Key Factors Influencing Formation of Modern Comfortable City Residential Environment

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Abstract. The problems of creating a comfortable living environment are considered on the example of the city of Samara in the areas with multi-storey residential buildings, the construction of which was completed 5-30 years ago. The article gives the assessment of opinions based on the analysis of residents’ survey results concerning the ideas of a "comfortable living environment", "comfort of living" in a residential building, a courtyard and a district areas. It is concluded that the tasks of creating a comfortable living environment should be solved by professionals working in this field. At that the leading role should be given to architects and designers. There is no doubt that the assessment of the created environment belongs to the residents of buildings and urban areas in the mode of their permanent survey.

1. Introduction
According to The United Nations Human Settlements Programme, UN-HABITAT), the spatial development and urban expansion intertwined with quantitative population growth and well-designed affordable infrastructure and services can be called a natural phenomenon in the modern world system of urbanization [1]. This strategy has affected Russian cities, including Samara that has some specifics imposed by natural, climatic, social, economic, cultural and other factors. In connection with the ongoing territorial changes, in some Russian cities there is a legitimate question about the "comfort" of the created residential environment for residents. These changes are made in the direction of not always justified urban sprawl due to the active construction of residential buildings of small number of floors (1-3 floors) or increased number of floors (12-16 floors). The construction of such residential buildings requires low costs for the infrastructure, transport and public services. At last, they have started thinking over what the quality and convenience of the living environment should be not only in areas of new buildings but in areas that were built for housing last century and later.

When studying and thoroughly researching this topic, it is necessary to pay attention to the fact that recently the issue of creating a «comfortable living environment» in Russian cities has been raised at different levels more often. Thus, in 2017, the government adopted all - Russian programs. The most significant programs are: «Creating comfortable urban environment» and «Housing and urban environment». In accordance with them, tasks were formulated to improve comfort, as well as the index quality of the urban environment. According to these programs, the authorities of Russian cities, including the city of Samara, have started their immediate implementation. The program developers consider the direct participation of citizens in the implementation of programs to be the most important principle. It can be achieved by taking into account their opinions, recommendations and wishes.
At the moment there is a kind of reassessment of the city planning structure and reevaluating of everything that has been created over many decades. The most important thing is that there is a great desire to convert and improve in some areas mentally, and even physically stale living environment. A research and study program was adopted to make a stage-by-stage survey of the existing intra-house territories and small adjacent residential areas for their «comfort». In accordance with the program, newly populated areas, as well as those under construction should be paid special attention to and analyzed. All the above mentioned should be done to determine the quality of everything that has already been built, is being built now and will be built in the future for comfortable living of people. The main issues are: What is meant by "comfortable living environment" and what does this concept mean for people who live in a manmade created environment? What categories of people should it be created for? What elements should the concept "comfortable environment" include? What factors influence the creating of such an environment? How stable in time this environment should be? How should this environment be changed? That it means to have certain «flexibility», i.e. mutability over time to meet the required level of comfort.

In this study, only a few of the many issues are raised. In our opinion these issues are of particular interest in solving this complex problem. They mainly concern the results of the survey of residents that live the city residential areas housed 5 to 30 years ago. The article analyzes their opinion about the living environment created in the residential buildings, inside courtyards and in the whole residential area. The mail issue is how comfortable this environment is and what should be changed to make it "comfortable" in their view. It becomes obvious to everyone that there is an urgent need to create modern innovative approaches, methods and tools for creating a new residential urban environment and reconstructing the existing one for Russian conditions. Who should have the leading role in creating a comfortable living environment, professionally trained architects and designers, or city residents?

2. Methods
To get answers to these questions, the existing examples of residential development were analyzed. According to experts and residents, these examples could be classified as a «comfortable environment», including some residential buildings, as well as adjacent courtyard spaces. There was conducted a photo-recording and survey of people living in residential buildings built at the turn of noughties. In addition, the analysis of scientific literature, as well as information collected by the article’s authors in trips to foreign cities allowed to assess the quality and comfort of the residential environment of intra-house territories and residential areas where citizens live. As a result of this work, specific features and differences of domestic and foreign approaches to creating a comfortable environment were revealed, as well as the main factors influencing the creating of such an environment were identified.

3. Results
There is no doubt that everyone understands the comfort and quality of the living environment in his own way, due to his lifestyle, social, economic, psychological and physiological state. The subjectivity of perception and the complexity of evaluating certain indicators that determine the comfort and quality of the environment complicates the creation of common approaches, elements and parameters that could help to form a general concept of the comfort of the living environment, especially it concerns Russian residents. Undoubtedly, this problem should be solved by conducting scientific research, searching for and creating experimental residential complexes, zones and districts with testing and introduction of various elements that create comfort for people in the city environment. Also it is compulsory to monitor and analyze the survey results of respondents about their attitude to the emerging or already existing residential environment.

