PRINCIPLES OF FORMING SOCIAL SPACES IN MULTI-STOREY RESIDENTIAL COMPLEXES (CASE STUDY OF TASHKENT CITY)

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Abstract: This article is devoted to the scientific and theoretical study of the principles of forming social spaces in multi-storey residential complexes in Tashkent city. As a result of intensive construction work carried out in the capital in recent years, more than 40 new residential complexes have been built. However, in most of these complexes, spaces that ensure social activity and mutual solidarity of the population have not been sufficiently formed. The study developed criteria for organizing social spaces based on modern architectural and urban planning theory, as well as the "vertical neighborhood" concept. As a result of graphic-analytical and comparative analyses conducted on the examples of Tashkent's "Darbon," "Grand Chirchiq," and "Durmon" complexes, shortcomings in the functional zoning, accessibility, and compositional solutions of existing social spaces were identified. At the end of the study, based on the conceptual model proposed by the authors, five main principles for forming social spaces in new residential complexes were developed: hierarchy, multifunctionality, accessibility, climate adaptation, and identity. The introduction of these principles into design practice will serve to improve the quality of life and social capital of the urban population.

Keywords: social space, multi-storey residential complex, vertical neighborhood, public space, architectural environment, Tashkent, urban planning

INTRODUCTION

Since the years of independence, Tashkent city has been experiencing an intensive stage of urbanization. According to the Tashkent Master Plan developed based on the Decree of the President of the Republic of Uzbekistan dated November 23, 2022 "On additional measures to improve urban planning activities and develop the city of Tashkent," the capital's territory will be expanded to 43.7 thousand hectares, and more than 200 new multi-storey residential complexes are planned to be built by 2030 (President of the Republic of Uzbekistan, 2022). In a situation where population density is increasing and the number of multi-storey buildings is growing, the quality of the urban environment and the social well-being of the population become relevant. In modern urban planning, housing is considered not only as an individual's personal space but also as a fundamental element of the social structure where community relations are formed (Rapoport, 2018).

However, most of the multi-storey residential complexes built in Tashkent in recent years are designed based on the priority of commercial interests. According to a study conducted in 2023 by sociologists of the National University of Uzbekistan, 67% of residents in new complexes do not know their neighbors, and local community ties are weakened (Usmonov & Qodirova, 2023). As a result, open and closed public spaces (sports grounds, recreation areas, neighborhood centers, common parks) that serve to meet

the daily social needs of the population remain of secondary importance, or their functional quality remains low. This situation leads not only to a decrease in social capital but also to the inefficiency of collective actions such as common property management and improvement of the residential environment (Tykanova & Tenisheva, 2020).

In this regard, the concept of the "vertical neighborhood" that emerged in Soviet-era architecture needs to be reinterpreted. The "Zhemchug" ("Gavhar") building, designed in 1974 by architect O. Aydinova, as the first multi-functional multi-storey building in Tashkent, still has unique significance today with its constructive and social aspects. It advanced the idea of strengthening neighborly relations through public spaces and common areas (Maggio, 2023). In modern Tashkent conditions, it is an urgent task to combine these ideas with new technologies and urbanistic approaches.

The main purpose of this study is to develop scientifically based principles for forming social spaces in multi-storey residential complexes using the example of Tashkent city.

To achieve this goal, the following **tasks** were defined:

1. To conduct an architectural-functional analysis of existing social spaces in modern multi-storey residential complexes in Tashkent;
2. To determine the criteria for organizing social spaces based on advanced foreign experience and local traditions (neighborhood institution);
3. To assess the effectiveness of social spaces using comparative analysis and graphic-analytical methods on the example of selected objects;
4. To propose principles and a conceptual model based on the final conclusions that can be applied in the design process.

Research object – new multi-storey residential complexes located in various districts of Tashkent city ("Darbon," "Grand Chirchiq," "Durmon").

Research subject – the formation patterns of social spaces in these complexes, their functional, compositional, and ergonomic characteristics.

Scientific novelty – for the first time, using the example of Tashkent city, social spaces in modern multi-storey residential complexes have been comprehensively analyzed in the context of the "vertical neighborhood" concept and modern urban theories, and scientifically based principles for their formation have been developed, taking into account local climatic, cultural, and social characteristics.

Practical significance – the research results and developed principles can be used by architects, urban planners, and investment companies in designing new residential complexes in Tashkent and other major cities of Uzbekistan. Also, these materials can serve as a teaching aid in the courses "Architectural Design" and "Urban Planning" in higher education institutions.

