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MODERN TRENDS OF ARCHITECTURE AND TOWN-PLANNING FORMING AND DEVELOPMENT PROSPECTS OF THE STATION COMPLEXES

The article describes the main trends in contemporary urban architecture forming station complexes - the important structural and functional elements of the urban environment. The conclusions about the prospects for their further development in the city structure.

The development of urban environment at the regional and agglomeration levels are closely linked with the improvement of the relationship of the individual territorial complexes by transport and communication networks. Nodal elements of multi-city transport network serving the passenger flows, defined as the station complex (VC). Among them are rail, bus, marine, river, railway stations combined complexes, airports. Today VC of different types and grades are an important element of urban areas, a significant factor in its functioning and development. This kind of "gate", from where the familiarity with the city of the country. Station complex vary according to functional, structural, spatial parameters. Improvement of their architectural and urban planning organization - an important task, especially for Ukraine, in the context of the prospects of entering the country in the European Union. The study of trends in station complexes expands the predictive view of their further development in the modern world. This determines the relevance and purpose of this paper.

Different aspects of the problems of urban architecture and the formation of station complexes were studied by scholars such as V. Batirov, E.V. Vasilev, GE Golubev, K. Hertseg, O.S.H. Ter-Voskanyan, I.G. Yaveyn and others [1-5, 11-13]. They discussed various aspects of the functional planning, organizing compositional VC, especially their location in the structure of the city. However, the identification of current trends in station complexes requires analysis of actual experience. Interest in this question has already noted in the literature [10].

Based on a study of the world of design and experience creation and reconstruction of the station complexes identified the main trends of development in transportation and technology functional, structural, compositional, environmental, economic and ergonomic aspects.

In the transport aspect of the observed increase in the concentration of the processes of transport communications of various types and ranks in the node, and their active cooperation. For example, in Seoul, a new transport terminal combines the airport, 2 and 2-speed conventional rail lines. The central VC in Milan includes: railway station, bus station, city air terminal, station, two subway lines, underground parking, helicopter landing station. Objective tendency of cooperation of the various modes of transport in the nodes of transport and communications framework leads to the formation of the combined station complexes (rail and bus, rail and sea and river-, air-bus and rail). This process causes the constant technological modernization of the VC, which implies that, in turn, the need for their ongoing reconstruction [8].

In the functional aspect, it should be noted the growth of the functional diversity of the content of VC with preservation of the leading transport and communications functions. The world is becoming common practice, when the present structure of the VC function blocks such as: hospitality, retail, entertainment, exhibition, news, office, recreational, service and spiritual activities. For example, in the structure of the new VC of the central Berlin has about 80 stores, a hotel and office space, parking for 860 cars. In Montreal, the structure of the reconstructed center of the newly formed VC includes three department stores, four hotels, five office buildings, 8 cinemas, 30 restaurants, parking for 9,000 jobs [14].

Thus, we can talk about sustainable development trends on the basis of VC multifunctional public transport systems. This trend is reflected in the enrichment of the concept of an external node of passenger transport. VC became synonymous with terms such as "multi-functional public

transport sector", "multi-site transport interchange," "mixed-use complex external transport", "multi-passenger terminal."

In the structural aspect of the formation of the VC is the formation of complex multi-level structures, which include ground, aerial and underground space blocks, connected by a system of vertical and horizontal communications. Thus, at the Waterloo station in the capital of England has four levels. In Singapore, the station complex Dhoby Ghaut - the deepest underground terminal with 5 levels. The structure of the terminal VC West Kowloon district of Hong Kong consists of six levels, including two underground stations. It should be noted the tendency of the spatial "convergence" of communications elements of different types of transport, interacting in a node, which helps reduce the time passengers transplanted and is manifested in the formation of core transport and communication sector. Increases the degree of integration of the majority of station complexes in the space-planning structure adjacent buildings. (The exceptions are airports that are placed at a distance from urban areas to technological requirements). Thus, many railway station complexes are no longer objects, dissecting the urban fabric, combining the previously separated urban areas through aerial platforms that cover the station. As examples Station Purdue bridge in Paris, the draft of the new VC Shtudgarde. It should be noted trend of increasing similarity of structural and functional organization of the VC of different modes of transport, which is expressed in the likeness of: restricting access to the platforms, passenger check-in and luggage delivery; leisure while waiting for boarding.

