Archicad также имеет достаточно функциональный 2D / 3D-интерфейс, в котором может храниться полная документация проекта: 3D-модель, а также соответствующие виды, макеты и путь камеры.

4. Revit.

Программа, предназначенная для информационного моделирования зданий. Одна из первых компьютерных программ на рынке и одна из популярных на сегодняшний день. Имеет широкий функционал возможностей для проектировщиков на разных стадиях работы. Существует возможность одновременной работы различных специалистов над одним проектом. Созданные модели Revit отлично координируют информацию, обеспечивая контроль качества и эффективность.

5. AutoCAD.

AutoCAD - это программное обеспечение общего назначения, которое используется (обычно со сторонними надстройками) широким кругом технических специалистов. AutoCAD доступен на 18 различных языках, включая немецкий, французский, испанский, китайский, итальянский и др. Последние статистические данные показывают, что это программное обеспечение используется в 85% предприятий и школ, которые занимаются проектированием, документацией и производством. Autocad поддерживает форматы 2D и 3D. Наиболее прост в обучении и использовании.

Вышеперечисленные программы имеют как общие сферы применения, так и отдельные специфические инструменты. Каждый специалист/компания выбирает наиболее удобный для себя инструмент информационного моделирования в зависимости от множества параметров. Неоспоримым фактом является наличие множества преимуществ у современного ПО над традиционными методами проектирования, расчетов конструкций. Грамотное использование BIM технологий дает возможность определить и рассчитать множество этапов строительства еще до непосредственного начала строительных работ на строительной площадке, создать информационную 3D-модель здания, которая будет включать сопутствующие конструкции и коммуникации для представления проекта заказчику и иным лицам. Данные технологии также позволяют решить проблемы, связанные с организационной составляющей проектирования. Процесс разработки, обсуждения и завершения проектов больше не требует личного контакта всех участников, что несомненно упрощает процесс проектирования, и главное, позволяет вести его в условиях пандемии COVID-19. Все это так или иначе повышает производительность труда различных субъектов управления строительством.

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Determination of criteria for increased comfort in the design of a residential complex

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Abstract

The issue of determining the comfort of urban space, as well as in particular the territory of microdistricts, does not have an unambiguous interpretation in the normative or technical literature. There are various comfort criteria, most of them are considered from a mechanical point of view.

As part of this work, the main criteria for determining the increased comfort of neighborhoods will be highlighted.

Keywords: comfortable environment, comfort criteria, housing complex, urban environment, neighborhood layout.

Аннотация

Вопрос определения комфортности городского пространства, как и в частности территории микрорайонов, не имеет однозначной трактовки в нормативной или технической литературе. Существуют различные критерии комфорта, большинство из них рассматриваются с механической точки зрения. В рамках данной работы будут выделены основные критерии для определения повышенной комфортности микрорайонов.

Ключевые слова: комфортная среда, критерии комфортности, жилищный комплекс, городская среда, планировка микрорайона.

The concept of "comfortable environment" was very rarely mentioned in research and scientific papers, but now this term can be seen in any study that is devoted to the urban environment. This concept is subjective because it does not have a clear definition, so everyone understands this concept in their own way.

Candidate of Technical Sciences N. V. Maslov in the textbook on urban ecology describes comfort "as the most favorable living conditions for people, a set of household amenities, well-being and environmental safety" [1]. In turn, these "conditions" are understood as natural, social, economic and aesthetic factors.

After analyzing scientific papers [2, 3, 4, 5, 6], comfort criteria can be considered as quantitative and qualitative indicators. Thus, qualitative indicators are understood as:

1. architectural and planning structure of the residential complex;
2. the state of the environment;
3. cultural and leisure activities;
4. social well-being;
5. degree of infrastructure development and accessibility of social services;
6. aesthetic space.

The architectural and planning structure implies the correct placement of housing complex objects on the territory, according to its functional zoning, in compliance with the sizes and distances. In particular, the correct planning structure allows you to observe fire safety and maintain the state of the environment.

The "state of the environment" means the beautification and landscaping of territories, the protection of the microdistrict from external pollution, as well as the landscaping of adjacent territories and the entire microdistrict. Compliance with sanitary and hygienic requirements, insolation and ventilation conditions are important criteria for maintaining the environment in proper condition.

Cultural and leisure activities and social well-being of residents in the territory imply the process of introducing people to culture, the expression of material and spiritual values, as well as their conflict-free interaction.

Accessibility of social services and infrastructural security implies the presence of a school, a children's educational institution, premises for the provision of social services (food, household goods, essential goods, ATMs, pharmacies) and other social facilities on the territory of the microdistrict.

In the architecture of residential buildings and the neighborhood as a whole, it is important to reflect the aesthetic ideals, preferences and tastes of modern society. Aesthetic quality is also the result of an architectural understanding of a number of objective factors – natural and climatic conditions, spatial planning structure, innovation technology, the use of building materials. An individual approach to solving social, planning, artistic and compositional tasks is also important. A thoughtful color scheme enhances the aesthetic qualities of the neighborhood and has a beneficial

effect on a person. Small architectural forms on the territory of a residential neighborhood complement and develop the spatial planning solutions of a residential group, because properly selected small architectural forms and the chosen location of their location help to enhance the aesthetic value of the entire landscape composition and give the features of uniqueness of the residential complex. [7]

Excess or lack of visual images affects the emotional component of a person. The need for emotional comfort is one of the important components of the neighborhood as a place of long-term stay of people, a place of relieving psychological stress and stress after a hard day. A neighborhood created with the possibility of rest from work activities, while not spending a lot of time on movement, is necessary for a modern resident of the city.

Quantitative indicators are considered:

1. the number of apartments in the house and on the floor;
2. the area of the neighborhood;
3. space-planning solution;
4. engineering and technical characteristics;
5. housing security;
6. parking space area;
7. landscaping area;
8. density of housing stock;
9. building density;
10. population size;
11. other.

All these listed qualitative indicators are determined using state standards, codes of rules and methodological recommendations of the state.

The convenience of people staying in an artificial environment created by urban planners is an important aspect. Space is evaluated psychologically by a person depending on distances and orientation. Abandoning the construction of monotonous houses, increasing the level of landscaping, dividing the area for quiet and noisy recreation, increasing the level of security, etc. – all this allows you to increase the level of harmony in the neighborhood, as a result affects the comfort of a person, his emotional state and health.

Thus, having determined the quantitative and qualitative indicators of the concept of "increased comfort", we can conclude that in this work, under the concept of "high-comfort residential complex" we will understand the territory, which includes one or more apartment buildings built in a single architectural style, forming a single territorial and spatial integrity, ensuring the fulfillment of conditions taking into account the requirements for comfortable life support.

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