METHODS

A number of scientific methods were used in conducting the research. This set of methods is determined by the complexity and multifaceted nature of the topic, the need to study both material (architectural) and non-material (social) factors.

2.1. Comparative Analysis

At the initial stage, three large multi-storey residential complexes in Tashkent city were selected: "Darbon" (Mirzo Ulugbek district), "Grand Chirchiq" (Yangihayot district), and "Durmon" (Yunusabad district). The selection criteria included the year of construction of the complexes (2018–2024), number of storeys (12–25 storeys), location, and population density. The types, numbers, and relative locations of existing social spaces in these objects (courtyard areas, children's and sports grounds, common halls, trade and service facilities) were compared. The comparative analysis also included the study of foreign experience: analogous objects such as the "Severnaya Dolina" complex (St. Petersburg, Russia), the "Maslak 1453" project (Istanbul, Turkey), and the "Pinnacle@Duxton" complex (Singapore) were analyzed (Chernysheva, 2020; Tan & He, 2021).

2.2. Graphic-Analytical Method

This method was used to determine the place of social spaces in the complex structure and their accessibility. Based on the master plan of each selected complex, functional zone schemes were drawn up. Using elements of the "Space Syntax" methodology developed by Hillier and Hanson (1984), the intersection points of pedestrian paths, the visibility level of social spaces, and the potential intensity of their use were graphically modeled. Indicators such as integration value and connectivity were calculated. Through this analysis, the "liveliness" of existing spaces and how open they were to users were assessed.

2.3. Case Study

The "Grand Chirchiq" project was selected as a special case study. This project, developed by LEVEL80 architects, stands out for its water-green framework and local community center system (LEVEL80 Architects, 2022). Based on project documents and visual materials, its approaches to organizing social spaces (multi-functional areas, block system, pedestrian priority) were studied in depth. This analysis made it possible to identify what advanced solutions exist in modern design

Figure 1. GRAND CHIRCHIQ PROJECT VISUALIZATION

practice and to adapt them to Tashkent conditions.

2.4. Projective Modeling

In the final stage, based on theoretical analyses and practical observations, a conceptual model of social spaces for a multi-storey residential complex was developed. This model is an interpretation of the traditional neighborhood structure in modern multi-storey building conditions, proposing a hierarchical system of spaces at different levels (private, semi-private, semi-public, public). In the modeling process, the principles of architectural composition, ergonomics, and functional zoning were relied upon.

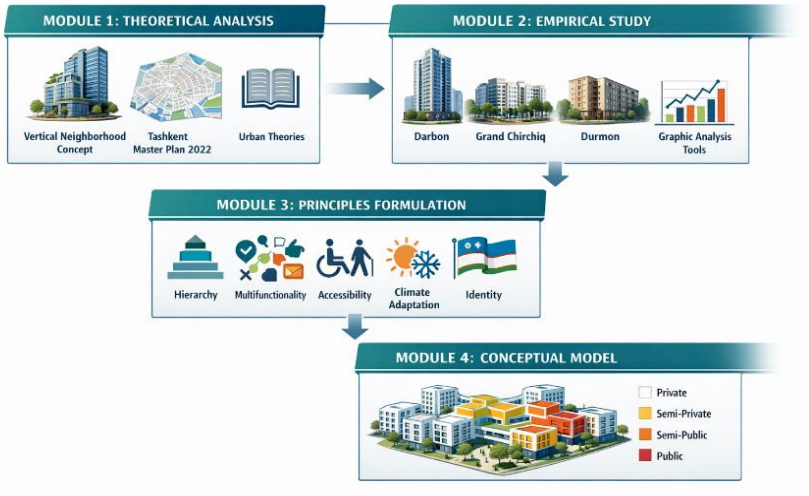

Figure 2.Conceptual framework of the research

3. RESULTS

As a result of the conducted research, a number of important patterns and shortcomings in the formation of social spaces in multi-storey residential complexes of Tashkent city were identified.

