

UDC 711-1

## THE STRUCTURE OF THE SOCIO-SPATIAL ENVIRONMENT AND MODERN REQUIREMENTS

*A. S. Veropotvelyan*

Don State Technical University (Rostov-on-Don, Russian Federation)

The paper discusses the connection between the evolutionary achievements of mankind and its ideas about the modern urban environment, new conditions for the formation of a socio-spatial environment. The authors analyze the impact of information technology development on the direction of city development, and identify a number of challenges that arise in the creation of a harmonious environment. The impact of modern requirements for designing the urban environment on its spatial and functional organization is studied. The paper objective is the need to direct the attention of the urban planning community to the new requirements for the organization of the urban environment caused by the evolutionary transformation of man, which has led to a new way of life, new values, and feelings. An attempt has been made to understand the new challenges of the urban environment due to the changed psychological portrait of a contemporary. It is required to create new safety conditions through sacrificing the monumentality of public spaces, allowing the ultimate mixing of different functions.

**Keywords:** socio-spatial environment, negative urban factors, psychological impact of space elements, urban planning.

## СТРУКТУРА СОЦИАЛЬНО-ПРОСТРАНСТВЕННОЙ СРЕДЫ И СОВРЕМЕННЫЕ ТРЕБОВАНИЯ К НЕЙ

*A. С. Веропотвельян*

Донской государственной технической университет (г. Ростов-на-Дону, Российская Федерация)

Рассматривается связь эволюционных достижений человечества с его представлениями о современном городе, анализируются новые условия формирования гармоничной социально-пространственной среды, влияние на нее информационных технологий, обозначены возникающие при этом проблемы, изучены факторы, влияющие на функциональную организацию пространства. Цель данной работы — обратить внимание градостроительного сообщества на новые требования к организации городской среды, вызванные эволюционной трансформацией человека, которая привела к новому образу жизни, к новым ценностям. Предпринята попытка осознания вызовов, возникших в связи с изменившимся психологическим портретом современника. Жертвуя монументальностью общественных пространств, допуская предельное смешение их разных функций, необходимо создать новые условия для безопасной жизни человека в урбанизированном мире.

**Ключевые слова:** социально-пространственная среда, негативные факторы города, психологическое влияние элементов пространства, градостроительство.

**Introduction.** As for aesthetic and ethical preferences, people tend to refer to the past. The older a person is, the safer and more attractive the features of the former space, the world of his childhood, seem to him. This feeling is also projected onto the verified historical architectural techniques: a clear, reasonable structure of the urban environment — squares, isolated public ensembles, large parks, public gardens, and low-rise buildings of the residential environment — are familiar to us from fiction, the works of painters, from textbooks on architecture, and daguerreotypes.

However, generation to generation is not the same. It must be recognized that during the twentieth century humankind made an evolutionary breakthrough not only in the field of scientific advances, but also in the sphere of feelings, emotions, ideals and values.

The evidence for this is the following facts:

- humanity has decided to abolish capital punishment;
- words about ideals and lofty spirit increasingly precede international treaties;
- man has become faster, more flexible, more fearless; lots of sports and entertainment in which it is impossible to do without these properties have appeared;
- modern human has ceased to need pride and glory in his/her former understanding; the former glory — almost eternal — had to be endured; the current glory is often born of cunning trifling, does not last long, but does not breed arrogance either;
- a person began to observe himself/herself, to study himself/herself in many ways: scientific, instrumental, esoteric, etc.;
- if we consider human society as a substance, it is now experiencing an era of crystallization: the homogeneity of ideals and values disappears, and diverse human teams are grouped according to their own specific, often false ideals and values (e.g., sectarians, fans of extreme quests, or anime fans).

**Materials and Methods.** The basic traditional methods of urban environment research are graphic analytic methods (functional, architectural and artistic, volumetric and spatial) with further identification of soft places, and the proposal of design solutions. Since in this paper, we are considering new additional factors of influence on a person, then the methods that were applied have been supplemented:

- empirical: observation; the objects were buildings, lighting, street advertising;
- statistical: survey on the perception of the environment by different age groups; the object of the study was the age groups of 20, 45, 70 years;
- theoretical: analysis of the places of pastime of the population; the object of the analysis was the map of the city M 1:10,000;
- induction: prediction of the consequences of the application of urban planning documentation and norms.

The most important stage of the study was a survey of different age groups, which showed different requirements for the urban environment.