It is necessary to understand that this direction in the methodology identifying people's requirements for creating a full-fledged comfortable living environment affects a complex system of relationships, which should involve not only urban architects, architects engaged in building typology, designers, but also developers, economists, sociologists, psychologists, lawyers, hygienists, realtors, builders and other specialists and scientists directly involved in solving problems in the field of creating a «comfortable
living environment». In addition, a prerequisite for the successful solution of this problem is close interaction with officials who are a part of the vertical of power, starting from the heads of district and city municipalities and up to the regional leaders. But it is necessary to determine what role should be assigned to residents of areas for which such an environment has already been created or will be created in new construction districts.

4. Discussion

Every Russian city and every locality has its own specifics and idea of the living environment and its comfort, due to its national, climatic, industrial, economic and other characteristics. These specifics must be studied and constantly monitored for changes. It is important to offer and implement timely the modern methods to improve the living environment during the life period of a particular city district.

Taking into account that there is no scientifically proved data about identifying the main factors that influence the creation of a comfortable living environment in Samara, a group of enthusiasts carefully prepared questionnaires, carried out a survey and collected the opinions of citizens on areas and courtyards they live in. An experiment was conducted to identify the opinions of residents by surveying and making a kind of respondents’ classification on their idea of «comfort of the living environment».

A number of questions in the survey questionnaires were taken from the method of conducting surveys and taking into account opinions, that was used by realtors while developing a document «Unified method for classifying residential new buildings by consumer quality (class)» [2]. It is known that this document was developed by experts of the development and consulting committees of the Council of the Russian Guild of Realtors. In 2012 it was approved by Russian Federation Federal Housing Construction Promotion Fund. When developing a common methodology, the following factors were taken for the main characteristics: space-planning decisions of a building and an apartment, bearing and enclosing structures, engineering support, total volume of apartments, their interior decoration, the quality of the local area, a building and area infrastructure, the availability of a parking lot and its parameters, the external environment and safety. But all this does not define the main thing, i.e. the concept of comfort of a living environment. To some extent, by such characteristics «comfort of living» could be defined. There is no doubt that at one time the method of classifying new buildings allowed to rank and differentiate housing into classes by some characteristics, but the authors suppose that in this case this method cannot be used to determine the «comfort of the living environment» [3-13].

The experiment with residents’ survey was conducted among people who live in some districts of the city in multi-storey residential buildings built 5-30 years ago. The questionnaires did not include questions about apartments, the comfort of their layout, compliance with the family structure and membership, etc. Basically, the questions related to the courtyard spaces, i.e. the availability of parking lots, driveways, providing the residence area with elements of engineering and social infrastructure, the location of a particular area in the city system, the height of the development, the artistic and aesthetic impression of the buildings surrounding the courtyard space. The other questions ask how much residents like the residence area and whether it corresponds to the concept «comfortable living environment» and if it does not, what disadvantages it has in the development of the district and courtyard area. This research was made by using the method of system analysis, data visualization and conversations with residents recording their wishes and opinions (Figure 1, 2, 3).

One of the many tasks for the residents’ survey was to find out how well the people participating in the survey understand the key factors that form a «comfortable living environment», what residents mean by it and what this environment should be in their view in their residential building and courtyard space. How can one living environment be determined as «not comfortable enough» and another one be rated as «high comfort»? What, in their opinion, determines the concept of «comfortable living environments»? Should the existing environment they live in be changed? If «Yes», what architectural means, in their view, should be used to create this environment?
As a result of questionnaires and the analysis of the responses received, a number of very serious problems were identified regarding the respondents' perceptions of a comfortable living environment they live now and the one they would like to live in. Some people who had been abroad and had seen a «different living environment» expressed their opinion more confidently and with a certain understanding of what could be done in a residential building and area to improve the comfort of a living environment. Judging by their responses, the proposals concerned increasing the number of various types of shops, stalls, fitness facilities, parking for personal transport, including underground garages. Judging by their responses, the proposals concerned increasing the number of various types of shops, stalls, fitness facilities, parking for personal transport, including underground garages. In addition, they expressed that it would be nice to place shops, pharmacies, kindergartens and fitness clubs near the place of residence or to build them into the first floors of residential buildings. The majority of the other category of people put forward more modest wishes mainly related to putting in order and improving the existing courtyard areas.