In the compositional aspect of the pronounced tendency of formation of VC as urban ensembles, occupying large areas. Thus, in the Lille architect Koolhaas designed megastructure, which occupies 40 hectares, in terms of modern building dominating compositional ensembles station complexes are not passenger building (as before), and office buildings, hotels and even a television tower in Kyoto (Japan) [6]. There is a growing variety of personalization and humanization of technical space VC. These structures can be found sculptures, elements of landscape design and maintenance, special means of visual communication. Currently, EC is increasingly performing presentation, image-feature to the city. This trend can be detected even in small towns. For example, in Ukraine, in the passenger building g.Chugueva VC (the birthplace of the famous painter Ilya Repin), an exposition of copies of his paintings. On the passenger station platform Gogolevo (near the family estate of the writer Nikolai Gogol), established his sculptural sculpture. The image of cities and major towns is embodied in the original architecture and scale of station complexes.

The environmental aspect was a trend of active use of techniques to improve microclimatic characteristics of the VC by increasing external and internal spaces of the number and variety of natural ingredients. As an example, should lead VC in Osaka (Japan), where small areas created terraced park, connected to the passenger station above ground transitions. The structure of the new Berlin Central Station provides beach and recreation area on the banks of r. Shpre. In Kharkov, a pedestrian forecourt revived park with a fountain. The trend to reduce development pressure on the environment from the VC, which is accomplished by the use of innovative technology in their construction and reconstruction.

In the ergonomic aspect of it should be noted the tendency of formation of the VC space with a high level of comfort for the implementation of the various groups of passengers and staff. Notably the creation of an enabling environment for people with disabilities (limited) possibilities. Formation in Europe today a unified network of railways led to the introduction of general principles of structural and functional organization of the process units station complexes, which greatly facilitates the orientation of the passengers.

In the economic aspect of the growing trend to minimize operating costs through the introduction of innovative technologies of energy conservation, improve the compactness of the functional blocks and the communication network, expanded involvement in the structure of the VC additional features to enhance their profitability. Thus, the formation of EC Railway in Belarus made up 40% of take under the deployment of public services [9]. In Berlin, the VC is allocated for commercial use 21% of the complex [4]. Accommodation in the structure of the VC function blocks

of public service can complete its target much of the movement of passengers. Getting the necessary services to passengers who arrived in the area walking distance (ie within the VC) eliminates the need to continue their journey through the city. This reduces the load on public transport, reducing overall energy consumption. The device major hubs linking stations of different lines of one or more modes of transport that has become characteristic of many developed countries, the VC is economically advantageous for network operators.

Analysis of trends in VC as elements of the urban system, revealed a main of them. First of all, is the tendency of formation of the VC hierarchy depending on their locations in the zonal structure of the city. In the central part of the city railway and bus located the VC serve interregional and regional reports, in the middle zone - VC serving line of medium-range (local) in the peripheral zone are placed VC, serving commuters and performing as a kind of "interception" of trade and domestic workers [11]. Station complex air transport stir outside the buildings of the city, but have a railway or bus connection to its center.

The second important trend is the combination of network nodes of transport and communication framework of the city with a network of centers of public service. This tendency is especially evident in the largest cities, having in its structure, different types of external and intra transport, as well as performing the functions of regional and agglomeration of service. Thus, the current VC, serving the regional transportation network, including in its unique structure of the complexes of the public service of regional importance. VC, serving meat and suburban, have in their structure functional blocks of the public service ranks [5,11,14]. This trend contributes to the functional significance of station complexes. However, Ukraine is currently forming part of the VC occurs spontaneously. The third trend in the development of VC in the urban system is the strengthening of their city-forming role, which manifests itself in an active influence on the functional plan structure of the city and creating a new type of territorial formation - areas of innovation development of the city. These objects are called "city within a city" [7,8].

