly because of rising inflation, the reorganisation of policies of supply and demand, and political problems (Sitar, 2008).

Housing development after 1991

Slovenia gaining independence in 1991 tremendously changed the role of public authorities in housing provision. The main reform focused on the privatisation of rented dwellings and the denationalisation of property including residences, houses, and plots. The changes in housing ownership greatly impacted the quality of the existing housing stock, of which around 90 per cent was considered privately owned (Sendi et al, 2007). The ownership mixture gave rise to numerous problems with maintenance, refurbishment, and renewal. Only in 2003 were appropriate regulations introduced, and, consequently, more interest in the quality of living standards through the private investment of the middle class. On the other hand, the construction of residences decreased by half both in the public and private sectors. Due to the lack of state funding and the unfavourable mortgage climate, purchasing a flat became a privilege of middle-class and higher-income groups. As of late, the new National Housing Programme, and the municipal housing programmes have proactively introduced new players, instruments, and target groups supported by the Housing Fund of the Republic of Slovenia, including public–private investment partnerships and the shared ownership of residential buildings. New concepts of mass-housing schemes are being developed in a coming-together of policy and planning authorities, architects, and construction companies.

Case Studies, Maribor, Slovenia

The two case studies reflect the impacts of political, socio-economic, and cultural changes after WWII. Special attention is paid to the residential quality of the neighbourhood environment through the implementation of open space concepts, as determined in the previous research. Both housing estates are in Maribor, the second largest city in Slovenia, which is probably the most significant example of mass housing development in former Yugoslavia. The design of the neighbourhood along Gosposvetska cesta (1954–1964) was designed under the influence of Swedish residential neighbourhood schemes of the time. The second study, i.e., the Jugomont housing estate (1966–1970), is characterised by a specifically-unified residential block construction of a prefabricated system adapted in line with the new regulations. The urban-planning concepts of the two designs differ greatly. The neighbourhood along Gosposvetska cesta is designed as a complete unit, densifying the urban fabric of the city centre, and integrating it into the pre-existing residential area. On the other hand, the Jugomont housing estate is built on still underdeveloped urban land on the outskirts of the city. In addition, analyses show clear differences between the two also in the diversity of typologies, and the articulation of open space.

Figure 1

Neighbourhood along Gosposvetska cesta (1954-1964)

The neighbourhood along Gosposvetska cesta is an example of a rather uniform residential area designed by Slovenian architect Ljubo Humek. In the 1950s, Slovenian architects were critical of the monotony of housing settlements in Slovenia and introduced an innovative approach to the Swedish models. Based on an 'idealistic' quality of living environment, the urban design guaranteed a variety of basic functions by introducing diverse quality features. These provide not only a variety of building and dwelling typologies but also integrate a large share of green spaces, and a range of basic services, such as childcare, education, recreation, shops, etc. Such open public spaces were a crucial factor in preserving and improving the quality of the residential environment relatively early in Slovenian mass-housing production.

The neighbourhood along Gosposvetska cesta is the first example of the specific high-rise building typologies of the highest quality in Slovenia. Undoubtedly inspired by the Swedish "Punkthuse" (Pirkovič, 1982), the neighbourhood comprises a range of residential towers, high-rise buildings and low-rise blocks, and outdoor spaces united in a single composition along a tree-lined street (Figure 1). The basement of the residential tower with minimal excavation was allocated for childcare. Next to it, a playground for small children was added (Kocmut, 1961). Also, a series of accompanying buildings were integrated into the neighbourhood estate, such as a health clinic, a shopping centre, and a kindergarten. At the same time, a number of poplars were planted right next to the buildings. Accordingly, the neighbourhood served a dual purpose, i.e., that of being a residential street and the western access point to the city of Maribor (Pirkovič, 1982). It was not only the aspect of urban design involved, but a motif familiar from Swedish housing that was generally important for the direction of further development of residential architecture in Slovenia.

Urban design introduced a new attitude towards greenery, which was a novelty in

Figure 2

residential zoning at the time. The green spaces between and in front of buildings were separated from the street and the road, whereby the difference in height-levels helped define the public and semi-public space. It also improved road safety, further enhanced by the addition of a green belt with trees between the road and the pedestrian areas along the main street (Figure 2). The U-shaped layout of buildings created a semi-public space. The private open space was located on the ground floor of the tower. The monument created as a part of the Forma viva artistic event additionally enhanced the residential environment.

Jugomont neighbourhood (1966-1970)

As a reaction to housing shortages in the 1960s, mass-housing construction followed the typical multi-story apartment building typologies done in prefabricated concrete systems of so-called lamella blocks, thus exacerbating the monotony of urban neighbourhood (Figure 3). However, the quality of the prefabricated elements allowed a certain flexibility in the design of family houses and multi-residential buildings. The Jugomont housing estate designed by the Maribor Urban Planning Institute was a publicly-financed residential complex of homes for rent that was typical of its time. The development plan envisaged the construction of 14 residential buildings and was fully completed by 1970. In the backyards of the blocks, there was a park with lawns, footpaths, and a few children's playgrounds for recreation and socialising (Figure 4). Parking spaces were located alongside access roads. In the centre, there was a monument to the WWII hero and a commercial property with a shop, a restaurant, and a newsstand. The housing estate was surrounded by lush green areas.

The result of the internal competition by the local construction company Stavbar was a unified type of a five-story apartment block with a flat roof arranged in two typologies, i.e., as a row block or as a semi-open perimeter block. The orientation of both prioritised a rational use of the land over adequate solar exposure, which is why a few homes have sun only in the morning and others in the afternoon. The semi-open perimeter block development with park-like green spaces set back from the thoroughfares, the scale and typology of the buildings and the placement of two sculptures gave the residential environment a city-building character (Škratek, 2018).

Conclusion

In Slovenia, there is a continuous discussion on the problem of the renewal and regeneration of the existing housing stock, especially of the stock from former Yugoslavia after WWII, particularly in regard to energy efficiency measures. In parallel, the need to improve standards in quality residential development becoming more urgent due to the shortage of affordable rental accommodation. Additionally, an inefficient dialogue between built structures and open space is a failure of the past. Thus, public space is often used for other purposes, such as to make up for the lack of adequate parking, etc. Consequently, free space is scarce, and building density - to the detriment of green spaces - is increasing. There is perhaps an opportunity here to improve the quality of the urban environment by turning to the well-known Scandinavian models of residential neighbourhoods, mirroring the changes in social conditions and interests of the population on one hand, and as an answer to poor maintenance, degradation of the construction, and loss of open space on the other. The case studies of housing complexes from the 1950s and the 1960s clearly indicate the strengths and weaknesses of the architecture and urban design. In the case of such quality residential environments, they can

Figure 3

Figure 4

also serve as models for a comprehensive and integrated approach to quality procedures of renewal and regeneration.

Figures

Cover - ©Skalicky Klemenčič, 2023

Fig. 1 - A variety of housing typologies in the neighbourhood along Gosposvetska cesta (Skalicky Klemenčič, 2023).

Fig. 2 - The green spaces and the difference in height that define the public and semi-public spaces along Gosposvetska cesta (Skalicky Klemenčič, 2023).

Fig. 3 - Multi-storey lamella block typology in prefabricated concrete (Skalicky Klemenčič, 2020).

Fig. 4 - The backyard of the blocks with greenery, footpaths, and a few playgrounds (Skalicky Klemenčič, 2020).

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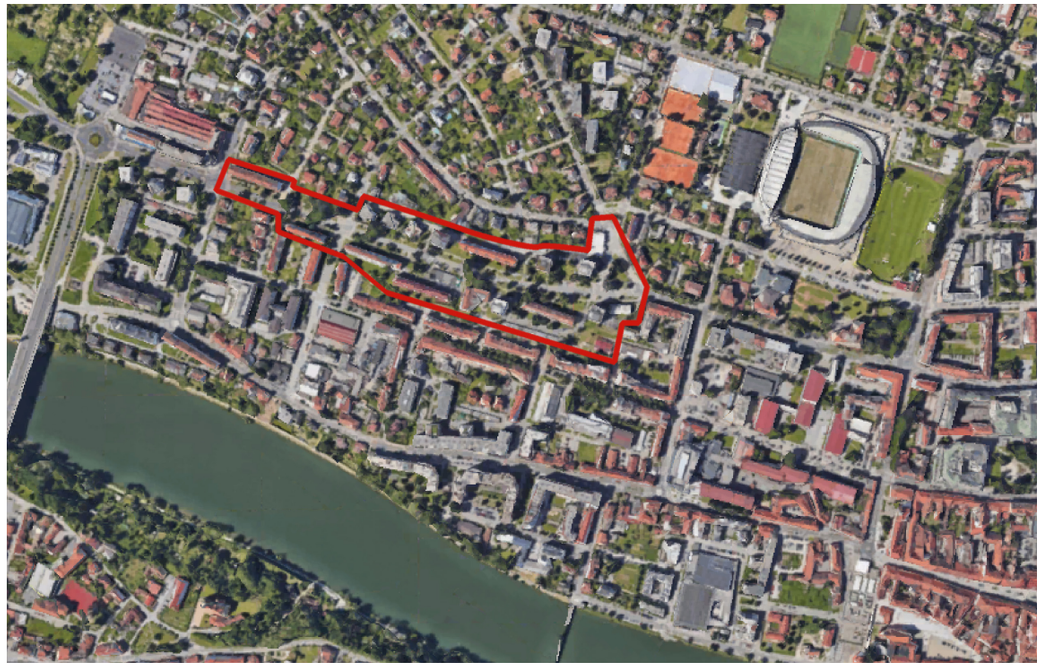
Neighbourhood along Gosposvetska cesta

Slovenia, Maribor



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In the early 1950s, the Institute for Regulation, later renamed the Komuna project led by arhitect and urbanist Ljubo Humk, introduced an innovative approach to solving housing problems based mainly on Swedish model. Among the first examples of such a type in Slovenia is the neigbourhood in Maribor along Gosposvetska cesta (1954-1961).

Adress/District	Gosposvetska cesta I Koroška vrata I Maribor		
GPS	46.567, 15.633		
Scale of development	Urban plan		
Architectural studio	Komuna projekt, Maribor		
Project author	Ljubo Humek		
Constructors	Stavbar, Maribor		
Landscape author	–		
Period of construction	beginning: 1954	end: 1960	inauguration: 1960

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URBAN AREA

Location - within in the city	original:	city centre
	current:	city centre
Other facilities / availability of amenities	Health / shops / kindergartens	
Location - position of buildings	parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows / free-standing objects	
	total area:	5.26 ha
	housing:	19 %
Connectivity | Accessibility	The central position of the neighbourhood, the avaliabilty of social services and the avaliability of green areas between buildings are the main characteristics of the high living quality. Other amenities (primary school, high school, university, sports facilities) are located in the close vicinity.	
Landscape	The main idea of the landscape design is devoted to large green areas with the tree lines along the main street and a lot of greenery placed around residential buildings.	
Open and public space	The neighbourhood environment is charcterised by different residential typologies and accompanying buildings in a single composition along the arched Gosposvetska street. The road and the sidewalk are separated from the residential buidlings and the adjoining open space by a law stoned wall, which clearly defines the semi-public space of the residents from the public open space.	current condition: excellent
Quality of living environment	The identity of the living environment has been improved in the local context: the placement of the sculptures created within Forma Viva, an international art workshops 1967 - 1987, using of local materials, as stone, visible brick, indigenous trees etc.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	The residential environment is represented by differnet tipologies of high-rise multi family buildings, including lamel blocks, towers, and points blocks, the variety that goes beyond the typologically uniformed housing schemes of the post WWII housing constructions. The conception of all resi-dentialbuilding is based on internal staircases.	
No. of buildings	17	
No. max. of floors	9	
Average no. floors	6	
Materials | Fabrication	All residential buildings are constructed in accordance to traditional methods, chracteriyed by reinforced concrete and bricks built on site.	
No. of dwellings	430	
Average dwe. area	m^2	
Dwellings' type	one floor	1 rooms
Qualitative issues	All dwellings are one-floor dwellings including balconies providing sefisfactory quality of living. Regarding solar ori-entation there is a specific solution in high-rised buildings, in which the north-oriented units have special window niches for receiving the lighting also from the south.	
Housing density	Number of dwellings per ha:	84.8

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	The historical characteristics substantially influenced the dwellers class in multi family residential buildings in Slovenia. In 1991, the socio-economic transition from the Yugoslav era (1945-1990) to liberal market society transfered the dwellings' status from s.c. 'social" rented to private with the majority belonging to middle-class dwellers

MASS HOUSING

Massification through: planned process **Building's typology:** block tower	Thugh the main idea of social housing in Slovenia was a hypothetically carefully designed 'ideal' living environment seeking to include a range of basic functions, such as child care, education, recreation, supply etc. withim the areas that are often characterised by decaying physical structures and unsuitable functionalities. This is not the case of Gosposvetska neighbourhood that has remained in the original urban layout.

Neighbourhood along Gosposvetska cesta, Maribor

HOUSING POLICIES

Urban promotion type: public, private **Housing promotion type:** public, private	Two key facts in the development of stately organised housing constructions between 1945 and 1990 were, firstly, the introduction of mandatory housing contribution for the employed in 1956 that caused systematic fund-raising, and, secondly, the Law of Housing Contribution from 1958 as the basis for the acquisition of large-scale housing developments.
Name of specific programmes or funding applied	(1) National Housing Fund (1955-1965)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	SInce in 1991 the majority of dwellings was privatised, the interest to raise the quality of dwellings and buildings is evident. However, only the facades, incorporating the fitting of thermal insulation, and high quality of windows and doors was carried out. Currently, there is an urgent need to protect the overall urban design - green spaces and buildings as a whole, excluding the closing the roof wreaths and glazing balconies . The renovation and mantaining took place as part of the residents' equity financing.
Urban | building transformation or regeneration	Currently, there is an urgent need to protect the overall urban design especially regarding green spaces and buildings as a whole, excluding the individual actions of the owners as the closing of the roof wreaths and the glazing balconies.
Intervention scale	Buildings
Intervention status details	Slovenian Environmental Public Fund offers subsidies and favorable loans for environmentally friendly investments to reduce the costs of investments in energy efficiency to private persons. enterprises / companies, and public sector.

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Neighbourhood Jugomont

Slovenia, Maribor

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The uniformly designed neighborhood was constructed in the first half of the 1960s. Although unique in its design, the Jugomont represents a typical social multi-family residential neighbourood of its time. A special charcteristics of the construction is the economicly advanced prefabricated system developed by the the building company Jugomont, of which the neighbourhood got the name.

Adress/District	Betnavska c., Ljubljanska c.,Cesta Poletarskih brigad I Tabor		
GPS	46.539, 15.637		
Scale of development	District		
Architectural studio	Zavoda za urbanizem Maribor		
Project author	V. Premzl, M. Škerbinc in J. Krajnčič (urbanism) D. Vrhovski, B. Valand, N. Resinovič (architecture)		
Constructors	Stavbar, Maribor		
Landscape author	–		
Period of construction	beginning: 1966	end: 1970	inauguration: 1970

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Market	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows	
	total area:	7.63 ha
	housing:	57.6 %
Connectivity | Accessibility	The neighourhood is well connected to the city centre by public transport (bus), the pedestrians' and cyclists' network. It includes recreational areas, urban parc Betnava, and shopping center Mercator.	
Landscape	The neighbourhood is surrounded by densely planted greenery. On the courtyard side of the residential blocks there is a large park area with greenery, footpaths and several playgrounds, planned for the recreation and socializing of residents.	
Open and public space	The perception of the residential environment could be described as the monotony. Only one housing typology determines the whole area, due to the economically and timely optimal construction.	current condition: poor
Quality of living environment	There is no context regognized in terms of principles characterised for the quality living environmet. The only identity element is established by the placement of the sculpture.	
Main Features	–	

RESIDENTIAL AREA

Residential buildings	The neighbourhood is caracterized by 15 lamell blocks with internal staircases, built in prefabricated concrete system. Some block are parallel to each other, while the others form semi open perimeter block composition.	
No. of buildings	15	
No. max. of floors	6	
Average no. floors	6	
Materials | Fabrication	A special feature of this construction method, developed by Jugomont, are the light, prefabricated prefabricated construction elements made of 14 cm thick, 258 cm long and 119, 134 and 59 cm wide concrete slabs. These panels are installed very quickly and allow a higher degree of flexibility.	
No. of dwellings	1216	
Average dwe. area	55 m^2	
Dwellings' type	one floor	1, 2, 3 rooms
Qualitative issues	The assembly of prefabricated elments was simpler, faster and cheaper than the classical system of construction, built on site. That fulfilled the main idea to provide a high number of dwellings because of the lack of housing and, at the same time, to provide the professional training to the staff of the time.	
Housing density	Number of dwellings per ha:	491 inh/ha

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	The construction of residential environment in Slovenia that changed according to socio-economic circumstances when the new socialist society in the Yugoslav era (1945-1990) was formed and was substantially changed in the post-independence era of the liberal market society. Dwelling was transferred from social to private ownership (almost 100%)

MASS HOUSING

Massification through: planned process **Building's typology:** block	The neighbourhood was planned on the site within a non-built-up area, based on the idea to provide the huge number of dwellings for the labour class with the variety of modern floor-plans composed as a neigbourhood in the accessible distance to the city centre. As a rule, it follows all urban parameters and regulations of the time.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The period of 'the building for the market' as a distinct category of the market economy had a fairly fatal impact on the further quality development of multi-family residential sector. The role of the architect was clearly subordinated to the one of the contractor, in his role as the investor that caused the stagnation of the quality of architecture, mainly customized to the economic demands.
Name of specific programmes or funding applied	(1) The period of the construction for the market (1965-1975)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The Jugomont neighbourhood is entered in the Register of Cultural Heritage.
Urban | building transformation or regeneration	The facades with thermal insulation are renovated.
Intervention scale	Buildings
Intervention status details	An intervention of renovated facades affected positively to the residential environment quality.

