

Principles of Designing Commercial Buildings in Historical Cities of Uzbekistan

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Abstract: This article is devoted to a comprehensive study of the principles of designing commercial buildings in the historical cities of Uzbekistan. We analyze in detail the main problems that arise along the way, propose effective solutions based on world best practices, and draw on the opinions of leading international experts in the field of architecture and urban planning.

Keywords: Historical cities, scale, architecture, monument, buildings, traditional materials, technologies, seismicity, ecology, energy, functionality.

Introduction. Uzbekistan, the pearl of Central Asia, is a country with a unique cultural heritage, where history comes to life in every stone of its ancient cities. Samarkand, Bukhara, Khiva and Shahrisabz, included in the UNESCO World Heritage List, attract travelers from all over the world with their magnificent architectural ensembles. These cities are not just open-air museums, but also living organisms striving for development and prosperity in the modern world. In the conditions of dynamic growth of the economy of Uzbekistan and the constant increase in tourist flows, there is a need to create a modern commercial infrastructure capable of meeting the growing needs of the local population and guests of the country. However, the design of commercial buildings in the center of historical cities is a task that requires a delicate balance between the need to preserve the unique historical heritage and create a functional, modern space that meets the requirements of the 21st century.

Our goal is to develop practical recommendations for architects, builders and city authorities that will help create harmonious and viable commercial spaces in the historical cities of Uzbekistan, while preserving their unique atmosphere and cultural value for future generations.

Literature review

Due to the rapid development of the city, the need to search for new approaches to organizing the urban environment and qualitatively changing it is increasing. The main burden logically falls on the city center - most often on the historical center. On its territory, a large number of architectural monuments of different eras and styles are usually concentrated. However, at all times, the demand for the use of the central area is very high: because it is not only historical, but also a cultural and business center. The adjacency and "contradiction" of the new with the old, modern architectural-historical inevitably arises.

This problem was considered by K. Lynch in his book "The Image of the City"; Many authors studying this problem refer to it in their articles and express similar opinions [1].

K. R. Azatyan and A. R. Yengoyan in their article "Problems of combining old and new in the process of developing urban space" highlight and consider some of the problems of combining old and new elements in the urban environment, emphasizing the importance of harmonizing these elements to create a single architectural and artistic image of the city [2].

Maria Aleksandrovna Bulavina and Murat Aslanovich Manayev studied approaches to the restoration of cultural heritage monuments, including the use of innovative technologies and sustainable practices. Their work emphasizes the importance of assessing the historical and architectural value of objects [3].

This problem has been of concern to specialists around the world for several centuries. A review of recent publications shows that, although modern authors cite examples of successful local projects and analyze them they prefer to focus more on foreign experience [4], [5].

This is not surprising: in Europe, one can find more interesting examples of both the reconstruction of historical buildings for modern needs and the successful combination of modern construction with architectural monuments [6].

Problem: The conflict between modernity and history - the dilemma of development

The historical centers of the cities of Uzbekistan are not a frozen image of the past, but a living, breathing urban fabric that preserves the memory of generations and reflects the unique spirit of the place. Their value is manifested not only in individual architectural monuments, but also in narrow streets, traditional houses, artisan workshops and a holistic historical environment formed in the atmosphere of centuries-old wisdom. The introduction of modern commercial buildings into this delicate environment often becomes a source of tension and conflict between the desire for modern development and the need to preserve historical heritage. If the design does not adequately take into account the specific features of historical districts, there is a great risk of destroying the historical fabric of the city, losing its uniqueness and attractiveness [7], [8].

Let's take a closer look at the main problems that arise when designing commercial buildings in the historical cities of Uzbekistan:

Inconsistency of scale and style: Architectural conflict

Modern buildings usually differ from historical buildings in scale and style. Their inappropriate placement can disrupt the harmony of the historical environment, create visual conflict and overwhelm historical dominants. Think: tall glass buildings on a lower traditional structure surrounded by brick houses and turquoise-domed mosques. Such a discrepancy not only distracts the eye, but also disrupts the holistic perception of the historical district, turning it into a mixture of incompatible elements. It is necessary to carefully analyze the scale and style of the surrounding construction and design new buildings taking into account these parameters, while striving to create an architectural ensemble.[9], [10].

