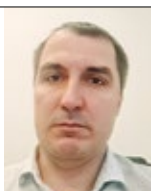


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Main features of construction of real estate facilities in the formation of the system of relations of the participants in their construction

The paper deals with the issues of identification, assessment and accounting of the main features of the construction of real estate objects and the activities of construction enterprises. The main trends and approaches that need to be used and implemented at the present time in the construction of multi-storey real estate in the housing market have been identified. In particular, an assessment is given of such indicators as the total area of units under construction, the number of facilities under construction, the average area of real estate under construction in Moscow, etc. The research methods are theoretical analysis and empirical research, in particular the analysis of statistical data, as well as the description and grouping of data. The information base for the analysis of this problem was the literature sources on the activities of construction organizations, scientific papers, monographs, electronic resources, legal sources. Scientific methods such as description and classification served as the methodological basis for the implementation of the paper. For the effective operation of enterprises in the housing market, it is necessary to create a set of legislative, legal and economic standards, conduct various activities on organizational and technological processes that most fully take into account the interests of each participant in the process and allow them to form an effective system of their relationships based on the transition to technological and organizational innovations.

Keywords: *construction features, multi-storey real estate objects, types of specializations, new technologies and forms of organization of construction production, participants in the construction of construction facilities*

PROBLEM STATEMENT AND RESEARCH

The current stage of development of the construction industry is associated with significant changes that have occurred recently. This is, first of all, the transfer of the most labour-intensive construction and installation works from the construction site, which is associated with the need to perform them under the influence of environmental factors (climate, relief, seasonality, ecology, risks, uncertainty of the development of production processes, etc.) to the factory conditions of the construction industry enterprises. In turn, this transition is associated with the need to take into account the nature of the formation and development of various markets in the industry (housing, production of building materials, agriculture, transport, etc.) [1–3]. In addition, it requires increasing the degree of mobility and sustainability of the functioning and development of all types of production processes based on the use of modern technologies and rational forms of material production in the functioning and development of enterprises of the investment and construction complex, taking into account their specialization of types of risks. These features require their assessment and consideration when constructing multi-storey real estate objects and forming a system of relationships between all participants in their construction in the housing market in Moscow and other regions of Russia¹ [3–5]. In this regard, it can be concluded that in modern conditions of development of construction production, there are objectively a number of fea-

tures associated with the functioning of the housing market ("territorial", "sectoral"), as well as with the construction of multi-storey housing facilities ("subject", "technological"). They, as a rule, determine the external environment of enterprises (participants in the process of building a real estate object). That is why the importance of their assessment and accounting is a prerequisite for the development of new approaches in the field of technology use and flow forms of organization of material production.

RESULTS

The analysis of the main indicators of the development of the construction industry in the housing market in Moscow showed the presence of positive dynamics in the commissioning of real estate, the main type of housing of which is multi-storey real estate, as well as the presence of some problems in this market. Many indicators in recent years have tended to fluctuate sharply over the years. These include entering the total area of units under construction, the number of facilities under construction, and others. The dynamics of changes in the commissioning of residential buildings by organizations in Moscow can be presented in the form of Table and Fig. 1.

The analysis of this dynamics shows that the change in the number of commissioning of residential buildings by organizations of various forms of ownership and the population in Moscow during the analyzed period was uneven. In the course of scientific and practical research, it was revealed that the main developers are: PIK Group, Samolet Group,

¹ Construction : Federal State Statistics Service. URL: <https://rosstat.gov.ru/folder/14458> (date of access: 01/21/2022).

Commissioning of residential buildings by organizations of various forms of ownership and the population in Moscow

Commissioning of residential buildings		2020		2021		2022	
		Thousand square metres of total area	Specific weight in the total volume of input, %	Thousand square metres of total area	Specific weight in the total volume of input, %	Thousand square metres of total area	Specific weight in the total volume of input, %
1	In total, residential buildings have been put into operation	4979.4	100	7807.3	100	6797.3	100
including by form of ownership:							
2	State	490.4	9.8	1564.8	20	974.2	14.3
in it:							
2.1	Federal	–	–	219.7	2.8	16.5	0.2
2.2	Property of the subjects of the Russian Federation	490.4	9.8	1345.1	17.2	957.7	14.1
3	Private	3752.7	75.4	4742	60.8	4712.1	69.3
4	Mixed Russian	68	1.4	–	–	–	–
5	Joint Russian and foreign ownership	79.3	1.6	477.5	6.1	274.6	4
6	Foreign	85	1.7	298.6	3.8	43.8	0.7
7	Citizens' property	504	10.1	724.4	9.3	792.6	11.7

