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Tesis / Thesis

**LAS TORRES SOVIÉTICAS DE MOSCÚ.**

**1-8-∞**

**THE SOVIET TOWERS OF MOSCOW.**

**1-8-∞**

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## TERMINOLOGY

The Anglo-Saxon versions of Russian authors' names have been used in this text. For example El Lissitzky, Shukhov, Shchusev, Oltarzhevsky, etc.

When we refer to the Stalinist skyscraper in Moscow we use the term High-Rise Administrative Building, as this is the literal translation from Russian and is the most suitable term.

As for the specific nomenclature of each tall building, the names given refer to the geographic location (eg. a high-rise located on the Hill of Sparrows) or sometimes to the use of the building (eg. Moscow State University building.) In some cases we have even used the original Russian term (eg. Smolenskaya Building). Thus we find in this text:

- Krasnye Vorota = Red Gates = Building of the Red Gates
- Smolenskaya = High-rise Building of Smolenskaya Square or The Ministry of Foreign Affairs
- Komsomolskaya = High-rise Building of Square Komsomolskaya or Hotel Leningradskaya = Hotel Leningrad.
- Dorogomilovskaya = Hotel Ukraine.
- Seven Sisters = High-rise administrative buildings in Moscow or Moscow Stalinist skyscraper
- Vorobiovy = Lenin Hills = Hills of the Sparrows

In some cases we use either the Russian name or the English translation. For example, Narkomtiazhprom is the House of Heavy Industry.

Regarding abbreviations, the most frequently used are:

- VSNKh = Vysshiiy Sovet Narodnogo Khozyaystva. Superior Soviet of the People's Economy = VDNKhAll - Russia Exhibition Centre.
- CMEA Council for Mutual Economic Assistance
- OSA = Organization of Contemporary Architects
- Vkhutemas = Higher Art and Technical Studios
- MKAD = Moscow Automobile Ring Road
- MGU = Moscow State University

## Methodology

*"For the interpretation of Russian Architecture of this period, other methodological means are necessary."* V. Paperny

## Sources

The method taken has been that of contrasting sources of different types, from archive documents, specialist libraries, personal visits to buildings, and attending conferences, to interviews with eye-witnesses, historians and great connoisseurs of the subjects dealt with here. More recent and informal publications that have a freshness often lacking in those from the Soviet era are also included.

Given that Soviet architectural magazines were supervised by the government and had a certain propagandistic character, these must be treated with some caution. Their content is best contrasted with other sources, where possible with the memoirs and testimonies of people who were first-hand witnesses to the facts.

The history of Soviet architecture and urbanism was sometimes pre-written, sometimes written in parallel and on other occasions modified a posteriori. A curious example of these documentary modifications is a 1949 painting by D. Nalbandian. In the painting, Laurenti Beria is seen at a table between Stalin and other political leaders as they discuss urban issues. However, there are other versions of the painting in which Beria does not appear. This omission is clearly related to the construction of the Zaryadye high-rise building, which was dedicated to Beria. Before he was executed in 1953, Beria had ordered the height of the building to be modified to ensure that it would be the highest of all the administrative tall buildings of Moscow.

One must also exercise caution with other first-hand sources, such as the autobiography of W.K. Oltarzhevsky, as it was written and signed during the Stalinist period but some obvious mistakes suggest that it was dictated rather than written by the man himself. Nonetheless, this document is of incalculable value for the reconstruction of his American experience and his participation in the construction of the first Soviet skyscrapers.

Added to the government's control of information regarding all artistic production is a difficulty gaining access to some buildings such as Novy Arbat Towers and even more common residential buildings such as the Yugo-Zapadnaya P4 Towers. These structures are considered to be strategic infrastructures and access to their documentation is still restricted today.

## Activities

A guided visit to one of the high-rise Stalinist buildings as part of the Stalin Skyscrapers Tour organised by GARAGE Art Centre.

## Archives

The most visited archives were: the photographic archive, library and collection of the Shchusev State Museum of Architecture (MUAR); the library of the State Institute of Architecture and Engineering (MARXi); the National Library (previously the Lenin Library (IMIA)); the archives library of VDNKh Park; the Institute of Technology Library; (...) and the private archive of the Dushkin family.

## Interviews

The following people were interviewed: Natalia Dushkina (granddaughter of the architect and engineer Alexey Dushkin); Vladimir Shukhov (great-grandson of the engineer V. Shukhov); Vladimir Paperny (author of the book Architecture in the Age of Stalin. Culture Two); Nicolai Kruzhkov (author of the book The Skyscraper's of Stalin's Moscow); Marina Khrustalova; Eugene Asse; Sergey Sitar; Nicolai Vassiliev; Yulia Ratomskaya; Maria Ametova; Irina Chepkunova; Maria Kostyuk; Kirill Posternak; Denis Romodin; and Yury Grigoryan.

## Exhibitions

Several exhibitions were visited, of which the following stand out: "Architect of Power: In Commemoration of the 120th Anniversary of Boris Iofan's Birth" in the Shchusev State Museum of Architecture; "Building the Revolution: Soviet Art and Architecture 1915-1935," commissioned from Jeremy Dixon; "Vertical Moscow," photo exhibition of Italian photographer Gabriele Basilico curated by Umberto Zanetti; "Le Corbusier. The Secret Laboratory: between art and architecture," in the Pushkin Museum, curated by Jean-Louis Cohen; "Big Moscow. 20th century," in the Shchusev State Museum of Architecture.

## Conferences

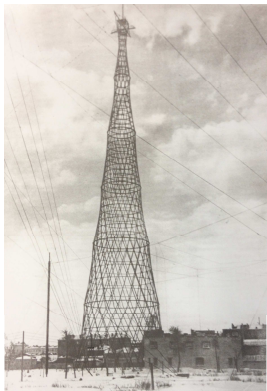
Two conferences by Denis Romodin were attended, the first entitled "The Moscow Red Gates Administrative Building" and the second, "Microraion."

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**“Rings”**

**“Revolution”**

**“Steel”**

**“Ziggurat”**

**“Ensemble”**

**“Empty-box system”**

**“Protection”**

**“Beauty”**

**“Monument to Lenin”**

**“Alternative”**

**“Monument”**

**“Conversion”**

**“Prototype”**

**“Height”**

**“Propaganda”**

**“Monumental tower skyscraper”**

1896 - The first Shukhov water tower in Nizhny Novgorod

1911 - Two-section tower in Yaroslavl

1917-32 K. Alabian- main architect of Moscow

1919 - Redevelopment scheme, I. Zholtovsky, garden-structure

1919 - Tatlin's first tower model

1919 - 1922 - Shukhov tower

1922 - VSKHN tower Kfrinski

1923 - New Moscow, A. Shchusev

1923 - Competition entry for Palace of Labor by Vesnin brothers

1924 - Proposal project by Vesnin brothers for Lenigradskaya Pravda

1924 - 1925 Horizontal skyscrapers by Lissitzky

1925 - Proposal project for competition of Lenin's mausoleum by S. Kolotov

1925 - Tatlin's tower second model. (Paris exhibition)

1924 - 1930 Lenin's Mausoleum

1924 - Abstract assignment on revealing vertical dynamics VKHUTEMAS/ Nikolai Ladovsky's studio

1926 - Izvestia newspaper print shop pre-graduation design VKHUTEMAS

1927 - Institute on Vorobiev hills I. Leonidov

1927 - Proposal projects for OSA competition of new type of housing

1927 - 1930 Three- and Five-tier gridshell power line pylons near Moskva River

1928 - 'New city' T. Vorentsov

1928- N. Kraslinikov (Diploma project)

1929 - Monument of Christopher Columbus in Santo-Domingo N. Ladovsky

1929 - Building of Komintern G. Kocher

1931 - Competition for Palace of the Soviet

1932-1934 V. Semenov - main architect of Moscow

1934 - Narkomtiashprom House by Vesnin brothers

1934 - Palace of the Radio in Miuskaya Square

1934 - Narkomtiashprom House I. Leonidov

1934 - Final proposal of Palace of the Soviet. B. Iofan

1934 - Palace of the Radio (Radio House) A.N. Dushkin

1934 - A.G. Mordvinov, K.I. Solomonov

1935-1941 S. Chernishev

1935 - Master Plan of Moscow

1939 - Project of USSR pavilion for International Exhibition in New York

1941 - The structure of Palace of the Soviet is dismantled

1945 - 1949 D. Chechulin - main architect of Moscow

**“Synthetic form”**

**“Timelessness”**

**“Lightness”**

**“City-gates”**

**“Propaganda”**

**“Monument”**

**“Conversion”**

**“Prototype”**

**“Height”**

**“Monument to Lenin”**

**“Alternative”**

**“Monument”**

**“Conversion”**

**“Prototype”**

**“Height”**

**“Propaganda”**

**“Monumental tower skyscraper”**

1913 - Malevich exhibits his painting "Black square"

1914 - V. Tatlin travels to Paris and visits Picasso's studio

1917 - The Great October Socialist Revolution

1923 - New plan of Moscow is published

1924 - Lenin's death

1924 - V.K. Oltarzhevsky's trip to New York

1924 - Oltarzhevsky arrives to New York

1925-27 Works in the architecture office 'Helmie and Corbett Architects'

1926 - Collaborates in the office building for Pennsylvania Power & Light Co. (PP&L) in Allentown

1926 - Commissioned by the committee of the government of USSR in NY

1926 - Architectural design of Dnieprostroi

1927 - Sketch for Corbett's article 'The City of the Near Future'

1927-29 Main architect of the resort hotel Royal Pino

1928 - In June he gets the title of architect by the State University of New York

1928-29 Collaboration with Corbett, Harrison and MacMurray at the competition Monument of Cristobel Columbus in Santo Domingo.

1928 - International competition for invitation. Complex and Square in FACHA (Paris)

1928 - Fire security problems in high-rise buildings in USA

1929 - 1933 Great Depression

1930 - Commercial building and housing in the suburbs of Hall III

1931-34 Works in the architectural office of Harrison

1932 - Stalin «Manifesto». («On the reconstruction of literary-artistic organizations»)

1933 - Projects Hotels in USA. 1933. 'American technology and Industry'

1934 - Iofan, Shuko and Gelfreigh travel to USA

1934 - Standard municipal ambulatory, Article and Project

1934 - Raione, Relaxation centre and entertainment. Article and Project

1935 - Speech of B. Iofan

1935 - V.K. Oltarzhevsky returns to Moscow

1930s - Khrushchev personally supervise all the stages of the construction's transfer to precast concrete and working of industrial panels

1939 - The beginning of II World War.

1941 - 1945 Great Patriotic War.

1943 - Germans fail to take Stalingrad; The beginning of the end of the II World War

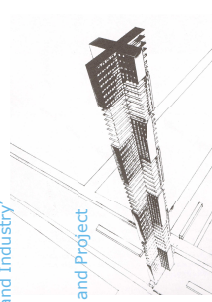
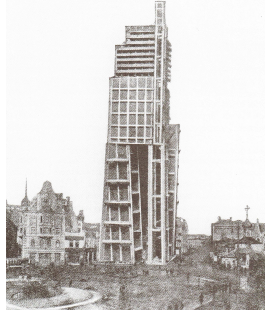
1943 - V.K. Oltarzhevsky leaves the labor camp in Vorkuta

1947 - The beginning of Cold War.

1947 - Celebration of 800 years since the foundation of Moscow and first stone of 8 tall buildings.

1948 - B. Iofan is dismissed from MGU project

1949 - Soviet Union explodes its first atomic device



# Towers

- 1950—1955 A. Vlasov - main architect of Moscow
- 1952 - Red Gates Administrative Building
- 1952 - Kotel'nicheskaya Embankment Apartments
- 1953 - the main building of the Moscow State University
- 1953 - Zaryadye Administrative Building
- 1953 - The Ministry of Foreign Affairs
- 1954 - The Kudrinskaya Square Building
- 1954 - The Hotel Leningradskaya
- 1955-60 I. Loveyko - main architect of Moscow
- 1956 - Noviyе Chereмуshki microrayon
- 1957 - Hotel Ukraina
- 1957 - Technical general plan of Moscow
- 1958-62 First prefabricated 8-9 story towers
- 1960 - The foundation of the Palace of the Soviet is recycled into an open-air public swimming-pool
- 1960-1980 M. Posokhin - main architect of Moscow
- 1962 - Brick tower
- 1962-72 Smirnovskaya brick tower
- 1962-72 Moskvoretskaya brick tower
- 1962 - Towers of Noviy Arbat
- 1965-82 IMG-601J
- 1969 - Towers of Prospekt Vernadskogo
- 1972-77 Lebed
- 1967-86 Vuliikh brick tower
- 1967 - Ostankinskaia tower
- 1971 - General Plan of Moscow, M. Posokhin
- 1966-92 - KMS-10J
- 1973 - P4
- 1974-94 - I-521A
- 1976-84 - Tishinskaya brick tower
- 1977 - I-721A
- 1980—1987 G. Makarevich - main architect of Moscow
- 1981 - Universal construction system, KOPE
- 1987—1996 L. Vavakin - main architect of Moscow

● **“Self-sufficient unit”**

chchevka tower

brick tower

● **“Experemental housing”**

● **“System of towers”**



● **“Vertical quartal”**

● **“Density”**

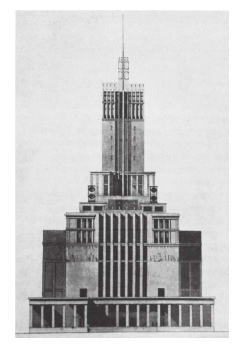
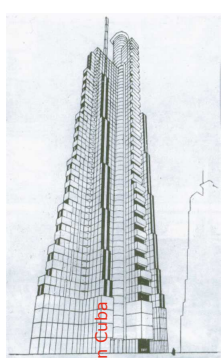
● **“Russian pattern”**

- 1953 - ‘Construction of Tall Buildings in Moscow’ is published (V.K. Oltzharjerskiy)
- 1953 - The death of Stalin. Khrushchev was elected as the First secretary of CC of C.P.S.U.
- 1954 - Khrushchev’s «Manifesto»
- 1956 - Khrushchev makes a secret speech to the 20th Communist Party congress denouncing Stalin’s dictatorial rule and cult of personality
- 1956-66 In ten years more than 108 million people moved into their new homes
- 1957 - Launch of the artificial Earth satellite
- 1961 - Y. Gagarin, the first human to journey into outer space
- 1962 - Cuban missile crisis erupts over presence of Soviet missiles in Cuba
- 1964 - Khrushchev is replaced as first secretary of the Communist Party by Leonid Brezhnev
- 1965 - The enactment aimed at densifying the already constructed areas
- 1980 - Games of the XXII Olympiad in Moscow
- 1982 - The death of L. Brezhnev, Y. Andropov is elected as First secretary of CC of C.P.S.U.
- 1985 - M. Gorbachev is elected as First secretary of CC of C.P.S.U.
- 1989 - The beginning of economical crisis in USSR
- 1991 - The crash of USSR

● **“Reflection”**

● **“Illusion”**

# Palace



● **“Intersection”**

Blue - W.K.Oltzharjerski in USA

Red - Historical events relevant to the USSR

Black - Projects carried out during the Soviet era in Moscow

Grey - Projects not carried out of the Russian Avant-Garde between 1920 and 1940

# Panel block tower

## ABSTRACT

Esta tesis deriva del interés, contradicciones y desorientación que suscitó en mí durante las primeras visitas a Moscú. Con la única intención de entender la realidad arquitectónica de la ciudad inicié su estudio, hasta llegar a la conclusión de que era necesario adentrarse en su pasado para entender la realidad actual, especialmente la etapa soviética que es un hecho sin precedentes y de naturaleza experimental.

El recorrido no fue lineal. Primero quedé atrapado por la serie de edificios altos estalinistas, con su magnetismo visual y una energía encantadora. La raíz de los rascacielos soviéticos nos lleva al omnipresente Palacio de los Soviets, un proyecto que a su vez guarda una estrecha relación con otros proyectos utópicos anteriores como la propuesta de V. Kolotov y S. Agafonov para el Mausoleo de Lenin y el Monumento a la III Internacional de V. Tatlin. Una vez en este punto lo más interesante, además de las torres en sí, fue las relaciones reales o ficticias que se podían establecer entre ellas.

la torre, expresión arquitectónica del ideal soviético (1918 -1991)

Esta tesis es una mirada retrospectiva de la Moscú Soviética contada a través de sus torres. El ideal comunista es un fenómeno socio-político que se prolonga durante siete décadas en la URSS. La arquitectura, al igual que el resto de expresiones artísticas, expresa esta ideología. Con la idea de analizar esta evolución, se ha elegido la torre como la tipología que mejor cataliza los cambios que acontecen durante este tiempo.

La torre de acero y cristal de V. Tatlin (1919) fue el símbolo elegido para expresar la victoria de la Revolución Bolchevique. Con ella una cultura nueva estaba naciendo. La torre era el instrumento que expresaba el sentir de la masa social y que, al igual que el comunismo, era la maqueta de una realidad que estaba todavía por construirse.

A medida que se desarrolló la cultura socialista rusa, la arquitectura fue cediendo en su dimensión simbólica y ganando contenido funcional. Podemos decir, de modo figurado, que la joven, soñadora, singular, bella y dinámica torre de los años veinte se va transformando progresivamente en una torre realista, pragmática y plural, hasta alcanzar su madurez en los años ochenta.

Con esta secuencia numérica se sintetiza una visión de la arquitectura de Moscú durante la época soviética expresada a través de sus torres. Una realidad que es la esencia de la Moscú actual.

El continuo proceso de cambio en la historia de la arquitectura de la torre soviética se puede interpretar como la mutación de una torre ideal que se adapta al contexto político, social y cultural. También se puede interpretar como una secuencia de varias torres diferentes que entre todas construyen la imagen arquitectónica de este período.

Esta tesis ofrece una mirada retrospectiva de Moscú expresada en tres etapas: 1-8-∞. Cada término va asociado a un tipo de torre diferente, construida o proyectada, que componen una fórmula que sintetiza la evolución arquitectónica de la época soviética en Moscú.

La Torre-Monumento (1)

Simboliza el poder central, el hito superlativo, la cima de la pirámide social socialista. Es el sueño en estado puro.

El edificio alto administrativo (8)

A medida que pasa el tiempo la ilusión necesita ir alimentándose también de realidades, y esto explica la transición de la vanguardia al realismo socialista. El ocho es un número representativo asociado a la serie de rascacielos horizontales de El Lissitsky y a los edificios altos estalinistas de Moscú. Una visión más urbana y orgánica de la torre Monumental.

La Torre prefabricada (∞)

A partir de la llegada de Khrushchev al poder (1954-55) se da un giro definitivo hacia la política de masas. La protección ya no viene de la mano de torres simbólicas y monumentales sino de una serie infinita de torres prefabricadas. Esta nueva torre de viviendas sociales se convierte en la nueva ilusión del pueblo comunista pensada para dar cobijo a toda la Unión Soviética.

Esta doble interpretación de la torre comunista como Monumento o como contenedor social fue anticipada por Tatlin ya desde el principio de la etapa soviética: *"The modern monument must reflect the social life of the city; moreover, the city itself must live in it."*<sup>(1)</sup>

1. Wolfe, R. *Tatlin's tower* [blog]. March 24, 2015. Disponible en: <http://thecharnelhouse.org/2015/03/24/tatlins-tower/>



## INTRODUCTION

This thesis was born out of the personal need to get to know Moscow after several short visits, and out of a permanent sensation of confusion and disorientation brought on by the city and accentuated by an unknown culture and language. Many urban aspects of Moscow are shared with other European cities. For instance, Moscow is another radial city, with the Kremlin at its centre and long avenues that reach out to the periphery. However, its immense scale, the way in which the buildings from different eras and styles are mixed, and the exaggerated difference between the centre and the periphery make Moscow a completely unique city.

The focus on the Soviet era is due to the fact that it was an experimental phase, unique and unrepeatable, that lay down the essence of the Moscow we know today. In the Medieval period, Moscow was little more than the Kremlin, which had survived numerous sackings, rebellions and popular revolts. After the invasion of Napoleon in 1812, the city was destroyed and it wasn't until 1918, after the Bolshevik Revolution, that Moscow once again became the capital of Russia. Then, in just a few decades, Moscow would undergo the greatest transformation in its history.

The study of Moscow during the Soviet era is undertaken through the study of an architectural invariant that enables a continuous retrospective look: the tower. Historically, the tower has been a medium for governments to express their power, and the Soviet Union utilized it as a tool to represent the Soviet ideal. This text presents a fictitious tower that serves as a guiding thread through all chapters of the Soviet age, chapters that are usually told separately - avant-garde, Socialist Realism and Post-Stalinism. This fictional tower is the Soviet Tower of Moscow, which is one and several at the same time: one with regards to the message it propagates and represents, and several because they are the forms that it adopts depending on the context in which it is developed. The form of the towers evolve from monument to skyscraper to palace to high-rise building to prefabricated tower but all forms serve the purpose of representing the Soviet ideal. Some of these towers did not materialize further than the paper on which they were designed, others were not finished, and still others found completion. All of them reconstruct the irrefutable image of Soviet Moscow, which is the essence of the city we know today.

Moscow, standard-bearer of the Soviet Union, reacted to capitalist and foreign phenomena - first to Paris and its Eiffel Tower, when the city was the centre of arts and culture; then later to the USA, when the Beautiful City Movement began and skyscrapers were built, with New York playing a predominant role at the beginning of the 21st century. The



USSR also looked to Europe, trying to imitate the beauty of its Gothic cathedrals and the sensuality of Mediterranean towers, as well as other preceding cultures like Egypt, Greece, Rome and even Babylon.

The thesis is structured with three large chapters: 1-8-∞. Each chapter corresponds to a large block of Moscow's Soviet history and is identified with a different type of tower: the first with a monumental tower (1); the second with an ensemble of high-rise buildings (8); and the third with an infinite multiplication of the prefabricated tower (∞). This formula represents a kind of disintegration of the Soviet dream, where there is a transition from the symbolic and monumental tower to the more pragmatic tower that serves as a social container.

1

In the first chapter, the tower is a dream in a pure state that surpasses the Eiffel Tower in height and beauty. Two versions appear, one by Tatlin, Utopian and visionary, and the other, by V. Shukhov, realist and pragmatic (1922). Next arise a multitude of alternatives and prototypes to the American skyscraper, in particular, the projects developed in the Ladovsky studio (Vkhutemas), which together represent a single Utopian experimental tower that unifies the ideas expressed in the project by V. Krinski (1922-1923), the VSNKh skyscraper (1924-1925) and the tower for the Christopher Columbus Monument competition in Santo Domingo (1929). Two examples of reaction to the foreign movement are the buildings of the headquarters of the newspaper *Leningradskaya Pravda* (1924), which represented the Chicago Tribune building, and the ensemble of towers by Leonidov for the Heavy Industry building (1934), which was designed in parallel to the construction of the Rockefeller Center in New York.

In the 1930s the new Soviet icon was to be the Palace of the Soviets (1934). It was going to be a mix of steel monument tower and skyscraper, a tower that would replace, both physically and symbolically, the Cathedral of Christ the Saviour in Moscow. The Palace of the Soviets was a continuation of the idea of the Monument to Lenin, an idea that began with the competition of the Lenin Mausoleum in 1924, where many proposals were true prototypes of the definitive image of the Palace of the Soviets. The abandonment of the Palace of the Soviets was triggered by the German invasion of the Soviet Union in 1941 and signified the demise of the "monumental tower."

When the architects of the Palace of the Soviets returned from their trip to the United States, B. Iofan, in a speech in 1935, proposed the need to construct a series of high-rise buildings (to accompany the Palace of the Soviets.) This was an idea already proposed by El Lissitzky in 1924, to place a series of eight horizontal skyscrapers around the Kremlin. Both suggestions reinterpret the function of the Medieval arches of the city.

The USSR relaunched a campaign of monument propaganda after the Second World War, a Soviet renaissance that materialized in the construction of Moscow's high-rise buildings (1949-54). Thus the city's skyline was recovered, lost to bombings in the war and numerous demolitions caused by the persecution of the Orthodox Church.

These high-rise buildings were a type of new Kremlin whose towers no longer protected against attacks from the ground but from the air. It was the beginning of the Cold War. The city's architecture was affected by this military tone, with bunkers appearing in building foundations and administrative buildings laid out in a scattered design to protect against a possible enemy attack.

∞

The industrialization of architecture and prefabricated construction reappeared at the end of the Stalinist period, after the experiments of the 1930s. The high-rise buildings meant an advance in prefabricated construction, used in the residential buildings of Moscow State University and suggested by W.K. Oltarzhevsky for the floor structures and facades of the Hotel Ukraina. These facts confirm that, with political change, a cultural transition comparable to the beginning of the 1930s was brought about.

It was Nikita Khrushchev who, with his 1954 manifesto, would impose standardization, the new formula of Communism that would be maintained until the end of the Soviet era. Monumental architecture, which protected the people through towers empty of content but full of meaning and symbolism, was left behind for a social architecture that would house all the people of the Soviet Union and provide a physical protection. The typical, five-storey "Khrushchyovka" buildings of social housing were accompanied by towers of eight, nine and twelve floors, which, together with the other administrative buildings of lesser height, formed neighbourhoods that were repeated again and again. The towers built through prefabricated panels were combined with those made of brick that appeared more noble to the Soviet elite. In

the 1970s and 1980s industrialization was accelerated and different types of towers appeared, in particular the P4, I-521-A, I-700-A, Lebed, 1-MG-601 and KMS. The search for the perfect construction type culminated in the conception of the KOPE system, which offered optimal versatility and economy. In this last stage, the 22-storey KOPE tower was the maximum architectural expression of the Soviet ideal.

Ultimately this thesis is an interpretation of Soviet Moscow through its towers, and hopes to complete the perception that Muscovites and foreigners have of the Russian capital. An equal importance has been given to construction projects and the transition from dreams to realities in order to reconstruct an urban ideal.

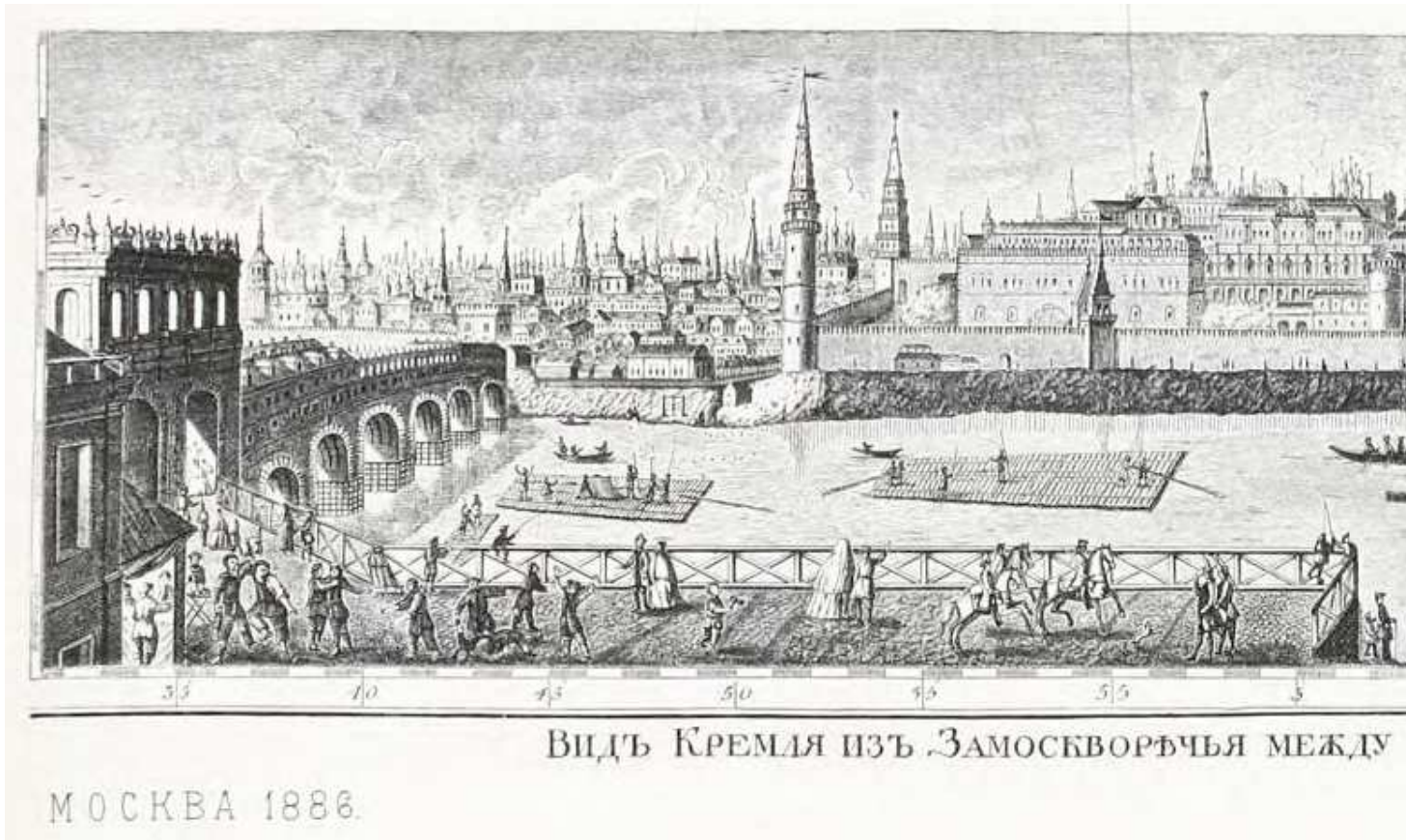
Besides this text, a catalogue of Soviet towers and a series of maps that depict different types of prefabricated towers are included. Connections are made between different eras, whether Avant-Garde, Socialist Realism or Post-Stalinism. The origin of the series of Moscow high-rise buildings is analysed, as well as their parallelisms, divergences and points of contact with the North American experience. And ultimately, the continuity and transformation of the Soviet tower is justified, whether in the form of a steel tower, a monument, a skyscraper, a palace, a high-rise or a prefabricated tower.

The Soviet tower is one single tower and several at the same time. It begins being young, dreamy, central and singular, and ends up being a mature, pragmatic, peripheral and plural tower. A mutation that is like life itself, which begins at 17 and ends at 91. A tower that endures a process of natural decomposition, synthesized in the expression  $1-8-\infty$ .

**Figure 1. 1.** Radial urban structure of Moscow (19th Century). In the bottom left corner you can see the Cathedral of Christ the Saviour, destroyed in December 1931 and rebuilt after the Communist period. In the centre of the picture is the Kremlin, and just above, at the intersection of Garden Ring Road with Sretenka Street is the Sukarev Tower, destroyed in 1934.







## ORIGIN

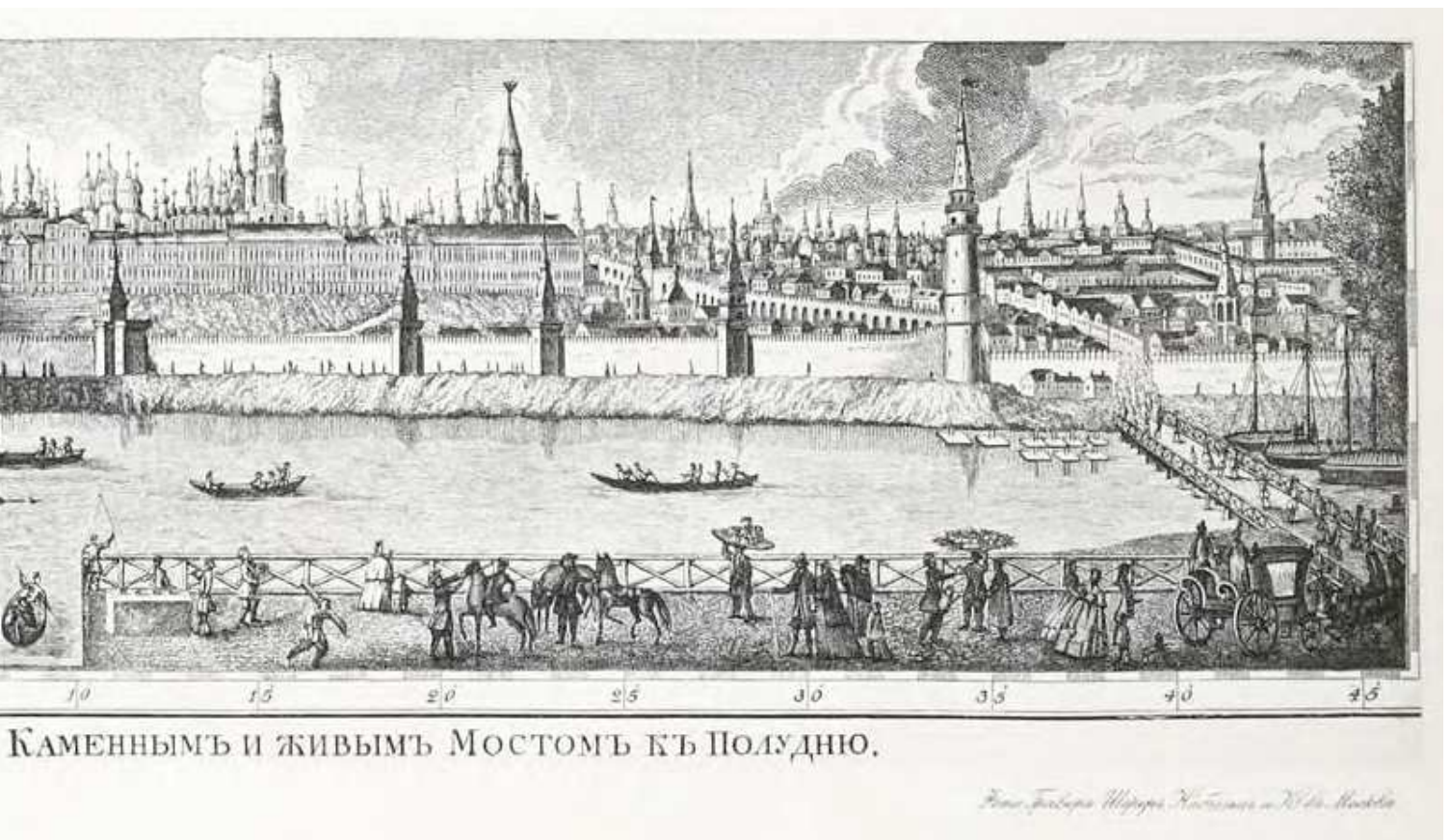
### MOSCOW

The first reference to Moscow as a city appears in 1147, when the Rurikid prince Yuri Dolgorukiy hosted a banquet at his country estate. In 1156 this estate was encircled by a palisade, and known as "the city"<sup>(2)</sup>. At the end of the 12th century a walled fort was built around the colony of merchants and craftsmen who were congregating in Moscow. In 1339 the walls and towers were built with oak. From 1344 to 1346 all the churches were decorated with icons and frescos. In just two years, under the orders of Prince Dmitri Donskoy, a gigantic fortress of white stone comprised of nine towers was constructed.

The Kremlin was Moscow. A city made up of cathedrals, a tall tower, administrative buildings, a square, defensive walls and towers, not forgetting the suburbs located outside the wall. The monument complex of the Kremlin was the architectural aesthetic model and the hallmark of Russian identity during this period.

The Kremlin represents the traditional city and is the template for the many Kremlins built in other Russian

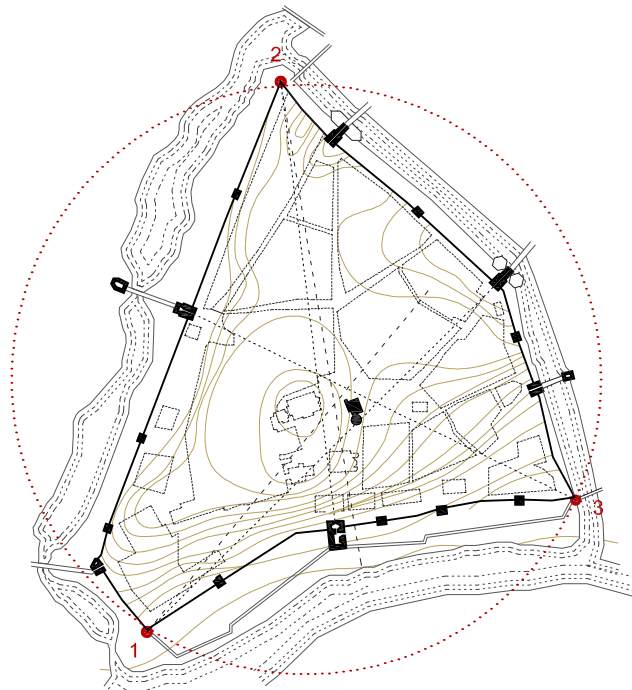
2. In the chronicles, in 1147, the prince Yuri Dolgoruky, sent to his guest: "Come to me, brother, in Moscow.". *Complete Collection of the Chronicles of Russia*, ed. Archaeological Commission, Vol. II, St. Petersburg, 1843, p.29.



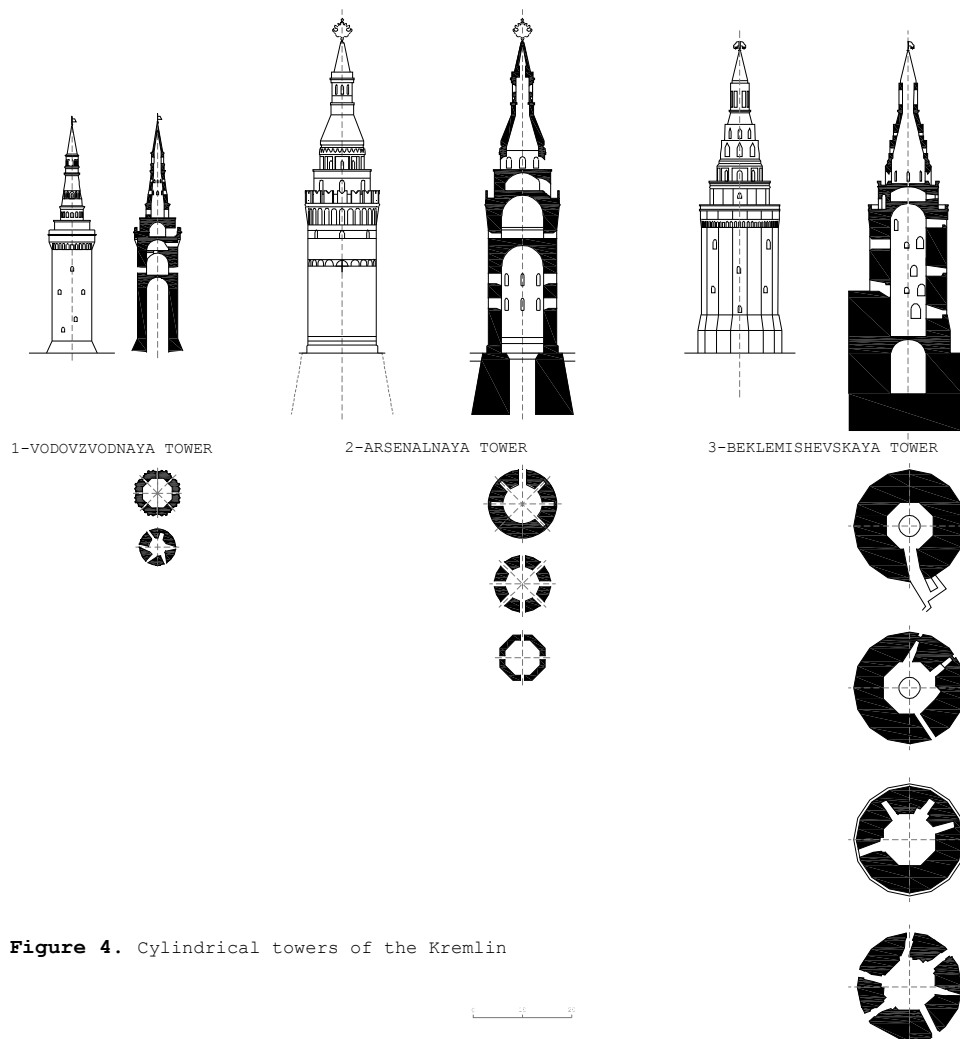
**Figure 2.** View to Kremlin from Zamoskvorechie between Kamenniy bridge and Jivoy bridge. Moscow 1886

cities. Its frame was built in the year 1150 and its name comes from the word *Кремль*, which means "wall", and refers to the idea of a walled city.

Moscow occupied a very favourable geographical position in the territory of old Russia, emerging between zones of coniferous forest and of deciduous trees. To the north there were great swathes of land full of pines and firs, which supplied wood to the people and was the main material used for construction. The Kremlin hill was covered in conifers, or "bor" in Russian, and provided inspiration when different places in the city were being named - the Borovitskiy gate of the Kremlin, the Church of the Saviour on Bor.



**Figure 3.** Location of the cylindrical towers of the Kremlin, inscribed in an imaginary circle whose centre is the tower of Ivan the Great and whose radius is about 600m.



**Figure 4.** Cylindrical towers of the Kremlin



## THE GEOMETRY OF THE KREMLIN

The Kremlin is built upon land saturated with water and with numerous underground rivers. This factor determined the nature of its architecture, particularly the construction system of its towers.

### Triangle

The Kremlin structure is situated between the River Moskva and the River Neglinnaya. In 1508, both rivers were joined by a small canal, as a means of protection for the city. The resulting walled infrastructure was essentially an equilateral triangle, a system of geometry that minimised the material resources needed for building.

### Cylindrical Towers

The distance between the towers was mainly determined by the maximum effective range of archers. Defensive function determined the majority of decisions regarding the Kremlin and therefore its geometry.

The towers located at the corners of the Kremlin were among the tallest of the buildings. Their cylindrical geometry enabled 360° views and gave them greater structural stability. Moreover, the cylinder is the optimal form for accommodating water wells, a strategic element of medieval defensive structures, and is precisely what gave one of the towers its name, "Vodovzvodnaya" (Water Tower.)

### Octagonal Towers

In 1329 the first bell tower of the Kremlin was erected, the Church of Ioan Listvichnik of the Bells. This church was destroyed at the beginning of the sixteenth century and replaced by another that would take the name of Tsar Ivan the Great, having been built in his memory. In 1600 two new sections were added to the original tower, giving it its current height of 81 metres and making it the tallest tower in Russia for more than three centuries.

The tower has kept its octagonal form inherited from the traditional wooden tower known as "Vosmerik" (from the word "vosiem" which means eight), which was constructed with a double square of logs placed one above the other and angled at 45°.



**Figure 5.** This image was sent to me by Marina Khrustaleva, accompanied by the following text: «I found this picture in the Museum of Contemporary Russian History (former Museum of the Revolution), at its branch at the Krasnaya Presnya devoted to the 1905 riot. It is entitled "Social Pyramid", printed by the "Russian Social-Democratic Union" in Genoa in 1901. Notice that the worker holding the flag is encouraging the people without status to topple the social pyramid.

From top to bottom it reads:

We govern you  
 We lie for you  
 We fight for you  
 We feed you  
 We work for you

CHAPTER 1  
THE MONUMENT TOWER (1)



## REVOLUTIONARY STEEL TOWERS

The Monument to the Third International and its later counterpart the Palace of the Soviets were the maximum architectural expression of a series of monument propaganda campaigns. Lenin instigated the first monument-tower after the victory of the Bolshevik Revolution in 1917. From then on other towers were designed that fulfilled the concept of the superlative, central and monumental tower, envisaged as icons of Communism.

## SYNTHETIC FORM

The Leninist monument-building is based on the construction of immense buildings whose function was to satisfy all public needs and whose architectural style had to be contemporary. In addition to communal necessities, the building also had to include intellectual and cultural space, restaurants and gymnasiums, living spaces, and so on. The idea was to offer all of these services under a single roof through the synthetic form of a single building and not groups of buildings.

The second monument campaign, begun by Stalin in 1931 with the competition for the Palace of the Soviets, maintained the idea of the monument building but abandoned the avant-garde and introduced neoclassical architecture (socialist realism).

The last version of this monument tower ended with the abandonment of the construction of the Palace of the Soviets in 1941.

This was then superseded by the creation of the Moscow high-rise administrative buildings, a transition that represents the move away from the synthetic-form central tower to a series of towers on the periphery, here expressed by the sequence 1-8.

Nevertheless, in all of the high-rise buildings each of the towers retains the essence of the monument-building. This can be clearly appreciated in the University of Moscow (MGU) complex, which is an ensemble of buildings of different heights that work as a united whole. The central tower replaced the Palace of the Soviets in symbolism, perpetuating the iconographic meaning of Stalinist architecture.



**Figure 6.** Design for Victory Over the Sun opera. System Theater. Version of the stage installation.



**Figure 7.** Arch. V.E. Tatlin The project of monument to III International. Section 1919-1920

\* "(...)Only the organization of the masses can drive new art; for this reason, the works of art of the revolution must spring from the spirit of collectivism. Therefore the monument-machine has practical ends and is composed of three enormous sections of glass. These sections are vertically positioned, one above the other, and surrounded by various frameworks that harmonize with each other. Thanks to a special mechanism, it is maintained in constant motion, but each one at a different speed (...)." (3)  
V. Tatlin.