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Spain

Madrid, Barcelona, Hospitalet de Llobregat

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Montbau, Bellvitge, Les Cotxeres, poblado dirigido de Caño Roto, La Concepción and Plan parcial en Moratalaz. Six different approaches to middle-class mass-housing in Barcelona and Madrid

**The following article focuses on three mass-housing projects in Madrid and three in Barcelona, the two main Spanish cities, from the period 1950-1970. Those projects show housing policies as the answer to problems that arose after both the Spanish and European post-wars: the need to rebuild following the devastation of war, and the emergence of a working mass due to accelerated industrialisation. These six mass-housing projects in Spain represent three different solutions to respond to the need to house a large amount of people. This cross-section is an opportunity to compare and to establish conclusions that can help further later research. The Madrid cases: Moratalaz (start date: 1950), planned according to modern movement concepts by Madrid Municipality, but developed by private financing; La Concepción neighbourhood (1953), a cross between a dormitory city and basic social facilities and el poblado dirigido de Caño Roto (1959) as a model of social economic housing policy on a site with a very irregular configuration. The Barcelona cases: Montbau (start date: 1956), based on a design project by a team of renowned architects; Bellvitge in 1964, a huge undertaking completely unconnected to Barcelona and its surroundings, and Les Cotxeres (1969) as the transformation of a site that belonged to the Municipality Transport in Barcelona - these all showing the different ways planning solutions were implemented and, consequently, the varying degree of success in the results achieved. After considering all the issues related to social housing in Spain, several conclusions can be drawn that should be borne in mind before embarking on new planning projects:
Urban integration, urban and environmental sustainability, service integration in the housing complex, effective management of the complex and a sense of belonging.**

Taking care of all these aspects in the planning of new mass housing projects will lead to the creation of spaces where people truly will like to live.

These six mass-housing projects in Barcelona and Madrid illustrate six different solutions to respond to the need to house a large amount of people. This cross-section is an opportunity to compare and to establish conclusions that can help further later research.

In Spain, during the nineteen-fifties and sixties, middle class people tended to live mainly in rented flats belonging to privately-owned urban five-story blocks, with two apartments per floor. There was no mass housing for the middle class. During that period, due to the city's rapid industrialisation, thousands of immigrants from the central region and south of Spain arrived to work in industrial areas that sprang up around the city.

In 1953, the Spanish government launched plans to generate mass housing areas; these plans were more or less successful according to the way they were subsequently developed. Some of the reason of that transformation was that these types of housing complexes build for working class, have ended up being transformed into middle-class housing, not only due to the quality of the architectural proposal, but also the improvement of to better link to Barcelona and services.

An overview of different aspects of these case studies

Moratalaz was one of the first MCMH ever built in Spain. It first began in 1950. Originally the site was an area of orchards that was completely flat. This fact made it easy to add green spaces. From the beginning the urban design was of a high

Figure 1

quality. Pergolas linked buildings to collective spaces and small gardens. Roads were kept separate from pedestrian pathways.

La Concepcion, begun in 1953, was very different from Moratalaz. It was located within an urbanised environment, with a pre-existing road network that was quite narrow, just about 12 m width, with small treeless pedestrian streets and parking on both sides.

Caño Roto was designed around a network of traffic streets which boxed in five housing blocks. Almost all of the tallest buildings were on the perimeter. By concentrating low-rise buildings the further in we went, it was possible to plan them closer together without blocking out sunlight.

Montbau is one of the first MCMH built in Barcelona. The 1956 plan was split into two sectors with ample green spaces between the buildings, separating traffic and pedestrian roads and good connections to public transport. Squares and gardens offered plentiful opportunities for communal interaction, thus decreasing the feeling of high-density living.

Bellvitge, start date 1964, is to this day one of the biggest Spanish housing projects. In the beginning it was felt to be rather far from the centre, with no rail connections and poor road access. The original plan proposed a suitable distance between housing blocks to facilitate adding green civic spaces and urban equipment, but in the end, only the housing was ever built and in consequence, it ended up not being a very popular place to live.

Les Cotxeres, built in 1964, was from the beginning meant for occupation by middle-class residents, and as such it was one of the first of its kind in Spain. It was close to the city and developed as a succession of interior garden-streets. These pedestrian streets created green

Spain: Madrid, Barcelona, Hospitalet de Llobregat

Figure 2

spaces between staggered façades. They were laid out on a north-south grid to make them sunlit.

In almost all these housing projects, the original residents could not be defined as belonging to the middle class.

Moratalaz in Madrid was a proposal quite unlike any other. Occupied first of all by young people it represented a new middle-class designed to be a self-sufficient, close-knit community with schools, markets, health services... The public association “Obra Sindical del Hogar” planned the construction of 12,000 units across eight neighbourhoods. In 1966, 6181 dwellings were built on top of an orchard area.

Originally the blocks from La Concepcion were built by the private with the aim of relocating people who had been living in a slum in an area where works were being carried out on Paseo de La Castellana. The neighbourhood was planned based on a simple grid of small elongated blocks, between 80 and 100 m in length and about 27-32 m wide. The idea was to build a kind of autonomous community. The high density of the blocks and the proximity of a highway made it difficult later to attract middle-class residents.

The Montbau residential area is an ensemble of 1266 homes laid out in horizontal blocks; 960 in “L”-shaped horizontal blocks, 9 towers and the rest in single-family homes. A volumetric interplay is created with the blocks of different heights and shapes. Nowadays it has become, little by little, a more attractive location for middle-class people, due not only to the strategic site location but to the excellent urban design and apartment design, while showing sensitivity to sustainability issues such as green areas, ventilation and natural light.

In the original Caño Roto mass plan, buildings were laid out north, south, east and west at adequate distance from each other, so

that everyone could enjoy optimal air and natural light conditions. The architects designed eleven types of residential accommodation based on three basic prototypes: the two-story house with its own patio, the one-story apartment with cross ventilation, and the duplex. Caño Roto offered housing tailored to the different needs of its inhabitants. The residents were people with limited resources but who were willing to make improvements to their home with the aim of "paying through your work". But even with the quality of the initial concept, or perhaps due to the lack of services, the place continues to be a quite dangerous place to live, for the working/ underprivileged classes.

In Bellvitge, the estate is made up of long and narrow linear parallel blocks of variable length depending on their location. These blocks are made up of modules consisting of a vertical circulation core that provides access to two housing units per floor; each unit is 8.8m x 8.04m. Blocks vary between 4 and 13 modules. All the blocks have good solar exposure. The distance between blocks and the presence of green spaces between them grants them good ventilation. In this case the transformation to a more middle-class mix was not easy, but at present, due to its location between Barcelona and the airport, and the huge Hospital ad University next door, the majority of owners are mainly middle class.

The case of Les Cotxeres is quite different. Architect Coderch designed floorplans informed by his experience in designing single-family dwellings, grouping them on the site for added privacy, sunlight exposure and offering pedestrian streets with ample greenery. In 1969 the site was regarded as a little further off the beaten track than it is now, so prices were affordable for middle-class buyers or renters. Now prices have increased, the surroundings are better-equipped, and new owners are increasingly wealthy.

The present state of these MCMH varies on a case-by-case basis. Some of them have stood the test of time. Moratalaz was for many years considered symbolic of a new way of living that was more active, more creative and independent. The spacious and comfortable homes, of modern design, were integrated into blocks of between four and twelve floors, around small green squares. All the rooms of the units opened directly onto the exterior, the living rooms having terraces but no interior courtyards. Nowadays, the middle-class residents who

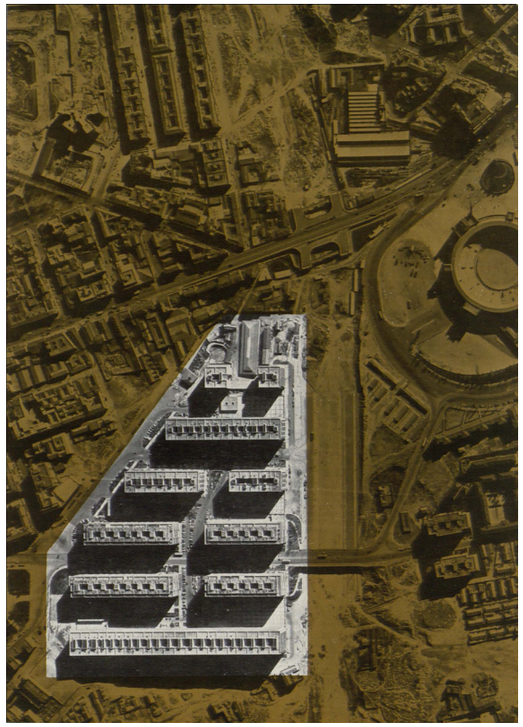

Figure 3

live there are mainly young people, artist and students.

Montbau is also an excellent example of the combination of interesting planning integrating green spaces, and the location of the site, that even if at the beginning it seemed quite far away, its setting on a mountain slope with the view overlooking the city, made it feel closer than it was. Its residential buildings and amenities have now become part of the urban grid, and its latest residents can be said to belong to middle class.

Les Cotxeres, not only because it was built later but also because was it was located close to residential areas where the middle class used to live, has become a successful example of MCMH. The possibility of parking one's vehicle in the basement, freeing up the internal streets for pedestrians, offer the pleasures of green spaces for people and children that is lacking in the city. At present, the proximity of commercial zones and universities have increased the value of the site and new residents are increasingly monied.

Figure 4

The transformation of Bellvitge into a more middle-class neighbourhood has occurred at a slower pace. At the beginning it was only a dormitory city, rife with drug problems. But since the municipality became aware of the need to improve it not only with road, bus and metro connections, but also offering spaces for services, it has become a very different place. Today it is fully integrated into the urban network, with well-structured access and good public transport. In addition to superior urban planning, Bellvitge has all the necessary amenities to make a good life there: health and sports facilities, places of worship and markets.

Very different are the cases of the La Concepción and Caño roto mass-housing estates. In the case of the first, it is very lively and its residents have a strong sense of belonging, but also still imbued with the spirit of a working-class neighbourhood, with all the problems that might entail Population density is precisely one of them, but nonetheless, it is a place of great vitality for the people who live there. In Caño Roto homes are not regarded as separate units but as part of a continuous fabric of interacting pieces. This form of aggregation creates a feeling of belonging for the community and encourages interaction between neighbours, but conversely, the relationship between the different cultures present has not been so easy and environmental policy has been shown to lack the desire to renovate and maintain.

Changes in housing policy have shown clear differences between these case studies.

The financing for the construction of Moratalaz was provided by the Obra Sindical del Hogar (OSH), the Instituto Nacional de la Vivienda (INV) and Madrid City Council. In 1961 a case was filed against the OSH for all its shortcomings and broken promises.

In La Concepcion the idea of the project was to put on the market a cross between a commuter town and basic social services, incorporating a park of notable size, something

that was unheard of all those years ago.

The residents of Caño Roto were responsible for paying for their own houses. This allowed for a reduction in cost, if owners agreed to compensate by participating in the construction process, and to simple home improvements and maintenance.

The Montbau project was commissioned as a matter of urgency by the *Patronato Municipal de la Vivienda* associated with the Ministry of Housing, in the perceived need to build a fully self-sufficient neighbourhood, called a *núcleo satélite*, as was common to practically all the projects commissioned by public entities at the time.

The urban plan for Bellvitge was part of a Barcelona regional decentralisation programme to build homes for migrants coming from all over Spain. The land for the housing was acquired by a private developer to build subsidised housing, going under the name of Cooperativa de Viviendas Bellvitge.

In Les Cotxeres the municipality sold the site to a private firm Urbanizadora Sarria, including a building firm, Huarte & cia, and a bank, Caja de Ahorros y Monte de Piedad

As for the case studies' maintenance, refurbishment and regeneration, differences can be found across the board.

At first, initial construction works on the Moratalaz building were of poor quality and many repairs had to be made. By the end of 1960, the Plan was restructured to give it more clarity and simplicity. All the buildings have had specific interventions at particular moments, such as improvements to the levels of comfort, accessibility (elevators), changing the boilers, etc.

Initially, the project for La Concepción was only half completed and some streets were not asphalted. Now it is fully incorporated into the city centre. Even if the blocks are linked together, each one belongs to an independent community, so some of them have been totally refurbished while others lack maintenance guidelines and have become an eyesore to the detriment of all.

In Caño Roto, the erratic condition of the structure and the foundations have needed successive repairs over the years, such as to the facades, roofs, problems of accessibility to high-rise homes and all the technical installations. Between 2008 and 2015, several interventions were carried out in Montbau public areas. The pavement of the central square was replaced respecting its original design. Small interventions and improvements have also been made to the access to public areas, the gym and the library.

In Bellvitge the prefabricated structural system is in good condition. The architectural finishes and insulation materials have needed successive repairs and improvements over the years. Basic infrastructures and collective spaces have also been improved. The new district plan implemented in 1974 intended to meet neighbourhood demands, these started to be dealt with: new amenities were added and some of the existing ones renovated.

In Les Cotxeres , brick façades need to be refurbished every 30 years. The major problem is the waterproofing of underground car parks beneath the green spaces. Basic infrastructures have had to be updated.

Conclusion/ Discussion

In the middle of the 1940s, after the Spanish post-war period, the championing of mass social housing became commonplace. Housing usually was built to relocate people left in dire straits after the war and for the working population in general. These ensembles had some structural problems of communications, construction, planning, and so on. But as time has gone by, they have become more comfortable and for nearly all their residents are now quite nice places to live.

In that sense, after taking into consideration all the challenges related to social housing, several key aspects have been found that should be borne in mind before embarking on further planning projects:

Urban integration. Great planning is that which, even if the proposed site was initially natural, or presenting pre-existing architectural challenges, it takes into account the specific use of the land, proximity of public transport, principal and secondary traffic and connections to the city.

Urban and environment Sustainability. Factors that help to improve the sustainability of such projects are the use of local materials and the landscaping of green spaces, either improving what already exists or creating new ones.

Integration of services into the complex. The planning project should include, besides green spaces, educational, cultural and sports facilities and opportunities for shopping locally, to make communities more self-sufficient and engaged. In Caño Roto and Moratalaz the lack of shops at ground-floor level in residential buildings had made living there less dynamic than in La Concepción, for example.

The management of the complex. The administration of that complex, whether public or private, is responsible for keeping buildings in good condition and the design has to allow for flexibility to join or subdivide units, or even to redesign the interior space.

A sense of belonging. Every building project should have a clear identity that is adapted to the setting and the way of life there, bearing in mind the climate and local traditions. It is essential for the residents to feel that they belong to the place they call home.

All these different aspects will permit the "building of a better city" but overall will give people more options to choose where they want to live.

Figures

Cover - Plan de Actuación Urbana. Discrict of Moratalaz, Madrid. © Paz Núñez Martí, 2023

Fig. 1 - Les Cotxeres. © Terradas Robert, 2020.

Fig. 2 - Montbau, © Terradas Robert, 2021.

Fig. 3 - Concepcion neighbourhood expanion. (Source: 'Arquitetura' n.92, 1966).

Fig. 4 - (1976). Viendas Sociales en Madrid (Social Housing in Madrid). Madrid: Ministry of Housing. National Institute of Housing. p. 31.

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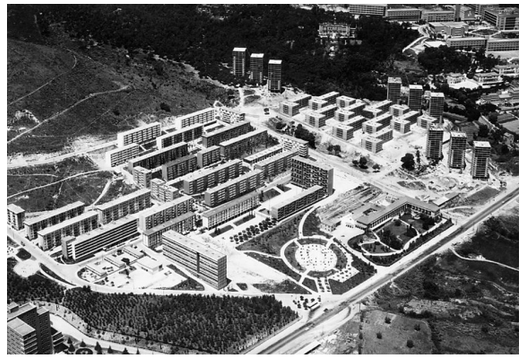
Montbau's Neighbourhood

Spain, Barcelona

Google Earth Image © 2023 Airbus

It is a fully consolidated area in a peripheral neighborhood of Barcelona. Homes distributed in horizontally arranged blocks, in perpendicular blocks and 5 isolated towers. It is a very interesting proposal that makes the most of landscape, with a well oriented layout and green between buildings.

Adress/District	Vall d´Hebron Av., Barcelona		
GPS	41.25523, 2.08348		
Scale of development	Urban plan		
Architectural studio	LIGS architects		
Project author	Pedro López, Xavier Subias, Guillermo Giráldez, Manuel Baldrich, Antoni Bonet i Castellana, Josep Soteras		
Constructors	Cooperatives: Graciense de la Vivienda, La Puntual, Humanitaria de la Guardia Urbana, Congregación Nuestra Señora de la Estrada, La Esperanza, de funcionarios del I.N.P.		
Landscape author	Pedro López-Íñigo, Xavier Subias, Guillermo Giráldez		
Period of construction	beginning: 1956	end: 1957-1968	inauguration: 1960



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URBAN AREA

Location - within in the city	original:	satellite city fringe
	current:	suburbia
Other facilities / availability of amenities	Schools / shops / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / sun oriented paralell rows	
	total area:	15.6 ha
	housing:	50 %
Connectivity | Accessibility	The plan is organized into two sectors with a continuous flow of green spaces between buildings and independence between traffic and pedestrian roads, and good connection with public transport.	
Landscape	Green spaces are used to connect residential buildings and other buildings to each other, and to create spaces for coexistence.	
Open and public space	The sector has been perfectly integrated into the urban network. The free spaces formed by squares and gardens offer spaces for the meeting and decrease the feeling of high density.	current condition: excellent
Quality of living environment	It is an excellent example of integrating green spaces, residential buildings and other facilities into the urban context in which it is inserted. It was conceived in such a way that the inhabitants have access to all the facilities.	
Main Features	Flexibility / diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	One sector with 1.266 homes distributed in horizontally arranged blocks; another with 960 distributed in "L" horizontal blocks and 9 towers and single-family homes on the side of a mountain.	
No. of buildings	108	
No. max. of floors	13	
Average no. floors	5	
Materials | Fabrication	In the construction, the technical innovations of the moment and prefabricated materials were used. The structure was made of reinforced concrete and the walls and facades in prefabricated panels.	
No. of dwellings	2226	
Average dwe. area	80 m^2	
Dwellings' type	one floor	3 rooms
	duplex	2, 3 rooms
Qualitative issues	The complex was built next to a natural park with a central avenue surrounded by green spaces, the configuration of some of its buildings supported by pillars provides excellent ventilation to the sector and takes into consideration the solar orientation, seeking the best thermal comfort.	
Housing density	Number of dwellings per ha:	142

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	Built for low-class people, it has become a place for middle-class people due not only to the strategic site situation but to the excellent urban design and to the apartment design, taking care of sustainability concepts such as vegetation, ventilation and solar orientation.

