Development trends of residential buildings in Moscow city

L Savelieva\textsuperscript{1,2*}, N Kalinina\textsuperscript{1,2} and E Ojenko\textsuperscript{2}

\textsuperscript{1} Moscow Institute of Architecture (State Academy), Moscow, Russia
\textsuperscript{2} Peoples' Friendship University of Russia (RUDN University), Moscow, Russia

E-mail: savelyeva-lv@rudn.ru

Abstract. There is a large-scale construction of a new type of residential real estate – apartments in Moscow. The attractiveness of prices and the location of the complexes attract a huge number of buyers. Two terms: apartments and luxury housing become synonymous, but this is a misunderstanding and substitution of true concepts. The authors set the tasks to specify the definition of "apartments" in the understanding of specialists - architects; to identify the main features and parameters of this new for Russia concept; scientifically describe the main trends in the development of this type of real estate as a modern and relevant object of architectural design. Three types of apartments were determined as a result of the conducted analysis: apart-hotels; apartments in a multi-unit dwelling; "multi-form" apartments in a residential complex. It is revealed that the apartments are ranked by the convenience, size and quality of services provided. The authors identified the following classes: economy, comfort, business and elite. The article discusses some legislative nuances, design standards, engineering solutions for apartment buildings, as well as the features of their location in the structure of the city of Moscow.

1. Introduction

Currently, Moscow is rapidly building apartments. Attractiveness of prices and location of complexes attract a huge number of buyers of so-called "elite housing". Two terms: apartments and luxury accommodation become synonymous. Are they really same [1]?

The concept of apartments has come to Russia from the West, where the real estate is quite common. The "apartment" term (originally French appartement) refers to personal living rooms in large houses. In the XVIII century in Russia this term was used for the so-called personal accommodation in estates by analogy with the Royal apartments in the palaces of the French monarchs. Apartments as a form of a real estate have appeared relatively recently in our country, namely in the 90-ies of XX century.

The authors set the tasks to specify the definition of "apartments" in the understanding of specialists - architects; to identify the main features and parameters of this new for Russia concept; scientifically describe the main trends in the development of this type of real estate as a modern and relevant object of architectural design.

The objectives of the study are to systematize the legislative base of rental housing and technical information on the arrangement of apartments for the professional architectural community; consider the most important conditions for the functioning of apartment complexes and indicators that determine the effectiveness of the design during construction in Moscow; to determine the main types of such a living unit, their classification by comfort and ranking by other characteristics.

Studies have shown, that currently mainly articles on the problems of managing apartment buildings in terms of energy saving [2, 3 etc.], physical housing modernization [4 etc.], new housing concepts [5 et al.] etc. are being published in leading international journals. In Russian and international foreign scientific journals, the question of the widespread development of the apartments in Moscow and the problems of architectural, social, economic and legal nature connected with this fact have never been covered. Moreover, nobody has ever conducted any classification of apartments.
for various signs. In this article we have tried to fill this gap in international publications. The purpose of this study is the scientific description and definition of a new type of residential real estate for Russia - apartments. Especially important is the generalization and systematization of legislative and regulatory acts of the Russian Federation, that regulate the design, construction and operation of the apartments.

2. Materials and methods
The study of the stated issue was carried out on the basis of studying and analyzing the published materials. To clarify the causes of the emergence of a new type of residential real estate in Russia, as well as its further development, the authors used an analytical research method.

3. Results and discussion
One of the reasons for the appearance of apartments in Russia was the economic growth of the early years of 2000, when the building boom began across the country. The Moscow-City office complex has become the symbol of that time in Moscow. Soon after the take-off, the 2008 economic crisis ensued, as a result of which, the demand for offices fell, and the metropolitan developers were forced to look for ways to save their investments, transferring part of the Moscow-City areas to apartments. Let us list some more factors that served as prerequisites for the development of apartments, as a new format of real estate: the lack of sites for residential construction; the need for housing near the city center at affordable prices; Moscow government decree on the prohibition of point construction.

Apartments in other countries are called a real estate for rendering tourist services. The apartments are designed for temporary residence. Usually, an aparthotel or apartment complex managing company undertakes all the obligations for the operation of the apartment, its maintenance, searches for tenants and dealing with them. The owner of this property can temporarily reside in his apartment, in agreement, and actually is a passive recipient of the rental income.

