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ARCHITECTURAL-URBAN PLANNING INTEGRATION AND VOLUMETRIC-PLANNING ORGANIZATION OF TRADE COMPLEXES IN THE CENTRAL ZONES OF THE CITY (ON THE EXAMPLE OF THE CITY OF SAMARKAND).

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Rakhmanova Mansura Bakhtiyarovna

Senior Lecturer, SamSACU

Abstract: *In this article, a scientific analysis of the integration of modern commercial complexes into the architectural and urban planning environment, their volumetric-planning organization, and the principles of functional zoning is carried out. Factors of designing commercial complexes, their role in the central and peripheral zones of the city, interaction with transport systems, and socio-economic significance are also studied.*

Keywords: *commercial complex, urban planning integration, volumetric-planning solution, atrium, zoning, urban environment, sustainable construction..*

INTRODUCTION

The issue of integration of commercial complexes into the architectural and urban planning structure of central urban areas is considered as one of the key directions of modern urbanization. Particularly complex is the placement of new commercial infrastructure in historically formed city centers, which represents a multifactor system. Here, not only economic efficiency is important, but also the preservation of the historical environment, coordination with the transport system, management of pedestrian flows, and improvement of the quality of public spaces.

In the modern development of cities, commercial complexes form an integral part of economic and social infrastructure. They act not only as objects of trade activity, but also as public spaces, communication nodes, and recreational zones. In the conditions of intensified global urbanization, shopping centers have a significant influence on the functional and compositional structure of the urban environment.

Main part. A commercial complex is a multifunctional architectural object in which retail shops, service facilities, entertainment zones, catering establishments, and sometimes office and residential elements are integrated. Commercial complexes are important functional elements of the modern urban planning and architectural system. They not only organize trade activity, but also play a key role in the formation of the social, recreational, and cultural environment. Modern shopping centers, as a rule, are designed on the basis of the concept of mixed functions.

In the urban structure, shopping complexes perform the following functions:

In central districts they serve as “magnets,” stimulating economic activity. These facilities satisfy the everyday needs of the population, regulate pedestrian flows, and form public spaces. Of particular importance are shopping complexes located in the city center, as they are closely connected with the transport system, which requires the integration of transport and logistics solutions. Shopping complexes on the periphery contribute to the formation of new urban centers, which is associated with the processes of suburbanization and the development of the “polycentric city” model.

The integration of shopping complexes into the architectural and urban planning environment implies not the mechanical placement of buildings within the urban structure, but their formation in harmony with the existing urban context. In this process, a deep analysis of the morphology of the city center is carried out, including the street network, the system of squares, historical objects, and the relationship of public spaces.

The volumetric-planning organization of shopping complexes is considered a complex multi-level system. The central internal courtyard, or atrium, performs the main compositional and functional role. This space is organized not as a fully enclosed zone, but as a semi-open public space, visually and functionally connected with urban squares. As a result, it becomes an environment that supports not only commercial processes but also social activity. The atrium serves as an important platform for holding events, recreation, and the development of social connections between people.

The gallery passages in this system are of particular importance. They are formed on the principle of traditional city streets and serve as spaces that naturally guide and distribute pedestrian flows. The placement of small retail units along these passages ensures the continuity of commercial activity and creates a convenient and intuitively understandable environment for users. As a result, the internal territory of the shopping complex is perceived as a continuation of the urban environment rather than as an artificially created enclosed space.

The system of shops is arranged along the perimeter and divided into small modules. This approach makes it possible to avoid massive enclosed blocks and adapt the complex to the scale and rhythm of the historic urban environment. Each retail unit has direct access from the street, which strengthens the active integration of the complex into urban life and softens the boundaries between the internal and external space.

The system of public spaces is also an important part of the planning solution. Open areas organized inside and outside the complex function in integration with urban squares. These spaces serve as transitional zones, providing a natural transition for users from one functional area to another. As a result, not sharp boundaries between spaces are formed, but smooth transitions.

Vertical circulation elements, such as elevators, escalators, and stairs, are not placed in central compositional zones but in relatively concealed or peripheral parts of the complex. This approach prevents excessive visual impact on the historic environment and

preserves the integrity of the overall composition. At the same time, they ensure convenient and efficient movement for users within the complex.

In the process of functional zoning, the areas are clearly separated, but at the same time flexibly organized. Commercial activity is mainly arranged along the gallery passages, entertainment functions are concentrated near the central internal courtyard, and service and technical areas are located in peripheral or less visible parts. This increases the functional efficiency of the space and allows for proper management of visitor flows.

In general, such a planning model assumes the formation of a shopping complex not as an independent enclosed object, but as a natural extension of the urban structure. At the same time, the system of streets and squares is preserved, the continuity of pedestrian flows is ensured, and the scale and compositional characteristics of the historic environment are not disrupted. As a result, the shopping center is harmoniously integrated into the urban environment and becomes an integral part of the urban organism.

The volumetric-planning organization of shopping complexes includes the following main elements:

- Atrium (central space) — the main communication and functional hub;
- Shops — key attraction points featuring major brands;
- Galleries — passageways with small retail units;
- Vertical circulation elements — escalators, elevators, stairs;
- Zoning — division into commercial, service, entertainment, and technical areas.