MASS HOUSING

Massification through: planned process vertical growth **Building's typology:** semi-detached house tower	The massification of the area has been a result of the construction of the neighborhood. It was a low-density, on the periphery of the city which was occupied after the construction of the complex, also causing a densification in the area around the complex.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	It was a project commissioned urgently by the Patronato Municipal de la Vivienda, linked to the Ministry of Housing, for the construction of a fully autonomous neighborhood called "Núcleo Satélite" (Satellite Nucleus), common characteristic of practically all the projects commissioned by public organisms on the date.
Name of specific programmes or funding applied	(1) Patronato Municipal de Vivenda

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	From 2008 to 2015, several interventions were carried out in public areas. It would be desirable to restore the facades of the blocks, which show alterations and visible deterioration.
Urban | building transformation or regeneration	The neighborhood has been built in a low-density environment. Its infrastructure and good connectivity have helped to create a progressive density, being today fully inserted in the urban network of Barcelona.
Intervention scale	Neighbourhood / open and public spaces / collective green spaces
Intervention status details	The pavement of the central square was restored respecting its original appearance. Small interventions and improvements were also made in the access to public areas, in the gym and in the library.

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Poblado Dirigido de Caño Roto

Spain, Madrid

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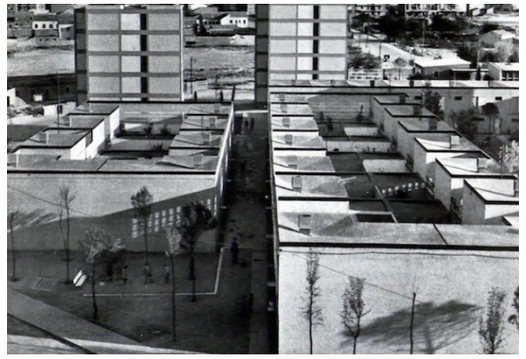
Mixture of different typologies, single family, 4 and 6 levels blocks, 6 levels tower. Building types are organized following cardinal axes in order to allow the best lighting and ventilation conditions for flats. The character given to the ensemble is vernacular for single housing and modern movement language for blocks.

Adress/District	Calle de Gallur, Madrid		
GPS	40.397155, -3.740114		
Scale of development	District		
Architectural studio	José Luis Iñiguez de Onzoño, Antonio Vázquez de Castro		
Project author	José Luis Iñiguez de Onzoño, Antonio Vázquez de Castro		
Constructors	Land urbanization, design, technical plans and financing in charge of official institutions		
Landscape author	Sculptor Angel Ferran designed playgrounds.		
Period of construction	beginning: 1959	end: 1963	inauguration: 1956-1959 (1st phase) 1959-1963 (2nd phase)



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URBAN AREA

Location - within in the city	original:	city fringe
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure / libraries	
Location - position of buildings	Perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Villa park / sun oriented paralell rows / free-standing objects	
	total area:	14 ha
	housing:	34 %
Connectivity | Accessibility	The town is structured through a network of traffic streets which delimits five housing blocks. There is outdoor parking on the edge of these blocks. That prevents cars on the inside. Therefore a short walking tour is required to access the house.	
Landscape	The way in which urbanism is conceived in Caño Roto is closely linked to the Mediterranean tradition.	
Open and public space	The houses are not perceived as autonomous elements but as a continuous fabric of interacting pieces. This form of aggregation creates a feeling of belonging to a community and encourages interaction between neighbors.	current condition: good
Quality of living environment	Almost all of the tallest buildings are on the outside line of the blocks. By concentrating low-rise buildings inside, they can be brought closer together without generating sunlight problems. Height corrects the feeling of being recruited.	
Main Features	Flexibility	

RESIDENTIAL AREA

Residential buildings	The architects designed eleven types of residential generated from three basic prototypes: the two-story house with its own patio, the one-story apartment with cross ventilation and the duplex.	
No. of buildings	94	
No. max. of floors	4	
Average no. floors	2	
Materials | Fabrication	The structure is mainly load-bearing walls. The main material is silicon-limestone brick in order to reduce the cost as much as possible. The horizontal divisions of the different types of buildings are mostly solved using concrete joist and vaults.	
No. of dwellings	1600	
Average dwe. area	65 to 85 m^2	
Dwellings' type	one floor	3 rooms
	duplex	–
Qualitative issues	The buildings are positioned following the cardinal axes without interfering with each other so that everyone could enjoy optimal ventilation and lighting conditions.	
Housing density	Number of dwellings per ha:	114.3

MIDDLE-CLASS

Original dwellers class: others	Caño Roto offers housing adjusted to the different possibilities of its inhabitants.
Current dwellers class: lower middle-class	

MASS HOUSING

Massification through: planned process	It is made up of several four-storey residential blocks, an institute and a health center. In addition, we observe that the size, proportion and layout of the buildings on the plot all respond to the common goal of configuring a unitary urban entity.
Building's typology: block	

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The inhabitants were responsible for paying the plots, the fees for the project technicians, part of some materials and labor. This type of towns allowed to substitute the payment of some of these concepts with the contribution of work in the tasks of the technically simpler constructions, so that the future inhabitants participated in the construction of their houses.
Name of specific programmes or funding applied	(1) O.S.H

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The condition of the structure and the foundation have required successive repairs over the years. Like the facades, roofs, poor accessibility to high-rise homes and all the installations.
Urban | building transformation or regeneration	1606 homes were defined: 1004 collective and 602 single-family. Subsequently, the nucleus was expanded with the construction of 301 higher-quality homes and a high-capacity school.
Intervention scale	Community improvement
Intervention status details	The most important comprehensive rehabilitation was in 1996 and 1977, achieving its maximum adaptation to the regulations at a time for new construction.

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La Concepción

Spain, Madrid

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The idea of the project was a hybrid between a dormitory city and basic social facilities, incorporating a park with notable dimensions, something new in those years.
It was built in two phases, the second was an extension of the Concepción neighborhood with a facade to the M-30.

Adress/District	Av. Donostiarra, C. Virgen del Val, C. de Manipa, 28027 Madrid		
GPS	40.438536, -3.650397		
Scale of development	District		
Project author	Joseph's company Banús		
Developers	Bansa / José Banús		
Landscape author	Joseph's company Banús		
Period of construction	beginning: 1953	end: 1965	inauguration: 1966

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure / police station	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows	
	total area:	88.58 ha
	housing:	56 %
Connectivity | Accessibility	La Concepción is communicated by the metro entrance belonging to Line 7 of the Madrid Metro system. It is also communicated by many bus lines. This neighborhood is surrounded by the roads of the M-30 and very close to the A-2.	
Landscape	The streets, all of road traffic, are narrow, about 12 m with small treeless sidewalks and parking on both sides.	
Open and public space	With areas of forest and playground with an outdoor auditorium for concerts and film projections in summer, it is a place full of life and pleasant for the people of the neighborhood.	current condition: good
Quality of living environment	The neighborhood consists of several markets, leisure centers, parks, green areas and a sports center. In addition, the largest mosque in Europe is located. La Concepción has a very cosmopolitan atmosphere.	
Main Features	Flexibility / combining different uses	

RESIDENTIAL AREA

Residential buildings	The organization of the neighborhood responds to a simple grid that defines small elongated blocks, between 80 and 100 m in length and about 27-32 m in width. The building element is a simple narrow block with a central stairwell.	
No. of buildings	10	
No. max. of floors	16	
Average no. floors	16	
Materials | Fabrication	It does not respond to any particular architectural style. They may resemble brutalist architecture, but they lack exposed concrete. Were used exposed brick walls and concrete beams.	
No. of dwellings	8848	
Average dwe. area	50 m^2	
Dwellings' type	one floor	3, 4, +5 rooms
Qualitative issues	The idea was to achieve the concept of an autonomous city, there was no need to go shopping in other neighborhoods, and the most important one, you could go on foot. This was achieved and has given the neighborhood a very cosmopolitan atmosphere.	
Housing density	Number of dwellings per ha:	95.78

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** others	The blocks were built in the 1950s with the aim of relocating those excluded who had their shanty town in an area where works were to be carried out on Paseo de La Castellana.

MASS HOUSING

Massification through: horizontal growth **Building's typology:** row-housing	The economic module assigned per piece was very small so the architects realized that the cheapest way to build was by thinking of the straight and concise linear block as the shortest distance between two points. More at a lower price, even if it may cost user's own well-being.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	The idea of the project was to put up for sale a hybrid between a dormitory town and basic social facilities, incorporating a park of notable dimensions, something novel in those years. But the most important problems were the communication with the capital. Joseph's company Banús put into operation its own bus line.
Name of specific programmes or funding applied	(1) 1946 General planning plan for Madrid, the Bigador plan

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Brick façades have to be refurbished every 30 years. The major problem is the waterproofing of parking underneath green spaces. Basic infrastructures had to be updated.
Urban | building transformation or regeneration	Initially the surroundings where half built, and some streets not asphalted. Now it is fully incorporated to the city centre, prices have increased a lot and owners are high class.
Intervention scale	Neighbourhood / community improvement / open and public spaces
Intervention status details	Even if blocks are linked together, each one owner form an independent community, so some of them are totally refurbished but others lack of conservation policies and spoil the ensemble.

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BELLVITGE

Spain, Hospitalet de Llobregat

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It is the largest housing ensemble built in Spain promoted by the state to house immigration between 1964-1975. The 9,780 homes are distributed in repetitive linear blocks, among which are located facilities, parking and garden areas, which soften the high density of the complex and allow good ventilation and isolation.

Adress/District	Between América Av, Industrial st, Mare de Deu de Bellvitge Av. and Gran Vía de Hospitalet Av.		
GPS	41.353780, 2.111512		
Scale of development	Urban plan		
Project author	Juan Salich Sintas, Antoni Perpiñà Sebrià, Xavier Busquets Sindreu		
Developers	Inmobiliaria Ciudad Condal SA / ORTESA and Inmobiliaria Lamaro		
Landscape author	Juan Salich Sintas		
Period of construction	beginning: 1964	end: 1975	inauguration: 1965

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URBAN AREA

Location - within in the city	original:	satellite
	current:	city fringe
Other facilities / availability of amenities	Health / market / sports / religious / residence for the elderly	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Sun oriented paralell rows	
	total area:	61.5 ha
	housing:	20 %
Connectivity | Accessibility	Initially it was far from the center, without rail connections and poor road connections. Today it is fully integrated into the urban network, with well-structured access and good public transport.	
Landscape	The original plan proposed a suitable distance between blocks to allow the creation of green civic spaces for the neighbors.	
Open and public space	The ensemble is fully integrated into the urban environment. Green zones and squares create spaces for neighbors to meet, and the central pedestrian street links the neighborhood to the city center.	current condition: excellent
Quality of living environment	The positive evolution that the polygon has had with the implementation of road connections and different facilities makes the sector self-sufficient and a neighborhood full of life and constant activity. Neighbors have been fighting to avoid plans for increasing density. They have a strong sense of belonging.	
Main Features	Flexibility / diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	Dwellings in the blocks are 60sqm with 3 bedrooms. Dwellings in the towers have 100sqm and 4 rooms. The first built block had no terraces, added in the following blocks.	
No. of buildings	76	
No. max. of floors	18	
Average no. floors	14	
Materials | Fabrication	The blocks were built using a prefabricated end-wall system, with load-bearing walls in the stair nucleus and metal carpentry. Insulation was not achieved, but it has been added after renovation.	
No. of dwellings	9780	
Average dwe. area	64 m²	
Dwellings' type	one floor	3, 4 rooms
Qualitative issues	All the blocks are arranged in parallel and have good solar orientation. The distance between blocks and the presence of green spaces between them allows good ventilation. Insulation has been added.	
Housing density	Number of dwellings per ha:	159

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	It was built for working class, but after improvements in urban space, facilities and access, and thanks to its location between Barcelona, Hospitalet and the airport, owners are middle class.

MASS HOUSING

Massification through: planned process **Building's typology:** element's repetition	The sector is made up of long and narrow linear parallel blocks of variable length depending on their situation. These blocks are made up of 8.8m modules formed by a vertical circulation core that gives access to two houses per floor, and the blocks vary between 3 and 13 modules.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Barcelona quick industrialization in the sixties, produced Bellvitge Urban Planning as a part of a Barcelona territorial decentralization programs to build dwellings for migrants coming from all over Spain. The land for housing was acquired by a private developer to execute subsidized housing, under the name of Cooperativa de Viviendas Bellvitge.
Name of specific programmes or funding applied	(1) Cooperativa de Viviendas Bellvitge

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The prefabricated structural system is in good condition. The architectural finishes and insulation materials have needed successive repairs and improvements over the years. Basic infrastructures and collective spaces have improved.
Urban | building transformation or regeneration	At first, only dwellings were built and the planned density increased. After many protests, the construction of new houses was prohibited and the neighborhood was equipped with all the planned equipment.
Intervention scale	Neighbourhood
Intervention status details	With the research and the new district plan supporting the neighborhood demands, from 1974 the first achievements emerged: new facilities were built and some of the existing ones were preserved.

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Les Cotxeres

Spain, Barcelona

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The main idea of the project was to build 400 flats, without interior patios, distributed in 15 jagged ensembles with vegetation between them. The parking was planned underneath. Situated half way between the city centre and the University. The cost of the flats was suitable for middle class owners.

Adress/District	Manuel Girona Street 55-75 / Francisco Carbonell street Sarrià - Sant Gervasi		
GPS	41.23337, 2.07398		
Scale of development	Urban plan		
Project author	Josep Antoni Coderch		
Developers	Huarte y Cia. S.A.		
Landscape author	Josep Antoni Coderch		
Period of construction	beginning: 1969	end: 1973	inauguration: 1973

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city centre
Other facilities / availability of amenities	Children playground / offices	
Location - position of buildings	Perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Free-standing objects	
	total area:	3.47 ha
	housing:	32 %
Connectivity | Accessibility	Well connected for services; also by public transport, tube and bus. It has pedestrian green space in the middle and connected by cyclists' network and surrounded by all services.	
Landscape	Pedestrian streets create green spaces between staggering façades. They are layed out in a north-south direction to make them sunlit.	
Open and public space	Parking, refuse, and services areas are accommodate in the basement, thereby making the exterior streets real green areas and parks for children. These places are for private use.	current condition: excellent
Quality of living environment	The dwellings do not have inner courtyards, so all the rooms open to the green environment that identifies the proposal and make it recognizably in the city.	
Main Features	Diversity / readability	

RESIDENTIAL AREA

Residential buildings	Dwellings do not have inner courtyards; exterior pedestrian streets are real green areas for children. The proposal is less expensive in terms of construction with best use of the site.	
No. of buildings	15	
No. max. of floors	6	
Average no. floors	6	
Materials | Fabrication	The exterior brick work of buildings constitutes a profuse reference language that was imitate all over the city. Concrete structure; standardization and repetition of materials and windows to reduce cost.	
No. of dwellings	360	
Average dwe. area	100 m^2	
Dwellings' type	one floor	3 rooms
Qualitative issues	Coderch designed floor plans transforming his experience in the design of single-family dwellings, grouping them in the site, to achieve, privacy, sunlight and pedestrian gardens with vegetation.	
Housing density	Number of dwellings per ha:	103.7

MIDDLE-CLASS

Original dwellers class: others **Current dwellers class:** middle-class	In 1969 the site was a little far away from the centre, prices were affordable for middle class owners. Now prices have increased, situation improved, and owners are upper class.

MASS HOUSING

Massification through: planned process **Building's typology:** block	In 1965 Antonio Bonet completed his plan to develop a "superblock" in that area: tree 18 storey blocks combined with small buildings. In 1968 Coderch changes it to achieve massification by linking together 6 storey buildings of four apartments per floor, with staggering façades to get ventilation for all rooms.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	The site belonged to the municipality Transports of Barcelona who sold the site to a private firm Urbanizadora Sarria, including a building firm Huarte & cia and a bank Caja de Ahorros y Monte de Piedad. First A. Bonet and then Coderch were asked to develop the housing project.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Brick façades have to be refurbished every 30 years. The major problem is the waterproofing of parking underneath green spaces. Basic infrastructures had to be updated.
Urban | building transformation or regeneration	Initially the surroundings where half built, and some streets not asphalted. Now it is fully incorporated to the city centre, prices have increased a lot and owners are high class.
Intervention scale	Neighbourhood
Intervention status details	Even if blocks are linked together, each one owner form an independent community, so some of them are totally refurbished but others lack of conservation policies and spoil the ensemble.