## MONUMENT TO THE THIRD INTERNATIONAL

Mayakovsky said that art was the engine of a revolution still to come. Therefore, the Tatlin Tower is a work that must be seen within the portfolio of works that the artist produced between 1913 and 1920, a creative process that gestated parallel to the Russian Revolution.

The artistic process that Tatlin developed originated in Paris, specifically when he visited Picasso's studio and where the artist was captivated by the social and representative dimension of "The Guitar" (1913). On returning to St. Petersburg Tatlin abandoned painting for good and embarked on a path of sculpture and construction - reliefs and counter-reliefs - that culminated in the model of the Monument to the Third International (1919-1920).

The success of the revolutionary movement spelled the end of tsarism and the power of the Orthodox Church, marking a turning point in Russian history. This victory needed symbols that expressed the values of the new revolutionary culture. The Monument to the Third International became the principal reference point of Lenin's campaign of monuments, with A. Lunacharsky at the helm.

V. Tatlin was the architect chosen to create a monument to the revolution. He devised a structure of steel and glass\*, at once sculptural and architectural, that exceeded the Eiffel Tower in Paris in height, dynamism and beauty. Once built, the 400-metre high building would be the tallest tower in the world and would house the central headquarters of the Communist Party.

*\*\* "In December 1919 the project was finished and a committee of experts made up of architects and engineers confirmed that modern technology absolutely allows the possibility of constructing such a building as this." However, in the opinion of others, this tower remained a mere utopia. "Of course it is self-evident that this monstrous "baroque" product does not offer any possibility for constructive realization. Those who saw the models at the Paris exhibition in 1925, could take note of that fact for themselves."(4)*

The tower designed by Tatlin was a composition that incorporated the best of contemporary and antecedent towers: it was one tower and several at the same time. The design integrated the spiral characteristics of the Tower of Babylon, the iron lattice framework of the Eiffel Tower, the formal dynamism of the tower of the Tataev Cathedral in Russia.

However, his model was only five metres high. On this path between sculpture and architecture lies the argument as to whether there was ever really any intention of building such a tower or whether it was simply a utopian idea.

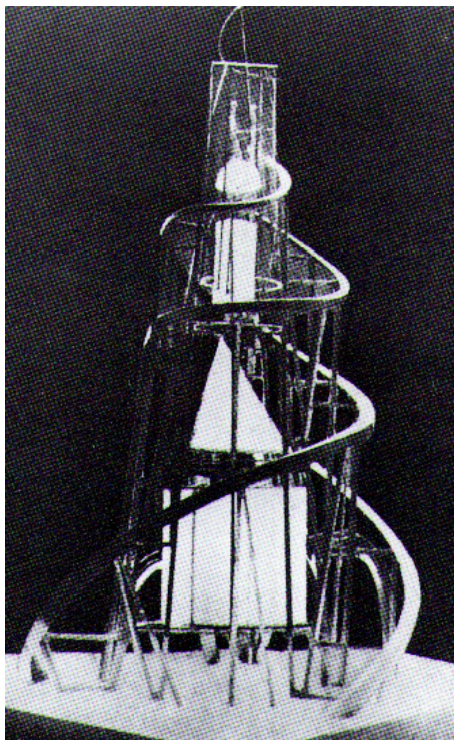
According to some documents, there was no doubt about the fact that this building-structure was ultimately designed for construction.\*\*

3. Feo, V. *La arquitectura en la U.R.S.S., 1917-1936*. Alianza Editorial. Madrid. 1979.

4. Van Doesburg, T. *Utopian designs by Tatlin, Lissitzky, and others*. Het Bouwbedrijf. 1928.



**Figure 8.** V. Tatlin, The model of the Monument to the Third International in the Study of Materials, Volume & Construction, in the Mosaics studio in the former Academy of Arts, Petrograd, November 1920.



**Figure 9.** V Tatlin, Monument to the III International. Second Model, exhibited in the International Exhibition of the Industrial and Decorative Arts of Paris, 1925.



## Model I

In Tatlin's eyes his tower was not only a work of art but also a serious proposal for a building. In December 1919 the project was finished and a committee of experts made up of architects and engineers declared that "modern technology absolutely allows the possibility of constructing an edifice such as this."<sup>(5)</sup>

## Model II

Nonetheless, Tatlin optimised the constructive solution presented in his original version, with a new model made in 1924 for the Paris International Exposition of Modern Industrial and Decorative Arts (1925). The structural decisions that were made advanced the initial symbolic sculpture toward an ever more coherent architectural project.

In the second model the changes were aimed at reinforcing the transparency of the tower, making the presence of shapes floating in its interior more evident. To achieve this effect, he enhanced the structural solution and introduced horizontal steel rings in the lower part of each body, which were joined at measured intervals to the spirals that encircled them.

This improvement may have been influenced by the constructive success of the Shabolovka Tower in Moscow (1922). With this structural decision, Tatlin achieved a lighter and more transparent tower and reinforced the idea of creating an ensemble of towers, adding to the Shukhov Tower to his monumental composition.

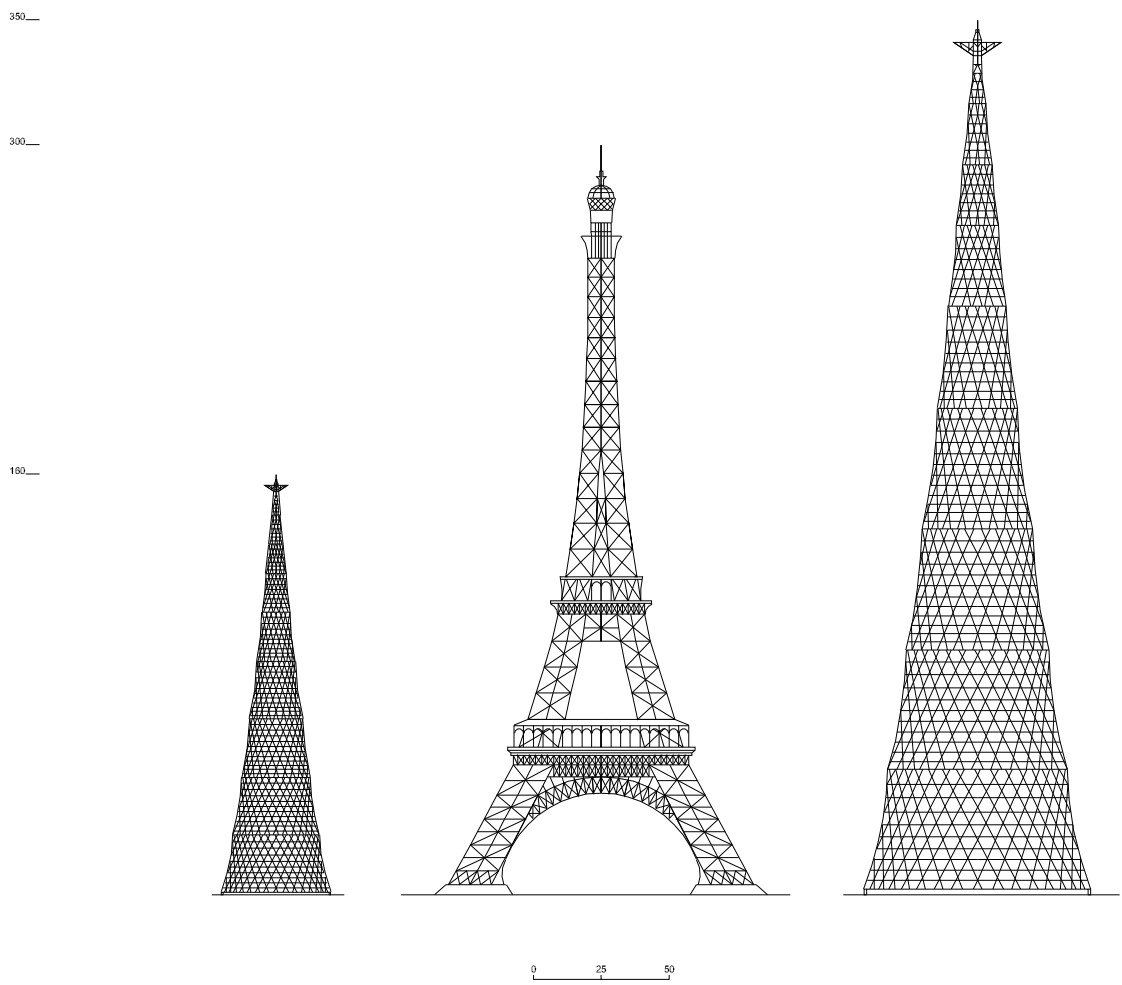
## Petrograd-Moscow

Tatlin started work on the first model of the Monument to the Third International in March of 1920 and it was exhibited in Petrograd on November 8th of that year. Shortly afterwards the model was moved to Moscow, as that city, after three centuries, had once more become the capital of Russia. It can therefore be considered the first Soviet tower in Moscow.

*"The monument is a great construction and should therefore be erected in the middle of an open space. There are those who feel that it should be built in a working-class area, among workshops and factories. Furthermore, it still hasn't been decided if it will be built in Petrograd or in Moscow."*<sup>(6)</sup>

5. Чечулин Д. Жизнь и зодчество // Молодая гвардия, 1978. л.24-25

6. Быков П., Кузмин М. Жизнь искусства. Ежедневная газета № 108 // Отдел театров и зрелищ Комиссариата Народного просвещения Союза комунн Северной области, 1919 л. 210-211



**Figure 10.** Comparing the heights of the Eiffel tower (1889) and the Shukhov Radio Tower (1919). The tower was to be 350 metres high. Moscow. Shabolovskaya str. Radio tower of Komintern. Engineer V.G. Shukhov 1922. Elevation and plan

## SHABOLOVKA RADIO TOWER (1919-1922)

The Shabolovka Radio Tower is an almost simultaneous experiment to the Monument to the Third International. They represent the obverse of the same ideal, and can be interpreted as the dream and the reality of the revolutionary tower.

If the Tatlin tower is a sculptural representation of several towers in one (the Tower of Babylon, the Eiffel Tower, and even the Shukhov tower itself), we can interpret the Shabolovka Radio Tower as the sum of the experience accumulated by Shukhov between 1896 and 1920. In other words, it is a tower that symbolically contains all his previous hyperbolic towers.

The Shukhov tower is a composition of various hyperboloids that are stacked one on top of the other. The origin of this project goes back to the first hyperbolic tower that Shukhov built, which supported the water deposit that supplied the Nizhniy-Novgorod Fair in 1896. After this pioneering experience, Shukhov tried out the idea of superimposing two hyperboloids to resolve the demands posed by a water tower in Yaroslavl in 1911. It was the first compound hyperbolic tower that the engineer built.

When he was commissioned to design the communications tower (1920), he used this same structure but took it to the extreme. The government mandate made it implicit that it must be higher than the Eiffel Tower in Paris. Shukhov planned a 350-metre high tower composed of nine hyperbolic modules. Due to a shortage of steel, the tower was finally built with six modules at a height of 150 metres.

This idea of adding hyperboloid models as a way of saving material and being able to build height without using cranes is a unique technique developed by Shukhov and culminated in the Shabolovka Tower. The evolution of this technique is seen in the following towers - moving from one single tower, to a tower made of two hyperboloids, to a tower comprised of six hyperboloids, and finally an ensemble of hyperboloid towers.

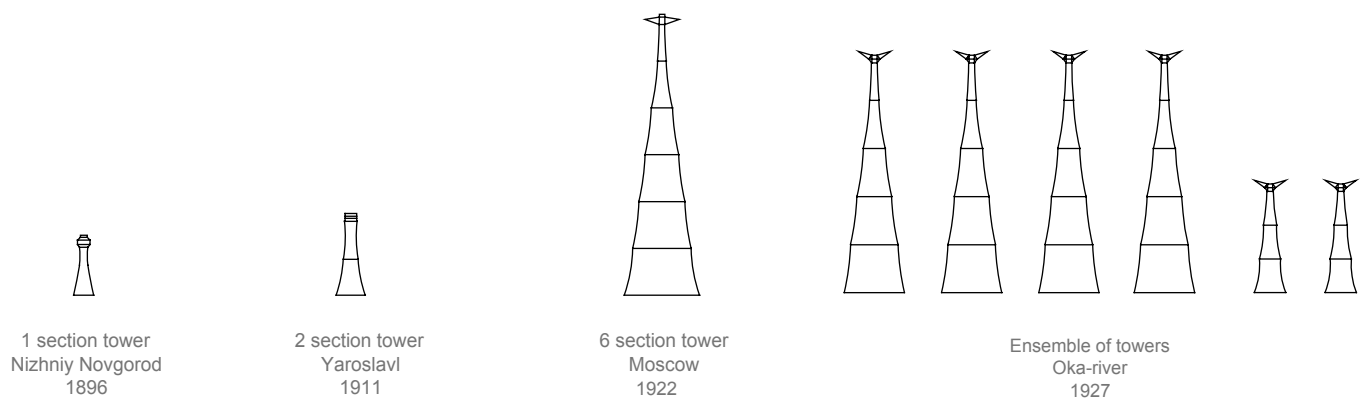


Figure 11. Diagrams on the evolution of the height of the Shukhov communication towers from 1896 to 1927

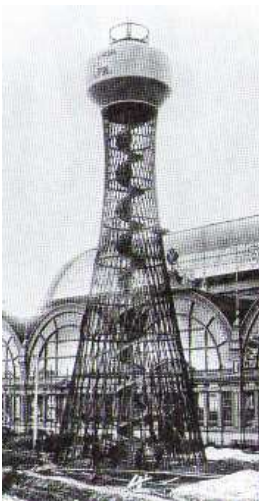


Figure 12. The first Shukhov water tower erected at the 1896 Nizhny Novgorod exhibition: general view, in the construction process. After the exhibition the tower was moved to Polibino near Lipetsk.



Figure 13. Two-section tower (with two tanks) in Yaroslavl, 1911. Design and the construction process.



Figure 14. Six-section Tower. Shabolovskaya str. Radio tower of Komintern in Moscow. General view. Engineer V.G. Shukhov, 1922

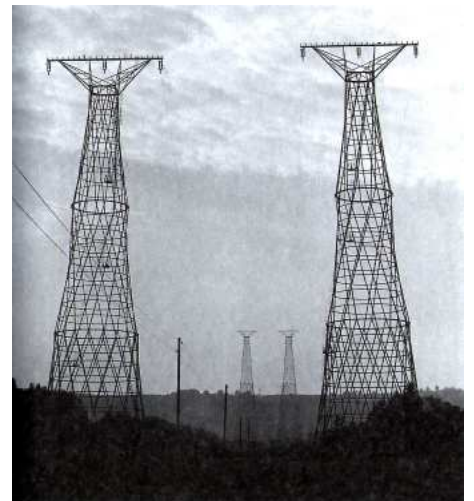


Figure 15. Three- and Five-Tier grids on power line pylons in the Oka River. (69,5 m and 128 m. high). General view. Engineer V.G. Shukhov, 1927

## One Hyperboloid

In 1896 Shukhov built the first hyperbolic tower for the Nizhniy-Novgorod fair, five years after the inauguration of the Eiffel Tower in Paris. Shukhov's tower, unlike Eiffel's, was not decorative, nor was it positioned at the entrance of the fair. Rather, it served to hold the water supply for the fair, located at its centre.

## Two Hyperboloids

In 1911 Shukhov built his first compound tower in Yaroslavl. It consisted of two water tanks each supported by two hyperboloids, stacked one on top of the other. Such an elemental composition was justified in the following way:

"The Nizhniy-Novgorod water tower was the forebear of a whole series of hyperboloid structures. (...) An attempt to obtain as many intersections of the tower lattice pylon angle rods as possible in order to increase the strength while using the least [amount of] material led Shukhov to the idea of designing a tower made of two hyperboloids of revolution, one on top of the other".<sup>(7)</sup>

## Six Hyperboloids

In 1919 Shukhov received the commission to build the Shabolovka Tower. He designed the tower to be tallest in the world, a tower made up of 9 modules and stood at a height of 350metres, surpassing the Eiffel Tower. A lack of steel meant that the project was modified on two occasions and was finally built 150m high, by means of six modules at 25m each. Shabolovka's construction system was innovative because its assembly did not need cranes or scaffolding.

## Ensemble of towers

The evolution of Shukhov's hyperbolic towers went beyond the Shabolovka Tower. Between 1927 and 1929 he designed a set of six towers of different heights on the banks of the River Oka. These were the most beautiful of all those he designed. To the south two twenty-metre and two sixty-metre towers were erected, and to the north another two 128m towers were built. "*But the real breakthrough in building hyperboloid towers was the construction of pair three- and five-tier pylons for carrying the wires over the wide Oka River.*"<sup>(8)</sup>

7. Khan-Magomedov, S.O. *Vladimir Shukhov. Makers of avant-garde*. Moscow: Sergey Gordeev publishing Project, 2011. p.71

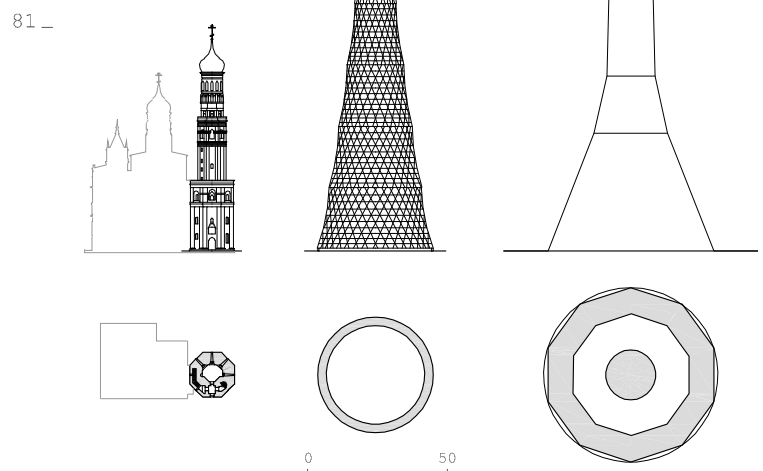
8. Ibid. p.84

9. Loos A., extract from "*Ceramics and Clay*", Glas und Thon, article in Neue Freie Presse, Vienna, 26th June 1898. LOOS, Adolf, *Escritos I: 1897 / 1909*, El Croquis Editorial, Madrid, 1993

\* Shukhov shared the definition of beauty made by Adolf Loos: "I do not wish to deny that our artistic industries are at a height that excludes all comparison with other nations or other times. But I want to make it clear that the ancient Greeks also understood something about beauty. And they only worked in a practical way, without thinking about beauty, without wishing to follow an aesthetic necessity. And when an object was so practical that it could not be made any more practical, then they called it beautiful."<sup>(9)</sup>



**Figure 16.** Operating ranges of the communication towers



**Figure 17.** Principal communication towers  
 Bell tower of Ivan the Great (1329-1508)  
 Shabolovka Radio Tower (1920-1922)  
 Ostankino television tower (1963-1967)

## COMMUNICATION TOWER

The Shukhov Tower had to surpass the principal capitalist monument, the Eiffel Tower in Paris. Until 1917, no buildings in Moscow were allowed to be constructed higher than the Tower of Ivan the Great. The Shukhov Tower was the first to replace the propagandistic function of the medieval tower. The belltower lost its importance in the revolutionary context, being replaced by the Shabolovka Radio Tower (1922), later surpassed by the Ostankino Television Tower (1967). This family of communication towers became an icon of Soviet culture and played a propagandistic role comparable to the monument-tower (Tatlin Tower, Palace of the Soviets, etc.).

### Central Position

Both the communication tower and the monument-tower occupy a central position in the city. Obviously, as they did not replace one another, available spaces had to be found for the new towers. As with the cathedrals, the new towers of communication were slightly removed from the urban centre, but at a negligible distance when bearing in mind the operating range of the new towers (see diagram 16). In other words, although geographically it did not sit in the centre of the city, symbolically it did. The Shukhov Radio Tower replaced the Tower of Ivan the Great and then the Ostankino Television Tower was the modern alternative to the Shukhov Tower.

### Operating Ranges

There are two ways to interpret the operating range of the Soviet message: one physical, associated with the communication tower's broadcast range, and the other symbolic, associated with the message that the monument towers transmitted.

### Structural Rings

This group of monument-towers have their circular geometry in common, they were all built using structural rings that are reduce in size as the height of the tower increases. Although the Ivan the Great Belltower is made up of octagonal modules, they can be interpreted as approximations of the circle, a geometry can be observed in its foundations (see diagram 17).



**Figure 18.** Photomontage by Malevich. Architekton in Front of a Skyscraper. 1923-1924.

## THE SOVIET SKYSCRAPER

### ARTEFACT

The capitalist skyscraper never officially arrived in the Soviet Union. The government and avant-garde thinkers referred to the American skyscraper as an artefact resulting from a system that promoted the individual ego. To the eyes of Soviet architects, the skyscrapers of New York were monolithic tombs that immortalised individual success, where the desire for surpassing and accumulating high-rise buildings transformed the city into a chaotic scenario that lacked light and air.

One of the first Soviet artists and writers to visit New York was V. Mayakovsky, who expressed his experience with texts such as this:

*"In the narrow canyons between the buildings, a sort of adventurer-wind howls and runs away along the versts of the ten avenues. Below flows a solid human mass. Only their yellow waterproof slickers hiss like samovars and blaze. The construction rises and with it the crane, as if the building were being lifted up off the ground by its pigtail. It is hard to take it seriously."<sup>(10)</sup>*

10. Mayakovsky, V. *My Discovery of America* (1926). London, Hesperus Press, 2005.



\* This explains the dialectic divergence between skyscraper and high-rise building: the first as consequence of lack of space and the second planned as a compositional urban element.

\*\* Thomas Van Leeuwen, in his book "Skyward Trend of Thought" (1988), says that: "the first American skyscrapers were planned to surpass the ancient wonders of the world - in particular, the Tower of Babel - and they attracted architects who combined great imagination with a poetic tendency."

\*\*\* "Tatlin planned a gigantic monument-building, 400 metres high, to be built using completely new architectural principles (...) and architectural forms never used until now." The building was to be the headquarters of the principal institutions of the future of the world state. His project was unusual in every aspect. In fact, it would have been the first European skyscraper, and what a skyscraper it would have been!. (11)

Although the skyscraper did not officially exist in the Soviet Union, it has always been present. The skyscraper boom in New York provoked an intellectual reaction in the USSR. Many Soviet artists and architects sought alternatives that could give it meaning in the socialist context.

It is difficult to determine exactly when the first reactions to the skyscraper phenomenon appeared in the USSR. However, if we look at the architectural propaganda campaigns carried out in the USA\*, we can see that the international competition for the Chicago Tribune Building in 1922 was a catalyst for a new generation of skyscrapers and put the North American propaganda machine into action, attracting worldwide attention. In reply, the competition for the new Headquarters of the Leningradskaya Pravda newspaper in Moscow was announced in 1924, and G. Barkhin was given the project for the headquarters of the newspaper Izvestia.

From then on, skyscraper projects began to take place. The debate on vertical construction in the Soviet Union was tackled by some of its best architects, most of them members of Vkhutemas. Research was focused on qualities such as verticality, density, lightness, the multifunctional uses of the buildings, the imposition of modern architecture upon the historical city.

Among the projects that represent the avant-garde of Soviet skyscrapers in Moscow, the following stand out: the experimental project of V. Krinski (1922-1923); the Vesnin brothers' Palace of Labour in Moscow (1922-1923); the Vesenkha skyscraper in Moscow by the Ladovsky studio (1924-5); the Architektovs by K. Malevich (1923-6); the Muscovite subsidiary of the newspaper Leningradskaya Pravda by the Vesnin brothers (1924), and K. Melkinov's proposal for the same competition; the Lenin Institute by I. Leonidov (1927); the diploma Project by N. Krasilnikov (1928); G. Kochar's Co-mintern building (1929); N. Ladovsky's Monument to Christopher Columbus in Santo Domingo (1929); Ivan Leonidov's House of Industry in Moscow (1929-1930); the Narkomtiazhprom by the Vesnin brothers (1934), and Ivan Leonidov's proposal for the same competition.

Other notable projects include monumental skyscrapers such as the Monument to the Third International\*\*\*, the Palace of the Soviets in its definitive version, and the Stalinist high-rise buildings. At the beginning of the 1930s the Modern Movement invaded New York, and its neo-Gothic and Art Deco styles moved to the Soviet Union.

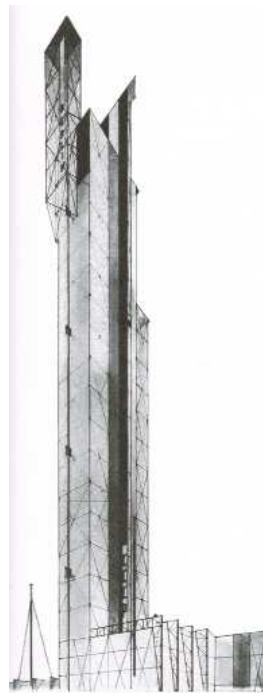
11. Cohen, J-L, Cooke, C, Strigalev, A. A. y Tafuri, M. Constructivismo ruso: Sobre la arquitectura de las vanguardias ruso-soviéticas hacia 1917. Ediciones del Serbal, Barcelona, 1994. p.146



**Figure 19.** Vesnin brothers - Moscow Headquarters of Leningradskaya Pravda, 1924



**Figure 20.** B. Barkhin. Editorial office and printing houses of the Izvestiya Newspaper. Unrealized version of the project. 1925



**Figure 21.** Izvestia newspaper print shop pregraduation design. VKHUTEMAS, 1926. Perspective view.

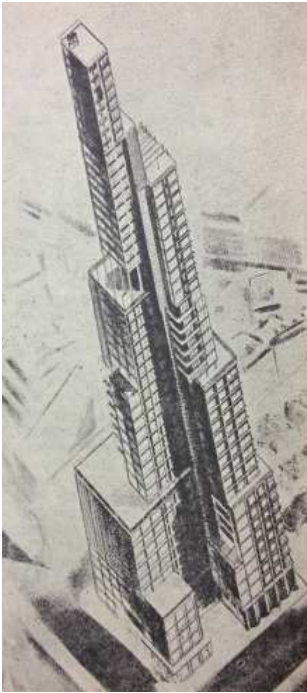
## BEAUTY

The United States resorted to the language of European Gothic towers and cathedrals as models to be implemented in its modern buildings. This mix was criticised both by renowned North American architects such as Louis Sullivan and by Soviet architects like as M. Ginzburg, who said "inevitably the images of Gothic temples emerge where that issue was settled. It is not by chance that the Americans like so much to use Gothic motifs in treating the facades of their skyscrapers... But when a modern bank or editorial offices or a department store take on Gothic architectural forms it looks in our time just as a bank director would look in a Cardinal's clothes."<sup>(12)</sup>

The avant-garde skyscraper projects left their concrete structures bare, unlike the American skyscraper that was covered to beautify the building. Ladovsky criticisms of this construction method and of the authenticity of American skyscrapers are clear in his article entitled "The Skyscrapers of the USSR and America" published in April 1926, where he said, "architecture should not mask constructions, as the Americans do, it should be 'truthful'."<sup>(13)</sup>

12. Khan-Magomedov S.O. *Heroes of Avant-Garde*. N. Ladovsky. Moscow 2011. p. 150.

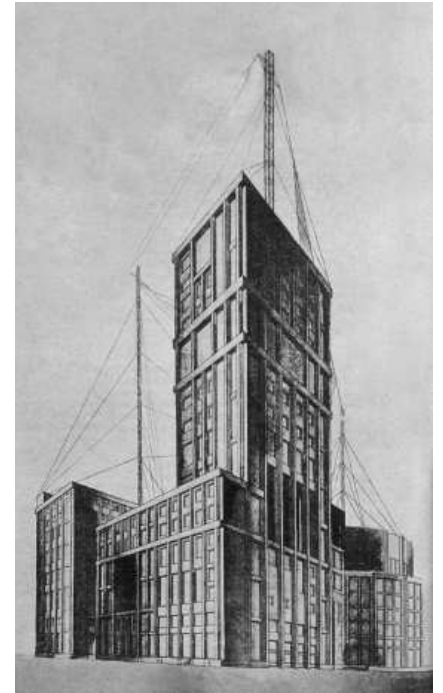
13. Ibid p.148



**Figure 22.** VKhUTEMAS (N. Ladovsky studio) VSNKHS-skyscraper in Moscow. 1924-1925. Axonometry.



**Figure 23.** V. Krinsky. VDNKh skyscraper in Moscow. Experimental project. 1922-1923. First version of model: skyscraper with surrounding buildings on Lubanskaya square (photomontage).



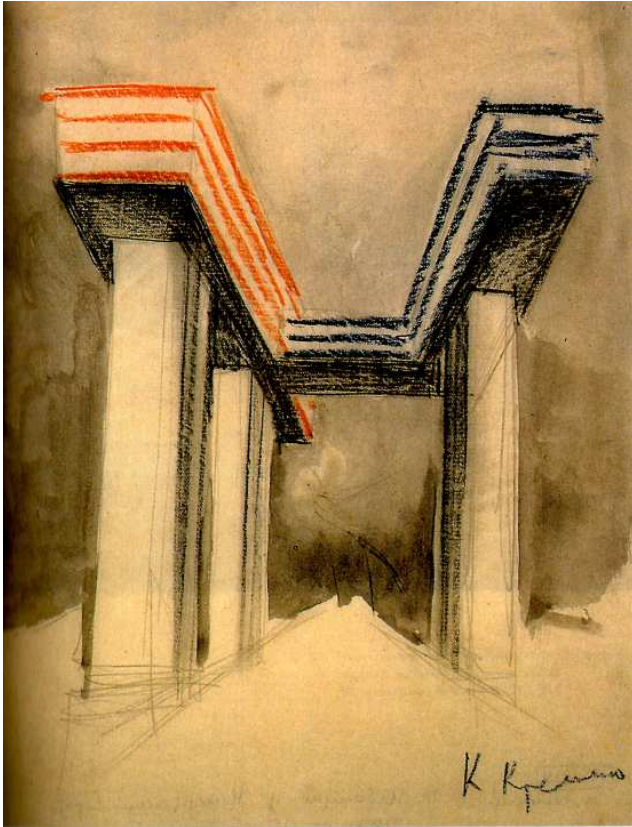
**Figure 24.** Vesnin brothers. Palace of Labor. Project. Perspective. 1923

## CITY BUILDING

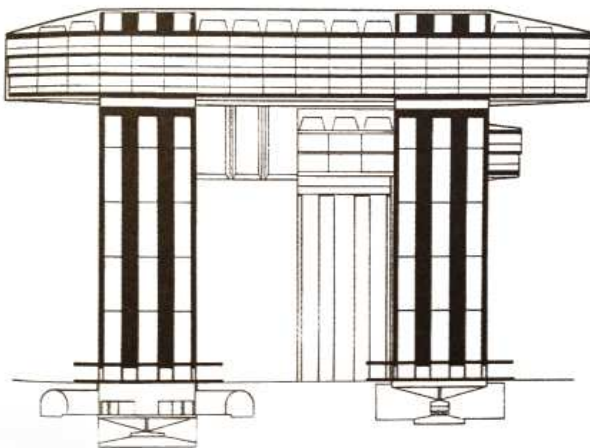
At the end of 1922 Ladovsky proposed experimental research on the VSNKh skyscraper (Supreme Soviet of the National Economy), considered one of the principal public buildings of the country.

Among the Ladovsky studio projects, one of the most outstanding is that of V. Krinsky, who chose Lubyanka Square for his location, in the centre of Moscow. The project, developed between 1922 and 1923, was a multifunctional building that included offices, a shopping centre, a hotel, a cinema, a restaurant, etc. The inclusion of such different functions in the same building, as though it were a vertical city, was the hallmark of the then tallest building in the world, the Woolworth Building in New York (1913). It was designed so that its office tenants would not have to leave the building at all, as they had all the services they needed within.

Unlike the American skyscraper, Krinsky's project was a structure visible from the outside. The building consisted of three bodies whose size lessened as they gained height, stressing a vertical sensation. The lifts were located on the exterior and served as structural elements. The whole expressed the idea of the office-machine, where everything was visible to the eye.



**Figure 25.** Horizontal Skyscrapers. Perspective views drawings. The building appearance as viewed from different angles, along the Boulevard..



**Figure 26.** Horizontal Skyscrapers. Elevation by El Lissitzky where its connection with the Moscow metro can be seen.

## HORIZONTAL

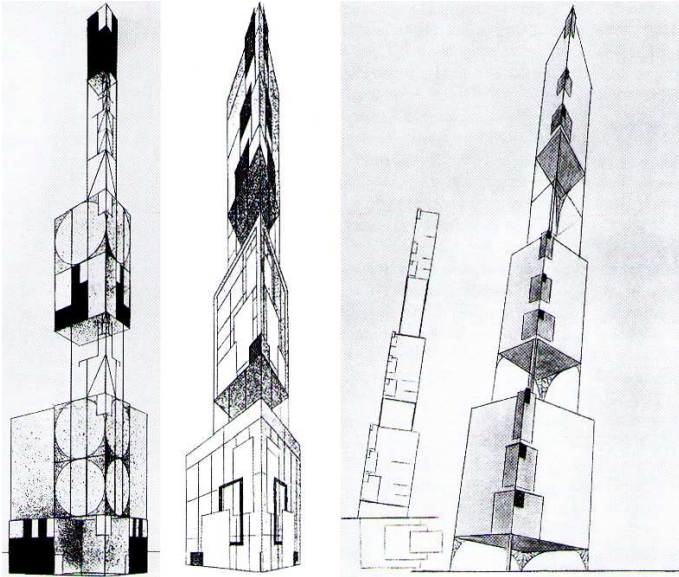
One of the most radical alternatives to the capitalist skyscraper was El Lissitzky's horizontal skyscraper, a proposal he suggested was a more natural option when compared to the American skyscraper, which was a solution derived from a lack of space that generated deficiencies in light and ventilation.

According to El Lissitzky, *"America has created the model of the high-rise building, changing the horizontal European corridors for the vertical shaft of the elevator, around which the floors are distributed. This model has been developed in a profoundly anarchic fashion, without taking into consideration the concerns for the organization of the city at all. The only concern consisted in outdoing their neighbour in height and sumptuousness."*<sup>(14)</sup>

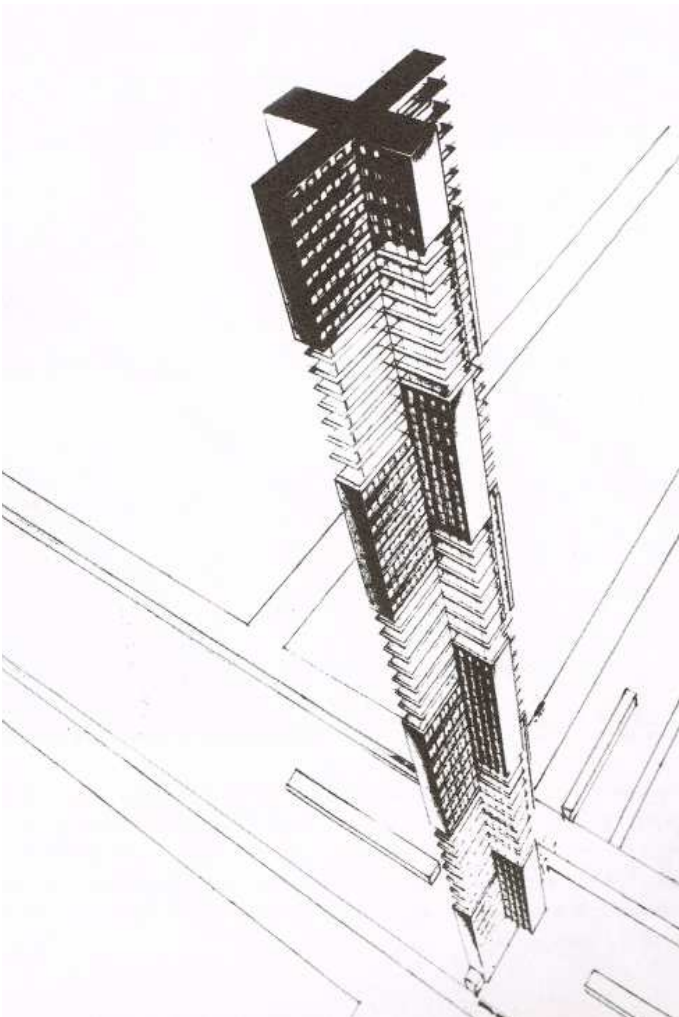
One advantage to Lissitzky's design was that it respected the layout of the historic city, avoiding large demolitions. He defined his project as a new type of building designed for containing centralized services. It was a prototype\*, a typological invention more than a closed, finished and definitive construction. As well as including variables like time in the design, El Lissitzky proposed some novel questions too, like the repetition of this new typology of administrative building. The composition created an urban infrastructure that resembled the gates of the historical city, now reconstructed in a modern way. They were not merely an urban composition: in its entirety it constituted an infrastructure for the whole city. The buildings formed a visual ensemble and were also joined to each other via a subterranean connection, a metro that would connect the different "gates" of the city.

\* As we will see, El Lissitzky's horizontal skyscrapers can be considered the urban prototype of the series of skyscrapers built in Moscow in the mid-twentieth century.

14. El Lissitzky. *A Series of Skyscrapers for Moscow: Wolkenbügel 1 (1923-25)*. Moscow, ASNOVA News, 1926, p. 29



**Figure 27.** VKhUTEMAS/ Nikolai Ladovsky's studio. Abstract assignment on revealing vertical dynamics, rhythm, ratios and proportions. 1924. Student works. Gleb Glushenko/ perspective view/: Alexandr Silchenkov/ perspective view /: Isaac Iosefovich/ perspective view, facade, plan.



**Figure 28.** Columbus Monument in Santo Domingo. 1929. Competition design/ perspective view/.

## LIGHTNESS

\* Another relevant project by Alexander Silchenkov is his administrative building made up of a series of towers (1928), a circular building with eight small towers joined by a ring that is supported by light pilings, and a main tower that heads the complex.

Regarding the skyscraper for Vesenkha in Moscow (1924), Ladovsky again proposed that his Vkhutemas studio projects examine vertical dynamism, rhythm, ratios and proportions. As an example of this research, we have the drawings of Gleb Glushchenko and Alexander Silchenkov\*, which show three parallelepipeds that progressively diminish in size as they rise from the ground, giving the sensation that the shapes are floating in the air.

Other projects achieved this sensation of lightness with different formulas. For example, S. Lopatin's proposal was a composition of many parallelepipeds that reduced in size and number as the tower increased in height.

## TIMELESSNESS

The competition for the Monument to Christopher Columbus in Santo Domingo (1929) was the perfect setting for Ladovsky to think about putting these innovative ideas, that he had envisioned years before, into practice. The skyscraper proposed by Ladovsky was a vertical sequence of full and empty three dimensional shapes.

The building of approximately 60 floors had a section in cruciform plan (possibly influenced by Le Corbusier) with gaps between shapes. This was an idea that he had been exploring for several years. Ladovsky justified these unfinished spaces, designed as a naked structure of concrete, as a space that would be occupied over time according to need. This idea of introducing the variable of time into the design of a building was unique and original.

In the publication that examined the different proposals for the competition, there was a note from the jury that branded the project as utopian: "should we search, we would discover nothing in this phantasmagoria that can cause liking of or glorify Columbus; but(...)it is a wonderful lighthouse."<sup>(15)</sup>

This entire skyscraper series developed by Ladovsky and his students between 1922 and 1929 made up a collective investigation into one particular type of skyscraper and can be interpreted as a single tower expressed in different forms.

This prototype of an administrative building associated with the Ladovsky studio appeared in other Vkhutemas studios. One of the most interesting examples is the project by the

15. Khan-Magomedov S.O. *Nikolai Ladovsky. Makers of avant-garde*. Moscow. 2011. p. 278



**Figure 29.** G. Kochar. Comintern Building. Degree Project (VKhUTEMAS, D.Fridman studio). 1929



student G. Kochar, of the Friedman studio, in 1929. Here Kochar, designing the future Comintern building, essentially planned the same tower that was outlined in the Ladovsky studio, its main characteristic being the alternation of a heavy body with a light one, a dynamic that became more slender as the tower grew in height.

The building combined three of these towers, joined by a base that unified them, where the car park was located. Furthermore, the office towers were connected at different levels by light passageways that reinforced the horizontal flow between towers, bringing the different elements together into one single building.

The concept of various towers joined together forming a whole had already been tried in the USSR. One of the most prominent examples is the Gosprom administrative complex built in Karkhov (1925-1928). However, this project related more to the idea of urban function that goes beyond the single administrative building.

Therefore, we can place G. Kochar's project at the origin of the administrative building made up of a series of towers. Later, very similar projects appeared, such as the proposals by M. Guinzburg and S. Lisagor, or that by the Vesnin brothers, presented at the competition for the Heavy Industry building (1934). Both were compositions of four towers joined by an immense base and some very light upper bridges that enabled circulation to different levels. This idea of joining towers, , offered a structural advantage as it endowed the whole with greater stability. The architectural style of these projects presented at the Heavy Industry Building competition did not correspond with the constructivist style of the 1920s, being the first examples that clearly showed a turnaround in architectural style and government imposed neoclassical style.

M. Guinzburg and the Vesnin brothers defended the idea that monumental compositions could be made without being a direct copy of the compositional methods and forms of the past. However, these architects, who led Constructivism, lost their principles little by little. This is how Khan-Magomedov puts it, referring to several projects that M. Guinzburg and the brothers Alexander and Victor Vesnin carried out together<sup>(16)</sup>, precisely in the attempt to join forces to demonstrate that it was possible to find a graceful solution to the cultural change that was approaching. Among these joint projects, the most noteworthy is the constructivist monument building located on the intersection of the Kotelnicheskaya embankment and Goncharnaya (1934), where one of the future Stalinist high-rise buildings was to be built.

## INNOVATION

Yet if there was a visionary architect capable of sensing the architecture that was to come, that man was Ivan Leonidov. He is considered by many to be the most creative architect of the twentieth century in Russia, in spite of the fact that his only completed work was a staircase for a building in the sanatorium at Kislovodsk.\* But in the context of skyscrapers, his most outstanding projects were for the Lenin Institute, Centrosoyuz, the Industry Building and the Heavy Industry Building, all designed between 1927 and 1934, the last stage of the Soviet avant-garde.

\* According to Khan-Magomedov, Leonidov was "a genius", he being the one who with his research and publications contributed to removing from him the unjust label of formalist architect.

The Lenin Institute was a composition of three dimensional shapes situated on Sparrow Hills. The library was the tallest building of the ensemble, a slender and simple tower. Fifteen million books were to be housed there, with an automated delivery to readers. In addition to these ideas, utopian for their time, the project was above all an urban landmark that reinforced this almost sacred setting on Sparrow Hills - a place where, two decades later, Moscow State University (MGU) would be built.

Centrosoyuz (1928) was an office tower with twelve floors and finished in glass, an aspect that, according to Khan-Magomedov, persuaded Le Corbusier to change the image of his building: "The final Le Corbusier design showed some influence of the design by Leonidov."<sup>(17)</sup> As well as being pioneering in the exterior image of the office building, in the interior, Leonidov designed floors without divisions, where life, work and leisure were brought together in one space. For Leonidov this would also prove to be grounds for accusation for not assigning a function to each space.

16. Khan-Magomedov S.O. *Moisei Ginzburg. Makers of Avant-garde*. Moscow, Fond, 2010, p. 77-78

17. Khan-Magomedov S.O. *Ivan Leonidov. Makers of Avant-garde*. Moscow, Fond, 2010 p. 93

The competition for the Heavy Industry building (1934) in its entirety reflects the intersection between Constructivism and Post-Constructivism.

The competition was preceded by a few years of persecution against the avant-garde, a war against the utopian and the absurd. In Leonidov's environment this type of malady was called "Leonidovshchina". For four years, from 1930 to 1934 the architect was forced to be a mere observer of this process of transformation of Moscow, prevented from entering the most important competitions - including the Palace of the Soviets.

However, this period gave Leonidov time to draw breath and return stronger than ever. His first project after his four year break was the Heavy Industry building, an ensemble of three modern towers situated on Red Square. The towers were to be supported by a base that joined them together, and the tallest of the towers culminated in the form of a spire, which is a clear allusion to the cupolas of Saint Basil's and the Kremlin towers.

The skyscrapers projected by Leonidov incorporated details that evidently referred to the medieval towers. He made this connection clear by including the Kremlin towers in his sketches, where the modern towers are in the background. The drawings dramatize the integration between past and present, fusing the two together in one reality.

This project symbolises the end of a process of study that lasted a decade. The project retrieved ideas that Leonidov had envisioned years before. For example, the cranes that were to make the peaks of the principal tower of the Heavy Industry Building (1934) were the same that he incorporated into the sketches for the headquarters of the newspaper Izvestia in his time as a student in Vkhutemas in 1926 (see image 21).

The ground floor was a platform that joined the different towers together. Traditional architects dismissed his proposal for being formalist, but nevertheless it was a gesture that understood the principles of the architecture of the past. Many of Moscow's historical buildings have an integrating base that serves as a structural support, such as Saint Basil's Cathedral or other later buildings like the Church of the Ascension (1528-1532) or the Sukharev Tower (1692-1701). It is an element that confers stability to an ensemble that sits on unstable terrain. It is this true interpretation of classical architecture that mattered to Leonidov.