Ignoring traditional materials and technologies and traditional crafts and construction techniques: Loss of originality

The use of modern building materials and technologies that do not take into account local traditions can lead to the loss of the originality of the historical environment. Traditional materials such as brick, ceramics, wood and natural stone have their own aesthetic and physical properties, which should be taken into account when designing in historic cities. For example, the use of modern concrete and glass instead of traditional brick can deprive a building of the warm and cozy atmosphere characteristic of the historical architecture of Uzbekistan. It is important to study traditional materials and technologies and, where possible, adapt them to modern requirements and standards. At the same time, it is necessary to take into account the preservation of traditional crafts and construction techniques and take these three factors into account in new buildings [11].

Methodology

The methodology for this article centers around a comprehensive and contextual approach to designing commercial buildings in the historical cities of Uzbekistan. The process begins with a thorough examination of the historical and architectural characteristics of the city centers, ensuring that the design aligns with the unique cultural heritage of each location. This research involves gathering historical records, conducting on-site evaluations, and consulting with historians, urban planners, and local residents to understand the city's original architectural fabric. Additionally, it includes an analysis of the existing urban environment to assess the compatibility of new structures with the surrounding historical monuments.

The design methodology emphasizes a harmonious integration of modern commercial needs with traditional architectural elements. By adhering to a principle of contextual design, the aim is to respect the scale, style, and materials of the existing historical structures. This involves using modern technologies and sustainable materials that harmonize with the environment, such as energy-efficient systems, green technologies, and the careful selection of local building materials. The methodology also advocates for adaptive reuse, allowing historic structures to serve modern functions while preserving their architectural integrity. Furthermore, the methodology emphasizes the importance of community involvement in the design process, ensuring that the perspectives of local residents and stakeholders are considered in the decision-making process. This collaborative approach not only fosters a sense of ownership but also ensures that the resulting commercial spaces are both functional and culturally sensitive.

Result and Discussion

Disrupting the visual perception of the historic environment: Disrupting panoramas

Modern buildings, especially tall ones, can block views of historic monuments, disrupting the panoramas and perspectives of historic streets and squares. Imagine: a new commercial center blocking the view of the Kalon Minaret in Bukhara or the Registan Square in Samarkand. Disrupting the visual perception of historic landmarks not only reduces the aesthetic value of the historic environment, but also deprives tourists and locals of the opportunity to enjoy panoramic views and get oriented throughout the historic city. It is important to consider the visual impact of new buildings on the historic environment and integrate them into the existing landscape, preserving valuable visual connections and panoramas [12].

Climatic conditions: Adaptation to heat

Uzbekistan has a hot climate, especially in the summer months, which requires special attention to energy efficiency and comfort in the designed buildings. Traditional climatic design methods such as building orientation, canopies, courtyards, green spaces, and natural ventilation should be considered. Traditional Uzbek architecture has developed effective methods of adapting to the hot climate, which can be successfully integrated into modern design. Ignoring climatic factors can lead to the creation of uncomfortable and energy-intensive buildings that are not suitable for local conditions.

Seismicity: Safety and preservation

Uzbekistan is located in a seismically active region, which places high demands on the structural reliability of buildings. When designing in historic cities, it is necessary to take into account seismic norms and ensure the safety of new buildings, while not destroying the appearance of the historic landscape. Modern construction technologies allow for the creation of seismically robust structures that can be harmoniously integrated into the historical environment. It is important to find a balance between ensuring safety and preserving the identity of historic buildings and cities.

Principles of Designing Commercial Buildings in Historic Cities: The Path to Harmony For the successful design of commercial buildings in the historic cities of Uzbekistan, it is necessary to

adhere to a number of basic principles that ensure the harmony of modernity and history, functionality and aesthetics, sustainability and cultural value. These principles are not restrictions, but guidelines that direct the architect's creative searches and allow the creation of buildings that not only meet modern requirements, but also enrich the historical environment and become an organic part of it.