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Plan de Actuación Urbana. District of Moratalaz

Spain, Madrid

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Madrid Municipality planned to design a new neighborhood but only did the urban design, sewerage lighting and pavements. Later housing was developed by private financing, proposing the mixture of middle- and working-class owners. Modern and comfortable dwellings of 4 and 12 levels with gardens and pergolas and playgrounds in-between.

Adress/District	District at the south-east of Madrid. It includes 6 neighbourhoods: Pavones, Horcajo, Marroquina, Media Lengua, Fontarrón and Vinateros		
GPS	40.24288, 3.39228		
Scale of development	District		
Project author	Dominguez Salazar		
Constructors	Madrid Municipality / National Institute of Housing / Urbis and Banesto bank		
Landscape author	Jose Antonio Dominguez Salazar		
Period of construction	beginning: 1950	end: 1960	inauguration: 1966

© (1976). Viendas Sociales en Madrid (Social Housing in Madrid). Madrid: Ministry of Housing. National Institute of Housing. p.32

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URBAN AREA

Location - within in the city	original:	satellite
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure / cultural center	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / sun oriented paralell rows	
	total area:	634 ha
	housing:	52 %
Connectivity | Accessibility	Initially bad connected but with interior roads and pedestrian streets. Now well connected with the center by 4 highways, underground, train and bus. Fully integrated as a part of Madrid.	
Landscape	Originally the site was an orchard area, completely flat. This fact made having green spaces easy, but there were not particularly interesting views.	
Open and public space	High-quality urban design was planned from the beginning. Pergolas link buildings to collective spaces and small gardens. Roads separated from pedestrian walks. Parks, green spaces and playgrounds between buildings that ensure attractive environment.	current condition: excellent
Quality of living environment	Mixture of social classes, a lot of young people living there define the ensemble as an active and independent place. Plenty of social events take place along the year. Diversity combining different uses.	
Main Features	Diversity	

RESIDENTIAL AREA

Residential buildings	Spacious, comfortable homes with a modern design integrated in blocks of four and twelve floors, around small green squares.	
No. of buildings	250	
No. max. of floors	12	
Average no. floors	7	
Materials | Fabrication	The structure of the buildings was made of brick that made up all the facades and the cores of the stairs and elevators; the beams were concrete.	
No. of dwellings	12000	
Average dwe. area	80 m²	
Dwellings' type	one floor	3, 4 rooms
Qualitative issues	All the rooms of dwellings open directly to the exterior. There are no patios. All the living rooms have terraces.	
Housing density	Number of dwellings per ha:	18.9

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Inhabited initially by young people. A new middle class that was already defining itself with peculiar characters, Moratalaz was for many years the symbol of a life of new concepts, more active, more creative and independent.

MASS HOUSING

Massification through: planned process **Building's typology:** block	The original proposal, between 1950 and 1960 was oriented to create a self-sufficient place. The public organization "Obra Sindical del Hogar" planned the construction of 12.000 dwellings organized in eight neighborhoods. In 1966, 6181 dwellings were built in an orchard area with all the services.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** –	In 1961 there is a claim against the OSH for all the deficiencies and unfulfilled promises since they said that it had to be built first and then urbanized
Name of specific programmes or funding applied	(1) Obra Sindical del Hogar (2) Instituto Nacional de la Vivienda y Ayuntamiento de Madrid

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	At first, the building was of poor quality and many repairs had to be made (for example: the first houses had dampness and cracks). These houses are currently in good condition.
Urban | building transformation or regeneration	At the end of 1960, the Parcil Plan project was restructured to give it more clarity and simplicity. It is a more effective assessment of humanism, a greater care towards the real needs of coexistence and integration, above the impositions of a purely technical nature.
Intervention scale	Neighbourhood
Intervention status details	All the buildings have had specific interventions at different moment, such as improving comfort, accessibility (elevators), changing boilers, etc.

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Switzerland

Zurich, Aarau

Jennifer Duyne Barenstein
Susanne Schindler
Tino Schlinzig

Switzerland: a country of middle-class tenants

Switzerland's housing policies, decentralized governance, and planning constraints explain why its middle-class housing consists predominantly of privately constructed rental housing. Policies and financial instruments to stimulate the construction of housing exist primarily at local level and vary significantly across the country. In some of Switzerland's urban areas, non-profit and non-commodifiable housing cooperatives play an important role in the provision of affordable middle-class housing of high quality and architectural distinction.

The context

Switzerland is a small and by all standards wealthy country with a population of about 9 million people. 84.8% of its inhabitants live in areas classified as urban. It is a country of tenants with the lowest homeownership rate in Europe. Currently only about 44.3% of the population own the dwelling in which they reside. However, there are significant differences in the homeownership rates between urban and rural areas; while in several predominantly rural cantons more than 50% of the households own the dwelling in which they live, the highly urbanised cantons of Geneva and Basel-City, for example, have homeownership rates of only 17.5% and 14.9% respectively. In the canton of Zurich 27.6% of the households are homeowners, but in its capital city over 90% are renters (FSO 2021). This situation may be explained by the steep housing prices, a culture of renting, and by the fact that condominium ownership was introduced by law only 53 years ago.

Currently Switzerland counts close to 1.8 million residential buildings and 4.74 million dwellings (FSO 2021). Only 18.7% were built before 1919, 42.1% between 1913 and 1980, and 39% in the past 40 years. Privately-owned detached single-family houses prevail in sub-urban and rural areas; 23% of Switzerland's inhabitants live in this housing typology and another 11.2% in a semi-detached house or row house. The majority of the rental housing stock in cities consists of rather small apartment buildings. In fact, 37% of the country's inhabitants live in apartment buildings with less than 10 units and 25% in larger ones. Apartment buildings are primarily owned by private individuals and to a lesser degree by private companies and pension funds. Public rental housing and non-profit housing owned either by cooperatives or by public and private foundations, account for a significant category of owners in some cities, but play a relatively marginal role at a national level. 63% of multi-family buildings were built before 1980 (FSO 2021).

Switzerland's housing policies

Switzerland's housing policies cannot be understood without having a closer look at its federal political system and at the division of competences between its central government, 26 cantons, and 2,929 municipalities. These three levels of government cooperate vertically and horizontally with cantons and municipalities enjoying a high degree of autonomy.

Housing policies can be divided into two distinct areas: the regulation of tenancy matters and the stimulation of housing construction (Cuennet et al. 2002). Housing demand-side subsidies are widely diffused all over Switzerland. They fall under the domain of social welfare policies and households' entitlements are based strictly on their income. Supply-side subsidies intended for the stimulation and support of housing construction are considered a shared responsibility of all three layers of government.

Federal housing policies are rather weak and financial support funnelled to the supply of housing in the form of loans or grants has only been sporadic, never contributing to the financing of more than 10% of dwellings constructed in a year (Cuennet et al 2002: 23). It was only in 1974 that a first federal housing law was passed. The «Law Encouraging Housing Construction and Accession to Home Ownership» introduced a combination of mortgage guarantees and repayable loans to cover the gap between actual construction costs and initial rents.

Figure 1

These subsidies were intended to boost housing construction in a period of shortage. In 2001, as a result of the decline in rental and housing prices in the 1990s, these instruments were suspended and for the next two years there was no housing policy at federal level (Counnet et al 2002).

In 2003, the federal government passed the «Housing Support Act» with the aim of supporting the housing supply for lower income households and to foster access to homeownership for the middle classes. The Act details three financial instruments to attain these goals: (i) direct support for non-profit housing organisations through loans with reduced or no interest rates; (ii) direct support of owner-occupied housing through loans with reduced or no interest rates; (iii) indirect support for non-profit housing organisations. The public sector provides indirect support in three ways: first, by providing a revolving fund (*fonds de roulement*) for the operating capital, second by guaranteeing bonds issued by the umbrella organisation of all non-profit housing organisations (*Emissionszentrale für gemeinnützige Wohnbauträger*), and third, by supporting mortgage bond cooperatives.

However, the same year the direct support to non-profit housing was suspended following the federal budget relief programme. Ever since then, only the above-mentioned indirect support measures have been in place at federal level (Duyne & Koch 2023).

Generally speaking, the engagement of cantons in the housing sector is very limited. In fact, only nine out of 26 cantons have adopted measures to support the construction of affordable housing. The limited role of cantons in supporting the supply of affordable housing may be explained by the fact that even though housing politics are not completely absent at the cantonal level, a survey of cantonal votes suggest that struggles over construction of housing and the provision of affordable homes are rarely addressed at the cantonal level (Koch 2021).

In the absence of effective federal or cantonal housing policies, the main political agent in the housing sector was and continues to be the municipality. Most large cities in the German- and French-speaking parts of Switzerland rely primarily on housing cooperatives for the provision of affordable middle-class housing.

Even though public housing schemes exist in most cities, they only play a tangible role in Zurich and generally are targeted to lower income groups exclusively. A significant degree of variation in the type and degree of provided support can be noted across the country's major cities. In their study covering five cities, Balmer and Gerber (2017) found that all support to some degree non-profit housing organisations and that for over a decade this support has been gradually increasing. Several cities offer financial support to gain access to land and further provide technical assistance for the development of projects to specific housing cooperatives. However, the main support in all cities consists in facilitating access to public land for housing construction, which is generally leased to cooperatives for periods ranging from 60 to 90 years. But to which extent this instrument is used and has an impact on rent levels varies. The City and the Canton of Zurich use the instrument most extensively; 11,000 cooperative apartments making up 15-16% of the total number of apartments in the canton are built on land obtained on a lease from their municipality (WBG Zurich 2021: 5).

Middle-class housing patterns

For the purposes of this article, by middle class we refer to middle-income households. The Swiss Federal Statistical Office (FSO 2020) defines middle-income households as those having an income between 70% and 150% of the Swiss median income. Based on this definition and other data compiled by the FSO, 56.6% of Swiss households may be defined as middle class. According to the FSO statistics 60% of the middle class live in a rented apartment. The quality of the rental housing stock is generally good and over 95% of the middle class is satisfied with their housing conditions. However, almost 10% of the middle class live in apartments with a humidity problem and 8.6% in overcrowded apartments, as per the Eurostat definition. Even though in the major Swiss cities there is a growing shortage of affordable housing, on average only 12.8% of the Swiss population and 6.6% of middle-income households spend more than 40% of their income on housing. In fact, housing affordability problems primary affects low-income households amongst whom 38% spend over 40% of their income on housing.

The role of housing cooperatives in the provision of middle-class housing

Housing cooperatives play an important role in the provision of affordable apartments for the middle classes in Switzerland's main cities. Housing cooperatives are non-profit organisations providing rental housing to their members. They apply cost rents, meaning that rents are calculated to cover the investment and operational costs without requiring direct subsidy. Cost rents are calculated independently of household income; Swiss cooperative housing is thus not considered social housing. The cooperative housing stock is non-commodifiable and accordingly permanently withdrawn from market speculation. Out of the approximately 170,200 apartments owned by housing cooperatives, 55% are located in the ten largest Swiss cities and 25% in Zurich alone (FOH 2018). In fact, at a national level, cooperatives only account for 8% of the total rental housing stock.

Housing cooperatives in Switzerland emerged in a context of rapid urbanisation in the late 19th century, when industrialisation led to a massive influx of labourers. Highly speculative tenement housing resulted in precarious living conditions for the impoverished working classes. In the late 19th century, these became the principal cause of political turmoil (Duyne & Koch 2023). In this political juncture, housing cooperatives emerged as a heterogeneous group of organisations aiming to provide housing for the working class and the poor. Their shared goal was to counter the speculative housing market by producing dignified homes for communities based on solidarity and mutual help (Kurz 2021). Over the last decades Switzerland's socioeconomic structure changed significantly with the working classes gradually becoming middle-class. Accordingly, housing cooperatives are today inhabited by a varied social mix of people, including middle classes (Duyne & Koch 2022).

Over the years the development and role of housing cooperatives have been discontinuous. With reference to Zurich, in the period between

1895 and 1919 housing cooperatives built around 1000 apartments which made up around 4% percent of the entire housing construction. In the following thirty years housing cooperatives built one out of three apartments, reaching an all-time record in 1948 with the construction of 1800 apartments. This surge was made possible by short-lived, war-related direct federal funding for housing (Müller 2021). Also in Switzerland housing cooperatives played a significant role after each war, but lost their importance in the 1970s. In fact, from the late 1970s up the mid-1990s, the cooperative production of apartments rarely exceeded 10% of the total of apartment production. Over the last 25 years they regained traction and currently account for the construction of 1 out of every 4 new apartments (Duyne et al. 2021).

When we look at the present landscape of housing cooperatives in Zurich, we find a great variety of organisations with different sizes (ranging from less than ten dwellings to over 5,000), historical and political backgrounds, organisational practices, social bases, values, and ways of collective living. In particular in Zurich, housing cooperatives re-emerged as an important social movement in recent years, playing a leading role in the promotion of innovative architectural and urban solutions which provide sustainable, affordable and socially inclusive housing and neighbourhoods (Boudet 2017). In fact, not only are the most recent housing cooperatives of an outstanding architectural and ecological quality, but by giving emphasis to communal services and spaces and to low-energy consumption lifestyles, they are actively fostering social cohesion and sustainable development (Kockelkorn & Schindler 2024). Housing cooperatives offer apartments that are of good quality and with average rents 20% lower than private rental units.

The influence of the garden city movement on cooperatives' post-war housing stock

Given its ideological and historical origins, Swiss cooperative housing has been closely identified with the idea of the *Siedlung* (neighbourhood unit), which sought to provide standardised homes in low-rise buildings for traditional families, set within generous and well-connected green spaces and equipped with basic amenities. These were built mainly on the urban periphery on former agricultural land. Stylistically, many early developments subscribed to the traditionalist vernacular *Heimatstil* (homeland) style. With Zürich's Neubühl project of 1932, modernist design ideals came to the cooperative movement. The project was sponsored by the Swiss Werkbund, an association of industrialists, designers, and architects dedicated to rationalised and modern design principles. As of the early 1940s, however, most cooperative *Siedlungen*, in particular in Zurich's newly urbanising Schwamendingen district—as exemplified by our first case study—were designed using a conventional architectural language (Kurz 2021).

While many of these cooperative projects are referred to as garden cities, it is important to note that given Switzerland's weak centralised planning powers, no economically independent new towns as originally envisioned by Ebenezer Howard were built (Eisinger 2004). In fact, Switzerland's first planning law was made constitutionally possible only in 1969, and was enacted ten years later, in 1979. As a result, the scale and development model of post-war middle-class housing is distinct from what is commonly associated with this category elsewhere in Europe. The various layers of government have generally played only an indirect role in both planning and financing new housing, seeing their role in creating favourable lending conditions by providing loans or through tax incentives such as a mortgage interest deduction, rather than as direct housing suppliers.

Private developers have thus historically assumed roles elsewhere taken on by the public sector. Indeed, as pointed out by Julie Lawson, the Swiss housing system and the strong differences across cantons and between urban and rural areas are the result of housing policies that "emerged from a unique welfare regime which incorporates both liberal and conservative traits" (Lawson 2009: 46). The most well-known for-profit private developer of middle-class housing in Switzerland is the company Ernst Göhner AG (figure 2), which until the mid-1970s built new estates throughout the country in industrialised, prefabricated concrete (Furter & Schoeck-Ritschard 2013). Another striking example is the "Gäbelbach" housing estate in

Switzerland: Zurich, Aarau

Figure 2

Bern-Bethlehem (cover image), a large panel construction built by the Swiss construction company Element AG between 1965 and 1968. It is located on the slope of the Gäbelbach valley and consists of three almost identical long and high slab-type buildings with a total of 860 1.5 to 6.5 room apartments for 3,000 inhabitants, as well as a community centre. It is considered the most important contiguous post-war housing estate in the German-speaking part of Switzerland (Schröter 2022: 46f.).

Institutional developers including pension funds have also assumed important roles in developing and managing middle class rental housing. Our second case study, the Telli development in Aarau—four parallel, long slabs in a bucolic setting along a river—is a prime example of such a privately-funded and managed project. While it may look like publicly-developed housing elsewhere, its scale and development model make it distinctly Swiss.

Figures

Cover - “Gäbelbach” housing estate, Element AG, Bern-Bethlehem, 1965-1968, ©Oliver Marc Hänni, 2022.

Fig. 1 - “Kalkbreite” housing cooperative, Zürich, 2012-2014, ©Volker Schopp, 2014.

Fig. 2 - “Langgrüt” housing estate, Ernst Göhner AG, Zürich-Albisrieden, 1970-1972, ©Oliver Marc Hänni, 2022.