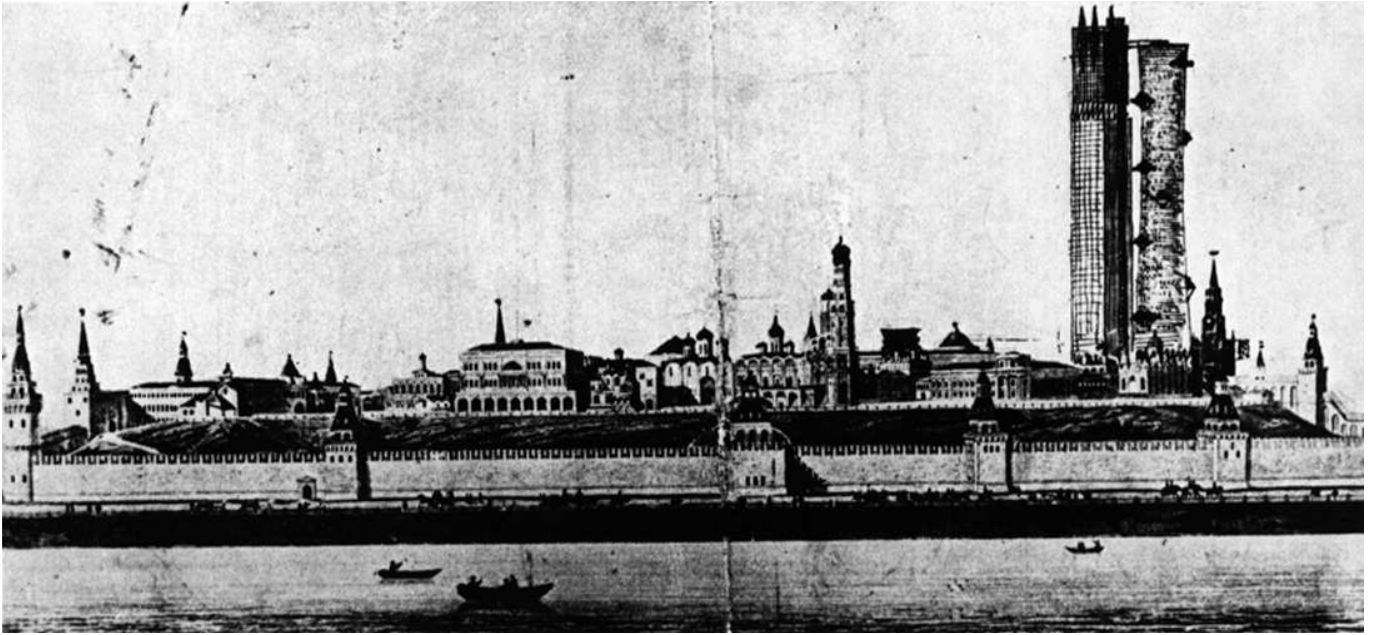
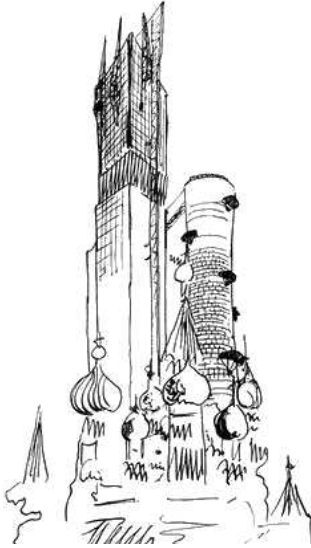


Figure 30. Narkomtiazhprom competition design. Photomontage, Leonidov

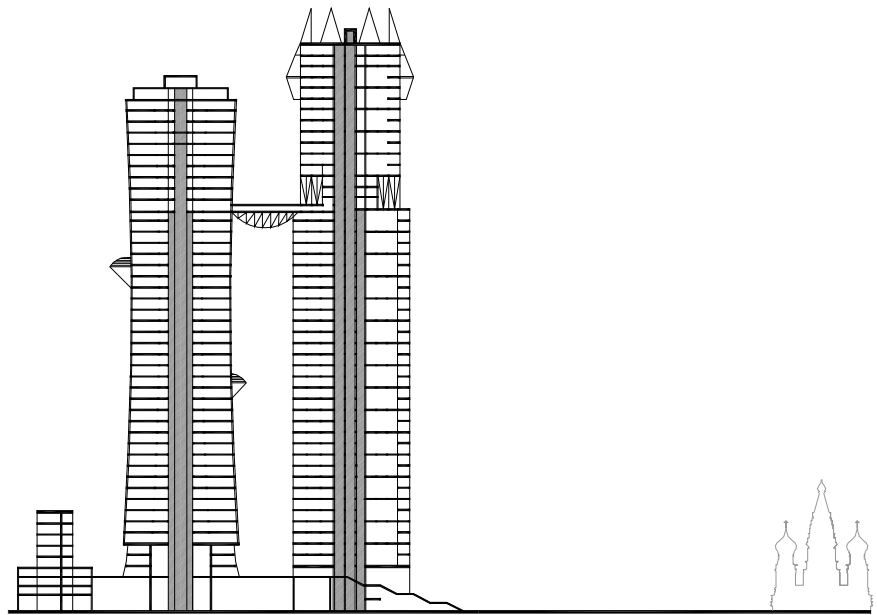
M. Guinzburg referred to this principle of architectural design when he said, "we should study the architectural heritage not in order to drag this or that compositional method to one's own design, but in order to master the past architectural culture, to understand the mechanics of the artistic image(...) a certain composition system follows from a certain set of spatial thinking, (...) this set changes from epoch to epoch...and is established on a certain base, on the base determined by the material conditions of the entire situation, economics, politics, etc."

Of the many projects entered into the competition for the Heavy Industry building, the ones most criticised by the government were precisely those that were the most interesting, such as Leonidov's design, which Khan-Magomedov defines as "fantastic" rather than "utopian and formalist", as the competition jury described it.<sup>(18)</sup>

18. Журнал «Архитектура СССР» № 10, 1934, л.5.



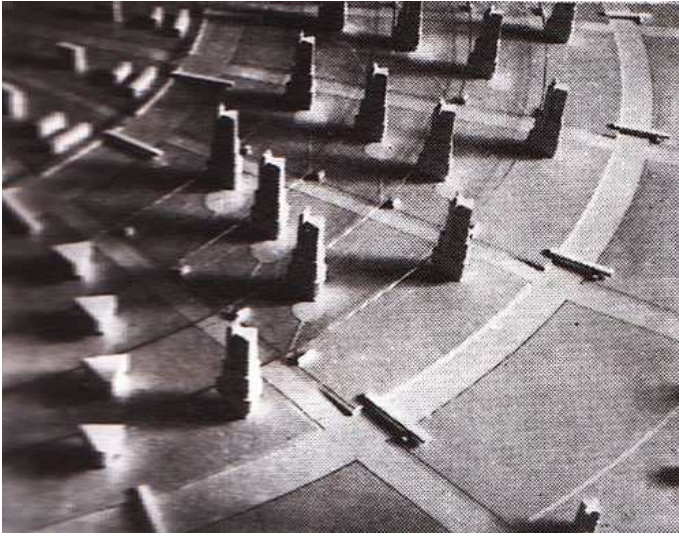
**Figure 31.** Sketch, superimposition of elements. Leonidov



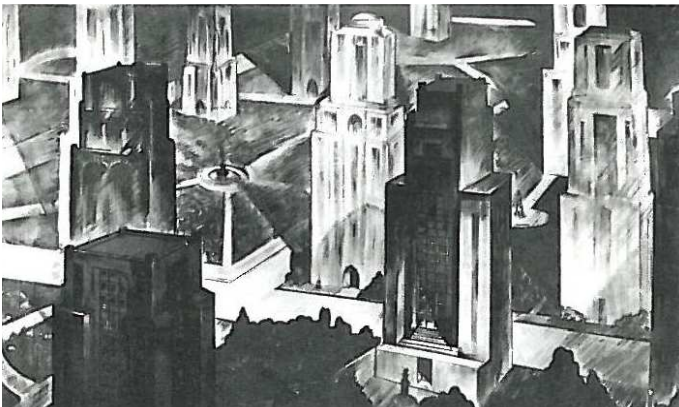
**Figure 32.** Cross-section of Red Square from Leonidov's project, comparing the scale of St. Basil with the new planned towers.

Moscow would have to wait eighty years to see anything of such architectural quality again. Today, the pair of towers that form the work located on Mosfilmovskaya Street (2012) come close to the project proposed by Leonidov in 1934. Their structural concept is a contemporary reinterpretation of the compositional and tectonic principles that originated in Saint Basil's Cathedral and the Ivan the Great Tower. In a conversation with Sergey Skuratov, the architect of the modern towers, he explained the conceptual connection between the Mosfilmovskaya Tower and the Ivan the Great Tower.<sup>(19)</sup>

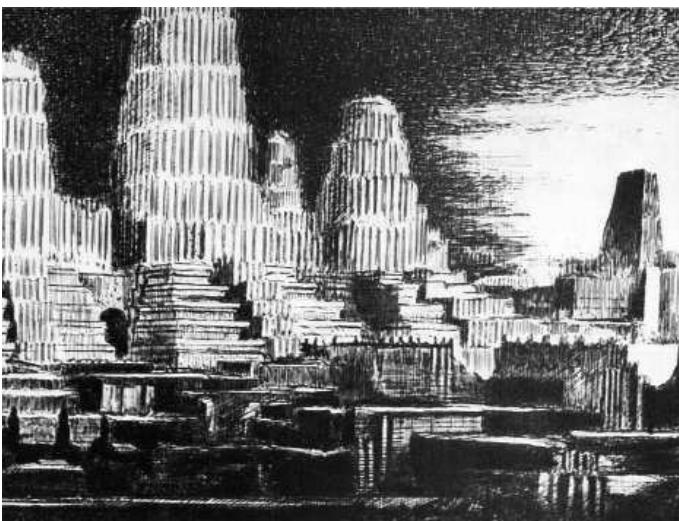
19. Extract from Sergey Skuratov's interview by the author. 2012.



**Figure 33.** T. Varentsov. New City. Degree Project. (VKHUTEMAS, Studio N. Dokuchayev). 1928.



**Figure 34.** H.W. Corbett, "Proposed Separation of Towers", 1926. Analogous proposal to Hood's. As complement to his "Venetian" proposals Corbett projects here a Metropolitan Suburb that corresponds to "the smallest maximum bulk for business buildings" suggested by the Regional Plan models. The random placement of the Towers combined with the intimate suburban scale of the miniature skyscrapers makes Corbett's Metropolitan Suburb the most appealing version of the tower in the park formula ever proposed.(20).



**Figure 35.** The fantastic capital city project of H. Ferriss (USA). Art center. This image belongs to the period when H.W. Corbett supported the idea of planning a new city where towers had to keep a minimum distance from each other, and this theory was illustrated by his most talented renderer H. Ferriss in 1928. The render seems like an interpretation of the ancient city of Angkor(Cambodia).

20. Koolhaas R. *Delirious New York. A Retroactive Manifesto For Manhattan*. New York, Monacelli Press. 1994. p. 167

During the 1920s Soviet architects focused on the investigation of the skyscraper as artefact. During this time they also considered possible combinations of this architectural form to create more complex compositions - a series of high-rise buildings multiplied throughout the city (horizontal skyscrapers) or a series of high-rise buildings joined by bridges or bases (Gosprom in Kharkov or Narkomtiazprom). It was a study that went on for more than a decade (1923-1934).

Nevertheless, in 1928 there was a parenthesis to researching the "new city" model, coinciding with the influence of the theories of Le Corbusier and his Plan Voisin for Paris (1925), a model that he would unsuccessfully try to implement in Moscow.

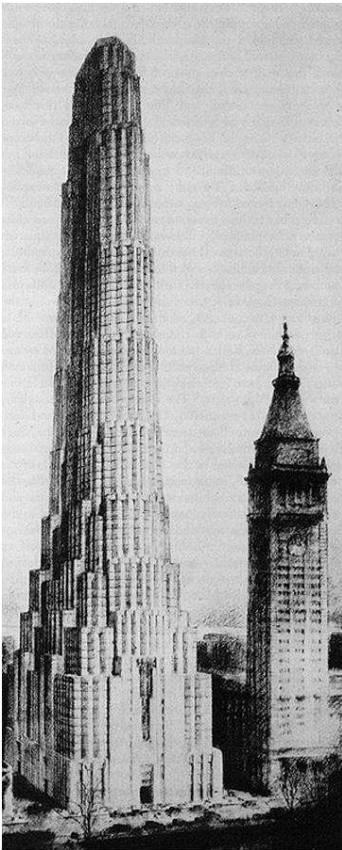
That same year, publications appeared in New York about Corbett and Ferriss's "new city" theories for the outskirts of Manhattan: to design the location of high-rise buildings to ensure a minimum distance between them (an idea inspired by the fabled city of Angkor).

\* At the same time in 1928-1929 the tower-and-square pairing took force, as implemented in the Rockefeller Center complex that was in line with the idea of the new city.

In this proposal by the American architects, there were others of lesser height. Thus density began to be planned, and the tower was subordinated to the whole. This moment represents the transition from the single building to the urban ensemble, from tower to system of interconnected towers.\*

Meanwhile, in the USSR, alternatives to the capitalist model were still being planned at the theoretical level. The projects of Lavrov and V. Popov from N. Ladovsky's studio stood out, as did that by T. Varentsov from N. Dokuchayev's studio (with Ladovsky as consultant). Varentsov's project consisted of four urban developments in a circular plan. The central development adjoined the other three, each one with a different diameter and different purpose: cultural, political and social. Each urban development was made up of three or four types of buildings that were repeated, including a three-section tower.

In 1930 Leonidov designed a workers settlement in the city of Magnitogorsk. His project was a linear city, a series of residential towers combined with low buildings. This vision, never carried out, can be considered the foreshadowing of the future Moscow avenues developed in the sixties.



**Figure 36.** Metropolitan Life Insurance Building Madison Avenue, Manhattan, New York. Project. Harvey Wiley Corbett and D. Everett Waid. The original plan for their Met Life North Building called for a skyscraper of 100 stories, topping out at around 1,300 ft. and stealing back the title of tallest building in the world. It accounts for the "wedding-cake" appearance of so many buildings from the 1930s and before.



**Figure 37.** The North Building and Metropolitan Life Tower seen from across Madison Square Park, 11-25 Madison Avenue, Manhattan, New York. 1928-1950. Harvey Wiley Corbett and D. Everett Waid. Due to the Stock Market Crash of 1929 and onset of the Great Depression, the construction was halted at floor 29 in 1933. There is some speculation as to whether Metropolitan Life really intended to finish the 100-story tower, but the existing building was obviously constructed to be strong enough to support it. However, there are no known plans to "finish" the building.



## AMERICAN UTOPIA

In the year 1928 the architect H.W. Corbett formed part of the assessment committee for the Rockefeller Center skyscraper complex, but left his role to devote himself exclusively to the Metropolitan Life project, a three-section building, symmetrical and with a central tower 100 storeys high, which, had it been completed, would have been the tallest in the world.

The drawing of this building was made by Corbett's preferred draughtsman, Hugh Ferriss, and it resembled their 1928 design of the ideal city, with towers that were tiered monoliths and which recalled the historic city of Angkor. This was very different from the earlier versions of Corbett's "city of the future" and "city of the near future", published in 1913 and 1927, respectively.

This urban vision of 1928 incorporated new principles shared by H.W. Corbett and Raymond Hood and was put into practice in the Rockefeller Center - just as the famous photo "Corbett's Move" depicts <sup>(21)</sup>.

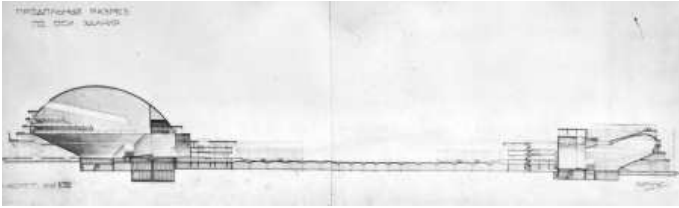
The Crash of 1929 accelerated the loss of prestige of the skyscraper and promoted the idea of the "united building", of which the Rockefeller Center complex is a pioneer. The Metropolitan Life project was suspended for a few years until being abandoned definitively in 1932. Only the first floors of the tower came to be built, leaving the American Dream truncated.

## SOVIET DREAM

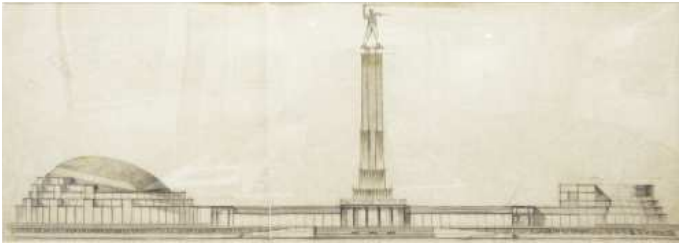
Capitalist frustration became the basis of the communist dream. At the start of the 1930s, coinciding with the USA's greatest moral depression, a new monument propaganda campaign was launched in the USSR, headed by the competition for the Palace of the Soviets, which redirected everyone's attention to the Soviet Union.

When the utopian dream of the American skyscraper faded away, it was revived in the USSR.

21. Koolhaas R. *Delirious New York. A Retroactive Manifesto For Manhattan*. New York, Monacelli Press. 1994. p. 179



**Figure 38.** Moscow, Palace of the Soviets. First project. Cross-section arc. B.M. Iofan. 1931



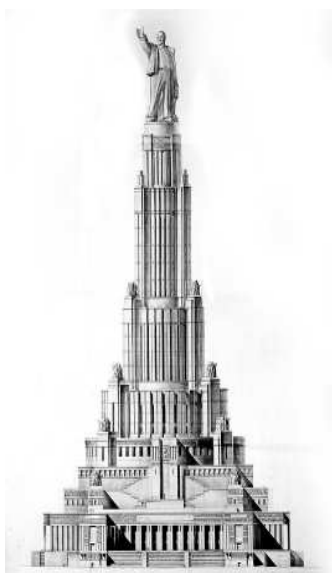
**Figure 39.** Moscow, Palace of the Soviets. Cross-section of public square. Drawing 13, 14. Arc. B.M. Iofan. 1931



**Figure 40.** B.M. Iofan, V.G. Gelfreikh, V.A. Shchuko, eng. G.B. Krasin, sculptor P.V. Mitkovitsers. Project of Palace of the Soviets. 1933.



**Figure 41.** B.M. Iofan, V.G. Gelfreikh, V.A. Shchuko, eng. G.B. Krasin, sculptor P.V. Mitkovitsers. Project of Palace of the Soviets. 1933. Perspective view.



**Figure 42.** Palace of the Soviets, definitive version 1939, which maintains the form approved in 1934. Moscow. B.M. Iofan and V.G. Gelfreikh. Engineer N. Krasin.

## THE SOVIET PALACE

### VERTICALITY

The competition for the Palace of the Soviets was intimately linked to the history of the American skyscraper. Paradoxically, when the USA celebrated the opening of the world's tallest building in May 1931, American society was sunk in its worst ever economic crisis. Communists took this as an opportunity to overtake capitalism. Only three months after the opening of the Empire State Building, the international competition for the Palace of the Soviets was announced (August 1931).

The initial submissions for the open phase of the competition were horizontal, but subsequent submissions had transformed into the vertical. In May 1933 B. Iofan was proclaimed the winner, after an interminable selection process. But a few months later, in order to assure the success of this vertical transformation, two new architects were added to the project team, men who were more likely to follow the directions of the government.

\*"The sudden emergence of the idea of verticality, of the tower, expressed in the Palace of the Soviets projects of other architects is a meaningful change. The project by A.N. Dushkin and I.N. Doditsa was at first thoroughly constructivist and "mechanistic" (1931), out of a fairly "voluminous" and monumental, but always rationalist, design grew a tower with a flat roof (1932, with the participation of V.S. Andreev); but in the 1933 project, made by K.S. Alabjan, I.N. Doditsa, A.N. Dushkin, A.G. Mordvinov and V.N. Simbircev, a tall, palatial-style tower was clearly drawn, a very classical project." (22)

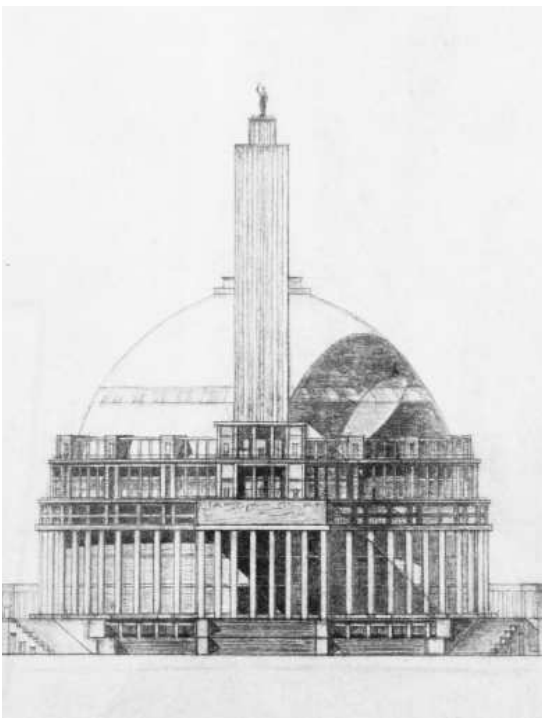
This same strategy was used on other projects for the competition, where K.S. Alabjan, A.G. Mordvinov and V.N. Simbircev were added to Dushkin and Doditsa's team, for example. In both cases, along with the transformation to verticalization, there was also a stylistic turn from constructivism to neoclassicism.

The evolution of Iofan's project clearly shows that he was against converting the image of his future work into a monument tower. Even after government pressure, his project was a Babylonian tower of small dimensions crowned by a modest statue of Lenin, a project that did not show the determination and verticality expected by Stalin. V. Shchuko and V. Gelfreikh were added to the project team and in a few months the palace was converted into an immense tower that fulfilled the desire of surpassing the American skyscraper.

I. Ejgel, who worked with B. Iofan for many years, recounts in his writings that the decision to enlarge the team was justified because Iofan seemed too young to take on such a challenge. *"The height of the Palace of the Soviets went from 250m to 415m, with the sole intention of making it the tallest building in the world, transforming the original project into the pedestal of an enormous sculpture of Lenin. Iofan himself criticised the telescopic shape of the project and observed that, with this decision, the*



**Figure 43.** View of the Lenin Mausoleum from main front of GUM



**Figure 44.** B.M. Iofan, in collaboration with D.M. Iofan, D.M. Tsiperovich, sculptor N.A. Andreev. Competition project for Palace of the Soviets. Prior competition. 1931. Elevation.

*architecture itself became a secondary structure to the sculpture. Moreover, he saw the proposal as irrational because, with Moscow weather, the giant 100m statue would almost always be hidden by clouds.”<sup>(23)</sup>*

In 1934 the Soviet skyscraper had reached maximum symbolic expression and its final form. It was very similar to a utopian tower that had been abandoned by capitalism on the other side of the ocean and which now seemed to have been revived by communist power.

In addition to the interpretation of the Palace of the Soviets as the result of converting a capitalist monument to a communist one, it can also be understood as a formal evolution of the socialist monument. In this hypothesis it is worth examining the most utopian versions entered into the competition for the Lenin Mausoleum, projects that had been rejected in 1925 only to be recovered and accepted later, as the final version of the Palace of the Soviets shows.

However, before analysing the formal evolution of the Mausoleum of Lenin, it is necessary to examine composition and highlight its importance as a design tool at the time.

## COMPOSITION

When seen from the entrance to the Red Square (through the Voskresenskiy Gate,) the Lenin Mausoleum can be confused for the reddish wall of the Kremlin, to the extent of passing completely unnoticed.

When seen from the entrance to the GUM shopping centre in Red Square, the fusion between monument and Kremlin is repeated. The reddish zigurat merges with the Kremlin wall and the Senatskaya tower seems to form part of the monument, or vice versa, the monument seems to be part of the Kremlin.

These elements of perspective are not a matter of coincidence. It is a visual game\* carefully planned by Shchusev, who had an integrative vision of historic and contemporary architecture.

The merging effect of the Lenin Mausoleum and the Kremlin wall and tower was a visual illusion. However, this same merging effect found in Iofan's 1932 proposal for the Palace of the Soviets eventually became a reality.

\* Somewhat similar to the optical illusions that the Italian Renaissance architects planned with those painted cupolas that did not exist and that were revealed by moving away from the points for which the trick was prepared.

23. Кружков Н. Высотные здания сталинской Москвы. Факты из истории проектирования и строительства // Водолей, 2011, л.35

In 1931, Iofan's first proposal was constructivist, very similar in compositional terms to Le Corbusier's: two low buildings that fulfilled the requirements of the functional programme, separated by a square. In the first phase of his second version, he got rid of one of the palaces and incorporated an obelisk into the square, crowned by a statue. In 1932, in the third phase, there was just one building that integrated the obelisk tower and the statue, a synthetic form suggested by Stalin when he said: "the smaller space should not be separated from the large space, but be combined."\* At that time Stalin indicated the scale of the building's monumentalism, when he ordered that the complex surpass the height of the Eiffel Tower.\*

\* "In the third phase of the 1932 competition Stalin was in Sochi and Kaganoic and Molotov sent him a man with the proposals for the Palace of the Soviets competition. Stalin replied, '(...) I think Iofan should not separate the smaller space from the large space, but combine them'. The upper part of the palace should look like a column, I mean a column in the form of B. Iofan's first project. ... and it will be as high as the Eiffel Tower or higher." (24)

It is possible that Stalin's idea arose from an error of perception, having seen the lateral elevation of Iofan's proposal as one single piece. In this elevation the pantheon, obelisk and his statue are superimposed so the illusion became reality, and the synthetic form became the final form of the Palace of the Soviets.

V. Shchusev's Lenin Mausoleum project was a fictional compositional that generated the illusion of a synthetic form between wall and monument, whereas the Palace of the Soviets was a compositional fiction that was made reality, a monument-tower in which the lateral elevation, always a fictitious representation, became the final image of the whole Palace.

## LENIN MAUSOLEUM

The Soviet monument tower was the local interpretation of a universal tendency towards the idea of a monument tower that was produced in parallel throughout the 1920s. In the USSR it began with the Monument to the Third International and continued with the utopian versions of the Lenin Mausoleum, which is where the final image of the Palace of the Soviets originated.

## UTOPIA

Different types of tiered towers were entered into the Lenin Mausoleum competition, many of them utopian, carrying on the desire to become the tallest tower in the world. At the same time Tatlin was developing his improved version of the Monument to the Third International for the Paris Exposition - an intersection of two Babylonian monument towers of different form and style. Among the utopian

projects presented at the Lenin Mausoleum competition, there are some that hold particular kinship with the final version of the Palace of the Soviets and even with the high-rise Stalinist buildings constructed in the 1950s.

For example, S. Agafonov's project was a large tower of three sections topped by a statue of Lenin raising the communist star in his hand. In the drawing presented to the competition the tower is in context with the Kremlin towers and the cupolas of Saint Basil's, expressing the importance of integrating the tower within the architectural setting of the Red Square.

Similar to this was A. Gruzdinsky's proposal, defined by the architect as "a colossal monument, a tower, placed by the entrance to Lenin's tomb and should be of a height only accessible by the latest engineering technology. The dimensions of this monument should eclipse all the currently existing tallest buildings in the world (...) "<sup>(25)</sup>, making clear the goal of surpassing the tall buildings of the West.

As a last example, one must highlight the proposal by S. Kolotov, a tiered tower with a spiral ramp, crowned by the statue of Lenin, with an interior vaulted space where national congresses could be held. This proposal was perhaps the closest to the final design for the Palace of the Soviets (1934).

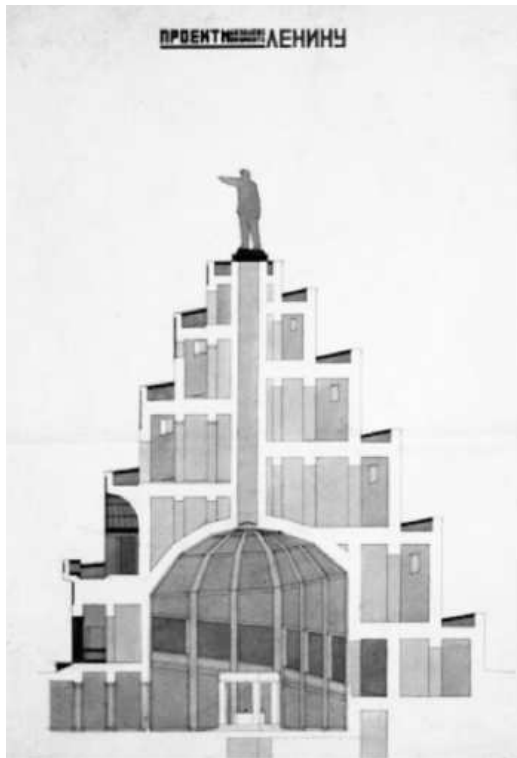
#### REALITY

However, the most simplified version of this Babylonian tower would be the one selected by the government for construction - that proposed by V. Shchusev. It was a small ziggurat of pure forms located in Red Square, next to the Kremlin wall, a design that met with the constructivist culture of the age.

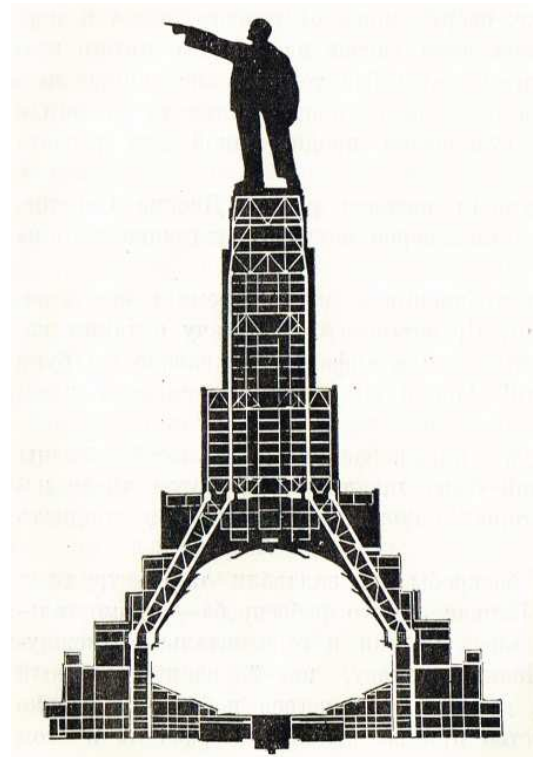
Originally the Lenin Mausoleum ziggurat was an ephemeral wooden structure (1925), but having become a pilgrimage destination for the Soviet people the government decided to immortalize the object, rebuilding it in concrete and reddish marble (1929).

The final construction of the Mausoleum overlaps with the competition for the Palace of the Soviets, which allows us to interpret both competitions as one process, a mutation of the concept of a monument to Lenin.

25. Русская Утопия: депозитарий (on line). <http://utopia.ru/english/item.phtml?id=308&type=graphics&sortBy=author&start=150>



**Figure 45.** S. Kolotov. Lenin's mausoleum. 1925. Proposal project for competition.



**4 Figure 6.** Structural schema of Palace of the Soviet



The utopian projects that were rejected in the Mausoleum competition later became prototypes for the Palace of the Soviets. Hence the utopia of the Monument to Lenin would be taken up again at the beginning of the 1930s to become the true Stalinist icon.

## A MONUMENT TO LENIN

Stalin himself said "the Palace of the Soviets is a monument to Lenin. Don't be scared of height; go for it."<sup>(26)</sup>

The transformation of the Palace of the Soviets happened just when the utilization of classical architecture was officially ordered in the Presidential Assembly of the Soviet Union (28th February 1932). During this act the Central Executive Committee decided that construction should be aimed at using the best methods of classical architecture but should also be based on the achievements of modern architecture in construction techniques. Foreign projects were rejected.

After the abandonment of the construction of the Palace of the Soviets, its symbolic function was inherited by the series of tall buildings and, more specifically, by the State University of Moscow. Thus, the sequence of monuments to Lenin begins with the Mausoleum, continues with the Palace of the Soviets, and ends with the University building, which replaces the Palace of the Soviets in symbolism.

"After the war the expression 'Cathedral of Science' is applied to the new building of Moscow State University, which, in many ways, assumed the functions of the unrealized Palace of the Soviets."<sup>(27)</sup>

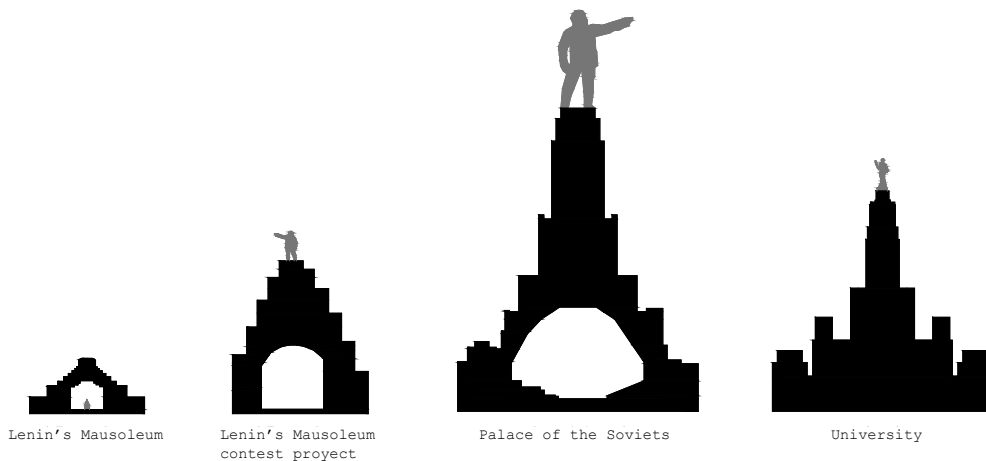
Although we can no longer see the statue of Lenin on any of the Stalinist high-rise buildings of Moscow, it originally topped the two most significant of the eight administrative tall buildings - Moscow State University and the Zaryadye building. The construction of the latter was abandoned in 1953, seemingly because it was dedicated to L. Beria, who was assassinated the same year, shortly after the death of Stalin.

At the last minute, the main building of the University switched the statue of Lenin for a needle or spire topped by the red star and a laurel crown, the symbol of communism.

26. Атаров Н. Дворец Советов //Московский рабочий, 1940.

27. Paperny V. *Architecture in the age of Stalin: Culture Two*. Cambridge University Press, New York. 2002. p.89

The red star was incorporated into the Kremlin towers for the first time in 1935 but it was after the communist victory in the Second World War that it was extended to all towers, integrating old and modern into one single figure of the capital, which extolled the Soviet spirit. The image of the red stars lit up at night dramatized the communist union and victory, a gesture that was meant to lift the spirit of a population devastated by the war.



**Figure 47.** Comparison schema of Lenin's mausoleum, Lenin's mausoleum proposal project, Palace of the Soviet and Moscow State University main building.

Given that what happened in the Soviet Union continued a dialectic of power and symbolism utilized by capitalism and other earlier cultures, it is worth recalling a chapter in the history of American architecture that took place before the conversion of the American skyscraper to Communism.

In the United States, coinciding with the unprecedented development of the economy and of vertical construction at the beginning of the century, American culture appropriated the most beautiful towers of Europe and integrated them into the design of their skyscrapers.

The American skyscraper surpassed any European tower in height, yet according to popular opinion it lacked beauty.

This beauty was admired in emblematic and historic European towers such as the Giralda in Seville or the San Marco Campanile in Venice. Theirs was a beauty that seemed unattainable for modern American constructions and so the formula of incorporating a replica of these towers in a skyscraper was a way of combining beauty and technology, history and modernity.

\* Professor Kagan explains the success of the Spanish Giralda in crowning their buildings: "This profusion of replicas lies in the strength of the Giralda as a symbol. (...) the young American society sought reference points and looked for them in Europe, above all in France, Italy and Spain. (...) A tower is a powerful element, as it gives a sensation of wealth and power, it attracts attention. (...) It begins to be copied because it was no longer seen as a Catholic symbol. Its separation from the religious liberated the Giralda, which then becomes an icon for bold American architects." (28)

This trend was begun by one of the most influential New York architectural studios, McKim, Mead and White, who incorporated a replica of the Giralda into their project of Madison Square Garden II (1890). Later, the studio used this same trick on their first skyscraper, the Municipal Building (1909-1914), which was the first administrative building in New York. Its central tower was crowned by an 8m golden statue (Civic of Fame), the largest of its time to top a building, a kind of American "giraldillo" that symbolised prosperity, triumph and victory.\*

Moreover, this superimposed tower was a recourse for exceeding the height limit permitted in some cities. For example, the Wrigley Building in Chicago had a tower inspired by the Giralda, but it was purely decorative so as to raise the height of the building over the then established urban limit.

"The observation room in the tower of the Wrigley Building was at that moment the highest point in the city. The upper part of the tower, the little circular temple together with its cupola, rising to 398 feet, had to be purely ornamental and unoccupied, however, because the building height limit in Chicago from 1920 to 1923 was 260 feet."<sup>(29)</sup>

28. Morente, A. *La Familia Americana de la Giralda*. El Correo, 4 Diciembre 2010. <http://elcorreoweb.es/la-familia-americana-de-la-giralda-BCEC377042>

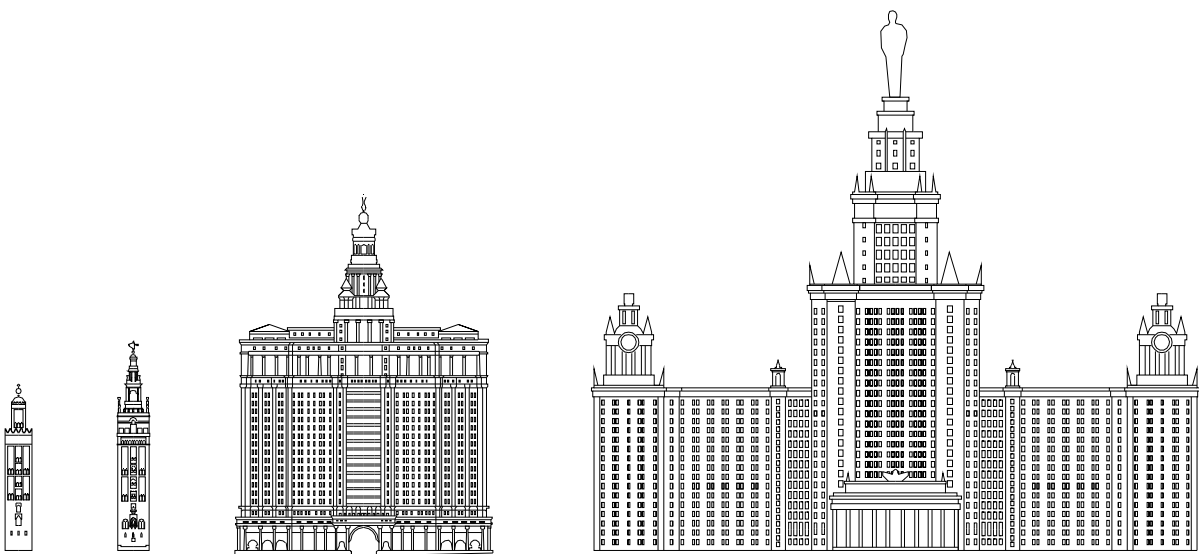
29. The Wrigley Building [on line]. Chicago, Wrigley Jr Company. [http://www.wrigley.nl/images/downloads/wrigley\\_building.pdf](http://www.wrigley.nl/images/downloads/wrigley_building.pdf)

270 m —

177 m —

104 m —

83 m —



**Figure 48.** Muslim Alminar -the Seville Giralda - Municipal Building inNew York -Main building of the Moscow State University (MGU) complex

Some of the many American buildings that incorporated a tower similar to the Giralda are: San Francisco's Ferry Terminal (1898), Buffalo's Electric Tower (1901), Coney Island's Dreamland Tower (1904), Chicago's Wrigley Building (1921), Miami's Freedom Tower (1925), Coral Gables' Biltmore Hotel (1926) and the Terminal Tower in Cleveland (1928).<sup>(30)</sup>

Another example of this American architectural attraction to the beauty of European towers is made clear in an article published in the New York Times on December 29, 1907, entitled "The Singer Tower soon to be in second place." Here, in a small section with the heading "A Reminder of Venice," the writer indicates that "there are so many suggestions of the old Campanile in the new skyscraper [Singer tower], indeed, that they might be called twin sisters. (...) The same fact is true of the tower of the Madison Square Garden."

Eric P. Nash, in his book "Manhattan Skyscrapers," discusses the enormous influence the Municipal Building had in other cities, for example on the Wrigley Building in Chicago (1924), the Cleveland Terminal Tower (1930), the Fisher Building in Detroit (1928) and the main building of Moscow University (1949-53).<sup>(31)</sup>

But this transformation of architectural landmarks from other cultures is not exclusive to American skyscrapers or to capitalism. We need go no further than the Giralda itself, which was a Muslim minaret to which a Christian bell tower was added after the Christian reconquest of Spain. The Catholic monarchs decided to "convert" it to Christianity instead of destroying it so they replaced the Islamic symbols that crowned it - three bronze spheres - for a bell tower topped by the "giraldillo".

At the beginning of the twentieth century, the central tower of the New York Municipal Building was topped with a kind of Giralda, crowned by a great statue, Civic Fame, which is the analogue of the Giraldillo.

After the capitalist crisis, the skyscraper taken by the communists and used it as a pedestal for the Soviet symbol. The Palace of the Soviets was a composition of a skyscraper crowned by a giant statue of Lenin that surpassed its forerunners in size and height - a symbolic game that was the dramatization of the conversion of the capitalist tower to communism.

30. Werner, L. *Third Generation*. April 2008, vol.59,n°2. <http://www.saudiaramcoworld.com/issue/200802/third.generation.html>

31. Nash, E.P. *Manhattan Skyscrapers*. Princeton Architectural Press, New York, 1999, p. 21.



**Figure 49.** A screenshot from the movie "New Moscow". Director, A. Medvedkin, "Mosfilm", 1938.



**Figure 50.** A shot from the movie "New Moscow". Director, A. Medvedkin, "Mosfilm", 1938. Photomontage that shows the new Moscow in contrast with the current state reflected in the previous image.

The Palace of the Soviets was the centrepiece of the "Urban plan for the rebuilding of Moscow" developed at the start of the 1930s. The protagonism of the Soviet skyscraper is made manifest in the film "New Moscow" (1938), a propaganda documentary that continuously compares the then current city with its future transformation by means of photomontage.

The transformation of Moscow into an especially beautiful and palatial city was produced both on the surface of the city and underneath it.

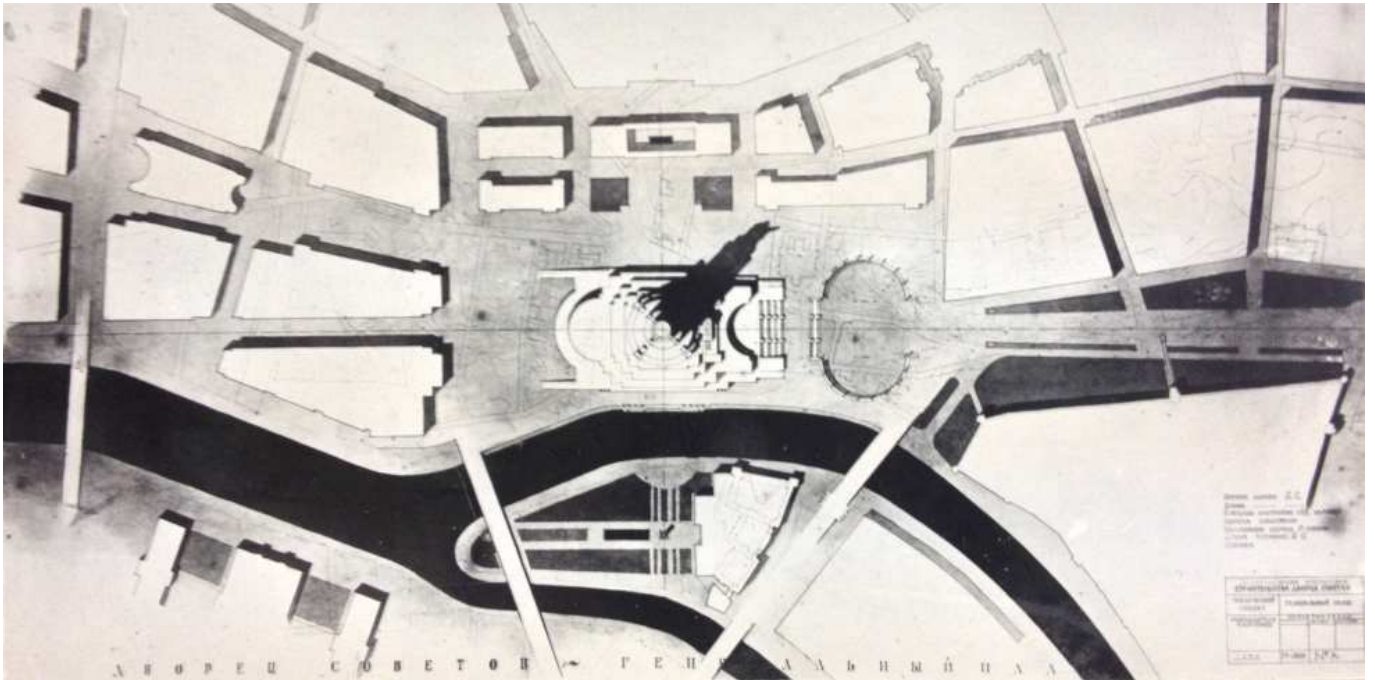
Curiously, it was the subterranean version of this Stalinist beautification of the city that was first made reality. The first metro line was opened in 1935, at that point still showing signs of the now fading avant-garde, and was followed by other projects that were more and more neoclassical, most of them reproductions of renaissance palaces and European gothic cathedrals. This phenomenon had already occurred in the USA and was now being repeated in the USSR but was also reaching underground public space.