This planning structure contributes to the efficient management of user flows and increases the commercial efficiency of the complex.

The trends in the development of modern shopping complexes are formed on the basis of several interrelated directions. These directions not only expand the functional capabilities of the building but also fundamentally change its role in the urban environment. Principles of ecological design are gaining priority importance in the design of shopping complexes. The main criteria are the maximum use of natural lighting, improved energy efficiency, and the integration of green spaces. As a result, the building becomes not only economically efficient but also adapted to an environmentally sustainable environment.

The process of digitalization transforms shopping complexes into “smart” systems. Interactive navigation, mobile applications, and artificial intelligence–based services enhance user convenience and optimize commercial processes, elevating the customer experience to a new level.

The principle of multifunctionality transforms shopping complexes into complex urban objects. The combination of commercial, entertainment, working, and residential functions within a single space ensures the efficient use of time and urban resources. Thus, shopping centers are formed not as independent objects, but as a multi-level urban system.

The organization of transport and pedestrian flows is also an important component of integration. In central districts with high transport loads, the design of shopping complexes takes into account underground parking facilities, priority pedestrian zones, and connections with public transport. This contributes to the improvement of the environmental condition of the city center and the creation of a comfortable environment for people.

Successful integration of shopping complexes into city centers depends on their openness and adaptability. Closed and monofunctional complexes are often cut off from urban life, whereas multifunctional, open, and flexible spaces actively interact with the urban environment. In this regard, the concept of “multifunctionality” is widely applied in contemporary architectural practice, combining commercial, office, residential, and recreational functions, which ensures the economic and social sustainability of the area.

Using the example of the city of Samarkand, this process has its own specific features. When forming new retail infrastructure in the city center, near historical sites such as Registan Square, the Bibi-Khanym complex, and other monuments, it is important to use traditional architectural elements. Here, national ornaments, domed compositions, covered galleries, and courtyard systems can be integrated into the architecture of modern shopping complexes. At the same time, the height of the building, its scale, and facade solutions must correspond to the historical environment; otherwise, visual dissonance occurs.

In the historical center of the city of Samarkand, the development of retail infrastructure requires the application of the principle of adaptive integration. This approach implies the rejection of the mechanical placement of newly constructed objects within the existing historical environment and focuses on their development with consideration of the internal logic of the urban structure, morphology, and cultural-contextual characteristics. Any architectural intervention near historical landmarks such as Registan Square or the Bibi-Khanym complex must be approached with particular caution.

The theoretical foundations of the concept of adaptive integration are formed on several key components. First of all, a deep study of urban morphology is important. In the historical center of Samarkand, the street network is characterized by narrow, winding streets closely connected with systems of inner courtyards. Therefore, new shopping complexes should not be formed as closed massive blocks, but rather based on an inward-oriented composition using courtyard typology. This ensures functional comfort and continues the spatial logic of the historical environment.

The second important aspect is the balance of scale and proportions. Historical monuments, especially the Registan ensemble, are distinguished by their monumentality and compositional clarity. Therefore, new retail infrastructure should not be taller than or visually dominate these objects. On the contrary, it should function as a background, enhancing the aesthetic perception of the main historical landmarks. Such an approach is important for preserving the city’s silhouette and preventing visual dissonance.

The third aspect is the use of traditional architectural elements in a contemporary interpretation. Elements characteristic of Samarkand architecture, such as ravaks, iwan, domed structures, ceramic decoration, and courtyard systems, can be integrated into the architecture of new shopping complexes. At the same time, these elements should be reinterpreted using modern materials and technologies rather than directly replicated. This creates a balance between the historical and the contemporary.

The fourth aspect is functional adaptability. Modern shopping complexes serve not only as retail centers but also as social and cultural spaces. From this perspective, inner courtyards, semi-open galleries, and public spaces are adapted for hosting various events, exhibitions, and collective activities. This contributes to the development of the historic center as a “living” urban environment.

The fifth aspect is climatic and environmental adaptability. In the continental climate conditions of Samarkand, covered galleries, inner courtyards, and natural ventilation are important. These solutions, widely used in traditional architecture, can be applied in modern shopping complexes to improve energy efficiency and enhance the microclimate.

The combination of the above-mentioned factors demonstrates that new shopping complexes should be formed not as opposing objects to the historical environment, but as its evolutionary continuation. Such an approach makes it possible not only to preserve cultural heritage but also to harmoniously integrate it into the requirements of modern life. As a result, the historical center of Samarkand develops in accordance with contemporary urban processes without losing its authentic identity.

Conclusion. Shopping complexes are an integrated element of the modern urban environment, and their effective development depends on a harmonious combination of architectural, economic, and social factors. A properly designed shopping center brings economic benefit, enriches public space, ensures urban balance, and plays an important role in shaping urban identity. The architectural and urban integration of shopping complexes into central city areas requires a comprehensive approach that ensures the preservation of historical heritage, the satisfaction of modern functional requirements, and the improvement of urban environmental quality. Especially in cities such as Samarkand, which possess a rich historical heritage, this issue is highly relevant and requires a scientifically grounded and context-sensitive approach.

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