Conclusion

Based on the analysis of these trends shaping contemporary station complexes, the following conclusions about the prospects for their further development:

1. Station complex in the future will be based on functional and spatial relationship of the two main elements: the node communications (external and intra-) and node (center), public service of a certain rank. This relationship is due to the integrity of the process of life of society, the slave laws to minimize energy consumption and time. The formation of the modern VC is a manifestation of systemic morphogenesis, which makes the union of elements of the network of public services and transport in a qualitatively new system.

2. VC transformed into a multifunctional, highly technical, tiered superstructure, which performs the important function of life support of the city, metropolitan, region. The development of the VC associated with a higher degree of compactness of its core communications and increase the area of reconstructed areas in their area of influence. Improving the VC reveals the possibility of solving some urgent pressing problems of the city: the intensification of use of the area, ordering the functional organization, the formation of expressive architectural design.

3. The prospects of further development of the VC associated with the transition process of urbanization of concentrating extensive stage intensive decentralized. The development of transport technology enhances speed of communications between the settlements, the comfort level visits. It will inevitably stimulate inter-settlement transport mobility of the population, and hence the need for further development of the station complexes. Improved construction technologies and improve environmental safety VC urban development will increase the flexibility in their placement in the structure of the city, a variety of architectural and urban morphogenesis.

References

1. *Azarenkova Z.* Station for the city. / Industrial and Civil Engineering, 2000, № 10, p.13-14.
2. *V. Batyrev* Stations. Moscow: Stroiizdat, 1988. - 216.

3. Vasilev EV Architecture and functions of stations // Transport building number 4, 1979. - p. 6-8.
4. Boutätigkeit der Deutschen Bahn in Berlin. Feldwisch Wolfgang, Ruppert, Günter. ETR: Eisenbahntechn. Rdsch № 6, 2000. p. 365-377.
5. G.E. Golubev, Azarenkova Z.V., Fedutin Y. The development of transport systems, structures and sites in the largest and most major cities. Moscow: Stroizdat 1985. - 124p.
6. Duhovnichy E. Kioto station A C, № 4, 2005. - P.84-87
7. Dreval I.V. Gradoformiruyuschaya role of railway station complexes. // Naukova News of budivnitstva. - H.: HDTUBA HOTV OMB, 2009. - VIP. 47. p. 115-119.
8. Dreval I.V. The combined station complex as a structure-forming factors in the development of the city. // Scientific-Technical Collection Utilities cities. No. 36 Kiev Tehnika. - 2002. - p. 127-130.
9. Kramarenko W. Main building of the railway station in Minsk. The text. I / O Kramarenko // SDA. - № 2. In 2004. - p. 5-8.
10. Mironenko V.P. The architecture of modern railway station complexes. Modernization of the railway stations and trend development ZHVK / News HDADM 2006. P.18-21.
11. Ter-Voskanyan O.S.H. Public-transport nodes: patterns of organization, structure and distribution // Metrostroy, -1985, - № 1. p. 11-13.
12. Herceg K. Design and construction of bus and rail stations / Trans. with Hung. V.M.Belyaev, Ed. GE Golubev. - Moscow: Stroizdat, 1985. - 318 p.
13. Yavein O.I., N.I. Yavein Igor Yavein / Architects of St. Petersburg. XX century. St. Petersburg., 1999. - p. 147-167.
14. The concept of efficient use and development of railway stations, railway stations Directorate - Branch of JSC "RZD" until 2015. // Internetresurs. Docs.kodeks. ru / document / 902,143,992.