On the surface, several competitions for administrative buildings were held. Aside from the Palace of the Soviets (1931), those that stand out are the competitions for the Heavy Industry Building (1934-36), the Palace of Radio (1934) and the Second Industry Building (1939), among others. None of them would come to be built, meaning that this period passed into history as the "Utopia of the 1930s".

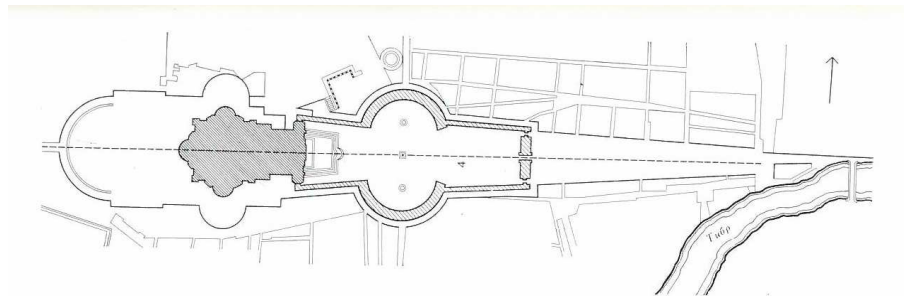
After the Second World War, this singular vision of the ideal communist city would be fulfilled by the high-rise buildings of Moscow.

The term "palace" was used in the first competitions of constructivism, such as in the Palace of Work (1922-1923). G. Ludvig's project for this competition reflected the mix of the symbolic romanticism of the era with the desire to tackle structural and technological issues. In the same competition, the Vesnin brothers' proposal set romanticism aside and became one of the first purely constructivist works.

At the beginning of the 1930s, the idea of a "palace" returns as a building that connotes power and wealth. The Palace of the Soviets competition was beginning of a new reality, leaving the formal experimentation of the avant-garde behind and progressively incorporating the language of classical architecture that endowed the modern city with beauty.



**Figure 51.** B.M. Iofan, V.G. Gelfreikh, V.A. Shchuko in collaboration with P.V. Abrosimov, M.V. Adrianov, A. I. Shcharanskiy, Y.B. Belopol'skiy, A.P. Velikanov, P.P. Kushnir', V.V. Pelevin, Y.F. Popov, L.M. Polyakov, I.E. Rojin, E.N. Stalo, I.I. Shmotkin, U.V. Shchuko, eng. G.B. Krasin, M.F. Gunter, B.A. Dzerkovich, V.A. Nasonov, N.V. Nikitin, sculptor S.D. Merkulov. Project of the Palace of the Soviets. Development of final version. 1935-1941. Plan. Version. March-September 1941



**Figure 52.** Proposal project of reconstruction of Saint Peter's Square by Karlo Fontana at the end of the 16th century. Site plan. Bunin, A.V. Sabarenskaya T.F. (1979). History of the Art of Urbanism (in two volumes). Istroyizdat. Moscow. 1979. In Russian p. 282.





**Figure 53.** 1939 Palace of the Soviets. Moscow. B.M. Iofan and V.G. Gelfreikh.



**Figure 54.** The Tower of Jewels, crowning architectural feature of the Panama-Pacific International Exposition in San Francisco (1915)

The urban vision that Iofan expressed in his initial proposal for the Palace of the Soviets was influenced by his past in Rome, where he studied to be an architect (1916). His project was a monumental composition that geometrically recalls the square of the Vatican, a religious connotation was not the most appropriate in the communist context. Regardless of whether Iofan intended this comparison between palace and cathedral, it was evident and was mostly obviously seen when the Cathedral of Christ the Saviour in Moscow was destroyed to make way for the Palace of the Soviets.

In the USA the reconstruction of the principal cities at the end of the nineteenth and beginning of the twentieth centuries was a phenomenon that began with the Chicago Universal Exposition in 1893, and the so-called "Beautiful City Movement" (whose main advocate was D. Burnham), and culminated in the Panama-Pacific International Exposition (PPIE) in 1915.

The PPIE was the representation of the ideal city. The exposition envisaged a grandiose dream of a city that had just been destroyed by the 1906 earthquake and ensuing fire.

This urban utopia was particularly akin to the pretensions of the New Moscow and its urban plan of 1935. In both there was a central tower that surpassed any other construction in height, both of them similar in form but with different names: Tower of Jewels and Palace of the Soviets.

The exposition had eight thematic pavilions, a series of palaces that housed the different ministries - Industry, Mines, Transport, Education, etc. It was a composition characteristic of the urban planning of the age and is comparable to that carried out in Moscow, where the eight projected Stalinist skyscrapers formed part of a planned whole.

In both cases a centenary anniversary was commemorated: 400 years since the discovery of the Pacific Ocean and 800 years since Yuri Dolgoruki founded the city of Moscow.

We can therefore say that, due to the capitalist crisis at the beginning of the 1930s, the Soviet Union symbolically took over the most utopian version of the capitalist beautiful city. The transformation of the tower formed part of a more complex urban process.

## B. IOFAN IN THE USA

Iofan, Shchuko and Gelfreikh travelled to the United States in search of information on the construction technique of the skyscrapers that would enable them to develop the detailed plan drawings of the Palace of the Soviets with solvency. Moreover, the architects wanted to study the urban phenomenon of the skyscraper and draw conclusions applicable to Moscow.

Ejgel writes: "Travelling to New York, Washington, Chicago and other big cities enabled Iofan not only to get to know the architecture of the main public buildings but also to study its urbanism, the housing, the organizations and the vertical transport of the skyscraper, the industry and the use of new materials in construction."<sup>(32)</sup>

For Iofan, American architecture was the discovery of a new scale, the possibility of implementing his interest in monumental architecture. One must bear in mind that Iofan's source of inspiration was Italy and its monument sites from the Renaissance, the Baroque, and ancient Rome.

It is precisely here where the Iofan's dreams of monuments connect with a city that mixed tradition and modernity. The passion for traditional architecture and the neoclassicist style was shared by the American architects who were giving shape to New York.

Iofan's interest in monumentality and his admiration for the simple forms of the past connect with the vision of H.W. Corbett, specifically with the modern idea of the classical city.

32. Эйгель И. Борис Иофан // Стройиздат, 1978.

\*Oltarzhevsky, influenced by the vision of H.W. Corbett, defined skyscrapers as "powerful symbols of a new era in the history of the technological and modern civilization of Babylon."

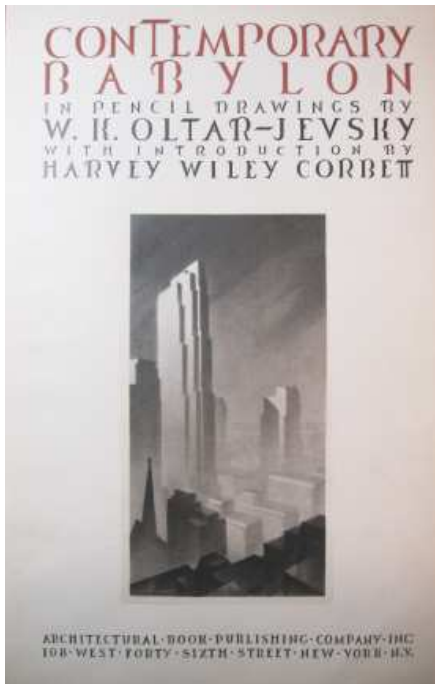
The connection between Iofan and Corbett was enabled by Oltarzhevsky, who served as guide to the expedition of Russian architects in New York. From what little information we have of this trip, the most noteworthy is the drawing Iofan made of Rockefeller Center, the first city of towers on Manhattan itself. It is important to mention that between 1931 and 1934 Oltarzhevsky worked in the studio of Wallace Harrison, one of the architects of this skyscraper complex. This period coincided with the time that Oltarzhevsky wrote his work "Contemporary Babylon".\*

Maria Kostyuk wrote an article entitled "Iofan in USA", in which she explains the impact of his trip and, in particular, the Rockefeller Center complex: "They were struck by the Radio City complex in New York. There survives a sketch the architect made of this building where large setback shapes, not very deep, appear in the main body. It is obvious that Iofan used his knowledge of American architecture for the design of the skyscraper ensemble (in Moscow)."

The Soviet Union was more interested in closely following the experience of the United States than in producing new experiments. This theory is confirmed by the Soviets' interest in holding an exposition on American architecture in the USSR, an idea proposed by Iofan to A. Neumann in 1934, who was in charge of USSR Business in the USA. The possibility that the exposition could be held was debated in a letter between Iofan and K.S. Alabyan <sup>(33)</sup>.

The most significant result of Soviet-American contact was, without a doubt, the construction of the seven Moscow skyscrapers in 1950, though the system of circular organization of dominant high volumes around a central point is more characteristic of the urban structure of Moscow and of the Kremlin itself.

33. Иофана В.М. Письмо Alabyanu KS 08.11.1934, РГАЛИ ф, ф. № 674, оп. 1, ed. Mts. 14, л. 9.



If we analyse the works that Iofan carried out in the 1930s, the Soviet Pavilion of the Paris Expo in 1937 and the pavilion of the 1939 New York International Exposition, we can see the influence the Rockefeller Center had on his architecture.

**Figure 55.** Contemporary Babylon in pencil drawings by W.K. Oltarzhevsky with introduction by Harvey Wiley Corbett

**Figure 56.** Sketch by B.M. Iofan of the Rockefeller Center in New York.

## SPEECH

When bearing in mind that the administrative building projects of the 1930s were a platform for the future high-rise buildings of Moscow, and that they were instigated from 1934, the speech Iofan gave upon his return from the United States is especially relevant:

"I believe that part of the Palace of the Soviets should make a transition to buildings of normal height. We need to give it some type of base. Thus it seems right that around the Palace of the Soviets, at a determined distance, there should be several buildings of great height that connect to the Palace of the Soviets and the city at height. (...) It is quite clear that in the United States it was not possible to create a coherent urban whole, which is why the city skyline arose by chance. We must return to the question that surrounds high-rise buildings. When we look at the Empire State Building, it can be seen just as well from a distance of 500m as from a mile, given the great height of the building the distance reference is lost, giving the sensation that the skyscraper is the next building you'll find. (...) For this reason we must pay attention to the Moscow skyline, to the way of distributing high-rise buildings and to what surrounds them, to how they will be supported by other buildings, etc."<sup>(34)</sup>

34. Выступление Иофана Б.М. на московском собрании архитекторов о проекте Дворца Советов. - ВГАЛИ, ф. № 2094, оп. 1, е. х. 474, л. 8-9.



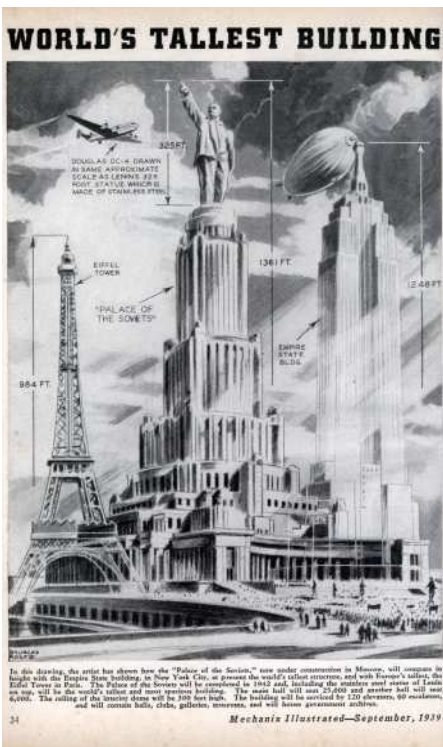
**Figure 57.** Paris 1937, architect B. Iofan, sculptor V. Mukhina. German and Soviet Pavilions. World Expo in Paris.

The most significant points of Iofan's speech are as follows:

1. The clear intention of surpassing the capitalist model, criticizing the American experience and describing it as a set of chaotically stacked skyscrapers.
2. The necessity of incorporating high-rise buildings in order to create an architectural ensemble and to provide a scale of reference for the monument tower.
3. The importance of closely studying the best location for the high-rise buildings.
4. Finally, the fact that he expressly mentions the Empire State Building as the main symbol to be surpassed.



**Figure 58.** Architect B.M. Iofan working on project of Palace of the Soviets. Architects B.M. Iofan, V.G. Gelfreikh, V.A. Shchuko in front of project.



**Figure 59.** World's tallest building. The footnote in the publication says: "In this drawing, the artist has shown how the "Palace of the Soviets," now under construction in Moscow, will compare in height with the Empire State building, in New York City, at present the world's tallest structure, and with Europe's tallest, the Eiffel Tower in Paris. The Palace of the Soviets will be completed in 1942 and, including the stainless steel statue of Lenin on top, will be the world's tallest and most spacious building. The main hall will seat 25,000 and another hall will seat 6,000. The ceiling of the interior dome will be 300 feet high. The building will be serviced by 120 elevators, 60 escalators, and will contain halls, clubs, galleries, museums, and will house government archives."



**Figure 60.** B.M. Iofan in collaboration with arc. M.V. Adrianov, K.S. Alabian, Y.B. Belopolskiy, U.P. Zenkevich, D.M. Iofan, P.P. Kushnir', sculptor V.A. Andreeva. Project of USSR pavilion for International exhibition in 1939 in New York. 1938-1939. Perspective view.

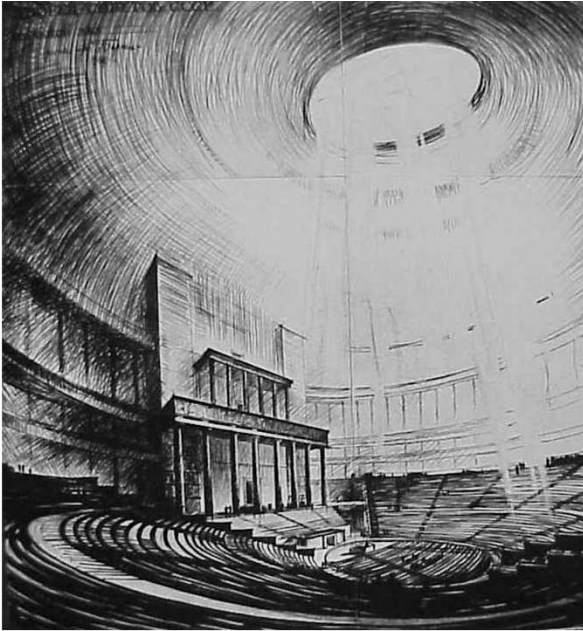
## CONFRONTATION

The USSR's ideological confrontation was not exclusive to the USA. The struggle between world powers is reflected in some of the most important international expositions of that period.

For example, the confrontation between Germany and the Soviet Union was expressed by the organizers of the Exposition in Paris in the placement of both pavilions in front of one another. The German pavilion was a vertical composition that had a tower crowned with the Third Reich emblems, a swastika and an Eagle. The Soviet pavilion was a horizontal composition, very dynamic and reflecting the growth of the Soviet economy.

Citizens of the USSR never got to know about such a confrontation because all panoramic photos showing both pavilions were cut in such a way that the Soviet pavilion appeared isolated.

The gradually rising stepped blocks of the USSR pavilion culminated in a tower serving as a base for the famous sculpture "Worker and Collective Farm Girl." Iofan's design could have been influenced by his recent visit to the RCA building in New York. In fact, the act of topping a capitalist building with a Soviet sculpture again represents the conversion of the American skyscraper to Communism. The pavilion repeats the meaning represented by the Palace of the Soviets, an idea again expressed by Iofan for the USSR Pavilion at the International Exhibition in New York in 1939.



**Figure 61.** B.M. Iofan, A.I. Baranskiy, B.V. Polotskiy, Y.F. Popov, D.M. Tsiperovich. Drawing of Shcharanskiy. Competition project for Palace of the Soviets in Moscow. First closed competition. 1932. Interior of Big hall.



**Figure 62.** Radio City. Music hall. (The fun never sets). Rockefeller Center in New York.



During the 1930s, Stalin's dreams of monumentality were invested in the Palace of the Soviets. The great Soviet symbol had a pantheonic interior space that was an immense auditorium with a capacity of 15,000 people, where Stalin could raise the spirits of the faithful.

\* In 1930, John D. Rockefeller Jr. presented a plan for a shopping mall with office skyscrapers, theatres, and cinemas around a central square, and for a tiered, 70-floor building that would house the NBC radio network and would head the new complex, which would receive the name "Radio City". To execute the plan he brought together a team of architects led by Raymond Hood, Harvey Wiley Corbett and the young Wallace K. Harrison.

Radio City has 5,391 seats, although it can increase the capacity to 6,015 seats. When it opened it became the largest cinema theatre in the world. The Music Hall opened to the public on 27th December 1932. (36)

Its American counterpart was Radio City Music Hall in New York, which was the world's largest when it opened in 1932. It had a capacity of 6000 people and was a horizontal space designed to represent a spectacular sunset, aided by extremely sophisticated lighting technology. During the show special effect smoke was emitted that was lit up with orange lights.

A theatre unlike any in the world, and the first completed project within the complex that RCA head David Sarnoff dubbed Radio City Music Hall, a palace for the people. A place of beauty (...). It was intended to entertain and amuse, but also to elevate and inspire.<sup>(35)</sup>

Paradoxically, the ideology that was the origin of both spaces was diametrically opposed.

The auditorium of the Palace of the Soviets was a mix between pantheon and Roman coliseum, a vertical space that connected directly with the sky. The auditorium was a space that gathered the courage that history conferred upon it, where light opposed darkness.

Despite using opposing dialectics, both spaces were conceived for the same purpose, which was none other than to sink the spectator into a deep dream to escape reality. Both generated a feeling of admiration for the social system to which they belonged.

35. Radio City Music Hall. *History*. <http://www.radiocity.com/about/history.html>  
 36. Alvarez Soto, E.C. *Historia de los rascacielos de Nueva York* [blog]. Mayo 2014. <http://historiadelosrascacielosdenuevayork.blogspot.com.es/2014/05/1930-crisis-y-records-primera-parte.html>



**Figure 63.** Construction of the Palace of the Soviets foundations.

The Nazi attack on the Soviet Union and the ensuing entrance of the USSR into World War Two in 1941 brought about the dismantling of the structure of the Palace of the Soviets. This fact represents the death of the Soviet monument-tower. Its life began with the Monument to the Third International in 1919 and since then the monument tower embodied different forms.

According to documents from the period, in particular N. Atarov's book "The Palace of the Soviets" (1940), the structure came to reach only four or five floors in height. After the German invasion in 1941 the steel was melted down and reused for weapons manufacturing. Its foundations were left abandoned until after the Stalinist era when it was converted into a great open-air swimming pool.

*\* There are many reasons relating to the non-construction of the Palace of the Soviets. One of them is that they miscalculated the amount of steel they would need and the capacity of the steel factories. Somebody said that every steel factory would have to work for a year just for the Palace of Soviets and everything else would have had to be stopped, some people said that it was the ground, that there would be structural problems when the big statue was added, the load distribution "...or something was a problem. Anyway, there is no definite answer. There are many different theories." (38)*

It is not clear why the construction of the Palace of the Soviets was not taken up again after the Second World War, and it seems that there is not only one version of the story\*. On the one hand there were construction problems and water seepage that occurred during the construction of the foundations, which sowed doubts as to the future tower's stability. On top of this, one must add the shortage of material and technological resources after the war.

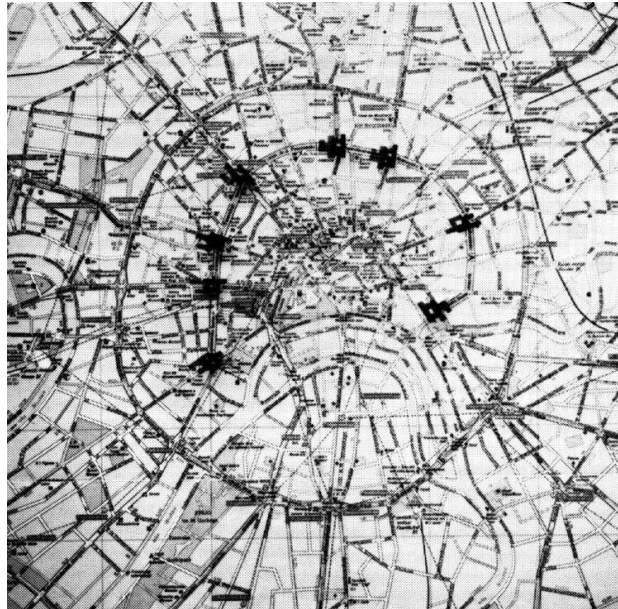
In conversation V. Paperny gave his opinion on why it was not built: "there are millions of different explanations but most likely it was a technical reason. It was the ground or another problems related to the supporting of the heavy statue."<sup>(37)</sup>

On the other hand, the start of the Cold War accelerated the transition of an urban model that was totally centralized to one that was decentralized. It was quite evident how easily a central target could be attacked, as opposed to the more defensive strategy of creating a series of high-rise buildings spread throughout the city.

Lastly, there is also the theory that the nature of the Palace of the Soviets was purely symbolic, that is, it was not a monument whose purpose was to be built, but rather the mission of this icon was to keep the faith of the people in the communist system alive.

37. Extract from Vladimir Paperny's interview by the author.

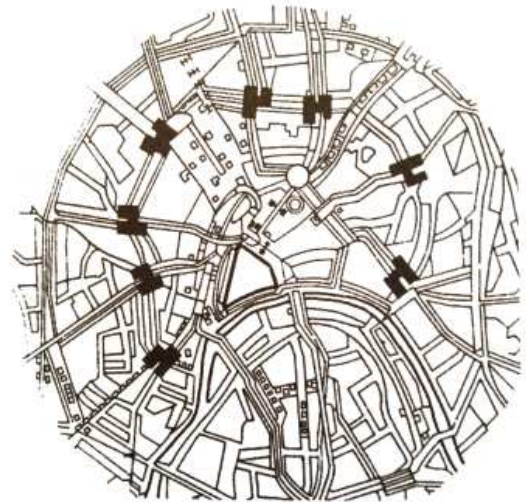
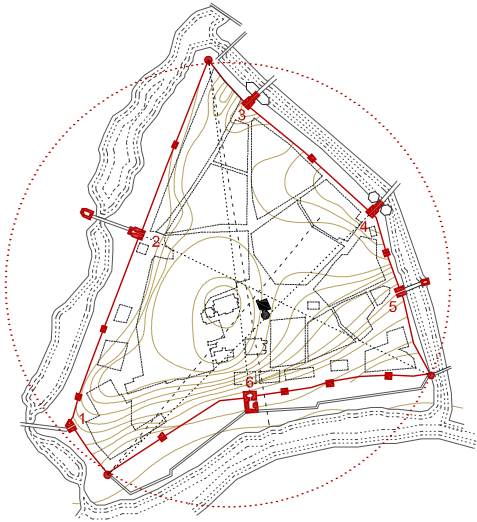
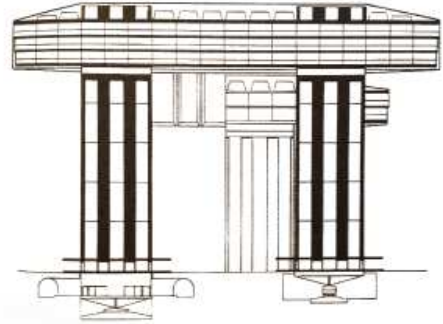
38. Ibid.



**Figure 64.** Eight structures planned by El Lissitzky along the Moscow Boulevard Ring.

CHAPTER 2

EIGHT HIGH-RISE BUILDINGS (8)



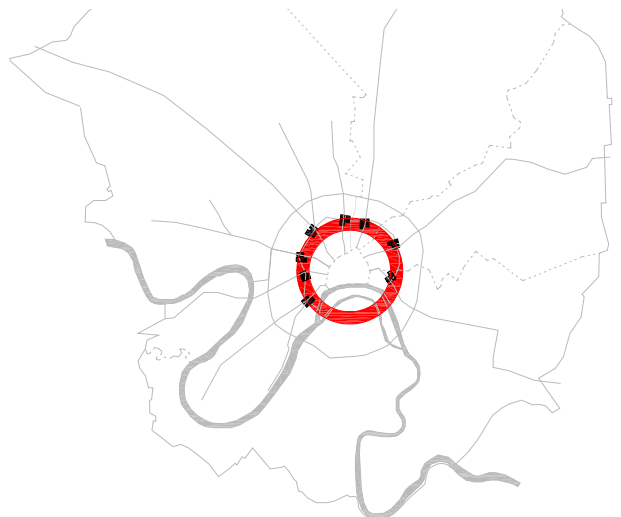
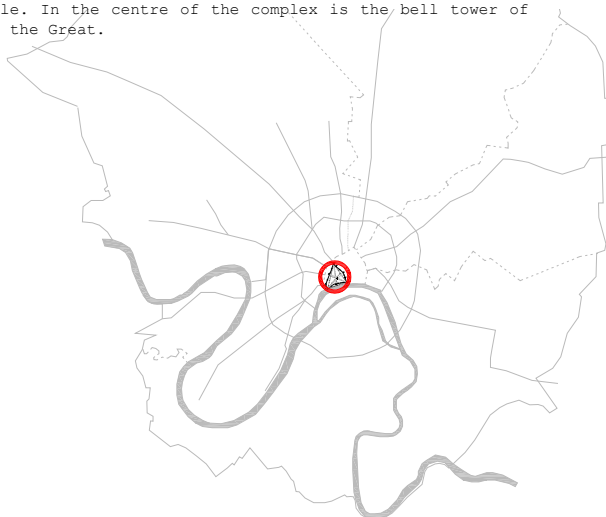
Kremlin's gates (16th Century):

- 1- Borovitzkie Gate 2- Troitzkie Gate 3- Nikolskie Gate
- 4- Spasskaie Gate 5- Timofeevskie Gate 6- Tainitzkie Gate

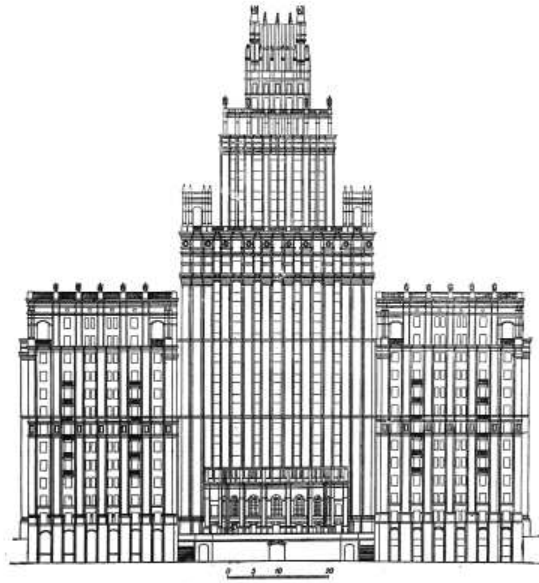
The Kremlin has similar geometry to an equilateral triangle. At the midpoints of its sides are the main entry gates, of which the Spasskaya gate is the most notable. On the corners are the cylindrical towers that are inscribed in a fictitious circle. In the centre of the complex is the bell tower of Ivan the Great.

Lissitzky gates (1923-1925)

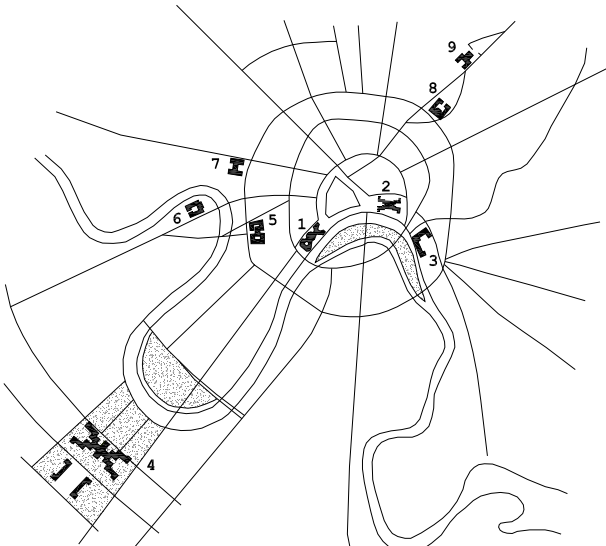
The horizontal skyscrapers of El Lissitzky are located on the intersection of the main avenues and the Boulevard ring road.



ENTRY GATES TO THE C



**Figure 65.** Evolution of the typology of the monumental city entrance gate. The medieval tower (Spasskaya) in the Kremlin, the El Lissitzky horizontal skyscraper and the Stalinist high-rise (Krasnie Vorota).

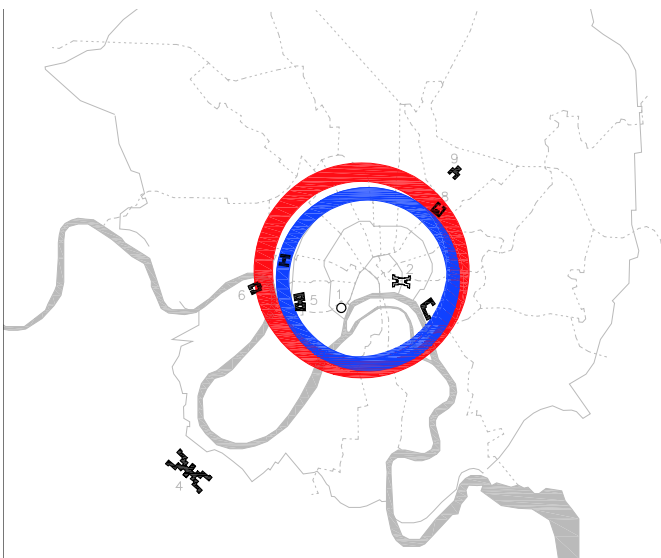


High-rise administrative buildings (series of Stalinist skyscrapers) of Moscow (1947-1954)

- 1 - Palacio de los Soviets 2 - Zariaide 3 - Kotelnicheskaja
- 4 - University 5 - Smolenskaia 6 - Ukraina Hotel
- 7 - Vosstaine Square 8 - Krasnie Vorota 9 - Komsomolskaia

The series of high-rise Stalinist buildings have a dispersed arrangement over Moscow. Their position is mainly associated with the winding of the River Moskva, the Garden ring road and the southeast-northeast axis.

**Figure 66.** Evolution of the concept gates of the city, from the fortress of the Kremlin, passing through El Lissitzky's concentric system, to the dispersed model of the Stalinist city.



**Figure 67.** Evolution of the rings of monument towers of Moscow.

## MONUMENT GATE

The system of city entrance towers located around a central point is characteristic of the urban structure of Moscow, originating in the defensive structure of the Kremlin.

When El Lissitzky designed his horizontal skyscrapers, he situated them on Boulevard Ring Road, which represented the entrance to the city in that period. His skyscrapers were administrative buildings that reinterpreted the form of the triumphal arch\* and the gates of the medieval towers, which served as access filters to the city. Some, like the Sukharev tower, had an administrative function.

\* The last of the triumphal arches to be destroyed was Red Gates (in Russian, Krasnaya Varota), which gave its name to square, the metro station and the Stalinist high-rise.

When the decision was made to construct the high-rise buildings two decades later, Moscow had grown. The border between city centre and periphery was now situated on Garden Ring Road, near to where the principal train stations were: Kievskaya, Taganskaya and Komsomolskaya.

Kievskaya - The Ministry of Foreign Affairs building is oriented towards Kiev station, at the city's west entry point. The building beckons as the entrance to the city, a central element of the architectural layout of Smolenskaya Square. However, it interacts with other high-rise buildings like that of Moscow State University.

Komsomolskaya - The high-rise building of the Red Gates would become the centre of the largest urban nodes of Moscow. Its relation with the Hotel Leningradskaya creates a great urban "lobby", close to the location of the three stations (Leningrad Station, Kazansky Station and Yaroslavl Station). The building of the hotel also became an urban landmark that defined the entrance to Kalanchevskaya Street, which led to the centre of Moscow.

Taganskay - Originally, the construction of a dominant element on Savelovsky-Taganskaya Square was proposed and then other areas of the city were suggested. Finally, it was decided to place the tallest building on Sparrows Hill, which marks the principal direction of urban development - from the centre toward the southwest.<sup>(39)</sup>

39. Ромодин Д. Сталиниские высотные здания // Адреса Москвы №1/37, 2008



## URBAN ENSEMBLE

David Arkin said: "On the main squares of cities the Houses of Soviets, governmental and administrative buildings were usually situated. They created the nucleus of an ensemble. (...) So an ensemble has become the new unit of measurement for architectural space placed over a street, a square, a boulevard, a district and an entire city. The socialist city was foreseen by its creators as 'an association of big artistic ensembles'."<sup>(40)</sup>

In order to develop the Moscow Urbanization Plan in detail, the territory was divided into different districts or "ensembles," architects' studios were created, and these units were then assigned to each.

Architectural-city planning workshops were then organized under the guidance of V. Semenov and S. Chernyshev in order to develop these ensembles as envisaged in the 1935 General Plan of Moscow.

"In order to be able to elaborate all these different projects in depth, Se-menov himself but also critical voices on the Masterplan, as well as political figures, argued for a more efficient instrument for the execution of the general plan. The reorganisation of the planning institutions led to the setting up of ten architectural and ten urban-planning ateliers, the so-called masterskajas. These ateliers were to create that unity from an integrated organisation of a whole architectural network."<sup>(41)</sup>

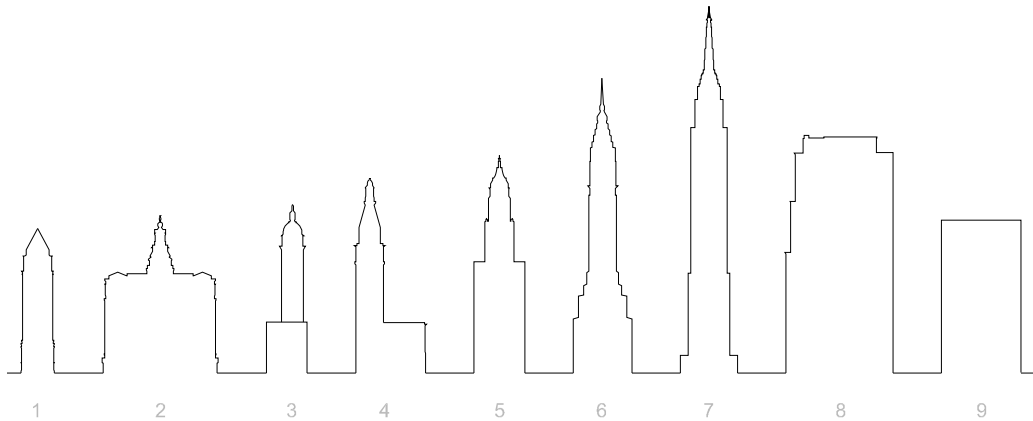
The circular organization of tall structures around a central point forms a monumental whole that assures the referential urban continuity of Moscow, making an analogy with the towers of the Kremlin.

It is really here that the great difference between American and Soviet skyscrapers lies, not so much in their formal aspect or architectural style, but in the opportunity that they afforded Communism to plan a series of skyscrapers for all Moscow and to build them simultaneously.

40. AA.VV. Stalinistische architektur. ICOMOS. Berlin. 1995. p.74-75

41. Ibid

Figure 68. New York's Skyline



1 - 14 Wall Street (1910-1912) 164 m. 2 - Manhattan Municipal Building (1907-1914) 180 m. 3 - Singer Building (1906-1908) 187 m. 4 - Met Life Tower (1893-1909) 213 m. 5 - Woolworth Building (1910-1913) 241 m. 6 - Chrysler Building (1928-1930) 319 m. 7 - Empire State Building (1929-1931) 381 m. 8 - GE Building (1930-1933) 260 m. 9 - ONU Building (1948-1952) 155 m.

## SKYLINE

Nikita Khrushchev made the reason for rebuilding the Moscow skyline clear in his memoirs, where he quotes Stalin: "We won the war ... foreigners will come to Moscow, walk around, and there's no skyscrapers. If they compare Moscow to capitalist cities, it's a moral blow to us."<sup>(42)</sup>

When it came to executing the design of the new Soviet skyscrapers, the study of their American counterparts is made quite evident. "Many of the general principles for the design of tall buildings were, of course, borrowed from the West. Not accidentally, all of Moscow's skyscrapers are made in the same style, which is closest to the style of the Municipal Building."<sup>(43)</sup>

But at the same time, they had to show their originality and their roots in traditional Russian architecture. "However, confirmation of the uniqueness of the Soviet architectural style is the spires of our high-rises, different to the ones in New York skyscrapers. You cannot find them in other U.S. cities."<sup>(44)</sup>

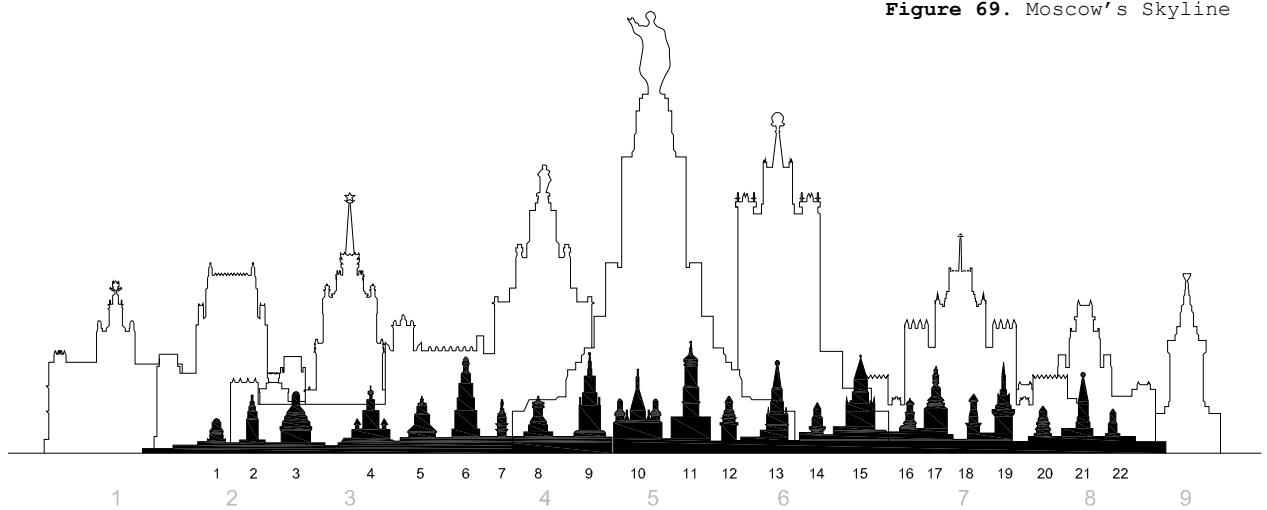
The originality of Soviet skyscrapers was a question of such relevance that the introduction to the first official

42. *Stalin and Architecture*. p.11. <http://www.archi.ru>

43. Kruzhkov, N. *High-Rise Buildings of Stalinist Moscow: Facts from the history of design and construction*. Moscow. 2011.

44. Ibid

Figure 69. Moscow's Skyline



1 - Kudrinskaya Square Residential building. 2 - Ministry of Foreign Affairs. 3 - Hotel Ukraina. 4 - Moscow State University. 5 - Palace of the Soviets. 6 - Zaryadye Administrative Building. 7 - Kotelnicheskaya Embankment Building. 8 - Red Gates Administrative Building. 9 - Leningradskaya Square Hotel.

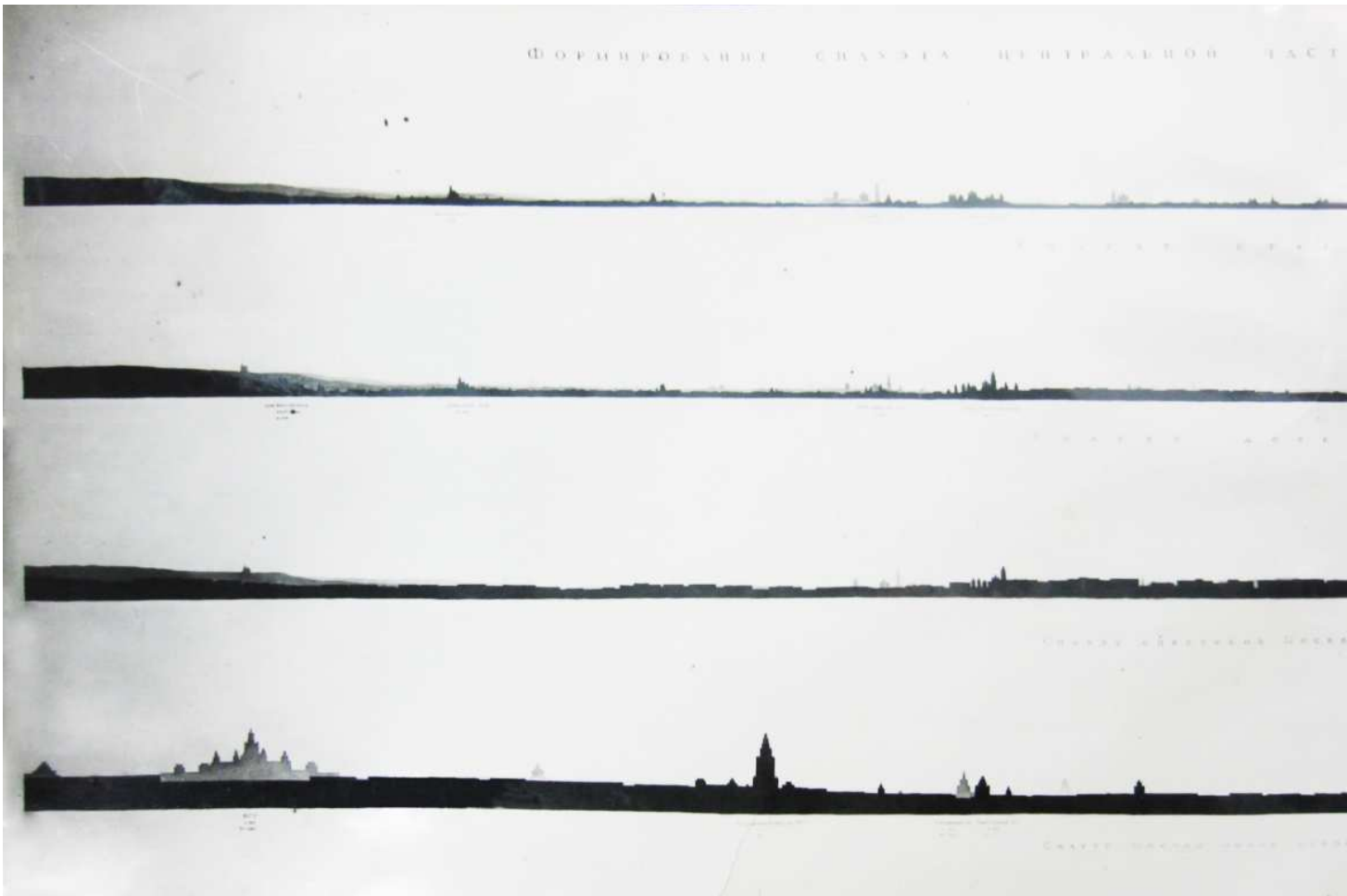
1 - tower of Kremlin. 2 - Kadashi. 3 - Tower "Dulo". 4 - Church Fili. 5 - Church in Novodevichii Monastery. 6 - Belfry in Novodevichii Monastery. 7 - Tower in Korovniki. 8 - tower of Kremlin. 9 - Spassky Tower. 10 - Vasili Blajeni. 11 - Ivan Veliki. 12 - tower of Kremlin. 13 - Nikolskaya Tower. 14 - tower of Kremlin. 15 - Troitsky Tower. 16 - tower of Kremlin. 17 - Arsenal Tower. 18 - tower of Kremlin. 19 - Vodovzvodnaia Tower. 20 - tower of Kremlin. 21 - Borovitskaya Tower. 22 - tower of Kremlin.

publication on the series of Moscow high-rise administrative buildings (1951) states: "Of great importance were the directions of the government to the architects of the high-rise buildings. These directions include - the proportions and silhouettes of the high-rise must be original and their architectural composition should be connected to the historical context and the future silhouette of the Palace of the Soviets. This is why the projects should not copy the known foreign examples of multi-storey buildings. (...) The high-rises built in Moscow are profoundly different from the 'skyscrapers' in the capitalistic cities, which clutter the streets, taking light and air away from the citizen."

