

## THE BARBICAN ESTATE AS AN EXPERIMENT IN THE ORGANISATION OF THE LIVING ENVIRONMENT

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**Abstract** *The organization of a comfortable living environment within residential complexes is gaining increasing importance today for a variety of reasons. This makes it necessary to look back and examine more closely the characteristics of residential environments that have stood the test of time and remain relevant, using the Barbican housing complex in London as an example. Through the analysis, synthesis, and generalization of theoretical studies, online resources, and historical materials on the subject, as well as from an interdisciplinary perspective, this article identifies the specific features of how the residential environment is shaped. This involves not only architectural and design considerations however also the psychological aspects of human perception and the prerequisites for fostering community formation. A comfortable, humane residential environment in an urban housing complex is characterized by a diversity of architectural, spatial, and planning solutions, integrating natural elements and placing a strong emphasis on human sensory and perceptual experience. The article examines the methods and techniques used to create spaces for living and leisure at the Barbican complex, highlighting humanistic aspects of the residential environment, such as architectural and typological diversity, a comfortable scale, distinctiveness, identity, and a harmonious blend of old and new elements. The research findings may be applied in future projects when designing contemporary residential environments.*

**Keywords:** *residential complex, Barbican, brutalism, housing experiment, living environment.*

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## БАРБИКАН ТҰРҒЫН ҮЙ КЕШЕНІ ТҰРҒЫН ҮЙ ОРТАСЫН ҰЙЫМДАСТЫРУ ТӘЖІРИБЕСІ РЕТІНДЕ

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**Аңдатпа.** Қазіргі уақытта тұрғын үй кешендеріндегі жайлы өмір сүру ортасын ұйымдастыру әртүрлі себептерге байланысты барған сайын өзекті бола түсуде. Уақыт сынынан өткен және бүгінде өз маңыздылығын жоғалтпаған тұрғын ортаны қалыптастыру ерекшеліктерін тереңірек зерделеу мақсатында өткенге жүгіну маңызды болуда. Бұл тұрғыда Лондондағы Барбикан тұрғын үй кешені мысал ретінде қарастырылады. Зерттеу тақырыбы бойынша теориялық еңбектерді, онлайн дереккөздерді, тарихи материалдарды талдау, жинақтау және синтездеу нәтижесінде, сондай-ақ пәнаралық дискурс тұрғысынан тұрғын үй кешенінің тұрғын ортасын ұйымдастырудың ерекшеліктері айқындалады – архитектура мен дизайн тұрғысынан да, адам қабылдауы психологиясы мен қауымдастық қалыптастыру алғышарттары тұрғысынан да. Жайлы және гуманистік бағыттағы қалалық тұрғын үй кешенінің ортасы архитектуралық, кеңістіктік, жоспарлау шешімдерінің әртүрлілігімен, табиғи элементтердің енгізілуімен ерекшеленеді және ең бастысы – адамның сезімі мен қабылдауына бағдарланған. Мақалада Барбикан тұрғын үй кешенінің тұрғындары үшін өмір сүру мен демалыс кеңістіктерін қалыптастыру әдістері мен тәсілдері талданып, тұрғын ортаның гуманистік қырлары анықталады. Оларға архитектуралық және типологиялық алуандылық, ыңғайлы ауқым, кешеннің танымалдылығы мен бірегейлігі, сондай-ақ ескі мен жаңаның үйлесімді байланысы жатады. Зерттеу нәтижелері заманауи тұрғын үй кешендерінің тұрғын ортасын жобалау барысында пайдалануға ұсынылады.

