

# Creating the architectural-landscape space in the major cities as a tool of harmonious personality development in multinational townspeople

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**Abstract.** Social issues in the XXI century form a need to change people's living conditions in the big cities considering the ecological crisis. The art of creating architectural landscape spaces in major cities is characterized by special standards of living conditions in a multinational environment. There is a focus on creating a physiologically comfortable and harmonic environment for the development of personality of everyone in such a multinational city as the capital of the Southern Federal District, Rostov-on-Don, also called "the Caucasus gates". Such environments are the comfortable living conditions of city dwellings and architectural-landscape environment. The landscape is needed to dominate the count of city buildings. The surrounding grounds are equipped for the comfortable living and leisure activities of different age people. The carbonate composition of the atmosphere, the waste of land transport and factories are minimizing. Such conditions are part of an optimally comfortable stay. The ethnic cultural factor is significant as a component in the visualization of objects and the landscape of the city. The visual perception of the video ecological foundations of the exteriors and interiors of buildings and objects of the urban environment has the same positive effect: the decor of buildings, the characteristics of the texture and texture of surfaces, the configuration of finishing and building materials, the color scheme of this artificial environment created by human hands are of leading importance for human psychophysiology. It affects the feeling of security and calm personality development and its' creative improvement and creativity development. It is of enormous significance for the entire nation in crisis.

## 1 Introduction

Modern society has faced many social upheavals of various kinds. One of them is related to the ecological problem of human survival on Earth. Especially relevant for urban residents. A significant aspect of it relates to the lack of landscape territories of the city and suburbs necessary for the comfortable ecological living of citizens. Other topical issues of the social life of the new century at the beginning of the third decade relate to political, economic, and

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other social changes. All these aspects affect the entire population of the planet. They also play a significant role in shaping the urban environment of cities with millions of inhabitants due to the increasing urbanization process, for example, in Rostov-on-Don. The migration stream from near-abroad countries: Central Asia, the North Caucasus, Ukraine, and far-abroad countries have increased significantly in recent years. Some of them come with their families, and others find their other half in Rostov. More and more foreign couples from far and near abroad can be seen on the streets and in public transport, and foreign-Russian couples, now with children. Similar trends are being updated in other major cities in Russia. All government efforts in the country, the region, and the city level are aimed at providing people with housing. Conditions are being created for the comfortable living of residents and visitors, in particular, in our city. Construction is underway on the territory of Rostov-on-Don, and new places where residential buildings have not yet been built are also being developed. New microdistricts are being created, such as Suvorovsky, Platovsky, Levoberezhny, Leventsovsky, Krasny Aksai, Helicopter Field, Veresaeva, and Solov'inaya roshcha. The additional areas for urban development were allocated by the city parliament decision. At the end of last year, the media discussed the "Updated general plan of Rostov-on-Don: five main transformation zones". It also included other issues of the city's development: "the creation of new business activity zones, the transfer of major highways, the creation of new transport systems" (Updated general plan of Rostov-on-Don: five main zones of transformation. Expert South. <https://expertsouth.ru/news/obnovlennyy-genplan-rostovanadonu-pyat-glavnykh-zon-preobrazheniya/>). One of the conflicting issues was the implementation of a transport interchange on the territory of the Kumzhenskaya grove. The territory of the monument to Soviet soldiers and the cutting of 7% of the green spaces of the grove were affected. Another new place of the reconstruction plan in the city's historical center is the zone of descent to the Don: "the creation of continuous pedestrian and transport links from the Theatrical descent to the Don River is the main idea of the current General Plan" of the "new public space" instead of two private housing blocks.

Furthermore, the old airport territory was chosen as a currently important place for the adjustment according to the General Plan. In this zone, development ideas are accompanied by optimal and economical professional proposals for the development of the transport system with access to the MK-4 highway using a runway for a tram line and a road as part of the development of the road infrastructure.

The Green Island zone has also been allocated as another new object of active recreation of citizens all year. This also became a topic for discussion about the possibility and necessity of implementing this solution. It is planned to build a bridge crossing and an outdoor stadium. The experts negatively assessed the prospect of entering the island by car (General plan for the development of infrastructure in Rostov-on-Don., The Administration of Rostov-on-Don Website. <https://rostovgorod.ru/administration/structure/departments/daig/action/01-grado-01-genplan/>).