### **Results.**

1. The attention of the urban planning community is drawn to the fact that modern people perceive and react to signals from the outside world in other ways; they evaluate space in a new way and demand other properties from it.
2. The assumption is put forward that the younger generation perceives the environment in a fragmented, “quantum” way.
3. It is concluded that there is a tendency of increasing negative effects between such perception and the slowly changing properties of the urban environment.
4. The survey has shown that the younger generation does not care too much about the aesthetics of reality.

5. The analysis of the methods of organizing urban near-road space has demonstrated the meaninglessness of some of the methods of its design.

6. A number of negative factors affecting the formation of the environment with account for the changing format of city life is outlined.

During the formation of the environment, considering the changing format of the city life, new unsolved tasks have appeared, which are currently negative factors:

- absence or minimization of acoustic and visual isolation; intrusive traffic noise, active and even aggressive advertising that clutter up the space (Figure 4 shows the immediate proximity of the windows of residential buildings to a huge advertisement that shines brightly in the windows in the evening, and Figures 1 and 2 show that the same ad is visible at a distance of 500 m, but it is not readable, so the essence of its scale is not clear);

- lack of standardized coloristic and graphic solutions to advertising (for comparison, Figures 4 (a) and (b) show 2 types of one advertising screen, option (b) is more friendly and does not cause stress, which is not the case with option (a));

- reduction of human spaces, absence of a number of functionally and psychologically important spaces (reduction of parks, sports, walking spaces, cutting down green areas for the construction of commercially profitable facilities);

- restriction of access to parts of territories (fencing of parks, private territories, parking lots);

- limited opportunity to influence the development of the urban environment (architectural professional communities have lost their influence and have not yet found a new form of interaction with the city authorities);

- lack of a solution to create a balance between the visual openness of the space to provide safety, comfortable orientation in space on the one hand, and intimacy on the other;

- psychological and content overload and, as a result, closedness in order to isolate from too many contacts and the information flow;

- little development of spaces for families with young children and the elderly, who are less adaptive to adverse conditions;

- strong heterogeneity of the city population in terms of social status, nationality, and wealth;

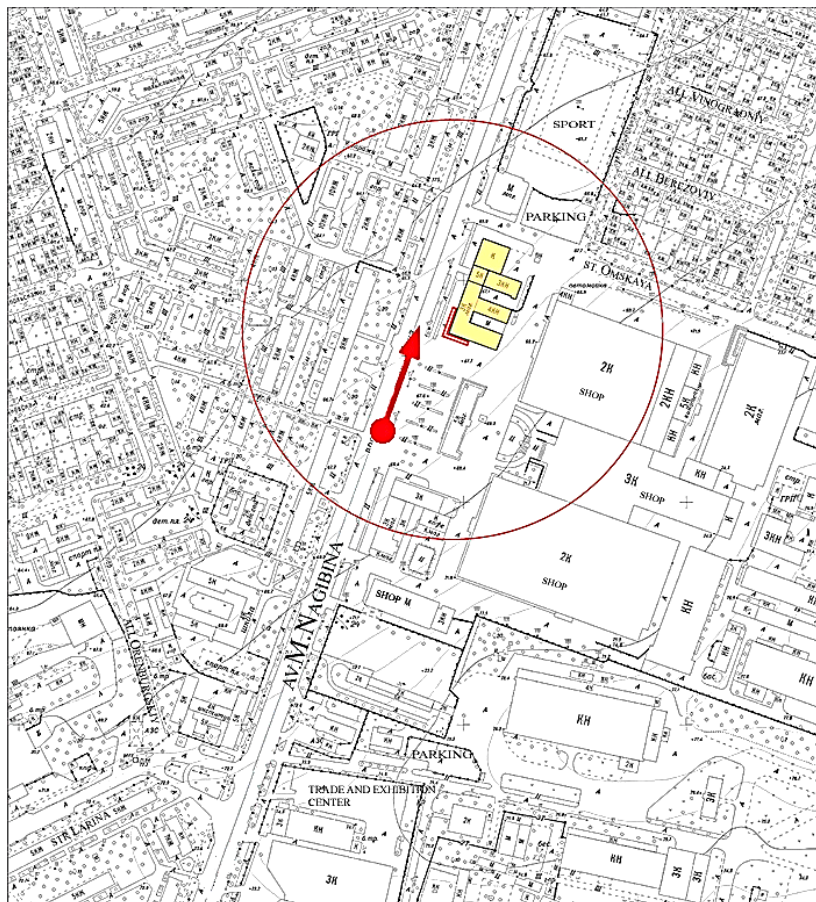
- priority of the development of territories according to commercially profitable projects, but by cheap methods, technologies and materials (seizure of the territory, and not its deep optimal development, considering the already existing environment, infrastructure and established relationships).