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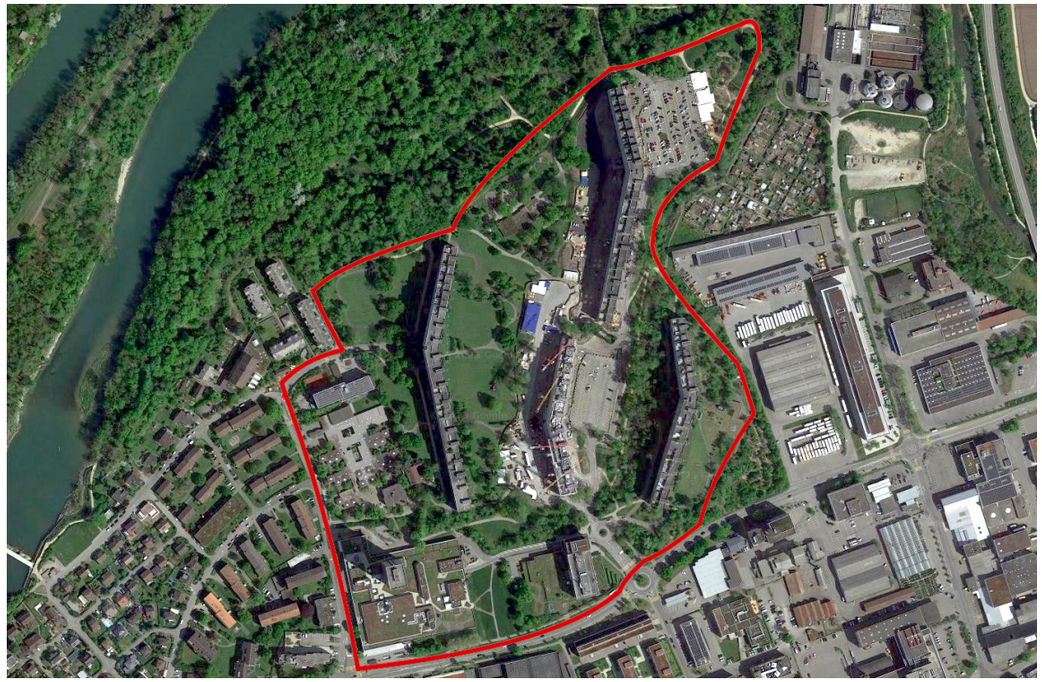
Telli

Switzerland, Aarau



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The privately developed Telli residential complex is located to the northeast of the town Aarau. It consists of four different sized elongated buildings (A-D) with up to 19 storeys and a shopping center with a high-rise office building. Construction started in 1971 (complex A) and was completed in 1991 (complex D).

Adress/District	Rütmattstrasse 1–17 Delfterstrasse 21–44, Neuenburgerstrasse 1–12, 5004 Aarau		
GPS	47.24020, 8.03352		
Scale of development	District		
Architectural Studio	Marti + Kast, Zurich / Meili, Peter & Partner, Zurich (2021-2023 renovation) Former dyeing factory Jenny, City of Aarau, Canton Aargau		
Developers Constructors	Horta Holding AG + other three additonal landowners		
Landscape author	Albert Zulauf and Partner, Baden		
Period of construction	beginning: 1971	end: 1991	inauguration: 1973

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©Eveline Althaus, 2018

URBAN AREA

Location - within in the city	original:	satellite
	current:	suburbia
Other facilities / availability of amenities	Schools / health / market / sports / shops / kindergartens	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block / free-standing objects	
	total area:	20 ha
	housing:	100 %
Connectivity | Accessibility	The neighborhood is well connected to the public transport network. Aarau's city center is situated in 15 min walking distance. The open spaces of the building complex are not accessabble for cars and therefore pedestrian and bicycle friendly.	
Landscape	The neighborhood is in close proximity to recreational areas and surrounded by spacious parklands.	
Open and public space	The buildings were planned with generous, green surroundings. The open space of the settlement blends naturally into the floodplain landscape of the nearby river Aare. Complementary public spaces such as playgrounds, zoo, café, and shaded seating areas provide meeting zones for residents.	current condition: good
Quality of living environment	An important contribution to cohesion in the neighborhood is made by the two neighborhood centers, which provide various services for residents, who are very different in terms of their cultural background and age.	
Main Features	Diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	The complex contains 1,258 1- to 5 1/2-room apartments, housing 2,360 residents (2014). From the south and west of the settlement, underground roads provide access to the parking garages. The generously designed entrance areas provide opportunities for encounters.	
No. of buildings	4	
No. max. of floors	27	
Average no. floors	8	
Materials | Fabrication	Standardization of floor designs and prefabricated elements: The facades are partly made of prefabricated sandwich concrete elements. Thanks to the element construction method (building system “Rastel-Granit”), it was possible to avoid complex and cost-intensive scaffolding during construction.	
No. of dwellings	1258	
Average dwe. area	81 m^2	
Dwellings’ type	one floor	3 rooms
Qualitative issues	Despite varying apartment sizes, the typological scope was limited. All apartment have the same size open kitchen. Some of the materials used at the time, such as plastics in the interior finishings, are questionable today.	
Housing density	Number of dwellings per ha:	64

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** low and middle income group	The mix of apartments and the diversified ownership structure are also reflected in the composition of Telli’s residents (one fifth are condominiums, almost two thirds belong to institutional investors, every tenth apartment is owned by the City of Aarau, and 42 are rented out for elderly by Aarau’s housing cooperative ABAU). Between 1990 and 2000, the percentage of the non-Swiss population increased and is higher than the city average.

MASS HOUSING

Massification through: planned process vertical growth **Building’s typology:** high-rise block slab	With the economic boom in the 1950s and 1960s, the population of the City of Aarau increased. After the urban expansion was oriented towards the concept of the garden city, in the example of the Telli housing estate a development towards densification became increasingly apparent.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public-private partnership	These policies have an impact on the social and the spatial dimension on site and an manifest themselves at formal and informal levels. They are aimed at promoting: 1) social mix, 2) family orientation, 3) neighborhood participation, 4) affordable housing, 5) community building and 6) heritage preservation. Each of the policies is connected to local practices and narratives.
Name of specific programmes or funding applied	(1) Institutional investors, Local Citizen’s Association, Housing cooperatives.

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Facades of the 581 block B and C apartments were renovated 2020-2023 – with new windows, better insulated exterior walls and larger balconies. The construction work was carried out in record time of 10 days per four apartments while residents continued to live there.
Urban | building transformation or regeneration	Redesign of the surrounding park with new playground equipment, repaired park furniture and planting was planned in a participatory process with with the residents.
Intervention scale	Neighbourhood / buildings / open and public spaces / collective green spaces / energy efficiency improvements
Intervention status details	Renovation works aimed at energy and architectural improvements has been completed in 2023. The socio-economic composition of the resident population as well as three quarters of the rental contracts have remained unchanged.

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Schwammendinger Dreieck

Switzerland, Zurich

Google Earth Image © Landsat / Copernicus

Typical example of “garden-city” urbanism of the immediate postwar period and the close collaboration between nonprofit cooperatives and the municipality aiming to create middle-class and worker’s housing. The site will be entirely redeveloped by 2040 to achieve higher density, and meet new ecological standards and changing housing needs.

Adress/District	Winterthurerstrasse, Dübendorfer Strasse, Glattwiesenstr., Roswiesenstr., Kronwiesenstr.		
GPS	47.24133, 8.34559		
Scale of development	District		
Architectural studio	Alfred Sauter & Anton Dirlerc with Jakob Kristol / ongoing redevelopment by different firms, including EMI architects		
Developers or Constructors	Baugenossenschaft Glatttal (BGZ), a nonprofit cooperative collaborating with the City of Zurich		
Landscape author	–		
Period of construction	beginning: 1947	end: 1956	inauguration: –

Aerial view, c. 1960, ©Bildarchiv Online, ETH-Bibliothek, LBS_H1-018289

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / market / sports/ shops / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block	
	total area:	c. 40 ha
	housing:	100 %
Connectivity | Accessibility	Well accessed by public transport: 20 minutes from Zurich’s city center by bus, light rail or train. Also well-connected to new developed close sub-centers and Zurich airport.	
Landscape	Characteristic: broad open spaces consisting largely of lawns, a diverse stock of trees, playgrounds and pedestrian paths connecting the spaces between the buildings.	
Open and public space	The majority of buildings are not accessable directly from a vehicular street, but rather from a pedestrian walkway. The neighborhood has an extensive network of sidewalks and open spaces with a high quality of sojourn.	current condition: good
Quality of living environment	The settlement comprises a wide range of open spaces and is easily accessable by walking and cycling rather than by car. The master plan for further development of the settlement calls for a further reduction of car traffic to a minimum.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	The volumes of all buildings is similar: 30 to 60 m in length, 10 m depth. With the exception of a few two-story rowhouses, most buildings are walk-up buildings with two apartments per floor, per stair. All apartments regardless of size have a balcony.	
No. of buildings	74	
No. max. of floors	4	
Average no. floors	3	
Materials | Fabrication	Masonry with stucco exterior and tile roof.	
No. of dwellings	718	
Average dwe. area	60 m²	
Dwellings' type	one floor	3 rooms
Qualitative issues	Cross ventilation in all apartments, no specific solar orientation due to creation of open courtyards. Main issue discussed as a reason for redevelopment (demolition and new construction) is small size of apartments and lack of accessibility.	
Housing density	Number of dwellings per ha:	FAR 0.58; planned: 1.25

MIDDLE-CLASS

Original dwellers class: middle class **Current dwellers class:** middle class	Cooperative housing in Zurich has generally been managed at cost, meaning that rents need to cover expenses without allowing for profit. This implies that people with very low incomes need to rely on subsidy and that there is no upper income limit.

MASS HOUSING

Massification through: planned process **Building's typology:** row-housing slab low slabs	The development was realized as planned in seven phases. It has not undergone any changes. However, substantial transformation and densificiation leading to more and larger apartments planned until 2040.

HOUSING POLICIES

Urban promotion type: public-private partnership **Housing promotion type:** public-private partnership	Zurich's cooperative housing benefits from political support, including priviledged access to land and subsidies. Rather, by municipal ordinance, equity for development is only 6 percent, with the City buying a precentage of shares, allowing for conventional bank loans, with up to 94 % guaranteed by the federal government and the city. No tax benefits since cooperatives must operate at no profit.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	The buildings have been well maintained over the years.
Urban | building transformation or regeneration	The once peripheral district Schwamendingen has been transformed into a strategically located, central site in the north of Zurich. Based on the current zoning plan, more than half of the plots have a high potential for further densification. Accordingly, existing building of the BGZ site "Schwamendinger-Dreieck" will be a replacement between 2017 and 2040.
Intervention scale	Neighbourhood
Intervention status details	A replacement of all buidlings by 2040 to achieve more apartmens (1,000 instead of 718) of a larger average size (90 mq instead of 60 mq), energy efficiency, accessiblity to allow ageing in place.

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The Netherlands

Amsterdam, Rotterdam, Almere

Lidwine Spoormans

Mass Housing in Disguise

Housing construction in the post-WWII Netherlands is characterised by policies and regulations, at national and local level. The tradition of 'volkshuisvesting' which promotes planning for the whole population including the middle class, largely determined the production and allocation of housing through planning policies, subsidy, and tax programmes. In the Dutch context, it is difficult to distinguish 'middle class' by housing typology, ownership or neighbourhood, as middle class is 1) broadly interpreted, 2) housing areas combine different housing types and groups, and 3) the residents' composition of residents' changes over time. Driven by planning and housing policies and influenced by technological and social developments, different housing types emerged over successive periods. This article explains three key periods by outlining the historical context and illustrating with corresponding case studies. In the reconstruction period of the 1950s, industrial mass-housing systems were developed, a clear example of which is the mid-rise Airey housing development in Sloterhof Amsterdam, notable for its façade of concrete tiles. In the late 1960s, technological developments made large high-rise flats possible. The flats in a park-like setting in Ommoord Rotterdam are a clear example of this modern living environment, intended for middle-class families. In the 1970s, an aversion to high-rise and uniformity and more attention to quality and diversity in form and households led to more varied architecture on a human scale. The organically shaped low-rise housing in 'woonerf' De Werven Almere with a diversity of housing types combining tenants and homeowners is indicative of this period. In The Netherlands, large-scale housing projects from successive periods are not always recognisable as mass housing due to the row house as the popular housing type of the middle class.

Mass and Middle class

Both the term 'middle class housing' and the term 'mass housing' are not self-evident in the Dutch housing context. The image of mass housing in high towers or flats does not match the dominant Dutch housing type, which is a terraced house. These terraced houses are a legacy of housing developments in the second half of the 20th century. Although in recent years more multifamily homes were constructed, the suburban lowrise neighbourhood was, and still is, the 'ideal' of the Dutch middle class. After WWII, a series of planning concepts were implemented at a national level: postwar expansion districts (1945-1965), Groeikernen (1965-1985) and Vinex-districts (1995-2005). All three planning programmes consist of massive housing developments, largely low-rise. Middle-class families of successive generations moved into these (once) new neighbourhoods, leaving the old city for 'huisje, boomje, beestje' [house, tree, animal], a Dutch saying meaning the bourgeois life in a house with a garden, children and pets. Although the majority of the Dutch population occupies a single-family home (42% terraced house, 9% semi-detached house, 13% detached house), also 36% of the stock is a multi-family house (CBS open data, retrieved 2023). This article illustrates a low-rise, a mid-rise and a high-rise typology as examples of mass housing for the middle class in the Netherlands.

But who is this middle class? The middle class is a social class, which in the Netherlands is mostly related to income. The name 'Jan Modaal', which has been used since the 1960s, is used to stereotype the 'common man'. The fictional Jan Modaal has a so-called 'modal income', a key concept in income policy to test the impact of policies and regulations. With regard to housing, income is also an important factor. To qualify for social housing (subsidised housing), housing associations work with a nationally-set income limit, which is higher than the modal income. This means that in The Netherlands a large part of the population can live in rental social housing, including the middle class. For decades, the three main political movements in the Netherlands have, each from a different angle, taken government measures to stimulate home ownership. The Liberals did so from the consideration of equal opportunities also in asset

accumulation, the Social Democrats from their vision of the emancipation of the workers and the Christian Democrats from the perspective of family-life values. But although home ownership has grown strongly, from 28% in 1947 to 58% in 2019, the Netherlands lags far behind other European countries (Boelhouwer, 2019).

In terms of ownership, there is no clear definition of middle-class housing, as it can be owner-occupied, private rental, or social rental housing (CBS 2020). Regarding dwelling type or size, there is also no uniform characterisation of middle-class housing. In housing projects, similar houses were often developed for both private sale and social rent. Moreover, the ownership structure of housing estates changed over the years, with social housing being sold to individuals and vice versa. In this article, the cases will show examples of these combinations and dynamics in ownership.

Dutch housing by policy

The housing tradition of The Netherlands can be characterised by social housing and national planning policies. An explicit housing policy was made possible from 1901 onwards with the so-called “Woningwet” [Housing Act], aiming to put an end to unhealthy housing conditions and promoting the construction of good housing. Although the Housing Act made public housing a ‘matter of the State’, it designated municipalities as the first executors. They were then supposed to encourage ‘private initiative’, through municipal loans (made available by the state) to approved housing associations. Housing production did not take off immediately after the Housing Act, but larger numbers of houses were built in the interwar period thanks to state subsidies. For the first time, socialist parties had great political power in many municipal councils. Good housing for workers was their top priority and ‘workers’ palaces’, like ‘Het Schip’ were built in the Amsterdam School-style (Lans, 2016).

A series of ministerial memoranda effectively demonstrate the leading role the national government played in spatial planning in the post-WWII Netherlands. During the period of post-WWII reconstruction, the national government enacted a centrally-managed planning strategy in which the number of houses, materials and construction workers were distributed throughout the country. In the 1950s and 60s, municipal housing companies and many housing associations developed social housing, financed by the state and strictly regulated by detailed standards (Lans, 2016). Besides reconstruction of bombed inner-city sites, housing construction in the post-WWII period took place mainly in expansion districts around existing cities.

In the memorandum ‘The Development of the West of the Country’ (1958) the population of the nation was projected to increase from 11 million people in 1958 to 13.5 million in 1980 (Faber, 1997). This document introduced the concept of *Randstad* to refer to the most densely populated area in the Netherlands. To regulate the problem of overcrowding and congestion, it was proposed to keep buffers open between towns and cities, preserve a central open area, *Groene Hart* (Green Heart). In 1960, the First National Spatial Planning Policy document sketched out an outwardly-focused model for growth for the Randstad around the central open area (Maas, 2012). In the Second National Spatial Planning Policy document of 1966, a new concept was introduced: bundled de-concentration. This was the happy medium between concentration in large metropolises and total de-concentration as urban sprawl. In the Third National Spatial Planning Policy document of 1974, the strategy of bundled de-concentration was elaborated and a series of ‘Groeikern’ (new towns) was introduced. The 1983 memorandum ‘Outline for the urban areas’ included a preference for new developments at shorter distances to the larger cities. Since the Fourth Policy Document on Spatial Planning (1988) (known by its acronym ‘Vinex’), the policy changes to re-urbanisation and new building sites are allocated on the outskirts of cities. The Vinex-districts are built on large-scale development areas designated by the government between 1995 and 2005.

Low-rise, mid-rise and high-rise

Driven by the above-mentioned planning and housing policies and influenced by technical and social developments, different housing types emerged over successive periods. After WWII, production went up, mainly due to technological developments, to solve the housing shortage which led to greater building heights, numbers and repetition of dwelling units. Under pressure from social developments and increasing prosperity, from the 1970s onwards, more attention was paid to individuality, diversity and quality leading to more varied but still massive housing areas. Figure 1 illustrates the post-WWII production of new houses and the most prominent housing type per decade. It shows that housing production accelerated after WWII and peaked in 1970, during the heyday of high-rise flats. After 1970, the dominant housing shifts to low-rise and mid-rise. However, housing production remains quite high. The case studies in this article illustrate examples of the middle three housing types in the diagram.