In Russia there were so-called revenue houses similar to modern "apartments" already existed in the XVIII century. They became particularly widespread in Russia in the middle of the XIX century [6]. The industrial revolution, the influx of people into cities and the great demand for workers and middle class apartments - all this contributed to housing construction at an accelerated pace and in a large scale. Until 1917 about 40% of housing was the revenue houses in Moscow. With the outbreak of World War I, construction in Russia ceased, and no longer revenue houses were built. The pre-revolutionary revenue house in a certain sense was a forerunner of modern house-complexes which is nowadays significantly spread in Moscow commercial construction, and in many ways can become a prototype of future new revenue houses [7].

The idea of the revival of revenue houses, voiced by a number of senior officials of the capital in the beginning of the XXI century, unfortunately, has not been fully implemented so far [8]. The main reason is that, projects of revenue houses are of no interest to investors because of low payback. "Prospects in the existing form are not attractive for private business; the project does not have any perspectives. The goals of private business are maximum profitability, quick payback and reliability of investments. <...> It turns out that it is more profitable to build a house and sell it" [9]. According to experts of the Blackwood real estate consulting company, the payback period of the revenue house in the elite class is 7-12 years, in the economy class these terms can be more than 20-25 years [9].

In 2015 Mikhail Men’, Russian Minister of Housing and Utility Infrastructure, at the plenary session of the IV Russian Investment and Construction Forum (RICF) noted: "The law on the development of rental housing and virtually all by-laws have been adopted. Our task is to achieve a 7% share of rental houses in the total of residential real estate, as we hope, in 2016. According to experts, rental housing can be a serious alternative to buying apartments, and regions need to push their developers to implement such projects using all the means" [10]. In July 2014, Federal Law No. 217-FZ "On Introducing Amendments to the Housing Code of the Russian Federation and Certain Legislative Acts of the Russian Federation Regarding Legislative Regulation of Relationships for Renting Residential Premises of the Housing Fund for Social Use" came into force, aimed at
regulating legal relations in the sphere of renting living premises. The federal law provides for the creation of legislative basis to form a market with affordable rent housing and the development of a housing fund for non-commercial use for citizens who have a low level of income. This law introduced the concept of a "rented house" which is the same as a revenue house. Since the entry into force of this law, namely from July 22, 2014, it became possible to have legal relations with a new real estate objects in the Russian Federation - a rented house. According to paragraph 1 of Art. 91.16 of the RF Housing Code, a rented house is recognized as a building which or all premises in which belong to one person right of ownership and which or all the living quarters of which are intended to be granted to individuals for possession and use for residence.

All legislative initiatives described above apply to a rental housing fund. Nowadays the apartment is a commercial real estate in Russia which belongs to a category of non-residential premises. In the last few years, the authorities have been trying to equate apartments with the housing property or recognize them as a separate type of a real estate, but so far this has not happened [11]. This is the main difference between apartments and revenue houses. A revenue house is intended for renting as a residential area to live, apartments are intended for renting as a non-residential area for living. This key moment opens a lot of opportunities for investors, developers, landlords, etc. It is this fact that contributes to the mass construction of the elite real estate in the best Moscow districts! So why are the apartments so attractive to investors and buyers? There are several reasons.

First, as already mentioned, it is the payback time of the project. It is profitable to sell and gain profit immediately or in the shortest possible time. The apartments are sold under the guise of a residential housing to individuals and, accordingly, and it brings profit, often, even at the construction stage.

Secondly, the density of housing development and, accordingly, the profit is also higher for apartments. This is worth considering in more detail. The very term "apartments" is not found in the Russian by-law acts. This concept is used in construction and tourism activities. According to the Order of the Russian Ministry of Culture dated 11.07.2014 No. 1215 [12], the apartment is "a room in a facility with an area of at least 40 m², consisting of two or more rooms (living / dining / bedroom) with a kitchenette." Therefore, apartments are non-residential premises with no permanent residence registration [13]. You can get only temporary registration (maximum for 5 years), and only in those complexes that have the status of an apart-hotel. Under the legislation of the Russian Federation, apartments can be compared with hotels or hostels. Accordingly, the design standards must comply with the Construction Rules 160.1325800.2014, "Buildings and multifunctional complexes. Design rules", where hotel rooms and apartments have the same name. Thus, the norms for insulation and noise insulation of housing do not apply to apartments which make it possible to densify housing development and to receive additional profits.