3.1. Analysis of the Current Situation

Similar problems were observed in the formation of social spaces in all three analyzed complexes. First of all, the functional monotony of the spaces attracts attention. In the "Durmon" complex, the 3 existing children's playgrounds are equipped with the same type of standard equipment, and there are no special zones intended for teenagers and the elderly. Secondly, due to the lack of parking spaces for cars, courtyards and pedestrian paths are filled with cars, and a safe and comfortable environment for people is lost. In the "Darbon" complex, there are only 120 open parking spaces for 500 apartments, which is 3 times less than the normative requirements. Thirdly, although the first floors of multi-storey buildings are often rented out to shops or offices, their street-facing parts and surroundings are not sufficiently landscaped, and there are no canopies or recreation areas for pedestrians.

Table 1. Comparative parameters of the analyzed residential complexes

Complex name	Year	Total area (yes)	Population density (people/yes)	Open social spaces (number)	Enclosed social spaces	Climate adaptation elements
Darbon	2020	5.2	380	4	No	No
Grand Chirchiq	2024	24.0	420	12	Yes	Yes
Durmon	2018	3.8	450	3	No	No

As can be seen from the data in Table 1, the "Grand Chirchiq" project has the highest indicators, with the largest number and variety of social spaces. The "Darbon" and "Durmon" complexes, on the contrary, have minimal social infrastructure, and they have no enclosed public spaces (coworking, halls) at all.

3.2. Results of Graphic-Analytical Analysis

Space Syntax analysis showed that in the "Durmon" complex, social spaces are located away from the main pedestrian flow, in a dead zone. With a global integration value of 0.42, this indicates that these spaces have low accessibility. This leads to their low attendance and the failure of the social control ("eyes on the street") principle. In the "Darbon" complex, on the contrary, social spaces are scattered and not visually and functionally connected to each other (local integration value 0.38). The pedestrian boulevard and central square system in the "Grand Chirchiq" project, however, connects all spaces to each other, creating a single pedestrian network (global integration value 0.78). This ensures free and safe movement of the population throughout the complex.

Figure 3. DARBON/DURMON EXISTING CONDITIONS

The following diagram presents a comparative view of the functional diversity index of social spaces (calculated based on the Shannon Diversity Index) for the three complexes.

The data in Diagram 1 shows that the "Grand Chirchiq" project has the highest functional diversity (0.85). In the "Darbon" (0.35) and "Durmon" (0.42) complexes, this indicator is much lower, indicating their monotonous functional composition.

3.3. Projective Conclusions

Based on the analyses, it can be concluded that in the existing multi-storey residential complexes in Tashkent, social spaces are formed not on the basis of a systematic approach, but on a residual principle. Their main shortcomings are as follows:

- Lack of hierarchical structure (unclear boundaries between private, semi-private, semi-public spaces);
- Low multifunctionality (a single space cannot perform different functions at different times);
- Low accessibility (especially for the disabled and youth);

- Failure to take into account climatic conditions (hot summer) (lack of canopies, pergolas, ventilated walkways).

On the contrary, advanced foreign experience and conceptual projects like "Grand Chirchiq" show that social spaces are an integral part of the urban structure and should be

Figure 4.Comparative visualization of existing and prosed courtyard space

designed in harmony with pedestrian priority, mixed functions, and green infrastructure.

4. DISCUSSION

The research results show that the formation of social spaces in multi-storey residential complexes in Tashkent city is a complex and multi-factorial process, closely related not only to architectural-planning but also to socio-economic and cultural context. The identified problems, particularly the functional poverty of social spaces and their low accessibility, are characteristic not only of Uzbekistan but also of other post-Soviet countries. Studies conducted by Tykanova and Tenisheva (2020) in large complexes like "Severnaya Dolina" in major Russian cities also confirm similar problems, i.e., the relationship between the social capital of the population and neighborhood activity, and the growing need for common spaces.

The concept of the "vertical neighborhood," especially in the example of the "Zhemchug" building, had already proven in practice in the 70s and 80s of the last century that it is possible to strengthen social ties in multi-storey buildings through the organization of public spaces (Maggio, 2023). However, today it is necessary to revive these ideas and enrich them with modern technologies. For example, the experience of "neighborhood centers" in St. Petersburg shows that enclosed public spaces (lecture halls, craft rooms, common kitchens) significantly increase the mutual communication of the population (Telekanal Sankt-Peterburg, 2024). These centers play an important role in uniting the community not only through recreation but also through organizing joint events, subbotniks, and even clubs for children.

Analyzing international experience, Singapore's "Pinnacle@Duxton" complex has shown that even in high-density housing, it is possible to create quality social spaces through two sky gardens and common terraces located in 50-storey towers (Tan & He, 2021). This example is also important for Tashkent, as land resources in the city are limited and population density is increasing.