If you look at the map of the general plan for landscaping Rostov-on-Don and adjacent territories, you can see information on the availability and planning of green spaces, as it is called "the lungs of the city", which is not very pleasing to citizens. It is a small part of the territory which consists of the Botanical Garden, the Lelyushenkovsky Forest Park, the Levoboezhny Nature Reserve, the Shchepkin Forest, the SKA grove, the Sosnovy Bor Forest Park and recreation parks in the city districts.

With such a migration stream and the enormous building activity in the historical center, in the neighborhoods and the newly declared territories of Rostov-on-Don, the same active and maximum actions to provide residents with a green zone are desirable in the general development plan. And not only with new comfortable housing and a green landscape of the adjacent territory of business projects. But also the development of

landscapes with architecture and design of it in new parks and walking areas for citizens around the city and along the roadway. The memories of citizens about the presence of city green spaces under Soviet rule are so different and even extremely different from the current situation on this issue that an immediate active intervention of specialists in this direction is required in order to bring it following the requirements of the Russian standard. In addition, the coordinated connection of the previously created space and modern buildings will correspond to the positive perception of the multinational indigenous inhabitants of the Don.

## **2 Materials and methods**

Currently, scientists from many countries are engaged in various issues of optimizing the urban environment to comprehensively form a landscape and architectural space based on architecture, culture, landscape environment, and design. According to their ideas, architectural structures that harmoniously fit into the cultural layer of the territory, landscape environment, and landscape design with convenient transport interchanges should represent an ensemble harmonious with the culture of the living people and the presence of an uncontaminated atmosphere. Such a development program has prerequisites for improving conditions in the city and suburbs and the pursuit of creating a harmonious environment for citizens. “China's landscape architecture industry has developed rapidly in the past decade, with a maximum growth rate of 20%. It is expected to maintain a growth rate of 10% in the next 5-10 years. The share of urban greening is growing rapidly, from 56% in 2015 to 60% in 2020 and even 65% in 2025” [1].

Japanese scientists propose to use the evaluation method of existing architectural and landscape spaces as a fresh look at the restoration of cultural heritage. This method considers a modern landscape with architectural groups made in accordance with traditional trends and uses conventional configurations and techniques for creating landscape objects [2].

Digital and analog research and development methods of spatial design and landscape architecture projects are actively used concerning landscaping and urban improvement goals. For example, cartographic methods, including 3D landscapes, landscape metrics, visibility analysis, grid cell analysis, and others [3].

In landscape planning, computer programs, information technologies, and virtual and 3D models are used to verify the scientificity and precision of construction projects, drawings, and landscape engineering structures and systems. Modern scientific and technical capabilities make it possible to reduce many design and construction errors causing accidents at construction sites, accurately estimate the project implementation economically and reduce costs [4].

In addition to new design opportunities, new methods and information technologies are being developed to manage landscape architecture [5]. The direction of “identification and systematization of buildings integration ways with the landscape based on the landscape approach” is being developed based on scientific approaches, research methods, and techniques. For example, evidence-based analysis, empirical and system analysis in the development of urban territory concepts from objects of landscape architecture based on “systematization and generalization of possible types of building integration with the landscape, compositional ways of the building structure synergy with the natural environment.” The implementation of plans, projects, and the construction of such complexes solves the problem of harmonizing the urban environment for a comfortable and harmonious living space for human psychophysiology [6].

There is also an adjustment of the approach to the educational system. For example, in China is planned to study construction engineering and landscape architecture professions,

and integrated courses are aimed at introducing to a new direction new engineering talents who can master landscape architecture through professional disciplines and digital technologies. An integrated training complex, as we have already mentioned, eliminates risks and is economical in terms of financing and execution time. It is planned to produce specialists with distinguished comprehensive, innovative engineering, and artistic competencies. “A new blended learning model has been constructed and a real path has been provided for the transformation and modernization of landscape architecture” [7]. To grow talented people, we need a harmonious living environment in which they can get the basics of a comfortable environment.