Thirdly, since the apartments are not intended for permanent residence, there are no problems with providing social services (kindergartens, schools, polyclinics, etc.) That is, densifying the existing buildings or building up neighborhoods of city apartment complexes, the developer is not obliged to provide the social infrastructure for the temporary residents. In 2013 Kuznetsov C.O., Moscow Chief Architect, declared about the necessity to legally specify all procedures related to rental housing and said that "apartments do not differ from an ordinary housing. The inhabitants of apartments demand for a social infrastructure" [14]. Undoubtedly, it is a considerable minus but the situation can be improved by projecting and constructing complexes with apartment premises on the ground floors allocated for shops, private clinics, fitness centers, centers for additional and pre-school education etc. One more problem should be related to the above-mentioned problems – a developer is not obliged to provide apartment complexes with the same number of parking lots as residential complexes and it leads to the difficulties with parking and storing private cars [15].

What does a buyer of an apartment acquire? Less expensive apartments (compared with the similar flat in the same district and even in the same house) without a possibility of a permanent registration with a higher coefficient of taxation (0.5% from a cadastral value, flats have 0.1%) higher utility payments for "non-residential premises". It is good if a buyer knows all the details of the purchase and
Apartments are not his only living place but he buys it with the aim of investing and multiplying money through leasing these premises.

There are three distinctive from flats moments to be paid attention to while buying and further exploitation of apartments:

- A physical person who bought an apartment is not subjected to the law №102-FZ "On mortgage services (mortgage security)";

  The owner of non-residential premises has a more complicated process of a recovery against mortgaged premises; the interests of a pledger are also protected in a different way [16];

- The apartments are no subjected to the norms of a housing law. It is not possible to set up Association of home owners (TSZh) within the framework of this law but it is possible to set up Association of non-residential premises owners (TSN). TSZh lays stress on management and joint use of a mutual property while ownership relations are realized in TSN, i.e. they do not have the right of management. But there are exceptions: should the apartments be in a multi-unit dwelling, the management will be in accordance with TSZh norms;

- In apartments the owner can make replanning without coordination with the bodies of local government. In this case it is important not to reconstruct.

The possibility of redevelopment - in apartments, as in non-residential premises, is much wider than in classic apartments (for example, you can move a bathroom into a room, etc.). However, certain restrictions still remain - it is impossible to demolish the supporting structures, and the openings in the supporting structures also require special reinforcement and coordination.

Mobility of a modern person, labor migration, tourism is just some of the factors that require temporary housing for an individual or a group of people, such as a family. Apartments become such temporary home. Unlike hotels, they have a number of advantages: low price (the cost is fixed and does not depend on the number of residents), the availability of kitchen, household appliances, etc. Therefore, apartments are beneficial for long-term rent.

When designing apartments, changes are possible regarding the rules and regulations used in housing construction, and as a means of accommodation, these units of real estate are typologically closer to the objects of the tourist industry, i.e. they can be equated rather to hotel rooms of the "highest category".

Today, in practice, the following types of apartments can be distinguished: apartments in the multifunctional complexes, residential apartments and rental housing, condo-hotels and apartment hotels, office and service apartments. Three categories of real estate can be purchased in the property, and the rest are leased for a long-term or short-term lease, but no matter for how long the premises are rented, it provides hotel services.

Three types of apartments were determined as a result of the conducted analysis:

- apart-hotels (commercial real estate for a short-time leasing which assumes hotel services);
- apartments in a multi-unit dwelling (commercial real estate for a temporary living in a complex with office rooms, fitness centers, shops etc.);
- "multi-form" apartments in a residential complex (commercial real estate for a temporary living in a complex of a residential house).