**Түйінді сөздер:** тұрғын үй кешені, Барбикан, брутализм, тұрғын үй эксперименті, тұрғын орта.

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## ЖИЛОЙ КОМПЛЕКС БАРБИКАН КАК ЭКСПЕРИМЕНТ ОРГАНИЗАЦИИ ЖИЛОЙ СРЕДЫ

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**Аннотация.** Организация комфортной жилой среды жилых комплексов в настоящее время приобретает в силу различных причин все большее значение. Становится важным обратиться назад с целью более детального рассмотрения особенностей формирования жилой среды жилища, которое прошло проверку временем и не утратило своей актуальности в настоящее время, на примере лондонского жилого комплекса Барбикан. На основе анализа, обобщения и синтеза теоретических работ, онлайн источников, исторических материалов по теме исследования и с позиций междисциплинарного дискурса выявляются особенности организации жилой среды жилого комплекса, как со стороны архитектуры и дизайна, так и с точки зрения психологии человеческого восприятия и предпосылок для формирования сообщества. Комфортная – гуманная жилая среда городского жилого комплекса обладает таким качеством как разнообразие архитектурных, пространственных, планировочных решений, с включением природных элементов и обязательно ориентирована на чувства и восприятие человека. В статье анализируются методы и приемы формирования пространств для жизни и отдыха жителей комплекса Барбикан, что позволило выделить гуманистические аспекты жилой среды, такие как архитектурное и типологическое разнообразие, комфортный масштаб, узнаваемость комплекса и его идентичность, а также гармоничное сочетание старого и нового. Полученные результаты исследования могут быть использованы в дальнейшем при проектировании жилой среды современных жилых комплексов.

**Ключевые слова:** жилой комплекс, Барбикан, брутализм, жилищный эксперимент, жилая среда.

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### **CONFLICT OF INTEREST**

The authors state that there is no conflict of interest.

The authors declare that no generative artificial intelligence technologies or AI-based tools were used in the preparation of this article.

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### **АЛҒЫС / ҚАРЖЫЛАНДЫРУ КӨЗІ**

Зерттеу жеке қаржыландыру көздерін пайдалана отырып жүргізілді.

### **МҮДДЕЛЕР ҚАҚТЫҒЫСЫ**

Авторлар мүдделер қақтығысы жоқ деп мәлімдейді.

Авторлар мақаланы дайындау барысында генеративті жасанды интеллект технологиялары мен жасанды интеллектке негізделген технологияларды пайдаланбағанын мәлімдейді.

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### **БЛАГОДАРНОСТИ/ИСТОЧНИК ФИНАНСИРОВАНИЯ**

Исследование проводилось с использованием частных источников финансирования.

### **КОНФЛИКТ ИНТЕРЕСОВ**

Авторы заявляют, что конфликта интересов нет.

Авторы заявляют о том, что при подготовке статьи не использовались технологии генеративного искусственного интеллекта и технологии, основанные на искусственном интеллекте.

## 1 INTRODUCTION

The concept of the residential environment encompasses apartments, houses, residential complexes, and external spaces such as courtyards, streets, and squares - essentially, the places where the daily activities of residents unfold. The residential environment serves as a tangible reflection of a society's culture, structure, and relationships. When thoughtfully organised, it can shape behaviours and improve the quality of life, thereby fostering a desirable living environment that remains relevant for many years. The quality of the residential environment impacts not only the demand and competitiveness of housing, but also the health and cohesion of its residents.

The design of mass housing in the post-war period became a topic of political and cultural debate (Mumford, 1992). Architects believed that acceptable living conditions could be provided for the masses primarily through large residential complexes (Strigalev & Han-Magomedov, 1972). It was envisioned that such complexes would transcend the mere function of habitation, creating instead a comfortable living environment (Smithson, 1955). A series of housing projects aimed to propose experimental alternatives to the principles of the Athens Charter, offering innovative solutions to urban challenges through residential organisation. Two parallel approaches can be identified in the organisation of residential environments: one sought to overcome architectural limitations imposed by industrial technologies and standardisation, while the other - a contextual approach - focused on integrating existing urban contexts and cultural traditions (Shipicyna & Margushin, 2013).

Architects pursued humanistic goals, striving to create a new world free from overcrowding, epidemics, conflict, and inequality. They believed architecture could play a role in shaping a sense of community. Simplicity of form, honesty in materials, and the integration of spaces (Crosby, 1955), became synonymous with democracy. The influence of architects and architectural design was seen as profound and far-reaching (Ryabushin, 1983). Perhaps the most significant project in terms of creating a humane residential environment is London's Barbican Estate, built in the Brutalist style between 1965 and 1982.