Japanese scientists are clarifying a new look at living heritage. The article reveals the process of cultural, architectural groups and landscape formation based on cultural events corresponding to the city renewal [2]. The role of the landscape in transport management has been investigated in the work of Chinese scientists. The conclusions are based on the traditional conception of natural environment in the harmonization of human life. Green spaces cannot negatively affect the driver because this environment has been comfortable for a person for many millennia since his nascency. Scientists have identified the usefulness of the landscape for development in “sustainable future cities” [8]. The significance of historical objects' part in the cities' cultural centres' formation is not in doubt. Scientists study the historical environment with architectural values and the surrounding landscape, proving the need to preserve the cultural, national and historical heritage and identify patterns of formation of signs and characteristics of objects [9]. The cultural codes of our ethnic past are passed down from generation to generation. The presence of objects supporting this information creates a harmonious environment for the formation of each individual in the surrounding living space [10].

In the Russian Federation, new technological and economic problems affecting social life are analyzed, and the possibilities of overcoming them are studied. These include: “global competition strengthening”; innovative technologies that are essential for the present: digital, artificial intelligence, bio- and nanotechnologies; the significance of human capital and the involvement of investors' funds in the economic base of construction instead of public funding. The document “Strategy for Developing the Construction Industry in Russia by 2030” discusses strategies for the development of industry and university science by “approving priority areas of fundamental scientific research of construction science”, introducing a system of grants, philanthropy, attracting scientific, educational, and experimental activities in design and construction. The target results for 2030, along with budget financing, include an increase in the share of these sources to 30%.

Among the main target results, the following are indicated: “improving the citizens life quality, contributing to demographic growth and consolidation of the nation in the Russian Federation regions; creating an urban environment competitive with the urban environment of the advanced countries of Europe and Southeast Asia; increasing the satisfaction of the citizens with the degree of accessibility of safe and comfortable housing”; the use of digitalization in the construction industry, both in the scientific support system and in the transition “to the life cycle management system of capital construction projects.” trend. Also, “the formation of house stocks kits of prefabricated low-rise residential buildings in each federal district to ensure the possibility of rapid resettlement of small settlements residents in cases of emergencies” (The construction industry development strategy of the Russian Federation until 2030. Project [https://www.srogen.ru/upload/files/documents/strategy\\_text\\_13112019.pdf](https://www.srogen.ru/upload/files/documents/strategy_text_13112019.pdf)).

In Rostov-on-Don, there are various plans for city development, and construction organizations from several regions carry them out. The business projects of residential complexes have appeared in Rostov-on-Don, for example, at 38 M. Nagibin Avenue. In addition to building plans and projects of budgetary housing, there are also business

projects of a comfortable landscaped territory, with a thoughtful meeting of the new citizens' demands within walking distance and in the house structure itself. Shops, beauty salons, sports zones, parking zones, and much more of what a resident need almost daily.

Regarding existing residential complexes, a reconstruction of adjacent recreation areas for children is in process. S. Gadarova, the acting minister of the Ministry of Physical Education and Sports of the Rostov Region, announced the modernization of old sports grounds next to multi-storey buildings. The city government is concerned about the activity and the possibility of providing free physical education for children and youth, as well as their health. In the summer, action plans were already prepared for the reconstruction of sports areas in the local area.

Extremely professional creation of the environment aimed at the formation of harmonious living conditions in the city and the suburbs represents the development, construction and operation of the residential area that meets the list of requirements [11]. Scientists around the world are considering the relevance of switching to environmentally friendly carbon-neutral vehicles. It is also the basis for overcoming the current ecological crisis. Figures of environmental pollution by transport are indicated and are about 30%. Since 2010, there has been a transition to the development of environmentally friendly transport in different countries: Russia, the USA, China, India, and so forth [12]. The role of the landscape in newly built areas is also a significant component of the environmental friendliness of the surrounding space of new settlers: the microclimate of the territory, the creation or preservation of visual and spatial landscape links, and areas for walking and rest [13].