Apart-hotels are commercial real estate properties that are rented, where private buyers purchase apartments for onward rent. Apart-hotels usually have hotel-type services. The development of tourism is in the list of priority state programs of the Russian Federation. With an appropriate level of development of the tourist infrastructure, first of all, to which the places of temporary accommodation of tourists belong - hotels, apartment hotels, motels, it will be possible to increase the reception of Russian and foreign tourists several times. Prudent and practical travelers, as a rule, prefer to be accommodated in apart-hotels, as more economical and comfortable accommodation. Therefore, increasing the pace of construction of this type of buildings is justified by the significant benefits of the socio-economic development of the capital region.

The multi-format apartment complex is a city in a city where all the needs and living conditions of temporary and permanent residents of the metropolis are provided.
Apartments in the multifunctional complex as a type of real estate have become very popular due to the opportunity to live near work. Most often, the apartments are located on the upper floors of multifunctional complexes. Their area varies from 40 square meters to 300 square meters. Apart from apartments, the multifunctional complex usually includes infrastructure facilities: a fitness club, catering establishments, parking, office sector, shopping center, co-working space, etc. The construction of multifunctional complexes with apartments in the peripheral areas of the city provides the people with inexpensive real estate, offers a diverse range of activities and increases the attractiveness of the district. To some extent, the introduction of such architectural solutions helps to reduce the daily commuting in the city. The main advantages of such real estate include the fact that residents of apartments within the framework of multifunctional complexes are able to use the hotel service and services of shopping and entertainment establishments included in the structure of the complex.

There is a managing company in all three types of apartments. It takes care of all the furnishing and maintenance of the rooms, which are equipped with high-quality finishes and are fully equipped.

The equipment under the tenant is already supervised by the management company, and although it is not so much the quantity of services provided that matters as their quality, the current state of the technical equipment is of great importance. Currently, the availability of one or other equipment is convenient not only for clients, but also for a landlord and a developer, making it more competitive. Along with technical progress, the standards for technical equipment of modern premises have increased (the availability of wireless Internet, sensor lock technology, devices, temperature and humidity indicators, multi-level adjustable lighting, etc.).

Intelligent control systems allow you to control both each component of the system individually and the entire system in the complex by pressing buttons on the control panel. Intelligent control allows the user to control such system functions as automatic or semi-automatic control of room engineering systems, such as lighting (including blinds control systems) and climate maintenance systems, and much more. In addition, modern intelligent systems can prevent the wasteful handling of electricity and reduce costs without compromising the comfort of residents.

Apartments are ranked by convenience, size and quality of services provided. In accordance with the difference in the comfort characteristics of the apartments, they are divided into the following classes: economy, comfort, business and elite [17].

To identify the trends and features of the apartments, the most outstanding and unique projects and buildings of Moscow in recent years were reviewed and studied, in accordance with the classification of comfort. For a more detailed consideration, two complexes were selected (the cheapest and the most expensive apartments) from each class and analyzed according to various parameters: from architectural and urban planning to economic and social-functional.

We considered such characteristics of the complexes as the area, number of floors, cost, location and distance from the metro, the year of commissioning of the object, and the availability of infrastructure, which was studied in more detail later on in selected complexes (Table 1).

**Table 1.** Comparative analysis of the apartments as part of multifunctional complexes.

| Name         | Number of floors | Total living area of the object in sq. m | Availability of infrastructure | Location | Minimal price of the apartments (million rubles) | Accessibility to the metro, 5/10 minutes (250/500m) | Putting into operation, year, quarter | Planning solutions, number of rooms |
|--------------|------------------|-----------------------------------------|---------------------------------|----------|-----------------------------------------------|--------------------------------------------------|-------------------------------------|-------------------------------------|
| Elite class from 65.3 million rubles |
| Klenovy DOM Cloud Nine | 4-5 fl. | 11 200/5 000 | + | CAD | 73 | 5 minutes | 2016 | 2, 3, 4, 5, 6 |
| | 6 fl. | 16 300 /10 100 | + | CAD | 65.3 | 5 minutes | 2018 | 2, 3, 4, 5 |
| Business class from 5.2 million rubles |
| Kvartal | 20 fl. | 95 470/30 934 | + | SEAD | 5.2 | 5 minutes | 2019 | 1, 2, 3, 4, 5 |
### Conclusions