This study aims to identify the distinctive characteristics of the Barbican Estate's residential environment, focusing on its spatial and architectural planning, typological diversity, and developed infrastructure – all factors that have contributed to its enduring comfort, relevance, and desirability. The findings are expected to inform more deliberate approaches to the design of contemporary housing, inspired by the ongoing success of the Barbican model.

## 2 LITERATURE REVIEW

The war-damaged housing, emergent crises, and pervasive poverty gave rise to numerous social challenges that needed to be addressed rapidly. Key trends focused on finding solutions that prioritized speed and cost-effectiveness, not only emphasizing production efficiency but also considering societal needs. Equally significant was the spatial organization of housing within the urban framework, which was driven by the goal of minimizing travel time, architects' visions of a comfortable living environment akin to traditional urban settings, and the imperative to resolve pressing urban problems while respecting both heritage and future development.

During this period, efforts were primarily directed towards creating a humane environment, one that embraced a wide range of material and spiritual dimensions - a crucial consideration for cities and individuals ravaged by war. Such endeavours served as a foundation for more liberal and socialist approaches (Moravanszky, 2017). A humane environment was understood as one that offered psychologically and physiologically comfortable living conditions, shaped by internal social and cultural factors that redefined housing as an interconnected system. In this context, Borthwick G. (Borthwick, 2011), highlighted the importance of thoughtful planning from the outset, emphasizing several key strategies essential for a residential complex's long-term success as a thriving community and desirable living space:

a) Sound planning – by taking into account development density, the diversity of buildings, and the arrangement of buildings and open spaces within a mixed-use development, can enhance the

community's overall perception, foster a shared culture, and encourage shared consumption experiences.

b) the philosophy of urban design - the theory upon which decisions were based within the project framework - including those concerning pedestrian and vehicular movement, the diversity and quantity of open spaces, and landscape solutions.

c) the significance and high level of attention to architectural and design details in the organisation of public spaces.

d) a thorough consideration of socio-economic factors that contributed to the success of the project, including multifunctionality, mixed-use development, variation in building heights, the design of high-quality housing, local community management of the complex, and partial self-sustainability through the inclusion of specialised cultural facilities.

The Barbican residential complex is a significant landmark of its time and a response to the already established image of urbanized living (**Mukhamedzyanova, 2009**). The studies of this unique complex in the heart of London, characterised by high population density and still relevant and beloved by its residents, have attracted the attention of architects and urban planners for over half a century (**Tostoes & Ferreira, 2018**). The architectural rigor of the project, its multifunctional program, and scale make the Barbican a highly significant work in the evolution of post-war British architecture. Although the complex is grounded in leading architectural concepts based on rationalism, the organisation of its residential environment has become a subject of study for specialists from various fields. The findings from these studies can undoubtedly be applied to the design of residential environments in contemporary housing complexes.

In contemporary research, the interest in the Barbican complex as urban housing is quite diverse and is linked to the examination of:

- the history of the site, archaeology, and the underlying assumptions of its design (**Sandes, 2018; Dzhenkins, 2021**);

- the selection of spatial and planning solutions, along with architectural features of modernism and brutalism (**Tostoes, Ferreira, 2021**);

- placement, organisation, and operation: public spaces within the residential complex; and the integration of housing into the urban fabric (**Mukhamedzyanova, 2009**);

- the identity and identification of residents with the residential environment of the complex, from the perspective of the relationship between the organization of the architectural space and the formation of the community (**Sandes, 2014; Semprebon, 2017**), highlighting that not only do the residents strongly identify with the place, but also many of those who work there (**Biehl et al., 2014**). Furthermore, from the perspective of the designed public open spaces, which shape open areas resembling London squares and create an atmosphere for residents reminiscent of the traditional old London architecture (**Dieffenbacher, 2018**);

- methods for improving urban housing from the perspective of studying typologically diverse buildings on the site, with mixed-use development (**Chopalavov, 2003**), and the organisation of multi-level pedestrian spaces within the residential environment of the complex (**Lisina, 2020**).

Despite the diversity of theoretical studies, this article aims to explore the specific features of the formation of the residential environment within the complex and to identify the humanistic aspects, which, in our opinion, are reflected in the variety of approaches and methods used to create spaces for living and leisure.