On the other hand, overcoming the icons of "the old culture" meant the reconstruction of the Moscow skyline, which had disappeared after the destruction of numerous religious towers and Orthodox monasteries.

"References to the relationship of the tall buildings in Moscow to the most representative patterns of Russian architecture can be found in all publications issued during that period of time. However, authors didn't mention certain images, because those images were church bell towers and monastery towers (the USSR was the country of atheism). Among the most frequently mentioned images was the Temple of Ascension in Kolomenskoye."<sup>(45)</sup>

45. Extract from Krushkov's interview by the author. April 2012.



## THE RETURN TO TRADITION

The meaning of the Soviet skyscrapers of Moscow is explained by V. Paperny thus: "For me it's the return to tradition more than borrowing from the west, because first of all, all the monasteries also have military purposes. They were the walls protecting the city. So it was in this sense again that those "monasteries" were protecting the city but this time from the air."<sup>(46)</sup>

D. Chechulin himself explains certain details about the creation of the set of high-rise buildings in his memoirs, and mentions his invitation to A.V. Shchusev, who advised on the ideal location for the construction of the high-rises.

"Talking about the fruitfulness of the idea of building high-rise buildings, I want to emphasize once more their city-forming character. Let me illustrate this by the example of a tall building on Smolensk Square ... Prior to its

46. Extract from Vladimir Paperny's interview by the author. Moscow. 2012.



**Figure 70.** Historical development of the skyline of Moscow

1. Old Moscow
2. Moscow before the Revolution
3. Soviet Moscow before construction of the high-rise buildings
4. Moscow after construction of Palace of the Soviets and high-rise buildings

construction there was no square in there. A.V. Shchusev, who advised on the choice of locations for the construction of tall buildings, thought they should be put on the Smolensk vertical scale in order to visually discover, to reveal the road of Borodino Bridge."<sup>(47)</sup>

Iofan stressed the need for careful reflection on the location of these buildings: "I can't imagine the high-rises lined up like toy lead soldiers, but neither can we allow their location to be accidental."

D. Romodin highlights the location of the high-rise buildings as one of the keys to urban beauty: "for each building the architects have determined the most appropriate location in terms of the beauty of the city skyline, as Moscow has a different kind of topography."<sup>(48)</sup>

47. Чечулин Д. Жизнь и зодчество // Молодая гвардия, 1978. л.76-77.

48. Romodin D. *High-Rise Stalinist Buildings*. Moscow. Number 1/37. 2008

## LOCATION

The building arrangement dealt with various questions such as topography, geological conditions, and strategic positioning according to the route of the main avenues and the location of the city entry points. The joining of these "physical" parameters sought to achieve beauty and a new urban image.

"Choosing the location of the high-rise buildings, the architects have determined for each the most appropriate location in terms of beauty of the city skyline." (46)

As noted in the text "Stalinist town planning in Moscow" by Alexander Kudryavtsev & Tatiana Pereliaeva, the General Plan discussed the following:

- a) The extension of the city according to the historically established radial concentric system which included the Moskva and Yauza rivers in the inner composition, and its perfection according to the needs of the contemporary city.
- b) A development of the central ensembles of the city, which are oriented directly to the river.
- c) The design of the embankments as a majestic city highway architecturally saturated, unifying all the significant ensembles and gathering both parts of the city divided by the river together in a whole.
- d) The utilization of the embankments for the construction of residential quarters with comfortable housing alongside them.
- e) A concentration along the river of great and important spaces with a specific function, meant to accommodate the majority of the city population.
- f) Conjunctions between these spaces and the river: highways, squares, centres of housing districts, and so on.

The most favourable places for building skyscrapers were Smolenskaya Square and the square of the Red Gate. These two locations have a conceptual symmetry and are on opposite extremes of the southwest-northeast axis.

The Smolenskaya Square Building is oriented in the direction of the main axis in the near Kiev Station, at the west entrance of the city. The building is a landmark at the city entrance. However, it interacts with other high-rise buildings, such as that of Moscow State University.

The administrative building of the Red Gates would thus become the centre of the planned architectural ensemble. Its interaction with the large Hotel Leningradskaya generates

a great "lobby" for the city in the three stations zone. The hotel, located approximately on the Komsomolskaya axis, takes on the role of architectural landmark. The entrance to Kalanchevskaya Street leads to the centre of Moscow.

To summarise, the location of the high-rise buildings of Moscow is the result of an intersection between two circles, Garden Ring Road and the circular line of the metro. To these we must also add the axis that joins Smolenskaya Square and the square of the Red Gate. These two locations maintain a conceptual symmetry, being at either end of the southwest-northeast axis, one near the Kievskaya station and the other near the three stations of the north.

#### MOSCOW RIVER

Among the factors that determined the positioning of the skyscrapers, perhaps the most important was the Moscow River. Once it was made navigable after the Moscow-Volga canal was finished (1932-1937), it became one of the principle routes of access to the city. If we look at the objectives of the 1935 general plan, the river was always present as a central element of the new city.

The role of the main landscape and architectural axis of the city marked by the new monumental buildings, with the Palace of the Soviets at the head, was oriented to the Moscow River.

In another meeting regarding the 1935 Master Plan for the reconstruction of Moscow, it was said: "the hills of the topography of the Moskva and Yauza rivers, that cut Moscow in different directions and the prosperous parks of the city, provide an opportunity to connect all the diversity of different parts of the city and build a truly socialist city."

Here is a further reference to the importance of the Moscow River and the Kremlin in the composition of the high-rise buildings: "The system of high-rise buildings develops two principal historical traditions for the distribution of vertical buildings: along the Moskva River and around the Kremlin. Seven high-rise buildings were situated at the assembly points of the city plan on the intersections of radial highways with the Garden ring road and the Moscow River, having the University as a keynote on Lenin's Hills."<sup>(49)</sup>

49. Tarkhanov, A., Kavtaradze, S. *Stalinist Architecture*. London, Laurence King Publishing, 1992. p.75-80.



**Figure 71.** One of the drawings of the series -Palaces of Communism. 1935-1941. Yakov Chernikhov

## PLAN OF 1946

Documents exist that show that initially the number of high-rise buildings planned to accompany the Palace of the Soviets was greater than eight. Specifically, there was a plan created prior to the proposal announced in 1947 that shows more than eight high-rises.

The plan represents in fair detail the contour lines of the centre of Moscow and the positioning of the high-rise buildings at higher-altitude sites. It shows three high-rise buildings other than the eight already known - not counting the Palace of the Soviets. One of these is located near the junction of Novoslobodskaya Street and Garden Ring Road, to the north, and another two of lesser category\* to the south, anticipating the future expansion of the city (one near Novie Cheremushki and the other on Varshavskoe Avenue). The description in the 1951 publication shows the creation of a new district to the south, the centre of which would be the University complex: "the architectural ensemble is finely connected with the overall skyline of Moscow, it becomes the centre of the new Yugo-Zapadnaya district."

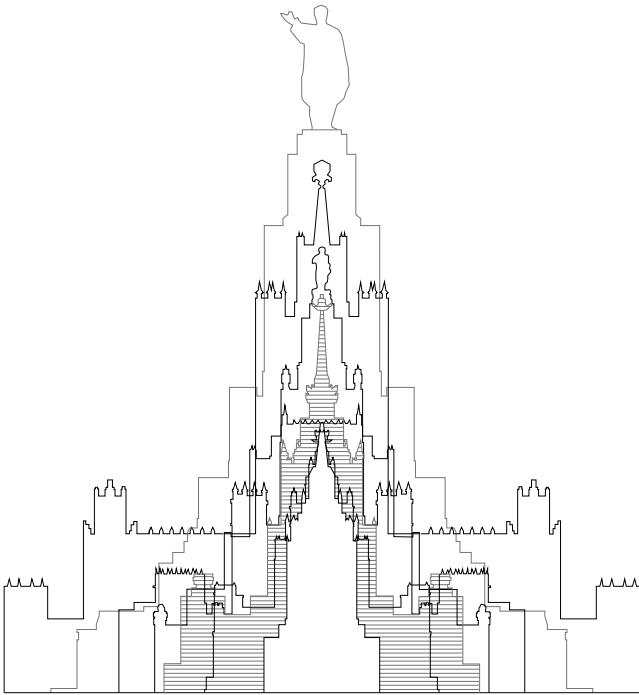
The plan has no information on the date it was carried out, but it must have been drawn before 1946 because the following year the eight buildings that were to accompany the Palace of the Soviets were officially announced. The position of the University complex on Lenin Hills is interesting, being closer to the River Moskva than where it was actually built (just as B. Iofan had planned it before being removed from his post.)

\* The high-rise buildings were organised into two groups: 1st category, the University, Zaryadye, Smolenskaya, and Hotel Ukraina; and 2nd category, Kranie Vorota, Leningradskaya, Kotelnicheskaya and Vostaniya.

**Figure 72.** Preliminary scheme of location of high-rise buildings (1946?)







**Figure 73.** Comparison of silhouettes of the high-rise buildings and the Palace of the Soviets



**Figure 74.** The scheme of high-rise buildings protection radius

## ONE TOWER AND SEVERAL AT THE SAME TIME

Among the publications on the Moscow high-rise administrative buildings, there is a drawing that superimposes all the silhouettes of the buildings in one single drawing, including that of the Palace of the Soviets. It is a representation that of planning a series of skyscrapers that would reconstruct the image of Moscow. This abstract drawing expresses the idea that all of the towers formed part of a whole\*, one single symbolic tower that expressed the integrity of the Soviet ideal.

\* This drawing recalls the abstract composition of towers that Tatlin made for the Monument to the Third International, or that of the Palace of the Soviets.

The non-construction of the Palace of the Soviets was made up for by the high-rise administrative buildings, and can be interpreted as the mutation of the transformation of the Monument-Tower in the set of high-rise buildings (or the transformation of 1 into 8).

The range of influence of the great central tower was replaced by a series of lesser landmarks whose individual radius of action was small but combined was comparable to that of the Palace of the Soviets. The result of this composition enabled the citizens to have at least one of the Stalinist high-rise buildings always present.

If the distance between the Kremlin towers was conditioned by the radii an archer's maximum effective range, in this case the radius of action of each high-rise building was defined by the visual impact made by its tower.



**Figure 75.** The Seven Sisters, and page Green, Tottenham - High Cross. 1818.

## SEVEN SISTERS

\* Natalia Dushkina considers these terms somewhat folkloric, and considers the term high-rise building to be more accurate. The term skyscraper is not used either in the Russian context, as this is associated with the US phenomenon at the beginning of the twentieth century. Nonetheless, some intellectuals, such as Jean Louis Cohen, do use the term "Seven Sisters".

The Moscow high-rise buildings are popularly known as "Visotky", which means "tall" in Russian, and as the "Seven Sisters"\* in English-speaking countries. The reason for the latter expression in this context is unknown. However, the etymology of the English expression "Seven Sisters" is known to have its origin in an event organised by a group of seven sisters at the beginning of the seventeenth century. The event involved simultaneously planting seven elms, one by each sister, around a walnut tree.

It has been speculated that the tree around which the elms were planted was a thousand-year-old walnut, which lent the place a mystical feeling (comparable to the Palace of the Soviets). This group of trees was called the "seven sisters" and gave their name to the place. <sup>(50)</sup>

This same ceremony was subsequently repeated on other occasions by families of seven sisters, in different places in England, although it was really made popular in 1955 when British television reported on the event, and the replanting of trees was done by seven sisters in different places in Page Green (Tottenham), each planting accompanied by a well-attended public ceremony.

"Speeches were made, each sister was presented." <sup>(51)</sup>

It is precisely this almost sacred meaning of the public occasion that is associated with the construction of the Moscow high-rises in 1947, where the act of laying the first stone of each building was celebrated simultaneously in different emblematic places of the city, and each event was accompanied by a public speech.

Although there were initially eight buildings, in the end only seven were built. By chance, the completion of the buildings was almost at the same time as the planting event broadcast by British television. The symbolic character of both events is likely the motivation for attributing the term "seven sisters" to the Stalinist high-rise buildings of Moscow.

50. Tottenham: Growth before 1850, A History of the County of Middlesex: Volume 5: Hendon, Kingsbury, Great Stanmore, Little Stanmore, Edmonton Enfield, Monken Hadley, South Mimms, Tottenham (1976)

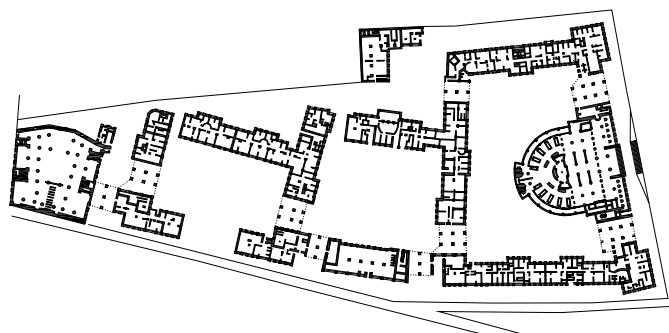
51. Tottenham - summerhill road. *Seven Sisters* [on line]. A History. [http://tottenham-summerhillroad.com/seven\\_sisters\\_trees\\_tottenham.htm](http://tottenham-summerhillroad.com/seven_sisters_trees_tottenham.htm)



**Figure 76.** GOSTORG. B. Velikovsky, V. Vladimirov. Unrealized version of the project. 1925-1926, Moscow.



**Figure 77.** HOUSE OF THE EMBANKMENT. The First House of Sovnarcom and VTsIK. B. Iofan, D. Iofan. 1927-1932, Moscow.



**Figure 78.** HOUSE OF THE EMBANKMENT. The First House of Sovnarcom and VTsIK. B. Iofan, D. Iofan. 1927-1932, Moscow.

"The Gostorg (National Export-Import Bureau) building was initially planned to be 14 storeys tall and crowned with a central tower, but in 1926 a ban was issued against structures over 6 storeys tall within Garden Ring Road and consequently the building was reduced."

"(...) Back then, towers were obligatorily placed in a structure's corner in order to highlight mobility of all its forms, while the rationality of the Gostorg building's composition was supposed to create a sense of a mechanism running like clockwork, and its classical symmetry was intended to demonstrate the stability and reliability of the governmental system."<sup>(52)</sup>

\* By invitation from Professor A.A. Sago-manyan, whose father was a prestigious teacher at Moscow State University, I had the chance to visit one of the apartments of the complex. His father worked at this place practically from the moment the works were finished in 1953, being designated the apartment where we enjoyed a memorable dinner. In this nocturnal visit to the complex, somewhat clandestine as unauthorized people are not allowed access, I was able to experience the frenetic activity of its central building, active practically 24 hours a day. In the central tower three different faculties are concentrated - Mathematics, Geology and Geography - and there are shops, supermarkets, cafes, restaurants, assembly halls, auditoriums, swimming pool, and many other facilities that make the complex a small, self-sufficient city. The goal was, I was told, to maximise production time and minimise time lost in commuting, and to facilitate dedication to studying and teaching.

The ban on high-rise buildings was imposed in 1926. This fact explains why none were built in the ensuing years. This rule also affected the building that Iofan designed for the Soviet elite, Embankment House, built on the bank of the Moscow River.

The housing complex, built between 1927 and 1931, is formed by a series of buildings organised around three patios of different sizes. It comprises a total of 505 apartments and had all the necessary facilities: supermarkets and large department stores, telegraphs, banks, a gym and a cinema. The combination of functions and facilities in a single building was in answer to government aspirations to create a building that brought all necessities together into one building. It was a maxim linked with efficiency, security and a series of values that incorporated this new, synthetic vision of the building.

This large project carried out by Iofan can be considered the "city-building" principle, an idea the architect would not abandon throughout his career. The concept combined the grandiosity of classical architecture with his monumental visions of contemporary architecture.

Iofan took this concept to its maximum level of expression in the Palace of the Soviets, a vertical city, and made real in the complex of Moscow State University (MGU)\*, which he designed before being removed, in 1948, from his privileged position.

52. Bronovitskaya A., Bronovitskaya N. *High-rise Russia. History of high-rise buildings in Russia*. Moscow: 100+ Forum Russia, 2014. p.59



**Figure 79.** B.M. Iofan, A.I. Baranskiy in collaboration with arc. M.V. Adrianov, S.A. Gelfeld, U.P. Senkevich, P.P. Kushnir', Y.F. Popov, D.M. Tsiperovich. Competition project of building of Heavy Industry in Moscow. 1935-1936



**Figure 80.** B.M. Iofan, A.I. Baranskiy in collaboration with arc. M.V. Adrianov, S.A. Gelfeld, U.P. Senkevich, P.P. Kushnir', Y.F. Popov, D.M. Tsiperovich. Competition project of building of Heavy Industry in Moscow. 1935-1936





**Figure 81.** The Waldorf-Astoria, built in Manhattan in 1931. It is set on a whole block and when it was finished it represented the biggest hotel in the world with 2200 rooms in all.

"Schulze und Weaver. First generation of American entertainment-architects." In German: "Schultze & Weaver. Amerikas erste Entertainment-Architekten." Article from the magazine *Porträts -Travel -faces 1-2012* - p.13. Translation: Rebecca Pröbster

"When the building activities in Florida suddenly slowed down, Schultze und Weaver focused on the construction of New York's city hotels. From 1927 to 1931 they planned and carried out several hotels in central location, which, even today, shape the skyline. Their most prestigious and biggest project is the Art-Deco building of the Waldorf-Astoria, built in Manhattan in 1931. It is set on a whole block and when it was finished it represented the biggest hotel of the world with 2200 rooms in all."

## TOWER

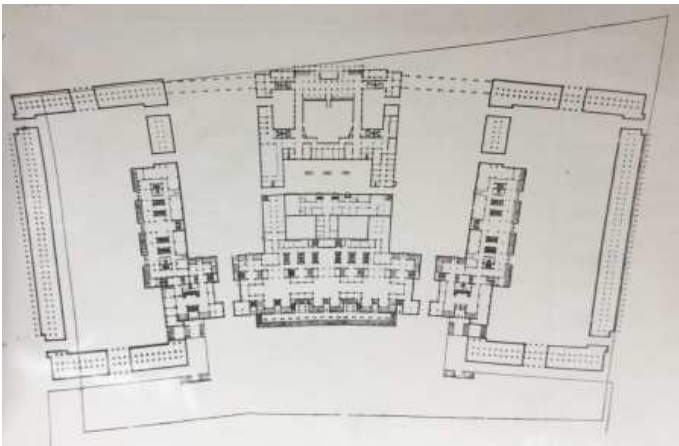
The majority of the projects presented at the first competition for the Heavy Industry Building (Narkomtiashprom I, a building planned for the Red Square) held in 1934 were all series of towers joined by bridges. Examples of this are proposals by the Vesnin brothers (Alexander and Viktor) or by Moisei Ginzburg (and Solomon Lisagor), and even Ivan Leonidov's singular project (see pages 46-7).

The second part of this same competition was different. Although a site was chosen that was also alongside the Kremlin, in the Zaryadye neighbourhood, it was oriented toward the Moscow River. One must remember that this second competition took place at the same time as the passing of the Urban Plan of 1935, in which a more integrationist urban vision was promoted, and one of the main pillars of which was the imminent finalization of the canal works which would make the Moscow River navigable and would turn it into a new port of entry into the city. To this one must add the momentum gathered by the idea of surrounding the Palace of the Soviets with a series of high-rise buildings, which would serve as a transition between the scale of the Palace of the Soviets and the existing city, a proposal made by Iofan in his 1935 speech shortly after returning from the USA.

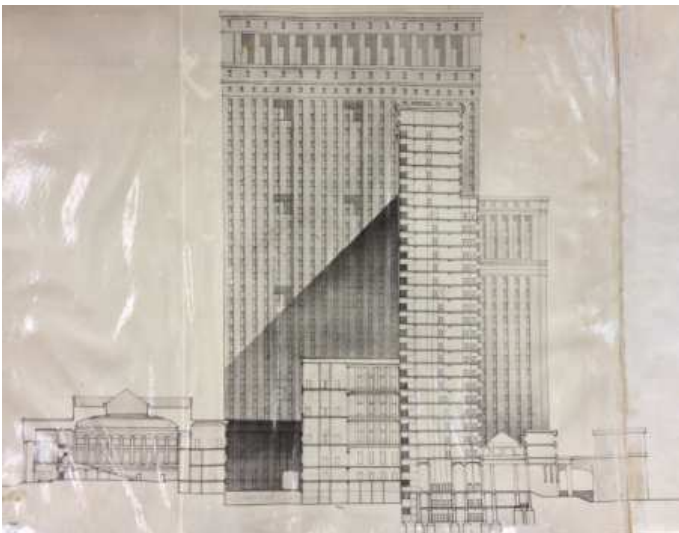
Along with Rockefeller Centre, there were other Manhattan buildings that might have impressed and influenced the Soviet architect, most importantly the Empire State Building and the Waldorf-Astoria Hotel, both opened in 1931 as the tallest



**Figure 82.** Project of House of Heavy Industry. Site plan. 1936. V.A. Shchuko, V.G. Gel'freikh, P.V. Abrosimov, A.P. Velikanov, U.V. Shchuko.



**Figure 83.** Project of House of Heavy Industry. Site plan. 1936. V.A. Shchuko, V.G. Gel'freikh, P.V. Abrosimov, A.P. Velikanov, U.V. Shchuko.



**Figure 84.** Administrative buildings. The house of Heavy Industry. Section. Competition project. acad. arc. V.A. Shchuko

buildings in the world in their respective categories, the first as office building and the second as hotel. According to what happened in the Soviet Union, with the projects of the Palace of the Soviets and the Hotel Ukraina surpassing the height of the Empire State and the Waldorf-Astoria, respectively, by seven or eight metres, one can see a clear policy of surpassing the model of the American skyscraper.

Among the versions presented by Iofan and Baransky for the second competition of the Heavy Industry Building (Narkomtiazhprom II), there are two that particularly attract attention due to the association that can be made with American skyscrapers. The first version, with a central tower flanked by two bodies, is very similar to the Waldorf-Astoria Hotel. The second version is tiered on the central axis of the tower, recalling the dynamism of the Rockefeller Center RCA building, a characteristic that typified Iofan's projects in the 1930s.

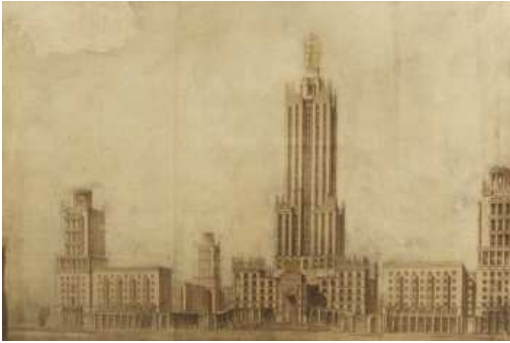
One of the differences that characterized the Soviet skyscrapers is the large area of land that they occupy as a whole, given that they were not limited in terms of land. On the one hand this factor favoured the palatial image of the building and on the other hand it improved the structural stability of the tower, increasing the base and setting back the different sections that made up the high-rise building.

After World War II, Stalin initiated the construction of the high-rise buildings (1947) when projects for them still did not exist. The urgent need for designs for this Moscow skyscraper series suggests the influence that the so-called "1930s Utopian Projects campaign" had, in particular the Narkomtiazhprom competition (1934-37), as a prototype of the future high-rise buildings. This theory becomes more evident when appreciating the similarity between some designs and others, especially in the case of the projects directed by the architects of the Palace of the Soviets.

"And in spite of the fact that some of the most important projects studied in the 1930s could not be executed (fig. 741 - 743), it would be upon this robust framework that a series of monumental architecture in the years following the second world war would rise up, which, together with the residential sectors, would wholly define the form and the urban image of the capital."<sup>(53)</sup>

For example, if we follow the designs of Iofan we see how the Moscow State University project reuses the ideas proposed for the Narkomtiazhprom competition.

53. Sica, P. *Historia del urbanismo: El siglo XX*. Instituto de estudios de administración local. 1981. p. 306-321



**Figure 85.** B.M. Iofan, V.V. Pelevin and others. Project of a 32-stores administrative and residential building on Lenin hills (now - Vorobyevy hills). The version with administrative part in the center. 1947-1948. Perspective view.



**Figure 86.** V.M. Iofan, Y.B. Belopolskiy, V.V. Pelevin, A.I. Popov-Shaman, eng. V.N. Nasonov, N.V. Nikitin. 1948



**Figure 87.** B.M. Iofan, Y.B. Belopolskiy, V.V. Pelevin, A.I. Popov-Shaman, eng. N.V. Nasonov, N.V. Nikitin. Sketch for the project of Moscow State University on Lenin hills. 1948  
The architect Boris Iofan with the head of Moscow State University A.N. Nesmeyanov.



**Figure 88.** Project of a 26-stores building of Moscow State University on Leninskie hills. Main elevation. Arc. L.V. Rudnev, A. Khryakov, S.E. Chernishwv, Abrosimov. 1948



**Figure 89.** Moscow heritage magazine west 28. Department of cultural heritage of Moscow city 2013. Magazine of cultural urbanim p.39. Article: Ancient foundation of high school. Eugeniya Gershkovich

The first version from 1947-8 is a composition of a slender, tiered central tower, a group of low buildings and some towers of intermediate scale that flank the composition, and is not completely symmetrical.

The second version retains the solidity of the 1930s proposals and the integration between the tower and the different structures is greater, making the viewer's perception of the complex as one single building undoubtable. In this version, repetition, the play of light and shadow, and symmetry are all accentuated.

The last versions, made in 1948, incorporate Russian motifs to the tops of the different towers of the complex, the most important being the statue of Lenin on the main tower. In this version, officially approved in 1951, the setbacks between the structures are clearer and more gradual. The "giralda" that crowns the central tower is also defined, forming one piece with the statue of Lenin.

In 1948 Iofan would be removed from the project and replaced by Lev Rudnev, who kept Iofan's design although this fact was not publically recognised. The reasons for Iofan's removal are not completely clear. It would seem that the main factor was that Iofan was Jewish, and in that year a persecution was carried out against the Jews in the USSR. V. Paperny commented that these changes in power were habitual during the Stalinist government, and they also occurred with other important architects, such as V. Shchusev and I. Zholtovsky. Lastly, another reason attributed to his removal was the fact that Iofan wanted to situate the building at a location that the engineers did not recommend due to the instability of the terrain in that area. Once Rudnev was nominated, the building was moved from its original location to its current position 800m to the south.



**Figure 90.** Project of the House of Heavy Industry. Perspective view from the river. Version. Arc. V.A. Shchuko, prof. V.G. Gelfreikh, arc. Velikanov A.P. 1936



**Figure 91.** Draft design of administrative building on Smolenskaya square. 1 version. Perspective view. prof. V.G. Gelfreikh and arc. Minkus M.A. 1947 September

## SMOLENSKAYA SQUARE HIGH-RISE BUILDING

Another example that demonstrates the continuity between the competition for the Heavy Industry Building and the final image of the Stalinist high-rise buildings is the project of the Smolenskaya Square administrative building, one of the most emblematic buildings in Moscow and home to the Ministry of Foreign Affairs.

Vladimir Shchuko and Vladimir Gelfreikh, the other two architects who travelled to the United States with Iofan and who co-authored the Palace of the Soviets, made a proposal for the Heavy Industry Building (1936-7) almost identical to the 1947 Smolenskaya building project. The design is characterized by types of large central pillars that project from the façade like flying buttresses. The only notable difference from the initial composition is the incorporation of the central tower, which did not exist in the 1930s proposal.

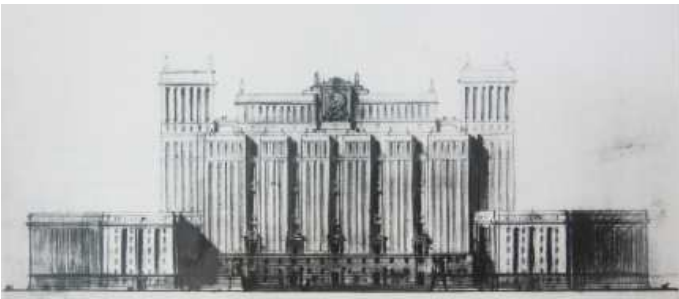
However, before this 1947 version, there was one in a different vein, a porticoes Parthenon-style building that recalled the enlargement of the Lenin Library done by the same authors and which went on throughout the period of the 1930s (1930-41) when Shchuko and Gelfreikh were co-authors. This change of style corresponds to a change of tendency. Before the Second World War the predominant architectural style was called Imperial, after which it began to take on European characteristics and was known as the Post War Soviet Triumphal Style, which included European classicism - gothic and baroque - mixed with traditional Russian motifs from the sixteenth and seventeenth centuries. At the start of the 1950s Soviet classic style represented a synthesis of several architectural tendencies.

In other words, this initial version bears no resemblance to the idea of the high-rise building, nor to the Heavy Industry building project by Shchuko, Gelfreikh and A.P. Velikanov (1936-7). Why? The first versions of the administrative buildings do not show a clear idea of how to construct a high-rise building, nor anything that comes close to a skyscraper. Perhaps we can associate it with other models. For example, the 1947 versions of the high-rise buildings located on Vosstaniya Square and Red Gates Square, respectively, are asymmetrical compositions that recall the traditional medieval bell towers.

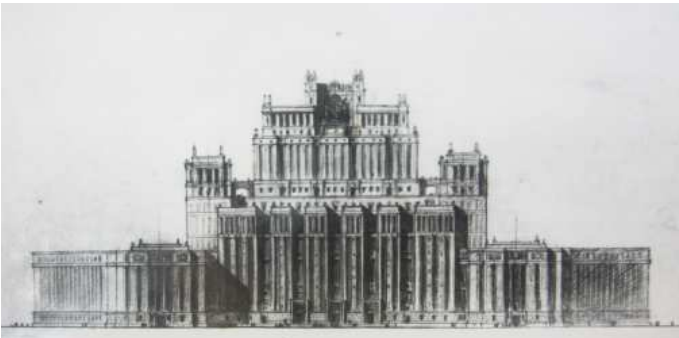
The Smolenskaya Square project is more like a renaissance palace, a kind of Bolshoi theatre that is characterised by its portico that covers almost the entire façade of the building, topped by a choragic monument and the whole complex raised by a flight of steps. This means that initially the



**Figure 92.** Moscow. Smolenskaya square. Project of tall administrative building. Elevation version. 1946. Acad. arc. V.G. Gelfreikh and arc. Minkus M.A.



**Figure 93.** Moscow. Smolenskaya square. Project of tall administrative building. Elevation version. 1947. Acad. arc. V.G. Gelfreikh and arc. Minkus M.A.



**Figure 94.** Draft design of administrative building on Smolenskaya square. Version. 1947. prof.V.G. Gelfreikh and arc. Minkus M.A. 1947 September



**Figure 95.** Moscow. Smolenskaya square. Project of high-rise administrative building. Elevation version. 1947-1948. acad. arc. V.G. Gelfreikh and arc. Minkus M.A. 20 floors. Metal framework.



**Figure 96.** Draft design of administrative building on Smolenskaya square. Version 2. Main elevation. 1947. prof.V.G. Gelfreikh and arc. Minkus M.A. 1947 September



administrative building was more a renaissance palace or a bell tower than a skyscraper.

Shortly afterwards, at the end of 1947 and start of 1948, the administrative building is associated with the image of the skyscraper. The central tower is incorporated modestly at first and grows in importance until becoming the principal element.

In fact, four moments can be identified in the evolution of the Smolenskaya project: the initial version, in which the image is not a high-rise building; the second, reviving the image of the neo-Gothic administrative building of the 1930s; and finally, the emancipation of the tower into an independent central element accompanied by a progressive staggering of medium and smaller three dimensional shapes. Once more a process of verticalization was produced, just as with the competition for the Palace of the Soviets (see page 59).

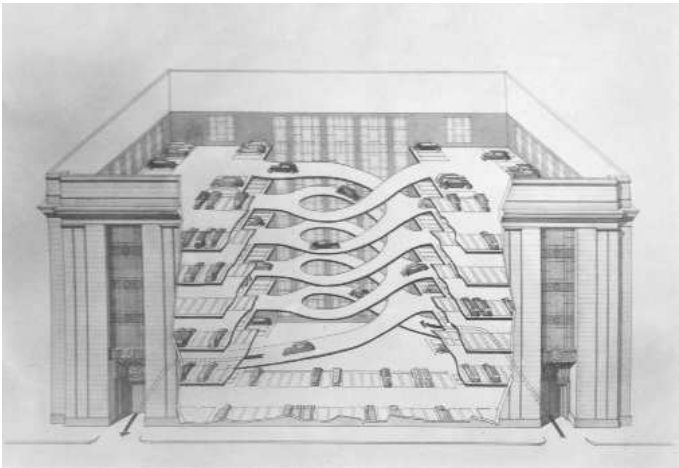
Among the project documentation there are some excellent photographs from the private archive of M.A. Minkus that show the detailed study of the proportions of the structures and their inter-relations, the depth of the reliefs on the façade of the tower, and so on. This study was made with clay models, using moulds and a casting system. In fact there are four versions in 1948, the decisive year for defining the final form of the high-rise administrative buildings. Later, different large-scale models were made that detailed other aspects, such as the construction of the metal structural framework of the tower.

Construction began in 1949, when the execution plans were ready. Nonetheless, the modifications and continuous adjustments made it necessary to continuously produce plans and material, a process that did not end until the works were completed.

It was in 1953, with the construction of the building almost concluded, when they were forced to switch the flat roof of the tower for a spire, as well as having to include numerous Soviet decorative elements - all with the intention of attributing a Soviet identity to the skyscraper.



**Figure 97.** V.G. Gelfreikh and arc. M.A. Minkus. Administrative building on Smolenskaya Square. Draft for main project Model 4. July 1948



**Figure 98.** Arc. M.A. Minkus and L.V. Varzar. Project of government parking for 500 cars on Krasnopresnenskiy Val, Moscow. Scheme.

Besides the association between the 1930s projects and the high-rise buildings, other influences can be found, such as Minkus, who joined Gelfreikh's studio as principal architect after the death of Shchuko in 1939. Between 1936 and 1941, Minkus had worked on a 500-space car park with L.V. Varzar – the layout of which is similar to the Smolenskaya building. Yet it is the facade of this five-storey-high car park, a palatial skin, which is a strange element for this type of building and function.

Nevertheless, this dissociation between body and skin is typical of the Stalinist era. In the Smolenskaya building the lowest building of the composition was an existing, six-storey industrial building– the VZSPS and the Soviet Dairy and Meat Industry corps, and it was given the same outer palatial structure.

In the 1951 catalogue of the high-rise administrative buildings, this facade is defined as “a contemporary adaptation” (54) and it refers to the organic transition of height from the tower to the existing buildings.

“The high-rise building is organically connected with existing buildings of the 6-storey VZSPS and the facades, which received a contemporary treatment.” (55)

The car park building designed by Minkus also recalls the Smolenskaya building in the symmetrical plans of its floors. The principle structure, the car park, is located at the centre of the composition, cubic in shape and with a central empty space that contains a spiral ramp. This structure is accompanied by two galleries that define the edge of the project and create two small lateral patios joined in the rear, where another rectangular structure appears.

54. Былинкин Н., Стоянов Н. Высотные Здания в Москве. Проекты // Государственное издательство литературы по строительству и архитектуре, 1951

55. Ibid.



**Figure 99.** Original Photographure of the Accepted Competitive Design for the Office Building of the Pennsylvania Power & Light Company in Allentown, Pennsylvania. EARLY PHOTOGRAPH. Helmle & Corbett, Architect(s). From the Architect, September 1926.

## THE AMERICAN FAMILY

The associations between the American and Soviet examples are many and varied. For example, in his book "The Stalinist High-Rise Buildings of Moscow," N. Krushkov pairs the Municipal Building with the main building of Moscow State University, the Terminal Tower with Hotel Leningradskaya, etc. But this is no more than a game of reasonable likenesses between skyscrapers from both cultures.

Several others can be added to this list, such as the Pennsylvania Power & Light Building (1928, the Smolenskaya Square high-rise building(1951), Eliel Saarinen's Chicago Tribune Tower (1922), H.W. Corbett's Bush Tower (1924), Pflueger & Miller's Pacific Telephone Building in San Francisco (1925) and no doubt many more.

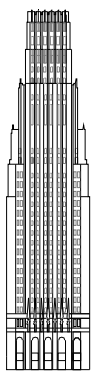
This hypothesis is supported by a series of facts that together represent the experience of Oltarzhevsky in New York and his close relationships with architects like H.W. Corbett, W.K. Harrison and H. Ferriss. This was an experience that would be explained on the ground to the architects of the Palace of the Soviets, who ended up recruiting Oltarzhevsky in order to build the greatest skyscraper in the world in the Soviet capital.

## W.K. Oltarzhevsky in the USA

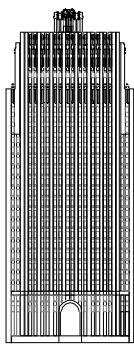
It can be deduced from one of the first publications on which Oltarzhevsky collaborated, "The City of the Near Future," that Corbett made use of Oltarzhevsky's talent (51) as a draughtsman to express his ideas when he dispensed with the services of Ferriss, at which point the famous American draughtsman was contracted by Miller and Pflueger to draw a frontal view of the already finished Telephone Building in San Francisco. Due to the similarity and the short time that separates both facts, it is highly likely that on his return to New York this project was used as a prototype for the competition of the Pennsylvania Power & Light building in 1926.

"(...) A third influence on Pflueger's modern conversion may have been drawings published in 1923 by Hugh Ferriss, a well-known architectural artist. (...) Ferriss was hired by Miller & Pflueger in 1926 to draw a stunning front elevation of the finished Telephone Building, so the architects were probably familiar with his sketches of futuristic skyscrapers." (56)

56. Poletti T., Paiva, T. *Art deco San Francisco: The Architecture of Timothy Pflueger. Skyscrapers for the jazz age.* p. 64-69



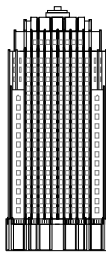
Chicago Tribune competition proposal 1922. E. Saarinen Height 146 m (29 floors). The project of Saarinen, which took the second place in the competition in 1922 for Chicago Tribune project wasn't realised). Saarinen used vertical elements and descending steps. This elements would appear in Bell Telephone Building.



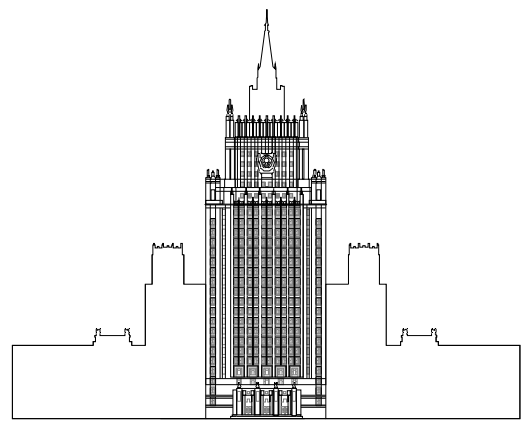
Bell Telephone Building (San Francisco) 1924 - 1926 Miller&Pflueger. Height 140.2 m (26 floors). The design seems to have been influenced by Saarinen project for Chicago Tribune. Probably the drawings by Ferriss, which were published in 1923, influenced Pflueger. H. Ferriss was hired by Miller&Pflueger in 1926 to do the elevation of the Telephone Building, so it is likely that the architects already knew of his drawings of futuristic skyscrapers.



The Russ Building (San Francisco) 1926-1927. G. W. Kelham. Height 133 m (24 floors). The Russ building is the office skyscraper in neo-Gothic style located in financial quart of San Francisco. The height is 133 m. The end of construction was in 1927. First inside parking was there. The building was the highest in San Francisco from 1927 until 1964.



Pennsylvania Power and Light Building 1926-1928 H. W. Corbett, W. Harrison. Height 98.02 m In 1926 Ferriss was hired by Miller&Pflueger to do a visualization of the already constructed Pacific Telephone & Telegraph Building in San Francisco. Perhaps Ferriss used this project as a prototype for the competition project of the Pennsylvania Power and Light Building (1926-1928).



Administrative building on Smolenskaya Square 1947. V.A. Shchuko, V.G. Gelfreikh. Height 98.02 m (27 floors).

**Figure 100.** Schema of the American family the Ministry of Foreign Affairs located on Smolenskaya Square.

Miller and Pflueger were heavily influenced by Eliel Saarinen, winner of the 1922 second-prize design for The Chicago Tribune Tower, a design that was never executed. Saarinen used vertical elements and gradual setbacks in his design, which are characteristics of the Bell Telephone Building. Setbacks are step-like recessions in walls, initially used for structural reasons.

#### PP&L Building (1926-1928)

The most important project that was underway in Corbett's office when Oltarzhevsky arrived was the PP&L Building in Allentown, Pennsylvania, built between 1926 and 1928. The building was the highest in the state of Pennsylvania and had the fastest elevators in the world. The design brought together decoration and technology, beauty and the latest construction techniques.

Some of the architects who most contributed to the development of the sky-scraper in 1920s New York were involved with this building: H.W. Corbett, Wallace K. Harrison (the architect responsible for the PP&L Building, making this his first skyscraper,) and Hugh Ferriss, who created the image of the project.

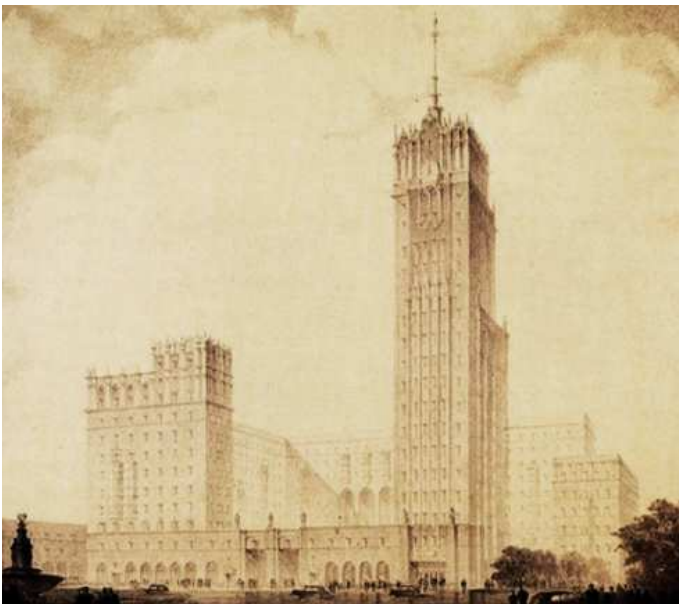
"PP&L conducted an architectural competition for its consolidated offices. The winner was the New York City firm that included Harvey Wiley Corbett. He had previously teamed with Hugh Ferriss (...). Along with Corbett, the principal designer was Wallace K. Harrison, who later was one of the architects of the Rockefeller Center. The Allentown building was Harrison's first skyscraper."<sup>(57)</sup>

Among the documents found in the MUAR Museum was a photo of the final drawing of the competition and another of the constructed building, apparently captured by Oltarzhevsky himself. Later he left Corbett's studio to focus on what would be his first and only large work, the Pino Hotel (1927-1929). During these years he also collaborated with F.J. Helmle, Corbett and Harrison on the international competition for the Columbus Lighthouse in Santo Domingo (1928-1929). "Among the others selected to pass into the second

57. Buildings of Pennsylvania: Philadelphia and Eastern Pennsylvania, George E. Thomas, with Patricia Likos Ricci, Richard J. Webster, Lawrence M. Newman, Robert Janosov, and Bruce Thomas, Charlottesville: UVaP, 2012, n.p.



**Figure 101.** Palace of Westminster, London. Photo from Oltarzhevsky archive.



**Figure 102.** Proposal project for residential building on Vosstaniya square.



round we find better known names such as the American firm of Corbett, Harrison and MacMurray, 130, West 42nd. St., New York City (who also worked with P. Rogers, Alfred E. Poor and W.K. Oltarzhevsky), authors of *High-Rise Buildings in New York*(...) 'a gigantic sketched image of Columbus; that of the also mentioned Helmle, Corbett and Harrison, which does not, by the way, look like a skyscraper but was a tower of a curious, refined neo-medievalism'."<sup>(58)</sup>

#### HIGH-RISE BUILDING ON VOSSTANIYA SQUARE (1947)

In addition to working as a consultant for the construction of the Palace of the Soviets (a request made formally by Iofan between 1935 and 1936), Oltarzhevsky later played a fundamental role as adviser to other architects such as L. Rudnev on the University high-rise building (1948-9), and he worked on the design of the Hotel Ukraina alongside A. Mordvinov (1948-9)<sup>(59)</sup>.

Moreover, Oltarzhevsky worked with I. Kuznetsov on the first versions of the residential building located on Vosstaniya Square (1947). Among the documents found there is a side elevation that recalls the composition of the Gothic cathedrals, a nave that is extended horizontally on top of which the main tower is based. That composition of two elements, of a tower and a base, recalls Shchusev's elevation drawings for the Lenin Mausoleum and Iofan's elevation drawings of the Palace of the Soviets (see pages 45-6).

