Humanistic approach to environmental design: modern principles of organizing an accessible environment

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Abstract. The article deals with certain design trends that characterize the humanistic approach to environmental design, as well as ways of interaction between urban planners and designers within this approach. The theoretical basis of the article is the results of research by specialists in Russia and abroad of social urban planning conflicts that arise in the process of creating public spaces and their use by various groups of residents, including those with limited mobility.

1. Introduction
The processes of changing society in the twentieth century contributed to the emergence of conflicts in cities. Specialists in Russia and abroad are currently engaged in establishing the nature of these conflicts and searching for ways to solve them. In our country, until recently, little attention was paid to the inconsistency of urban development in urban planning [1], since the Russian urban planning theory of the twentieth century is generally characterized by the predominance of the functional paradigm. Conflicts of interests and needs between participants in urban development activities are becoming particularly complex and large-scale in modern conditions of a market economy and a tense environmental situation [2]. At the stage of society’s entry into the information age, all residents should have equal access to a comfortable and aesthetically attractive urban environment.

According to the world Health Organization, about 15% of the world’s population has one form of disability. This indicator has grown by 5% over the past 40 years. This is due to an increase in the life expectancy of the population and an increase in the quality of health care. In Russia over the past ten years, there has been a positive trend towards reducing the number of disabled people (from 13.08 million in 2013 to 11.88 million in early 2020, according to Rosstat). The largest percentage of disabled people are older women, which can be explained by the still low life expectancy of men. However, the fact that the share of children with disabilities has increased from 568 thousand to 688 thousand people over the same billing period is alarming. Young people are more in need of realizing their rights to education, work, leisure, and personal potential, which is why significant resources are being allocated to address the problem of organizing an accessible environment in the country. In this situation, it is important to support the collaboration of specialists in the field of urban planning theory and design practice to implement an interdisciplinary approach to environmental design, taking into account local territorial features.

2. Materials and methods of scientific research
The object of the research is functional conflicts in the use of urban territories by low-mobility groups of the population. The search for ways to resolve these conflicts is a promising area of cooperation
between specialists in the field of urban planning theory and designers. The method is a comparison of approaches to the organization of urban space that characterize different periods of the twentieth century. As a result of the study, it is concluded that the predominance of “humanistic” ideas in the design theory of the last decades and the need for wider application in domestic design of new design trends that have developed in the conditions of increasing attention to the problems of people with physical disabilities.

3. The main part
According to the authoritative European urbanist Jan Gale, “until 1960, cities around the world developed primarily on the basis of centuries-old traditions. Living in urban space was an important part of this experience, and no one doubted that cities were built for people.” [5] In his research, he focuses on the current problem of reducing public urban spaces in favor of a growing number of cars and the development of transport networks, which was first pointed out in 1961 by the American representative of new urbanism, D. Jacobs.

For four decades, Gale has studied the positive experience of cities in resolving conflicts of interest between motorists and pedestrians, considering the city as an environment that should be, first of all, comfortable and safe for people traveling on foot or by bicycle. In the aspect of modern design, a fairly simplified division of residents into "motorists", "pedestrians" and "cyclists" does not give a detailed picture of a safe and "friendly" city, since it does not cover the interests of people who have difficult access to public spaces due to physical restrictions. In this regard, it increases the value of deepening theoretical knowledge about the nature of urban planning conflicts in order to further resolve them, including those that arise at the social and everyday level between different categories of citizens.

Even 20 years ago, urban planners, in an effort to "return cities to people", mostly focused on the average parameters of the human figure. With the advent of the new Millennium, new trends are emerging in the design of urban spaces, based on a deep systematic study of the needs that determine the comfort of all residents. This is made possible, on the one hand, thanks to technology, on the other hand, the accumulation of experience of interaction with experts from related fields, fostering interdisciplinary approaches to design. Design, which existed in the format of practical activity at the stage of formation of the first human civilizations, since the first half of the twentieth century. Acts as a driving force for the socio-cultural development of a new type of society [6]. In General, modern design approaches can be described as human-oriented or humanistic.

Problems of organizing the accessible environment in Russia. The problem of poor accessibility of cities for low-mobility groups is currently receiving much attention at the legislative level. In 2008 Russia has ratified the UN Convention on the rights of persons with disabilities; the state program "Accessible environment" has been implemented since 2011. However, the effectiveness of existing approaches is still insufficiently studied by urbanists in the long term. This category of citizens is extremely diverse in composition, which makes it difficult to calculate statistics. In addition to the disabled, the low-mobility groups include pregnant women, parents with strollers, temporarily disabled citizens – people who are also difficult to move for a certain period of time and need quality improvement of the environment. Among the reasons that complicate the implementation of the state program, we can highlight:

- insufficient number of interdisciplinary studies, especially at the regional level, including specific medical knowledge about the features of restrictions in people with physical disabilities;
- incomplete regulatory framework, imperfect tools for strategic planning and mechanisms for monitoring the implementation of urban development projects [5];
- lack of practical recommendations, lack of practical experience of specialists outside of the millionaire cities.