### 3 Results

In the old city, the historical center of Rostov, there were buildings that were comfortable for perception. made of natural materials - stone, brick, and so on. The facades have decor, were made in light colors, usually pastel shades. The buildings surrounded by a scenery with elements of landscape architecture pleases the eye of a passerby. All these characteristics relate to the harmonious and video-ecological aspects of architecture for human perception and their psychophysiological state. We pointed earlier to the science of videoecology, which studies the impact criteria of the artificial and natural environment on humans. V. Filin is the creator of this science important for modern times. Thanks to numerous of his studies, he has identified materials, shapes, and textures of objects that are harmful to human perception (Filin V. A. Videoecology. What is good for the eye and what is bad. Moscow: Videoecology). The architectural environment created with their use as a whole (exteriors, interiors) has a destructive effect on a person. This is a fact empirically confirmed by the study of the physiological influence of homogeneous and aggressive fields that adversely affect the human body. Smooth, shiny, dark surfaces, a monotony of geometric shapes and contrasting patterns, sharp corners, and other similar surfaces create a field that is harmful to sight. It negatively affects the perception of the environment and is psychologically irritating. In one of the states of America, an entire microdistrict with buildings of this type was demolished due to an increase in the number of crimes. In this case, the impact of the architectural environment was proved. Historical buildings are made of natural materials that are comfortable for perception. They contain decorative elements and are perceived harmoniously by a person, just like the natural environment. This situation is related both to the conditions for preserving the historical centers of cities and to the development of the architectural and landscape environment in connection with the new development requirements of Russian cities. In such an environment, a person feels comfortable, as in natural conditions for their formation as an individual. The impact of

professionally executed design and works of art or other types of creativity contribute to the successful formation of a creative person in their positive development.



**Fig. 1.** Outdoor exhibition landscape of modern architecture.

In Figure 1, we have presented the open exhibition landscape of modern architecture (China), which is part of the Green Exhibition project. It is important that such events and projects are of public interest. The components of the green part of the exhibition are funded: “15,000 trees, 10,000 flowering shrubs, 194,000 square meters of turf, 119,000 square meters of grass and flowers”. But more than that, it also demonstrates the possibility of using transport services: a parking lot for 12,000 cars, a “battery-powered car path, a bicycle path, a footpath and a small railway track”, rest points and food centers for tourists and visitors. The demonstration of the green part of the exhibition involved “a wooden elevated road, a vein gallery, a green landscape wall, a ring wall, and other landscape elements that highlight the concept of green environmental protection”.

The author draws the following conclusion: “A garden exhibition, as an effective means to promote the comprehensive development of the urban economy, culture and environment, is of great importance for optimizing the city environment, improving the unfinished structure of urban green spaces and the public space system, promoting the development of new suburban areas, renovating old cities and industrial areas” [14].

The Botanical Garden of Rostov-on-Don is beautiful in the spring season. Numerous lilac bushes of diverse varieties and with a color range of white, violet and cherry shades bloom in it, make a strong impression after the cold season. There is a pond with a bridge. The expanses of the native land and other objects of nature - various trees, shrubs, flowers, and herbs - are a pleasure to a visitor.

The Shchepkinsky Forest, a pine forest with a walnut plantation filled with forest inhabitants, with squirrels and wild boars among them, also impresses. It is characterized by fine air and ripe nuts. In the 80s of the 20th century, squirrels were brought to Rostov-on-Don and settled in the parks of the city. Now they are not afraid of passers-by, they love treats, live in the trees of the city center walking areas, st. Pushkinskaya. The territory of the city “Nightingale Grove” is inhabited by Persian squirrel, Caucasian squirrel, and Siberian squirrel Teleutka.

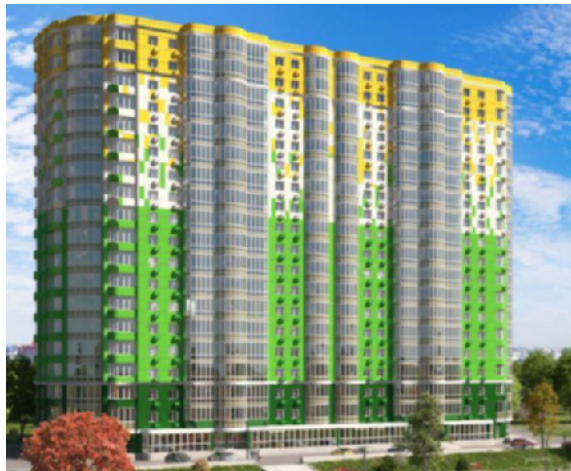


**Fig. 2.** “Monument to a tree” located at the Don State Technical University park.

This object is shown in Figure 2, the “Monument to a tree” in the Don State Technical University park was made with passion and respect for the creation of nature: a tree as a representative of the world of plants, giving people clean air, shade in the heat, visual comfort, fruits and much more.

