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**HAFIZULLA BENAI, TAMARA ZAGORUIKO, NATALIA SMIRNOVA**  
Donbas National Academy of Civil Engineering and Architecture**SCIENTIFIC AND EXPERIMENTAL ASPECTS OF ARCHITECTURAL AND  
URBAN SURVEYING OF SPECTACULAR BUILDINGS AND STRUCTURES  
DURING RECONSTRUCTION**

**Abstract.** In the present scientific paper, the complex questions connected with scientific and experimental aspects of architectural and town-planning inspection of entertainment buildings and structures at their reconstruction are presented. Covering this theme testifies to the fact that buildings and structures for entertainment purposes, realized in the period of standardization, at the moment of fast development of city building, require complex architectural and urban planning reconstruction. The authors proposed methodology of architectural and urban survey and formulated approaches, reflecting scientific foundations in the reconstruction of public buildings, and justified their experimental significance in the structure of modern building development. The main approaches of architectural and urban survey, based on the principles of sustainable development of urban planning system and improvement of the architectural typology of objects of entertainment purpose are formulated and systematized in a logical sequence. The scientific paper has been aimed at the further development of project proposals for the reconstruction of the spectacular buildings and structures in order to increase the social and operational characteristics, as well as to increase the architectural attractiveness of the object of reconstruction.

**Key words:** architectural and urban survey, entertainment buildings, reconstruction, scientific substantiation, experimental aspects.

**STATEMENT OF THE PROBLEM**

The need for reconstruction activities is due to the fact that the objects of entertainment purpose, in modern operating conditions, have undergone moral and physical deterioration, which significantly affects the architectural and aesthetic perception, as well as the structural and technical characteristics of objects to be reconstructed at the architectural and urban planning levels. The solution of the problems in the field of architectural and urban planning reconstruction at the level of scientific and experimental research will improve the architectural and aesthetic perception of the reconstruction objects, in particular, help preserve the existing typical historic buildings, as well as revive those buildings that have lost their original value.

**ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS**

The scientific and practical experience of the Department of Architecture of the State Educational Institution of Higher Professional Education «Donbass National Academy of Civil Engineering and Architecture» touches upon the fundamental directions for the implementation of the concept of sustainable development of buildings and structures and urban areas to be reconstructed. Separate attention should be paid to the scientific works of Kh. A. Benai and T. V. Radionov [1, 5], aimed at experimental and conceptual developments in the reconstruction of urban development. Scientific papers by Ye. A. Gaivoronsky [3] are aimed at identifying regional features of the formation of the architecture of Donbass, as well as papers by N. V. Sholukh [7] are associated with the identification of the principles of formation of the environment of low-mobile groups of the population. Aspects of the preservation and use of objects of historical, architectural and cultural heritage are studied in detail in scientific works by S. A. Boroznov [2]. The above studies and scientific papers prove that the reconstruction of spectacular buildings is a complex process, which should be considered at all levels of architectural and urban planning.

**The aim** of the paper is to substantiate the necessity of improvement and transformation of buildings for entertainment purposes during their reconstruction, with the following development of methodology of architectural and urban planning surveys, based on the modern scientific and experimental studies.

### MAIN MATERIAL

Reconstruction in architectural activity is a complex process, the realization of which can be effective if the research is carried out on the basis of long-term architectural and urban planning strategy aimed at permanent renovation and adaptation of the building to the changing requirements and ideas of a comfortable and aesthetic urban environment.

Before we focus on identifying possible approaches of architectural and urban planning survey of the objects for entertainment purposes, we should consider the circumstances, which cause the necessity of their reconstruction.

A large part of spectacular buildings and structures belongs to the first mass series, erected in the period of 50–60 years of XX century. It should be noted that among the domestic examples, preserved to this day in their original appearance, only a small number of them are fully exploited. That is, entertainment facilities have not exhausted their physical resource, but are obsolete, no longer meet current standards and requirements.

To date, spectacular buildings and structures are the leading elements in the architectural ensembles of urban development, their social significance and the uniqueness of the architectural and artistic solutions determine the role of urban planning.

Since the entertainment buildings and structures have a broad typology, approach to their reconstruction cannot be uniform for all of them. Reconstruction methods of entertainment buildings and structures depend on their existing town-planning, architectural and planning and operational features.

In the scientific and practical studies in the field of architectural reconstruction, first of all, attention is paid to architectural and urban survey of urban development, in which there are different typologies of architectural objects that create the unity of the architectural ensemble, which forms the integrity of urban development.

The necessity of reconstruction measures of public facilities lies in the following scientific and experimental recommendations.

#### *Scientific basis of architectural and urban survey of spectacular buildings and structures to be reconstructed*

Scientific grounds of architectural and town-planning inspection of the objects of entertainment purposes during the reconstruction are based on the principles of sustainable development of town-planning system and improvement of architectural typology.