Apartments are a popular type of property for developers and owners, because at the moment the number of transactions compared to 2016 has increased by 1.5 times. Construction of apartments is

### Table 1: Apartments in St. Petersburg (2015-2020)

| JAZZ Neskuchnyy HOME &SPA | Clubn dom na serpukhovskom valu | CITY PARK | I'M | Wine House | Vorobyov dom |
|---------------------------|----------------------------------|-----------|-----|------------|-------------|
| 69 fl. 228 000/190 000 | 8 fl. 256 700 | 20 fl. | 7 fl. | 4-13 fl. | 16 fl. 130 000 |
| + | + | + | + | + | + |
| SAD | CAD | SAD | CAD | WAD | SAD |
| 10.9 | 16.9 | 14.8 | 13 | 17.4 | 5.6 |
| 5 minutes | 5 minutes | 5 minutes | 5 minutes | 5 minutes | 5 minutes |
| 2019 | 2017.4 quarter | 2018 | 2015.1 quarter | 2017.3 quarter |
| 1, 2, 3, 4, 5 | 1, 2, 3, 4 | 1, 2, 3, 4 | 1, 2, 3 | 1, 2, 3 |

| Level Amurskaya River Park | Yasnaya Legenda | Savaylovsky sity Park | Letny sad | Vodny | Pervovyk Fili Grad |
|---------------------------|-----------------|----------------------|-----------|-------|------------------|
| 39 fl. 236 600 | 13 fl. 273 000 | 10-13 fl. 185 000 | 30 fl. 320 000 | 20 fl. 283 000 | 25 fl. 180 928 |
| + | + | + | + | + | + |
| SAD | SAD | SAD | NEAD | NAD | NAD |
| 2.5 | 4.3 | 5 | 4.7 | 3.6 | 6.9 |
| 10 minutes | 10 minutes | 10 minutes | 10 minutes | 10 minutes | 5 minutes |
| 2020.4 quarter | 2018.3 quarter | 2018.3 quarter | 2018.4 quarter | 2018.2 quarter | 2019 |
| Studios | Studios | Studios | Studios | Studios | 1, 2, 3 |
| 1, 2, 3, 4, 5 | 1, 2, 3, 4, 5 | 1, 2, 3, 4, 5 | 1, 2, 3, 4 | 1, 2, 3, 4 |

CAD – Central Administrative District; SAD – South Administrative District; NAD – North Administrative District; WAD – West Administrative District; EAD – East Administrative District; SEAD – South-East Administrative District; SWAD – South-West Administrative District; NEAD – North-East Administrative District; NWAD – North-West Administrative District.

4. Conclusions

Apartments are a popular type of property for developers and owners, because at the moment the number of transactions compared to 2016 has increased by 1.5 times. Construction of apartments is
attractive for developers in view of a low cadaster cost of the land (it is 4 times less than in regions aimed at a housing fund) and simplified procedure of a housing development.

North West Administrative District, Northern Administrative District, North East Administrative District, Eastern Administrative District are Moscow perspective regions to develop a given type of a real estate.

Factors contributing to this are as follows:
- Relatively cheap cadaster cost of the land and consequently a low price for apartments;
- Favorable ecological environment, availability of a big number of green fields and water resources, all the above forms recreation zones for the population rest;
- A large number of undeveloped plots.

By architectural features, the apartments in the structure of multifunctional objects are spacious apartments with an improved layout (increase in the number of bathrooms, two-level zoning), located in prestigious residential complexes with a cozy courtyard, high-quality furnishings with panoramic windows and elevated ceilings.

Trends of the development of the apartments include the increase in their comfort, and in apartment complexes - improvement and variety of infrastructure. In spite of a slight decrease in number of new projects offered in the real estate market the demand for them has a stable level and this type of property can be defined as one of the most liquid, and therefore, promising for investment.

But, in spite of the prospects and attractiveness of apartments for developers and their owners, we list the main and not yet resolved problems identified in the article once again:

1. The concept of "apartments" in Russia is not defined at the legislative level and so far this type of property has not received official classification.
2. In the large cities of Russia, "hotel complexes", which are actually housing, continue to be built, over which the threat of "social burden" hangs.
3. The control over the apartment carries the Association of home owners (TSZh), although the apartments are a segment of the hotel business.