\* By chance I found a black and white photograph of the London Houses of Parliament in Oltarzhevsky's file, in the photograph collection of the Moscow Architecture Museum, inside a folder with images of his work. It is possible that the picture was taken by the author himself, when passing through London.

Oltarzhevsky's proposal for the Vosstaniya building could have been inspired by the Houses of Parliament in London. It had a neo-Gothic style clock tower and other adjacent structures, lower in height, that form an asymmetrical composition. Nonetheless, this composition was typical of its time, similar to A.N. Dushkin's proposal for the Red Gates building (1947)\*.

58. Capitel, A. *El Faro de Colón en la República Dominicana* [on line]. [http://oa.upm.es/4800/2/CAPITEL\\_CL\\_2006\\_01.pdf](http://oa.upm.es/4800/2/CAPITEL_CL_2006_01.pdf)

59. According to Oltarzhevsky's autobiography found in the archive of the Moscow Museum of Architecture.



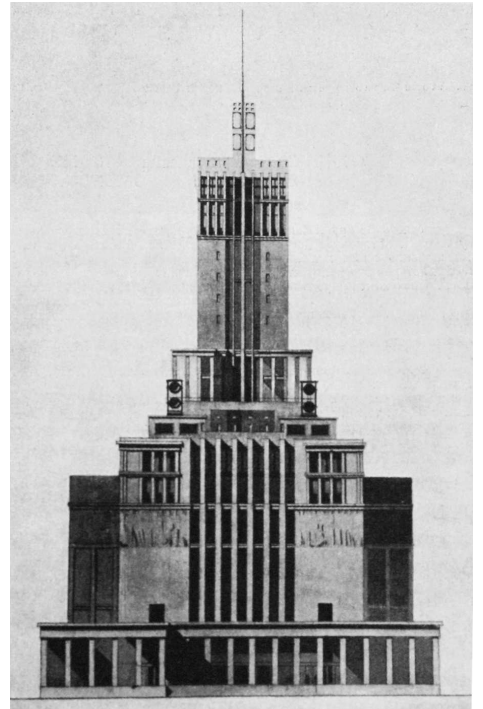
**Figure 103.** Woolworth building in New York. arc. C. Gilbert. 1913. Side elevation.

**Figure 104.** 16-storey building on Vosstaniya square. Side elevation.

**Figure 105.** Woolworth building in New York. arc. C. Gilbert. 1913. Principal front.

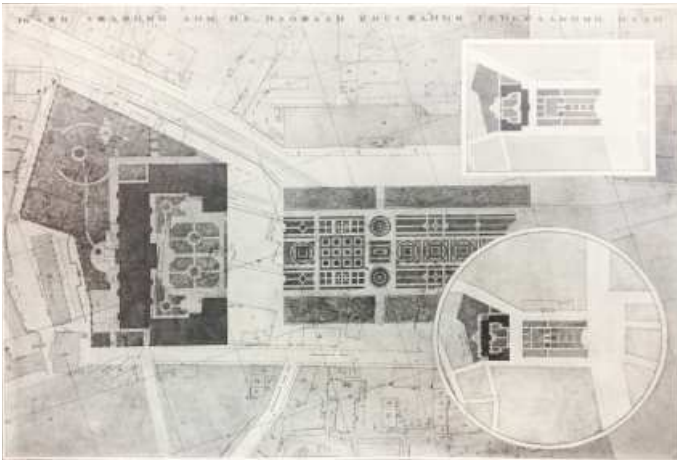


**Figure 106.** A.D. Dushkin, A.G. Mordvinov, K.I. Solomonov. The Palace of Radio (Radio House) at Miuskaya Square. Moscow. Competition project. First prize. Second stage of façade design. 1934

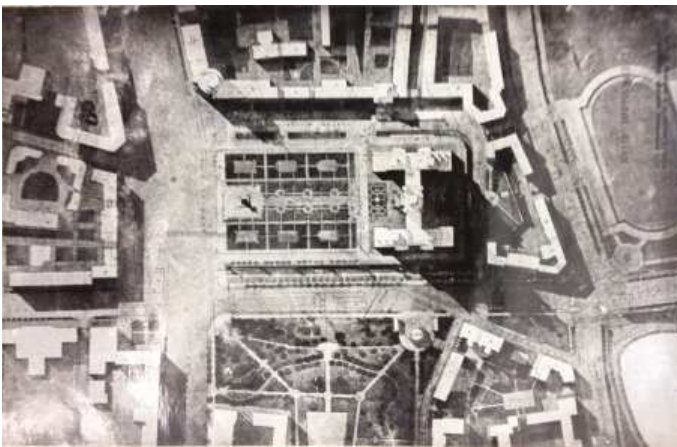


A.N. Dushkin was a connoisseur of the influence of the European cathedrals on the image of American skyscrapers. For example, the Woolworth Building was inspired by the Rouen cathedral, following a journey taken through Europe by F.W. Woolworth and his architect Cass Gilbert. We know A.N. Dushkin was likely aware of the "cathedral of commerce" as an original copy of the 1915 publication, "The Cathedral of Commerce: The Woolworth Building, New York", can be found among his personal archive.

The elevation of the Radio Palace project (1934), designed but never built by A.N. Dushkin, A.G. Mordvinov and K.I. Solomonov, bears a likeness to the Woolworth Building. Its most identifiable trait is two lateral three dimensional shapes joined by a horizontal structure that braces them and above which rises the central tower. This principle was what enabled the Gothic cathedrals to show a slenderness impossible for the age. The trick was to create a façade with a tower that theoretically begins from the ground and rises with setbacks as it gets higher. In reality the tower begins from the level of the main nave, which is very stable thanks to its horizontal projection. One must remember that A. Dushkin was both architect and engineer, as was C. Gilbert, and so he was a great connoisseur of the structural behaviour of buildings.



**Figure 107.** 16-storey building on Vosstaniya square. Siteplan



**Figure 108.** Residential High-Rise Building on Vosstaniya Square. Siteplan. Arc. M.V. Posokhin and A.A. Mndoyants. 1948.

In 1948 architects Posokin and Mndoyants lead the project for the tall building located in Vosstaniya Square. The original drawings show several options for settling or solving the tower-square association, a permanent duo in the composition of each district. First the building opens onto the square in the shape of a U, then the inverse is attempted, in the shape of a П (the Russian "p"). In the end, an H-shaped building was chosen.

In the drawings housed in the architecture museum, the floors of the new buildings are superimposed onto the almost imperceptible lines of the pre-existing urban framework. The monumentality of the new buildings contrasts with the much lesser scale of the existing city. It is here that the idea of reconstruction, of the "New Moscow", is truly appreciated. It is a concept that had been constantly reworked and redefined since the beginning of the nineteenth century. Therefore the construction of the high-rise buildings was much more than the simultaneous raising of seven skyscrapers. It was the materialization of the ideal Soviet city, the Beautiful City, a dream Stalin outlined in the 1935 Moscow Reconstruction Plan. As well as the monumental and symbolic meaning of the project (that expressed victory in the war), it was an enormous step towards modernising the image of the city.

## SQUARE

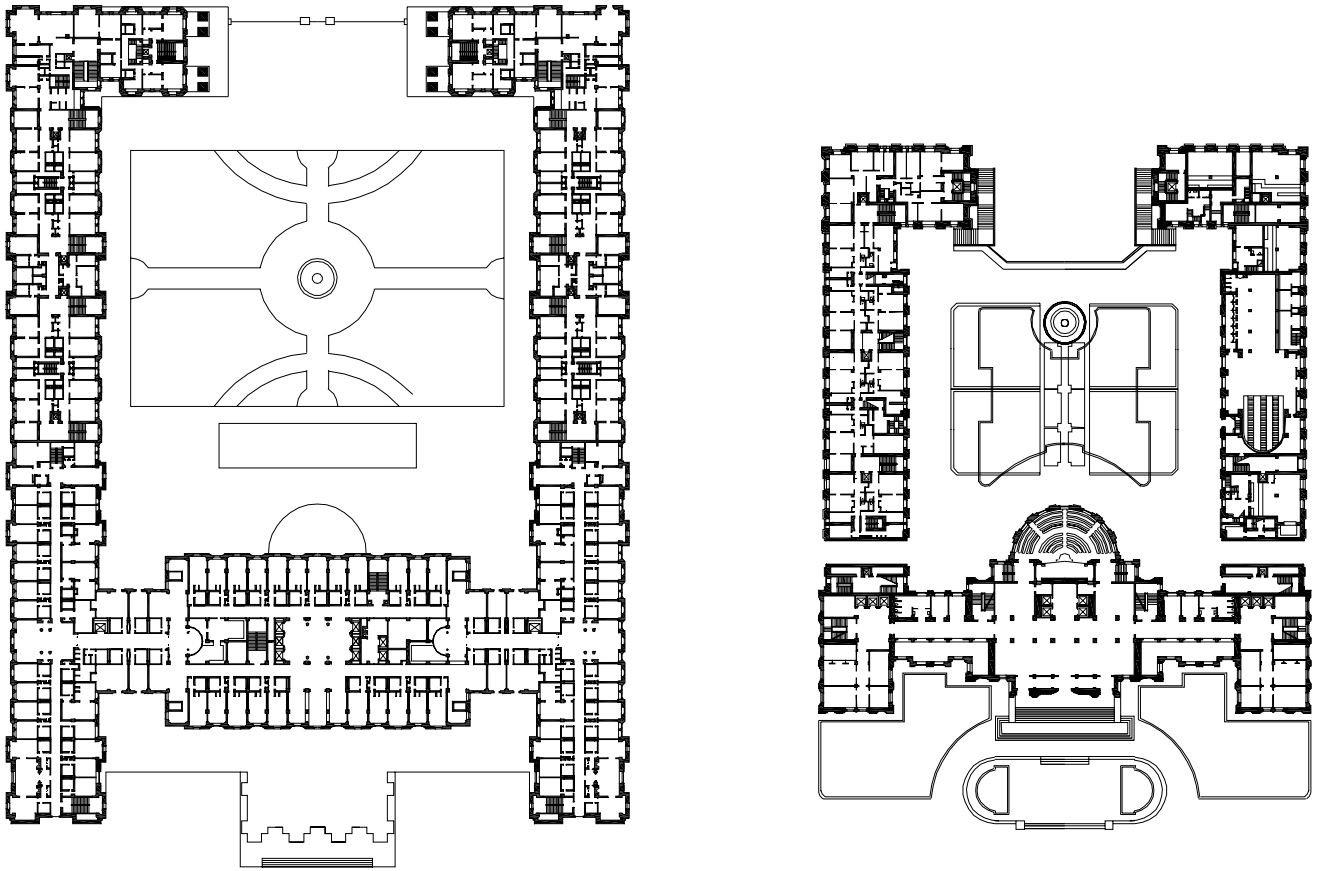
The square played a fundamental role in urban composition when it came to choosing the position of the high-rise administrative buildings, just with the examples of American architecture.

\* «The fight for the ensemble city construction is a significant and unseparate part of the fight for the style of Soviet architecture, for the architectural style of the great Stalinistic epoch», - declared Arkin.

The high-rise building and the square are key elements in the composition of the "ensemble." The high-rise was considered the focus, the point of visual reference\*, that harmonised with the square and other minor buildings. It was about configuring a spatial unit with its own identity, which would be repeated in different form but would the same conceptual pattern throughout the city.

"On the main square of cities, there were usually situations The Houses of the Soviets, governmental and administrative buildings. They created the nucleus of an ensemble. Architects were recommended to construct by means of city ensembles which promoted the evidence of the architectural character of every city unit by architectural means."<sup>(60)</sup>

60. Kudryavtsev, A. & Pereliaeva, T. *Stalinist town planning in Moscow* [on line]. <http://www.icomos.de/pdf/HefteXX.pdf>. p.75-80.

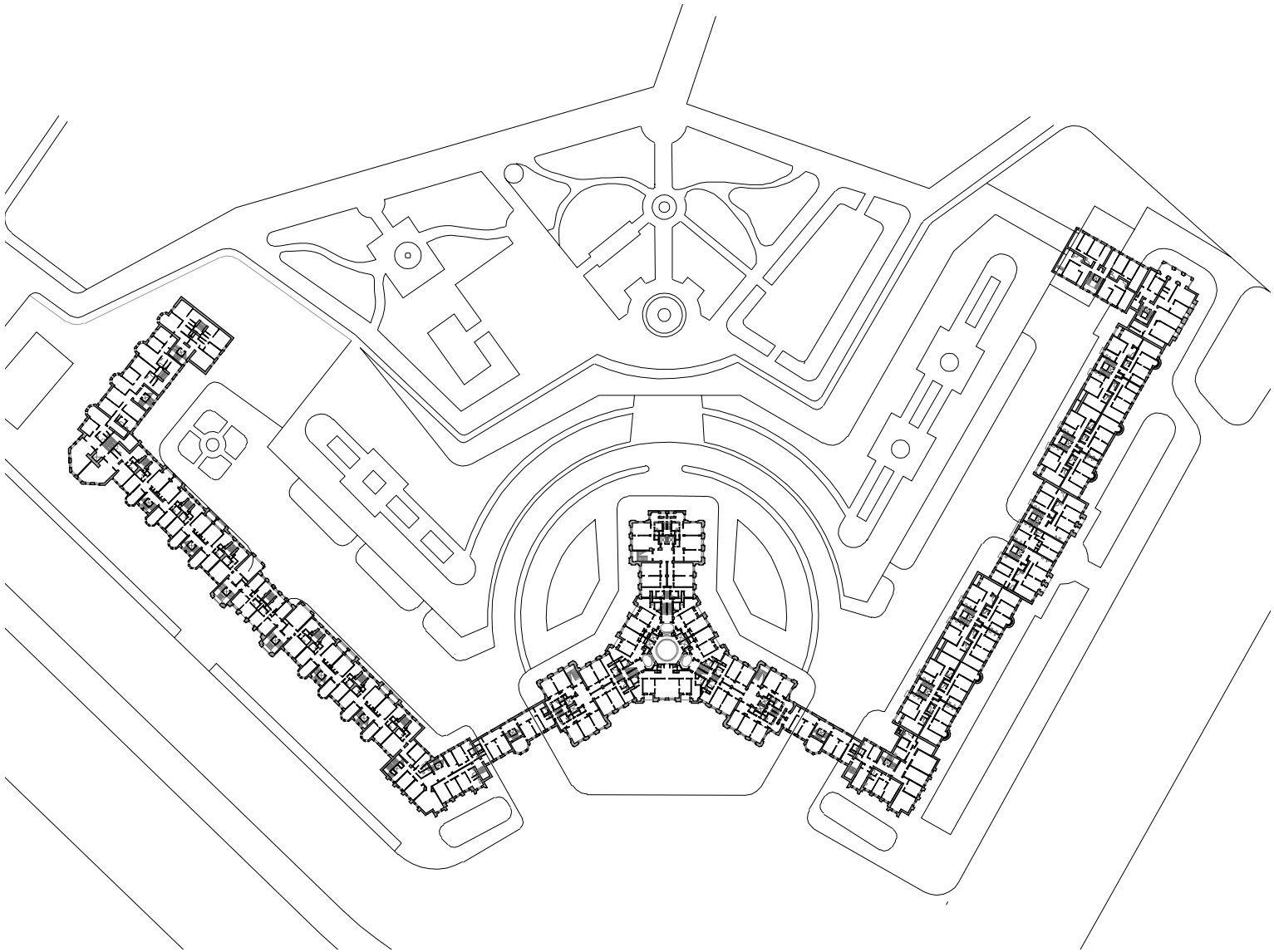


**Figure 109.** Floors of the Hotel Ukraina, Red Gates high-rise building and Kotelnicheskaya high-rise building located beside the River Moskva.

## COURTYARD

The Stalinist skyscrapers of Moscow are symmetrical, with a central tower and a base, and almost all are situated in front of a square. But there is one more element that characterises them: the courtyard. The courtyard of the high-rise buildings integrates the different elements that make up the architectural whole or the ensemble. In fact, the term "high-rise building" refers to an ensemble of symmetrical three dimensional shapes that consist of a central tower and other lesser side buildings. In some cases, such as the Red Gates building, the Hotel Ukraina, and the Kotelnicheskaya high-rise, the buildings extend towards the rear, creating an inner courtyard.

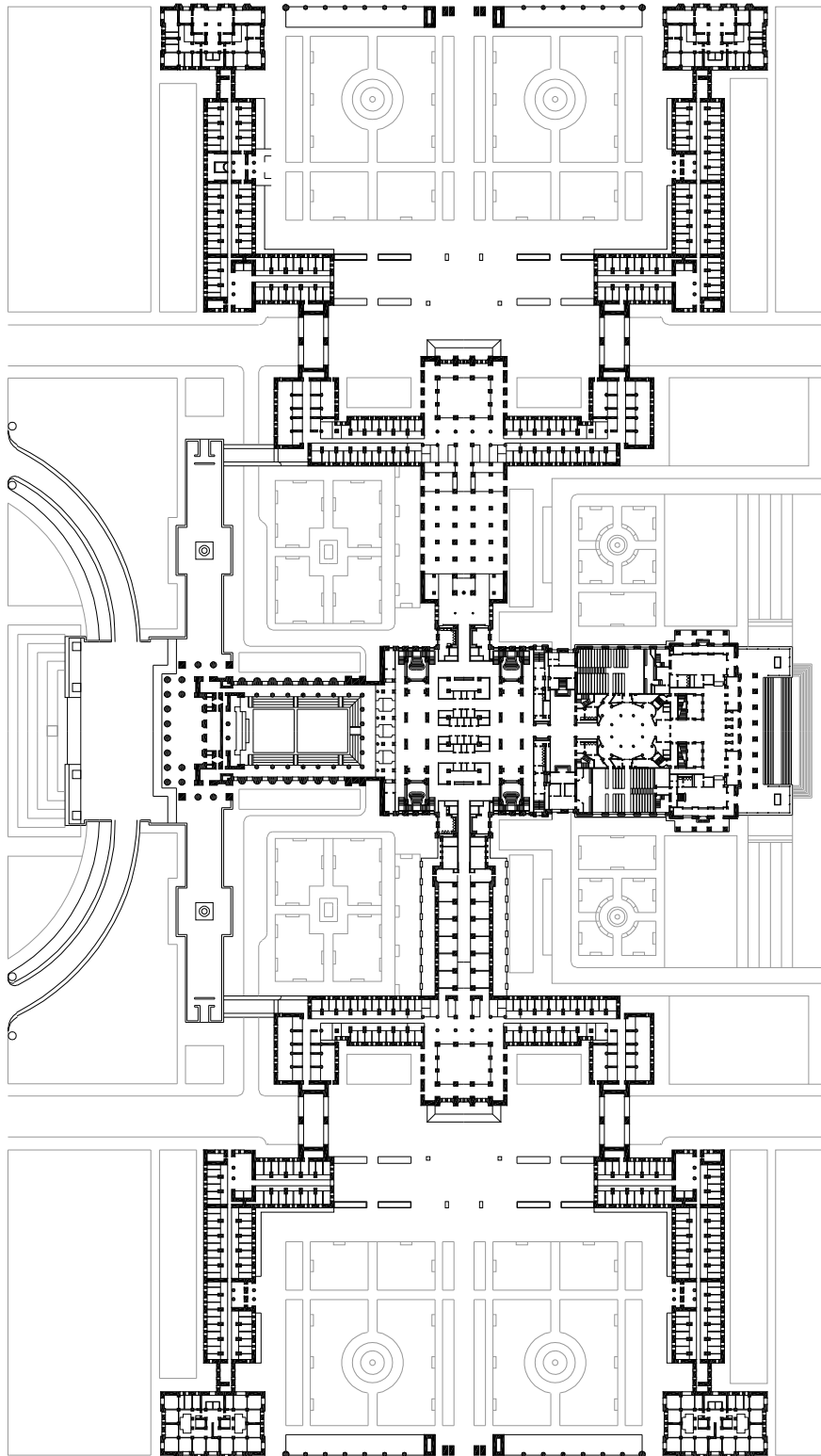
In the Red Gates building there is an interior garden with a space for children. The garden is surrounded by a road where the residents can park their cars. It was designed by Dushkin and Mezentsev, with the latter having been added to the team in 1948. The courtyard joins the residential buildings and the administrative tower together. The plinth solves the problem of the slope and serves as a private car park, raising the courtyard.



The administrative building has a semi-circle or chamber that serves as an auditorium, which reproduces the pillars of Kropotkinskaya metro station, very similar to the Smolenskaya Square building. This repetition is an attempt to bring together a palatial subterranean image with that of the surface.

Below there is a car park exclusively reserved for the officials of the Ministry of Transport and Railroad, which, as Natalia Dushkina did well to remind me, was a military department. For this reason building access and security was very carefully designed. This aspect was made clear in the 1947 proposal, when access to the metro from the building itself was already designed, and there was a corridor that bordered the entire building and enabled its immediate evacuation.

In the case of the Hotel Ukraina, the composition is very similar. One central tower and two lesser structures that are closed in the form of a U, creating a larger courtyard than the Red Gates Building.



**Figure 110.** Plan of the main building of the State University of Moscow (MGU) complex.





Therefore form is not associated with the use of the building. For example, the high-rise building in Vosstaniya Square was for residential use and has the form of an H. This makes one think that the architects had some liberty in choosing the composition that they considered most appropriate for each place.

The Kotelnicheskaya tall building, located on the bank of the Moscow River, on the intersection of Avenues Kotelnicheskaya and Podgorskaya, does not have a closed courtyard as with the previous examples but takes a W shape instead. Its W shape is adapted to the bend in the river. The building is situated at the foot of a small hill, and its shape takes on the slope of the ground. The architects took advantage of the slope to build a private, covered car park, on top of which there are sports facilities and gardens that also merge with the small wood that comes down the hillside. The slopes are dealt with using flights of steps. At the lowest part there is a road that goes around the inner side of the building and exits through arches to the avenue.

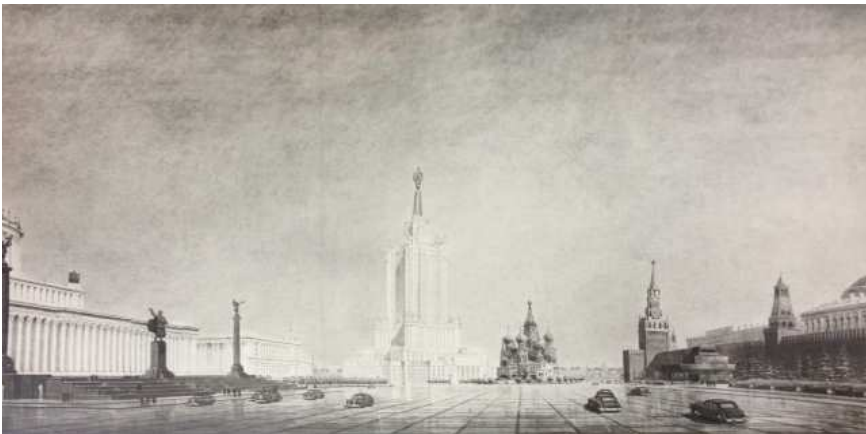
The MGU building is fronted by some gardens that go up to the viewpoint on Sparrows Hill, where Iofan's project was originally located and later moved some 800m to the south. On an urban scale this university city recalls the Palace of Versailles, with its monumental size, its symmetry, the great space of gardens that come before it and its avenues that join together. The building is meant to be seen from all possible perspectives and its geometry enables all of its faces to be seen as a main facade.

The floor plan of the principal building opens in the shape of a multi-stepped U and creates two symmetrical courtyards in the northeast and southeast zones that integrate architecture and nature.

Conversely, the courtyards of the Smolenskaya building are closed to the public and are far smaller than those mentioned above, while that of the Hotel Leningradskaya is very narrow, and the Vosstaniya building has no courtyard at all.



**Figure 111.** The building of Leningradskaya hotel on Komsomolskaya square. Arc. L.M. Polyakov, A.B. Boretskiy. 1956



**Figure 112.** Project of Zaryadye building by D. Chechulin in the context of Red Square. 1949

The incorporation of characteristically Russian architectural elements was a way of giving identity to the new skyscrapers. These towers incorporate Soviet symbols and reconstruct a united image of Moscow, integrating the architecture of the Kremlin, the few monumental buildings that remained and the Stalinist skyscrapers.

"References to the relationship of the tall buildings in Moscow to the most representative patterns of Russian architecture can be found in all publications issued during that period of time. However, authors didn't mention certain images, because those images were church bell towers and monastery towers (the USSR was the country of atheism). Among the most frequently mentioned images was the Temple of Ascension in Kolomenskoye."<sup>(61)</sup>

\* Apparently it all happened spontaneously, one day that Stalin himself passed by near to the Smolenskaya Square building in his daily route. He visualised the Communist symbol on top of the nearly finished building and ordered that a spire topped by the Communist symbol be placed on the top of all the towers immediately. The case of the Smolenskaya skyscraper was described by Hmelinsky. The architects Gelfreikh and Shchuko were against such a design. When Stalin ordered that these tower-tops be added, the structure of the last five floors of the building had to be rebuilt. Even today the difference in the colour tone of the added section can be distinguished compared to the rest of the building.

The decision to top or crown the Soviet skyscrapers in the form of a spire or needle was perhaps in Stalin's plans, but did not appear in the projects published in the summer of 1949.\*

In the Zaryadye Building, designed by Chechulin, one of the most significant elements was the spire at its peak, which established a dialogue with the Kremlin towers and St. Basil's Cathedral. Chechulin was able to influence that this identifying sign be used in all of the skyscrapers, bearing in mind his proximity to Stalin as chief architect of Moscow between 1945 and 1949 - although there are other authors who attribute this decision directly to Stalin.

"The city needed new dominants. The system of high buildings develops two principal historical traditions for the distribution of verticals: along the Moscow river and around the Kremlin. Seven high-rise buildings were situated at the assembly points of the city plan on the intersections of radial highways with the Garden Ring Road and the Moskva River, having the University as the keynote on Lenin's Hills. (...) High-rise buildings created the entire giant ensemble in the city space. There is an opinion that these buildings found the pyramidal skyline after the direct instruction of Stalin to strengthen 'the Muscovite characteristic'. (...) From the beginning these buildings were conceived as 'monument buildings', glorifying the victory in the Great War for the Defence of the Motherland."<sup>(62)</sup>

61. Extract from Krushkov's interview by the author. April 2012.

62. Kudryavtsev, A. & Pereliaeva, T. *Stalinist town planning in Moscow* [on line]. <http://www.icomos.de/pdf/HefteXX.pdf>. p.75-80.

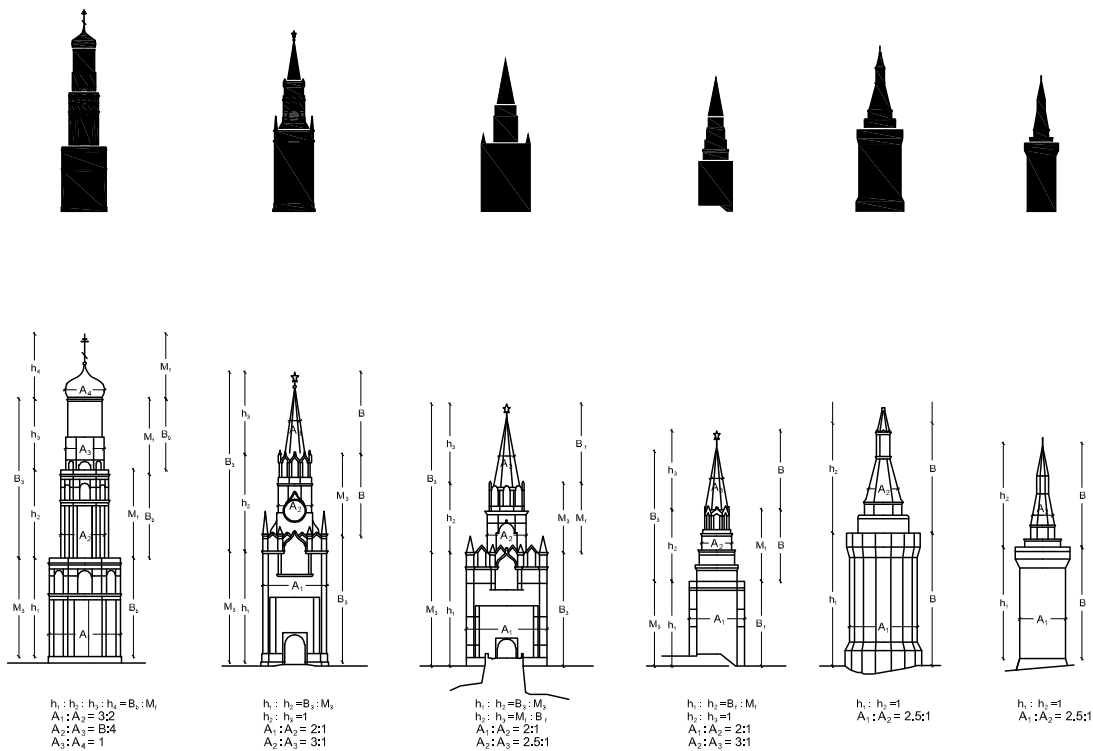


Figure 113. From left to right. Ivan the Great Bell Tower, Spasskaya Tower, Troitskaya Tower, Borovitskaya Tower, Corner Arsenalnaya and Beklemishevskaya

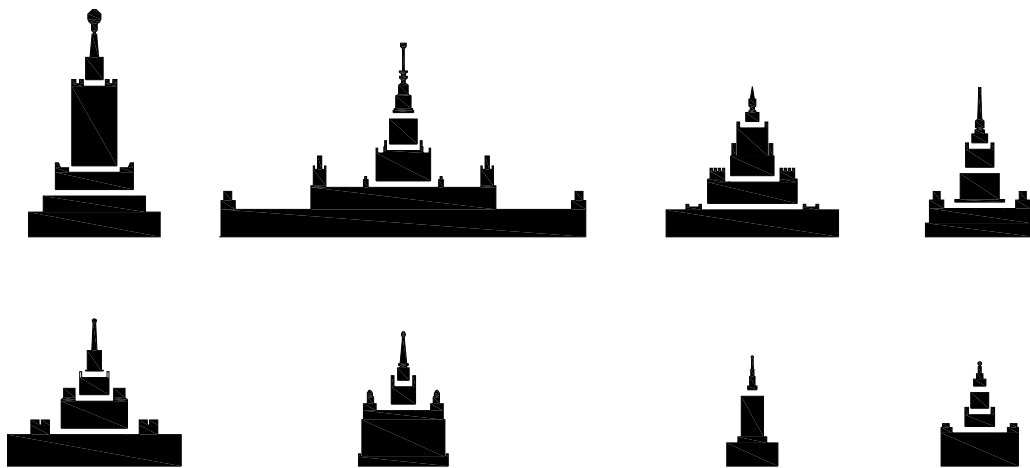


Figure 114. From left to right. Above: Zaryadye, MGU, Smolenskaya, Ukraina hotel, Below: Kotelnicheskaya, Vosstaniya, Komsomolskaya and Krasniye Vorota

The division of the main body of the Moscow skyscrapers. In the Zaryadye administrative building ( $h = 275$  m) four main divisions were designed; the central part of the University on Lenin Hills ( $h = 239$ ) has five divisions; the Smolenskaya Square building ( $h = 170$  m) has four divisions; the hotel building on Dorogomilovskaya Naberezhnaya ( $h = 170$  m) has four divisions; the residential building on Kotelnicheskaya Naberezhnaya ( $h = 176$  m) has four divisions; the residential building on Vosstaniya Square ( $h = 159$  m) has three divisions; the hotel building on Komsomolskaya Square ( $h = 138$  m) has two divisions; and the administrative building on Krasnye Vorota ( $h = 134$  m) has three divisions.

The skyline of the city depends mainly on the relation of the heights of towers and cupolas. On flat ground, a simple tower should surpass the height of an ordinary building by at least twice. A cupola should be at least three times as high as its neighbouring buildings, and a bell tower four times. But this rule cannot always be fulfilled because there are limitations that restrict the height of towers .

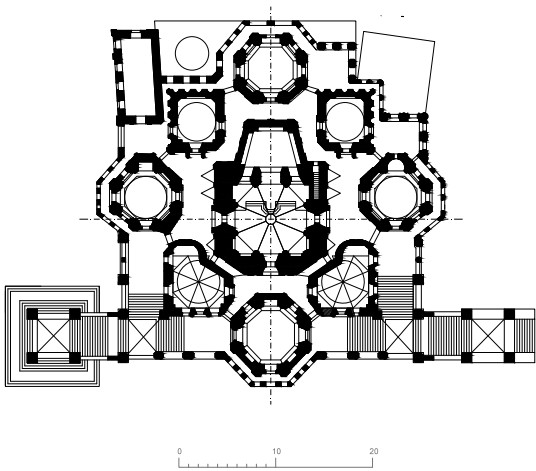
In general, the maximum height of the tower is determined by the proportion 1:3, cupolas by 1:4, and bell towers by 1:5 or 1:6 or more, depending on the size and the profile of its peak.

The main compositional principle of the Kremlin was to first place the central tower and then surround it with a secondary group of towers. This same model was followed on the periphery of the Kremlin, which is where the Stalinist high-rise buildings were situated.

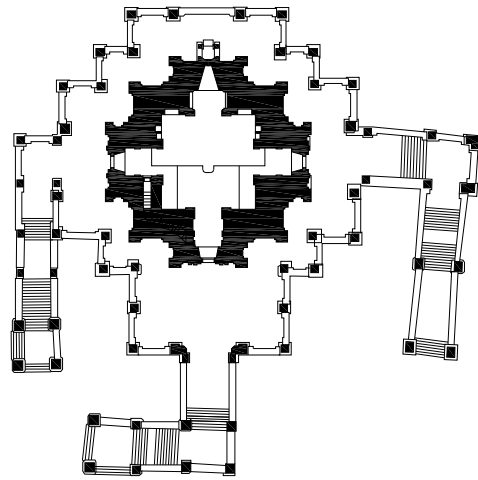
The second principle was to compositionally join the towers so that together they play a role in cityscape. To do this they followed the principle of the division of three dimensional shapes, which dictates that the towers belonging to the same category had to have the same quantity of elements.

The last principle was the application of the same compositional principle to all towers, keeping in mind the number of three dimensional shapes from the base to the peak. This similarity can be appreciated in two principal towers, Spasskaya and Troitskaya, and in all corner towers (except Petrovskaya Tower). Thus the same proportions of height of base and body are found in the entry towers (0.382: 0.618) and in the corner towers (1:1).

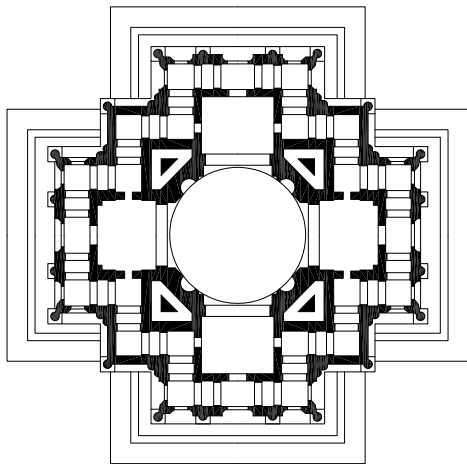
At times the correspondence between the number of divisions and the importance of the towers is not fulfilled. For example, the silhouettes of the Krasnye Vorota building and the University building are similar. Although these principles are not strictly followed, there is a clear compositional relationship between the towers of the Kremlin and the Moscow high-rise buildings. In terms of composition, the concept that most identifies the latter is the idea of creating a structure of towers around the Palace of the Soviets, which were connected compositionally if not physically. In terms of proportion, the administrative tall buildings follow the compositions of the tower of Ivan the Great and the towers of the Kremlin.



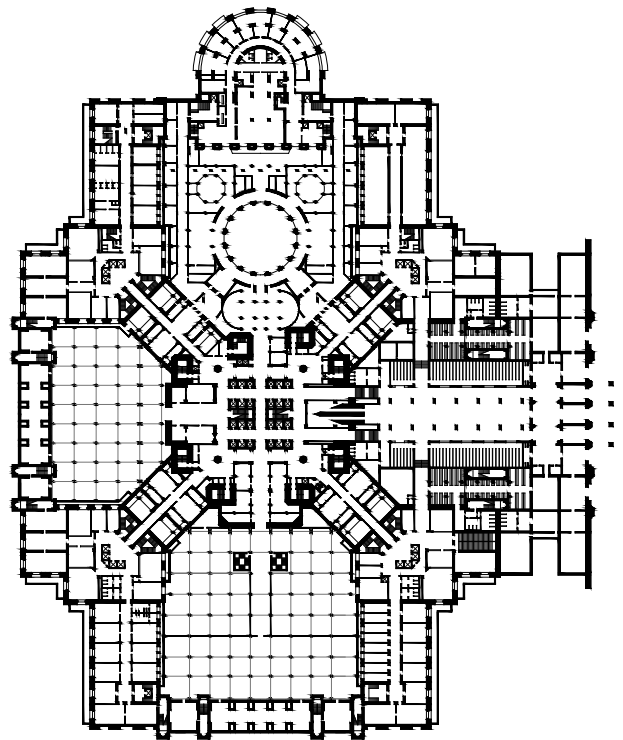
**Figure 115.** San Basil Cathedral. Plan. arc. Barma and Postnik. 1555



**Figure 116.** The Vozneseniya Gospodnya church in Kolomenskoe. Plan. 1815

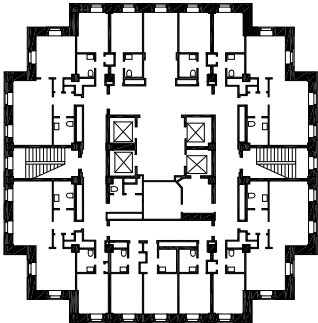


**Figure 117.** Konstantin Ton (1794-1881)



**Figure 118.** Zaryadye Administrative Building. Plan

## PLAN LAYOUT

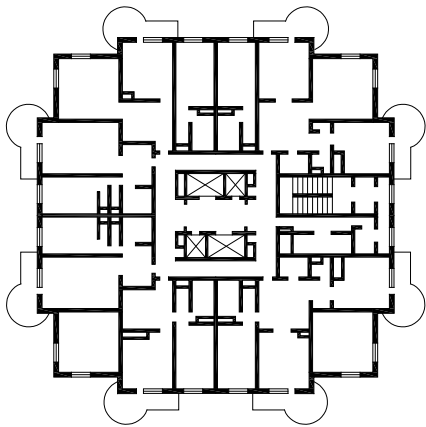


**Figure 119.** Project of 17-storey hotel on Komsomolskaya square. Plan. arc. Polyakov L.

There are also other less evident characteristics of the Stalinist high-rise buildings that are rooted in traditional Russian architecture.

For example, it is interesting to compare the ground plans of buildings as diverse as Saint Basil's Cathedral, the cathedral of Konstantin Ton (not built), the Church of the Ascension, the Church of the Saviour, the Zaryadye building (not built) and the hotel on Komsomolskaya Square. The floors of prefabricated towers, such as the Iceberg Tower, could also be added to this list.

In these examples a geometric interpretation of the double square can be seen, which was used in traditional wooden towers and was continued in the stone towers, such as the emblematic bell tower of Ivan the Great in the Kremlin.



**Figure 120.** Typical floor plan of Iceberg house serie. 1996

If we compare the ground plans of Saint Basil's and the Zaryadye building, we find similar compositional principles that show that when it came to integrating the modern towers with the monument environment of the Kremlin, they paid attention not only to the silhouette but also layout. For example, the Zaryadye high-rise planned eight flights of stairs to surround the nucleus of the building, formed by 24 elevators - comparable to the eight towers that surround the central tower of Saint. Basil's.

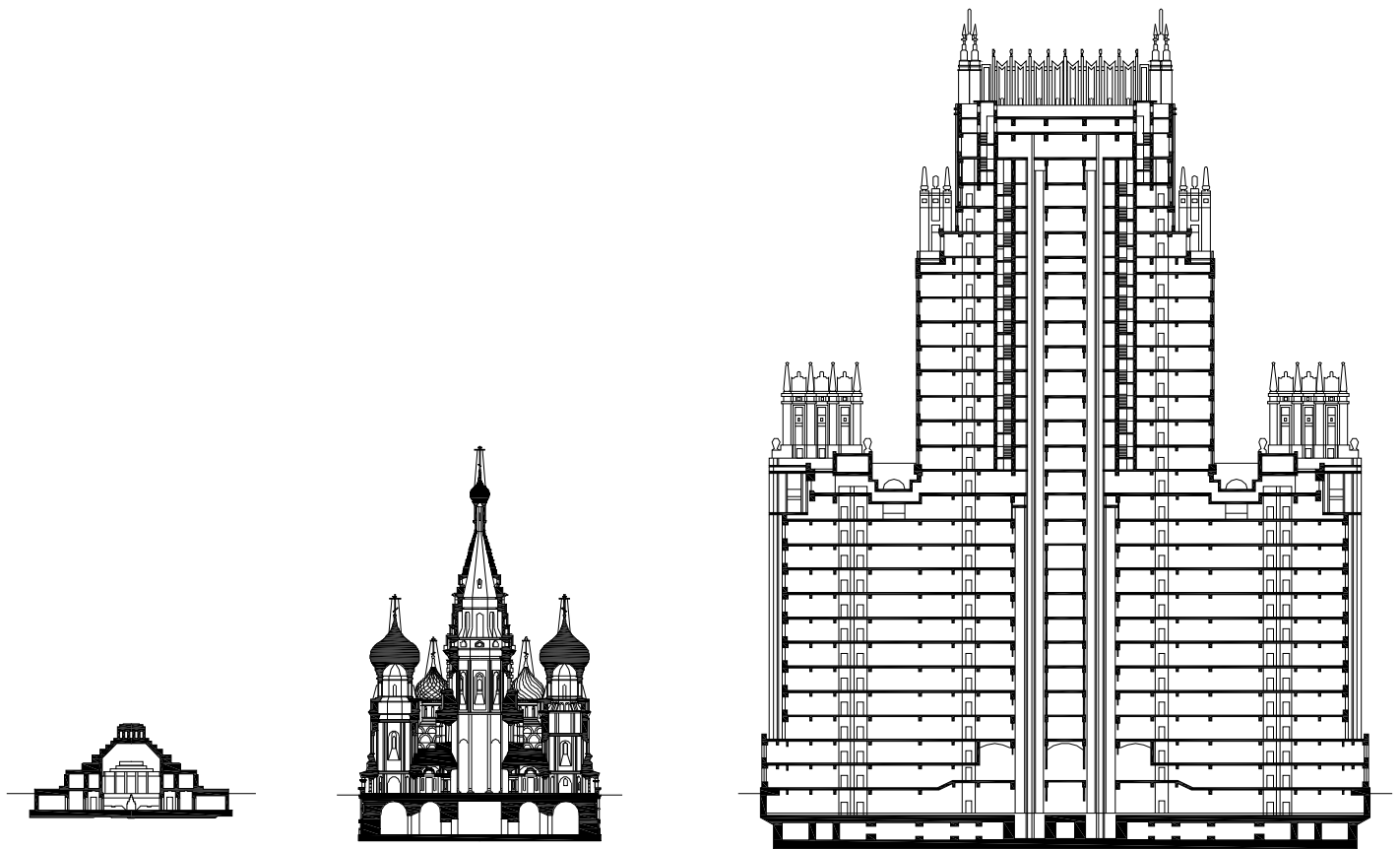
In the book "Architecture of the Environment," M.V. Posokhin clearly indicates that the sources of inspiration of contemporary architecture were not only the classical structures but also the architecture of the old buildings of Moscow, above all the Ivan the Great Bell Tower, the Novodevichy convent, the Church of the Ascension and the towers of the Kremlin. This cultural and historical knowledge is summed up in the second volume of the "Architecture Manual" published in 1946, which became of vital importance to establish the theoretical basis of the post-war reconstruction of destroyed cities. The editorial board was formed by architects such as K.S. Alabyan, N.P. Bylinkinoy, V.A. Vesnin, N.S. Dyurenbaum, N.Y. Colley, A. Kuznetsov, G.F. Kuznetsov, E. Leonidov, A.G. Mordvinov, N.H. Polyakov and V.N. Semenov.

**Figure 121.** From left to right.

Lenin's mausoleum on Red Square. Section. Arc. A.V. Shchusev. 1929

Saint Basil's Cathedral Section. Barma and Postnik Yakovlev. 1555. From book by Krasovskiy, "Moscow Stone Church Architecture"

Administrative building on Smolenskaya Square. Section. Published by Academy of Architecture of USSR in 1951





## THE "EMPTY-BOX SYSTEM"

In cross-section, Saint Basil's Cathedral has a central tower and two lesser symmetrical towers on either end - a composition of vertical elements characteristic of most high-rise buildings.