1950s: Reconstruction

During the period of post-WWII reconstruction, the national government centrally managed planning, by distributing the number of houses, materials and construction workers throughout the country. The shortages of building materials and trained personnel, the high demand for housing and low construction budgets created an environment for the large-scale development of non-traditional residential house building systems. Prefabrication was encouraged by the government by guaranteeing the prefab builders’ market and by reducing certain restrictions which meant that they could build more prefab houses than conventional ones. The development of prefab construction in the Netherlands was

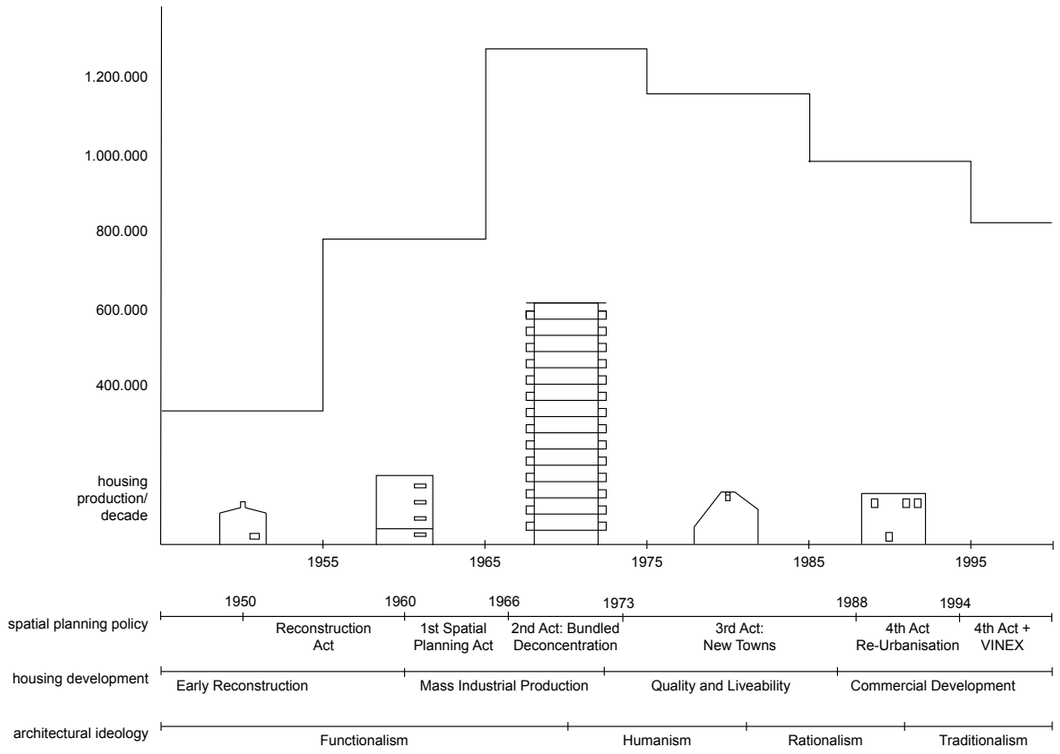

Figure 1

the result of cooperation between structural engineers, manufacturers, architects and builders. In 1946, 18 systems were used in the Netherlands and between 1947 and 1957 this increased to 360 (Elk, 1971).

The 'Wijkgedachte' concept (related to 'neighbourhood unit' in the UK) served as a blueprint for residential neighbourhoods, providing detailed principles for the combination of housing for different households in each neighbourhood unit, as well as the number of amenities and natural spaces in the direct and wider living environment (Bos, 1946). Housing construction in this period was largely carried out by housing corporations and mainly intended for families from the broad middle class.
Case study Sloterhof is an example of the Reconstruction in the 1950s

1960s: Acceleration of industrial construction

In the residential areas of the late 1960s, the standardisation and industrialisation of housing construction had reached maturity. Technical advances made systematic high-rise buildings possible. Moreover, ideas about the high-rise were being embraced with increasing enthusiasm by planners and designers. High-rise construction was seen as a positive aid in the quest for a good life and housing for modern people. A 1963 memo by 'construction minister' Bogaers further encouraged non-traditional building as it would save labour while increasing building capacity. The main innovation were in-situ building systems, where walls and floors of cast concrete were formed in a steel tunnel framework (Elk, 1971). These building systems have the characteristics of 'Open Building' as published by John Habraken in the early 1960s. In Open Building, support and infill are separated. The aim is to give mass-housing residents more choice and control. Residents can be partly responsible for the design of their homes (the infill) and more flexibility in plans is possible.

The high-rise buildings usually consisted of gallery flats of about 12 storeys in long slabs, with the Bijlmermeer in Amsterdam a famous but also notorious example. Flats were built and owned by housing associations, but individual homes were often later sold to private owners. Both the

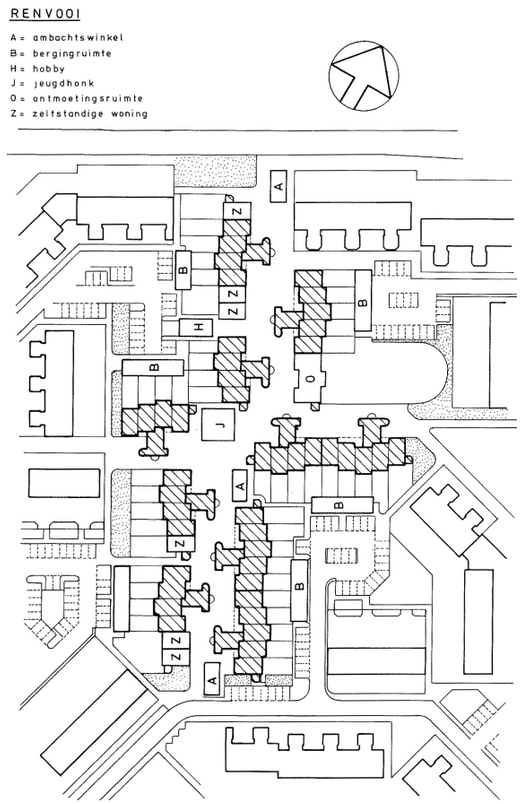

Figure 2

buckled shape of the building and the collective services (such as day care, parking, common rooms) included in the buildings aimed to create social cohesion among residents. What began as a new modern living environment for middle class families soon drew criticism from residents and experts, who argued that high-rise buildings and the endless repetition of dwellings led to 'flat neurosis' (Blom, 2013) .
Case study Ommoord is an example of late 1960s high-rise housing in optima forma.

1970s: Quality and variety

From the early 1970s onwards, there was a drastic break with the post-WWII modernist planning schemes of mid-rise and high-rise

Figure 3

multifamily housing in long straight blocks. Suddenly an enormous variation appeared in the composition of housing types, the form of streets, squares and building blocks, predominantly in low-rise patterns (Vreeze, 1993). Also on an architectural level, ideologies shifted. As early as 1959, young architects, led by Aldo van Eyck and Herman Hertzberger and related to Team X, accused architects and planners of making the Netherlands "unliveable" and called for a new architecture that would create "liveable cities" and harmony between people and things. (Heuvel, 1992). Due to dissatisfaction with the repetitive housing of the post-war period and a growing prosperity, initiatives arose at the end of the 1960s aiming for innovation and more architectural quality in the living environment. In a national programme "Experimental Housing", launched in 1968, projects were subsidised that developed new housing concepts in which participation was one of the key ambitions. In many new areas and urban renewal project, residents became actively and formally involved in neighbourhood development (Vletter, 2004). During the 1980s however, the economic crisis led to a "no-nonsense" approach, low budgets and market-driven developments. This required austerity in design, resulting in longer blocks, more repetitive patterns and fewer exceptions and expressivity (Ubbink, 2011). It also led to the buying up of housing projects by housing corporations, as homes intended for private sale were not sold due to the crisis.
Case study De Werven is an example of the human-scale housing developments of the 1970s.

Alternative typologies for the middle class also emerged in the 1970s and 1980s, such as collective housing. Although there are older collective forms, the introduction of 'Centraal Wonen' marks the start of the collective housing movement in the Netherlands, aiming to 'free women from the burden of housekeeping and motherhood' and 'a way of living where residents have chosen each other on the basis of equal rights and where they share a number of residential facilities'. Various forms of collective housing appeared in which the sharing of common spaces is combined with the independent living of each household (Krabbe, 1986). In agreement with the desire in the 1970s for more quality, these residents saw collective housing as a means to achieve a better standard of living by establishing their own collectives and associations. While certainly an exception to the dominant individual dwelling, collective living is still a relevant movement and has gained attention in recent years, especially for collective private commissioning by specific groups such as the elderly or frontrunners in sustainability. The Wandelmeent project in Hilversum, designed by architects De Jonge and Weeda and built in 1977, is an icon for Central Living as a movement partly because of its striking architectural design (see Figure 2 and 3).

Conclusion

In the Dutch context, it is difficult to distinguish 'middle class' by housing typology, ownership or neighbourhood, as middle class is 1) broadly

interpreted, 2) housing areas combine different housing types and groups, and 3) the residents' composition of changes over time. The role of social housing companies and the accessibility of subsidised housing for a broad section of the population is important in this regard. They built massive amounts of middle-class housing in the post-WWII period, but in some places, these now dilapidated former middle-class houses are occupied by the socially lower class. In other places, however, especially in neighbourhoods around larger cities, former middle-class houses are now expensive and 'elitist' due to gentrification and related price increases. Today, with housing corporations having been privatised since 1995 and now having to focus on housing vulnerable groups, the situation has changed and a more prominent task of making housing for the middle class is emerging.

The Netherlands has strong government influence, at the national and local level, on housing production and allocation through planning policies, subsidies and tax programmes. Although in recent decades more is 'left to the market', the Dutch national government had a more significant influence on housing policy than other Western European countries due to subsidy programmes and active land policy, as well as, the vast amounts of public domain lands (Faludi, 1990). The tradition of top-down planning, in collaboration with local government agencies and commercial stakeholders, has resulted in large-scale housing projects built in successive periods. However, because the dominant and popular housing type is the row house in low-rise neighbourhoods, much of this building stock can be considered 'mass housing in disguise'.

The Netherlands: Amsterdam, Rotterdam, Almere

Figures

Cover - Expansion housing development Slotermeer West [Uitbreiding woningbouw Slotermeer West] (1952). Pictured by JD Noske. ©Wikimedia Commons

Fig. 1 - Housing production, typology and ideology in The Netherlands, 1945-2000 (diagram is created by the author).

Fig. 2, 3 - Centraal Wonen Hilversum (Wandelmeent). Individual dwellings share a cluster-room and collective facilities indicated by letters in urban map (left). Image showing diversity in de housing composition, ©Van Eig 2021.

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Ommoord

The Netherlands, Rotterdam

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Creating design concepts for Ommoord has been the subject of the CIAM congress in 1953. Architect like Bakema, Stam-Beese discussed high-rise models, derived from Le Corbusier's Unite d'Habitation. An important ambition was the creation of a 'core', both spatially by the composition of blocks around a collective green space, as socially by creating a sense of community.

Adress/District	Ommoord, President Rooseveltweg and surroundings		
GPS	51.9582773, 4.5399818		
Scale of development	District		
Project author	Ms. Lotte Stam-Beese (as urban designer, municipality Rotterdam), Mr. Rein Fledderus (as architect)		
Developer	ERA (Van Eesteren Rationele Aanpak, part of JP Van Eesteren)		
Landscape author	–		
Period of construction	beginning: 1967	end: 1975	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Schools / health / market / sports / shops / religious / kindergartens / leisure	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Free-standing objects	
	total area:	448 ha
	housing:	90 %
Connectivity | Accessibility	The innovative infrastructural scheme consists of: - a ring road (car) - cul-de-sac (car) - metro (public transport 3 stops) - cross-neighbourhood bicycle and pedestrian lane	
Landscape	The urban plan is based on the modernist concept of a green field with high-rise mono-functional housing. The ground floor (exterior and interior) is collective.	
Open and public space	The public space consists of parking areas (north of flat) and vast green spaces, mainly lawn with trees and zones of bushes at the building plinths. There is a park with height differences (hills) made from building rubble.	current condition: good
Quality of living environment	The strict separation of functions (facilities and transport in the central zone, housing around) is very strict and recognizable, resulting in lively and peaceful quiet atmospheres.	
Main Features	Readability / combining different uses	

RESIDENTIAL AREA

Residential buildings	The neighbourhood Ommoord has a high-rise district (inside the ring road) and a low rise district around. This document addresses mainly the high-rise part, which is regarded as most specific and significant.	
No. of buildings	38	
No. max. of floors	21	
Average no. floors	15	
Materials | Fabrication	The load bearing structures are in-situ concrete, casted in an industrialized process. Floor to floor facade elements are light weight and largely transparent. The interior walls came in 'furniture' packages and provide for flexibility.	
No. of dwellings	9968	
Average dwe. area	90 m²	
Dwellings' type	one floor	4 rooms
	duplex	+5 rooms
Qualitative issues	The housing is in line with the credo 'light, air and space', provides comfortable living in the post-war era. The dwelling schemes are spacious, yet efficient and adaptable as all interior walls can be removed.	
Housing density	Number of dwellings per ha:	29

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	Although the housing was developed by a housing corporation renting out the flats, Ommoord was always regarded as middle class, due to the Dutch social housing system. Today, there is a mix of social rent and private owners, who can also be regarded as middle class.

MASS HOUSING

Massification through: planned process vertical growth element's repetition **Building's typology:** slab tower	Ommoord is regarded as the peak of industrialised housing production. Speed in production process was reached by rational design and repetition. It also illustrates the welfare state, designing not only mass buildings, but also mass facilities and mass social life planning with many clubs and facilities. Higher was the answer, although this trend shifts during Ommoord construction, resulting in lowrise housing in the north-east quarter.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	The district Ommoord was initiated and developed by the Rotterdam town planning department, although commercial construction companies played an important role. It fits the post-WW2 policy of reconstruction, which was led by the national government and implemented by municipal services.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	In 2011, Ommoord's high-rise area (inside ring road) was declared a 'reconstruction area of national importance' by the Dutch Cultural Heritage Agency. Although, the plan was not fully completed and later additions are made, Ommoord is still a well conserved and relatively successful high-rise neighourhood.
Urban | building transformation or regeneration	Almost all flat buildings have been renovated, e.g. entrances renewed and enlarged, insulation of end walls, new fences on galleries, new window frames etc.
Intervention scale	Buildings / energy efficiency improvements
Intervention status details	New buildings and facilities have been added to the area (not always matching the urban concept of separate functions), effecting the landscape experience. Also, housing is introduced on ground floor level, not in line with the architectural concept but improving social control.

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De Werven

The Netherlands, Almere

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The design for De Werven is a typical woonerf neighbourhood. The ambition was to develop a large amount of dwellings, but in an human and sheltered environment. Almere is a new town on man-made land reclaimed from the sea, resulting in a society in which everything was designed: the urban, the architecture, the soil, the green, the demographics, etc.

Adress/District	Schoolwerf, Rozenwerf, Stadswerf, Parkwerf, Wittewerf, Achterwerf, Almere-Haven		
GPS	52.3439531, 5.2207193		
Scale of development	District		
Architectural studio	Joop Van Stigt		
Project author	Dirk Frieling, Projectbureau Almere (urban designer) Arne Mastenbroek (architect other part of De Werven)		
Constructor	Rijksdienst voor de IJsselmeerpolders		
Landscape author	–		
Period of construction	beginning: 1974	end: 1979	inauguration: –

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URBAN AREA

Location - within in the city	original:	satellite
	current:	city centre
Other facilities / availability of amenities	Schools / health / shops / kindergartens	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Free composition	
	total area:	52 ha
	housing:	80 %
Connectivity | Accessibility	Separation of transport flows was a main concept in the Groeikernen of 1970-80s. Almere has a separate bus lane and good car accessibility between cores and neighbourhoods. The woonerf (cul-de-sac) is the dominant urban pattern and is pedestrianized.	
Landscape	The Almere landscape is created, as the land is reclaimed from the sea in 1968. Between neighbourhoods, green buffer zones are created and on larger scale recreational zones are developed (forests, beach, parks).	
Open and public space	The diversity in private, semi-public and public spaces and especially the transitions between them were an explicit aim and are now an important quality of the woonerf-structure in De Werven. The urban structure creatively links sheltered spaces to more open areas.	current condition: good
Quality of living environment	Almere has a polynuclear urban structure, with Almere-Haven as its oldest core and De Werven as the first neighbourhood. The inhabitants of De Werven were ‘pioneers’, starting a new community in an empty polder.	
Main Features	Diversity / innovation	

RESIDENTIAL AREA

Residential buildings	The architecture expresses diversity and also holds many housing types, such as split-floor, elderly, 2-floor, 3-floor, corner and gate typologies. The plans are symmetrical (street-garden orientation), providing choice for the resident how to use the spaces.
No. of buildings	27
No. max. of floors	3
Average no. floors	2
Materials | Fabrication	The housing is constructed by a partly industrialized method, combining modern and traditional materials and techniques. The main materials are concrete (load bearing structure), wood (window frames and panelling) and the traditional Dutch ceramics (masony and roof tiles) (facades) and wood.
No. of dwellings	671
Average dwe. area	100 m^2
Dwellings' type	2-/ 3-floor and split-level
Qualitative issues	The neighbourhood is designed by a 'toolkit', allowing for introvert and extrovert block structures and exceptions. The blocks are composed to form diversity and comfort in private, collective and public areas.
Housing density	Number of dwellings per ha: 19

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	De Werven originally had 414 social rent and 257 owner occupied houses (note that Dutch social housing includes large part of society). Now more houses are sold. Almere was and still is known for the middle class identity, although the aim was to house a representation of Dutch society,

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:**	This housing can be regarded as 'mass housing in disguise'. The low-rise housing blocks and the large variety masks the massive numbers and high level of repetition of this type of residential neighborhoods. It is planned spatially and financially on subsequent scale levels.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	Almere is a New Town and part of the 'Groeikernen-beleid' (new town policy) introduced by the national government in spatial planning memoranda in 1966 and 1974. 15 areas were indicated to house the 'overspill' of large towns in the Randstad. Almere and Lelystad are the only completely new towns, and Almere grew to the 7th largest city in the Netherlands, with a population over 200.000 today.
Name of specific programmes or funding applied	(1) Tweede en derde Nota Ruimtelijke Ordening (New Town policy)

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	General state is good. Regarding the urban space, there are great differences per quarter in use, design and maintenance of public spaces and transitions to individual plots.
Urban | building transformation or regeneration	Especially in the owner occupied quarters, there has been privatization of former collective space. Also, many individual changes and additions to the houses are visible. The pavement and green areas have been changed in maintenance processes.
Intervention scale	Buildings / open and public spaces buildings
Intervention status details	The individual adaptions change the initial coherence of the blocks, however appropriation of living environment was aimed for.

