

HOUSING EVOLUTION

A COMPARATIVE ANALYSIS OF MOSCOW INNOVATIVE
HOUSING THROUGHOUT 100 YEAR HISTORY



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HISTORY OF MOSCOW INNOVATIVE HOUSING

MASTER PROTOTYPING FUTURE CITIES

GRADUATE SCHOOL OF URBANISM,
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HISTORY OF MOSCOW INNOVATIVE HOUSING

INTRODUCTION

For the design of future houses, it is necessary to study the origins of the economy of the past to see how the historical context and technologies have influenced construction, what trends have arisen and where they have led. Also, it can be said that this research shows how the ideas of architects and engineers were influenced to the lifestyle of the inhabitants of buildings: starting with the "House of the merchant society" where the social structure strongly influenced the planning system of the building in the form of two types of staircases and the principle of the arrangement of rooms (rooms facing the ceremonial parade people rented who could afford it, and the rooms facing the courtyard, on the contrary, were cheap and they were rented by people of lower class), the residential complex "Severnoe Chertanovo", where the main idea was to create an autonomous residential house a complex with accessibility services, ending with "Mosfilmovskaya Tower", which represents a new type of residential housing - a skyscraper.

This book examines the main significant objects of Moscow house-building from 1915 to modern residential buildings in 2011. The research includes the information of the social, political, economic and technical context of buildings, as well as the analysis of the orientation of houses, the planning system of residential blocks and the constructive construction method.

This research is the first important step to designing a self efficient block per 1000 inhabitants

EVOLUTION OF MOSCOW HOUSING HOUSE OF THE MOSCOW MERCHANT SOCIETY

Historical context (the end of XIX - the beginning of XX century)

Let's start with the second half of the XIX century. During this period Moscow begins to grow rapidly, becoming a major transport hub. The Emancipation reform of 1861 brought a supply of free labour to the cities, industry was stimulated, and the middle class grew in number and influence. In the next 10 years after the abolition of serfdom in 1861, the population of cities began to grow. In 1871, 590,469 people, the population of Moscow continued to grow in the future. In 1881 it already had 753,469 people, in 1897, 978,537 inhabitants. Already in 1902 the number of Moscow residents was 1,175,000, in 1907 - 1,366,000. In 1912 there were 1,617,157 people living in Moscow. For a quarter of a century, the population of Moscow doubled.

Meanwhile at the end of the 19th century the industrial revolution reached Russia, in 1880s it was still an agricultural society and was considered as backward compared to many European countries. However from about 1890 Russia began to change rapidly into an industrial country. The first urban factor that impacted the development was a railway construction. The emergence of the Moscow Railway Junction had a beneficial effect on the fate of Moscow turning it into a commercial (trade, warehouse, base) and business centre (banking). In 1871, after the introduction of municipal government in Russia, the city authorities of Moscow launched the construction of public utilities - a water pipes were built, a huge complex of urban slaughterhouses, a sewerage system,

construction of lodging houses, construction of bridges, improvement of embankments, the first use in the city of electric lamps, the first use of the asphalted pavement, The first horse-drawn tram line called "Konka". The revolution in Moscow's housing takes place at the end of the XIX - the beginning of the XX century: it marks the emergence of large new type apartment houses. An important role here was played by the appearance in the houses of electricity and water.

The urban development process in Moscow developed under the influence of ideas of nationality in the second half of the XIX and the beginning of the XX century until the October Revolution. Parallel to the exponential growth of industry, trade, railway construction, business activity at this time, grew the importance of Moscow as an educational, cultural, scientific, and artistic centre. In the period of interest, we can identify several events that have had a strong enough impact on the history of Moscow. One ominous occurrence was the rise of Marxism in Russia. A Marxist party was formed in Russia in 1898. At a meeting in 1903 it split into 2 groups. The Bolsheviks (from the Russian word for majority) and the Mensheviks (from the word for minority).

The rule of Nicholas II who led Russia into a disastrous war with Japan. Defeat in the Russo-Japanese War (1904-1905) was a major blow to the Tsarist regime and further increased the potential for unrest. Meanwhile, the revolution of 1905 had a significant effect on Moscow, it started with a peaceful march, led by Father Georgy Gapon and marchers who wanted a higher

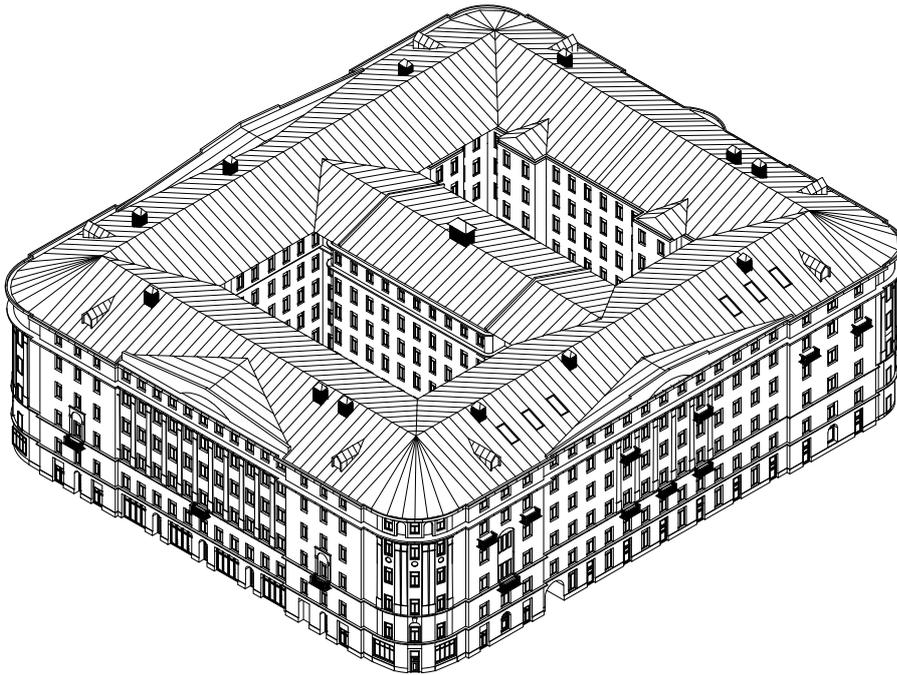
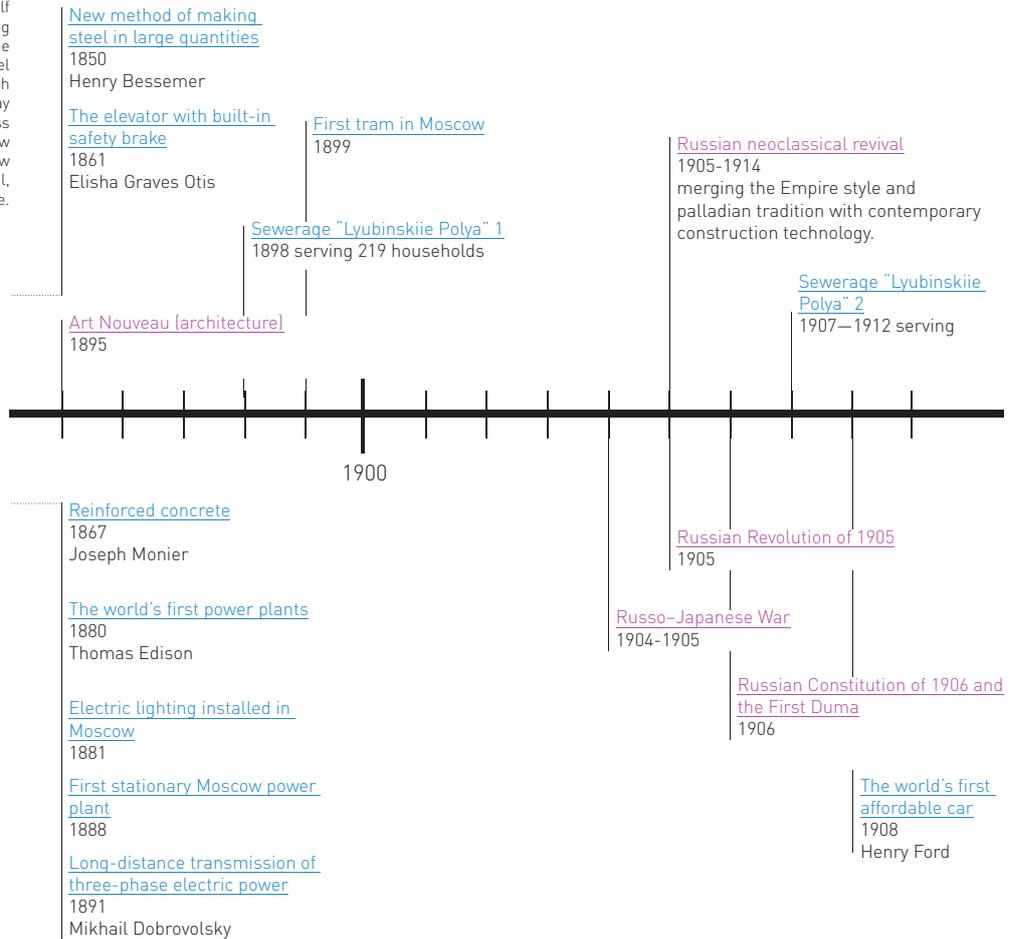


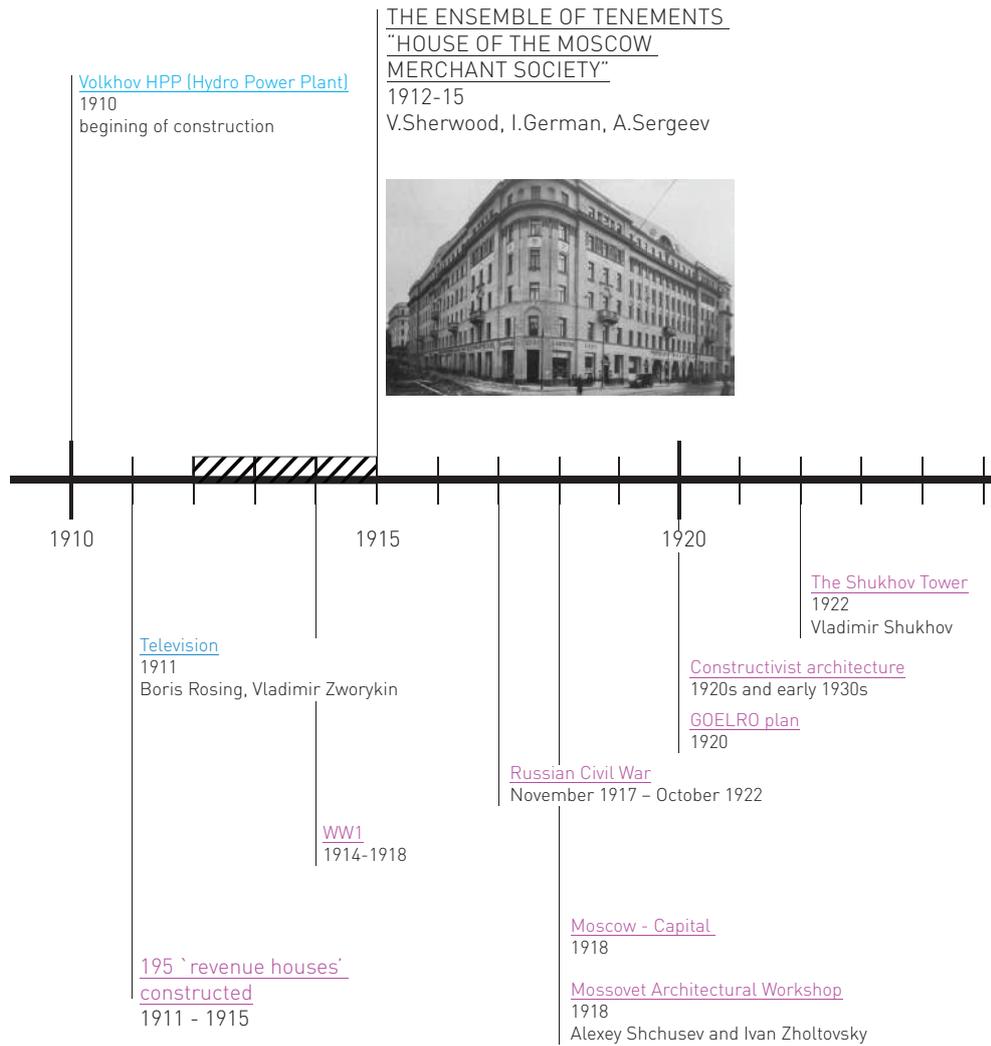
Figure 1.

Axonometry of the building.
Scale 1:1000.

Timeline:

The urban development process in Moscow developed under the influence of ideas of nationality in the second half of the XIX and the beginning of the XX century until the October Revolution. Parallel to the exponential growth of industry, trade, railway construction, business activity at this time, grew the importance of Moscow as an educational, cultural, scientific, and artistic centre.





pay and 10-hour working day, across Saint Petersburg finishing at the entrance of the Winter Palace where on Sunday 22 January 1905 turned into 'bloody Sunday' massacre. This caused many riots by peasants and Russia was hit by a wave of strikes, and finally in October 1905 a general strike was declared demanding a democratic republic. Nicholas II reluctantly agreed to form a representative assembly called a Duma, issuing the famous October Manifesto.

The subsequent changes of the revolution in the sphere of city management: the emergence of party spirit in the City Duma, a strong impetus for the development of industry and the resulting influx of labor.

Then in 1914 came the First World War which largely changed the normal course of life of the city, and affected the social situation. In September 1914 the Russian army was severely defeated at Tannenberg.

By the middle of 1915, the impact of the war was demoralizing. Food and fuel were in short supply, casualties were increasing, and inflation was mounting. Strikes rose among low-paid factory workers, and there were reports that peasants, who wanted reforms of land ownership, were restless. In March 1915 the Tsar took command of the Russian army. Russia continued to suffer terrible losses; there were severe shortages on the home front and in March 1917 a shortage of bread in Petrograd (St Petersburg) led to riots. The Tsarist regime quickly collapsed. Nicholas II abdicated. A provisional government made up of deputies from the Duma then ruled Russia with Alexander Kerensky becoming a

prime minister.

The end of the period: the February Revolution of 1917, with which a new stage of the city's development began. Many Russians were impatient for peace and for radical reforms. Lenin appealed to them with his slogan Peace! Bread! Land! On 6 November 1917 the Bolsheviks led soldiers in a revolt in Petrograd. They seized key buildings. On 7 November 1917 they seized the Winter Palace and arrested most of the provisional government. The Bolsheviks quickly seized central Russia. Furthermore the Communists had to fight a long civil war before they controlled all of Russia. The war between the 'reds' and the 'whites' lasted until 1921 and it devastated Russia. Worse Russia suffered a severe famine in 1921-1922 in which many people died. Following the success of the Russian Revolution of 1917, Vladimir Lenin, fearing possible foreign invasion, moved the capital from Saint Petersburg back to Moscow on March 5, 1918.

In 1917, the nationalisation and consolidation of housing begins. In connection with the historical situation in Russia, people in Moscow are only added, the authorities are trying to somehow solve the problem and turn apartment flats into communal apartments. Owners are moved to one of the rooms, and the rest is given to new tenants.

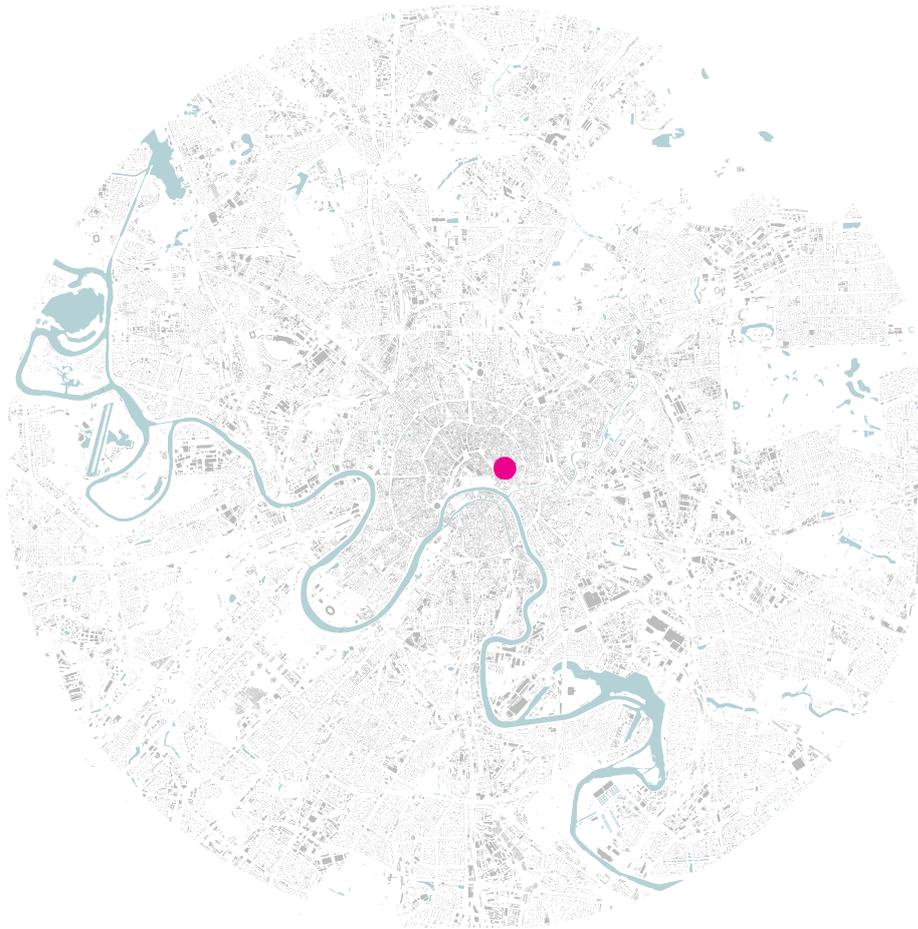


Figure 2.
Location in a scale of Moscow.

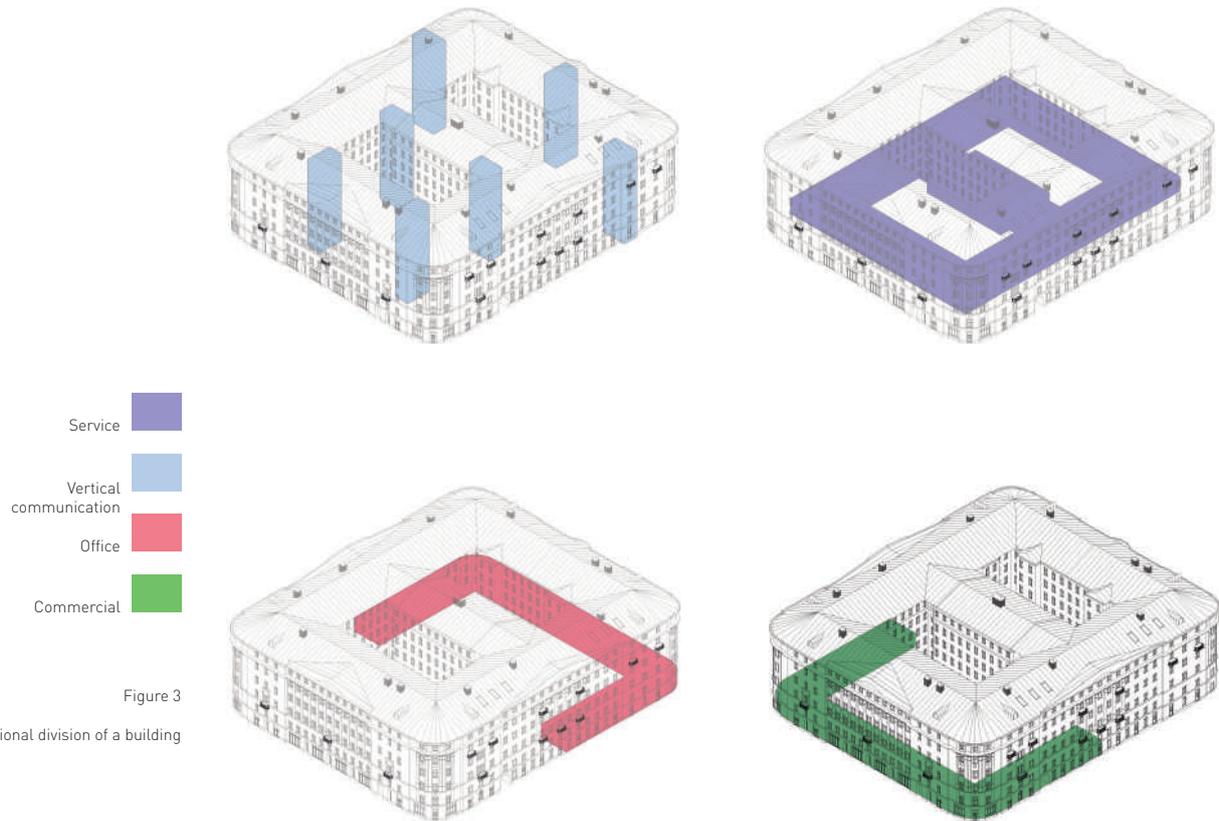


Figure 3

Fuctional division of a building

Revenue houses (definition, types and trends)

Revenue house is a multi-apartment house, which is built in order to rent out apartments. In European countries, this type of architectural structure was formed in 1830 - 1840 years. The first revenue houses were built in ancient Rome, in III BC. They were brick houses with a height of 3 to 5 floors. The first floor was allotted to handicraft masters and shops, the rest of the floors were rented for housing.

In Moscow, the first revenue houses appeared in 1785 - 1790. However, the era of such housing began only in the 1890s, with a construction boom continued until the outbreak of the war of 1914. Such a wave of construction was due to the fact that housing was in demand for people of free professions, engineers, students, workers, scientists who could not afford to buy housing, but had enough money to rent it.

While everyone (middle-level businessmen, merchants, large industrialists, educational institutions, partnerships and joint-stock companies, and even the churches and monasteries) was engaged in construction, the Moscow authorities were engaged in preparing the land: laying electric cables, sewerage, water supply, and the improvement of the territories.

Apartments, leased for rent could be divided into rich, medium-sized hands, for the poor, and free. Revenue houses for wealthy people were usually located in the central districts of Moscow, beyond the Moscow River and

within the Garden Ring. Such houses were called elite, and it was assumed that the elite would live in them. The revenue houses of XIX and XX looked as if they consisted of two houses. The apartments which faces the street and has a 'beautiful' facade were occupied by the richest people. Entering the main entrance through double doors, people could see a marble staircase with wide steps, wall decorations and paintings, carpets, a glass pyramid roof over a flight of stairs. Another side of the house that faced the yard had a brick facade. This house had a separate entrance, called "black", and the house itself was intended for servants. The estate, like the apartments themselves, was certainly different. The only similarity apartments had is that they could be divided into "white" and "black" half.