### **3 MATERIALS AND METHODS**

The research methodology is based on a comprehensive approach, involving the analysis, generalisation, and synthesis of literary, scientific publications, and online sources. The sources considered directly addressed the research topic as well as the interdisciplinary discourse aimed at defining the characteristics of the formation of the residential environment within the complex. The materials selected for citation were those that most fully aligned with the objectives of the article.

A significant contribution to the research was made by the photographic documentation and observations of Dr. Architecture A.T. Akhmedova, based on her personal observations during a visit to the Barbican complex.

The following tasks were set within the scope of the research:

- identifying the architects' intentions regarding the organisation of the site, based on the consideration of advanced ideas for residential environment formation in the 1950s-1960s;
- Identifying the characteristics (methods and techniques) of the residential environment organisation at the Barbican complex, which remain relevant today.

When considering the organization of the living environment from a humanitarian perspective, attention should be given to human activities and their spatial surroundings - the environment that determines the behaviour of the user, unconsciously producing and reinforcing the values accepted in society. In examining the qualities of the residential environment from the standpoint of traditional housing development (Arakelyan, 2011), comprehensive land use based on theoretical methods of information study and systematisation (Baluhina & Gibadulina, 2021), and empirical studies of the physical activity of residents (Baluhina & Gibadulina, 2022), as well as research on the organisation of residential quarters in European countries through methods of comparison and generalisation, researchers identify the humane (qualitative, value-based) aspects. A key condition here is the interconnection and mutual influence between the architectural environment and the individual's awareness of their surroundings, i.e., the human factor – the “spiritual” (internal) factor, reflected through cognitive features, visual perception, and behaviour. Based on an interdisciplinary approach, Arakelyan R.G. (Arakelyan, 2011) identified key aspects of spatial behaviour, reflected in the psychological and visual perception of the traditional environment, characterised by typological and functional diversity, a well-developed infrastructure, the inclusion of natural elements, recognisability, and a comfortable scale, which the author refers to as “traditional historical values”. In our view, these “values” are an important condition for creating a humane living environment. The starting point in forming a humane living environment, especially in the city, also includes the successful implementation of construction-technological (Vologdina & Yarukov, 2018) and socio-spatial characteristics, natural-landscape organisation of the territory, and the creation of spaces for intensive pedestrian activity, promoting walking and interaction among residents, following the important principle of “designing emotions” (Dagdanova, 2014). Approaching a high level of the aforementioned characteristics determines the solution to the main task of a “humane” living environment, namely, the comfort of living and the social effectiveness of the designed object. Based on the qualitative characteristics of the living environment outlined above, the article discusses architectural techniques and methods reflected in the design of the “space of dialogue” in the development of the residential environment of the London Barbican complex.

#### 4 RESULTS AND DISCUSSION

The area of London was severely damaged by bombing during the war, with many buildings being destroyed. The vacant land, strategically located in the heart of London (a 35-acre site), long known as the Barbican, was decided to be developed for mass housing. A competition was announced by the city authorities, with the winning project coming from the architectural firm Chamberlin, Powell & Bon. The architects – Peter Chamberlin, Geoffrey Powell, and Christoph Bon (Hughes, 2022) proposed creating a residential quarter on the site, a sort of architectural and social experiment, equipped with housing and all the necessary infrastructure, embodying the leading architectural ideas of their time. As advocates of modernist style, the architects used Brutalism as a symbol of London's revival after many years of horror and widespread destruction.