Fig. 1. Perception of ads from a distance of 500 m. Situation plan. (Authors' drawing)



Fig. 2. Perception of ads from a distance of 500 m



OBJECT OF VISUAL PERCEPTION  
→ ARROW-POINTER OF THE DISTANCE FROM WHICH THE OBJECT IS PERCEIVED

Fig. 3. Perception of ads at close range. Situation plan.  
(Authors' drawing)



Fig. 4. Perception of advertising at close range:

*a* — aggressive



*b* — benevolent

**Discussion.** The types of discussion that formed the basis of the topics and conclusions of this paper are determined by the specifics of the work of the authors who conduct pedagogical and project activities in architecture and urban planning. They are:

- discussion of the most or least spectacular methods of planning and development during public hearings on the territory planning projects;
- discussion with experts on volumetric and color solutions of architectural objects (residential and public facilities);
- discussion of some decisions with related experts (economists, environmentalists, engineers of various specializations);
- discussion of many cases from the design practice of compositional space organization in conversations with students during lectures and practical classes.

Above is one small example of the uncomfortable influence of an element of the urban environment. Such more subtle influences are discussed all over the world. In terms of the scale of influence, small, chamber spaces have an increasingly important effect on the psychological comfort of the environment; pedestrian paths, a person's perception of space from the level of his growth, are of great importance. And, since today the problem of survival and reproduction in the urban environment of the person himself (a person who is physically, mentally, and morally healthy) [1] is becoming increasingly acute, it is required to consider the development of the city not only in an economic, transport, infrastructural perspective, but also from the point of view of a psychologically favorable influence on a person. It is also required to consider various needs of people according to their psychological types.

From the point of the emotional and ideological impression that the space makes on the viewer, it can evoke a feeling of epic “memoriality”, business concentration, festive “fair” gaiety, or quiet comfort [2]. It is impossible to create a universal space for everyone. It is required to form a variety of spatial environment that will provide comfort and safety, nourish the aesthetic sense of different segments of the population and different psychological types.

**The New Man and the urban environment.** O. A. Polyushkevich in her research “Generational social and personal space” states that sociocultural changes in society, the change of epochs, spiritual crises of society cause a change in the spatial and temporal image of the world of entire generations. This

means that generations are building a new coordinate system, with their own reference points of time and space, which have their own characteristics [3, p. 286].

In recent decades, there has been a powerful trend of merging social and personal space. Private life is steadily transferred into the virtual social space; on the other hand, the individual is constantly immersed in the life of various collectives on the Internet space. It is difficult now to meet a person whose attention is focused on any element of the urban landscape for more than a few seconds. The picturesqueness of the area, architectural delights began to be evaluated by a modern person instantly, without causing an extended aesthetic feeling. If a place in an urban environment — a park, a square, a courtyard — becomes favorite for a person, it is likely to be safe, easily accessible, and in which you can retreat with your gadget. How to characterize the state of such an individual? Is he secluded at the current time? Or is he highly active in the social space?

In his book «The Consequences of Modernity», Anthony Giddens writes that the advent of modernity increasingly disconnects space from place, fostering relationships between «absent» others, distant in the sense of their location from any given situation of personal interaction [4].

A modern person is exposed to great risks due to the use of gadgets when moving in an urban environment. This danger is highest on external highways and city thoroughfares. In urban public areas, many young parents let the guards down, cease to monitor the safety of preschool children, being distracted by telephone conversations or games.

In this regard, the main emphasis for the modern urban planner should be on the maximum safety of the designed environment, on its signal, warning qualities. If the hearing and vision of a pedestrian or a mother walking with a child are busy, the environment should acquire other warning signals: tactile, vibrational, or affecting the sense of smell.

**Prerequisites for the transformation of the urban environment.** These changes, as well as the current conditions of public health, require at least occasional seclusion, isolation. This is the first harbinger of the unnecessary of large public spaces in the future, including not only squares, transport hubs, but also some types of recreation.

With a high probability, large public spaces and ensembles will be preserved as a historical and cultural value, as for the organization of new large spaces – from the point of view of their functional necessity at this stage, it seems to be a relic of the past.