**Urban planning survey of entertainment buildings** includes the following activities:

- analysis of the urban planning situation of urban areas, namely identification of particularly significant areas in which entertainment buildings subjected to reconstruction are located, including those located within historic and protected areas;

- revelation of social infrastructure condition, that is determination of sightseeing building location in relation to the zone of attraction, which depends on the peculiarities of settlement system and development of engineering and transport infrastructure of the city territory;

- on the basis of the analysis of a town-planning situation and revealing a condition of a social infrastructure definition of priorities of reconstruction of entertainment buildings according to the character of placing buildings in city structure and their architectural importance for qualitative functioning of town-planning systems [5];

- revelation of the dynamics of territory development, which is connected with the level of attractiveness of the territory, where the object of reconstruction is situated and which is most subjected to physical and moral obsolescence [4];

- assessment of the environmental condition of the urban development environment, namely, assessment of the current environmental situation, the level and nature of environmental pollution in order to increase the likelihood of attracting investment and the prospects for socio-economic development of the territory [5];

- identification of scientific and methodological approach of the most priority, based on previously achieved scientific results in this direction, allowing the process of reconstruction of public buildings to be implemented taking into account all requirements aimed at improving the architecture of the object of reconstruction and its functional and social purposes.

**Architectural survey of entertainment buildings during the reconstruction** consists of the following complex analysis:

- identification of objects with an increased degree of obsolescence and determination of the type of obsolescence on the basis of compliance with modern characteristics of entertainment buildings (physical, functional, local, figurative obsolescence) [4];
- analysis of compliance of entertainment buildings with the functional purpose of the adjacent development and identification of compositional dominants for the harmonious combination of the reconstruction object with the previously existing urban environment;
- study of promising features of the entertainment facility, and the possibility of expanding its existing performance characteristics;
- definition of approaches to reconstruction of entertainment buildings and their territories by means of complete or partial transformation of the object (preservation, adaptive use, dismantling and redevelopment) [1];
- identification of innovative solutions in the reconstruction of entertainment buildings through the use of new stylistic and formative techniques that will give the object new typological characteristics.

*Experimental aspects of architectural and urban survey of entertainment buildings and facilities during their reconstruction*

Objects of entertainment such as theaters, cinemas, circuses and concert halls have a great architectural potential (for example, large spaces, explicit constructions and plastic architectural forms).

In architectural practice there are a lot of variants of reconstruction of entertainment buildings, the choice of concrete approach depends on a set of architectural, town-planning and social-economic factors and should be aimed at qualitative transformation of the existing buildings.

The practical implementation of the adopted scientific solutions will allow developing a unified experimental algorithm based on the system of exploratory design through the development of unique design solutions.

In the experimental framework the authors propose to include the use of the following new methods of reconstruction of the spectacular buildings and structures:

- Reproductive method of reconstruction, that is minimal interference in the structure of the building, preservation of the object without changing its volume and composition of the urban ensemble, if required, reproduction of the original building with the restoration of the main elements [6].

Reproductive methods of reconstruction include the following architectural and urban planning activities: major repairs and modernization.

Major repairs are construction work aimed at improving the physical and technical properties of the object, including the restoration or replacement by similar architectural and structural elements, as well as the restoration of the building as a whole without changing its basic technical and economic indicators.

Modernization – as well as major repairs, is to improve the architectural and technical qualities of the object, but the modernization does not mean a partial renovation of individual elements, but a complete internal renovation of the building, by changing its volume and planning solution, but without increasing the total volume of the building and changing its appearance.

Renovation means- renovation by replacing or restoring basic elements unsuitable for operation as a result of physical or moral wear and tear.

The adaptive method of reconstruction consists in preservation of the existing functional purpose of the building and introduction some new changes, implying complete or partial redevelopment of the premises in order to improve the architectural and operational qualities of buildings [3].

In general, the reconstruction of buildings and structures is a radical change in the planning of the structure of the object of reconstruction and its territory in order to increase the functional comfort of use. For entertainment buildings and structures reconstruction is a complex of architectural and construction measures associated with a change in the main technical and economic indicators of the building (increasing the total area, capacity and carrying capacity) or a change in its functional purpose, in order to improve the conditions and the number of services provided.

Adaptive methods of reconstruction can include the following activities – functional transformation and achievement of architectural recognizability and uniqueness.

Functional transformation of buildings and structures in the reconstruction, aimed at improving the existing functionality through the adaptation of new functions or transformation of existing functions, as well as the restoration of lost functions.

Achievement of architectural recognizability and uniqueness, which is able to give a modern look and increase the usable area of the reconstruction objects by applying new approaches of shaping, the use of modern forms, which will interact organically with the urban and historical buildings.