The total area of the apartment ranged from 200-400 meters, and the height of the ceiling reached 4.6 meters. Two-winged apartment doors led to a common corridor or a large entrance hall. Also in the corridor were the doors of the owner's office, the living room, the dining room, the ballroom. Separate corridors were separated from the main corridor by doors and children's and parents' bedrooms emerged in them. For an apartment of 5 - 7 rooms, parquet floors, mirrors, stucco moldings on ceilings, fireplaces, columns were characteristic attributes.

In the black half of the apartment the largest room was a kitchen area of about 20 meters. Also on this half there were two or three rooms for servants measuring 20-30 meters. In addition, the house had all the amenities, including gas stoves in the kitchen, columns in the bathroom, "house" boiler rooms and mini power plants. Elevators appeared in revenue houses for wealthy people. Security was provided by the doorman and the janitor.

Middle class revenue houses also had a well decorated facades. However, such revenue houses were located mainly at the outskirts of the capital. The buildings had a boring appearance, for which they were dubbed as anthills or barracks.

Revenue houses for the poor appeared in the mid 1890s. Such revenue houses were built at the expense of the city and were considered conditionally profitable. They were built on the private donations or at the expense of departments that provided their employees with cheap apartments. In revenue houses for the poor, the set of amenities was minimal: a small room, a common washroom and a kitchen, a cold storage room, a drying room, a sewage system and heating.

With the advent of the new government (communist), revenue houses were substantially abolished. First of all, individual apartments have been converted into communal apartments.

Moscow Merchant Society building

Salt yard was arranged near the Varvarka gates of the Kitay-gorod at Yauzskaya road,

on Kulishki in the XVII century. It was a closed square, enclosed by a stone wall with the front entrance gate topped with turrets. Extensive cellars for the salt storage were under the court. The salt yard was demolished in the beginning of the XX century. Moscow Merchant society has begun the construction of six-storey apartment buildings designed by architects B. Sherwood, J. Herman and A. Sergeev in its place at the beginning of XX century. Duplex cellars were constructed under the buildings. It was supposed to be a storage area (the old salt cellars were dug out at full). Storage cellars were equipped with ample underground passages for cartage and road transport for the convenience of goods transportation. Ventilation system was arranged along the walls of the houses, illuminated windows of glass tiles were installed to provide natural lighting.

Ground floors with large store windows were designed to accommodate shops, the upper floors were used for the apartments.

Construction took place in two stages. First stage was completed by 1912 and the complex was fully operational by 1915. Inner passage roads and an extensive network of courtyards were arranged between the buildings. Houses were designed in the neoclassical style. It had yet another nick names: "Salt House" or "Grey House at Solianka." The complex remained residential after the revolution. The ensemble of tenements is under the State protection as a cultural heritage site.



Figure 4.
Residential plan.
Scale 1:1000

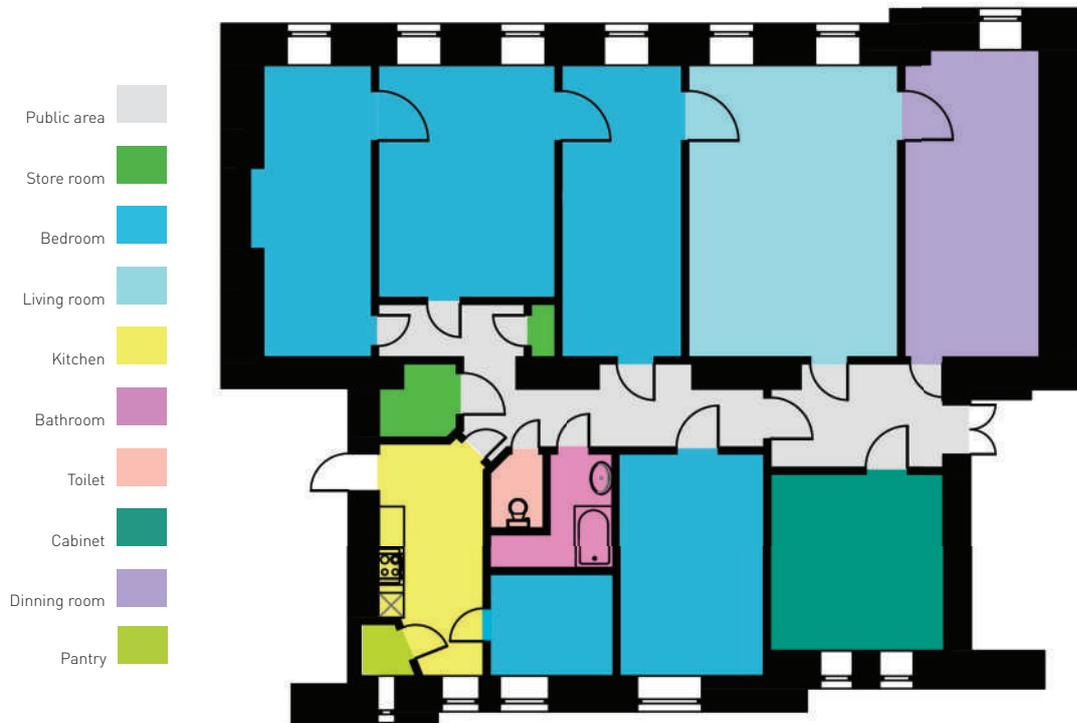


Figure 5

Functional division of the
apartment.
Scale 1:200

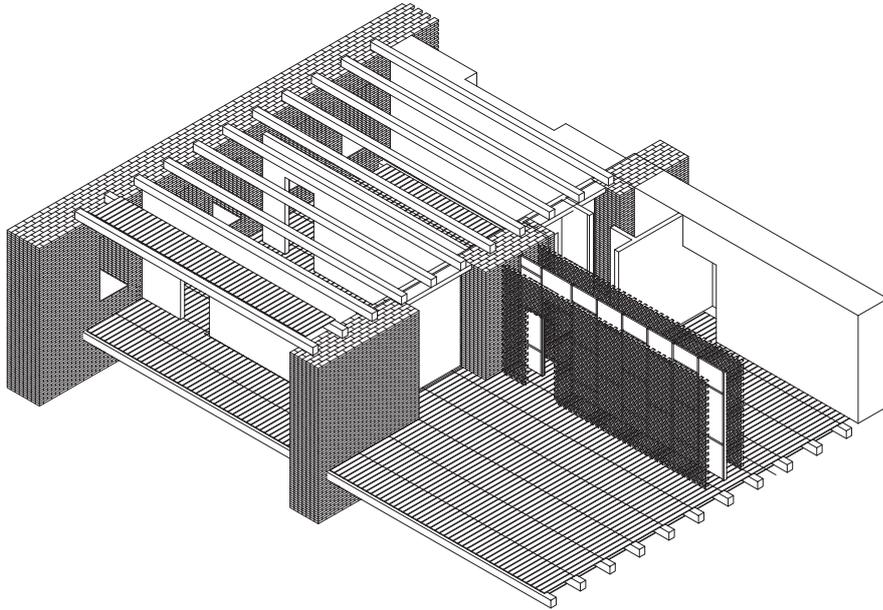


Figure 6

Constructive diagram.
Scale 1:200

EVOLUTION OF MOSCOW HOUSING NARKOMFIN HOUSE

Historical context

In the years following the 1917 Russian revolution, living conditions in the newly established Soviet Union left much to be desired. Newcomers moving from the countryside with the promise of a new life arrived in an overcrowded and underdeveloped Moscow with very little infrastructure or housing. Architects were tasked with developing a solution for the housing shortage – and a framework to support the changing face of Russian society. The architecture of Moscow of 1920s is an amazing mix: the merchant buildings of past centuries, the traditional Moscow style harmonized with the new buildings of socialism, that style in the future will be called: constructivism.

Nevertheless, the first steps towards transforming the workers' outlying areas, creating comfortable neighborhoods on the site of slums and wastelands were already made. In the industrial and factory districts of the city, the construction of workers' settlements began. Complexes of four- and five-story apartment buildings were designed for workers of nearby enterprises. In 1923 the All-Russian Agricultural Exhibition was opened, in 1924, right after the production of the first Soviet car, a bus traffic was opened. By the mid-1920s, the Shaturskaya power station began operating in Shatura near Moscow, which now supplies Moscow with the necessary electricity. Meanwhile, by the end of the decade, the plan for the First Five-Year Plan has been adopted.

The 1920s were marked by the construction

of a number of large public buildings, which today still occupy a prominent place in the city. Their architectural appearance is different, their artistic merits are different. In the constructivist style built in 1927, the building of the newspaper Izvestia on Pushkin Square, Gostorg on Kirov Street (now New Arbat).

The winters of the 1920s turned out to be extremely cold, and the heating safely went out of operation as far back as 1920. Residents have urgently got a burzhuykami, and the government allowed to heat the stove houses. They dismantled and removed the old wooden structures, which crowded around outside the Garden Ring. So Moscow cleared the ground for itself.

Due to the fact that the population of the capital after the revolution increased at times, it became important to build high-rise buildings urgently. The first residential area was decided to be built on Usachev Street (1924, architect I. Meshkov). Fig. 1 For those times the building is grandiose. The prototype of future residential microdistricts of the capital was laid: 4-5 storey houses, near kindergartens and school, shops and pharmacies. This option is an innovation. Similar arrays began to appear on Shabolovka and near Savelovskaya station.

The main features of the architectural buildings of Moscow in the 1920s are the rationality and restraint of the forms, the smooth concrete walls that are devoid of decorations are combined with the vast glass planes of the windows.

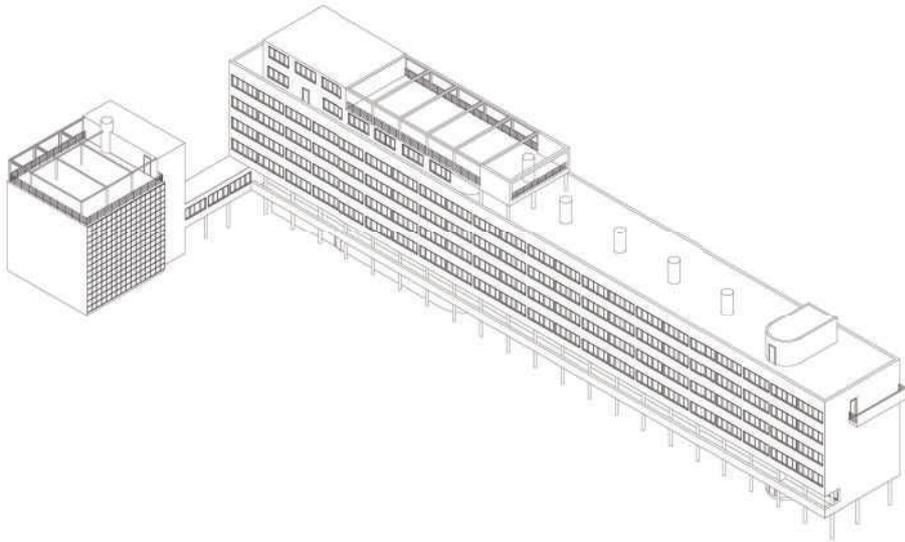
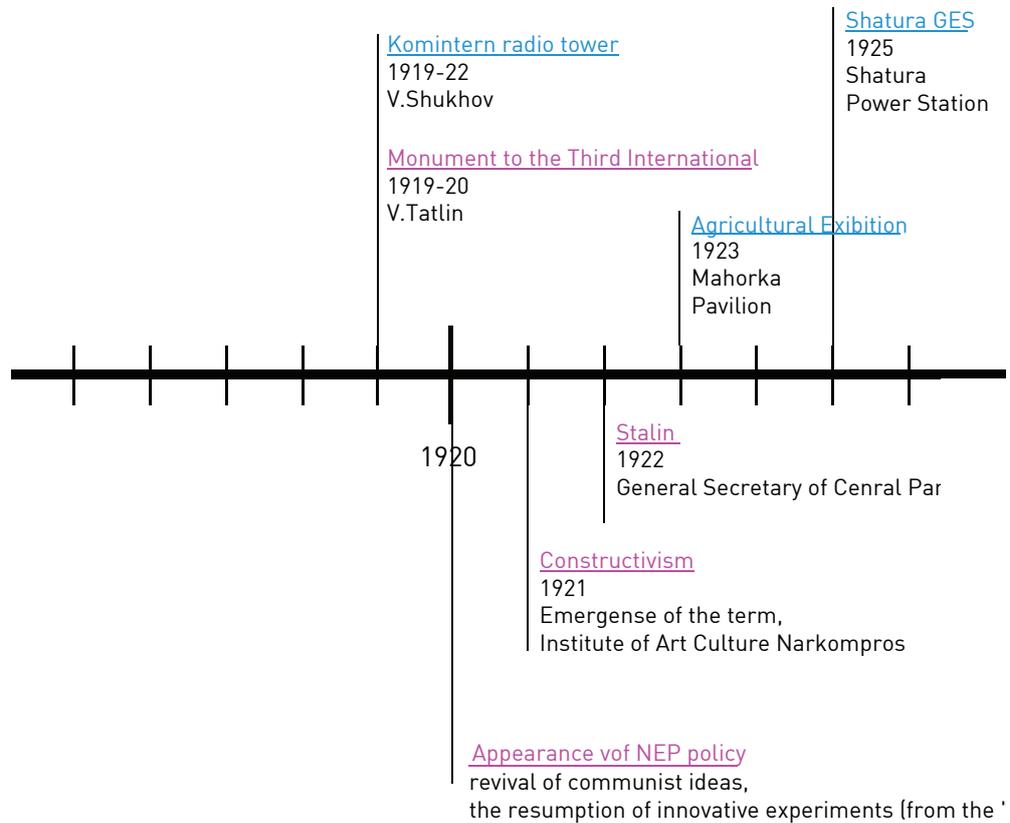


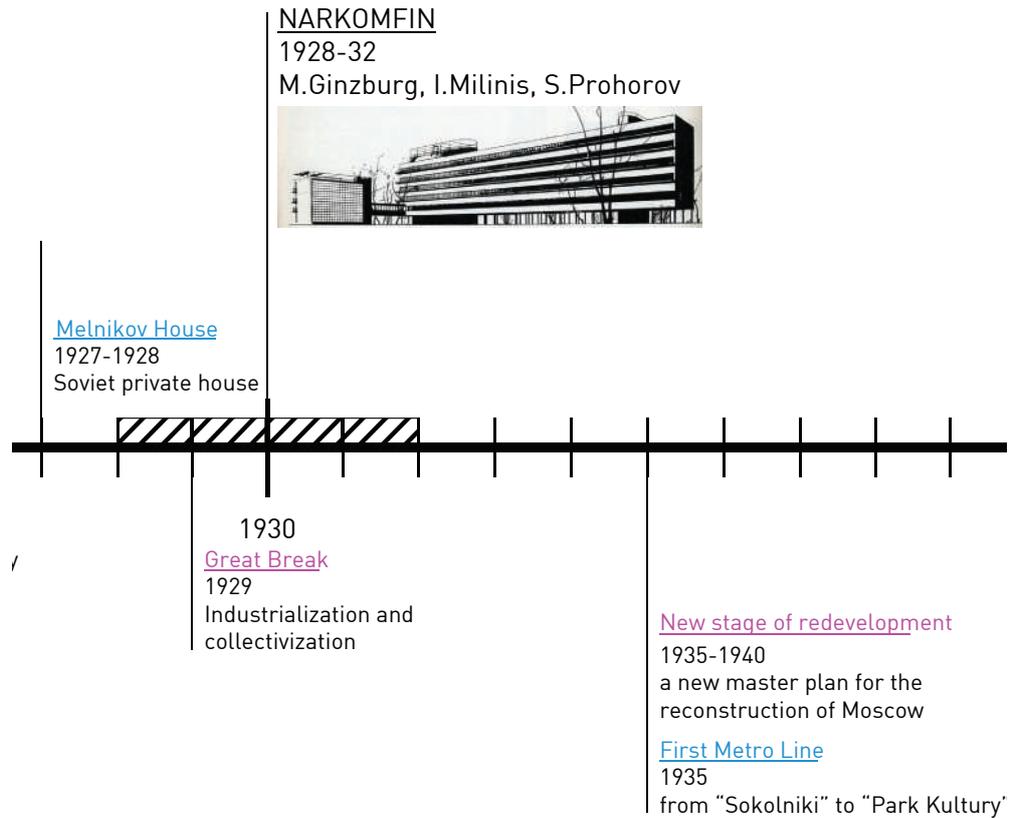
Figure 7.

Axonometry of the building.
Scale 1:1000.

Timeline:

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"bourgeois" house to the "socialist" commune)

Expressive grimace of architecture of that time: the house-commune. There were several, but the most odious was such a house on the street. Ordzhonikidze (architect N.Nikolaev), intended for students. The idea is simple: what for to the student of space? It is enough that there is a place to stay overnight, everything else - to study, eat, meet need and take a shower can be together. The house contained a thousand rooms of 6 square meters. In the separate building there was a dining room and a reading room. Communicated all this by sanitary buildings. It was assumed that here the future student must undress, take a shower and go either to his 6 meters or to the dining room. Fortunately, such projects have not taken root, but as a monument to the era speaks volumes.

The main attention was paid to the reasonable location of internal premises, the utilitarian use of volumes. Among the significant structures are the Central Telegraph building on Gorky Street (now Tverskaya Street) (1927), the Planetarium (1929), the Ministry of Agriculture at the corner of Sadovaya and Orlikov Lane.

Narfomfin house

In late 1920, showed that although new architects advocated a communal lifestyle, advocated greater individual freedom, since the existing system until it was hard to make it work in general because of inequalities of people. Behind the building were hidden utopian ideals and reformers who sought to improve the daily lives of its occupants.

Although the houses have a series of collective services and supplies, believed that each person had to have their "own personal space" to spend time alone or with people close. As a first prototype of this new paradigm "transitional" of collective life, built the Narkomfin (short for People's Commissariat of Finance) in Moscow between 1928 and 1932.

In Narkomfin, Ginzburg, constructivist leader, broke with traditional forms of construction, spatial composition and architecture of the complex show the radical search for a new contemporary apartment blocks. The building would become a prototype of the modern apartment blocks and housing estates throughout Europe.

It was the first building constructed according to the five principles of Le Corbusier and Bauhaus professor Hinnerk Scheper who worked with color schemes. Le Corbusier, Narkomfin recognized the influence that had on him and his Unite d'habitation of Marseille, from 1946 to 1952.

Under the bill, the Narkomfin complex had to be composed of 4 buildings: a dining room, with pre-cooked food, gym, solarium, gardens, a block and a daycare service. The block of services are only half finished and the building of the kindergarten was never built and occupied the gym. A library, a two-level garden on the roof and a solarium and recreation areas together with shared kitchen and communal dining hall were completed.

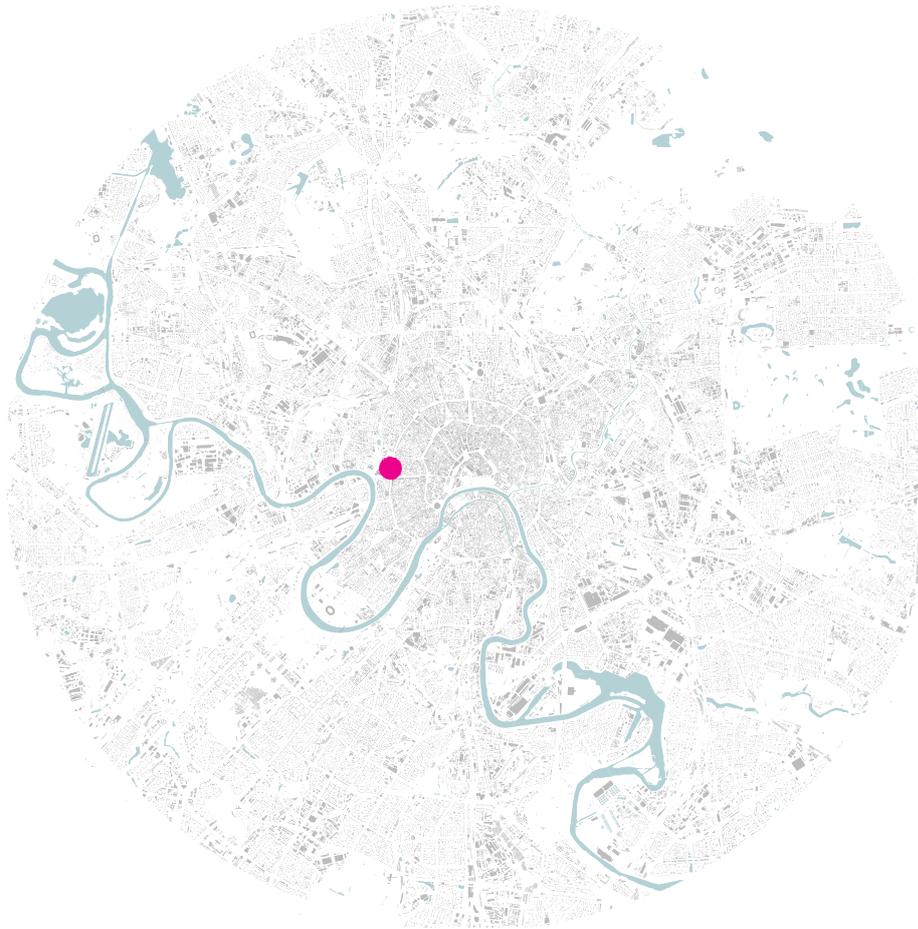


Figure 8.
Location in a scale of Moscow.