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Sloterhof

The Netherlands, Amsterdam

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The complex is one of the highlights of post-war building in the Netherlands in terms of industrial construction techniques aiming to solve the housing shortage. Moreover, the ensemble shows a large variety in housing types and facilities and a rich aesthetic variety, produced with a industrial building system.

Adress/District	Comeniusstraat, Amsterdam Nieuw-West, Amsterdam		
GPS	52.358793, 4.831391		
Scale of development	Ensemble		
Project author	J.F. Berghoef (architect) H. van Saane (constructor building system)		
Developers	Nederlandse Maatschappij van Volkshuisvesting (=NEMAVO)		
Landscape author	C. Van Eesteren (urban planner district)		
Period of construction	beginning: 1958	end: 1960	inauguration: –

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	urban district
Other facilities / availability of amenities	Shops / bank / restaurant / gas station	
Location - position of buildings	perpendicular (with a shorter façade facing a street)	
Urban Ensemble	Sun oriented paralell rows / free-standing objects	
	total area:	8 ha
	housing:	90 %
Connectivity | Accessibility	The ensemble sits north of a raised four-lane ‘motorway’ with flyovers, that was innovative in Amsterdam. The access to the housing is from a secondary neighbourhood road, via the courtyards in between the blocks.	
Landscape	Between the buildings and the flyover, a green strip with an ‘ornamental canal’ was laid out. The heads of the three high slabs stand out with their spiral staircases standing over the water on concrete columns.	
Open and public space	The courtyards are shielded from the street by shops, garages and two service stations for cars. This has given the courtyards a sheltered character while still being public.	current condition: reasonable
Quality of living environment	Sloterhof is part of the Algemeen Uitbreidings Plan (AUP) designed by Van Eesteren in the interbellum period but largely realised after WW2. The combination of both green setting, ‘light, air and space’, water and connectivity offered the ‘complete modern package’.	
Main Features	Diversity / combining different uses	

RESIDENTIAL AREA

Residential buildings	The ensemble contains a wide variety of dwelling types and other facilities, like 4 apartment buildings, 7-storey maisonette buildings, a 12-storey tower block, 4 atelier dwellings, a restaurant, shops, two (former) petrol stations, garage boxes, greenery and water features.
No. of buildings	18
No. max. of floors	13
Average no. floors	7
Materials | Fabrication	The Airey industrialised building system is based on small prefabricated concrete elements. What is interesting in this projects is the great variety in colours, forms, finishing and ornaments of the concrete elements resulting in a rich palette.
No. of dwellings	668
Average dwe. area	70 m²
Dwellings' type	Variety of types and rooms
Qualitative issues	The diversity of dwelling types, access types and facilities aimed for a good and inclusive living environment. The apartments had a relative luxury standard, with hot water supply, fitted kitchens and wardrobes, a central refuse waste disposal and lifts.
Housing density	Number of dwellings per ha: 80

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class, others	As for many post-WW2 housing, these flats initially were inhabited by middle class (in the Dutch context included in public housing). Nowadays the target group for subsidised public housing changed and more low income groups live in these older flats.

MASS HOUSING

Massification through: element's repetition **Building's typology:** slab tower	For the construction of Sloterhof, the Airey building system was applied on a large scale. The Airey building system, adapted from the UK building system, can be regarded as a kit of parts, based on small prefabricated concrete elements that could largely be assembled manually by untrained personnel. In the post WW2 context this was an important advantage to produce large numbers of dwellings, in high speed and with limited materials and craftsmen.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public-private partnership	Sloterhof is part of the public Algemeen Uitbreidings Plan (AUP) for Amsterdam. Contractors were involved in the development of housing systems. Prefabrication was publicly promoted by guaranteeing market and by reducing restrictions which meant that they could build more prefab houses than conventional ones. The entire stock of Airey houses in the Netherlands is over 8000 units.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Unrefurbished
Preservation and maintenance status details	Sloterhof has been a municipal monument since 2008. In the spring of 2016, Sloterhof was listed as a national monument. This decision has been challenged by the owner of the real estate, stating that the monument status would make exploitation economically not feasible. The objection was rejected by the council of state.
Urban | building transformation or regeneration	The district Amsterdam Nieuw-West is in transformation, as several ensembles were replaced, transformed and renovated. However, Sloterhof remains largely unchanged. Recently, residents started an initiative for sustainable renovation of their flats.
Intervention scale	Dwelling interior
Intervention status details	The Sloterhof ensemble is largely unchanged. However, smaller changes have taken place, like replacement of many original interiors, renewal of window frames etc.

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Middle-Class Mass Housing in Türkiye

This chapter introduces the middle-class mass housing (MCMH) policies in Türkiye from a historical perspective and describes the two most prevalent MCMH types regarding their history of development, building and urban typology, processes of production and massification, living conditions, and spatial features. One is the low-density detached and semi-detached mass housing sites of the 1950s, developed throughout the 1970s, 1980s and 1990s through cooperative housing projects. Levent 1st Stage Mass Housing exemplifies this type in Istanbul. The second type represents the high-rise, large-scale mass housing sites developed by big construction companies, which first appeared in the 1970s, and continued to be built in the 1980s, the 1990s and the 2000s. This chapter provides two examples of this type in Ankara, Çankaya Sitesi and Koru Sitesi. Both cases were built by Mesa Mesken Industry Inc. (MESA), a prominent Turkish construction company established in 1969 to construct mass housing in various provinces of Türkiye. After explaining the specificities of the three cases and their current situation, this chapter briefly discusses the future development possibilities for each housing site, such as urban renewal, preservation or conservation.

In Europe, especially after the Second World War, the middle class and its housing needs significantly impacted the development of cities (Caramellino and De Pieri, 2021). Although the mass housing in Türkiye is similar to that in the rest of the world, its evolution is also related to the economic, socio-demographic, cultural, ecological and environmental conditions, needs and problems of the country. This chapter describes the middle-class mass housing (MCMH) policies in Türkiye from a historical perspective. Furthermore, it examines the two most prevalent MCMH types regarding their development history, building and urban typology, processes of production and massification, living conditions, and spatial features. Levent 1st Stage Mass Housing Site in İstanbul exemplifies the former type, while Çankaya Sitesi and Koru Sitesi in Ankara are two cases representing the latter type. After explaining the specificities of the three cases and their current situation, this chapter briefly discusses the future development possibilities for each housing site.

Middle-Class Mass Housing policies in a nutshell

In the early-Republican period, covering the 1930s and 1940s, the middle class was considered to be a mix of civil servants, high-ranking government and military officers in Türkiye. A banking system (Property and Orphan Bank) was established in the 1930s to provide state funding for investors, house builders and individual home buyers. The central and local governments and individual housebuilders were the main housing suppliers, while housing cooperatives were the leading mass-housing suppliers for the middle class.

From 1945 to 1960, the governments promoted a housing provision policy for low and middle-income groups through housing cooperatives. The funding mechanism of housing cooperatives, which came from the loans of Emlak Bank and Insurance Institution , mainly benefited middle and upper-income classes (Kapan, 2014). After the 1950s, small-scale contractors played an essential role in developing mass housing in cities to fulfil the housing needs of different socio-economic classes (Koca, 2015). Following the Condominium Law (1965), 'build-and-sell contractors' developed four-five storey apartment buildings in the planned parts of cities (Balamir, 1994). With the Housing Cooperative Law (1969), cooperatives started building housing on peripheral urban lands through cooperative membership (Türel, 2012). The big construction companies also did many important mass-housing projects in these years for upper-middle-class households (Tekeli, 1996).

Between the 1960s and the 1980s, the middle class experienced financial difficulties, and the government expanded its remit over housing. Along with welfare state policies, a

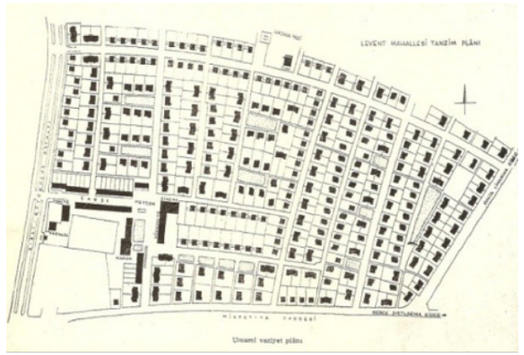

Figure 1

Figure 2

social-housing concept emerged in Türkiye. The government supported reaching out to more families and building smaller and cheaper houses (Keleş, 2006).

From the 1980s to the 2000s, Türkiye's transition to the neoliberal economy brought many changes in cities. Housing had become a critical commodity due to its exchange value, and as a symbol of social status and lifestyle. The housing shortage, which emerged due to the population growth in the cities, primarily affected lower and middle-income groups. In the early-1980s, with the establishment of the Housing Development Administration (TOKİ) and the Mass Housing Fund, the governments tried to address the housing needs of middle and low-income classes by building large-scale mass housing projects in Turkish cities. Since then, TOKI has strongly cooperated with the private sector and has become a leading protagonist in housing production (Kapan, 2014).

In the late-1980s, local governments discovered the 'urban transformation' model to bring extra zoning rights to larger settlements, attract private investment, and improve the quality of the urban environment (Türker Devecigil, 2005). The decentralisation of industry from big cities and the goal of attracting global investors accelerated the urban transformation (Türkün et al., 2014).

During the 2000s, housing development policies were shaped by neoliberal and globalisation policies and the destructive earthquakes that occurred in the Marmara region in 1999. As the resilience of the existing housing stock to the earthquake was questioned, the housing areas located in city centres were redeveloped through urban renewal and urban transformation projects (Genç, 2008; Koca, 2015). Major construction companies have also entered the housing market by developing large-scale mass housing projects for the mostly upper-middle class. Besides this, TOKI is still a leading state agency developing mass housing for low and middle-income classes.

Levent 1st Stage Mass Housing

The Levent 1st mass-housing Project (1947-1957), considered the pioneering mass-housing project of modern post-republic Türkiye, was designed by architect Kemal Ahmet Arû and was financed by the Housing and Credit Bank. After the Second World War, this residential area of 391 houses was built to solve the housing problem (Figure 1). Although it was far from the city centre at that time, it was preferred by the middle class due to its affordable prices (Ek, 2012; Karabey, 2012). However, after the Second World War, with the industrialisation in the northern parts of the Levent district and the development of the transportation infrastructure, slum areas where the working class settled emerged (Erbaş, 2012).

Although the project has different housing typologies, the residents have made various modifications. Especially in the gardens, additional parts such as coal bunkers and poultry houses have been added. There are 391 buildings, single, twin, block and one or two storeys, with three, four, five, and six rooms, an attic suitable for use, and some

Figure 3

Figure 4

with garages or shops. The Housing and Credit Bank built water, electricity, coal gas facilities, asphalt roads and sewerage installations (Karabey, 2012).

From the 1950s to the 1980s, central business and residential areas developed separately around the Levent mass housing in accordance with the master plan. As a result of the ageing of the buildings in the district, and the demands of the families, permission to build second floors was given to single-storey houses (Karabey, 2012).

In the late 1980s, some developments affected Levent 1st and its surroundings negatively, such as the granting of permission for the construction of skyscrapers on the parcels around Levent 1st and the development of food culture and nightlife. According to the current Levent development plan, there are restrictions to protect the original Levent 1st houses. However, these restrictions should have been taken into account in the renovations made since 1990. Some buildings used as residences were converted into restaurants and bars, the service sector feeding the skyscrapers spread into Levent, and the buildings used as residences were rented or sold to workplaces. Some properties have been upsized since they are too small for businesses, and facades have been redone in ways that changes the existing identity (Karabey, 2012) (Figure 2).

Today, the project area is under the pressure of a physical and social transformation due to accelerated urban transformation process in the 1980s and the appearance of the central business areas that shifted to the north with the construction of the Bosporus bridges.

Çankaya Sitesi

Çankaya Sitesi comprises 21 buildings grouped into four compounds, built between 1970 and 1971 (Figure 3). Height and typology vary, averaging fifteen floors. Lower floors include playgrounds, shops, a market, a bakery, a primary school, and sports facilities. The authors credited for the project are Uğur Eken and Aykut Mutlu. The former is also the designer of another well-known housing complex, Teras Ev (Eken, 1981). The latter founded the MESA company in 1969 (Topal et al., 2019).

The complex sits on a fringe area at the edge of one of the main valleys that shape Ankara's topography. Informal constructions and illegal tenants continuously occupied Dikmen Valley until 1989, when it was decided to implement an urban transformation plan. Dikmen Valley is now the most important recreational area in the vicinity of the case study. For this reason, the complex is in the rare condition of having a south-facing façade completely free of obstacles.

The 21 buildings are arranged on a sloped landscape with an open block typology and aligned in a staggered row following the east-west direction. In compound 1, the ground floor is levelled with a podium and pilotis. Compound 2 sits 15m lower than compound 1. The podium at the base of compound 1 contains a parking lot, and no pedestrian or bicycle access network can be found nearby. From the Çankaya Sitesi, it takes an 8-minute walk to the nearest bus stop on Simon Bolivar Boulevard. The transportation issue was already taken into consideration during the

Figure 5

design phase (Mutlu, 1972).

The construction employed standard techniques: the high-rise blocks are built with a tower crane system, concrete framework, and wooden boards used as floor slab moulds. Two adjacent blocks share the same staircase shaft (Eryıldız, 1995). Hence, although design solutions offered limited options for variations, the uneven topography, the staggered connection between buildings, and a custom design of the pilotis level, create an overall combinatory massing that escapes monotonous elevations.

At the time of construction, a unit of around 120 m2 costed 150,000 Turkish Liras, of which 20-25% went to land acquisition, 70-75% to construction cost, 2-3% to infrastructures, 2-3% to environmental regulations, and 3.5-7% to taxes (Mutlu, 1972).

In compound 1, the plan shows two shifted masses and a circulation core placed in the centre. There are two different plan schemes. One has an entrance leading directly to the living room, which is connected to the other rooms. Another scheme provides an entrance to the corridor, flanked by service spaces, and a living room at the end.

Compound 2 blocks are isolated and formed by three masses around a circulation core. Block types A and C are symmetrical, while Block B is planned independently. Three apartments are entered from a hallway, then the living room, split into two parts for living and dining. Compound 2 proposes a differentiated domestic space with a combinatory nature, achieving a spatial richness that is uncommon in social housing projects of that period.

Koru Sitesi

Koru Sitesi is a sustainable and liveable middle- and upper-middle-class mass housing site with a high quality of life. Located in a suburban settlement on the west corridor of Ankara and 20 km from the city centre Kızılay, it is well-connected to its surroundings and other parts of the city by bus, metro, minibuses, and a vehicular and pedestrian street network.

Koru Sitesi was built in 1985. MESA used different construction technologies, including traditional, semi- and fully-prefabricated systems. It adopted three basic development principles for this site: designing the houses with their surroundings, marketing the flats/houses with management services, and providing repair and renewal services to the purchaser after the sale (Aslan, 2007).

Koru Sitesi covers 36.5 ha of land, including a kindergarten, a primary school, a shopping centre, and sports and playground fields (Figure 4). It comprises 1,640 dwelling units and 340 villas, accommodating approximately 8,000 people (Mesa Koru Sitesi, 2013). There are four building types: a) 18-storey apartment blocks, b) 5-6-storey row apartment blocks, c) 8-storey row apartment blocks, and d) 2-3-storey detached and semi-detached villas. These buildings are designed as clusters with highly accessible pedestrian and car circulation, car-park and open green space systems. In Koru Sitesi, there are a variety of residential units, including 2, 3, and 4 rooms with a living room, allowing different middle-class household types (single, couples, families) to live together.

Koru Sitesi also stands out as distinctive with its well-designed and maintained open public, semi-public and green spaces and its water treatment plant of the residential site, contributing to environmental sustainability. In multi-storey apartments, floors were kept as high as possible to provide large open areas on the ground (Aslan, 2007). The open spaces designed in the site create a highly walkable and cyclable environment and offer freely accessible social facilities and places that residents and visitors can use. These design features increase the quality of the living environment.

Currently, the open spaces, courtyards and sports fields within the housing site are in good condition thanks to regular maintenance by the private management company. Property owners are constantly renovating their flats/houses. Except for minor maintenance and repairs, the external appearance of the buildings has stayed the same since MESA built them. Recently, the facades of the buildings were renovated for heat insulation according to the Energy Efficiency Law No. 5627 (2011) measures to reduce households' natural gas use and heating cost.

In brief, Koru Sitesi is a thriving MCMH example with its physical facilities, such as commercial, educational, social, recreational and open green space opportunities, and its management organisation. It is subject to neither a renewal nor a rehabilitation programme. The

Figure 6

Figure 7

dwelling units, public spaces, and service units are in good condition because of the effective management and maintenance programme and its residents who look after their homes and neighbourhood. It continues to target the same income group due to its advantageous location, high quality of life and property values.

the middle of such a densely built, post-modern business district such as that of Istanbul. As for Koru Sitesi and Çankaya Sitesi, they are exemplary cases for Turkish cities, providing high urban space standards without compromising critical qualities such as accessibility, connectivity, inclusion, adequate open space, community services and urban design quality.