\* "In the development of the foundations, structural systems designed by the famous Soviet constructor and engineer Vasily Saprykin were implemented. Since 1946 Saprykin had worked on the building of structures for nuclear reactors, in particular the A-1 "Mayak" facility. Therefore, it is possible that during these years the advances that were made within the departments of military construction were utilized by the engineers who were in charge of the skyscraper constructions. These include the use of the electro-welded steel mesh and advances in the research of waterproof concrete. One must remember that the Ministries of the Interior, Foreign Affairs and even Railroads all formed part of the military structure. According to his biography, Saprykin was in charge of the construction of the Moscow skyscrapers between 1953 and 1954."

But if there is a notable peculiarity in the cross-section of high-rise buildings, it is what is called the "empty box system" that is used as a standardized structural solution for the foundations\*. This is a system that involves including an empty space in a building's foundation in order to provide stability to the structure. This system was created by engineer V.A. Saprykin, who had previously developed a similar method in a nuclear power plant.

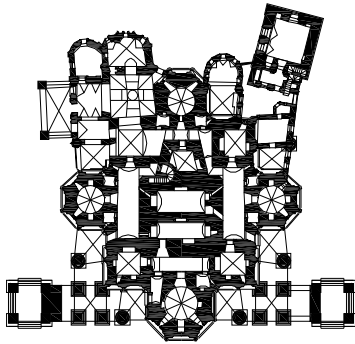
Along with the foundational stability that the empty spaces provided, engineers also used them to situate facilities.

The construction of the foundations was carried out in quite complicated geo-logical conditions. For example, during the construction of Hotel Lenin-gradskaya, the location of the base was at a depth of 8.5m, based upon shifting ground. In order to prepare a solid base for the foundations of the building, they had to dig ditches on the perimeter of the zone to drain the water (and prevent it from entering) in order to dry out the base of the building.

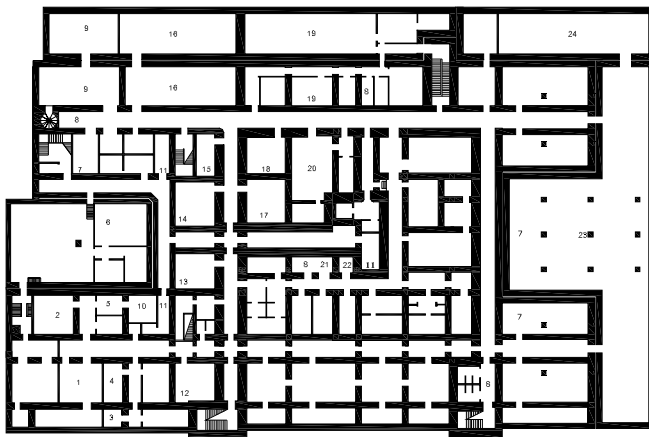
In the construction of Hotel Ukraina and the Kotelnicheskaya residential complex, the ground was saturated with water even more than at Komsomolskaya Square, so tried and tested forms of dehydration were utilized. The water was collected in a pumping well, and with the aid of powerful pumps it was drained into the Moscow River. Other problems arose during the construction of the foundations of the Red Gates building, mainly derived from the connection with the Krasnye Vorota metro station built in the 1930s.<sup>(63)</sup>

These empty foundations, constructed in reinforced concrete, were a traditional solution that had been utilized in important Russian medieval buildings. Indeed, Saint Basil's Cathedral and the Lenin Mausoleum remain standing thanks to this system that provides great stability.

63. Большой столичный журнал «Московское наследие» №6 // Московское наследие, 2008. л.54-55

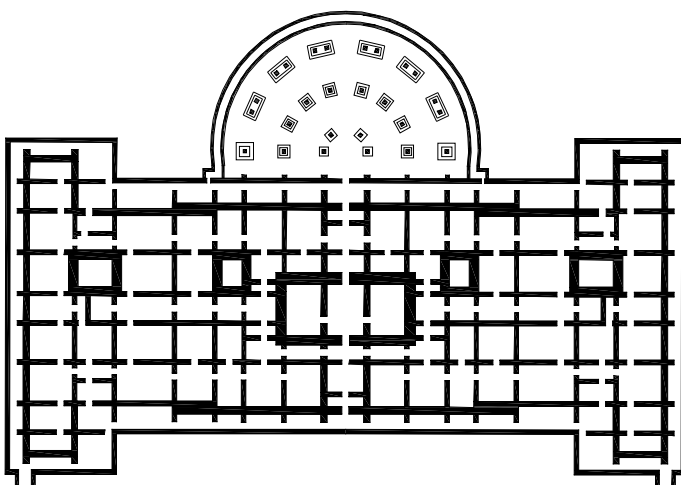


**Figure 122.** San Basil's Cathedral. Underground plan



- 1 - cutlery
- 2 - meat
- 3 - fruits
- 4 - wine and drinks
- 5 - fish
- 6 - workshop
- 7 - airconditioning
- 8 - toilet
- 9 - distribution Systems
- 10 - water
- 11 - bunker
- 12 - airconditioning
- 13 - electrica storage
- 14 - workshop
- 15 - heating room
- 16 - dirty laundry
- 17 - transfer station
- 18 - accumulator
- 19 - electrical device
- 20 - central
- 21 - garderoba
- 22 - storage
- 23 - control room
- 24 - plumbing

**Figure 123.** Leningradskaya hotel building. Underground plan



**Figure 124.** Administrative building on Smolenskaya Square. Underground plan

0 25 50

## FOUNDATION

The box form of the high-rise building foundations was a response to the instability of the Moscow terrain, mostly water saturated and with many underground rivers.

But these "empty boxes" were not empty. The basement fittings were used to house facilities, car parks and even escape routes and protective spaces, as occurred in Zaryadye, Vosstaniya, Red Gates, Smolenskaya and so on. The start of the Cold War was a determining factor in the creation of these defensive spaces, many of them designed into the foundations of the high-rise administrative buildings (where many families of the Stalinist governing elite also resided).

For example, it is known that in the Zaryadye Building foundations there was a bunker: "In 2006 the workers who undertook the demolition of the Hotel Rossiya found a network of tunnels and a huge bunker beneath its foundations, which housed food stores, electricity generators and dormitories."<sup>(64)</sup>

This same organization appears in the foundation plan of the high-rise in Leningradskaya Square, where the description of spaces includes the word "bunker." Another structure very similar to tunnels and bunkers appears in the foundations of the Ministry of Foreign Affairs building.

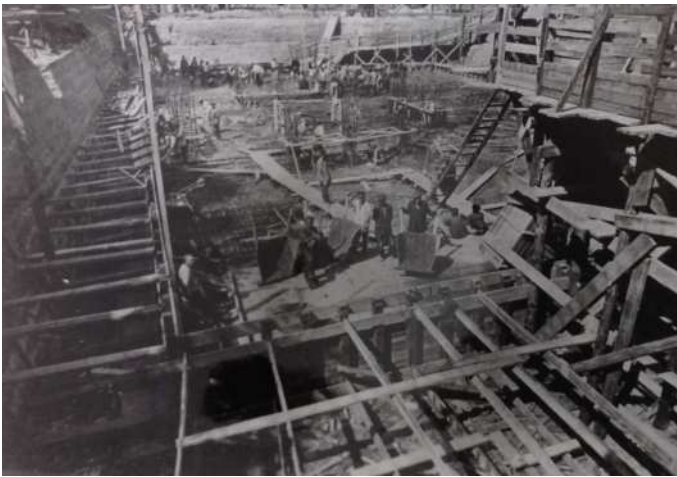
Regarding the secrecy enshrouding these basements, Krushkov says: "(...) the features of the basements is a great question that will have to wait for its answer. Ten years ago, in the city of Samara, a small infrastructure called "Stalin's bunker" was declassified and turned into the Museum of Civil Defence. However, it would be unthinkable to create this type of museum (G.O.) in the basement of one of the Moscow Seven Sisters. It would be showing the Americans themselves these basements and telling them how we prepared for a possible conflict against their country."<sup>(65)</sup>

64. *El Secreto del Metro de Moscú* [blog]. May 31, 2009. <http://loincognito.com/2009/05/31/el-secreto-del-metro-de-moscu/>

65. Кружков Н. Высотные здания сталинской Москвы. Факты из истории проектирования и строительства // Водолей, 2011.



**Figure 125.** Swimming pool, on Kropotkinskaya Quay, which recycled the foundations of the Palace of the Soviets. General view. Arc. D. Chichulin, V. Lukyanov, N. Molokov, eng. N. Vishnevskiy. 1960



**Figure 126.** The construction of Lenin's mausoleum from stone. 1929-1930. Reinforcing and concreting of foundation pit.

As we have said, the abundance of the water-saturated ground in Moscow made the "empty box" a necessary resource to prevent the sinking of particularly tall buildings. Specifically, the Red Square area, where the Mausoleum and Saint Basil's are located, was built over a canal that surrounded the Kremlin and was filled in with earth - not the ideal surface upon which to base a building. In fact, in January 2014, restoration works were undertaken on the Lenin Mausoleum and the monument was temporarily covered by a tent in the form of an igloo. It appears that the reasons were related to a slight sinking of one corners of its foundations.

In his memoirs, engineer Y. Sidorov, who worked on the Krasnye Vorota construction, explains the difficulties of laying the high-rise buildings' foundations.

"Every skyscraper had its peculiarities. For example, my neighbour V.A. Poliakov, during the construction of the Hotel Leningradskaya on Komsomolskaya Square, had to lay foundations on the same layer of shifting sands as we did during the construction of the Red Gates building. When he visited me, he always told me that he envied our team, thinking that the shifting sands did not extend to our site. However, we had a lot of shifting sands. He had to lay very deep foundations, using pilings. But it didn't matter how resistant they were. The water got in anyway. For this reason the water extraction pumps in the ditch were always on. The constructor "Stroitel" laid the foundations of the Hotel Ukraina using special filters, which were something new. The foundations were 8m below the phreatic surface of the Moscow River. And don't even mention the University skyscraper, where the principal engineers were personal friends (A.V. Voronkov and A.N. Komarovsky). The peculiarity of this building was that the main building of the University was too big and at the same time they were digging the surrounding terrain\*."<sup>(66)</sup>

\* With the freezing system they achieved cuttings at 90°, which made it possible to build more quickly without affecting the excavations of some buildings in the vicinity.

Ironically, the foundations of the Palace of the Soviets ended up filled with water when it was reused as a 130m open-air swimming pool - an ending that seemed inevitable, especially after learning that Iofan tried to seal off the water seepage when the foundations were being laid at the end of the 1930s.



**Figure 127.** Hotel on Kalanchevskaya Street. General view of construction process. Arc. Polyakov L.M. and Koreckiy A.B. 1951



**Figure 128.** Hotel on Dorogomilovskaya quay. Framework construction process. Arc. A.G. Mordvinov. 1951

## STRUCTURE

The structure of the high-rise buildings was formed by metal porticoes, which varied according to the building. For example, Smolenskaya, Hotel Ukraina and the side buildings of MGU were simple porticoes. Leningradskaya, Krasnye Vorota and the central MGU tower had a cross-braced auxiliary structure at certain points. The Vosstaniya building had walls of concrete that served as structural reinforcement. Lastly, Kotelnicheskaya and Zaryadye were designed with more complex three-dimensional joints between their porticoes. The portico joining system was standardized and when the automatic joining system was implemented in MGU the construction time was reduced six fold.

With the approval of the decree of January 1947, Stalin demanded the industrial development of a standardised system of construction for the high-rise buildings. A noteworthy fact, bearing in mind the judgement later made against Stalinist architecture being inefficient and costly. The first prefabricated panels were installed on a four-storey building located on Sokolinaya Gora in Moscow, an experiment begun on November 15, 1947 and finished just four months later. In 1948 the first prefabricated concrete panels with an insulation layer were built. It was the beginning of prefabrication in Moscow.

However, Khrushchev made the following reading on the role of structure in the high-rise buildings and the lack of practicality of the administrative buildings: "Let me give you some figures for the proportions of floor area in high-rise buildings. Building at Krasnye Vorota: work rooms 28.1%, subsidiary rooms 23.1%, infrastructure and services 14.9%, construction 33.9%. Building on Smolenskaya ploshchad: work rooms 30%, subsidiary rooms 24%, infrastructure and services 11%, construction 35%. These figures clearly show how little space in high-rise buildings is occupied by primary functions and how much is given over to so-called "constructional structures" - walls and other structures. In high-rise buildings such space far exceeds the norm as a result of the emphasis put on giving buildings an impressive silhouette."<sup>(67)</sup>

Nevertheless, the construction of these structures was a great achievement. It was the first time that buildings of these dimensions were built in the USSR and they had to develop new technology to adapt the skyscrapers to the demands of Moscow.

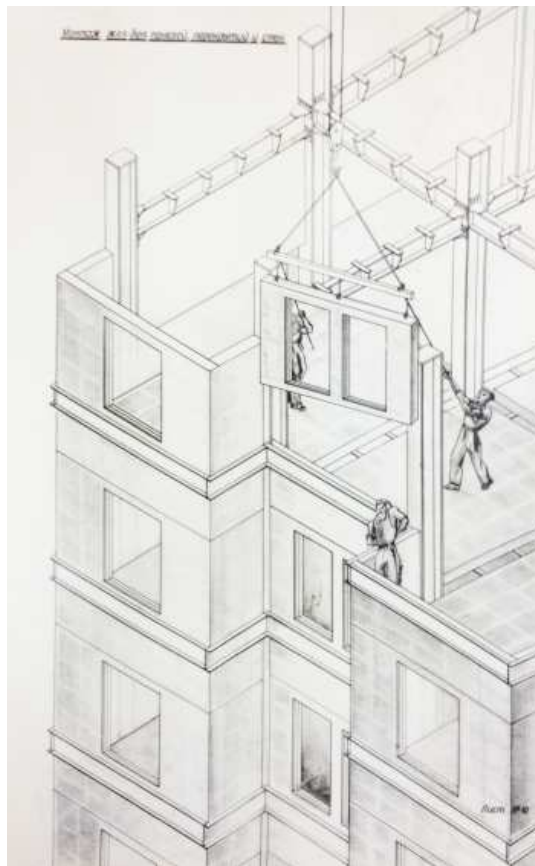


**Figure 129.** Pre-fabricated panel system construction.



## CHAPTER 3

### INFINITE PREFABRICATED TOWERS ( $\infty$ )



**Figure 130.** Project of 20-storey building for the Hotel on Dorogomilovskaya Quay. Construction of reinforced concrete panels of walls and floors. Arc. Mordqvinov A.G. 1948

\* V. Paperny uses the term "culture" to explain the reason for the turnaround that occurred in artistic and architectural production at the beginning of the 1930s in the USSR. According to his thesis, more than a turnaround it is a very transition of the necessities demanded by society. Thus he named the Avant-Garde "Culture I" and the Post-Avant-Garde "Culture II".

\*\* This system was well known by the architect A.N. Dushkin, who had been working on the Moscow metro since 1934, designing stations as unique as Kropotkinskaya and Mayakovskaya.

The drawings of Oltarzhevsky on the structural assembly of the Hotel Ukraina are proof of the architect's contribution to the design and construction of the hotel. Although officially he was not included as one of the project authors, his authorship was recognised at a later date.

Furthermore, this set of drawings that explains the assembly process of the prefabricated façade of the Hotel Ukraina is a detail that supports the theory that prefabrication began before Khrushchev came to power. Regardless of this, it was as a result of his Manifesto that it developed exponentially. In the mid-1950s there was a political and cultural turnaround comparable to what occurred at the beginning of the 1930s, a historical moment that can be interpreted as an evolution more than as a change.

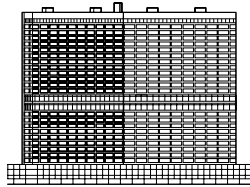
In the construction of the high-rise buildings it was logical that the prefabricated system was thought of as a way to save execution time, especially when bearing in mind the cuts and strict deadlines imposed by Stalin. Builders, architects and engineers were subjected to tremendous pressure to finish the works by the established deadline and in some cases it led to inventiveness. For example, with the high-rise building located in Red Gates Square, the system of artificial ground freezing was used to reduce the time needed to lay the foundations. It was also a way of avoiding the use of scaffolding, which tends to disrupt traffic in the city\*\*. Prefabrication was also used in the horizontal structural elements of the apartment blocks that accompanied the main building of the University.

The basis of this new movement had already been in development years before. For example, in 1938, for the project by B.N. Blokhin and the architects B.V. Leonov and K.I. Arutiunova, 23 schools were built out of prefabricated panels. "It was possible to create on the basis of the same structural elements of the building with various architectural and planning solutions. In six years (1939 - 1940) Blokhin with his great friend and fellow worker A.K. Burov designs and builds a number of apartment buildings in Moscow. Methodology of comprehensive development of architectural, technological and assembly processes inherent in the construction of the pilot, held under the leadership of BN Blokhin, contributed to the further advancement of industrial construction in our country."<sup>(68)</sup>

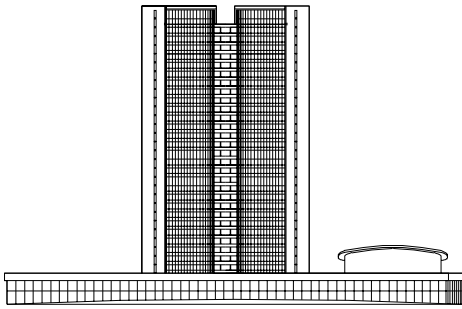
68. Белоусов, В. Борис Николаевич Блохин [on line]. 1966. <http://art.sovfarfor.com/arhitektura/boris-nikolaevich-blohin>

**Figure 131.** Novye Arbat Avenue, rebuilt between 1957-1968.

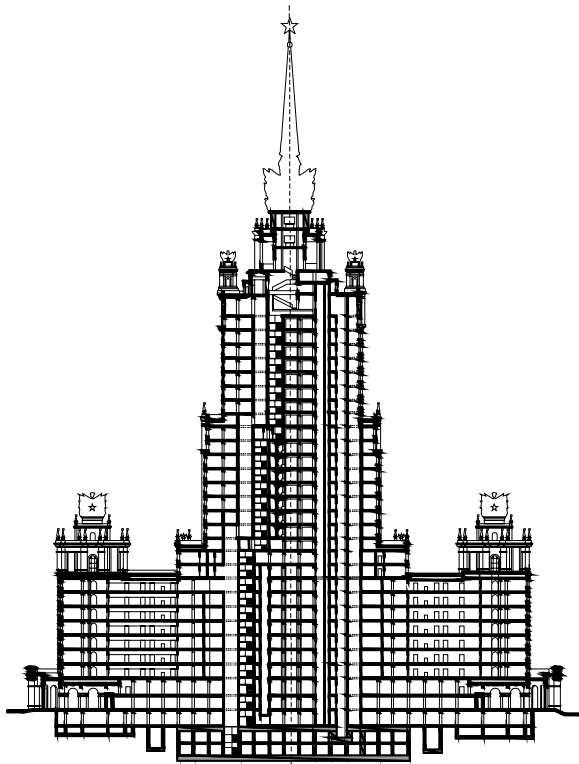
- (1) Hotel Ukraina (1953-1957), located on Avenue Kutuzovskiy.
- (2) Ministry of Foreign Affairs (1949-1952), located on Smolenskaya Square.
- (3) High-rise apartment building on Vosstaniya Square (1949-1953).
- (4) Building of the CMEA (1963-1970).
- (5) Building in shape of a V and series of towers 1-MG-601-F (1962-1968), located on Avenue Novye Arbat
- (6) Kremlin (1482-1495).



5 - 1-MG-601-F Building

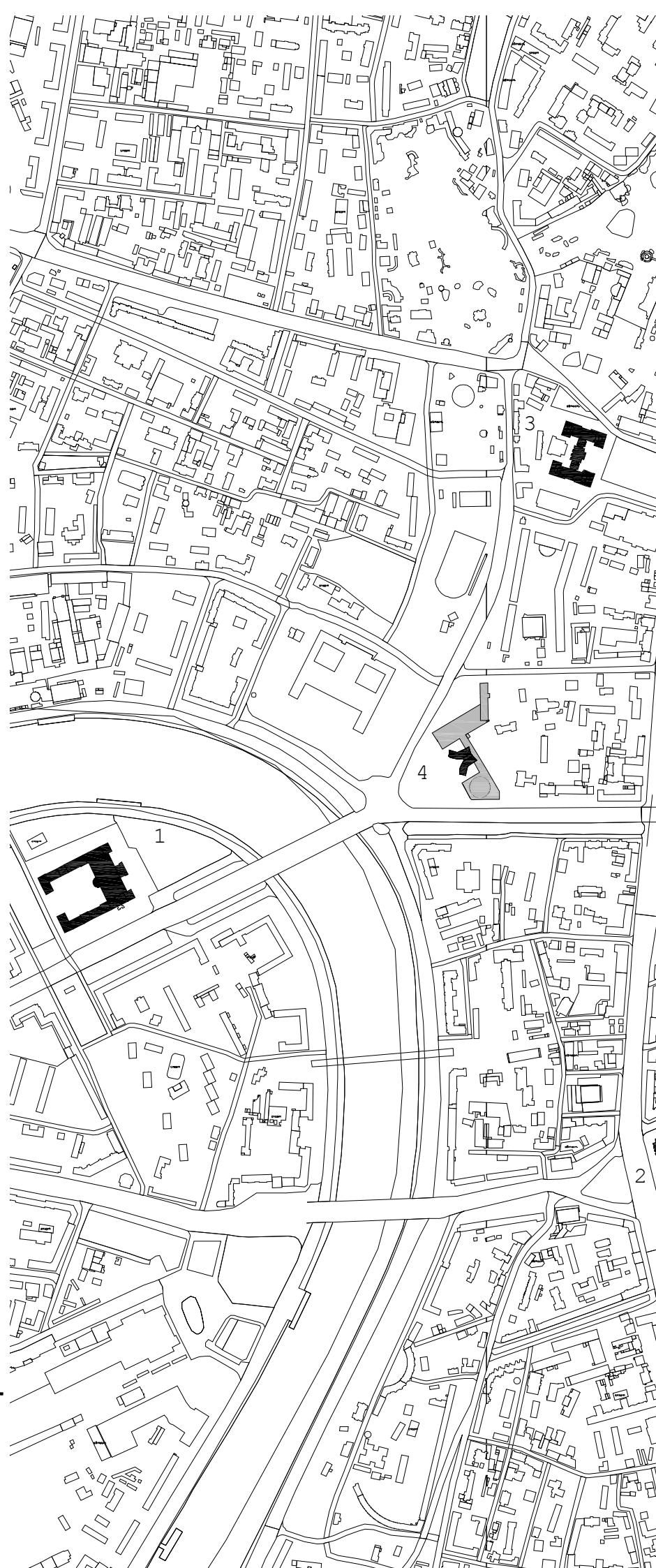


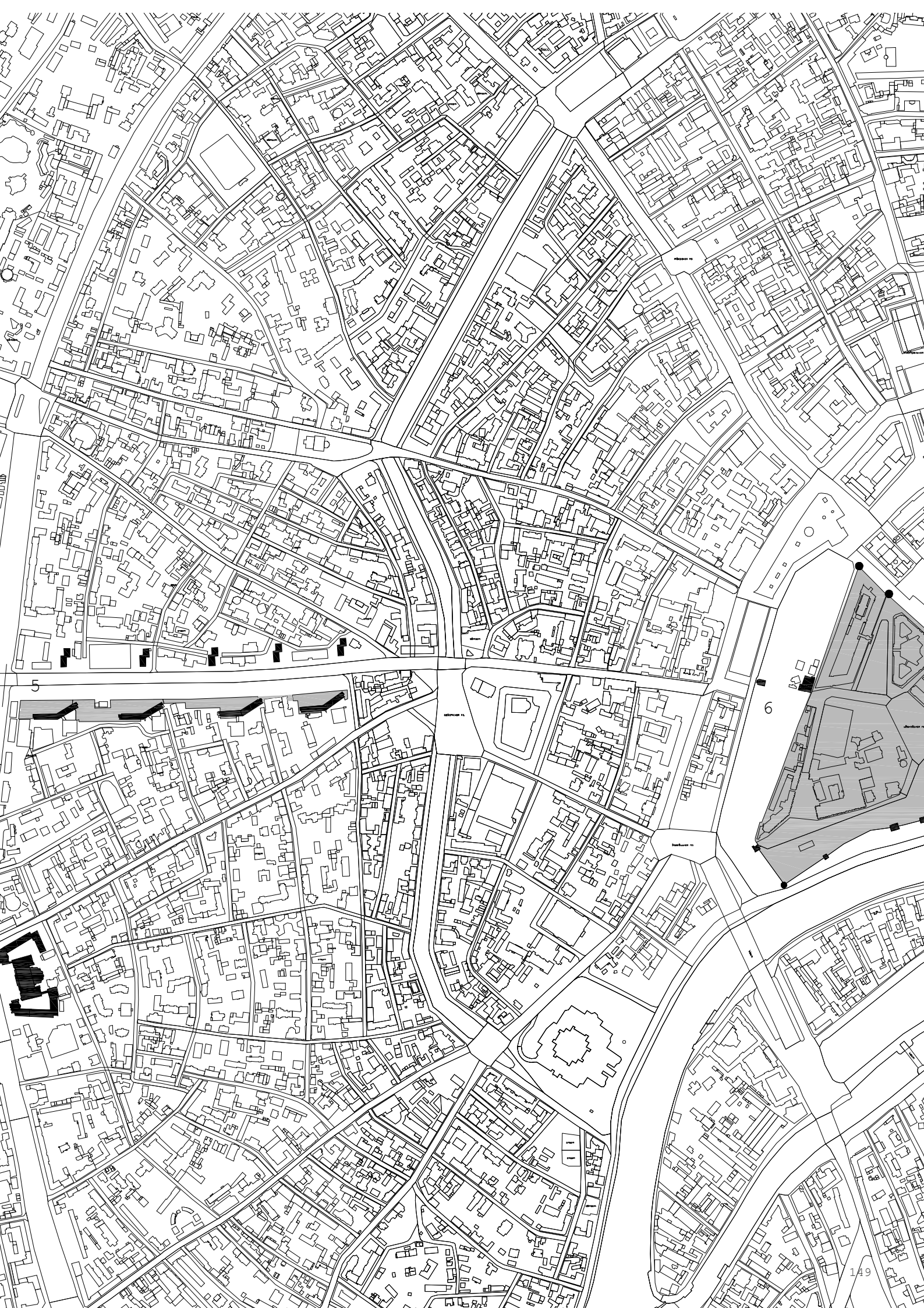
4 - CMEA Building  
(Council for Mutual Economic Assistance)



0 25 50

1 - UKRAINA HOTEL





5

6



**Figure 132.** Kalinin avenue (Novye Arbat street) Perspective view of the street. 1970



**Figure 133.** Kalinin Avenue (Novye Arbat Street) General view of one building under construction. 1967

The pictures of the office buildings on Novye Arbat with the Stalinist skyscrapers in the background express the idea of urban fusion, of an architectural whole. The avenue became especially eminent from the 1960s, and Novye Arbat is the hallmark of this urban typology, where the serialization of towers acquires particular prominence.

\* In Khrushchev's speech of 7th December 1954, some figures are given on this start of standardized production: "Of the 1,100 construction designers in our country 152 are partly engaged in producing standard designs. From 1951 to 1953 a maximum of one per cent of resources allocated for design work was spent on production of standard designs. In 1953 only 12% of the total volume of industrial buildings erected was built using standard designs." (69)

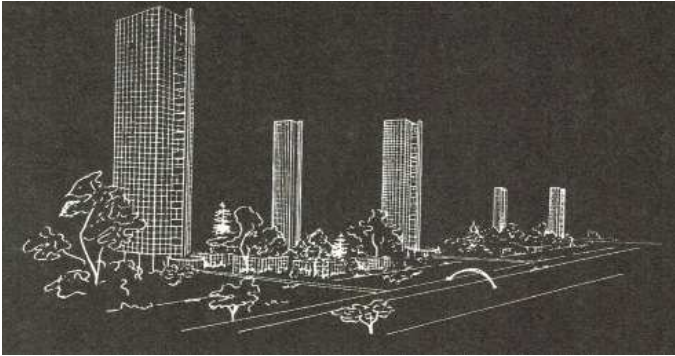
The implementation of the prefabricated system in the construction of the Soviet skyscrapers is a stepping stone between them and the massive construction of prefabricated housing. The transition from Stalin to Khrushchev, from the beautiful Stalinist city to the massive production of social housing is expressed in this thesis with the symbols 8 and ∞. Khrushchev's Manifesto (1954-55)\* was decisive in establishing the new politics of Communism, in explaining to everyone what the new basis of the Soviet system was going to be. Khrushchev publicly criticised Stalin's "architecture of excesses" so that the people would identify the change and advance toward an "economic and social architecture." It was both popular and effective and it kept Communism alive for another half century. Khrushchev's manifesto was crucial to the development of a new urban blueprint - the microraiion - whose principal ingredient was the prefabricated residential building based on standardization and the economy of means.

#### NOVYE ARBAT

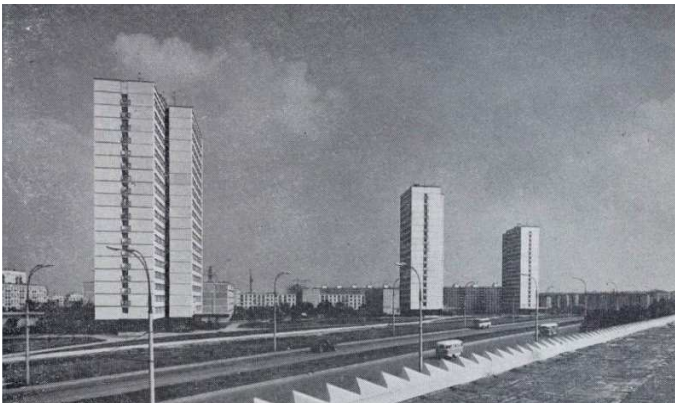
In parallel to this break from the past, Khrushchev promoted one of the most integrated urban projects of Moscow: Novy Arbat Avenue, a bridge that joined the towers of the Kremlin with the Stalinist high-rise buildings through a series of modernist towers that used the prefabrication construction system. This was an idea that had already been expressed in the 1935 Urban Plan.

The urban and architectural echoes of this transition from Stalinism to pre-fabrication can be seen when one walks two or three kilometres from the Hotel Ukraina along Leninsky Avenue. In the vicinity of the Yury Gagarin monument there are blocks of Stalinist housing, and as we go further south the first post-Stalinist prefabricated buildings appear with brick facades. Still further south in the Novo-Cheremushki district we find the first fully prefabricated buildings. One bears witness to a mutation that not only affected the buildings' construction but also the urban composition. The Stalinist Kvartal gradually fades away as one gets farther from the centre, giving way to the microraiion as the new urban structure.

In the 1960s two types of avenues could be distinguished, both consisting of a series of modern towers: the "housing project" style avenue like Novy Arbat, that has an integrating aim and rebuilds the existing urban plan; and the outlying, suburban avenue, made up of a series of towers that colonise the landscape (such as Leninsky Avenue).



**Figure 134.** Socialist settlement for Magnitogorsk Metallurgical works competition design. 1930. Linear development.



**Figure 135.** Residential buildings on Leninsky Avenue—  
from magazine «Architecture of USSR». 1972



**Figure 136.** Leninskiy Avenue 122.  
1967. Type of building - 1-MT-601



\* Ladovsky paid a lot of attention to searching for a flexible (dynamic) planning and spatial structure that could be made more complicated in a city development and growth process without disturbing the relationships of its main functional areas.

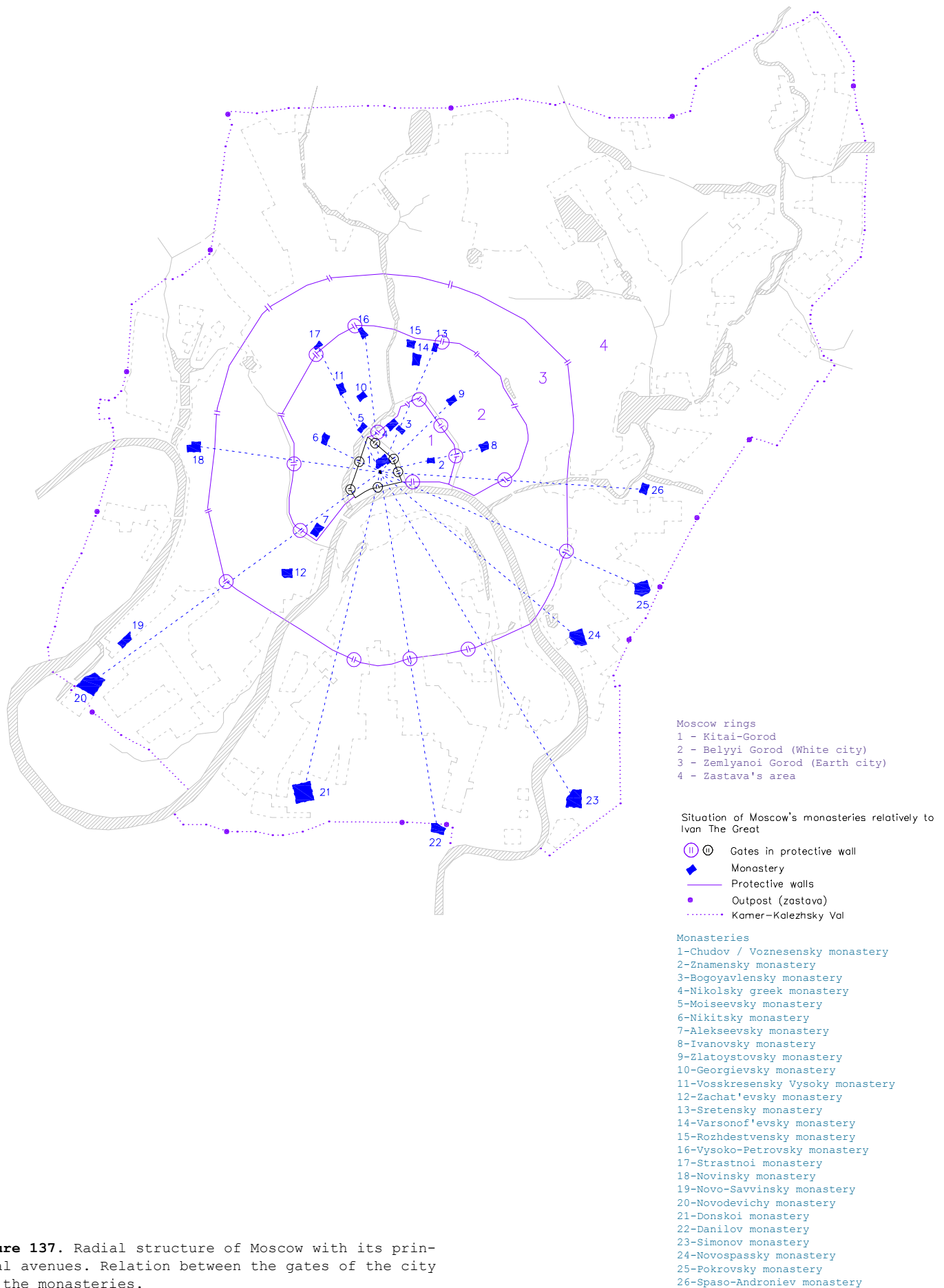
This latter type, the suburban avenue associated with the idea of urban expansion, recalls the theories proposed in the 1930s by people like I. Leonidov (Magnitogorsk), Ladovsky\*, and the Vesnin brothers (Kuznetsk and Stalingrad). Of these, Leonidov's design most clearly expresses in a deliberate way the idea of creating residential complexes in empty spaces.

Ladovsky, for example, analysed the spatial and urban structure of Moscow and stressed the importance of human perception in his projects. As early as the 1920s Ladovsky went walking at night through the deserted areas of Moscow looking for ideas and connections in order to develop new perspectives and perceptions in empty streets. Ladovsky was one of the first to study the continuous transformations in an urban organism in detail, trying to discern, locate and use diverse typologies and functions to configure an entity that would be able to satisfy the need for urban growth. He made clear the most relevant aspects of the environment and played with sequence and perspective as design tools. <sup>(70)</sup>

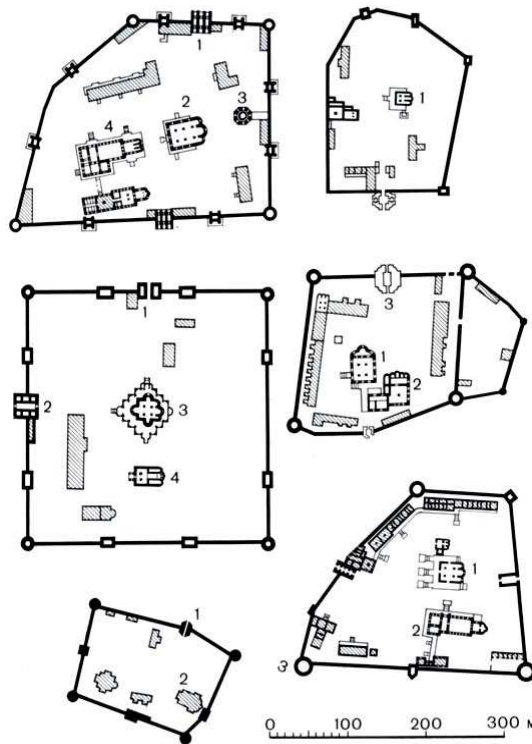
The towers built on Leninsky Avenue are very similar in their floor plans to those on Novy Arbat and even to those designed by Leonidov for the lineal development of Magnitogorsk (see image pp. 131-132). The tower is a parallelepiped that is broken to highlight the building's verticality. The layout has a central core of vertical communication that articulates the two halves of the building. The central corridor runs from one extreme of the tower to the other and the apartments are laid out on either side. The side facade has nearly no openings, except for one on each floor, serving as an emergency exit and connecting the corridor with the fire escape.

The 1-MG 601 typology is similar to later prefabricated towers, such as the I-700A of the 1970s and the KOPE of the eighties. Together these three towers can be seen as the evolution of one hypothetical tower. Initially, the central corridor extends to the building sides where the fire escape was a metal stairway attached to the exterior. Later this stairway was moved inside the building's shell and built from reinforced concrete. Finally, the fire escape disappeared from the sides and was placed in the centre of the building, reducing the length of the corridors and designing a new type of apartment at the sides. The most economic versions of the type, which has no openings on the side facades, bring to mind the oldest image of communal housing - except that they are built upwards rather than horizontally and of reinforced concrete instead of wood.

70. Khan-Magomedov, S.O. *Nikolai Ladovsky. Heroes of Avant-garde. Moscow. Fond. 2011. p.81-82*



**Figure 137.** Radial structure of Moscow with its principal avenues. Relation between the gates of the city and the monasteries.



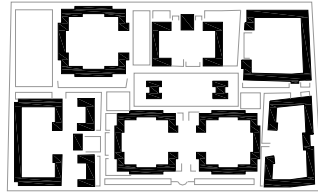
**Figure 138.** Plans of monasteries of Moscow (from top to bottom):  
 Novodevichiy monastery 1525  
 Donskoy monastery 1591  
 Danilov monastery 1560  
 Spaso-Androniev monastery 1360  
 Novospasskiy monastery 1490  
 Simonov monastery 1376

### SELF-SUFFICIENT UNITS

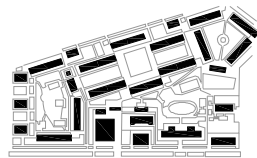
The idea of concentrating all the necessities for life into one small space is not peculiar to Moscow, nor to the Soviet Union. But if we analyse the nature of a series of urban structures characteristic of Moscow, such as the Kvarstal, the microraion, the Stalinist high-rises or some isolated experiment such as Iofan's building-city (House of the Embankment), we observe that there is a predilection towards minimizing walking distances and a concentration of services necessary for daily life.

Although the microraion was not unique to the Soviet Union (it was born in the USA in the mid-nineteenth century and was first built in St. Petersburg at the start of the twentieth century), it is Communism that adopts this structure as its own and reproduces it.

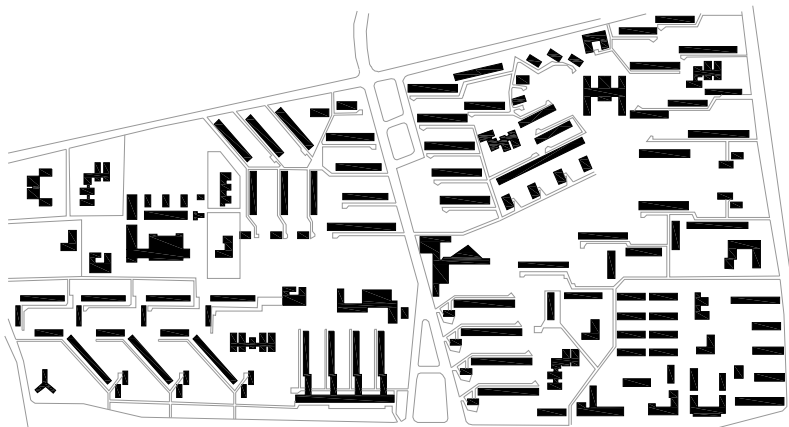
The composition of the microraion, with towers on the perimeter and smaller buildings in its interior, bears a likeness to the protective elements of the Russian monasteries and the Kremlin. The reproduction of the microraions on the outskirts of Moscow recalls the way the monasteries proliferated in the middle Ages.



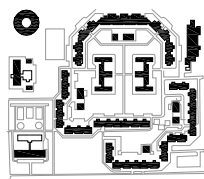
**Figure 139.** 13th quarter of Gagarinskiy district 1952-1954. Residential houses in southwest of Moscow. These buildings are also called simple Stalinist style.



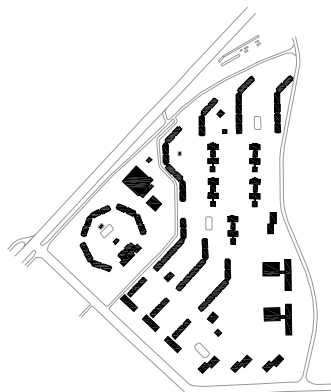
**Figure 140.** The project team led by the architect N. Osterman. An experimental quarter number 9. Novye Chermushki, 1956-1958. Novye Chermushki district is located between Leninskiy Avenue and Profsouznaya Street.



**Figure 41.** Unknown microdistrict of Moscow.



**Figure 142.** 5th microdistrict of Yasenevo. 1975



**Figure 143.** Microdistrict in Novye Peredelkino, located in the southwest of Moscow. At the bottom, three towers, planned on the border of the composition, (as originally happened in Novye Chermushki). Novye Peredelkino was one of the last districts built in Moscow (1980s).

## FROM THE MODERN TO THE POST-MODERN TOWER

After the Stalinist skyscrapers, the next single towers built in Moscow were modern office and apartment blocks located on main avenues, such as Novy Ar-bat, that join previous structures such as the Hotel Ukraina and the Kremlin towers. These new towers were the image of Moscow modernity that integrated the consolidated urban fabric. They represented the rebirth of the tower, now modernist, after practically a decade (1954-62) without new additions to the catalogue of Moscow towers since the last Stalinist high-rise was completed.

\* During the 1960s the Stalinist "Kvartals" continued to be built, being made compatible with the first micro-raions - outlying neighbourhoods made up of prefabricated buildings. The inertia of dying Stalinist culture was huge and went on for a decade.