To feel comfortable in a new urban environment, a new person needs zones of the maximum but safe personal activity and zones of absolute privacy and peace. These are two environments with polar properties that are not currently named terminologically and are not embedded in the structure of functional (and territorial) zones of cities.

The city space is a multi-layered system of human interaction with the environment, both physical and informational, because in the accelerating pace of life, information is becoming increasingly important for a person, its value exceeds many values of the physical world.

The city is an image created by society, not a material reality. In the course of research, S. Milgram came to the conclusion that the image of the city is a collective representation, despite the various goals of the presence of people in this area [5, p. 132].

Information flows permeate the entire space of the city, from direct outdoor facade or on-screen video and audio advertising to veiled systems of attracting attention and inviting to a certain scenario.

Observation of the interactions of a modern person with a changing spatial environment, the study on mental reactions to the architectural environment make it possible to determine the optimality of certain methods of organizing space, and make the necessary additions to the concept of development of the modern urban environment as a whole.

As a concept, the urban environment has changed its essence with the development of information technology. The city has ceased to be that physical place of concentration of the major vital facilities, as it was before. Administration, banking structures, tax authorities, trading platforms, even some of the educational services are moving from the physical world to the digital one, unattached to the location.

The vast majority of the population's major areas of need, such as health care, social services and physical culture, art, culture and education, science and scientific services, financing, lending and public insurance, management, social activities and utilities, trade and public catering, consumer services population, communications, design, has changed the format of face-to-face contact to indirect, online.

Physical objects with similar functions, around which certain points of attraction were formed, disappear, since the need to provide the opportunity for the population of the entire city to visit the city center to solve administrative, business, financial or social problems has disappeared.

The spatial parameters of the environment correspond to the subconscious perception of space by a person. They are not monitored directly, but influence the formation of sensations. The criteria for spatial parameters include dimensions, silhouette, spatial accents, closeness-security or openness-community, rhythm of elements, frequency, etc. [6].

The study of scenarios and their variations is also an important and significant part of the modern urban planning [7].

All this makes us reconsider the foundations of the formation of the socio-spatial environment to determine the most important, promising directions for its development. It seems more important to organize local centers for each area to reduce the amount of traffic and be able to develop well-maintained safe pedestrian routes. In addition, the placement of open spaces, such as squares, boulevards, streets, embankments, parks, etc., is extremely important for new and already built-up areas. Such spaces can become a resource for improving the quality of the urban environment [8].

A. M. Vorob'eva in her paper "Principles of formation of public areas in the reconstruction of municipalities in Southern Russia" comes to the conclusion that in our country, the natural ecological framework is being destroyed by building urban public green spaces, turning them into built-up areas of residential areas, into well-greened plots at entertainment centers [9, p. 135].

**Overview of the main requirements for the designed environment.** Adapted to the terrain, modern requirements for the design of urban areas (and other settlements) are contained in local urban design standards, which include not just individual requirements for the calculation of environmental elements, but calculated systems of interdependent and mutually conditioned indicators. On the one hand, indicators calculated with account for the regulations and standards of urban design guarantee the sufficiency of all elements of the environment of any functional area.

On the other hand, such design forces the use of the most lapidary, low-aesthetic development options or incur costs due to a decrease in building density. In this case, the designer is left with such an object of manipulation as the calculated standard of housing acting as a lever for regulating the technical and economic indicators of the territory. If we take a closer look at the role of this indicator in various projects, we can understand why, with the best intentions and conscientious work of urban planners, residents do not have enough green areas, landscaping elements, parking lots, and various kinds of sites, not to mention school places and places in preschool educational institutions.

Therefore, at this stage of the urban planning development, it is required to address the issues of correspondence between the intended and the real population at the design stage. If the norm of housing security used in the calculations is high enough, it is necessary to apply such techniques of the apartment planning that will increase the area of the kitchen (e.g., kitchens-dining rooms have become very popular), dressing room, hallway and similar areas in apartments, but not increase apartments at the expense of residential premises. In this way, the real rate will be closer to the specified one.



A common manipulation of designers is the reference to sports, recreational facilities, parking lots located in the adjacent public areas. However, usually no one calculates either the real capacity of such objects, or the load on the landscape, or the maximum load. Thus, it seems that such a facility can be referred to an indefinite one, no matter how many new residential complexes appear in the vicinity. It is time to end this chaos. It is essential to calculate the maximum load or capacity of the facility, and to monitor what reserve is left for each facility (park, stadium, parking lot, etc.) located in the public area. With the onset of the «x» hour, symbolized by the absolute use of the facility, it is necessary to impose a ban on references to the compensatory function of such a facility in relation to the designed backyards.