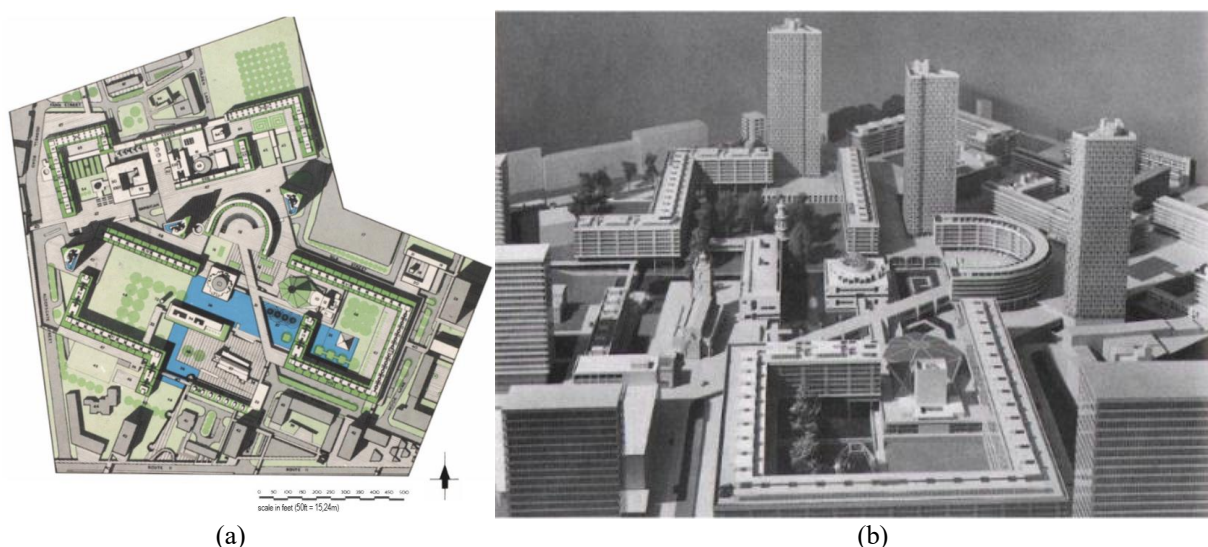
According to the master plan, the designated area accommodates residential buildings (in the form of three towers, each 42-44 stories high, thirteen seven-story residential buildings, and townhouses), educational and cultural facilities (a music and drama school, a girls' school, a cultural centre, a gallery, a library, a theatre, and a cinema), and recreational spaces (cafés, restaurants, a greenhouse, a private artificial pond with rest areas and fountains). The entire complex forms a

cohesive ensemble (**Tsubaki, 2012**), linked by air bridges, corridors, staircases, walkways, pedestrian paths, and landscaped and water features, creating a unified space—a living organism in the heart of the city (**Figure 1**). Architects considered the combination of housing, leisure, education, and culture as key elements for the success of the project—both from a social and financial perspective. To achieve financial objectives, the concept of mixed-use development was employed, integrating various functions within the building.

It is no secret that as cities grow, their central areas gradually become emptied of residential neighbourhoods, increasingly giving way to public and commercial spaces (**Frearson, 2014**). The Barbican, on the other hand, is one of the largest residential complexes in terms of land area. Its primary design concept focused on ensuring the maximum comfort for its residents and protecting them from the negative effects of the bustling city centre. According to experts, the Barbican is a unique project not only because of its scale and the infrastructure it provides, but primarily due to the reintegration of a large residential development into the city centre. “... In our scheme, the need to simultaneously meet three different requirements – high-density housing, schools, and large open spaces - was addressed by transforming the existing, decayed area into a large garden” (**Chamberlin, Powell & Bon, 1959**), which is a rare occurrence in large cities like London.

Raising the complex above street level on stilts allowed for the separation of pedestrian and vehicular traffic, enhancing safety. Continuous ribbon windows ensured an influx of natural light—an important consideration in the frequently overcast British climate. The integration of natural elements such as water and greenery contributed to creating spaces with visual qualities reminiscent of traditional residential architecture.

In summary, the Barbican’s distinctiveness lies in its successful balance of unity and variety. Unity is embodied in its coherent compositional vision and brutalist architectural language, while variety is reflected in the diverse array of living and recreational spaces. These spaces differ in design yet are equally functional, comfortable, and human-centred.



**Figure 1** – Master plan of the Barbican residential complex, 1959 (a); Model of the complex, 1959 (b) (**Chamberlin, Powell & Bon, 1959**)

The diversity of the housing complex is evident in several key organisational features:

- the building volumes were determined by the inclusion of high-rise residential towers, mid-rise apartment buildings, low-rise homes with individual entrances and plots, standalone public and educational buildings, as well as large recreational areas with their own distinct atmosphere. “The architectural scale evolves in three stages: from the modest and often intimate layer at the pedestrian level, through the larger scale of the upper layer of long terrace-balconies... to the powerful vertical dimension expressed by the towers. Everywhere, the main design goal was to create a sense of clarity without monotony” (**The Barbican Estate, 2021**) as noted by the project architects.