By this we mean everything that is prescribed in the science of videoecology as a comfortable living environment that allows people to live on earth. The seating area is done quite succinctly. The tree is planted in the center of a park path, a polygonal area lined with paving slabs and bounded by benches. The materials of the benches are combined in material and color with the environment. This recreation area is almost never empty, one can always see people sitting there: students, teachers, and people passing by. Both the theoretical part of the educational process and the project assignments conducted by students should contain a reference to the traditional or modern landscape environment at the beginning of a study.

The purpose of this commentary is related to the importance of this component of architecture and the architectural and landscape environment of the city, corresponding to the scientists' ideas about the environmental friendliness of the modern urban environment.



**Fig. 3.** Finished business-class house for a happy family life.

Figure 3 shows the finished business class house for a happy family life. This is a new closed type residential complex with landscaped yards. The colors of the building attract attention with their freshness and pleasant colors of yellow-green shades, psychologically perceived positively by people. The facade also does not have homogeneous and aggressive fields because of the presence of bay windows that violate the large plain planes of the facade elements. Even display windows are not perceived negatively against the background of the changing color rhythms of the facade and different levels of bay windows. The house territory also makes a positive impression with its well-groomed landscape zone, with the presence of multicolored bushes and trees in the fall. In the courtyard there is an underground parking area. There are also 2 sports fields and a play area for children. The alley goes along M. Nagibin Avenue and further, opens a view almost to the Don River embankment. This area is under protection. The kindergarten, stores, swimming pool, and other necessary facilities are within walking distance. Currently, there are few residential complexes of this type in Rostov-on-Don. Four years ago, this complex was the only one of its kind. A small utility bill is planned in winter due to the presence of gas boilers in each apartment. This heating option is cheaper than central heating. The only thing that can now confuse observers regarding the fate of this complex is that it has not yet been inhabited, although sales are open.

**Table 1.** Evaluation of the perception of urban architecture objects and the equipment of their landscape zone.

<b>Objects of urban architecture and landscape</b>				
Entitlement	Architecture (compliance with videoecology criteria)	Materials, surface	Landscape	Grade
Historical center	yes	Stone, wood, paint, brick, ceramic tiles, colouring, moulding	Greenery, grass lawns, planters, jet, reservoir	+
Standard housing 1933- 1960	yes	Brick, colouring, tiles, stucco, moulding	Greenery, grass lawns, planters	+
Standard housing 1960 - 2000	Yes no	Panels, colouring, tiles, glass	Greenery, grass lawns, planters	+ -
Modern housing	Yes no	Brick (prevalence of light shade)	During planned development Greenery, grass lawns, garden space	+ -
Modern housing	no	Brick (brown, black, light) Metallic structure, glass, ceramics	Infill development	-
Modern business-class residential complexes	Yes	Panels, colouring, tiles, glass	Greenery, grass lawns, planters, underground parking	+
Green architecture	yes	Greenery and natural materials (interior), Greenery, grass lawns (exterior)	Greenery, grass lawns, planters	+



Table 1 shows the main periods of development of Rostov-on-Don, including the materials of architectural structures, the texture of building and facing surfaces in certain periods, the degree of fullness of the adjacent territory and the presence of a landscape zone. We have presented it in order to analyze the factor of video-ecological perception of existing landscape and architectural forms of each selected period city building by human. The analysis of videoecology is conducted in two columns: 1 - a compliance with the theoretical analysis of architectural objects videoecology; 2 - an assessment of an independent students' and citizens' examination. The requirements for videoecology are consistent with the assessment of independent experts.