Conclusions

Many mass housing policies for middle-income groups have come into effect in Türkiye from the early-Republican period to nowadays, along with the changing economic, socio-demographic, cultural, ecological and environmental risk-mitigating conditions, problems and needs. The governments addressed these problems and needs by developing new mass housing policies, some of which were successful and innovative, while others were failures and mediocre solutions. This chapter exemplifies the two different and most prevalent types of MCMH in Ankara and İstanbul, showing their successful capacity to providing a high quality of life and sustainability for their residents and their localities. Levent 1st Stage mass-housing site is unique in terms of its architecture, spatial organisation, the community that lived there and how it has evolved over time. This exceptional example must be seen as a rare example of modern heritage to be conserved with its architectural and mixed-use qualities in

Figures

Cover - MESA Koru Sitesi, 2023 (Photo credit - ©Müge Akkar Ercan, 2023).

Fig. 1, 2 - The *Levent* 1st settlement: Site plan (left); a historical view from the settlement (right) (Ek, 2012).

Fig. 3, 4 - Today's view of *Levent 1st* mass-housing site: a. Aerial view (Kır, 2023a); b. A single-family house with renewed facade (EmlakJet, 2023b).

Fig. 5 - Çankaya Sitesi in Ankara: Site plan (up), aerial view (middle), current view (below).

Fig. 6, 7 - . Koru Sitesi in Ankara: spatial layout (left) and the architectural and densification features (right) (Mesa Koru Sitesi, 2013)

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MESA Çankaya Sitesi

Turkey, Ankara

Google Earth Image © 2023 Airbus

The Çankaya development is composed of 21 buildings, grouped in four compounds. Blocks A, B, C are dated 1970, and blocks D and E 1971. A different star-shaped block, F type, also dates back to 1971. Blocks height and typology have variations, averaging fifteen floors. Lower floors include playgrounds, shops, a market, bakery, a primary school, and sport facilities.

Adress/District	Sedat Simavi Sk. n.72, Güzeltepe, 06690 Çankaya		
GPS	39.52562, 32.51036		
Scale of development	District		
Project author	Uğur Eken, Aykut Mutlu		
Developer	MESA Mesken Sanayii A.Ş.		
Landscape author			
Period of construction	beginning: 1970	end: 1971	inauguration: 1971

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URBAN AREA

Location - within in the city	original:	city fringe
	current:	city fringe
Other facilities / availability of amenities	Health / leisure	
Location - position of buildings	Parallel (with a wider façade facing a street)	
Urban Ensemble	Open block	
	total area:	1.57 ha
	housing:	14 %
Connectivity | Accessibility	The podium at the base of compound 1 has contains a parking lot. No pedestrians or cyclists network can be found nearby. 6min walk to a bus stop of the line 173, 8min walk to Anayasa Parkı bust stop that has multiple option as it is on Simon Bolivar boulevard.	
Landscape	The blocks are arranged on a sloped landscape. In the compound 1, the ground floor is leveled with a podium and pilotis. Compound 2 follows the 1054m contour line, which is 15m lower than that of the compound 1	
Open and public space	The podium that connect compound 1 provides a shared open space with a green area. Its stepped configuration allows access from both the lower and higher point of the plot through pilotis passages and a system of stairs.	current condition: reasonable
Quality of living environment	The complex is recognizable in its formal features. It has a low degree of diversity though having an open ground floor that is employed for several uses and as a meeting place.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	The plan shows two shifted masses and a circulation core placed in the center. There are two different plan schemes. In the first, the entrance leads directly to the living room. The second provides an entrance to the corridor, flanked by service spaces, and a living room at the end with a fireplace.	
No. of buildings	21	
No. max. of floors	18	
Average no. floors	15	
Materials | Fabrication	The construction employed standard techniques due to reduced financial possibilities: the high-rise blocks are built with a tower crane system, concrete framework, and wooden boards used as floor slab moulds.	
No. of dwellings	315	
Average dwe. area	130 m^2	
Dwellings' type	one floor	4 rooms
	duplex	+5 rooms
Qualitative issues	–	
Housing density	Number of dwellings per ha:	200

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	A unit of around 120 m2 (gross area) cost 150,000 - 155,000 Turkish Liras. MESA took advantage of the high housing demand caused by the demographic spike that characterised the Turkish capital in the 1970s.

MASS HOUSING

Massification through: planned process **Building's typology:** block	MESA is one of the companies that provided mass housing complexes in a period of momentous increase in accommodation demand in Istanbul and Ankara. The complex was part of an urban transformation plan of the Dikmen Valley that cleared informal residences within and urbanized its border.

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** private	Informal constructions and illegal tenants continuously occupied Dikmen Valley until in 1989 it was decided to implement an urban transformation plan in the valley. This project, called Dikmen Vadisi Kentsel Dönüşüm ve Gelişim Projesi, is also the first urban transformation project addressing slum areas in the country.
Name of specific programmes or funding applied	(1) Dikmen Vadisi Kentsel Dönüşüm ve Gelişim Projesi

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Façade materials are very durable, good external conditions of buildings; some balconies have been enclosed with glass panes; well maintained green spaces; well equipped in terms of services, adaptation to the demand of residents; no change of the settlement layout
Urban | building transformation or regeneration	Dikmen Valley is now the most important recreational area in the vicinity of the case study and for this reason the complex is in the rare condition of having a south-facing façade completely free of obstacles due to the green area.
Intervention scale	Collective green spaces
Intervention status details	–

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Çayyolu Mesa Koru Sitesi

Turkey, Ankara

Google Earth Image © 2023 Airbus

Koru Sitesi is a middle- and upper middle-class mass housing site, including three different types of housing architecture with a commercial centre, a nursery, a primary school, car-parking spaces, large green spaces and sports fields.

Adress/District	Koru, Kavaklı Sok. No. 3C Çayyolu, Çankaya, Ankara		
GPS	39.53268008, 32.40480144		
Scale of development	District		
Project author	Mesa Mesken A.Ş.		
Developer	Mesa Mesken A.Ş.		
Landscape author	Mesa Mesken A.Ş.		
Period of construction	beginning: early-1980	end: 1985	inauguration: –

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	suburbia
Other facilities / availability of amenities	Schools / market / sports / shops / kindergartens / playgrounds and sport fields	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Perimeter block / free-standing objects	
	total area:	36.5 ha
	housing:	5.8 %
Connectivity | Accessibility	The neighbourhood is highly connected to its close vicinity, and other parts of the city by metro, buses and minibuses. It is highly accessible for pedestrians and car users. No cycling lanes exist in the neighbourhood.	
Landscape	There exist small parks, courtyards, and well-designed streetscape. Gardens of villas also contribute to green landscape.	
Open and public space	In Koru Sitesi, the spatial organisation of the four types of housing sites was planned and designed in relation to the open public and semi-public spaces and green space system to ensure attractive, healthy and pleasant environment for living.	current condition: excellent
Quality of living environment	The design of high-quality public spaces, courtyards, accessible social amenities, high walkable environments, some community spaces help improve the sense of belonging and recognizability of environment.	
Main Features	Diversity / combining different uses / readability	

RESIDENTIAL AREA

Residential buildings	A well-designed mass housing site with collective open spaces, highly accessible to the car-parking spaces and street networks. Building clusters are accessible both from the street and courtyard sides.	
No. of buildings	233	
No. max. of floors	18	
Average no. floors	3	
Materials | Fabrication	Pre-fabricated concrete buildings with well and colorful painted.	
No. of dwellings	1650	
Average dwe. area	120 m^2	
Dwellings' type	duplex	3, 4, +5 rooms
Qualitative issues	Energy saving, water-use saving for the maintenance of open green space, waste-recycling.	
Housing density	Number of dwellings per ha:	45.20

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** middle-class	House prices and rents, car brands, good care of open spaces, courtyards, parks, residents' way of behaving and dressing, use of their balconies, the accessories on the doors are the major indicators of this mass housing as a MCMH site.

MASS HOUSING

Massification through: planned process vertical growth horizontal growth element's repetition **Building's typology: detached house** detached house semi-detached house row-housing urban villa tower clustered mid-rise	The massification was achieved in a planned way.The site includes 9, 11, 13, 18 storey high-rise buildings, which provide a dense urban fabric, while 5-6 and 8 floor building clusters around courtyards and detached and semi-detached villa clusters provide a much lower urban density in the site. Building blocks of villas, medium-rise building clusters and high-rise buildings are repeated in the design.

HOUSING POLICIES

Urban promotion type: private **Housing promotion type:** private	Built by a well-known construction company in the late-1980s as one of the first MCMH site in the periphery of Ankara. A private sector venture and a successful example for the development of liveable, high-quality MCMH with its commerical, social, educational, recreational and open green space amenities, and management organization.
Name of specific programmes or funding applied	–

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Partially refurbished
Preservation and maintenance status details	Facades of buidings, courtyards, open spaces, sport fields, are in good condition thanks to regular maintenance run by a private company. Property owners refurbish their flats/houses continuously.
Urban | building transformation or regeneration	No large scale transformation has taken place in the area. Except for minor maintenance and repairs, the external appearance of the buidings has not changed since the time they were built.
Intervention scale	Buildings / energy efficiency improvements
Intervention status details	The heat insulation intervention for the buildings has reduced the natural gas use and heating costs of houses/flats.

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Levent 1st Stage Mass Housing

Turkey, Istanbul

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After the Levent 1st stage mass housing project was built for the middle class in the 1950s, the region has turned into the central business area of Istanbul since the 1980s. This study is important in terms of revealing how the social structure has changed along with the economic conditions.

Adress/District	Levent 1. Etap Evleri Levent Mahallesi Besiktas / Istanbul		
GPS	41.04429, 29.01046		
Scale of development	District		
Project author	Prof.Dr. Kemal Ahmet Aru, Rebii Gorbon		
Constructors	Turkiye Emlak Kredi Bank / Istanbul Municipality		
Landscape author	–		
Period of construction	beginning: 1947	end: 1950	inauguration: 1950

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URBAN AREA

Location - within in the city	original:	suburbia
	current:	city centre
Other facilities / availability of amenities	Schools / helth / market / sports / shops / religious / kindergartens / leisure / wellness andbeauty centers	
Location - position of buildings	Perpendicular (with a shorter façade facing a street) Parallel (with a wider façade facing a street)	
Urban Ensemble	Villa park	
	total area:	23.7 ha
	housing:	16.9 %
Connectivity | Accessibility	The mass housing district is close to the main transport axes of the city and is fortunate in terms of access to public transport. However, residents of this region mostly prefer to use their private vehicles.	
Landscape	Based on Ebenezer Howard's Garden City approach, it is based on exhibiting the positive sides of the countryside in the city and strengthening the neighborhood unit (Erbaş, 2012)	
Open and public space	Since the houses are detached, open and public spaces are very few and not used. Residents mostly prefer their own private gardens or open spaces that they enter through membership.	current condition: reasonable
Quality of living environment	Although it is a typologically similar area, some differences have emerged, especially in terms of façade color and texture, with the subsequent interventions.	
Main Features	Readability	

RESIDENTIAL AREA

Residential buildings	The basic plan organization consists of an entrance, a kitchen, a section with wet areas, and another section with rooms. Stairs are added to the first section in two-storey houses. As the plans expand, the area covered by these sections also expands. Wet areas in all houses are separated as bathrooms and toilets (Gayretli, 2016).	
No. of buildings	400	
No. max. of floors	3	
Average no. floors	2	
Materials | Fabrication	All the houses are made of reinforced concrete foundation, limestone foundation wall and brick walls on the basement; It was built using the masonry technique. The floors are wooden in rooms and halls, and mosaic tiles in wet areas. The roofs are tiled on wooden veneer and there is an attic that can be reached by a wooden ladder. Wooden shutters protect the joinery made of pine timber and plywood (Gayretli, 2016).	
No. of dwellings	400	
Average dwe. area	250 m²	
Dwellings' type	duplex	+5 rooms
Qualitative issues	In the first years of its construction, homeowners often reported that they could not heat their homes. However, in the following years, all problems are solved individually by the new owners as the region comes under the control of the upper income group.	
Housing density	Number of dwellings per ha:	17

MIDDLE-CLASS

Original dwellers class: middle-class **Current dwellers class:** others	The reason why these residences, which were originally built for the middle class, are used by high income groups today, is that the area where the residence is located has turned into a central business district, especially after the 1980s, and global capital has found its place here.

MASS HOUSING

Massification through: planned process element's repetition **Building's typology:** detached house semi-detached house urban villa	The case study can be described as single detached family house. The region is under special protection status and floor increase is not allowed. This situation prevented the increase in density. However, this feature has increased the attractiveness of the region and facilitated the rapid development of the surrounding areas.

Levent 1st Stage Mass Housing, Istanbul

HOUSING POLICIES

Urban promotion type: public **Housing promotion type:** public	After the Second World War, the housing crisis for the falsification, Turkey Real Estate Credit Bank, 4847 and 5228 Nos. spirit of laws and in accordance with purposes, «Levend» in Istanbul they established and built this neighborhood on his farm land. The «Levend» farm site is a raw material from the Municipality. It was purchased in a state-of-the-art and parceled out according to the principles of urbanism (Karabey ve diğ., n.d.)
Name of specific programmes or funding applied	(1) Turkey Real Estate Credit Bank

PRESERVATION | TRANSFORMATION REGENERATION

Preservation and maintenance	Fully refurbished
Preservation and maintenance status details	With more high-income groups replacing the middle-income, high-cost investments have been made in the maintenance and preservation of structures. However, the preservation and maintenance processes for each residence are carried out by their owners independently from other residences.
Urban | building transformation or regeneration	The transformation began largely with urban economic dynamics. The establishment of the central business area close to the residential area and accordingly the change of the socio-economic structure was inevitable. As a result, housing changed hands and the middle class largely abandoned the area.
Intervention scale	Neighbourhood / buildings
Intervention status details	The level of intervention was seen at the structural level at the housing scale as a result of the change in the socio-economic structure at the neighborhood scale. The houses that changed hands were individually renovated by the upper income groups. This situation has caused the houses to become different in terms of facade material, texture, color and landscape features.

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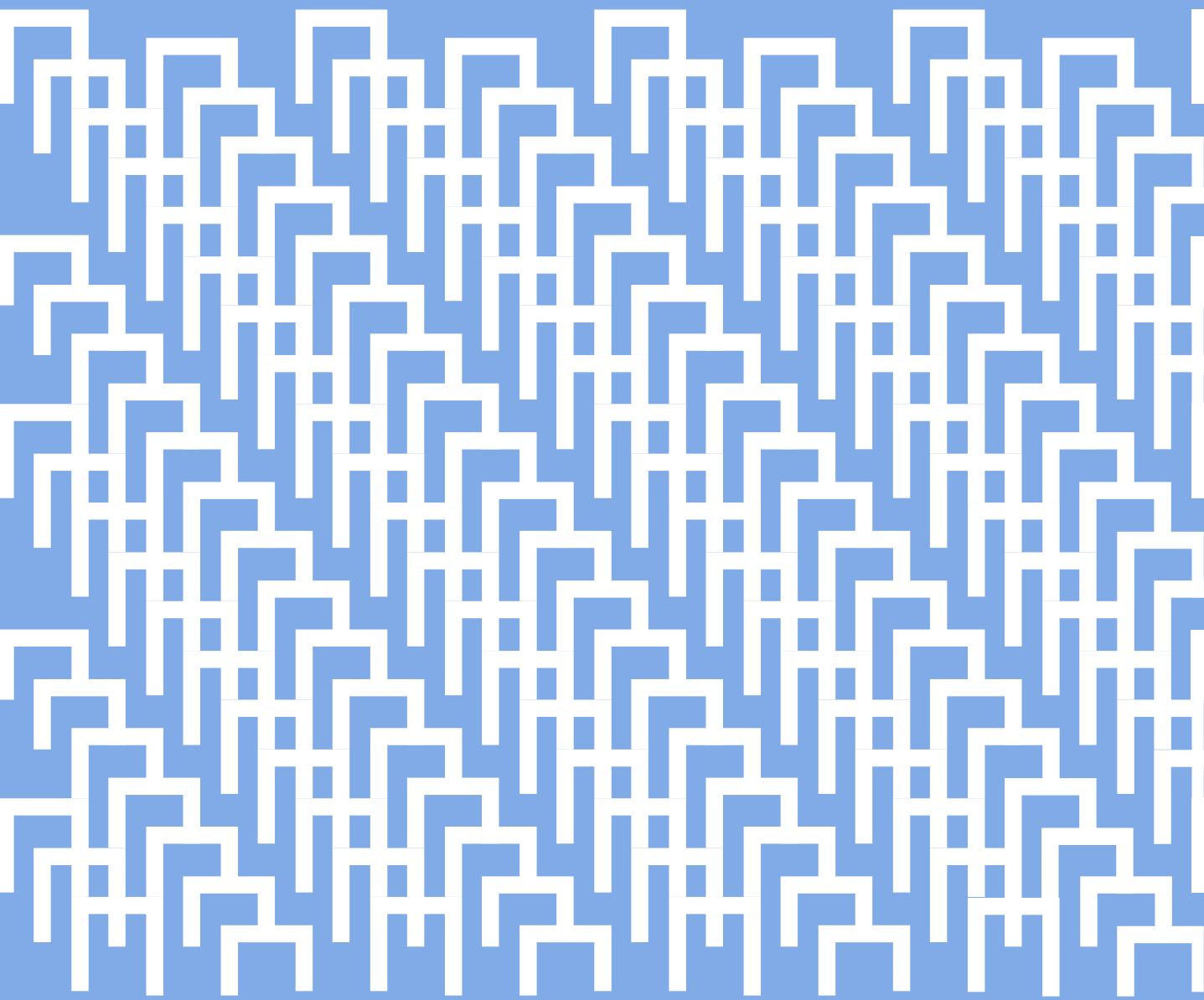

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