- in terms of spatial organisation, this involves a harmonious combination of greened and water-enriched spaces, transitional and intimate areas, residential and public spaces, where buildings are not perceived in isolation, but rather blend with the various levels of the landscape (**Smirnova, 2015**). Furthermore, it is important to note the thoughtful separation of pedestrian and vehicular flows across different elevation levels. The residential complex is situated on a concrete platform raised 5-10 metres above the surrounding area (**Figure 2 (a)**), Vehicle movement occurs at ground level, while pedestrian walkways are positioned on the platform level, fully separated from traffic. Parking areas for cars and bicycles are also located at ground level.

Mobility played a crucial role in the development of the project. The highwalk pedestrian system is an integral part of the design. The concept of living just minutes away from work and amenities, which helps reduce overcrowding and, consequently, the daily stress of urban residents, was a key condition of the project. Some critics initially viewed the highwalk system as an unfortunate aspect of the design (**Benem, 1973**). However, considering the architects' interest in creating a secluded oasis for its residents, the elevated walkways achieve exactly that – they establish a boundary around the complex, resembling a fortress:

- in the successful synthesis of open, semi-open, and closed spaces, a spatial and visual diversity is created, revealing new views and perspectives. Bradley S. and Pevsner N. described the landscape design of the Barbican as one created within the realm of the sublime and picturesque, evoking grandeur and awe in its aesthetic and spiritual components. This was reflected in the contrast between the tall towers and the horizontally stretched five-story residential blocks, as well as, for instance, in the bridge - a crossing over the lake, from where “one can admire the swirling waters of the cascades, as if from a bridge over a mountain gorge” (**Bradley & Pevsner, 1997**);

- the combination of straight and curved lines in the spatial design, where the environment and form are created using primitive lines, with rounded forms providing not only structural integrity but also symbolising the completeness of form and line, both in the buildings and the landscape, thus creating a “pattern” in the facade designs;

- the volumetric-spatial dynamic contrast, where tower-type buildings, horizontally elongated six-storey houses, and townhouses are successfully positioned. To emphasise the strict orthogonal geometry of the towers and terraces, a semi-circular bend is highlighted in the floor plan, with vaulted canopies on the terraces, round forms in the landscape organisation, and water recreational elements such as fountains and waterfalls;

- the design of door and window openings, navigation systems (signs and markers), resting and leisure areas, down to the smallest details for the apartments, such as stylish modern door handles and light switches;

- methods and techniques in the organisation of water features: in one area, there is a lake with a waterfall, in another – calm water surfaces, and in a third – fountains. Meanwhile, the creation and integration of water elements and greenery into the living environment has contributed to the “softening” of the visual perception of the harsh concrete surfaces of the main buildings, where the contrast between the harsh architecture and nature creates a unique and distinctive atmosphere;

- the texture of the building surfaces. In concrete, as the main material for residential buildings of the 1960s, architects saw honesty towards the residents and an unhidden beauty. However, in the Barbican complex, the concrete surfaces were reinterpreted by the architects through the creation of various textures: smooth polished, rough, with the inclusion of stone chips, which give the surfaces visual diversity. To complement the concrete and balance its visual massiveness and monolithic appearance, dull red brick was chosen, reminiscent of the old warehouse buildings that once stood on the site. The colour of the red brick was selected for the public buildings, high-level walkways, and some podium buildings, reflecting the colour contrast, scale, and texture;

- the colour scheme: the monotonous concrete surfaces of the building contrast with the brick walls, the coloured coating of the pathways and playgrounds, and, of course, the greenery - lawns, shrubs, trees - which change colour depending on the season;

- the integration of a 16th-century church building and an old preserved section of the fortress wall into the modern construction (**Allan, 2021**), representing the organic combination of the old and