Current design trends for creating an accessible environment. Everyone should have the right to easily accessible open spaces, just like the right to clean water. Everyone should be able to see the tree from their window, sit on a bench next to the Playground at home, or walk to the Park in ten minutes
Analyzing this statement, we can conclude that the low-mobility category of citizens in practice often experiences communication difficulties, for them the urban environment is not only uncomfortable, but also unsafe. The process of organizing an accessible environment is still insufficiently studied from the point of view of urban planning theory, and, for the most part, is the subject of designers' activities. It is no accident that design is directly related to the scientific and practical discipline of ergonomics, which is based on the principle of correlation of objects that fill the environment with the anthropometric characteristics of a person. Experts note that in domestic design, “there is still a large gap between ergonomic knowledge and its application” [8], which generally confirms the opinion that urban planners do not pay enough attention to the scale of the human figure in urban space, and this is especially acute in the case of deviations of human anthropometric characteristics from the average parameters. Trends in "humanistic" design of recent decades are aimed at creating an environment accessible to low-mobility groups of the population, and this process in foreign practice is often associated with the concepts of “universal design” and “inclusive design”.

Concepts of universal and inclusive design in project theory and practice. In contrast to, for example, ErgoDesign, the concepts of universal and inclusive design are not sufficiently covered by domestic specialists. They are often seen as synonymous, with the exception that "inclusive design" is an English term, and "universal design" is an American one. In this regard, it is useful to consider opinions of foreign experts, representing both of these concepts as independent. Yu Treviranus, a Canadian Professor and founder of the research center for inclusive design, has quite accurately defined that universal design creates a universal size for everyone, while inclusive design is an individual size for one person.

Universal design is usually presented as the design of an architectural environment that is accessible to most people without additional adaptation. The universal environment can be described as simple and intuitive to use. It is considered that universal design appeared in the first half of the twentieth century, largely due to representatives of architectural modernism. During this period, there is a systematization of knowledge about the features of the organization of external and internal space of buildings to improve working conditions and everyday life of residents of fast-growing cities. Le Corbusier, a follower of the theory of anthropocentrism in architecture, declared “…the house is a snail shell. Therefore, we need it to be made according to our standards” [9]. With the help of a system of proportions-Modulor, he created universal approaches to the design of the average proportions of the human figure.

Inclusive design originates in the 70s of the last century, thanks to the achievements of technological progress, with the introduction of technologies such as subtitles for the hard of hearing and audio books for the visually impaired categories of citizens. There are three main trends in the development of inclusive design over the past decades, which has contributed to the public recognition of people with disabilities:

1) legislative – expansion of the legal framework;
2) urban planning and environmental design-creating an accessible environment in the context of new construction or reconstruction;
3) technological-improvement of rehabilitation technologies due to progress in the fields of computer design and engineering.

The spread of new design solutions to remove barriers between people and the environment abroad was preceded by changes in legislation. For example, universal access to urban spaces for wheelchairs in the United States was organized after the passage of the Americans with disabilities act by Congress in 1990. In 1998, an amendment to the rehabilitation act of 1973 came into force, which provided for access to all electronic and information technologies for the disabled. In turn, the legislative changes were caused by the growth of the social movement in defense of veterans of numerous military conflicts since the mid-twentieth century. And the need for social and psychological adaptation of people who were injured during these conflicts. The final consolidation of the international legal framework for the social integration of persons with disabilities took place in 2006 with the adoption
of the UN Convention on the rights of persons with disabilities.

Computer tools for interactive design in virtual space allow [10] to design objects with mathematical accuracy that take into account individual anatomical features of a person. Thus, with the help of modern technologies, the designer can equip residential and public spaces for people with various forms of physical restrictions. Despite the fact that many developments have a fairly narrow range of applications, inclusive design as a direction of project activity has a great commercial potential. This opinion can be justified taking into account the above statistics, according to which the largest share of disabled people in Russia and in the world as a whole is made up of elderly people. In the context of an "aging population", the experience of specialists who are familiar with the physical characteristics inherent in different age categories and the features of the organization of the environment for them will be more and more in demand in mass design in the future. However, even now there are examples of developments that were originally intended for a narrow circle of users, which have also gained popularity among people without physical characteristics. The product line “Good Grips”, developed by the American brand OXO specifically for people with arthritis since 1990, is such an example-OXO tableware with thick rubberized handles, especially the rotary can opener and vegetable peeler, even after two decades, finds a place in kitchens around the world.

4. Conclusions

Despite the fact that research by foreign urbanists in practice demonstrates the effectiveness of the humanistic approach to design, in Russia it will take 20-30 years to study the economic profitability of implementing inclusive developments. This does not reflect well on the investment attractiveness of social projects of the organization of an accessible environment, despite the increased attention to the problems of low-mobility groups at the state level over the past 10 years. In General, the positive dynamics that have developed in the domestic legislation allows us to expect significant changes in the issues of public recognition of people with disabilities, as well as in the practice of resolving conflict tensions in the urban environment through the use of an interdisciplinary approach to design and regional exchange of experience.

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