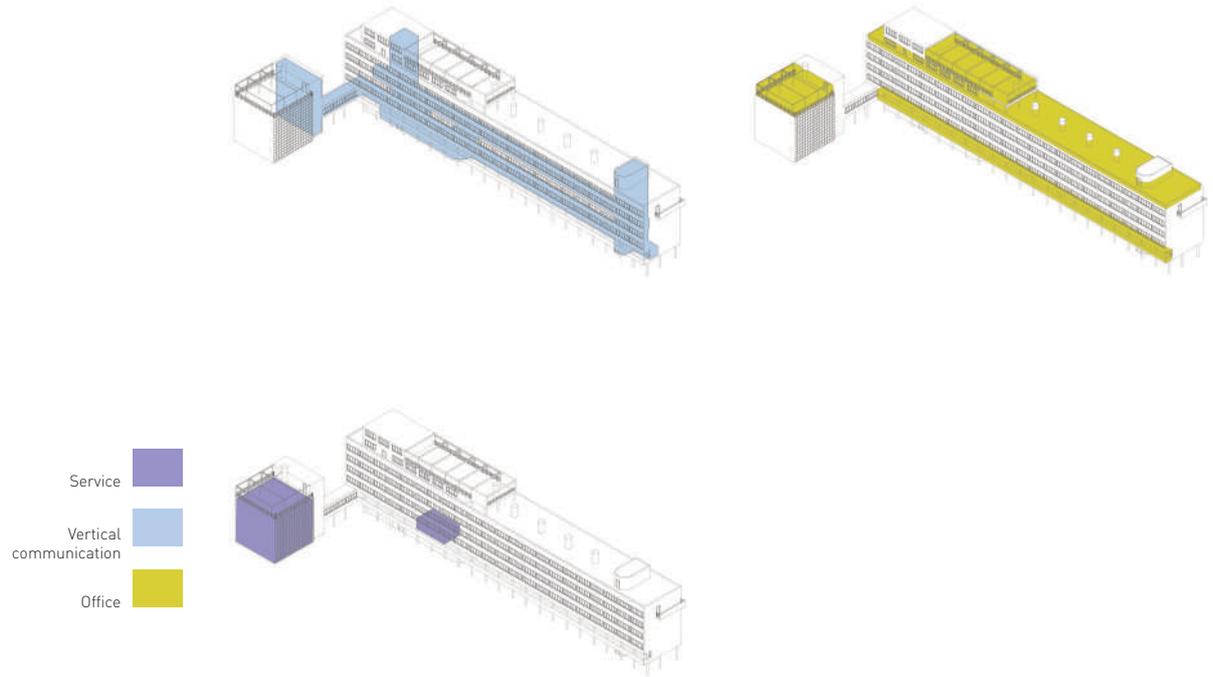


Figure 9.
Fuctional division of a building

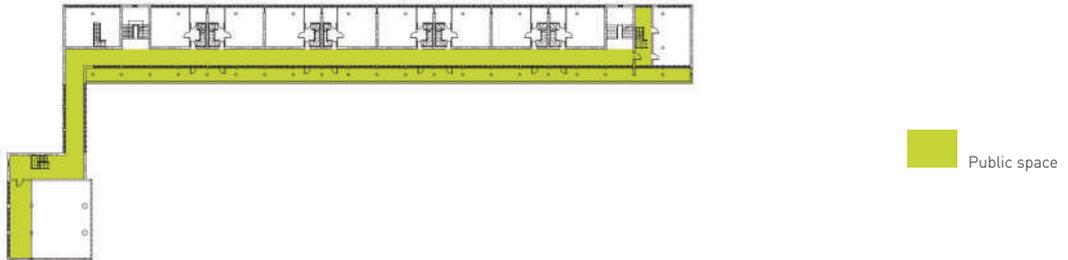


Figure 10.
Residential plan.
Scale 1:1000



Figure 11.
Fuctional division of the
apartment.
Scale 1:150

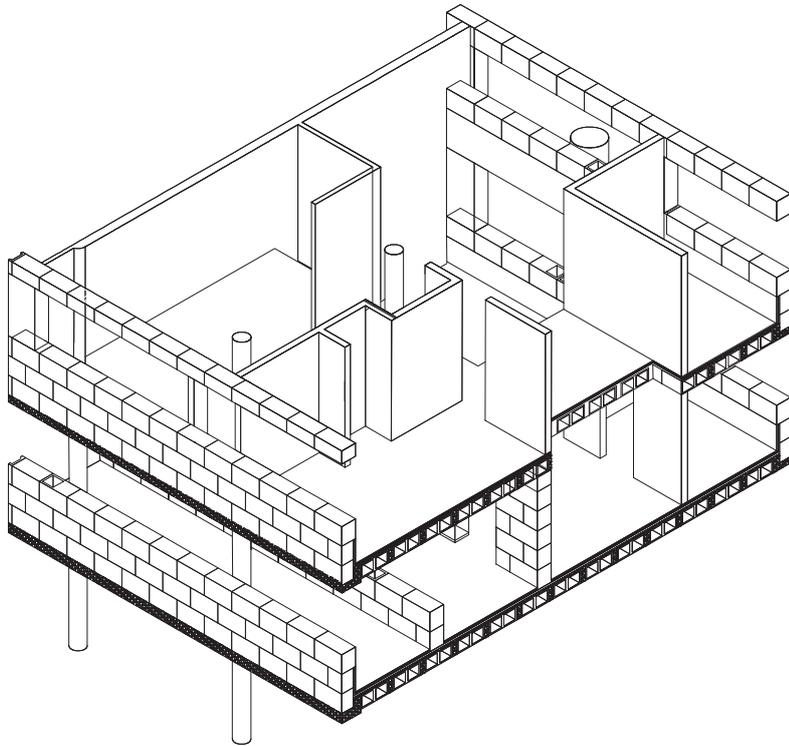


Figure 12.

Constructive diagram.
Scale 1:150

EVOLUTION OF MOSCOW HOUSING NARKOMFIN HOUSE



Historical context

By the beginning of the 1930s, a new economic model of society was being established in the USSR. It was based on formal democracy with absolute dominance of the party-state apparatus in all areas of the country's population. The directive and non-economic methods of coercion were prevailed. This socialist model was based on maximum centralization and rigid planning. It was proposed nationalization of all production means in industry and collectivization of peasant collective farms. Their productivity should have been higher

theoretically because of the labor's division and economical distribution of machines and tools among the collective farms.

The First Five-Year Plan (1928-1932) was developed with the largest specialists' participation. The main task was to turn the country from an agrarian-industrial state into the industrial one. As the main direction, investment sectors were selected: metallurgy, machine building, industrial construction, car and aircraft manufacturing. It planned to provide the average annual increase of 20%. There was focus on industrial growth (industrialization) in the state's economy,

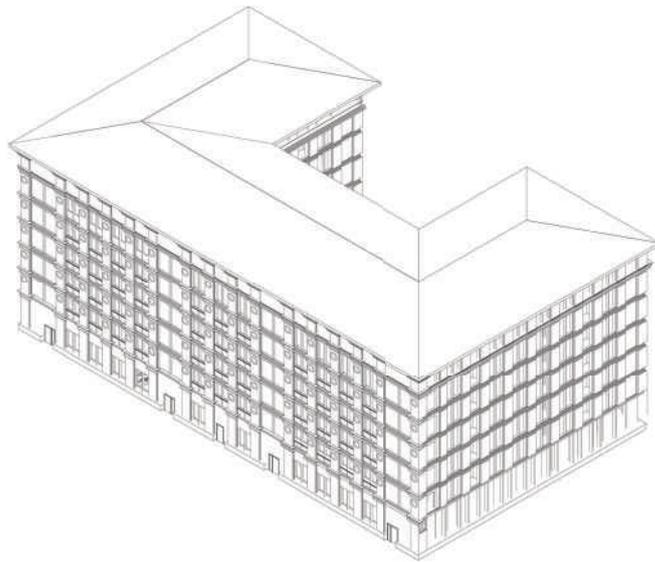
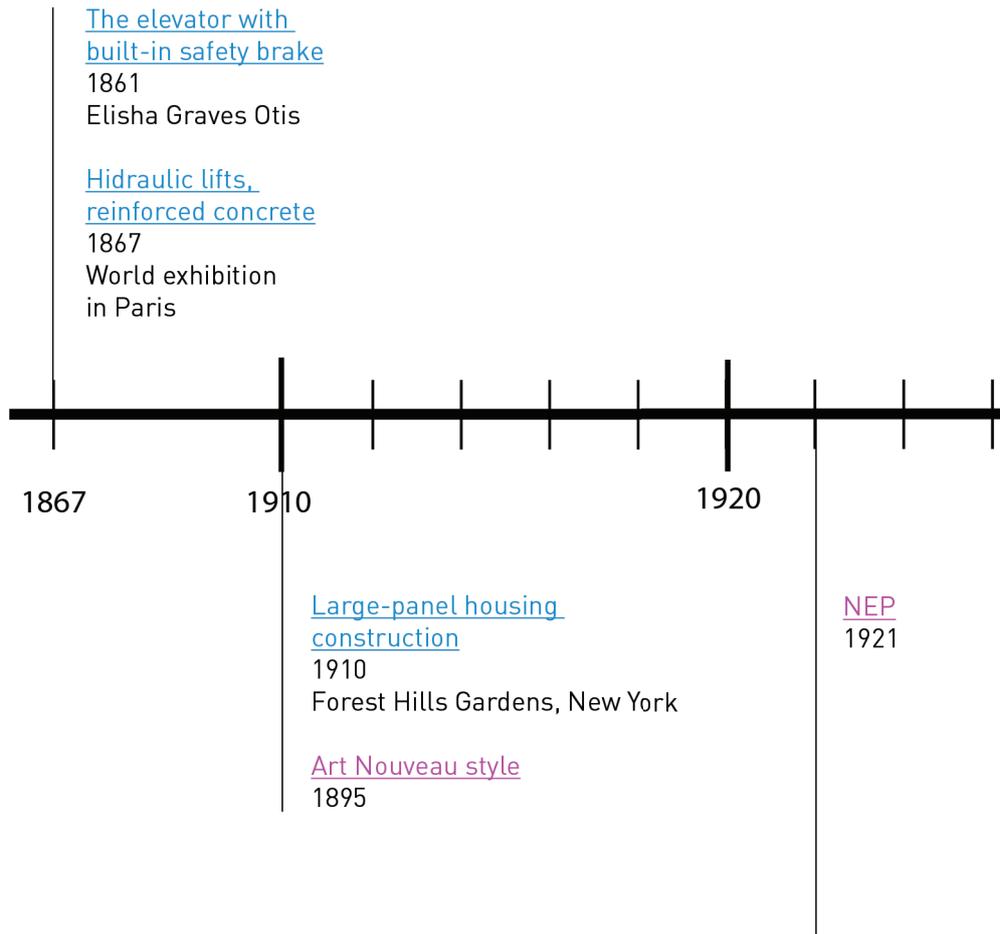
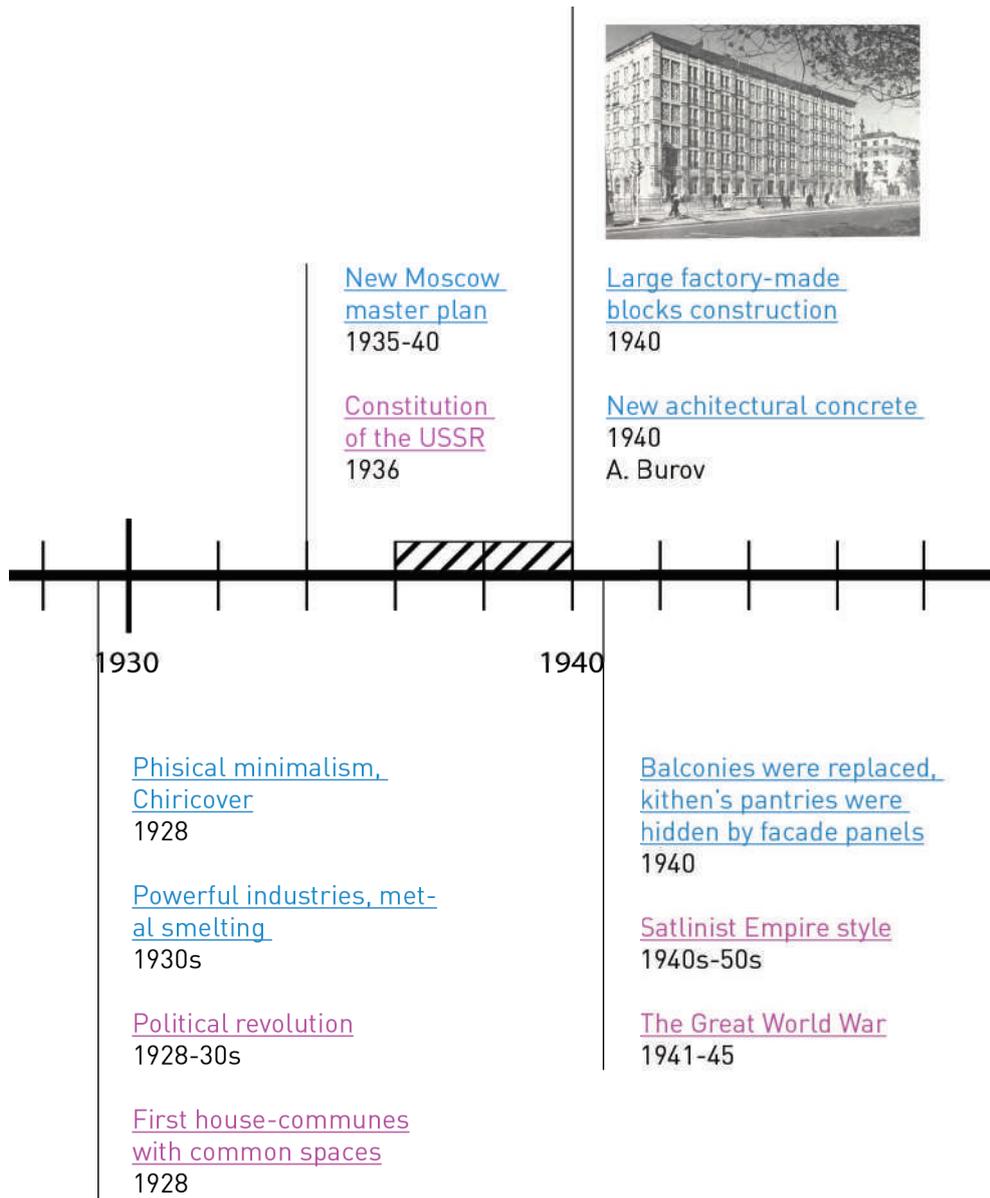


Figure 13.
Axonometry of the building.
Scale 1:1000.

Timeline:

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The new Constitution of the USSR in 1936 reflected the changes that have occurred in Soviet society and the state structure of the country since the first constitution's adoption in 1924. It also demonstrated the fact of socialism victory in the USSR. The new Constitution's basis were the socialism's principles - the state of socialist ownership of the production means, the abolition of exploitation and exploiter classes, labor as a duty, the duty of every able-bodied citizen, the right to work, rest and other socioeconomic and political rights.

The Soviet society's social structure has changed significantly under these conditions. By the end of the 1930s, the country's authorities declared that the Soviet society should consists of three friendly classes (workers, collective-farm peasantry and intelligentsia) after the capitalist elements' liquidation. The workers' routine business has increased. The end of the 1920s - beginning of the 1930s - the time of stormy discussions about socialist settlements' principles, types of housing, ways of Moscow development, and the Soviet people future in whole. In 1932, the Moscow City Council organized the closed competition on the Moscow masterplan development idea. In 1935, Joseph Stalin and Vyacheslav Molotov approved the resolution on the Masterplan for the Moscow City Reconstruction. There were formulated the principles of socialist urban planning, which had a huge impact on its practice and theory next time. By the 1935, the first stage of subway construction was completed and design works on the Moscow channel's construction began.

In such conditions under political revolution of the 1928-30th, mass housing and standart

units development was under consideration. Even before the War, they were looking for ways to build with module elements - this would reduce time and building's costs. Narkomfin building created the foundation of standart units' search. Lazar Zinovievich Cherikover created the physical minimalism trend based on analyze of minimal sizes for living spaces. In 1936 Andrei Burov and Boris Blokhin addresses this problem, proposed the large block units as a modules for mass chousing construction. Thus, the first example of such large-block construction was their Openwork house on Leningradsky Prospect, which was finished in 1940.

The Openwork house at the Leningradsky Prospect was built in 1940 as the first example of large-block housing. Andrei Burov and Boris Blokhin architects conceived this project as housing for mass production. There were realized several buildings throughout the city, but the Openwork House is the most famous. It is located on Leningradsky Prospect, facing its main facade to the large open space. The right side was bounded by Begovaya Alley, Skakovaya Alley leading to the Moscow Hippodrome was on the left.

Being a student of Vhutemas in 1923-25, Burov was influenced by his tutors - Vesnin (constructivism), Zholtovsky (neo-palladium). According this fact, the Openwork house uniquely combines Stalin Stalinist Empire, Art Deco and constuctivism styles. The protruding elements were the classic piers' prototypes. Burov suggested mixing concrete with cheap products at the factory.

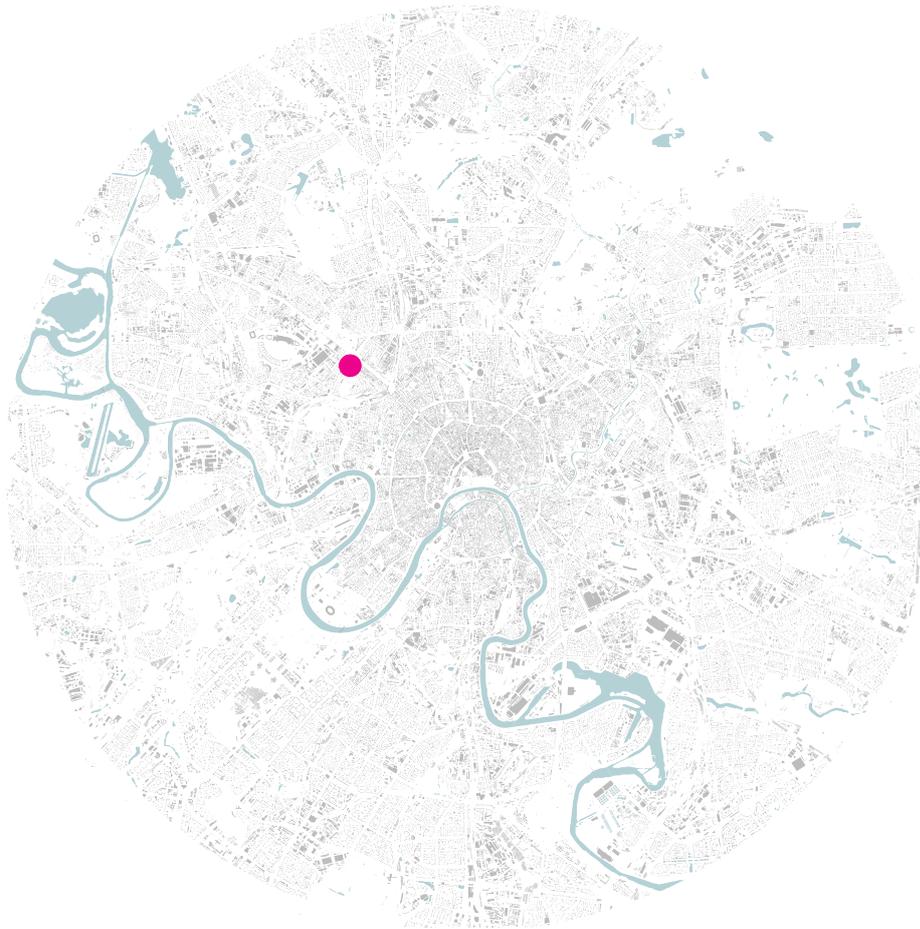


Figure 14.
Location in a scale of Moscow.

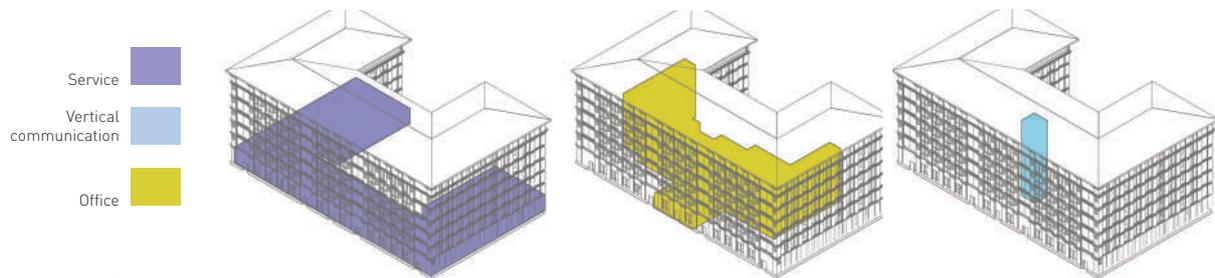
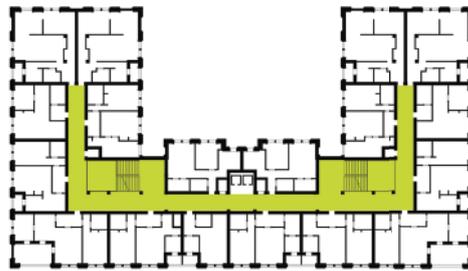


Figure 15.

Functional division of a building

Due to the alternation of loggias and windows, the house was also often called `accordion`. It was mostly called `openwork` by the ornamental grilles that adorn kitchen pantries and, at the same time, hide what there is. Thus, Burov and Blokhin solved one of the main problems of the future mass housing - cluttered balconies (openwork house had not their). The grilles' ornament were made at the factory by Vladimir Favorsky's drawings. The facade's floral decorative elements is the result of Andrey Burov's ambitious tasks related to mass housing. According to the architect, the massive Soviet building should not only be practical and functional, but also beautiful, and tenants of the house should have access to developed infrastructure in walking distance. In the openwork house there is only one entrance to the living part and six floors. The living part is arranged at the 2-6 floors, but the first one was planned to be public with daily premises - a food store, cafe-restaurant and service office that would fulfill orders for the delivery

of food and lunches, cleaning apartments, laundry, etc. The building has two elevators, as well as staircases and spacious halls connected by long corridors similar to hotel. Staircases were also planned as people's communication and reading space. Each floor has 18 apartments, where the kitchens are specially small. It was supposed that cooking will be in the restaurant on the ground floor, and the food will only warm up in the apartments. Burov took into account this idea of public service and social infrastructure in whole during his business trip in the USA - he dreamed to implement this in Moscow. However, the War prevented these plans. It also became the reason that the house has never be mass-produced as a serie, accept the only one. But this experimental work, tested on the 3 houses' examples, made it possible to practice and improve the technology of large-block construction.



Public space

Figure 16.
Residential plan.
Scale 1:1000

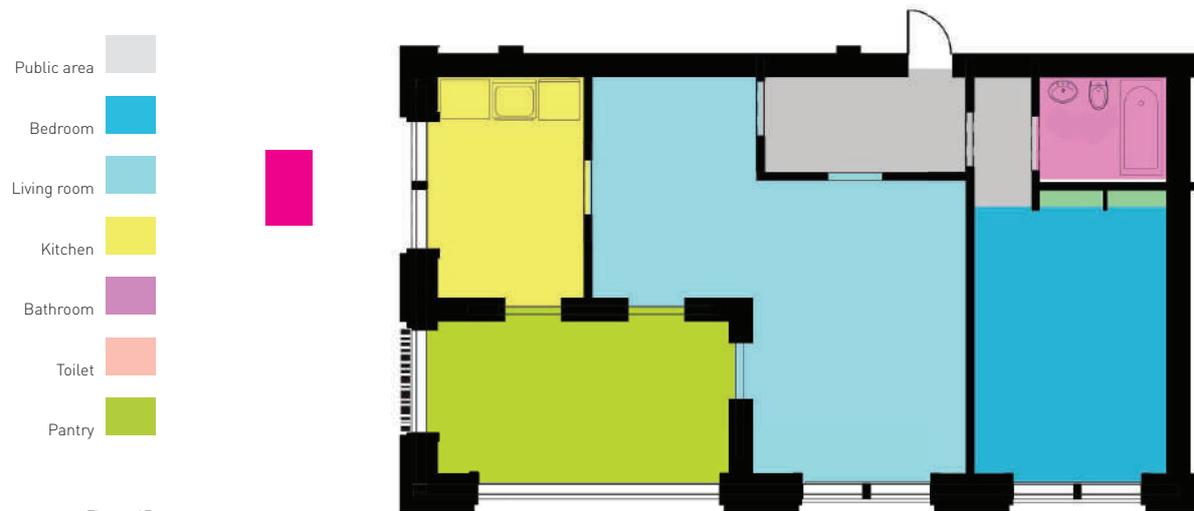


Figure 17.