Respect for Context: Dialogue with the Past

A fundamental principle of design in historic cities is a deep and sincere respect for the existing context. This involves a careful and comprehensive analysis of the historic environment, studying its scale, silhouette, rhythm, materials, color palette and details. The new building should fit into the surrounding construction, not dominate it, but complement and enrich the historic environment. This does not mean blindly copying historical styles, but rather seeking similarities and harmonies with existing architecture. It is important to use local materials and traditional building techniques wherever possible, which will help to preserve the uniqueness and identity of the place. For example, if a historic city is dominated by brick buildings with carved wooden elements, the new building may use brick as the main material and include modern interpretations of traditional carvings in its decoration [13].

Modern interpretation of tradition: Innovation with respect for heritage

Design in historic cities should not be limited to blind copying of historical styles. It is about a modern interpretation of tradition, creating buildings that are modern in terms of function and technology, while reflecting the spirit of the place and respecting its historical heritage. This can be achieved by using modern materials and technologies to create forms and elements associated with traditional architecture, but they should not be direct imitations. For example, instead of building a new building in the style of the 19th century, an architect can create a modern building with a minimalist facade, but use traditional Uzbek patterns as accents or decorative elements. Attention should be paid to the quality and durability of modern materials, as well as innovative solutions that improve the functionality and energy efficiency of buildings.

Functionality and Modernity: Comfort and Efficiency for the 21st Century

Commercial buildings in historic cities must meet modern functionality and comfort requirements to be competitive and attractive to businesses and visitors. This includes modern planning standards, engineering equipment, accessibility and security. It is important to integrate modern engineering systems such as energy-efficient lighting, air conditioning and ventilation systems, security systems and information technology, while not destroying the historic appearance of the building and the city. For example, solar panels can be hidden on the roof of a building, and modern ventilation systems can be integrated into traditional facades without visible changes. Planning solutions must be flexible to the changing needs of businesses and users, providing comfortable spaces for work, shopping and recreation [14].

Sustainable development: Caring for the future

The design of commercial buildings in historic cities should be consistent with the principles of sustainable development, to ensure their long-term viability and to minimize negative impacts on the environment and cultural heritage. This means taking into account the environmental, social and economic aspects of the project. It is important to strive for energy efficiency of buildings, the use of renewable energy sources, saving water and resources, as well as minimizing waste. For example, green roofs, rainwater harvesting systems, the use of local building materials and technologies can significantly reduce the ecological footprint of new buildings. It is necessary to preserve and improve the environment of historic cities, create green spaces and public spaces that enhance the social connections and quality of life of local residents. Sustainable development is not only an environmental responsibility, but also an economic benefit that ensures the long-term attractiveness of historic cities for business and tourism.

World experience and expert opinions: Lessons from history and modern trends

World experience in the design of commercial buildings in historic cities demonstrates a wealth of approaches and solutions that reflect different cultural traditions, economic conditions and urban planning policies. Studying this experience allows us to identify universal principles and best practices that can be adapted to the conditions of Uzbekistan.

For example, in Europe, the practice of "adaptive reuse" of historic buildings is widespread, when old industrial or public buildings are re-equipped for modern commercial functions, while retaining their historical appearance. Examples of this include the conversion of historic warehouses in the Docklands area of London into modern office and retail space, or the transformation of former factories in Berlin into creative spaces for art and design professionals. Adaptive reuse not only preserves historical heritage, but also breathes new life into old buildings, turning them into active elements of the modern urban environment.

In Asian countries such as Japan and China, the design of historic districts often follows the principle of "harmonious coexistence", in which new buildings are created in a modern style, but at the same time take into account the scale, rhythm and materials of the historic construction. For example, in Japan, modern architecture is often combined with traditional elements such as wood, paper and stone gardens, creating a unique synthesis of modernity and tradition. In China, however, there is increasing attention to the preservation of historic hutongs and narrow streets, and new buildings adapt to the scale and rhythm of existing construction, using traditional materials and techniques. An important aspect is the preservation of traditional craft techniques and the use of local materials. International organizations such as UNESCO and ICOMOS play an important role in shaping world standards in the field of preservation of historical heritage and design in historic districts. The Venice Charter (1964) emphasizes the importance of respecting the historical essence and physical integrity of monuments and their surroundings, and calls for careful treatment of historical materials and construction techniques.