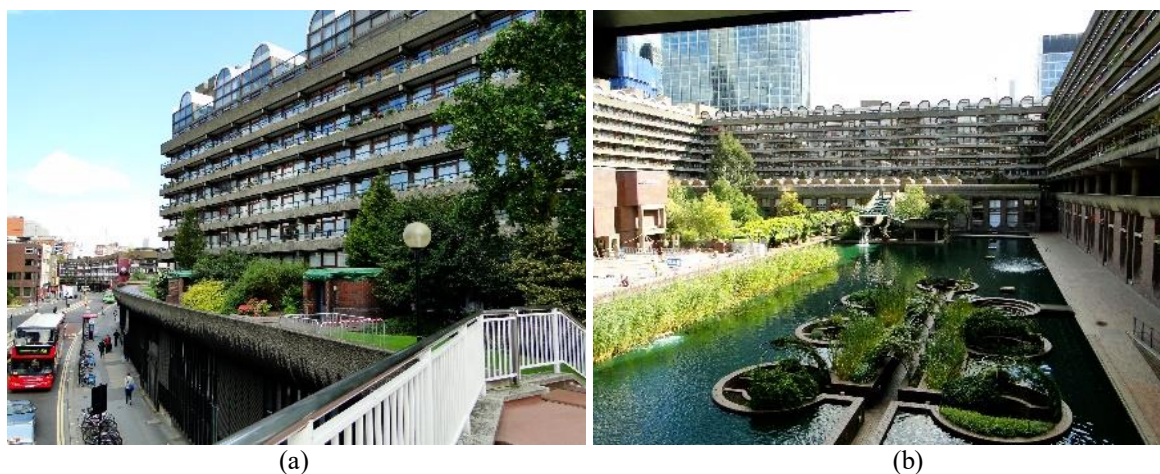
new, tradition and modernity. References to the history of the place can also be traced in the naming of the residential blocks, named after prominent figures (e.g., the Defoe House, More House, Shakespeare House, etc.).

- in the layout of the apartments – from one-bedroom studios to three-storey penthouses and houses with adjacent plots - the design was developed to maximize natural light in all rooms. As such, bedrooms, dining rooms, and living rooms are positioned along the outer walls, while kitchens and bathrooms are placed along the inner walls. Meanwhile, the open spaces are designed to reflect the typical size familiar to Londoners – akin to the classic residential garden spaces of early London buildings - on a human scale. This design allows for the awareness of others using or living on the opposite side of the space, while still providing a comfortable level of privacy.

The arrangement and design of the apartments reflect a strong modernist influence: this is evident in the interior organisation, the careful attention to spatial proportions, and the “open” layouts with private balconies. Typically, an apartment would have only two doors - one to the bathroom and one to the entrance - leaving the remainder of the space configured to accommodate various functions and the diverse needs of residents.

The transformation potential of the living space was addressed through the use of sliding shutters, which expanded the room by integrating the balcony, visually merging it with the natural environment of the courtyard. This approach extended the concept of the home beyond the doorstep, transforming it into a beneficial surrounding environment - a personal habitat.

A synthesis of private living and urban life was achieved by creating spaces equally accessible and convenient for both local residents and city dwellers. For example, the Barbican Centre, located in the heart of the development, houses contemporary art galleries, performance halls, a public library, a winter garden, theatres, cinemas, and schools. These facilities attract people from across London, embodying the idea of blending private and public life. As Europe’s largest multi-functional arts centre, the Barbican offers public spaces that serve various audiences - residents of the complex, local community members, and visitors from the wider city. These spaces can be indoors, outdoors, or sheltered, spanning levels from ground floor to the elevated podium. Furthermore, the spaces themselves vary in nature, from open public areas connected to the external city environment to more intimate semi-private gardens adjoining the residential blocks (**Figure 2(b)**). This variety of public spaces has been one of the key conditions fostering a sense of community.



**Figure 2** – The Barbican residential complex: view from the bridge (a); the recreational area of the Barbican residential complex (b) (author’s material)

The thoughtful design of public spaces, on the one hand, encourages interactions among residents, and on the other, supports visual oversight of the complex’s territory. This balance between interaction and supervision has helped establish an active local community that maintains order, deliberates on the necessity and feasibility of modifications to the housing structure, organises events, and provides spaces for communal activities and hobbies (such as club rooms accessible to all

residents). They also arrange children’s playgrounds, strengthening social ties and passing on cultural values. In doing so, they bring to life the architects’ aspiration to create an ideal way of living.