Fuctional division of the
apartment.
Scale 1:150

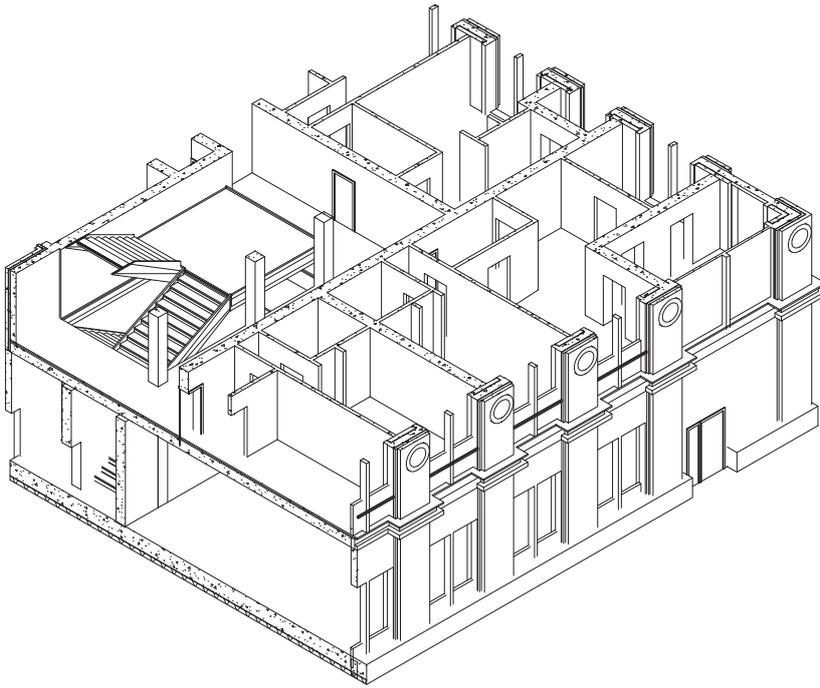


Figure 18.
Constructive diagram.
Scale 1:200

EVOLUTION OF MOSCOW HOUSING K-7



The characteristic features of each epoch, ideas and emotions that determine the state of society, certainly find their reflection and their materialization in architecture. The 20th century, rich in tragic and dramatic events of a global scale, possessed, in comparison with more distant epochs, considerable mobility, the variability of the cultural field. In architecture, this was manifested in relatively short periods of style stability, when the period of the inception, flowering and fading of the style took several decades (rather than hundreds, as in more remote periods). 50th-60th years all over the world are noted by a splash of town-planning development,

development of new territories, a large volume of new construction. The ideological basis of the architecture was a strong creative beginning of the society, aspiration for the future, the desire for openness, transparency, readiness to develop new territories. New tendencies in the architecture and town planning of the capitalist countries of the mid-twentieth century were reflected in the architecture and town-planning culture of the USSR, both in the form of borrowings (introduction of microdistricts, large-scale formation of public spaces, etc.) and as a subject spatial design of similar socio-cultural processes. The change in the

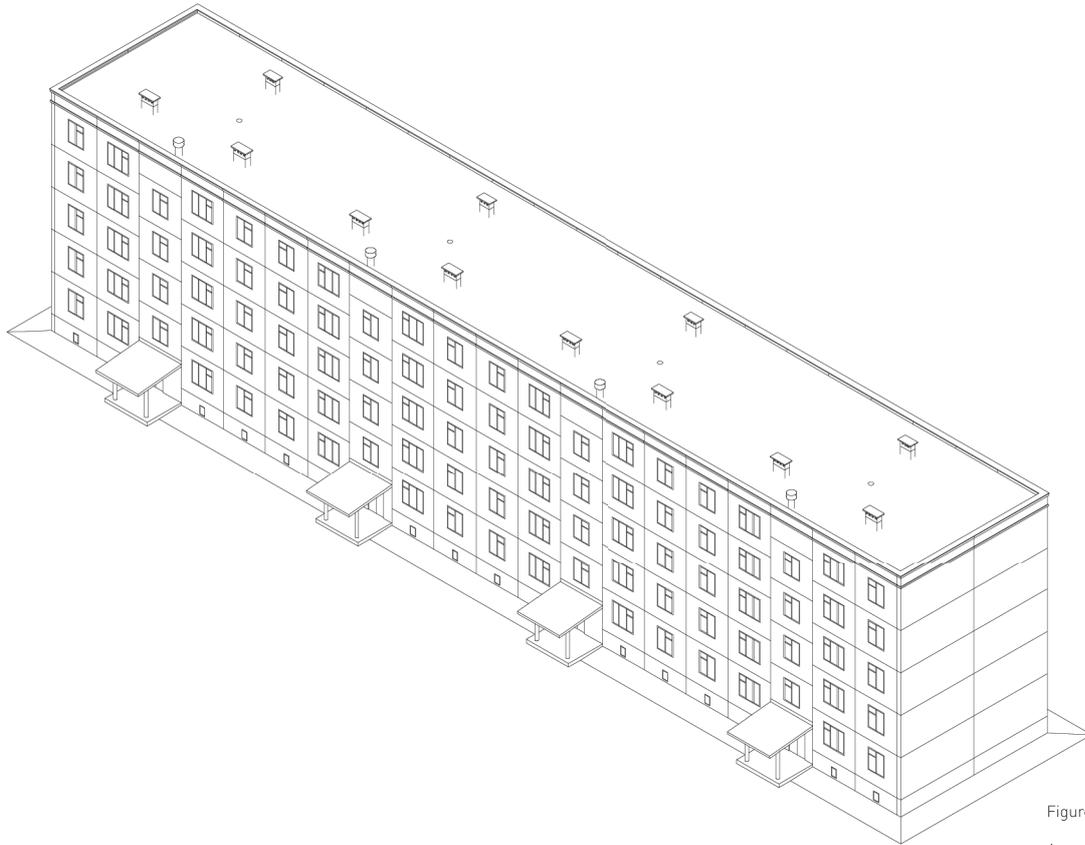
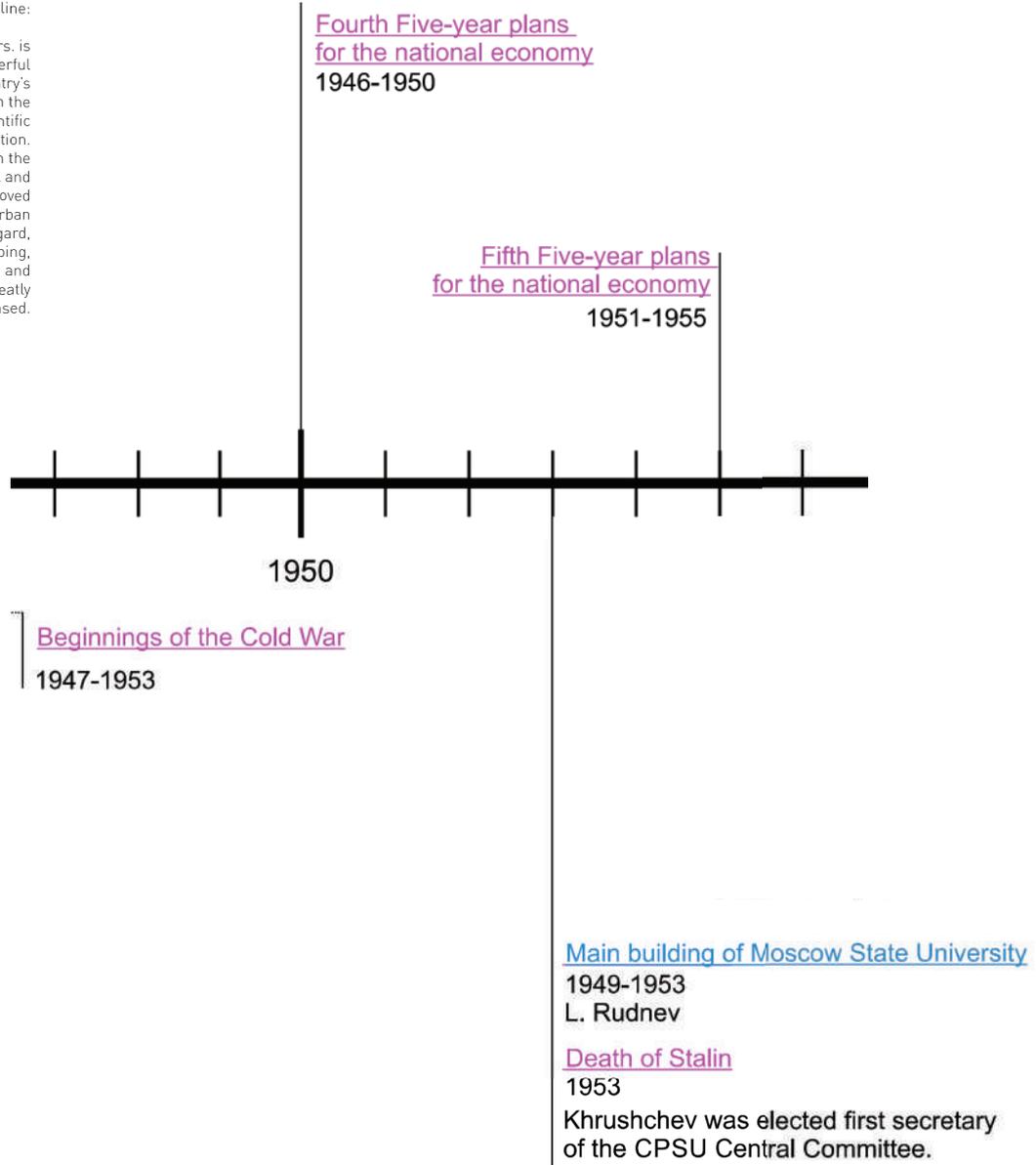


Figure 19.

Axonometry of the building.
Scale 1:500

Timeline:

Period 1955-1970 years. is connected with the powerful development of the country's productive forces in the conditions of the scientific and technological revolution. The center of gravity in the solution of architectural and artistic problems now moved to the area of spatial urban composition. In this regard, the role of landscaping, gardening, small forms, and water bodies has greatly increased.



1957
V. Lagutenko



1960

[The first artificial Earth satellite "Sputnik 1"](#)
4 October 1957

[Palace of Pioneers on the Lenin Hills](#)

1959-1962

V. Egerev, V. Kubasov, F. Novikov, B. Palui,
I. Pokrovsky, M. Khazhakyan, engineer Yu. Ionov

[L. Brezhnev was elected first secretary of the CPSU Central Committee](#)

1964

[The country's first sectional furniture is being developed](#)

1950-1960

M. Posohin, A. Mndoyants and E. Stamo

[First human flight into space](#)

12 April 1961

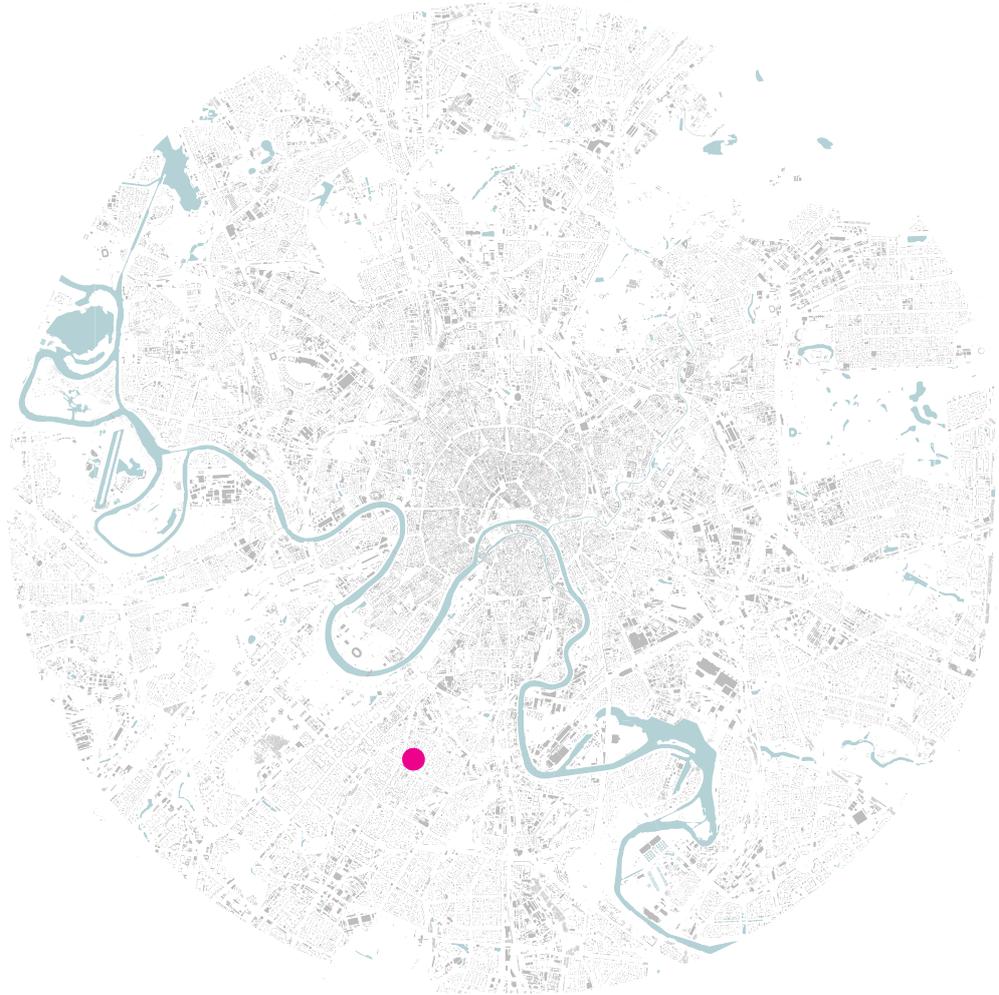


Figure 20.

Location in a scale of Moscow.

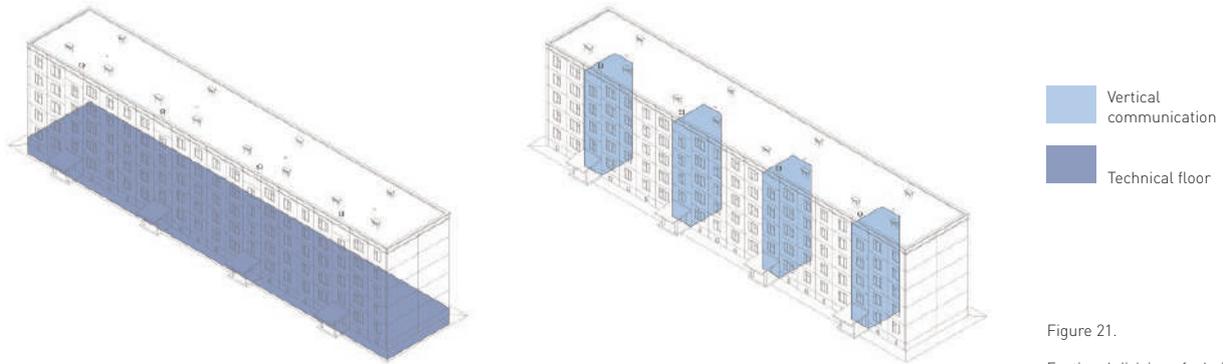


Figure 21.

Functional division of a building

sociocultural environment in the 1970s was accompanied by the search for new styles. Formed postmodernism, a style that includes "retrospective" - a reference to the past.

The development of Soviet architecture was not spontaneous, was carefully analyzed in the light of communist ideology, the fundamental goals of socialist construction, In architecture, the most common are societal and ideologi

cal tasks. The source of artistic creativity is often at the epicenter of public life.

Architecture synthesizes many aspects: utilitarian, functional-benefit; constructive, characterizing the stability of the object and its ability to change, adaptations-strength; aesthetic, reflecting the changing in different historical periods of the idea of beauty- beauty. Satisfying both the material and spiritual needs of society and man, architecture has always been based on the integration of heterogeneous elements specific for artistic activity. In formal terms, both the material possibilities of society and the ideal notions of convenient device and beauty are read.

"Architecture can be understood based on the functions and social structure of society", being a visible, most obvious expression of culture.

The first sectional furniture is being developed in the country, such that it would enter the narrow space of the Khrushchevka. She is known by the so-called walls. A worthy variety of standard furniture was presented at the All-Union Exhibition already in 1956. Visitors-new settlers were offered the most original ways to furnish their apartment. In fact, these pictures from the exhibition are then rarely seen in stores. The reason is weighty-these samples often became objects of lust for the party nomenclature. Therefore, they disappeared from the exposition, and did not reach the stage of industrial production. The fashion included secretaries and sofa beds. True, their quality again left much to be desired

Public space 

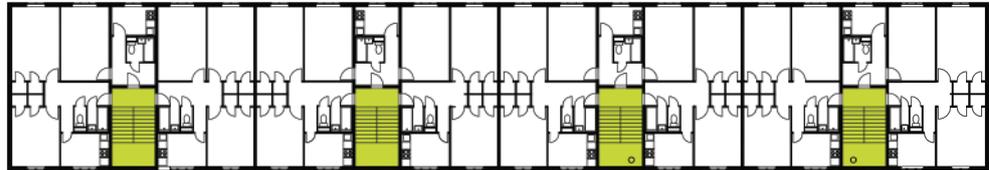


Figure 22.
Residential plan.
Scale 1:500

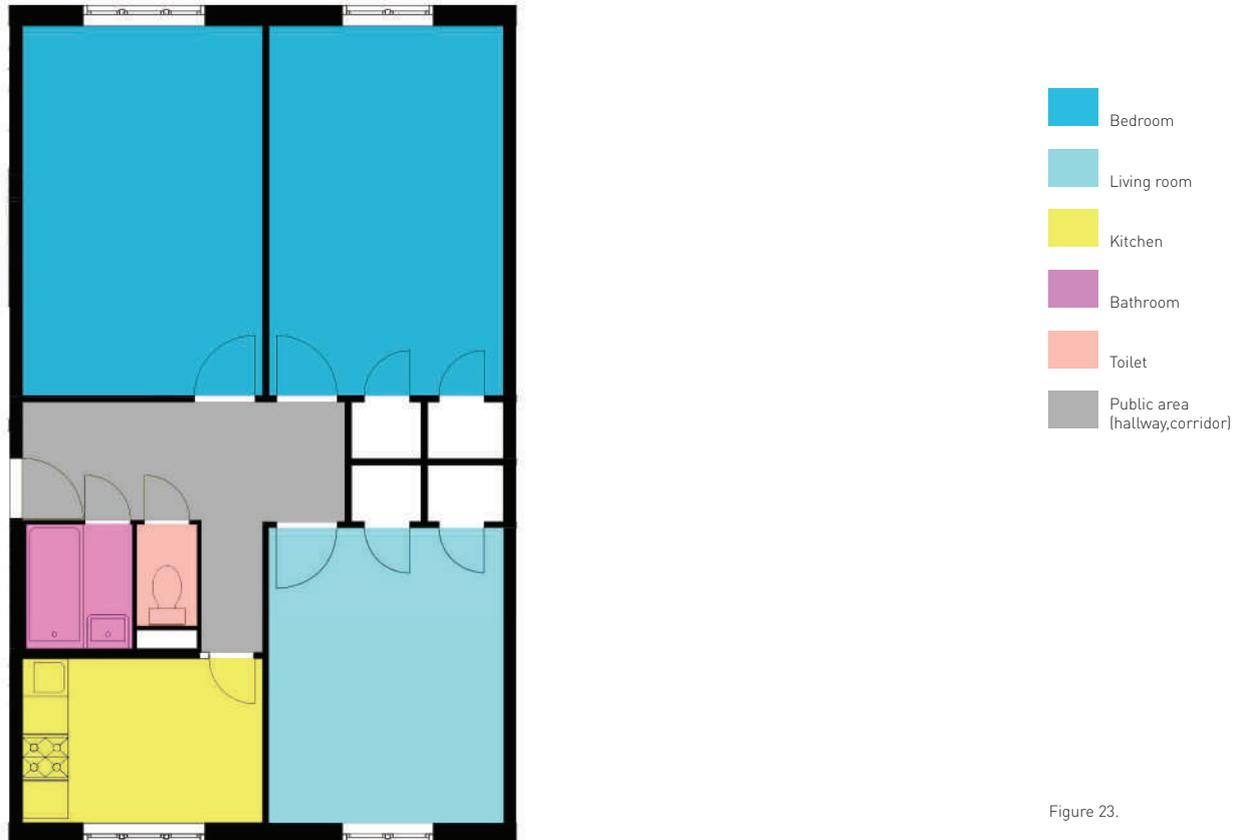


Figure 23.

Functional division of the
apartment.
Scale 1:100

K-7 is a series of five-storey multisection dwelling houses ("Khrushchevka"), designed by V.P. Lagutenko, constructed from frame panels, when parts of the frame - columns and crossbars - are an integral part of the panel. One of the first series of industrial housing construction, the foundation of the areas of mass residential development of the 60s - the production of DSC No. 1 in Moscow. Also this series (in modification K-7-2-4) was built by Dmitrovsky DSC in different cities of the Moscow region. In the area there are many houses of this series with a sloping roof. In addition to Moscow and the region, it is known about the presence of houses in this series in Saratov, St. Petersburg, Zapolyarny, Apatity, Kolomna, Orekhovo-Zuevo, Dmitrov, Murmansk and Astana. In the northern capital, the houses of this series were built under the pseudonym "OD", two of them having a height of 9 floors. A distinctive feature is the lack of balconies (they were foreseen by the project, for example, they were on 4-storey houses of modification

K-7-3-3 in the 1st and 2nd microdistricts of Zelenograd, but in the overwhelming majority of houses they were refused (in favor of cheapening construction) and the blind ends of houses. Thus, the house is a rectangular parallelepiped, without any protruding parts. The panels from which these houses were built are in most cases covered with white or red square unglazed tiles with a side of about 5 cm. Houses of similar and similar types have been called "Khrushchey" in the people. Another feature is the protruding elements of the panels (columns

and crossbars) at the corners of the rooms. In general, the houses of this series were built with 1-, 2- and 3-room apartments, three apartments per floor. The ceiling height is 2.48 m (according to other information 2.59 m). The vertical step is approximately 2.85 m. The horizontal step is 3.20 m. The outer walls are made of 400 mm slag-ceramsite concrete blocks. Internal concrete panels with a thickness of 270 mm. Partitions - gypsum-concrete panels with a thickness of 40 mm. Overlapping - reinforced concrete panels with a thickness of 220 mm. Bathrooms in the houses of this series are separate, including one-room apartments. The kitchens are quite decent for Khrushchev - from 6.4 to 7 square meters. Studies have shown that over 40 years the heat-shielding properties of the panels from which these houses were built have deteriorated by at least 20%.