**Conclusion.** Currently, the phenomenon of the «residential yard» has completely lost its relevance. If we compare the active use by residents of their yards in multi-storey buildings of the 60s – 70s of the twentieth century with the modern use of yards, it is easy to come to the conclusion about the transformation of yards into a kind of communal areas: loading and unloading areas for servicing facilities located on the ground floor of residential buildings, unauthorized parking on former lawns, etc. Under these conditions, a modern person will not use the yard except as a parking space. But any person needs space, so he will go with enthusiasm to places where natural landscape areas are delicately combined with large shopping and entertainment centers, which will provide him with walking, getting new impressions, relaxing, and shopping. In addition, such places allow you to switch very quickly from «in public» to «secluded» mode.

A big disadvantage is a relatively small number of such places and their remoteness from residential areas. Therefore, a modern city needs to create new concepts of its structuring. Specifically, in Rostov-on-Don there are entire central districts with dilapidated and low-value buildings, which are unprofitable for investors. But if there were a program for comprehensive phased development of territories, occupied by such “ruins”, for the placement of large cultural, recreational and entertainment centers in place of fragments of buildings to be demolished, the interest of developers would increase, and in a few decades, we would see a completely new version of the city.

New conditions give rise to new challenges, and the solution to these tasks is provided by new technologies, methods of analysis, the formation of a more subtle adjustment of the rough physical world to the sensitive mental nature of human beings. This expands the possibilities for further development of a harmonious society.

### References

1. Skulmovskaya, L. G. Culture as a tool for solving socio-economic problems of the city. / L. G. Skulmovskaya // In: Proc. XXII Int. Memorial Conf. of prof. L. N. Kogan «Kul'tura, lichnost, obshchestvo v sovremennom mire: metodologiya, opyt ehmpiricheskogo issledovaniya». — Ekaterinburg : UrFU; 2019. — P. 389–402.
2. Kotelnikov, N. P. Tipologiya form arkhitekturnoi sredy. / N. P. Kotelnikov — Tolyatti : TGU; 2011. — 96 p. (In Russ.)
3. Polyushkevich, O. A. Generational social and personal space. / O. A. Polyushkevich // Sociology. — 2020 — No.4. — P. 132–148.
4. Giddens, A. The Consequences of Modernity. / A. Giddens — Moscow: Praxis; 2011. — P. 89.
5. Milgram, S. An experiment in social psychology. 3rd ed. (Transl. from Eng.) / S. Milgram — St. Petersburg: Piter; 2000.— P. 97
6. Petrovskaya, E. I. Town planning regulations, environmental codes and criteria for the quality of urban space. / E. I. Petrovskaya // Architecture and Modern Information Technologies. — 2017 — No. 39, — P. 268–283.



7. Dedkov, A.G. Approaches and main tasks of territorial planning at the modern stage of urban planning development. / A. G. Dedkov // Architecture and Modern Information Technologies. — 2021 — No. 56. — P. 263–272

8. Sadkovskaya, O. E. Borders of natural-ecological framework of urban planning systems of Rostov Region. / O. E. Sadkovskaya // Biospheric Compatibility: Human, Region, Technologies. — 2020 — No. 29. — P. 119–134. <https://doi.org/10.24411/1998-4839-2020-15209>

9. Vorob'eva, A.M.: Principles of formation of public areas in the reconstruction of municipalities in Southern Russia. / A. M. Vorob'eva // Vestnik MGUKI. — 2014 — No. 62, — Pp. 283–286

*About the Author:*

**Veropotvelyan, Asya S.**, Associate professor of the Department of Urban Planning and Building Design, Don State Technical University (162, Sotsialisticheskaya str., Rostov-on-Don, 344022, RF), Dr. Sci. (Eng), [assa\\_vera@mail.ru](mailto:assa_vera@mail.ru)

*Об авторе:*

**Веропотвельян Ася Сергеевна**, доцент кафедры «Градостроительство и проектирование зданий» Донского государственного технического университета (344022, РФ, г. Ростов-на-Дону, ул. Социалистическая, 162), доктор технических наук, [assa\\_vera@mail.ru](mailto:assa_vera@mail.ru)