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THE CURRENT WORLD PRACTICE OF FORMING RESEARCH AND EDUCATIONAL CENTERS

Abstract. The article is aimed at defining the concept of modern development of architecture of scientific and educational centers, being based on the analysis of existing institutions of the given type. Modern methods of forming scientific and educational centers which are of great significance for implementation of further design research solutions are discussed. Particular attention is paid to the image solution of the modern scientific and educational centers.

Key words: scientific and educational center, modern architecture, new designing, modern technologies.

WORDING OF PROBLEM

A modern scientific and educational center is a multifunctional complex aimed at the interaction of scientific and educational functions, focused on a wide range of students and employees. Children are given the opportunity to attend extracurricular activities of interest, that is a feature which lies in the scientific focus of research (creation, improvement, development of modern devices and technologies). The older generation will be able to realize scientific ideas and test them in practice.

The formation of a modern scientific and educational center is designed to solve an important task – the development of the scientific potential of the region, taking into account the improvement of the educational environment. Thus, it is necessary to analyze the existing experience in the design, construction and operation of places of similar purpose.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

A number of Scientific works were studied, where problems of organization of the architectural environment were considered, taking into account the functioning of various typological groups of civil buildings. In particular, H. Benai [1], considers the features of the development of the architectural and planning organization of innovation centers. The regional originality and architectural modeling of the Donetsk region are defined, by E. Gayvoronsky [2].

Similar questions of the organization of modern scientific and educational centers (for example, buildings of higher educational institutions) are presented in the study of A. Levyh and L. Vedernikova [4]. The typology of scientific and educational institutions today is practically not studied. This makes it possible to improve the approaches at the design stage.

PURPOSE

Analyze the world practice of forming research and educational centers.

MAIN MATERIAL

In the world practice there are several outstanding examples of designing such centers.

A striking example of the objects of the studied type is the Burwood Highway Frontage training and Research Building for Deakin University, designed by Woods Bago, Melbourne, Australia [7].

The appearance is formed from elements in the form of golden lattice structures. The tower stands on the columns. Built for the University of Melbourne Deakin, it houses all kinds of departments of a modern medical institution of higher education, i. e. laboratories, lecture and practical classes, rooms for administrative and technical services. The building also houses an underground parking, a public art gallery, a library and a cafe.

Working at the order, the architects solved three main tasks: ensuring sufficient space for various purposes, functional space equipment, harmonious introduction of the building into the existing campus ensemble.

The volume-spatial solution of the building is represented by two main blocks, forming an L-shaped tuyereplane view. The main tower adjacent to the rest of the town and is connected to a relatively small silver wing, which runs parallel to the highway.

The internal design of scientific laboratories fully meets all modern requirements. Flexible work areas provide both individual and collective research and work. Space designed for relaxation and communication, for closer interaction between staff and students, directly interacts with the working classrooms. The corridors throughout the building are framed with curved surfaces, colorful geometric tiles demarcate the various zones.

Particular attention should be paid to the SleukRith Research Center in Phnom Penh, the capital of Cambodia, which was designed by renowned architect ZahaHadid. The center will be used to conduct research on the history of the genocide in Asia [3].

According to the architect's plan, the exterior of the building embodies the confluence of two epochs: the elements of Cambodia's national architecture will be combined with futuristic details.

The appearance of the main monument of antiquity – the temple of Angkor Wat served as the project involves the construction of five wooden buildings connected in one complex. The inspiration for the creation of SleukRith.

SleukRith will accommodate not only a research center, but also other necessary facilities: a library, an archive and several audiences. A place was chosen for the complex next to one of the faculties of the Royal University of Economics and Law.

Another project previously mentioned architect, ZahaHadid, should be noted. It is research center in Riyadh in Saudi Arabia.

Saudi Arabia is actively investing in the study of alternative energy sources. Thus, the King Abdullah Oil Research Center (KAPSARC) is a non-profit institution established to study energy use throughout the world. The center cooperates intensively with the government and international structures [4].

The KAPSARC campus, completed in 2017, occupies 7 hectares and includes five buildings. The main building, designed in 2009 by Zaha Hadid, was the first super-ecological building of the Zaha Hadid Architects Bureau, and I was awarded the Leed Platinum certificate. Hexagonal buildings resemble honeycombs and are connected to each other. This design has reduced the consumption of building materials and it is easier to link buildings with each other. If necessary, you can attach new buildings without damage to the appearance of already finished structures.

On its territory there is a knowledge center, a computer center, a conference center, a research library and a prayer hall. The connecting link is the courtyard, where you can hide from the sun under the shade of the sheds.

Due to the design features – location, use of solar panels, etc. – the building consumes electricity 45 % less than the standard one. Drinking water is recycled and reused. And 30 % of materials are made from recycled materials.

The analysis of the current world practice of the modern scientific and educational centers shows that its formation directly depends on the established patterns of the architectural organization of buildings and structures that will not contradict the compositional and stylistic requirements of the surrounding buildings, but rather emphasize their importance. Applying some traditional solutions, there is an opportunity to create an authentic and unique look of the scientific and educational center, which will serve as a bright accent in the general silhouette of the city and stand out from the surrounding buildings, and in some cases. It can become the dominant architectural and town-planning accent, which will have such features as recognizability and architectural expressiveness.

CONCLUSION

Studies have shown that modern scientific and educational centers are a unique, qualitatively new stage of evolution of educational institutions. The main task of such institutions is an ideological new approach in providing for the necessary amount of knowledge using modern equipment, as well as maintaining the creative potential of students.

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СЛОЖИВШАЯСЯ МИРОВАЯ ПРАКТИКА В ОБЛАСТИ ФОРМИРОВАНИЯ
НАУЧНО-ОБРАЗОВАТЕЛЬНЫХ ЦЕНТРОВ
ГОУ ВПО «Донбасская национальная академия строительства и архитектуры»

Аннотация. Статья направлена на определение концепции современного развития архитектуры научно-образовательных центров, основываясь на анализе существующих учреждений исследуемого типа. Рассмотрены современные примеры формирования научных и образовательных центров, представляющих важное значение для разработки последующих проектно-исследовательских решений в условиях формирования архитектуры научно-образовательных учреждений. Основное внимание уделено образному решению современного научно-образовательного центра.

Ключевые слова: научно-образовательный центр, современная архитектура, новое строительство, новейшие технологии.

Т. І. ЗАГОРУЙКО, К. О. МАРЕНКОВ
СВІТОВА ПРАКТИКА, ЩО СКЛАЛАСЯ У СФЕРІ ФОРМУВАННЯ НАУКОВО-
ОСВІТНІХ ЦЕНТРІВ
ДОУ ВПО «Донбаська національна академія будівництва і архітектури»

Анотація. Стаття спрямована на визначення концепції сучасного розвитку архітектури науково-освітніх центрів, ґрунтуючись на аналізі існуючих установ досліджуваного типу. Розглянуто сучасні методи формування науково-освітніх центрів, що мають важливе значення для реалізації наступних проектно-дослідницьких рішень в умовах формування архітектури науково-освітніх установ. Особлива увага спрямована на образне рішення сучасного науково-освітнього центру.

Ключові слова: науково-освітній центр, сучасна архітектура, нове будівництво, новітні технології.

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