The most common modifications of the K-7 series: K-7-2-4, K-7-3-3 (early), K-7-3-4, K-7-3-5 (late).

In the mid-1990s, due to the unprofitability of their reconstruction, it was decided to demolish all houses of this type in Moscow, and in 2007 the same decision was made by the Moscow Region Government. Demolition of houses of the K-7 series was delayed for more than two decades, and, according to the situation in August 2012, there are still 194 similar houses in Moscow, mainly in the North and North-Eastern districts.

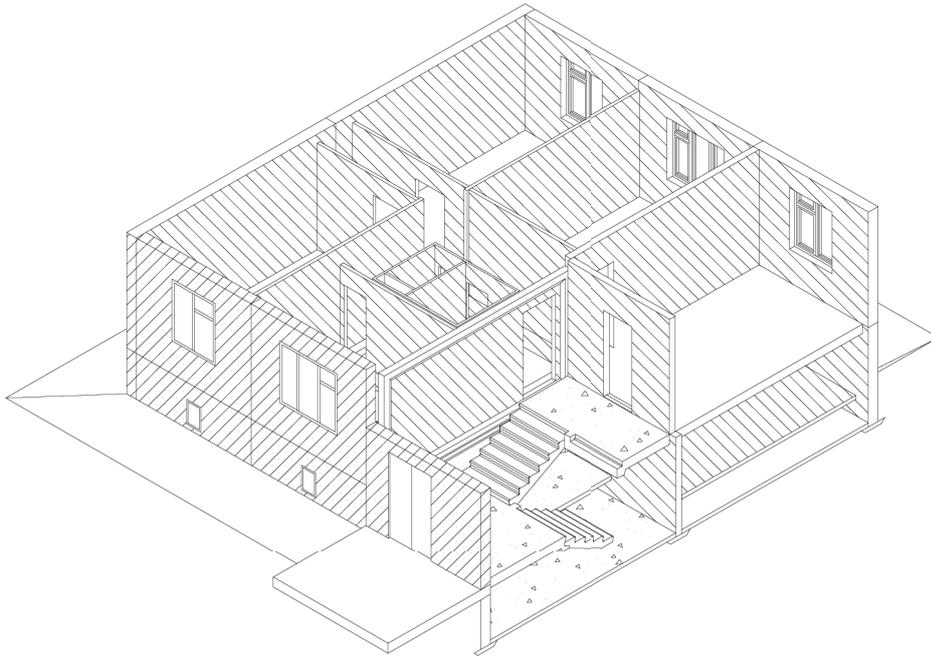


Figure 24.
Constructive diagram.
Scale 1:150

EVOLUTION OF MOSCOW HOUSING HOUSE ON MIRA PROSPECT



In the mid-1960s, Moscow experimented with the transition from a nine-story mass building to a higher-rise building, and the house at VDNKh was the third in a series of buildings where new technology was rolled. The first is located near the metro station "Alekseevskaya" on Prospekt Mira, and the second - on Smolensky Boulevard. The experimental houses have 17 floors and, apart from the "legs", differ little from the usual serial "panels".

After the successful delivery of the first two buildings, the architects decided to fine-tune the project - to increase the number of floors to 25 and arrange the balconies on

the facade in staggered order. In the quality of the "test range" for the next experiment, a wasteland was chosen opposite the sculpture "Worker and Collective Farm Woman" at the Exhibition of Economic Achievements. When the building was erected, the construction technology was first used from large panels joined by special bolts.

Unusual and layout of apartments in which there are no passage rooms and corridors. Instead, they have special "salons" or halls, from which you can get to the usual rooms. The house at VDNKh, as well as his brothers, is raised above the ground, so a beautiful view of the park's architectural ensembles opens

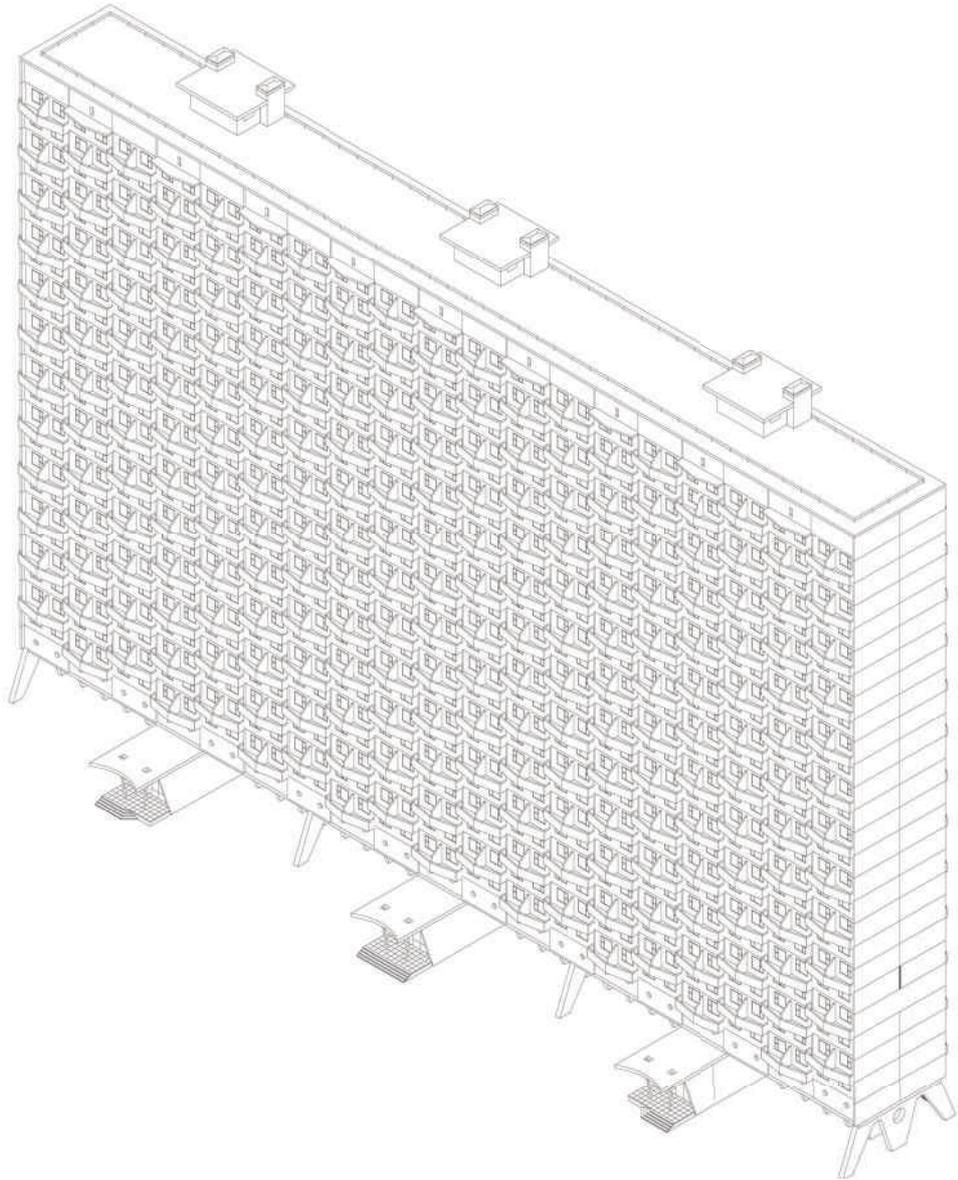
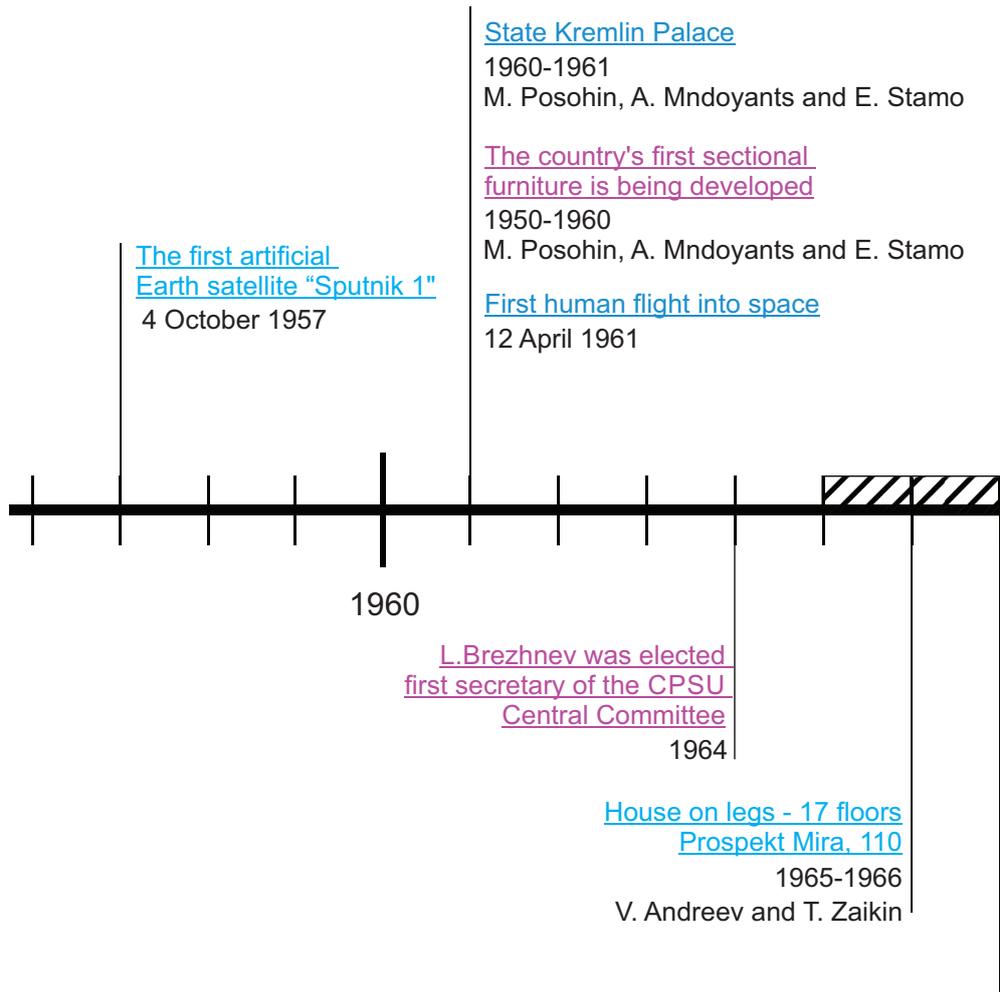


Figure 25.

Axonometry of the building.
Scale 1:1000

Timeline:

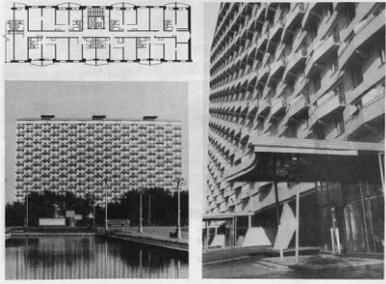
In the mid-1960s, Moscow experimented with the transition from a nine-story mass building to a higher-rise building, and the house at VDNKh was the third in a series of buildings where new technology was rolled.



HOUSE WITH VIBRO ROLLED PANELS

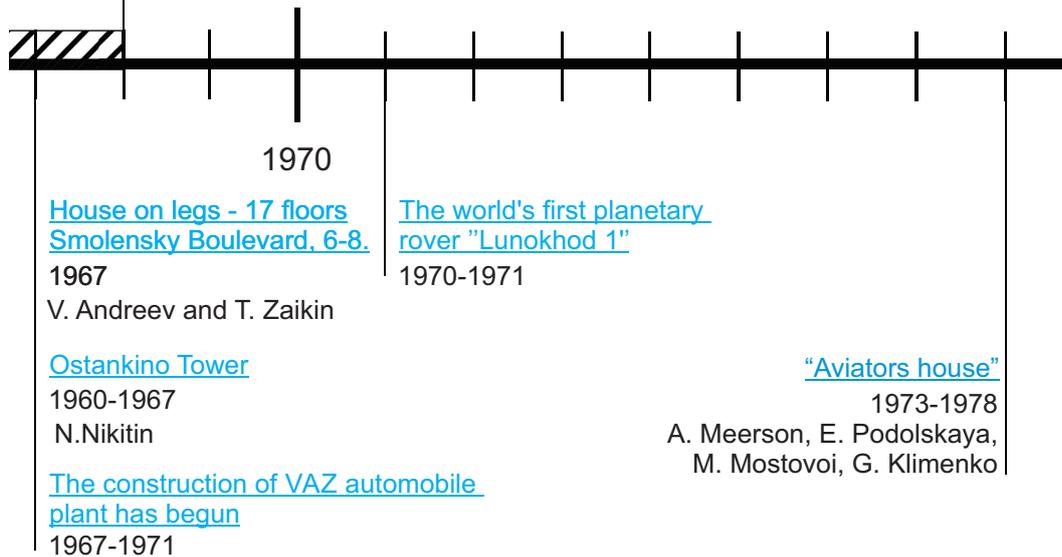
1966-1968

V. Andreev, T.Zaikin, I.Bellavin, V. Melamed



"Second Cold War"

1979-1985



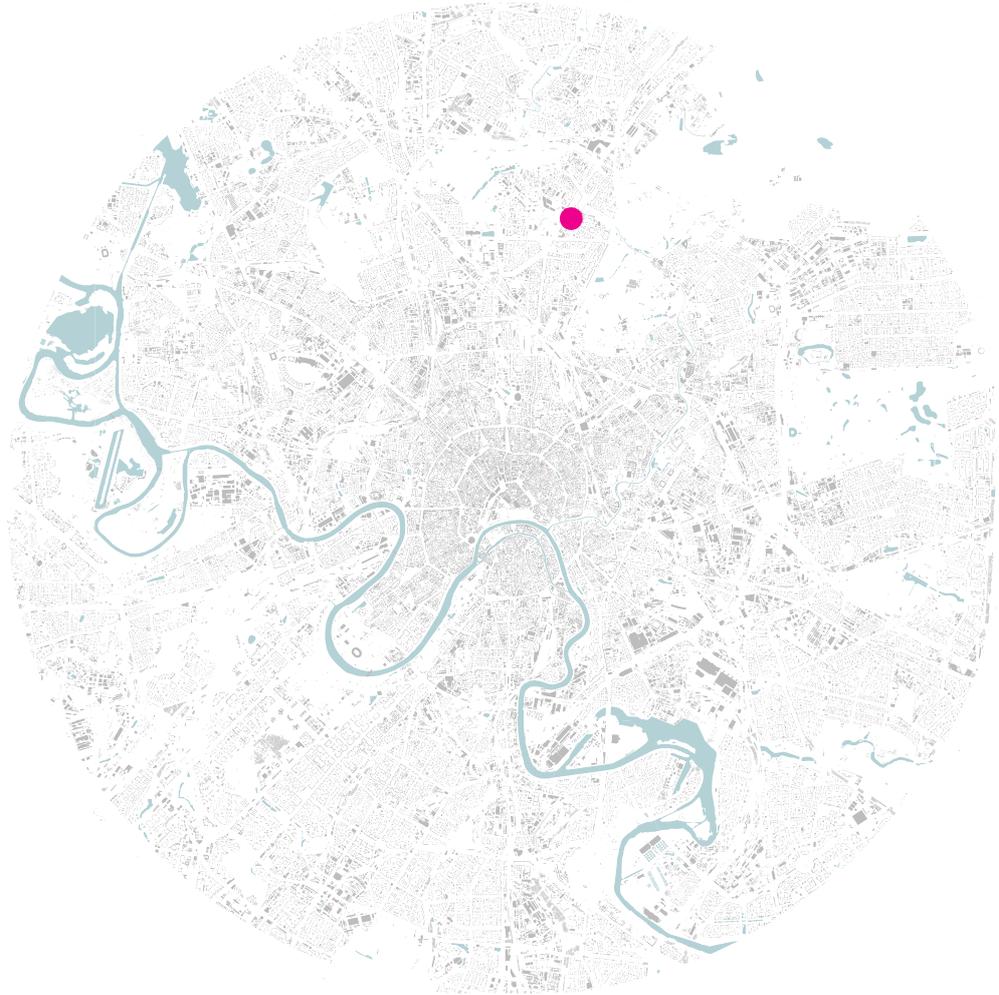


Figure 26.

Location in a scale of Moscow.

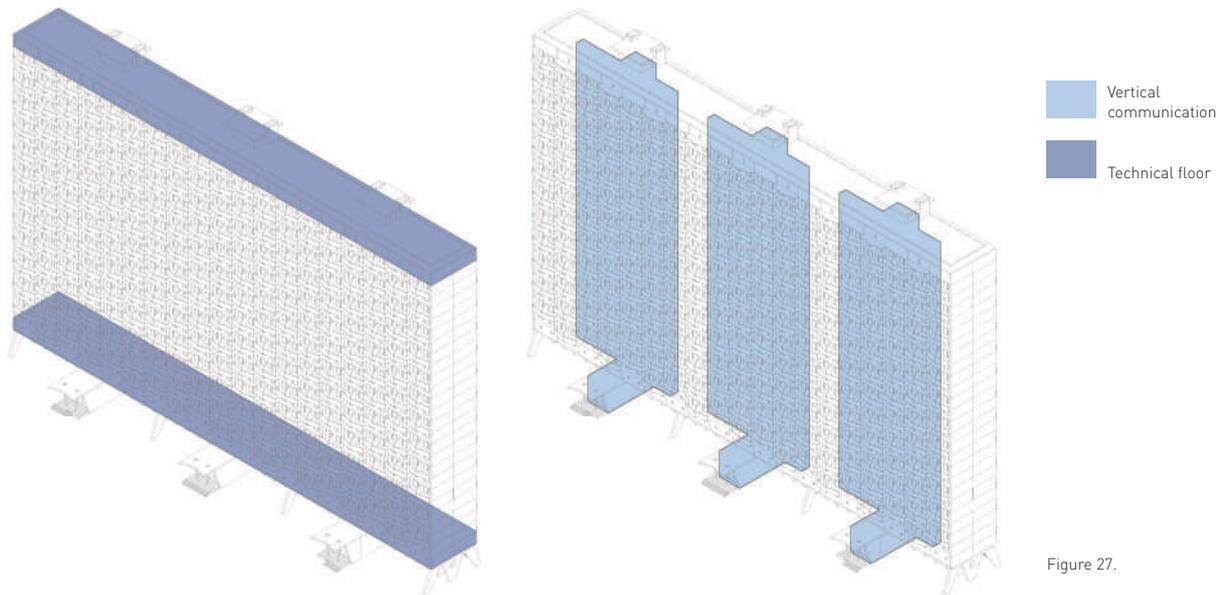


Figure 27.

Fuctional division of a building

even from the windows of the lower floors. The fact that here you can see the sculpture of Vera Mukhina "Worker and Collective Farm Girl" from the window, and indeed many examples of Soviet monumental art, greatly influences the emergence of you as a person. Or, more precisely, on the formation of your artistic taste. There is a monument with a rocket at the Museum of Astronautics. When you constantly see him, it encourages you to be interested in the cosmos.

At the same time, despite the experimental nature of the building, its "legs" are not a technological solution, but rather an artistic one. It is worthwhile to build houses on stilts,

rather, in extreme conditions of permafrost and permanent flooding. And the structure of the high-rise building at VDNKh refers to Le Corbusier's Residential Unit in Marseilles and modernist architectural theory and practice, examples of which can be found all over the world: for example, in the Hanzafiertel quarter in Berlin or on Vasilievsky Island in St. Petersburg

Period 1955-1970 years. is connected with the powerful development of the country's productive forces in the conditions of the scientific and technological revolution. The center of gravity in the solution of architectural and artistic problems now moved to the



Public space 

Figure 28.
Residential plan.
Scale 1:800

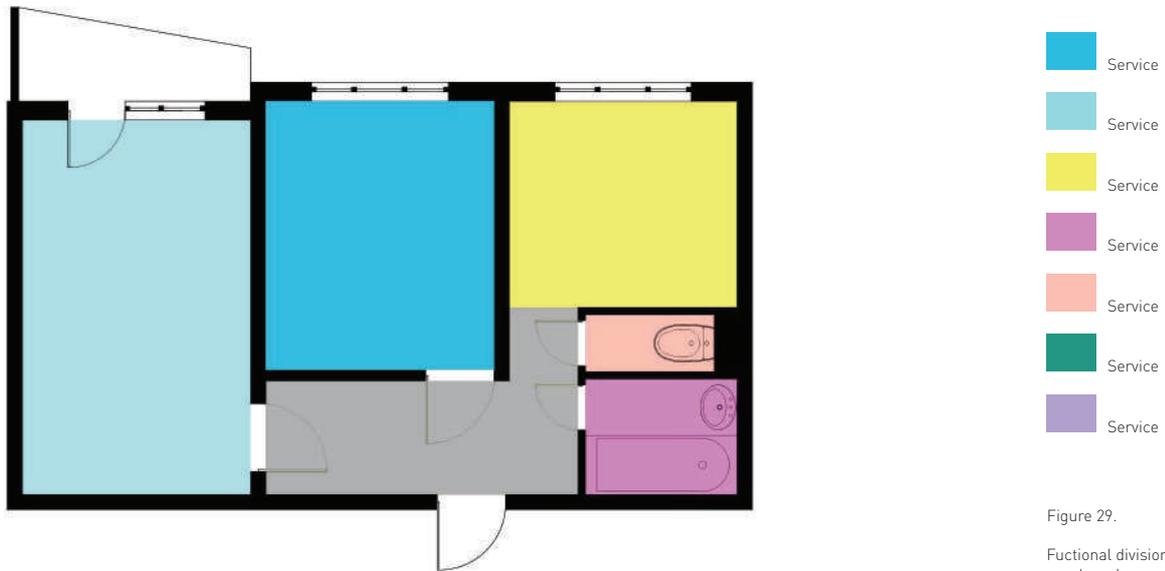


Figure 29.

Functional division of the apartment.
Scale 1:100

area of spatial urban composition. In this regard, the role of landscaping, gardening, small forms, and water bodies has greatly increased. So in front of the house there was a large poplar park, left from the barracks of the Alekseevsky campus demolished on this place. "

In 1969, the Central Committee of the CPSU and the Council of Ministers of the USSR adopted a resolution "On measures to improve the quality of housing and civil construction", in which he noted the significant shortcomings in the architecture of mass construction, the dullness and standard of the architectural appearance of new residential areas. In the

house, the facade is given special dynamism by the chess arrangement of balconies of non-standard shape: the left and right sides of the balcony converge at an obtuse angle to the middle, which creates an unusual optical effect.