In the world practice all the above mentioned approaches of reconstruction are used, in this or that degree of their expression. However, the choice of only one direction of architectural and urban reconstruction on its own may not be sustainable and it will only be counted as a "cosmetic" intervention.

Thus, the process of architectural and urban survey during the reconstruction of public facilities should include in its universal methodology the following components: originality, autonomy, adaptation – characterizing the ability of buildings and structures to fit into the existing conditions behind the construction, as well as ability for transformation.

## CONCLUSION

The research has shown that the reconstruction of public buildings and structures built during the Soviet period is a natural and necessary process and has as its purpose the formation of local centers of attraction of cultural life of the population.

Among the main features of the reconstruction, the authors note such a requirement as the compliance with social needs of the functional filling of the entertainment buildings and facilities in conjunction with the historical, cultural and architectural and urban aspects.

On the basis of proposed scientific and practical algorithm of architectural and town-planning survey it has been established that reconstruction of entertainment buildings and structures is advisable to realize in complex. The study of new scientific research in the field of architectural and urban survey of entertaining buildings and structures allows revealing the latest approaches, ways and methods by which objects of entertaining purpose can achieve typological and functional uniqueness and architectural recognizability.

Depending on the development of design proposals for the reconstruction of the spectacular buildings, it is necessary to consider the system of priority, social need, architectural and urban planning and constructive and technological capabilities of buildings and structures.

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 НАУЧНЫЕ И ЭКСПЕРИМЕНТАЛЬНЫЕ АСПЕКТЫ АРХИТЕКТУРНО-ГРАДОСТРОИТЕЛЬНОГО ОБСЛЕДОВАНИЯ ЗРЕЛИЩНЫХ ЗДАНИЙ И СООРУЖЕНИЙ ПРИ РЕКОНСТРУКЦИИ  
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**Аннотация.** В данной научной работе освещены комплексные вопросы, связанные с научными и экспериментальными аспектам архитектурно-градостроительного обследования зрелищных зданий и сооружений при их реконструкции. Освещение данной темы свидетельствует о том, что здания и сооружения зрелищного назначения, реализованные в период стандартизации на момент стремительного развития городской застройки, требуют комплексной архитектурно-градостроительной реконструкции. Авторами предложена методология архитектурно-градостроительного обследования и сформулированы подходы, отражающие научные основы в области реконструкции общественных зданий, а также обоснована их экспериментальная значимость в структуре современной застройки. Сформулированные и систематизированные в логической последовательности основные подходы архитектурно-градостроительного обследования основаны на принципах устойчивого развития градостроительной системы и совершенствования архитектурной типологии объектов зрелищного назначения. Научная статья направлена на дальнейшие разработки проектных предложений реконструкции зрелищных зданий и сооружений с целью приумножения социальных и эксплуатационных характеристик, а также повышения архитектурной привлекательности объекта реконструкции.  
**Ключевые слова:** архитектурно-градостроительное обследование, зрелищные здания, реконструкция, научное обоснование, экспериментальные аспекты.

Х. А. БЕНАИ, Т. І. ЗАГОРУЙКО, Н. Р. СМИРНОВА  
 НАУКОВІ ТА ЕКСПЕРИМЕНТАЛЬНІ АСПЕКТИ АРХІТЕКТУРНО-МІСТОБУДІВНОГО ОБСТЕЖЕННЯ ВИДОВИЩНИХ БУДІВЕЛЬ ТА СПОРУД ПІД ЧАС РЕКОНСТРУКЦІЇ  
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**Анотація.** У цій науковій роботі висвітлено комплексні питання, пов'язані з науковими та експериментальними аспектами архітектурно-містобудівного обстеження видовищних будівель та споруд при їх реконструкції. Висвітлення цієї теми свідчить про те, що будівлі та споруди видовищного призначення, реалізовані в період стандартизації на момент стрімкого розвитку міської забудови, вимагають комплексної архітектурно-містобудівної реконструкції. Авторами запропоновано методологію архітектурно-містобудівного обстеження та сформульовано підходи, що відображають наукові засади в галузі реконструкції громадських будівель, а також обґрунтовано їх експериментальну значущість у структурі сучасної забудови. Сформульовані та систематизовані в логічній послідовності основні підходи архітектурно-містобудівного обстеження, засновані на засадах сталого розвитку містобудівної системи та вдосконалення архітектурної типології об'єктів видовищного призначення. Наукова стаття спрямована на подальші розробки проектних пропозицій реконструкції видовищних будівель та споруд з метою примноження соціальних та експлуатаційних характеристик, а також підвищення архітектурної привабливості об'єкта реконструкції.  
**Ключові слова:** архітектурно-містобудівне обстеження, видовищні будівлі, реконструкція, наукове обґрунтування, експериментальні аспекти.

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