A socially diverse resident population was anticipated, with apartments of varying sizes and configurations placed in buildings of differing heights, offering choices based on financial means and/or desired level of comfort (Barbican Londen, 2020). Regarding occupancy, the architects aimed from the outset to ensure a balanced composition of the projected permanent population, comprising families, couples, and single individuals. As a result, while preliminary research indicated the greatest potential demand would come from young urban professionals, only 4% of the 2,014 completed units are single-room apartments. The remaining distribution includes 40% three-room units, 26% two-room units, 22% four-room units, and 8% five-room units.

It is worth noting that the architects’ approach to the design and spatial organisation of the residential complex was based not solely on housing as a material expression, but also took into account the visual and psychological aspects of human perception. This resulted in an integrated living environment that is equally comfortable for people of varying income levels, occupations, family structures, and ages. The complex today stands as evidence that, with well-considered residential planning, it is possible to create comfortable living conditions while simultaneously achieving high-density development.



Figure 3 – The Humanitarian aspects of organizing the residential environment of the Barbican Complex (author’s material)

The duration of construction and the shift in societal priorities regarding the Brutalist style in the early 1980s led to criticism of the residential complex. However, despite the critical responses, the experiment in creating a comfortable living space for urban dwellers was hugely successful, both among residents and architects worldwide. The alienating architecture of the complex's buildings, combined with the carefully considered organisation of the living environment, provides residents with conditions that are distant from the realities of the noisy, fast-paced urban life. It fosters a sense

of community and safety while simultaneously creating a comfortable living environment. From this perspective, one can conclude that a comfortable and humane living environment in an urban residential complex should possess qualities such as architectural, spatial, and planning diversity, the inclusion of natural elements, and a clear focus on the feelings and perceptions of the individual (Figure 3).

## **5 CONCLUSIONS**

The diversity in the volumetric and spatial planning solutions of the Barbican residential complex's living environment is achieved through the harmonious combination of open and enclosed spaces, interior and exterior design elements, and the incorporation of natural elements, despite the monotonous concrete construction typical of the Brutalist style. This thoughtful and meticulously planned organisation of the living environment ensures a comfortable space for living, recreation, and work.

Approximately 60 years after the construction of this large residential complex, the following observations can be made:

1. contrary to the usual tendency for residential areas to be pushed out from city centres, a large residential district has been established in central London, alleviating its residents from many of the negative issues typically associated with living in an intensively functioning city centre;

2. despite the unpopularity and seemingly inappropriate nature of Brutalism for residential buildings, the Barbican area remains highly popular and demonstrates a high level of functionality across all of its zones;

3. the concept of a 'fortress' did not result in a rigid separation from surrounding areas. Instead, it manifested in the clear and successful functional division of residential, pedestrian, and recreational zones from traffic routes, car parks, and other service functions. The Barbican is open for visits and walks not only to its residents but also to anyone wishing to enjoy it. Thus, the complex is fully integrated into the urban environment. Despite being located in the historical centre of a large metropolis, it provides its residents with conditions comparable to living in a green suburban area, which means that the desired comfort and quality of life have been achieved at a sustainable level.

The humane aspects of the Barbican residential environment can be identified as:

1. architectural and typological diversity and a comfortable scale;

2. the recognisability and identity of the complex, blending old and new elements;

3. a high level of natural elements;

4. high-quality landscaping;

5. a well-developed infrastructure.

The modernist architecture of the Barbican residential complex continues to attract people primarily due to its carefully considered organisation of the living environment. Despite the Brutalist style being ostracised by residents and architects in many countries, due to numerous unsuccessful projects, the Barbican estate demonstrates how the harmonious combination of architecture, design, nature, and society (active community) can be a successful realisation of utopian architecture, both comfortable and in demand for many years.

Today, the Barbican is considered a significant architectural achievement and has been designated as a Grade II listed building due to its architectural interest, scale, planning, and social cohesion. It is no coincidence that Queen Elizabeth II, during the complex's opening in 1982, referred to it as one of the wonders of the modern world. The living environment of the Barbican continues to be highly sought after, providing not only comfortable living spaces for its residents but also attracting local citizens and numerous tourists.

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