The increase in town-planning and compositional mastery of architects has found its embodiment in large developed spatial compositions, in contrast contrasting multi-dimensional inner spaces of microdistricts to the outer space of city highways and squares. The house on the legs is monumental and located along the road

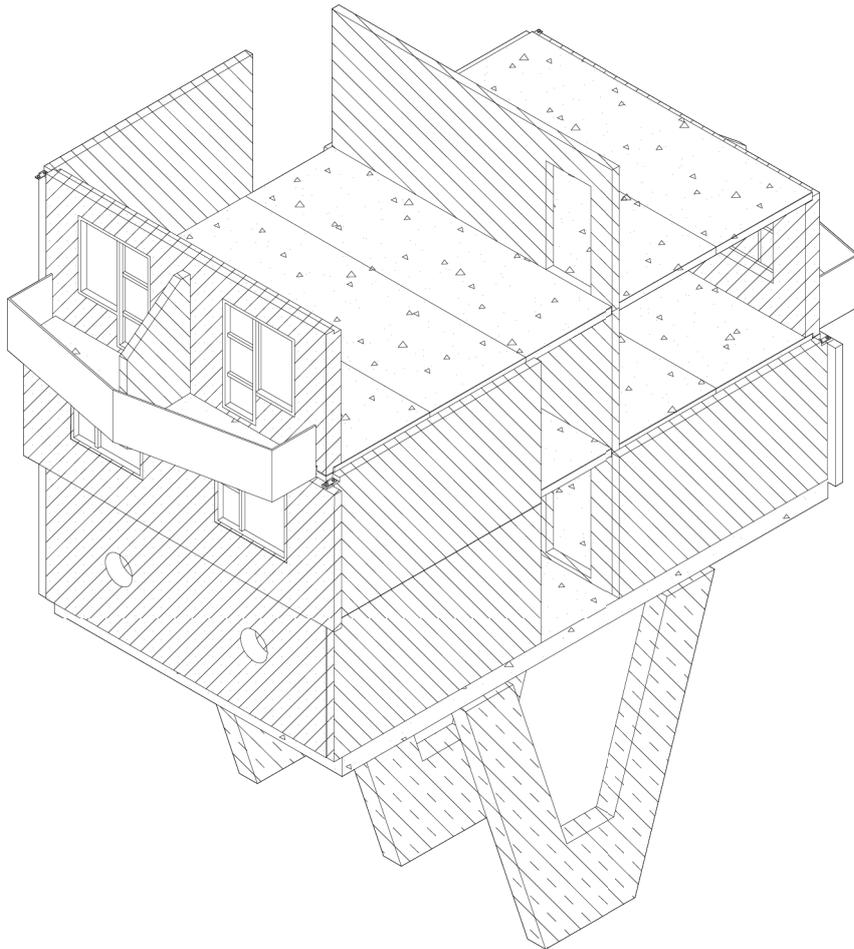
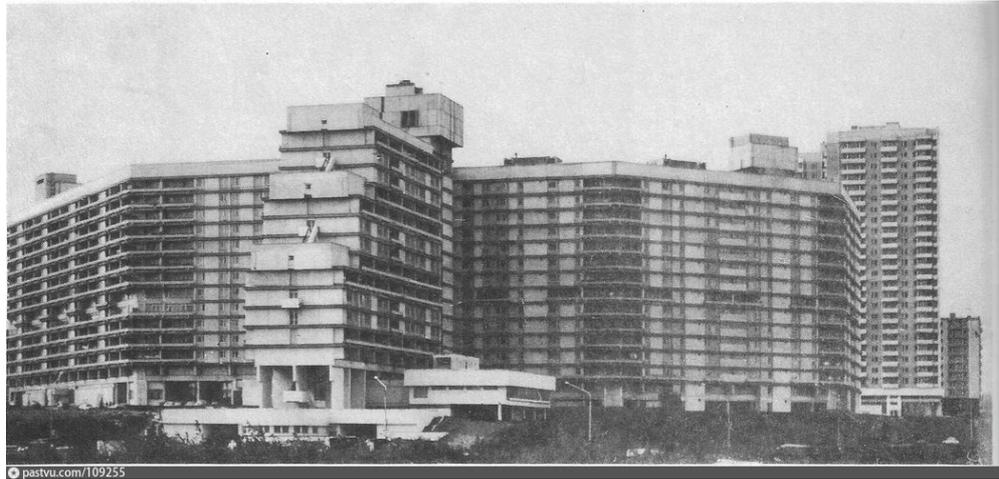


Figure 30.

Constructive diagram.
Scale 1:150

EVOLUTION OF MOSCOW HOUSING EXPERIMENTAL RESIDENTIAL AREA CHERTANOVO SEVERNOE



One of the features of the 1960s-1970s in the field of housing construction was the idea of a "home with services." Northern Chertanovo was conceived as a new type of microdistrict in an autonomous territory, separated from the urban environment by a natural landscape. Therefore, it had to design all the local household, cultural and trade functions, so that the residents did not have to travel outside the district. North Chertanovo was a whole region of separately standing buildings, so the services were not in the house, but in separate buildings, but still very close to housing: the neighborhood was supposed to create a shopping center

with shops and a restaurant, a cultural center with a cinema and a library, schools, kindergartens, a gymnasium, a swimming pool. But there were also services directly in the buildings - bureau of orders, sale of essentials, points of reception and storage of seasonal things.

Another important idea of the era of Soviet modernism in the field of urban planning is functional zoning. In the northern Chertanovo, in the upper part of the hillside are residential buildings, and closer to ponds - public buildings. The space between them is given to pedestrians, car arrivals are realized

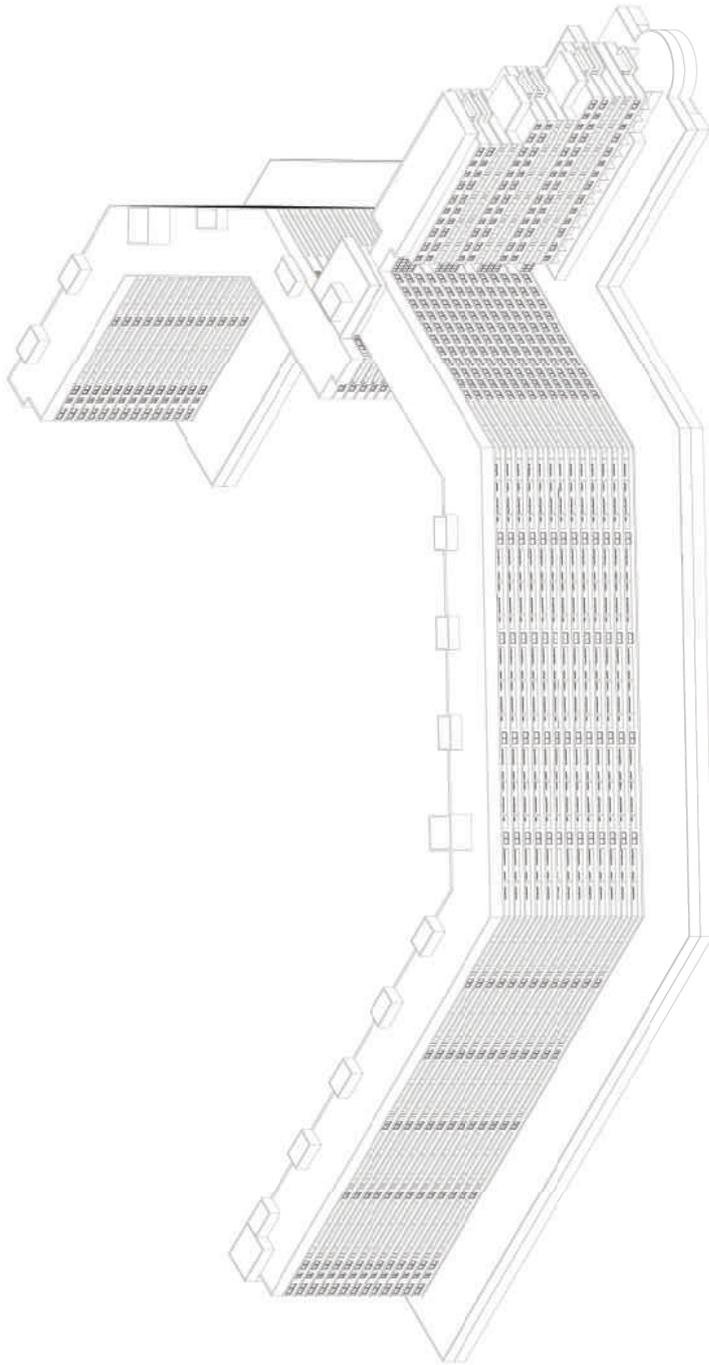


Figure 31.

Axonometry of the building.
Scale 1:2000

Timeline:

Period 1955-1970 years, is connected with the powerful development of the country's productive forces in the conditions of the scientific and technological revolution. The center of gravity in the solution of architectural and artistic problems now moved to the area of spatial urban composition. In this regard, the role of landscaping, gardening, small forms, and water bodies has greatly increased.

1953 MARCH

Stalin dies and is succeeded by Georgi Malenkov as prime minister and by Nikita Khrushchev as first secretary of the Central Committee of the Communist Party.

In 1953

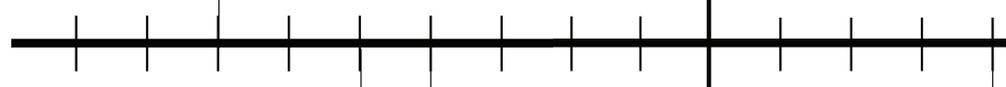
A ferroconcrete production facility launched operations in the moscow suburb of lyubertsy.

1960-1970 ("KHRUSHCHYOVKA" HOUSES)

The "khrushchovka" was industrialised and prefabricated building, the elements (or panels) made at concrete plants and trucked to the site as needed

1960

System of public service were developed in 1960s and still fixed in building rules for russia and ukraine



1960

1956 -

Khrushchev makes a secret speech to the 20th Communist Party congress denouncing Stalin's dictatorial rule and cult of personality.

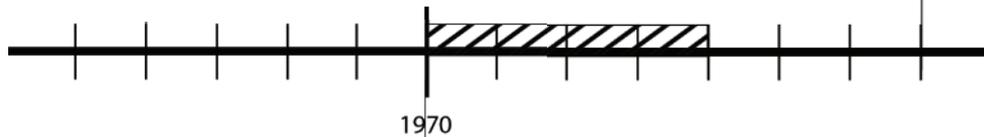
Ninth Novye Cheryomushki Housing State (1956-1959)

The experimental ninth block of Novye Cheryomushki was the first Soviet experiment aimed at solving the USSR's housing shortage.

1964 -

Khrushchev is replaced as first secretary of the Communist Party by Leonid Brezhnev; Aleksey Kosygin becomes prime minister.

1977 -
Brezhnev elected president under new constitution.



1970

[1970 SOVIET HOUSING 1970-1990
\(SECTIONAL HOUSES 9 1990 \(SECTIONAL
HOUSES 9-16 FLOORS\)](#)

In times of Leonid Brezhnev architects got more freedom compared to Nikita Khrushchev's times. Standard design was still in force but there was more variety of projects series according to the different climate zones and urban planning conditions.

[EXPERIMENTAL MICRODISTRICT
"SEVERNOE CHERTANOVO", MOSKOW,
RUSSIA \(1970S\)](#)



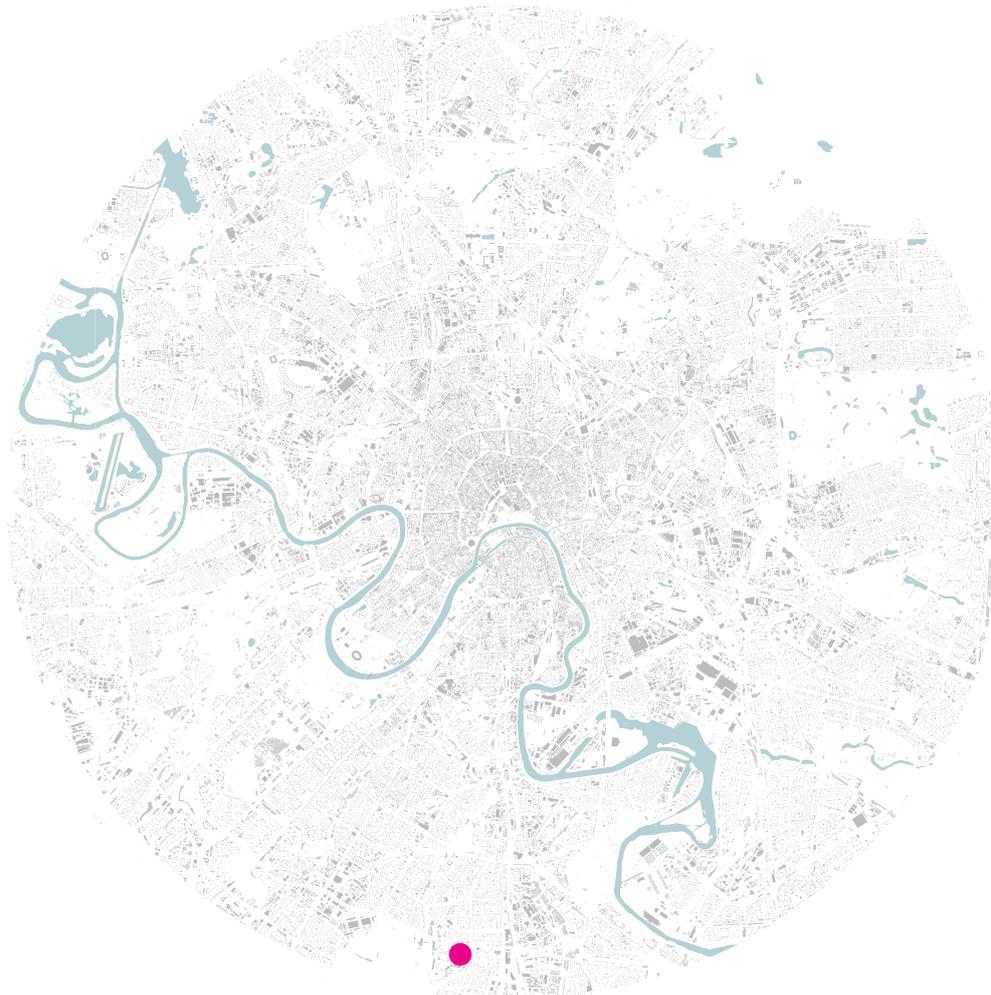


Figure 32.

Location in a scale of Moscow.

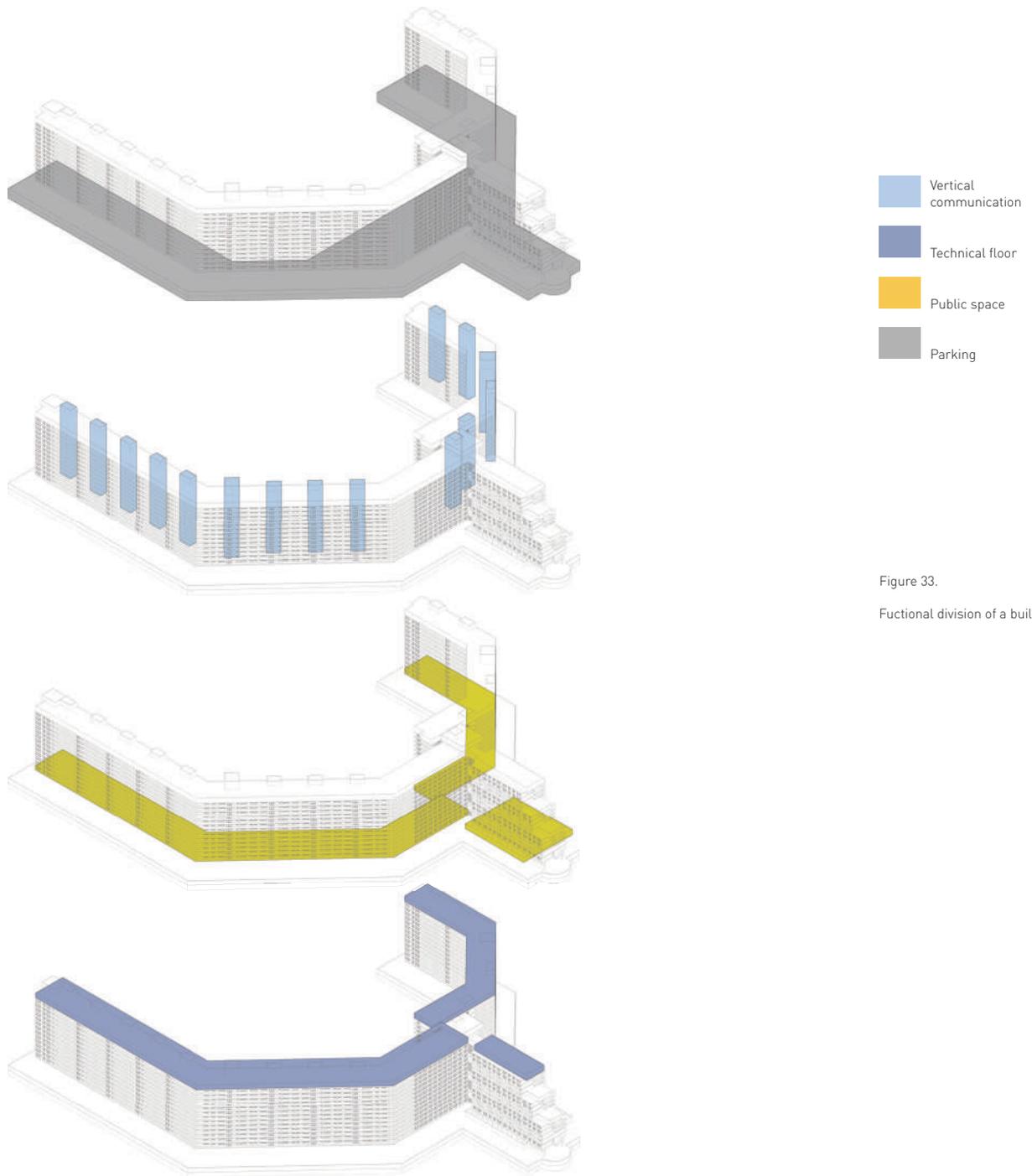


Figure 33.

Functional division of a building

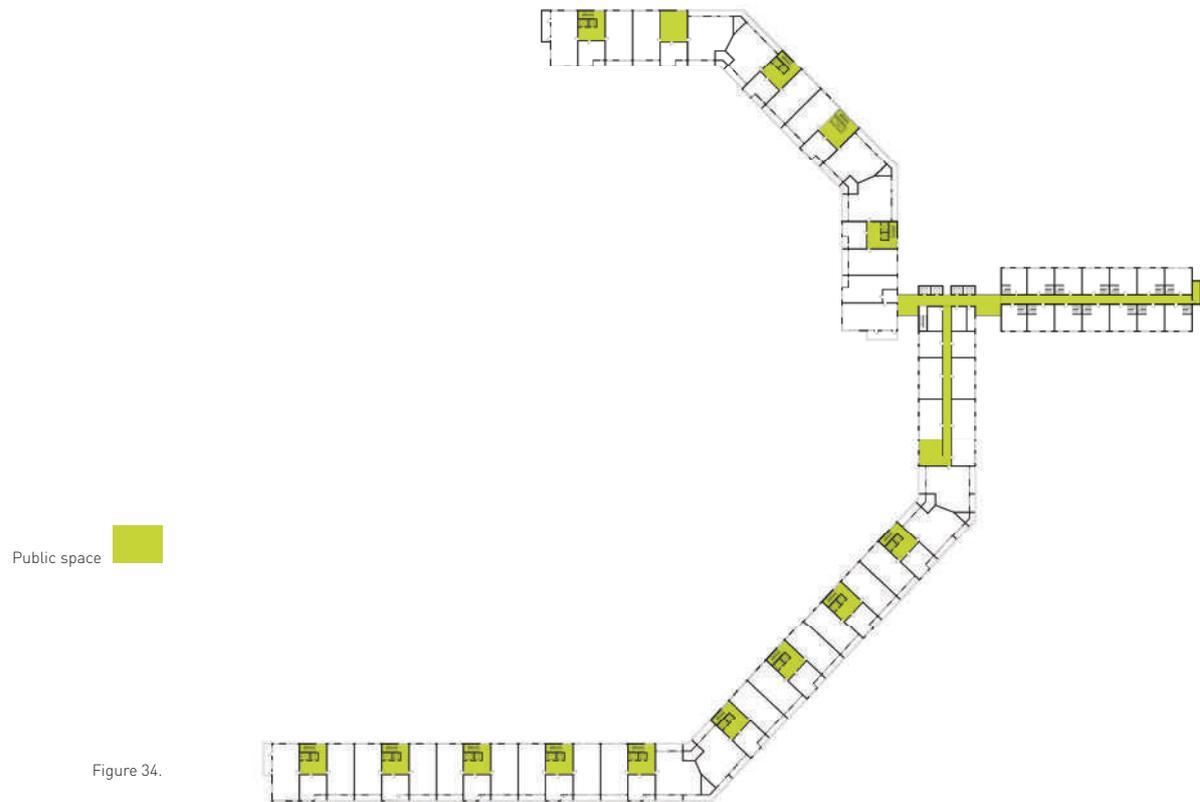


Figure 34.
Residential plan.
Scale 1:2000

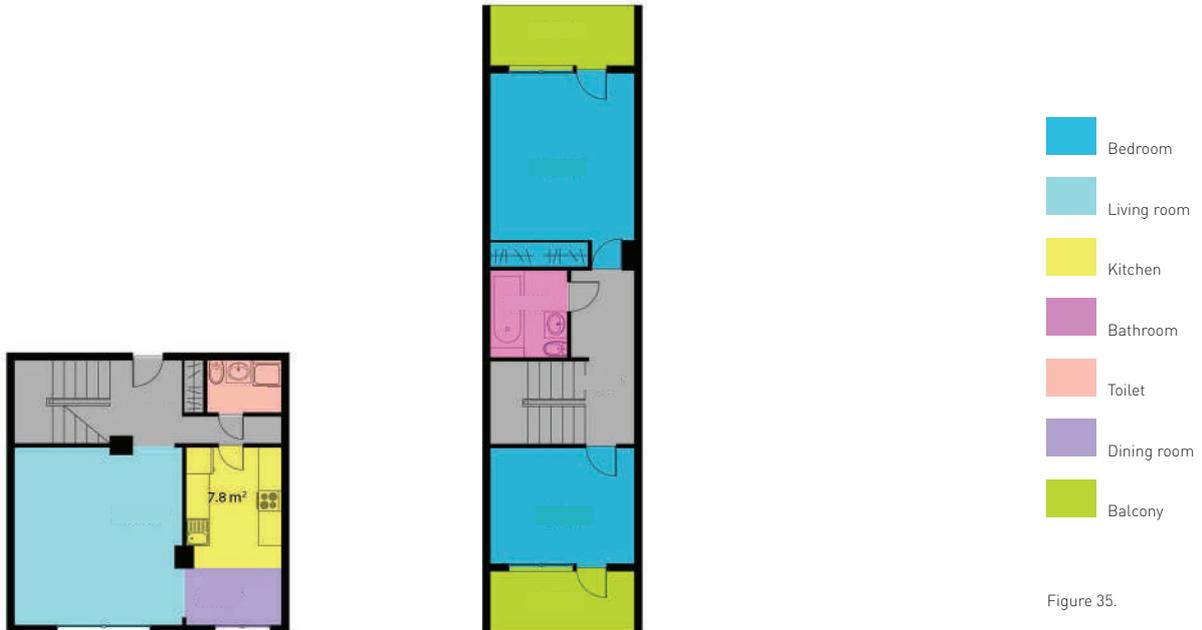


Figure 35.