Some people noted that it would be nice to make more parking lots for cars in the courtyard, while others expressed the opposite opinion that parking should be removed and the passage of cars should be completely prohibited, since they cause gas contamination of the territory, and at night the noise from car alarm systems prevents residents from resting. In addition, a significant part of the proposals were aimed at improving children's playgrounds, installing sandboxes, fences, benches and eliminating holes.
on sidewalks and roadways. A lot of people mentioned dirty streets, little greenery, banks of snow in winter, etc.

![Image](image1.jpg) ![Image](image2.jpg)

**Figure 3.** Climatic conditions are not taken into account.

If such statements are generalized the proposals of the majority of residents are reduced to little «make-up» of the existing state of courtyard spaces, and not to rethinking the living environment as a whole, including convenient storage of cars, proper placement of recreation areas and playgrounds, taking into account climatic conditions. Most significantly, there are no proposals for the functional structure, saturation and convenience of placing elements of public service- shops, cafes, cinemas, fitness and baby clubs, etc.

5. **Conclusions**

Summing up the results of the experimental study, it should be noted that the majority of residents participated in the survey had a very superficial idea of a «comfortable living environment» and «comfort» as a psychological state. Moreover, questions relating to the creation a "comfortable living environment" due to architectural techniques, design elements in a particular residential courtyard or area puzzled the respondents. In our opinion, the widely used recently system of active involvement of residents in creating a comfortable living environment for them by applying «make-up» is erroneous. It mainly justifies the work of officials who say after the work is done, «You wanted it, we did it, and you got what you wanted, because the environment has become better». In a number of resolutions it is noted that an architect «participates» in creating a comfortable living environment but it is not quite correct either. An architect, as a professional, should be the main developer of a comfortable living environment and as the author should bear full responsibility for the results along with a developer. Only when construction is completed, residents should constantly assess how much this environment corresponds to the present time and how comfortable it is.

6. **References**

[1] 20 May 2019 *New Urban Agenda* [http://habitat3.org/wp-content/uploads/NUA-English.pdf](http://habitat3.org/wp-content/uploads/NUA-English.pdf)

[2] Unified qualification of multi-apartment new residential buildings [http://www.fondrgs.ru/files/docs/Edinaya_klassifikaciya1.pdf](http://www.fondrgs.ru/files/docs/Edinaya_klassifikaciya1.pdf)

[3] Generalov V P, Generalova E M 2016 Revealing the special features of the concepts «comfortable living» and «comfortable living environment» *Urban Construction and Architecture* **2**(23) pp 85-90

[4] Matovnikov S, Matovnikova N, Samoilenko P 2018 The problems of designing a multifunctional courtyard space of high-rise buildings by the example of residential development in Volgograd *E3S Web of Conferences* **33** 01006 [https://doi.org/10.1051/e3sconf/20183301006](https://doi.org/10.1051/e3sconf/20183301006)
[6] Generalova E M, Generalov V P, Kuznetsova A A, Bobkova O N 2018 Mixed-Use Development in a High-Rise Context *E3S Web of Conferences* **33** 01021 https://doi.org/10.1051/e3sconf/20183301021

[7] Generalov V P, Generalova E M, Kalinka N A, Zhdanova I V 2018 Typological Diversity of Tall Buildings and Complexes in Relation to their Functional Structure *E3S Web of Conferences* **33** 01020 https://doi.org/10.1051/e3sconf/20183301020

[8] Vavilova T Y, Potienko N D, Zhdanova I V 2016 On Modernization of Capital Construction Projects in the Context of Sustainable Development of Social Sphere *Procedia Engineering* **153** pp 938-943

[9] Sheina S, Fedorovskaya A, Yudina K Smart 2018 City: Comfortable Living Environment *IOP Conference Series: Materials Science and Engineering* **032095**

[10] Generalova E, Generalov V 2020 Mixed-Use High-Rise Buildings: A Typology of the Future *IOP Conference Series: Materials Science and Engineering* **753** 022062

[11] Bonaiuto M, Fornara F, Ariccio S, Ganucci Cancellieri U, Rahimi L 2015 Perceived Residential Environment Quality Indicators (Preqis) Relevance for Un-Habitat City Prosperity Index (CPI) *Habitat International* T **45** P1 pp 53-63

[12] Generalova E M 2019 Typological Features of Supertall Residential Buildings in Dubai *Privolzhsky Scientific Journal* **1** pp 159-164

[13] Generalova E M, Generalov V P 2019 Building-Integrated Photovoltaics Technology for the Facades of High-Rise Buildings *Advances in Intelligent Systems and Computing* **983** pp 768-777