The solution of these problems - the “legalization” of apartments, which spontaneously spread in the residential and hotel real estate sector, requires a comprehensive inter-agency approach with the participation of the Ministry of Culture of the Russian Federation, namely the Federal Agency for Tourism and the Ministry of Construction and Housing and Communal Services.

References

[1] Mironov N 2017 The apartments are out of fashion. Newspaper “Evening Moscow” 28 November 2017 Article 244 (27807)
[2] De Feijter F J, Van Vliet B J M and Chen Y 2019 Household inclusion in the governance of housing retrofitting: Analysing Chinese and Dutch systems of energy retrofit provision Energy Research & Social Science 53 pp 10-22
[3] Hamid A A, Bagge H and Johansson D 2019 Measuring the impact of MVHR on the energy efficiency and the IEQ in multifamily buildings Energy and Buildings 195 pp. 93-104
[4] Vesela L and Synek J 2019 Quality Control in Building and Construction 3rd World Multidisciplinary Civil Engineering, Architecture, Urban Planning Symposium (WMCAUS 2018) 471
[5] Borsos A, Kokas B and Bachmann B 2019 Who Owns Our Future? How to Find a Home? 3rd World Multidisciplinary Civil Engineering, Architecture, Urban Planning Symposium (WMCAUS 2018) 471
[6] Kirichenko E I 1982 Russian architecture of the 1830s-1910s (Moscow: Publishing House “Iskusstvo”) pp 120-124
[7] Blagovidova N G 2001 Quarters of "profitable" houses in the planning and building of modern Moscow PhD Thesis (Moscow Architecture Institute, Moscow)
[8] Well forgotten old. Luzhkov wants to build profitable apartment houses in Moscow (Moscow: Radio Liberty) URL: https://www.svoboda.org/a/461261.html
[9] Pogorelova Y 2011 Profitable house-2. The newspaper Kommersant. URL: https://www.kommersant.ru/doc/1667343

[10] Men’M 2015 The share of rental housing in the total amount of residential real estate can reach 7% (Moscow: Ministry of Construction and Housing and Communal Services of the Russian Federation) URL: http://www.minstroyrf.ru/press/dolya-arendnogo-zhilya-v-obschem-vvedenii-v-rossii-v-2015-god.html

[11] Draft of Federal Law "On Amendments to the Housing Code of the Russian Federation and Certain Legislative Acts of the Russian Federation regarding the Regulation of Certain Legal Relations arising in Connection with Multifunctional Buildings Construction" URL: http://www.consultant.ru/law/hotdocs/51113.html/

[12] Order of the Ministry of Culture of the Russian Federation dated July 11, 2014 N 1215 "On approval of the classification for the tourist industry objects, including hotels and other accommodation facilities, ski slopes and beaches, carried out by accredited organizations"

[13] Agureeva O 2013 Apartments: the disputed format of "apartments". URL: https://www.metrinfo.ru/article/articles/apartment/sporny-format-kvartir-privekatelnaya.110586.html

[14] Kuznetsov S 2014 The apartment has more minuses than pluses – Kuznetsov. URL: https://www.m24.ru/articles/arenda-zhilya/13022014/37470

[15] Construction Rules 42.133.011 Urban planning. Planning and developing of urban and rural settlements (Moscow: Publishing House Kodex)

[16] Federal law N 102-Fed.Law (edited 25.11.2017) "On mortgage services (mortgage security)" (Moscow: Ministry of Law of Russia)

[17] Tretyakova D 2014 What does it cost us to build apartments? URL: http://www.miel.ru/press/6712

Authors’ background

| Name            | Prefix  | Research Field                                      | Email                     | Personal website |
|-----------------|---------|----------------------------------------------------|---------------------------|------------------|
| Larisa Savelieva| Associate Professor | Architecture, digital technologies in architecture, education | savelyeva-lv@rudn.ru   |                  |
| Natalia Kalinina| Associate Professor | Architecture, public building architecture, education | kalinina_arch@mail.ru   |                  |
| Eugene Ogienko  | Master Student | Architecture, urban planning, residential and public buildings | tengue@list.ru         |                  |