Functional division of the
apartment.
Scale 1:100

from the back of the houses.

The main thing that was realized in the experimental microdistrict is a unified system of servicing houses with underground garages, pneumatic garbage disposal and a system of sensors that monitored the work of the building's engineering systems and output the data to the central dispatching area of the microdistrict.

Long buildings architects specially broke, giving the area an unusual and interesting layout. At the same time, such placement of houses made it possible to make spacious yards without cars and to remove all transport infrastructure underground. Interestingly, they solved the problem of facades, which were filled with loggias, French balconies and special cornices. In the first houses of the neighborhood there were two-level apartments, furnished with built-in furniture and sanitary equipment from the Warsaw Pact countries.

The main load-bearing walls are made of concrete, and all the internal walls in the apartments are made of plasterboard. This innovation was provided for the easy possibility of changing the layout of large and spacious apartments when changing the composition of the family.

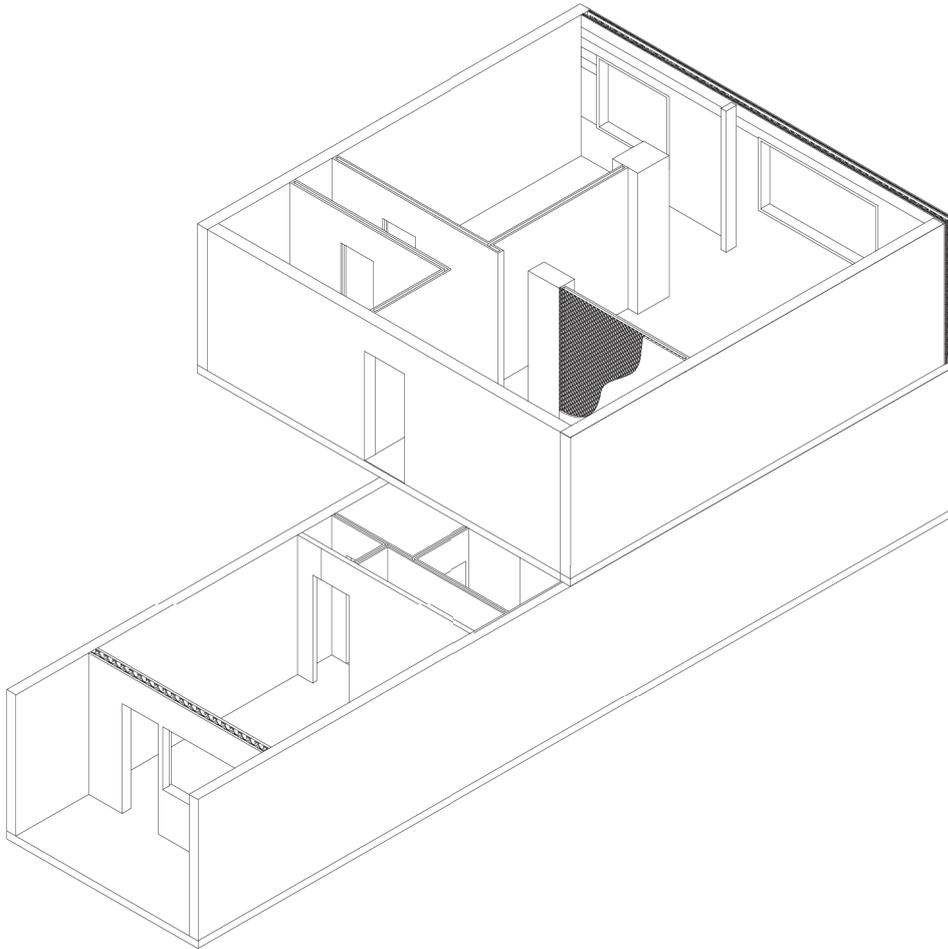


Figure 36.

Constructive diagram.
Scale 1:150

EVOLUTION OF MOSCOW HOUSING "PATRIARCH" RESIDENTIAL COMPLEX



Residential building "Patriarch" is located in Patriarch Ponds. Patriarch Ponds is relatively small residential area to the west of the Kremlin - located between the areas of Arbat/ Kropotkinskaya and Tverskaya. It is one of the most elite neighborhoods in Moscow - it is a brand itself, with many fancy cafes and boutiques around. Located on the corner of Malaya Bronnaya Street and Yermolaevsky Lane in the Presnensky District of the Central Administrative District of Moscow, the building was designed by architects Sergei Tkachenko, Oleg Dubrovsky, Elena Gritskevich, Olga Skums, Elena Shmeleva, Ilya Voznesensky, Alexei

Kononenko and Mihail Leikin and designer Elena Skachkova in 1997-2000 and was built by Spar company in 2000-2002. This building is a representation of "flaming" stage in "Luzhkov's" style in the architecture of Moscow and reflects processes which was happening in Moscow and Russia itself in the end of the 90's of twentieth century. It was the time of radical changes and processes that had not existed for 70 years before.

One of the factors that changed the face and mode of action of both the country and the architecture was the arrival of a market economy and capitalism. The role of the

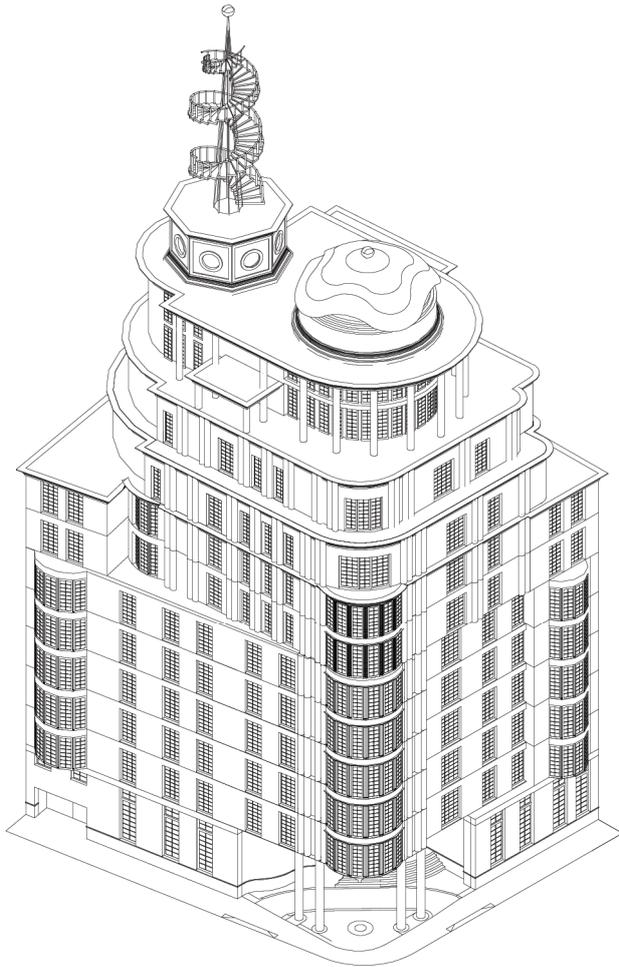


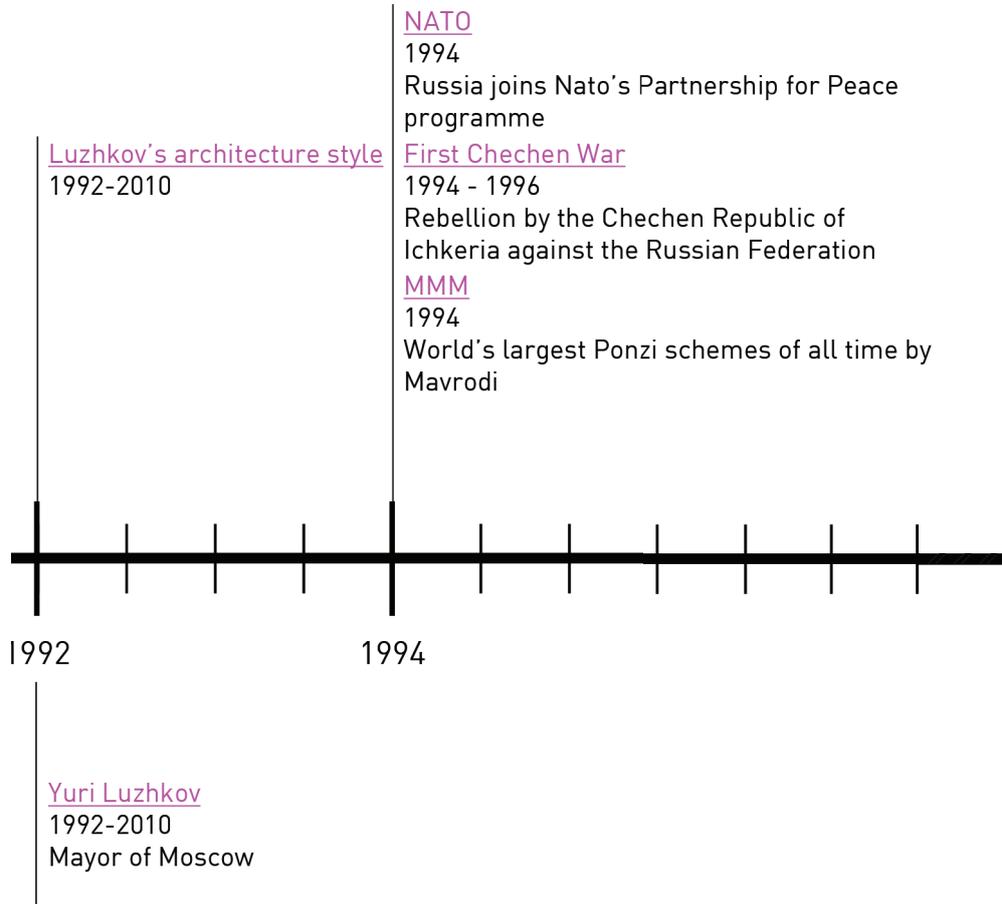
Figure 37.

Axonometry of the building.
Scale 1:500

"Patriarch" residential complex

Timeline:

Period 1955-1970 years. is connected with the powerful development of the country's productive forces in the conditions of the scientific and technological revolution. The center of gravity in the solution of architectural and artistic problems now moved to the area of spatial urban composition. In this regard, the role of landscaping, gardening, small forms, and water bodies has greatly increased.





"Patriarch" residential complex

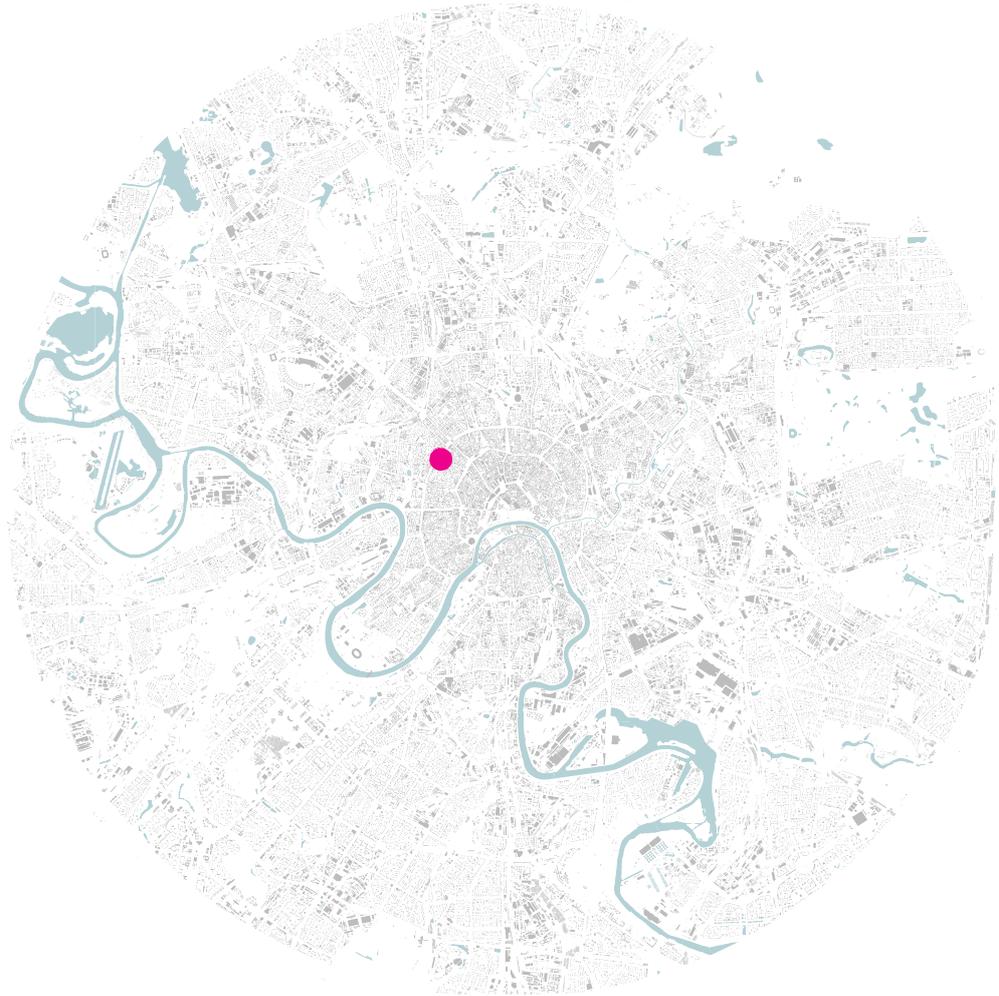
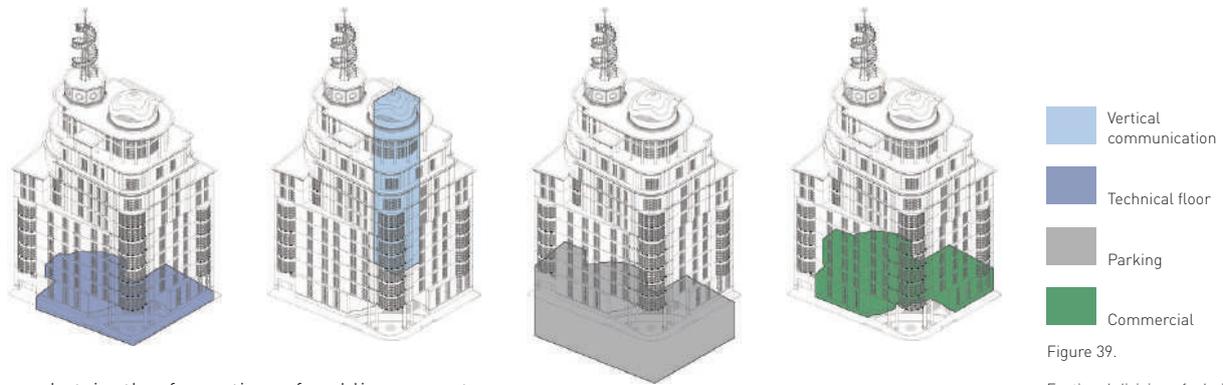


Figure 38.

Location in a scale of Moscow.

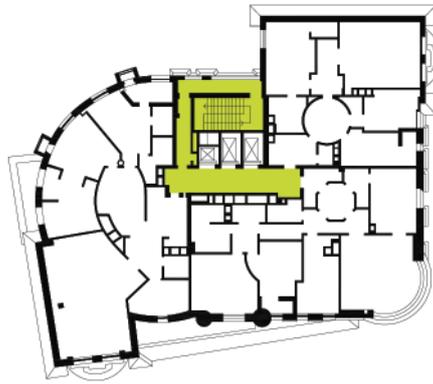


market in the formation of public requests for architecture in the transition period is undeniable, but at the same time there remains of an authoritarian legacy in the requests for the appearance of architecture in the person of Moscow Mayor Yuri Luzhkov, who took the place of the mayor for 18 years from 1996 to 2010. Under his leadership, a new look of the capital of a new market state was formed. For the newly elected government, this image should be an opposition to the previous stagnant, cold and overdue modernist Brezhnev Moscow, as well as the representation of new cultural and ideological reference points.

The formation of new architectural agendas, principles and approaches, taking place in the extreme conditions of the transition economy, turbo-capitalism, ambiguity of official ideology and under the influence of authoritarian rudiments left from the Soviet legacy, determined the characteristic feature of the architecture of that time, consisting of a command-administrative decision-making system and the disappearance of a direct responsibility of the architect for the final result (product) of his professional activity. All of the above coincidences of events and factors led to the emergence of a new «Moscow» or «Luzhkov» style, an urban and architectural feature of the first decades of post-Soviet Moscow.

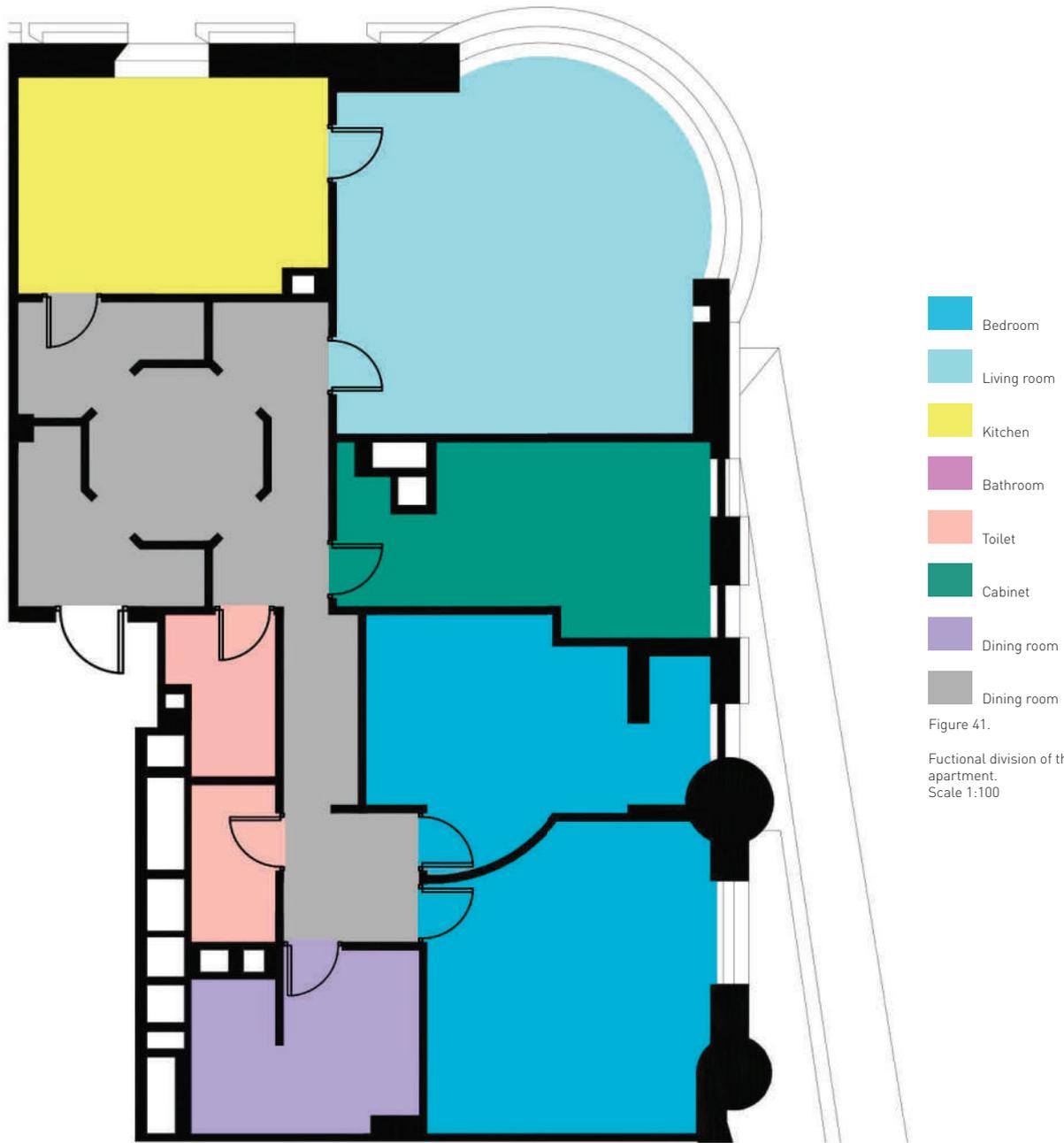
The apotheosis of this style is the «Patriarch» residential complex erected in 2002, reflecting the moods and desires of new customers in the architectural and urban environment: developers whose main goal is maximum commercial profit, directly proportional to the number of square meters; the new state power that wanted in reinforced concrete and fiberglass to display imperial ambitions and ideological vectors; and ultimately a new, previously not existing, consumer of this type of architecture: oligarchs, businessmen, mafia, TV stars and populist politicians.

It is obvious that the new political, cultural and social conditions radically influenced the daily life and needs of the citizen. The transition from the deficit economy to the consumption economy, and to the middle of the 2000 to the general welfare at the background of a record rise in oil prices, left an indelible mark on all spheres of society and the country itself, and architecture could not be left aside. On the example of the «Patriarch,» dramatic changes can be observed inside the home: the emergence of new functional typologies, such as a room with artificial snow, a private pool, a gym, a spa, as well as a return to the hypertrophied form of old ones such as a dining room, a wood-burning fireplace room, garden and



Public space 

Figure 40.
Residential plan.
Scale 1:800



area of spatial urban composition. In this regard, the role of landscaping, gardening, small forms, and water bodies has greatly increased. So in front of the house there was a large poplar park, left from the barracks of the Alekseevsky campus demolished on this place."