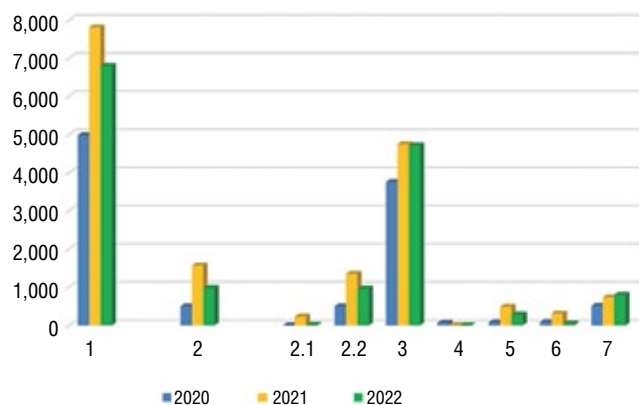


Fig. 1. Dynamics of commissioning of residential buildings by organizations of various forms of ownership and the population in Moscow

LSR Group and Setl Group Holding, which annually build up more than 10 % of the total area in the Russian Federation, mainly in the territories of the Moscow and Leningrad regions. Moreover, almost the entire TOP15 builders, which annually accounts for more than 20 % of the volume of work, are concentrated in Moscow and St. Petersburg [6–8]. At the same time, the dynamics of commissioning of residential buildings in Moscow by year shows (Fig. 2) that there is stability in the development of enterprises of the Moscow construction complex, as well as a tendency for the cost to rise per one sq. m of constructed facilities. These factors indicate the presence of problems in the housing market [9–11].

In addition, many developers are not ready for these changes in construction in recent years, do not apply enough efforts to develop a high-quality long-term system of relationships between all

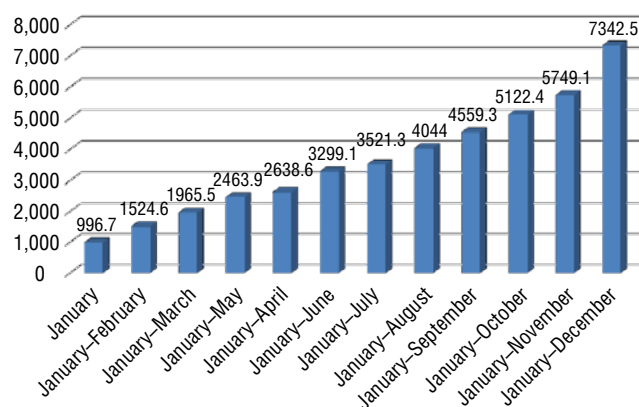
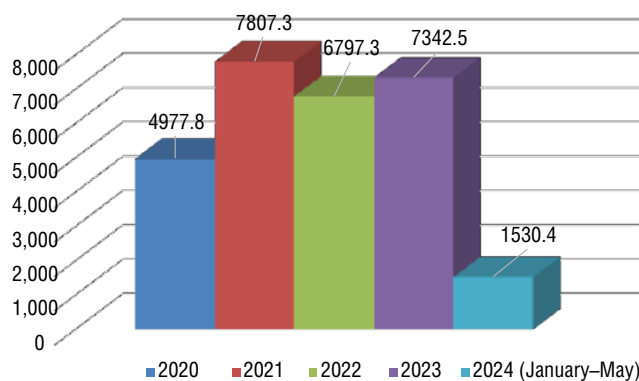


Fig. 2. Commissioning of residential buildings for 2023 in Moscow, thousand square metres of the total area of residential premises by year and month

- ▶ participants by forming it under the influence of various types of risk, uncertainty factors in production processes [12–14].

CONCLUSION

Based on the results of the analysis, trends were identified that allowed us to draw the following main conclusions:

1. The main problems of the functioning and development of construction production in the construction and operation of multi-storey real estate objects are identified, namely: the presence of a number of features and the presence of new approaches that need to be taken into account when introducing technologies and flow-through forms of organization of material production in the main, auxiliary and servicing production processes.

2. The number of developers working in the housing market in Moscow and other regions of the country is constantly changing and tends to decrease, as well as their withdrawal from the construction sector of enterprises demonstrating insufficient stability in the medium and long term.

3. An analysis of the functioning and development of housing markets in the construction of multi-storey real estate objects has shown the insufficiency of the existing system of mutual relations between participants in the process of their construction in conditions of risk across the regions of the country.

4. It is established that the process of forming a system of relationships between participants in the construction of multi-storey real estate in construction is influenced by the peculiarities of their construction, a large number of factors of the external and internal environment, which must be identified and taken into account in further research on the basis of creating the necessary organizational and technological reserves when introducing flow forms of material production in the activity construction organizations, taking into account their depth of specialization in risk conditions.