## 4 Discussion

In modern urban development, the following functions should be considered: compliance with technologies (traditional, innovative) that exclude planning errors; ergonomics and environmental safety of modern construction from traditional and modern materials; psychological and economic aspects, compliance with the height of buildings that are comfortable for people's lives. Low-rise buildings are characterized by a less negative impact on the social and environmental situation of residents' lives. The most optimal height of buildings for a harmonious feeling of a person in the natural environment refers to the construction of private buildings up to two floors with green spaces: trees, shrubs, flower beds, vertical gardening, and other plantings. For several decades, since the beginning of urbanization, human physiology could not be rebuilt from the foundations of the centuries-long development of human life on earth. Regarding the environmental friendliness of the first floors in the city, scientists argue about the danger of car exhaust gases, and other pollution of the urban environment, that can affect human health. On the upper floors of high-rise buildings, discomfort from insecurity is felt. In apartment buildings, a person feels pressure from height, the number of neighbors, and other negative factors of modern construction (water supply breakdowns, broken elevator, noise from repairs, and so on). Historical buildings are made of natural materials that are comfortable for perception, contain decorative elements, and are harmoniously perceived by a person, just as the natural environment.

The creative formation of the personality is accompanied by its spiritual development. The role of art in this process, especially in obtaining the profession of an architect, designer, or artist, is of paramount importance. The development of creative thinking is of great importance for the professional organization of a positive artistic environment [15]. The cities with a large migration stream and young people who come to study at the leading universities, for example, Rostov-on-Don, requires special attention. There are many foreign students of different nationalities: Arabs, Chinese, Palestinians, Africans, and others. Our government, with the aim of providing the entire population with comfortable beautiful housing, cannot provide ethnic aspects for each nationality on the exteriors of residential buildings. However, it is quite possible to improve visual comfort with the development of landscape adjacent territories and the ecological situation in the city as a whole. Also, the development of park areas in areas under construction and renovation is more than desirable. Students, undergraduates, and graduate students can be involved in creative projects. These are, for example, competitions for the creation of the best landscape with creative objects of visual environment with further supervision or patronage, with the provision of scholarships for the creative development of young students and young professionals. Such projects and competitions could be thematically directed to the creation of certain thematic zones of an ethnic nature. This may help create even more comfortable places for representatives of different nationalities to stay. By the

end of the last century, the main population of the capital of Don was made up of four large ethnic groups: Russian Cossacks, Armenians, Georgians, and Azerbaijanis. Don Cossacks are an ethnic group formed on the basis of the Russian Orthodox population. The Armenian population from the settlement of Nakhichevan-on-Don united territorially with Rostov in 1928. This is an example of the absolute friendship of the fraternal peoples - Russian and Armenian. In the multi-cultural environment of the city mainly churches, mosques, private buildings from national districts or city territories, and historical parts of the city can support people ethnically. A while later, two more national diasporas were formed: Don Community of the Peoples of Georgia (1993), and the Rostov Regional Azerbaijan National-Cultural Autonomy (2005). All these ethnic groups have historical roots, cultural and spiritual heritage on the territory of the Don region, characterized by long-standing friendship of people living together.

## 5 Conclusions

The results of research in recent years have revealed the main relevant aspects of the formation of a comfortable environment for human living. Based on the research of physiologists, psychologists, and sociologists, a harmonious environment has a positive effect on people's lives and the development of the younger generation. Russia has a national project "Housing and Urban Environment". Within its framework, the regions are financed from the state budget for the social and engineering infrastructure of microdistricts under construction. The "Stimulus" program builds neighbourhoods with schools, kindergartens, medical institutions, as well as transport interchanges and other infrastructure. With such state support, the cost of housing is much lower, and the buildings' commissioning is proceeding much faster.

Both the matter of caring for residents of different nationalities, in creating them a comfortable living environment, and the matter of providing the young generation with the possibilities of a harmonious living environment, successful learning, and prospects for creative development make specialists think about the organization of favorable living conditions in the new architectural and landscape environment of a city with population exceeding one million, such as Rostov-on-Don. There are all possibilities for this implementation, including the legislative framework, specialists, and the desire to return the once-owned name "Garden City" to Rostov-on-Don.

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