In applying this experience to Tashkent conditions, it is important to take into account local mentality and climate. In traditional neighborhood culture, the public space (guzar, mosque courtyard, teahouse) has always occupied a central place. As Qodirova (2021) notes, the neighborhood institution in Uzbekistan has been not only an administrative unit but also the main form of social capital and mutual support system. To continue this tradition in modern multi-storey buildings, it is advisable to locate public functions on the first floors of buildings, to design canopied terraces and inner courtyards (atriums) that combine them with open spaces. As proposed in the "Darbon Towers" project by Sabri Paşayiğit Architects (2025), using social spaces as a connecting element between the natural landscape (river, garden) and urban infrastructure could be a very promising solution for new complexes along the Chirchiq and Bo'zsuv rivers in Tashkent.

Also, although the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan (2021) "On approval of Urban planning norms and rules" contains requirements for public spaces, they are mainly limited to quantitative indicators (area, number), and qualitative aspects (comfort of space, multifunctionality, climate suitability) are not sufficiently regulated. This leads to social spaces being considered as secondary elements in design practice.

Limitations of the study include the fact that the number of analyzed objects was limited, and it was not possible to conduct a comprehensive sociological survey among the population in all of them. Also, since some data in the "Durmon" and "Darbon" complexes (for example, the exact area of enclosed spaces) were difficult to obtain, the analysis mainly relied on external observation and open sources. Future research should include surveys and interviews to more accurately measure the level of use and satisfaction of the population with social spaces.

5. CONCLUSION

This study, conducted on the example of Tashkent city, has shown that the issue of forming social spaces in multi-storey residential complexes is currently one of the most relevant directions in urban planning and architectural practice. The lack of comfortable and diverse spaces in existing complexes that meet the social needs of the population remains a serious problem.

The main scientific and practical conclusions are as follows:

1. In multi-storey residential complexes in Tashkent, social spaces have not been formed on the basis of a systematic approach. They have low functional diversity (Shannon index 0.35-0.42), no hierarchical structure, and climatic conditions are not sufficiently taken into account.

2. The "vertical neighborhood" concept and modern foreign experience (Singapore, Russia, Turkey) prove that community relations can also be developed in multi-storey buildings. This is achieved by locating public functions on the first floors of buildings and harmonizing open and enclosed spaces.

3. The **Conceptual model** developed as a result of the research (Figure 3) includes five main principles for forming social spaces in multi-storey residential complexes:

- **Principle of Hierarchy:** Gradual transition of spaces according to the degree of privacy (apartment – entrance group – courtyard – neighborhood center);
- **Principle of Multifunctionality:** The possibility of each space being used by different social groups for different purposes at different times;
- **Principle of Accessibility:** All spaces being convenient, safe, and barrier-free for pedestrians;
- **Principle of Climate Adaptation:** Designing canopies, pergolas, water basins, and ventilated walkways in hot climate conditions;
- **Principle of Identity:** Giving each complex a unique image, taking into account local cultural traditions and landscape features.

Practical Recommendations:

- It is proposed to the Ministry of Construction and Housing and Communal Services of the Republic of Uzbekistan to include mandatory minimum parameters and types of public spaces (enclosed public rooms, coworking spaces, gyms) in multi-storey buildings in urban planning norms and rules (ShNQ 2.07.01-21). In particular, it is advisable to establish a norm of at least 50 m² of enclosed common use space for every 100 apartments.
- In the design process, architects and investment companies are recommended to study the social composition and needs of the population and to conduct public discussions. Involving neighborhood activists and civil society representatives in this process will increase the social effectiveness of the project.
- The "water-green framework" and pedestrian boulevard system proposed in the "Grand Chirchiq" project can be considered as a model solution for other complexes. In particular, it is advisable to apply this experience in new complexes being built along the Chirchiq and Bo'zsuv rivers.

Directions for Future Research:

To develop this work, it is advisable to continue research in the following areas:

- Studying the behavior of the population in using social spaces in multi-storey buildings located in various districts of Tashkent based on observations and surveys;
- Testing the proposed principles in practical projects and evaluating their effectiveness;
- Analyzing the possibilities of managing social spaces and increasing population activity through digital technologies (mobile applications, smart home systems).

We hope that the results of this study will serve to develop Tashkent city as a sustainable and humane city, to create not only comfortable but also truly lively and socially active environments in new residential complexes.

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