Renowned architects and urban planners such as Jean Gale and Ken Young have made significant contributions to the development of the theory and practice of design in historic cities. Jean Gale, known for her work on creating "cities for people", emphasizes the importance of creating a "human-centered" urban environment, in which historical heritage is a valuable resource for shaping the identity of city residents and improving the quality of life. Ken Young, a proponent of ecological urbanism, calls for a careful attitude to historic construction, adaptive reuse of existing buildings, and the creation of new architecture that is appropriate to the historical context and consistent with the principles of sustainable development. Their ideas show that design in historic districts is not only an architectural task, but also a cultural, social and ecological one, which requires a comprehensive and responsible approach.

Examples and Recommendations from Uzbekistan: The Path to Sustainable Development

The process of integrating modern commercial buildings into historic districts in Uzbekistan is in an active stage of development. There are examples of successful and unsuccessful integrations, which can be valuable lessons for future projects. In some cases, new buildings are created in a style that imitates traditional architecture, which leads to a unique and superficial appearance, creating a feeling of newly built buildings and losing their originality. In other cases, modern buildings create a contrast with historic construction, but at the same time create an interesting dialogue between the past and the present, breathing new life into the historical environment [15].

For the successful design of commercial buildings in historic cities of Uzbekistan, the following recommendations should be followed, which are based on world experience and the specifics of the local cultural environment:

Conduct comprehensive historical and architectural research before starting the design, identify valuable elements of the historical environment, establish protection zones and restrictions, and also determine the potential for new construction. These studies should include the analysis of

historical plans, archival documents, inspection of existing construction, as well as consultations with historians, cultural specialists and local residents.

Develop urban planning regulations that clearly define requirements for the height, density, style, materials and other parameters of new construction. These regulations should be based on the results of historical and architectural studies and ensure the preservation of the unique appearance of each historic district, taking into account its specific characteristics.

Provide incentives and assistance to investors willing to invest in the adaptive reuse of historic buildings, their reconstruction and adaptation for modern functions. This includes tax breaks, simplification of the approval process, financial support for restoration work and training programs for craftsmen and builders specializing in the restoration of historic buildings.

Involvement of experienced architects with deep knowledge in the field of historical heritage and modern architecture in the design process, who are more likely to find harmonious solutions and create buildings that respect history and meet modern requirements, and who have higher education and deep knowledge in this area. It is important to create mechanisms for certification and licensing of architects working in historical cities, which will ensure a high professional level of design.

Open discussion of projects with the participation of local residents, historians, architects and representatives of the city government, ensuring transparency of the decision-making process and taking into account public opinion. Open hearings, exhibitions of projects, online platforms for discussion - all this will help to form a consensus and improve the quality of projects.

Use of modern technologies and materials that ensure energy efficiency and sustainability, but at the same time harmonize with the historical environment. This includes the use of local building materials, adaptation of traditional techniques to modern requirements, the use of green technologies and innovative engineering systems.

Encourage the use of traditional crafts and construction techniques in the design and construction of historic districts. The creation of craft centers, training and support programs for craftsmen, and master classes - all this will help preserve and develop the unique cultural heritage of Uzbekistan.

Conclusion. Designing commercial buildings in the historical cities of Uzbekistan is not just about building new facilities, but about creating a living space where history and modernity meet and enrich each other. Successful implementation of this task will allow creating a modern and functional commercial infrastructure that can meet the needs of a developing society, while preserving the unique historical heritage of Uzbekistan. The key to success is respect for the historical context, a modern interpretation of traditions, ensuring functionality and sustainable development, as well as active dialogue between all stakeholders. Only such a comprehensive and responsible approach will allow creating a harmonious and vibrant urban environment where history and modernity complement each other, enriching the cultural heritage of Uzbekistan for future generations and making it even more attractive for living, working and traveling. Preservation of historical cities is an investment in the future of Uzbekistan, its cultural and economic well-being.

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