In 1969, the Central Committee of the CPSU and the Council of Ministers of the USSR adopted a resolution "On measures to improve the quality of housing and civil construction", in which he noted the significant shortcomings in the architecture of mass construction, the dullness and standard of the architectural appearance of new residential areas. In the

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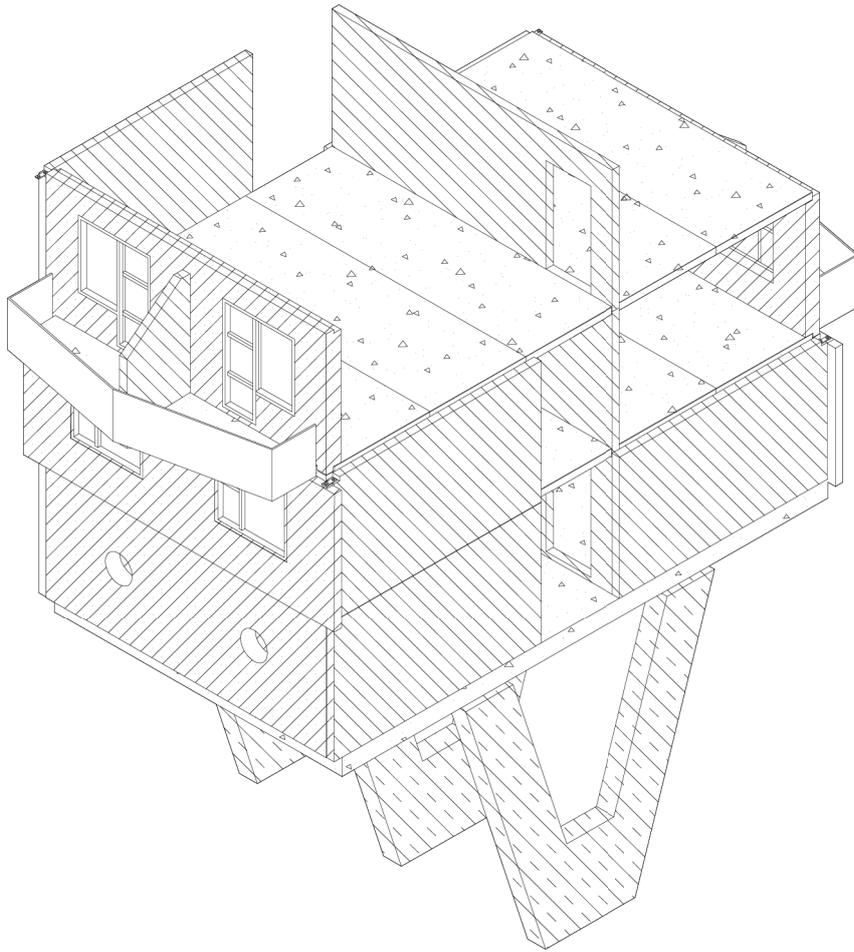


Figure 42.

Constructive diagram.
Scale 1:150

EVOLUTION OF MOSCOW HOUSING MOSFILMOVSKAYA TOWER



Mosfilmovskaya tower's erection in 2011 was preceded by 20 years of turbulent years of formation of the new Russia.

It all started with the end of USSR in 1991 and following years of national conflicts, crime wars, massive trade unions strikes and rapid growth of nouveau riche whose tastes advanced dramatically in a few years.

It was a time of inflated expectations when people believed that the fall of Communist Party and democratic changes will automatically lead to prosperity. People did not realize that western democracies had beaten their path for centuries and our society needs to pass through the painful

process of primitive accumulation of capital and dramatic income difference. That is exactly what our people faced while having in mind nothing else but thoughts how to survive.

With the years a new class of those who prospered has formed and a demand for a new standard of living was formed. Experts say that there were at least three waves of elite housing in 1993 – 2007.

During the first one, nouveau riche demand was more about resettlement of communal apartments or new buildings with red brick façade, security and city center location. It all changed after 1998 financial crisis when

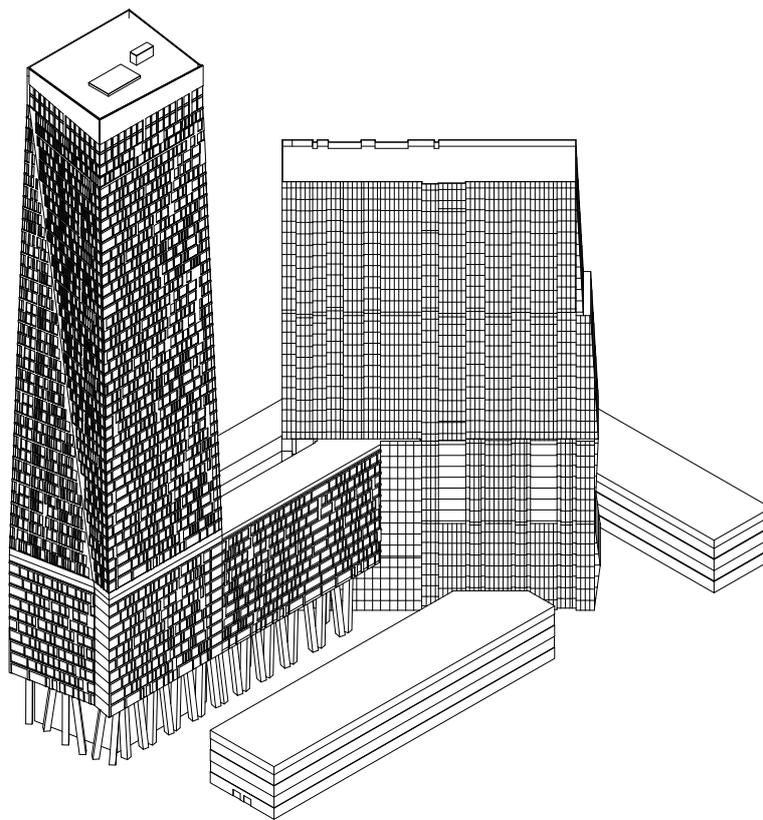
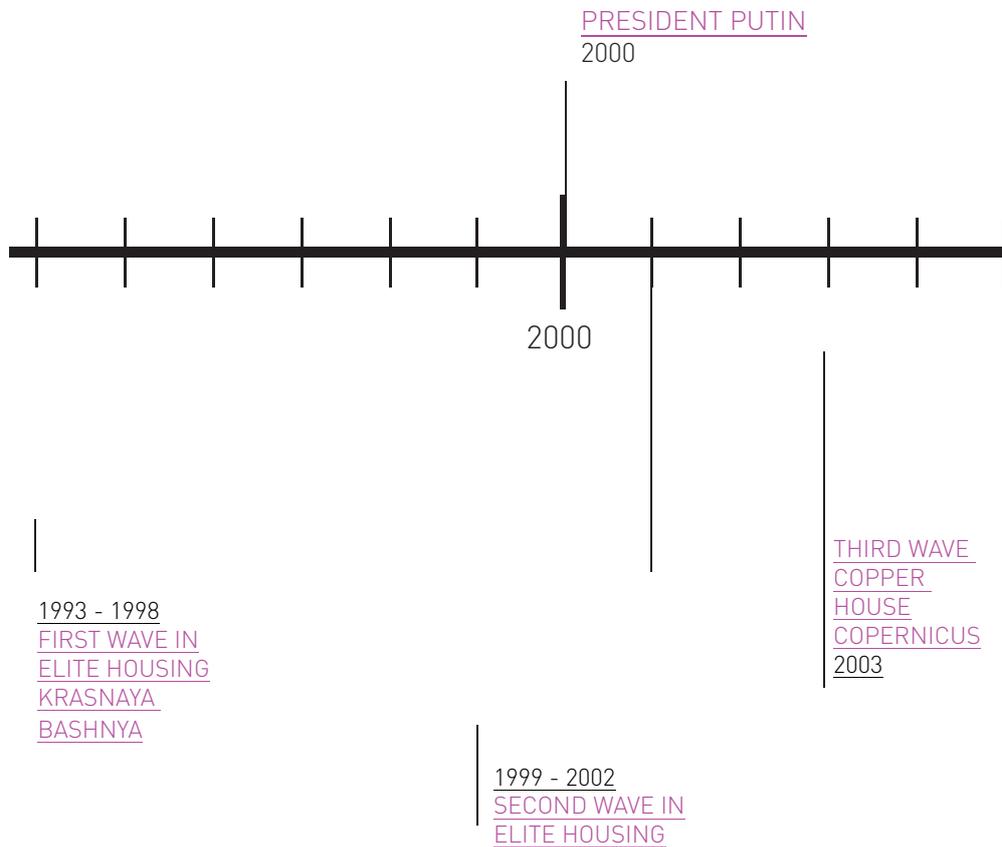


Figure 43.

Axonometry of the building.
Scale 1:2000

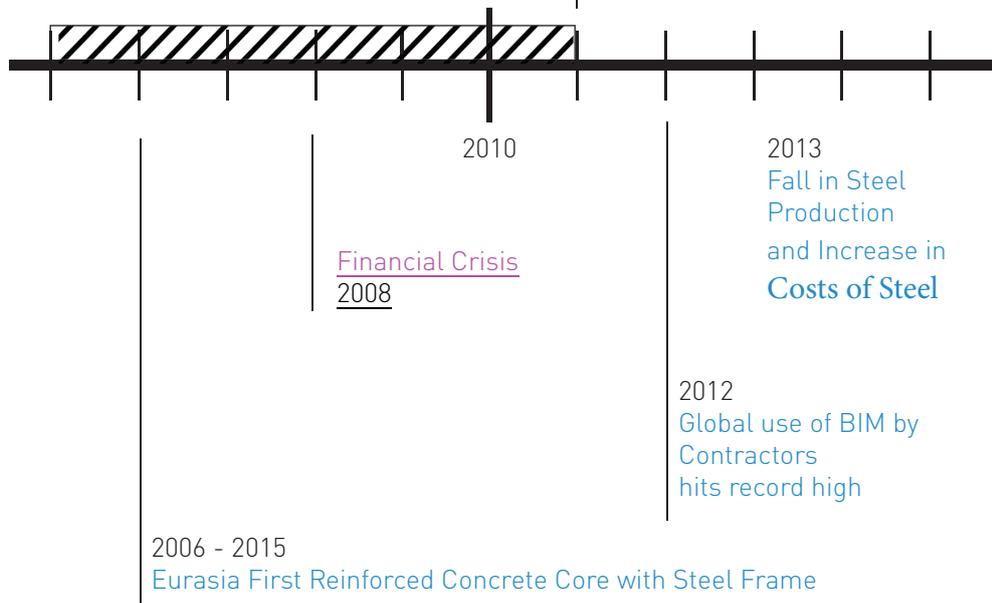
Timeline:

Mosfilmovskaya tower's erection in 2011 was preceded by 20 years of turbulent years of formation of the new Russia.





MOSFILMOVSKAYA
2011
SERGEI SKURATOV
Top 5 European High Rise Listing
Awarded "House of 2012"
BIM applications used in Design



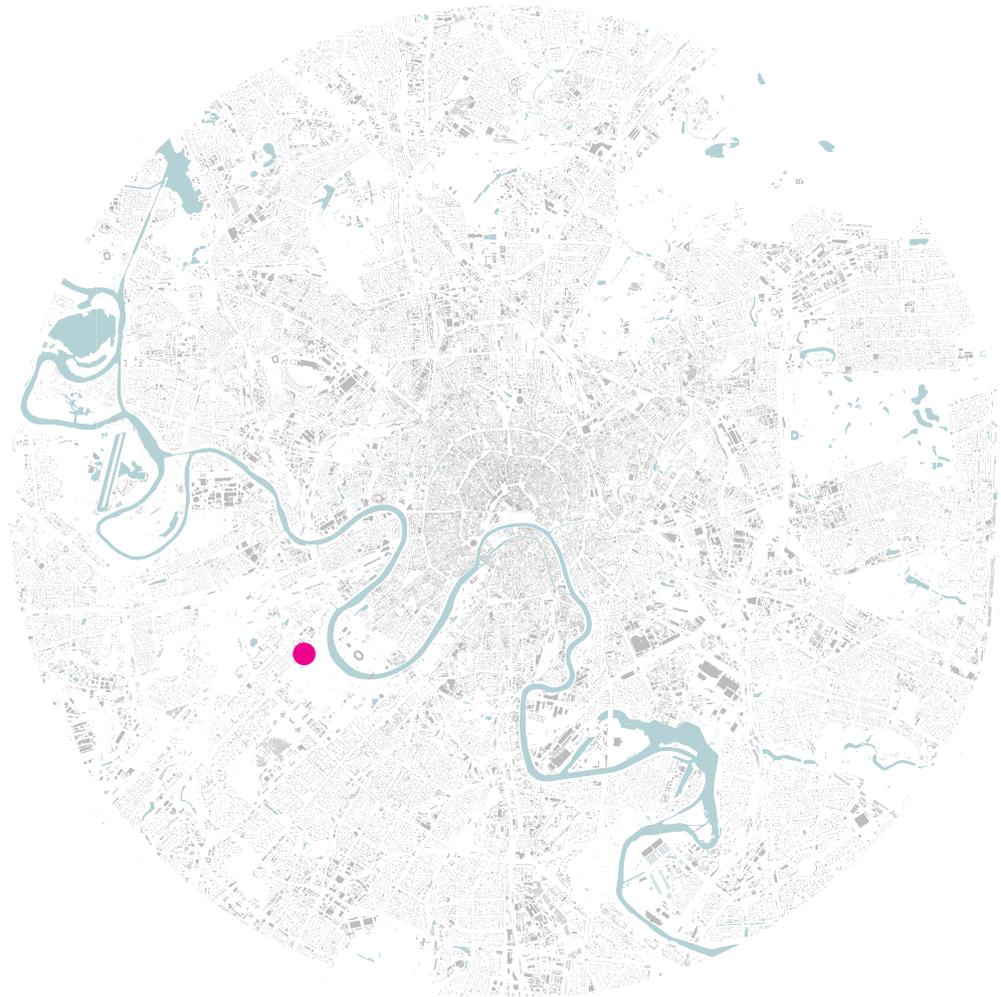


Figure 44.
Location in a scale of Moscow.

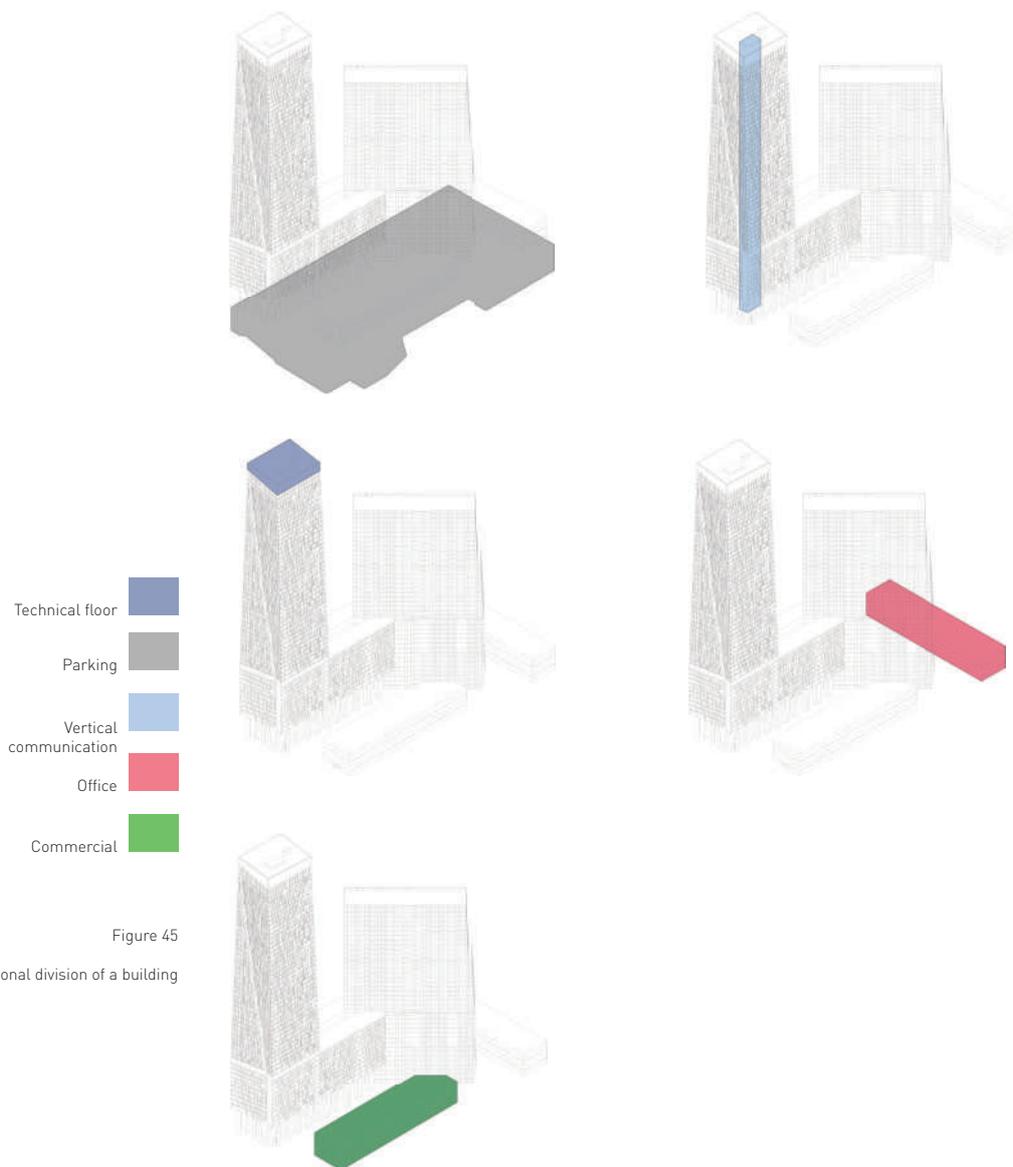
the demand from the one hand became less mass, from the other, those who had got really big money wished to control their inner circle and were in search for clubhouses with only a few flats.

After some time when the economy recovered developers and city authorities proposed a new concept which allowed to use priceless city center land in a more efficient manner: to rise high rises or blocks of elite houses with all necessary social infrastructure in it: underground parking, kindergarten, fitness, restaurants, etc. At the same period of time first, high rises projects were started, as it was first such an experience in Russia there were neither experienced contractors with all necessary competencies and technologies nor technical regulations. So all this work started from scratch and it caused a lot of changes in adjoining industries and service operators. As an example, at the same time, Eurasia tower was erected and it was the first time of reinforced concrete core with steel frame implementation.

As for Mosfilmovskaya tower, on the project phase it already has got a number of European awards and nominations, e.g. Top 5 European high-rise listing Award "House of 2012". The design of the tower was made using BIM applications. The unique façade solution was developed during the working process: there are modular facade elements of 2,5 meters width and 3,6 meters height [story height] with integrated windows, partitions and interior/facade finishes.

Mosfilmovskaya tower consists of two high-rise towers of different shapes, heights, and stories, connected by a low-rise section: Turret. Height-213.3 m, 52 floors. According

to the original project, it was helical rotated 21 degrees, which allowed to achieve a variety of views from the Windows of future apartments. In the final version, the upper point rose from 150 to 200 meters, and a smooth bend was replaced by its geometrized imitation: the walls slightly tilt, so that the blunt angle of the first floor at the top grows into a sharp, and Vice versa. The four-tone color of the building changes from white Carrara marble to dark limestone of the lower floors and black concrete supports. The coloring is designed to create the effect of glow at the top of the skyscraper. Plate. Height-132 m, 34 floors. The silhouette of the second enclosure is reduced upwards and a bit tilted toward the former. The facades are fully glazed, and the topography of the walls complicates the picture from the Windows of the three varieties — transparent, opaque and false. On the top floor, there is a penthouse with a swimming pool and an outdoor area on the roof. According to the architect Skuratov, the house resembles a hyperscale snail.



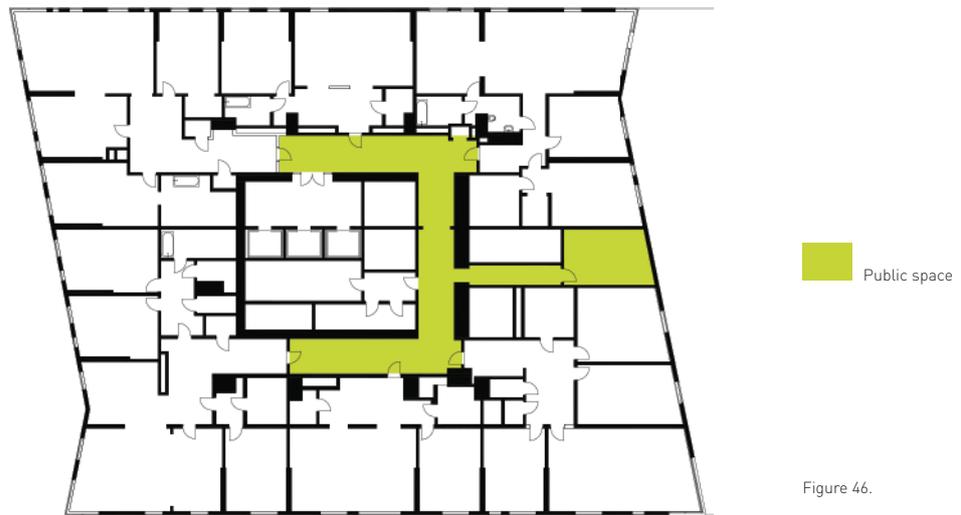


Figure 46.
Residential plan.
Scale 1:1000



Figure 47.

Functional division of the
apartment.
Scale 1:200

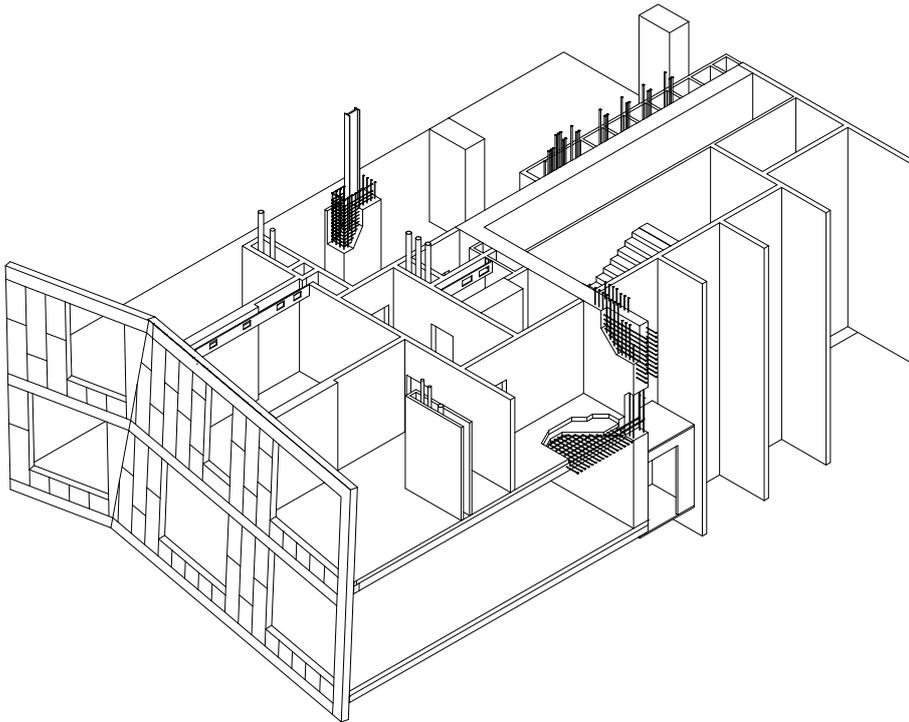


Figure 47.

Constructive diagram.
Scale 1:200