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Основные особенности строительства объектов недвижимости при формировании системы взаимоотношений участников их возведения

В статье рассматриваются вопросы выявления, оценки и учета основных особенностей возведения объектов недвижимости и деятельности строительных предприятий. Выявлены основные тенденции и подходы, которые необходимо использовать и реализовывать в настоящее время при возведении многоквартирных объектов недвижимости на рынке жилья. В частности, дана оценка таким показателям, как совокупная площадь строящихся единиц, количество возводимых объектов, средняя площадь строящихся объектов недвижимости в г. Москве и другим. Методами исследования являются теоретический анализ и эмпирическое исследование, в частности анализ статистических данных, а также описание и группировка данных. Информационной базой для анализа данной проблемы стали литературные источники по вопросам деятельности строительных организаций, научные статьи, монографии, электронные ресурсы, источники

правового характера. Методологической основой при выполнении статьи послужили такие научные методы, как описание, классификация. Для эффективной работы предприятий на рынке жилья необходимо создание комплекса законодательных, правовых и экономических нормативов, проведение различных мероприятий на организационно-технологических процессах, которые наиболее полно учитывают интересы каждого участника процесса и позволяют формировать эффективную систему их взаимоотношений на основе перехода к технологическим и организационным новшествам.

Ключевые слова: особенности строительства, многоквартирные объекты недвижимости, виды специализаций, новые технологии и формы организации строительного производства, участники возведения объектов строительства

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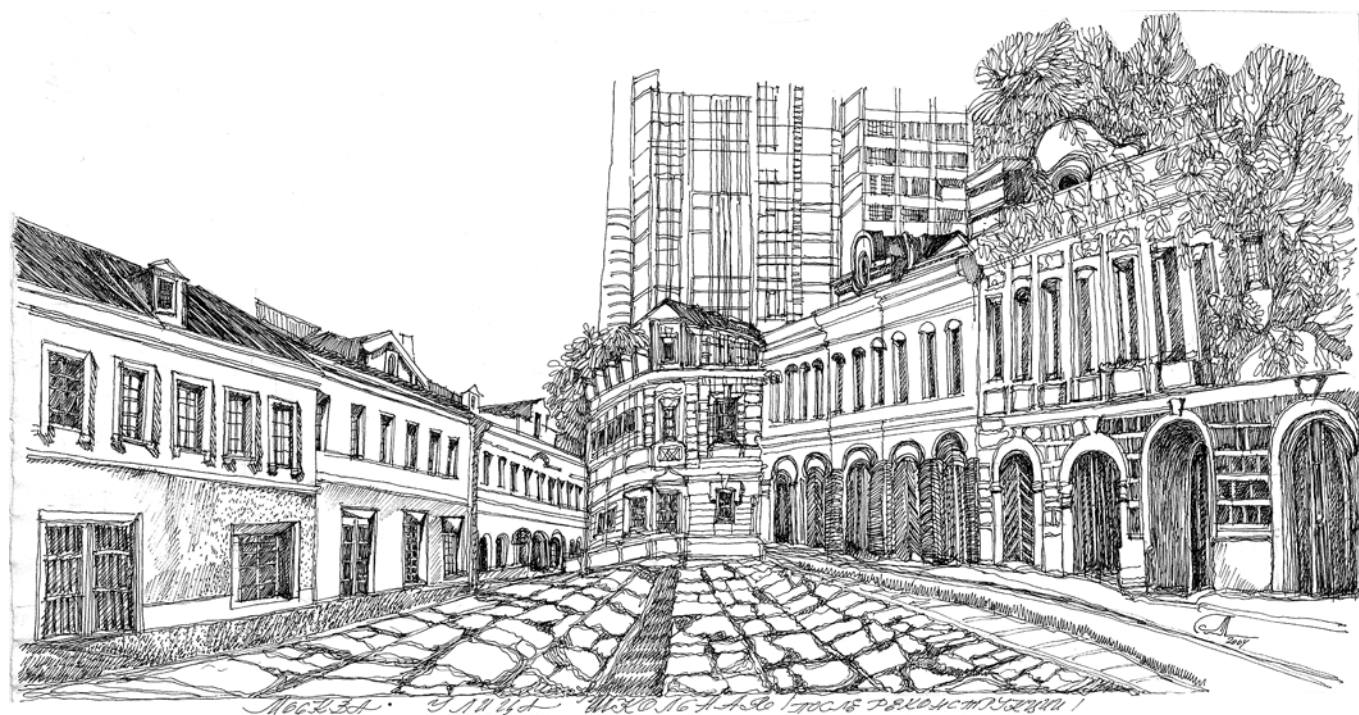
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