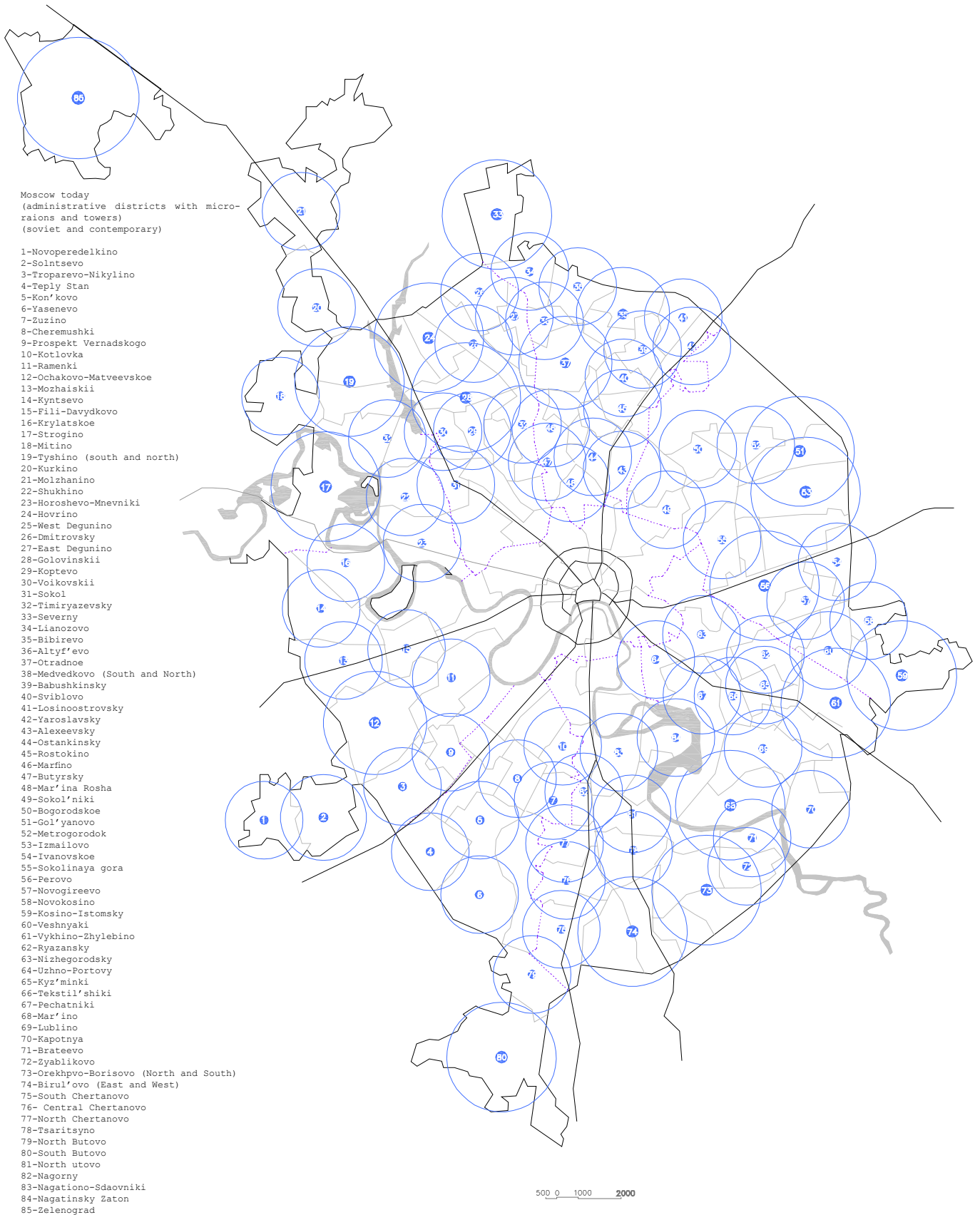
As well as these single towers, which were located in strategic places in the existing city and remade the urban image, the first prefabricated housing towers began to proliferate in the outlying neighbourhoods\*. These towers were different to any other tower designed or built before. It was no longer about creating monument-buildings or representative administrative buildings but to house the social masses.

Within the new urban structure created to solve the housing problem - micro-raion - the prefabricated tower began to be combined with other building typologies of lesser height, also prefabricated, until whole neighbourhoods were created and repeated around the whole Moscow periphery and throughout the Soviet Union. It was the beginning of an infinite multiplication of prefabricated buildings, where the success of this social policy and the growing demand for housing ended up making the tower the architectural paradigm in the Soviet Union ( $\infty$ ).

\*\* "22-storey buildings can no longer be called modernism. It is postmodernism. (...) People who live in the 5- to 9-storey apartment blocks still somehow have the ability to communicate with each other, and they know each other more or less. In this respect the maximum is the 14-storey block." (71)

The reasons for the addition of the first prefabricated towers into the microraions is excellently explained by Nina Kraynyaya\*\* who worked on the design and urban planning of the districts in the southwest of Moscow in the 1970s: "They started to introduce nine-storey buildings in combination with the five-storey ones, with the aim of creating better communal recreational spaces without losing the relationship between architecture and the human scale. From modernism it changed to postmodernism, a transition that was made evident when the scale and density was increased."

71. Grigoryan Y. (curator). *Archaeology of the Periphery*. Moscow Urban Forum, Moscow, 2013. p. 271. Available at: [http://issuu.com/mosurbanforum/docs/archaeology\\_of\\_the\\_periphery](http://issuu.com/mosurbanforum/docs/archaeology_of_the_periphery).



**Figure 144.** Plan of the micro-districts (microrraions) of Moscow

Three periods of densification in Moscow can be distinguished in the second half of the twentieth century, each one associated with a type of tower. The first involved towers of eight, nine and twelve storeys in the microraisons made up of low-density prefabricated buildings popularly known as "Khrushchyovkas" (1958-1976). The second period is associated with the construction of brick towers of nine, twelve and even sixteen storeys (1967-1985). The last period of densification corresponds to the eighties when the KOPE towers appeared, made of prefabricated panels and reaching up to 22 storeys. These towers are still in use today (1981- ). The density increase was brought about by either inserting towers into the already established urban fabric or by arranging them as the compositional element of a microraison\*.

\* The microraison began as an environment in which life and work was brought together, creating everything necessary so that its inhabitants did not have to leave that space. It recalls the philosophy of the building-city, but not now destined for the elite but for the working masses.

The first microraisons appeared in the USSR at the beginning of the twentieth century. But his urban formula was brought back from 1955 onwards. The microraison proliferated first with the construction of five-storey buildings (Khrushchyovkas) and later with taller and taller buildings.

The raion is a peripheral residential district created from zero, integrating all the necessities for developing family life, such as nurseries and schools, as well as a small administrative building, a hospital, and even a bunker, and so on.

Modernism is associated with the slogan that Le Corbusier promoted as the new city model: the design of generously lit high-rise buildings surrounded by nature.

In the post-modernism of the seventies and eighties, the housing block became a purely functional object. The costs of construction were reduced enormously and the height of the apartment blocks was increased to up to 22 storeys. The peripheral neighbourhoods were built progressively farther and farther away from the centre and incorporated building typologies that grew taller and taller and with greater distance between each other.

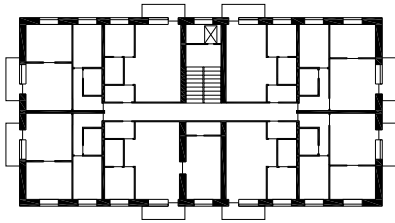
Nina Kraynyaya explains this transition from modernism to postmodernism in the following way: "Before the 80s was the period of classic Soviet Modernism. And after the 80s came a completely different period. (...) 22-storey buildings can no longer be called modernism. It is postmodernism."<sup>(72)</sup> The need to attain greater density in every new microraison made it necessary to resort to the 22-storey high-rise, thus losing the relationship of architecture with the human scale.

In the urban composition of the microraison, the administrative buildings (schools, nurseries, hospitals, etc.) are low in height, and it is the prefabricated housing that is associated with the idea of the tower, in contrast to what occurred in the Stalinist Beautiful City. Each district or raion has an axis or main avenue where, the tallest apartment blocks were generally located. Sometimes prefabricated towers were also placed at the edges of the microraison, for example near lakes, forests or whatever urban emptiness meant that they would not cast shadows over nearby buildings.

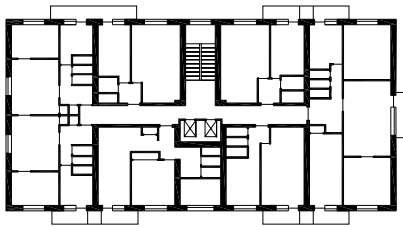
72. Grigoryan Y. (curator). *Archaeology of the Periphery*. Moscow Urban Forum, Moscow, 2013. p. 271. Available at: [http://issuu.com/mosurbanforum/docs/archaeology\\_of\\_the\\_periphery](http://issuu.com/mosurbanforum/docs/archaeology_of_the_periphery).



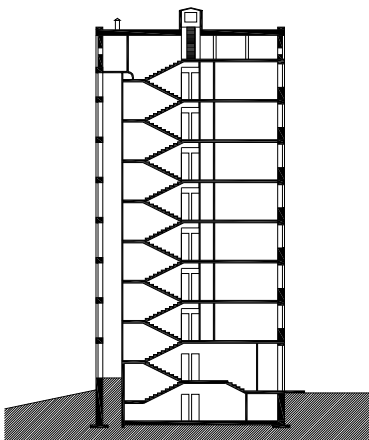
**Figure 145.** Khrushchyovka tower. Image of 8-storey model.



**Figure 146.** Floor plan of 12-storey tower type.



**Figure 147.** Floor plan of 8- and 9-storey tower type.



**Figure 148.** Section of 8-storey tower type.



## KHRUSHCHYOVKA TOWER (1958-1976)

A notable forerunner of the first prefabricated, five-storey Khrushchyovka apartment blocks and the first experiments of cities designed to deal with the lack of housing for the working masses, was the "Green City" project by M. Ginzburg and M. Barshch (1930).

"The design provided for building special factories to launch the housing construction industry that was to be completely industrialized with prefabricated elements of low weight made at the factories and rapidly assembled on-site with light cranes. The main structures were the sectional wooden frame and fibrolite panels. All that was to reduce the housing cost by two times as compared with the brick construction."<sup>(73)</sup>

At the end of the 1950s the first experimental microraion was led by the architect N. Osterman and built in Novocheremushki, proliferating the prefabricated five-storey buildings known as Khrushchyovkas. Little by little the eight-, nine- and twelve-storey buildings were integrated.

The project included three eight-storey buildings that were the tallest buildings of the microraion and were arranged in the southern part of the ensemble. It is important to stress that in this first experimental project the towers appear as a typology that forms part of the composition of the microraion. These towers were accompanied by other five-storey housing blocks and low-height public buildings (schools, nurseries, administrative buildings, etc.).

73. Khan-Magomedov S.O. *Moisei Ginzburg. Makers of Avant-Garde*. Sergey Gordeev Publisher. 2011. p.122

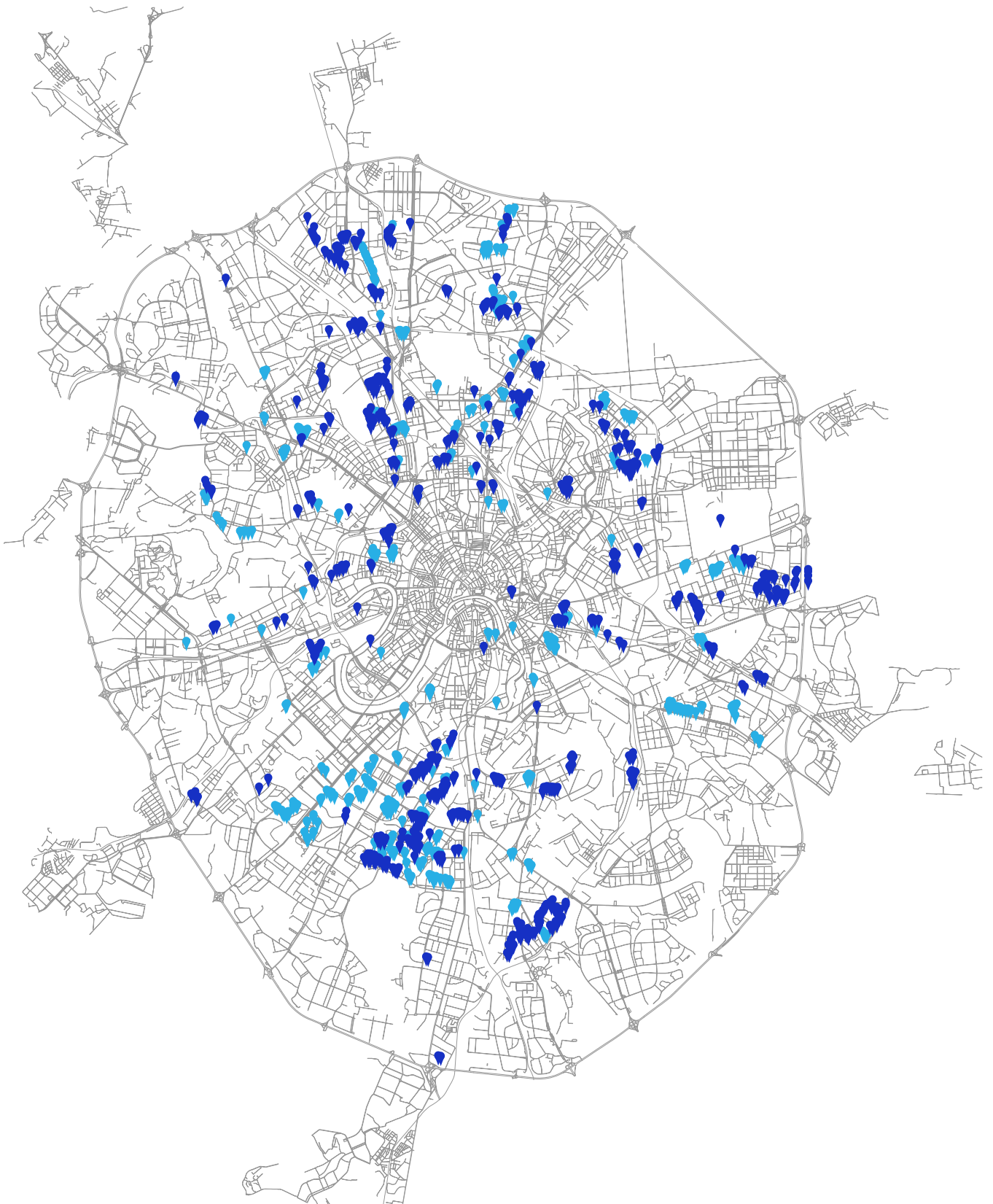


**Figure 149.** The project team led by the architect N. Osterman. An experimental quarter number 9. Novye Cheremushki, Perspectiv view. 1958

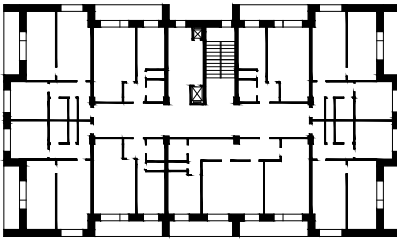
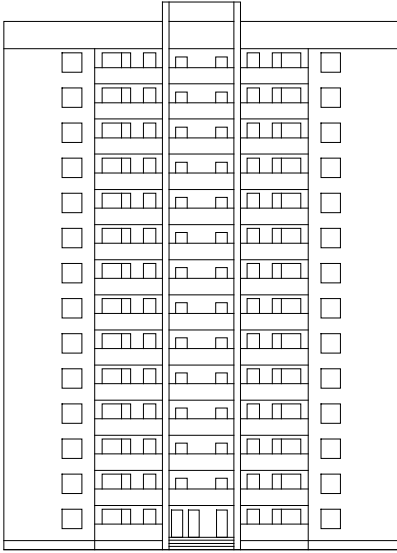
KHRUSHCHYOVKA TOWER (1958-1976)

📍 8/9 Storey

📍 12 Storey



**Figure 150.** Positioning of Khrushchyovka Tower in Moscow according to wikimapia.org and tipdoma.ru



**Figure 151.** Brick tower on Gamalei Street,  
h.23K2. 1975

## BRICK TOWER (1967-1985)

As noted, the first prototypes of systematically constructed prefabricated housing buildings were five storeys (Khrushchyovkas). As an alternative to this sole typology, the first brick towers were created in 1962. The brick tower keeps the construction system of the Khrushchyovka and modifies the facade as well as the height in order to embellish the building's image.

While the Khrushchyovkas had a waiting list of people applying for a home, the apartments of the brick towers were only for the social elite of Moscow.

In 1965 an order came into effect whose objective was to intensify the density of the already built-up areas, which also applied to the zones that were in the process of being designed. "Density was too low and infrastructure was too expensive. Then we started putting up additional houses."<sup>(74)</sup> This order gave rise to the multiplication of the brick tower.

There were four versions of the brick tower, three of which bear the name of the street where they were first located - Moskvoretskaya, Smirnovskaya, and Tishinskaya. Only the Vulikh tower takes the name of the architect who de-signed it: Iefim Vulikh (also known for the famous circus on Vernadskogo Prospect).

The construction system, the same for all the brick towers, had a floor structure made from prefabricated lightweight concrete panels and prefabricated reinforced concrete pillars (with spans of approximately five metres). These towers are typical of the period when Brezhnev was in power. Although the construction system did not vary much from the Khrushchyovka, they were embellished with a visible brick facade that gives the building a superior appearance.

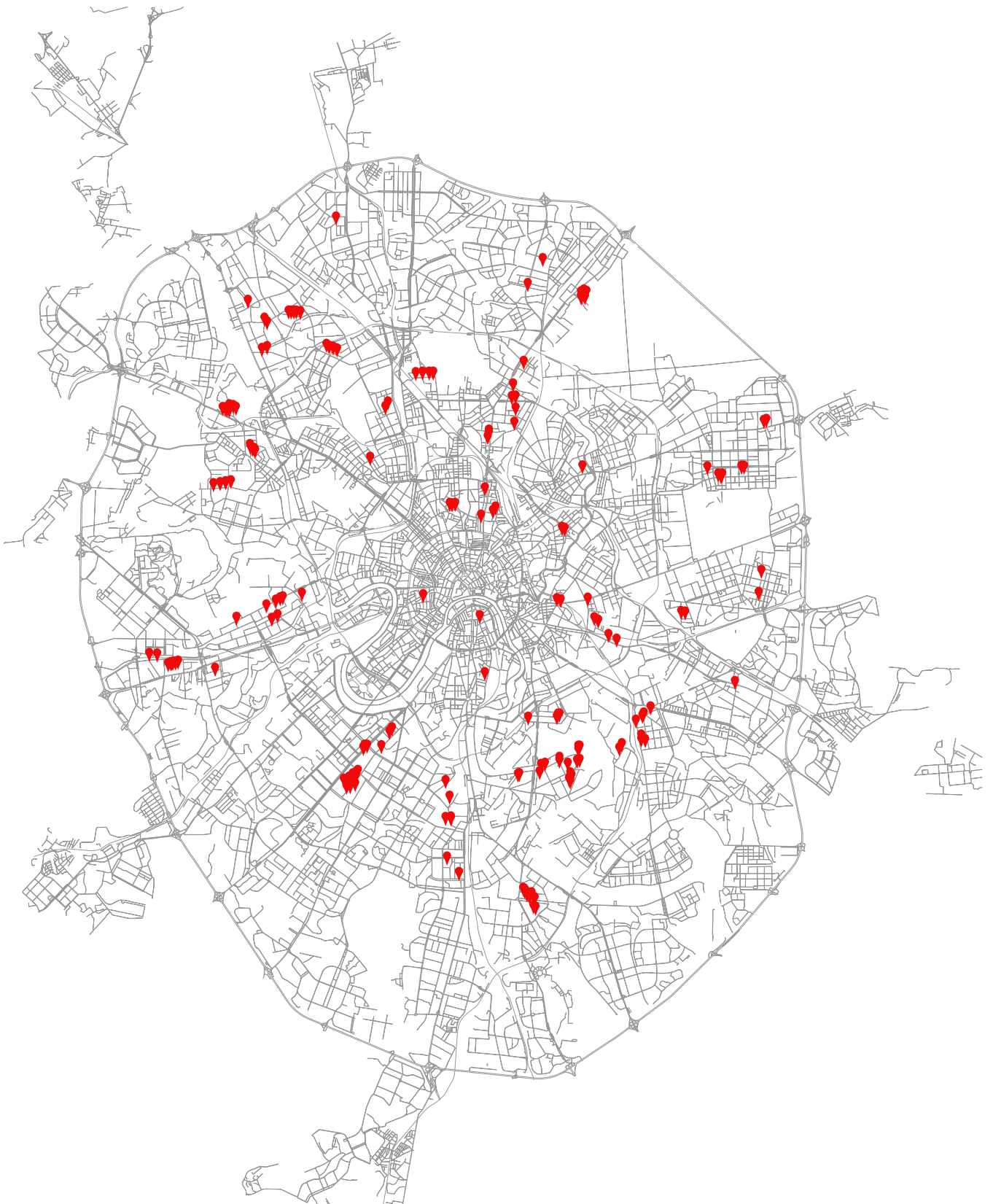
There were also other improvements. The clear height between floors was in-creased (at 2.7 m, 0.2 m more than the Khrushchyovka), as was the size of the apartments, and the access to each room was independent (one did not have to go through one room to get to another, as in the Khrushchyovka). The apartments had one, two or three rooms, and those with two and three rooms had a separate toilet and bathroom.

74. From the interview to Nina Kraynyaya in the book, "Archaeology of the Periphery". Moscow: Printmarket Moscow Sushscevskiy val 49, 2013. p.271.

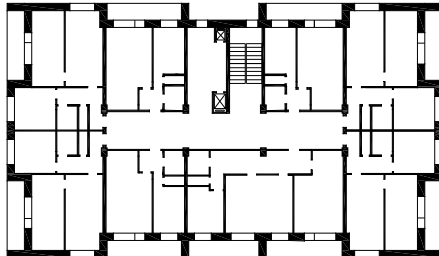


**Figure 152.** Brick tower on Gamalei street, h.23K2. 1975

📍 BRICK TOWER (1962-1986)

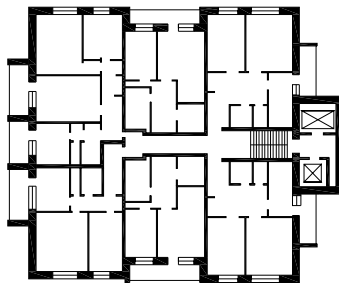


**Figure 153.** Location in Moscow of the Brick Towers according to wikimapia.org and tipdoma.ru



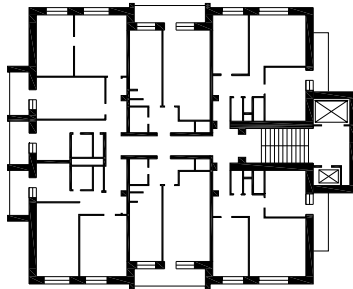
Vulikh Tower

**Figure 154.** Brick Tower. Vulikh. Floor plan of 14/15-storey towertype.



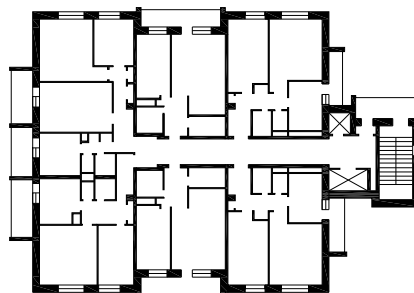
Тишинская (Tishinskaya)

**Figure 155.** Brick Tower. Tishinskaya. Floor plan of 12-storey towertype.



смирновская (Smirnovskaya)

**Figure 156.** Tower. Smirnovskaya. Floor plan of 8/9-storey towertype.



москворецкая (Moskvoreцкая)

**Figure 157.** Brick Tower. Moskvoreцкая.



Vulikh (1967-1986)

The Vulikh was the tallest and most popular of the brick towers. It was built with fourteen and fifteen floors in Moscow, while in other places it had twelve floors.

It began to appear as a singular point within the composition of each micro-raion, which were initially made up of the typical prefabricated five-storey Khrushchyovkas. It had two lifts, a larger one that functioned as a service lift and the other smaller for residents.

Smirnovskaya (1962-1972)

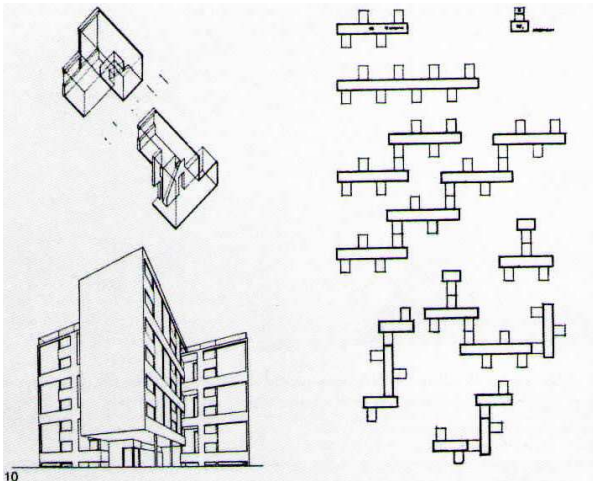
In this type of brick structure, the stairs were situated outside the tower, and the central corridor divided it into two practically symmetrical parts. In cross-section the lift exit was on a mezzanine, making it necessary to go up or down a set of stairs to reach the central corridor on each floor.

Tishinskaya (1976-1984)

This brick tower was practically a copy of the previous one, with the only difference being that the balcony parapets were white instead of light blue. There was also a slight variation in the distribution of apartments, with the entrance hall being a little larger in the Smirnovskaya tower (but only in those with three rooms).

Moskvoretskaya (1962-1972)

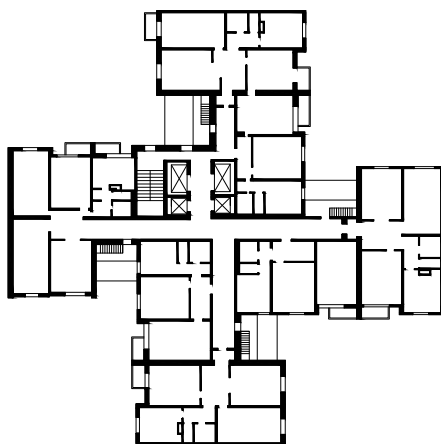
This tower is very similar to the others in its layout, but in cross-section the lift and stairs landing is at floor level. Furthermore, the stairwell was completely isolated with double doors, which improved the anti-fire conditions of this type of tower compared to the previous ones.



**Figure 158.** Assembly of volumes and multiple floor plan variations in Vladimirov's schema for the OSA "comrades' competition" for new types of residential buildings.



**Figure 159.** P4 type of residential building. 26- Bakinskikh Komissarov street, Moscow. 1974



**Figure 160.** P4 type of residential building. 26- Bakinskikh Komissarov street, Moscow. 1974. Plan.

## VLADIMIROV'S SCHEMA

The most advanced thing from the studios of Ginzburg was the optimization of the parameters of his spatial prototypes by quantitative methods. This re-search was published in the 1920s but they would not be applied to architecture in a systematic way until half a century later. Therefore, this stage of investigation can be considered the theoretical foundation applied to prefabricated architecture.

The laboratory and teaching method of Ginzburg shared the compositional principles of A. Rodchenko, who believed that the designer should feel obliged to "assemble the forms according to the laws; he should be capable of making all the possible combinations of diverse systems, types and applications through the understanding of the fundamental facts of formal construction."<sup>(75)</sup>

An example of this implementation of the theoretical-practical is the assembly of three dimensional shapes and multiple floor variations in Vladimirov's designs for the OSA comrades competition for new housing types (1924) and the P4 prefabricated tower (1972). The compositional design of both projects is the same: a module that is repeated four times on the ground, and turned 90 degrees upon a central axis as though it were a flower with four petals.

V. Vladimirov's project is a building of six heights based on stacked three dimensional shapes that leaves the ground floor open-air. The vertical composition is structured in sets of two levels, seeking to create space through double the height in the main rooms. It is a design that is generated through the intersection between a central rectangular body and others in the form of a three-dimensional L. The model is designed for windows to open toward the side facades leaving the main facade without openings, with the intention of enabling the generation of more complex forms by adding new modules. It is a system that leaves the design open to future needs.

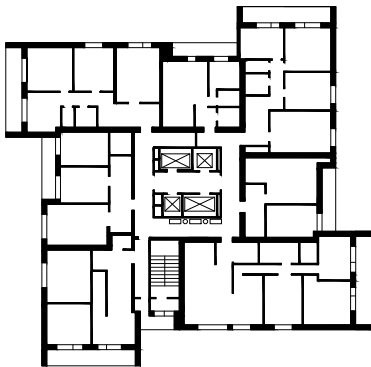
## P4 TOWER (1975-1994)

The P4 tower, designed by A. Samsonov y A. Bergelson, is built directly upon the ground with a floor plan that repeats on all levels. Despite the apparent compositional similarity - four elements repeated and turned 90 degrees on a central axis - the model intensifies the economy of the means of construction and optimises the space for the greatest possible production of apartments: a total of 164, seven on 22 floors.

75. Cohen, J-L, Cooke, C, Strigalev, A. A. y Tafuri, M. Constructivismo ruso: Sobre la arquitectura de las vanguardias ruso-soviéticas hacia 1917. Ediciones del Serbal, Barcelona, 1994. p.10



**Figure 161.** I-521A type of residential building. Marshal Jukov Avenue (photo from 1978)



**Figure 162.** I-521A type of residential building. Marshal Jukov Avenue. (photo from 1978)

The first group of three P4 towers was built in 1975 near Yugo Zapadnaya metro station, in the southeast of Moscow. Another three were built between 1981 and 1987 two kilometres to the north. There is also another group of three P4 towers on the west side of Svobody Street (1983) in the northeast of the city and one more on Michurinsky Prospect (1994).

Originally many more P4 towers were planned for Moscow but their construction was stopped because they required more steel than the standard towers and the cost was very high. In the Yugo Zadapanaya district and in Tyoply Stan they were replaced by I-700-A towers.

"We are dealing here with a relatively expensive, elite building: the large three- and four-room apartments face three directions, although it is a pity for the inhabitants that one of the facades is closed to the views out-side."<sup>(76)</sup>

This tower was designed with the idea of being able to link some to others. Although this idea\* was never put into practice, we can see an example transformation of this P4 tower to the west of Prospect Vernadskogo station in 26 Baskinskikh Komissarov.

"P4 is the most radical tower. Its radicalism is expressed in its main facades, which consist of massive concrete slabs. All apartments face the secondary facades. As a result, the intersection could easily be extended without end by adding extra blocks to the four main facades. To our knowledge, this potential of the P4 has never been used."<sup>(77)</sup>

#### I-521-A TOWER (1974-1994)

This experimental tower was designed by R. Sarujanian. We have found only five towers of this type in Moscow. The first example was built in 1974, on Marshala Jukova Avenue, between Third Ring Road and the MKAD to the west of the city centre. They first built the structure and left the construction unfinished for a few years to analyse its structural behaviour. Then, in 1979, certain that there were no structural problems, they completed the construction.

One of the most characteristic aspects of the I-521-A tower is that for its construction the crane is placed on the central axis of the building. A vertical monolith is first raised, 9m x 9m at its base and 25 storeys high, and in this

76. Heinich, N. and Goldhoorn, B. *Towards an architectural guide of standard housing types*. Project russia, Microrayon, N°25, 2002/2003. p. 84.

77. Ibid.



**Figure 163.** Leninskiy Avenue 121/1. 1967.  
I-521-A building type

central three dimensional shape the vertical communications are located (lifts, stairs, etc.), providing structural solidity to the whole. The tower has a square floor plan of 25.80 m a side and a clear height of 2.64 m between floors.

In 1986 one more tower was built on Chertanovskaya Street and three more in 1992-4 on Leninskaya Avenue. One can see how these latter towers were simplified in the finish to their balconies, with brown and white tones that vary from the grey of the original tower.

The apartment types varied from one to four rooms. On a typical floor there were seven apartments - two one-room, two two-room, two three-room and one four-room, and they all had a balcony to each facade. This design recalls the concept of the Lebed tower, where there was a central axis and balconies that hung like wings on each side.

#### I-700-A TOWER (1977-1994)

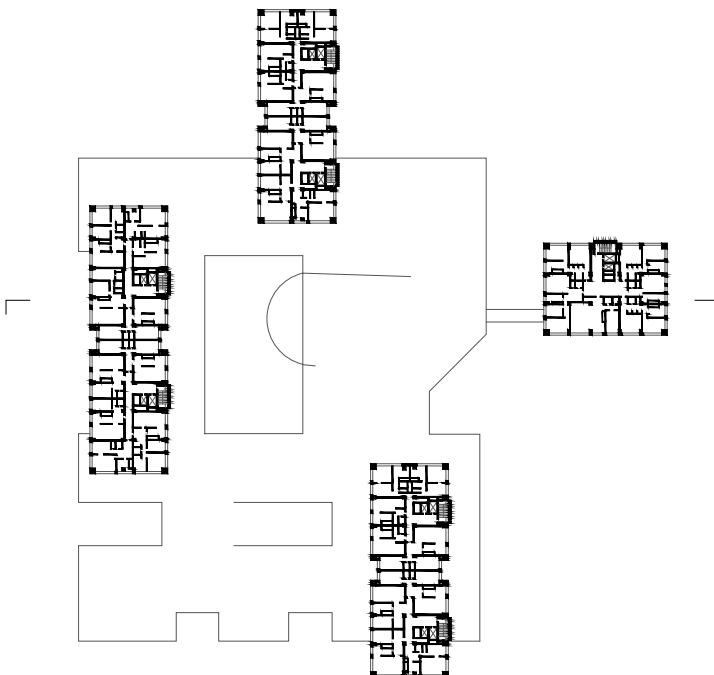
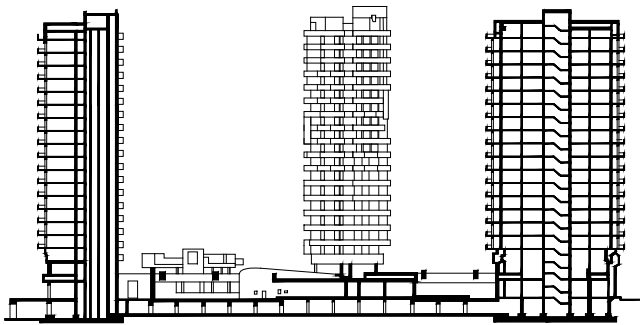
This tower had 22-23 floors and two main facades formed by balconies set back horizontally one from the other. The lesser side has only one window that opens onto the central corridor. A typical floor has eight apartments (two one-room, two two-room and four three-room), all with balconies.

The I-700-A tower can be considered a version of 1-MG-601J tower (see page 179), given that it shows the same break that makes one perceive the tower as two units. The floor plan also has the same zigzag in the corridor that traverses the tower from one side to the other, with a staircase on each side, unlike the 1-MG-601J tower, which has the lifts and stairs together in one central body.

We have found 30 examples, mostly located in the south of Moscow, near the main avenues. They are predominantly on Leninskaya Avenue and above all on Nagatinskiy Zaton (part of the Moscow River). They are grouped together or isolated, and like almost all the prefabricated towers, over time they have undergone modifications with respect to the original model. For example, the one built on Kirovogradskaya Street (1994) has a stepped roof, giving a different height to each of the elements of the facade.



**Figure 164.** Residential complex «Lebed». Leningradskaya avenue, 1966-1973. Arc. A. Meerson, E. Podolskaya, I. Fedorov, A. Repetiy.



**Figure 165.** Residential complex «Lebed». Leningradskaya avenue, 1966-1973. Arc. A. Meerson, E. Podolskaya, I. Fedorov, A. Repetiy.



## LEBED TOWER (1972-1977)

Firstly, this tower was about a new settlement experience, an alternative to both the individual home and to the microrraion. Lebed, which means "swan" in Russian, refers to the form of a swan with its wings open, a metaphor on the lightness of the building, which is formed by a central axis and side balconies. The building was designed in 1966 but the first tower was not built in Moscow until 1972.

### Vertical Kvartal

\* If we remember the importance of the River Moskva as a point of reference when it came to choosing the sites of the Stalinist high-rise buildings, the Lebed reworks this idea of proximity to the river, expanding the scale to urban composition and integrating buildings from both eras. If we add the Kremlin to this composition, we complete the image of the Soviet tower in Moscow.

The Lebed towers represent a new philosophy of life far from the city and in the middle of nature. The problem of distance from the centre was solved with the car. That is why it was the first complex of social housing with subterranean parking in Moscow. The complex was located in the proximity of different branches of the Moscow canal, which gave each tower views over water\*.

It was the first construction built from the concept of an ensemble of towers supported on the same base, which meant integrity of architecture and the autonomy of the consumers. Everything that was strictly necessary for daily life was on the ground-level platform: bakery, grocery, workshops, pharmacy, and so on.

This work recalls Leonidov's Narkomtiashprom project and Kochar's project for the Comintern building. And it also reworks the idea of the building-city anticipated by Iofan in his design the House on the Embankment (1927-1930), a complex of 500 apartments for the elite with all kinds of services and that functioned as a self-sufficient unit (see page 103).

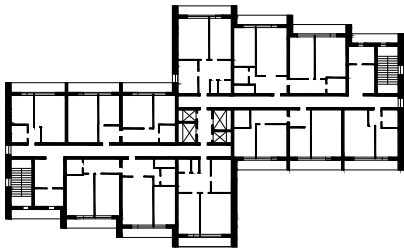
Getting an apartment here was only possible for the Soviet elite of Moscow. The apartments' interior layout was better than most of the prefabricated towers. The number of residents was the same as a traditional "kvartal", but organized in a vertical scheme. The result was a more compact infrastructure.

The composition of the facade expresses a certain dynamism. The ground plan composition is reminiscent of the Russian monasteries, where the placing of three towers in one direction was combined with another turned 90 degrees. The aesthetic is one of simple forms. The use of exposed concrete is justified as the tendency of that time.

We located two examples of "Lebed" towers in Moscow, one on Leningradskaya Avenue and the other three kilometres to the north, in the Jobrina raion.



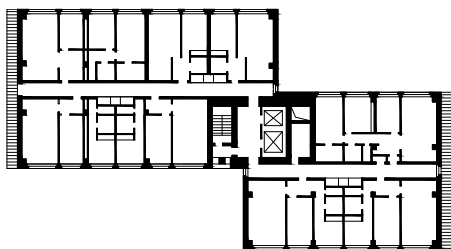
**Figure 166.** Residential building, type I-700A. 1980-1990.



**Figure 167.** Residential building, type I-700A. 1980-1990. Plan view.



**Figure 168.** Leninskiy Avenue 122. 1967. Type of building - 1-MГ-601



**Figure 169.** Leninskiy Avenue 122. 1967. Type of building - 1-MГ-601. Plan view.

Leningradskaya Lebed. It is a complex of four towers built between 1972 and 1973, located on Leningradskaya Avenue, next to Lake Khimkinskoe Vodokhranilishe in the northwest of Moscow.

Leningradskaya Avenue was modernized at the end of the 1970s. For a long time, this group of "Lebed" towers was the only dominant focal point on the landscape. The compositional movement of the towers and the effect of lightness could be perceived from a distance.

Lebed Matrix. The other example found is a nine-point matrix, each point formed by a pair of Lebed towers (1972-1977). Some of these pairs of towers are joined by a platform and others are not. Two examples of Lebed towers have been found in Moscow, one on Leningradskaya Avenue and the other two kilometres to the north, in the Khovrinoraion.

#### 1-MG-601J TOWER (1965-1982)

The 1-MG-601J was a variant of the 1-MG-601 building, which in turn had evolved from the 1-MG-600 (1964-1967), a version that was not very popular because of its very high cost.

The 1-MG-601 (1965-1974) was the first building with a structure of concrete panels - a full frame panel house, perhaps a prototype of the later KOPE system. Its pillars are 40 x 40 cm and span 6 m. This type of tower is very widespread in Moscow. It was popular and proved comfortable to live in.

Then came 1-MG-601J, a model that was more comfortable and slender than its forerunner. Its main difference lies in the floor plan, where the central corridor has a 90-degree zigzag. This break divides the tower into two and shows new edges on the facade, accentuating its verticality.

There could be more divisions, depending on the number of units that made up the building. For example, on Kerchenskaya Street, on the Moscow Institute of Physics and Technology campus in the south of the city, there is a building with 6 units.

The 1-MG-601J tower was designed as a hotel or student building, which is why it appears on many university campuses (Moscow Architecture Institute, Physics and Technology, Moscow State University of Civil Engineering, Moscow Institute of Steel and Alloys). It can also be found on the main streets of Moscow, for example on Novy Arbat (1968), Vernadskogo Prospect (1968-69), Leninsky Prospect (1967),

Andropova Prospect (1972), and also on Slavyansky Bulvar (1971).

- On Novy Arbat it appears on the north side of the avenue as a sequence of five 1-MG-601J towers. They are 24-storey apartment towers that were built for the Moscow elite. They form an ensemble with those buildings located to the south, in the form of an open book, and the Hotel Ukraina at the end of the avenue.

- On Leninsky Prospect the five 19-storey towers were finished in 1967, there were almost no other constructions nearby to obscure this majestic series. Up close one can appreciate how the ground floor is supported on pillars, giving it greater lightness. These details show the influence of Le Corbusier's housing unit.

There are also two more 15-storey towers located on the intersection with Garden Ring Road - previously the Hotel Academishky and now an office building - and a further additional two towers of 15 and 16 storeys respectively on the intersection with Third Ring Road.

- On Vernadskogo Prospect they appear on both sides of the avenue. On the northeast side there is a sequence of five towers, each with two modules, and to the southeast are two towers, each with three modules. All are used for housing.

- On Slavyansky Bulvar four 19-storey towers were built in 1970-71 that form an ensemble/set of lineal buildings of lesser height, whose facades look toward the main avenue. It is a composition that can also be seen from the parallel avenue, Kutuzovsky Prospect.

This integration with other types of smaller buildings is a more complex composition compared to the one on Leninsky Prospect, where the towers are the only compositional elements on the avenue.

- On the junction with Andropova Avenue, a sequence of three apartment towers begins on the intersection with the Moscow River, reminiscent of the strategic position of the high-rise buildings like the Hotel Ukraina or the Kotelnicheskaya high-rise.

For the 1980 Olympics, a hotel complex was made up of four 1-MG-601J towers was built on Bolshaya Ushunskaya Street.

## KMS-101 TOWER (1966-92)

The KMS-101 series was based on the unified reinforced concrete frame type of bond. Houses in this series have been used as a shelter, hotel and hostel. The towers were built between 1966-2003 with 12 to 25 floors, and the apartments had one to three rooms and ceilings that were 2.8m high. Ground levels were mostly left uninhabited. These prefabricated buildings were designed in the Mosproekt 2 workshop and abbreviation KMS-101 means "catalogue of Moscow buildings, number 101."

In our research, the first of these towers that we found is from 1976, of 25 storeys, on Leninsky Prospect.



**Figure 170.** I-700A TOWER  
(1980-1990)



**Figure 171.** P-4 TOWER  
(1975-1994)



**Figure 172.** I-521A TOWER  
(1974-1994)



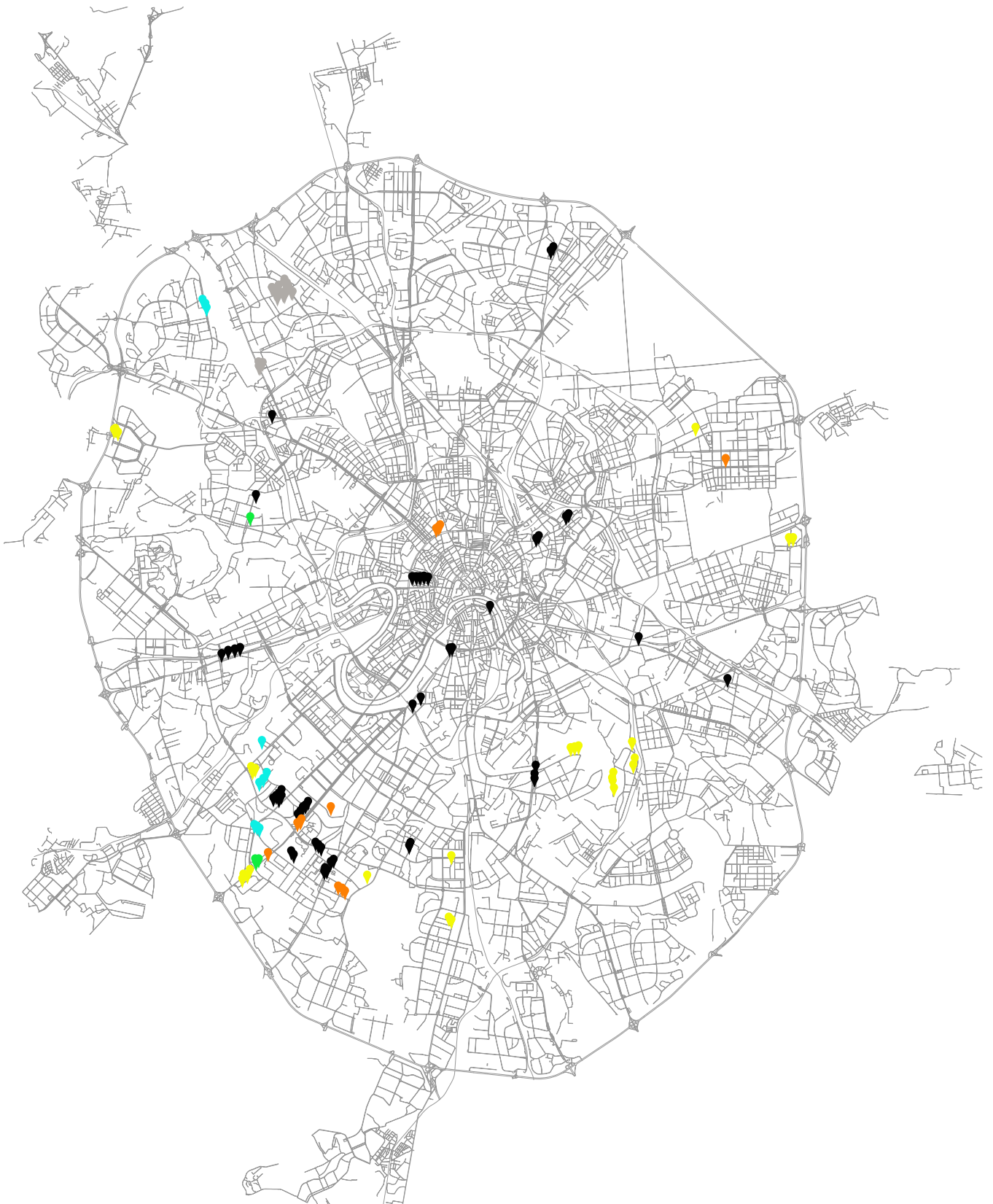
**Figure 173.** LEBED TOWER  
(1972-1977)



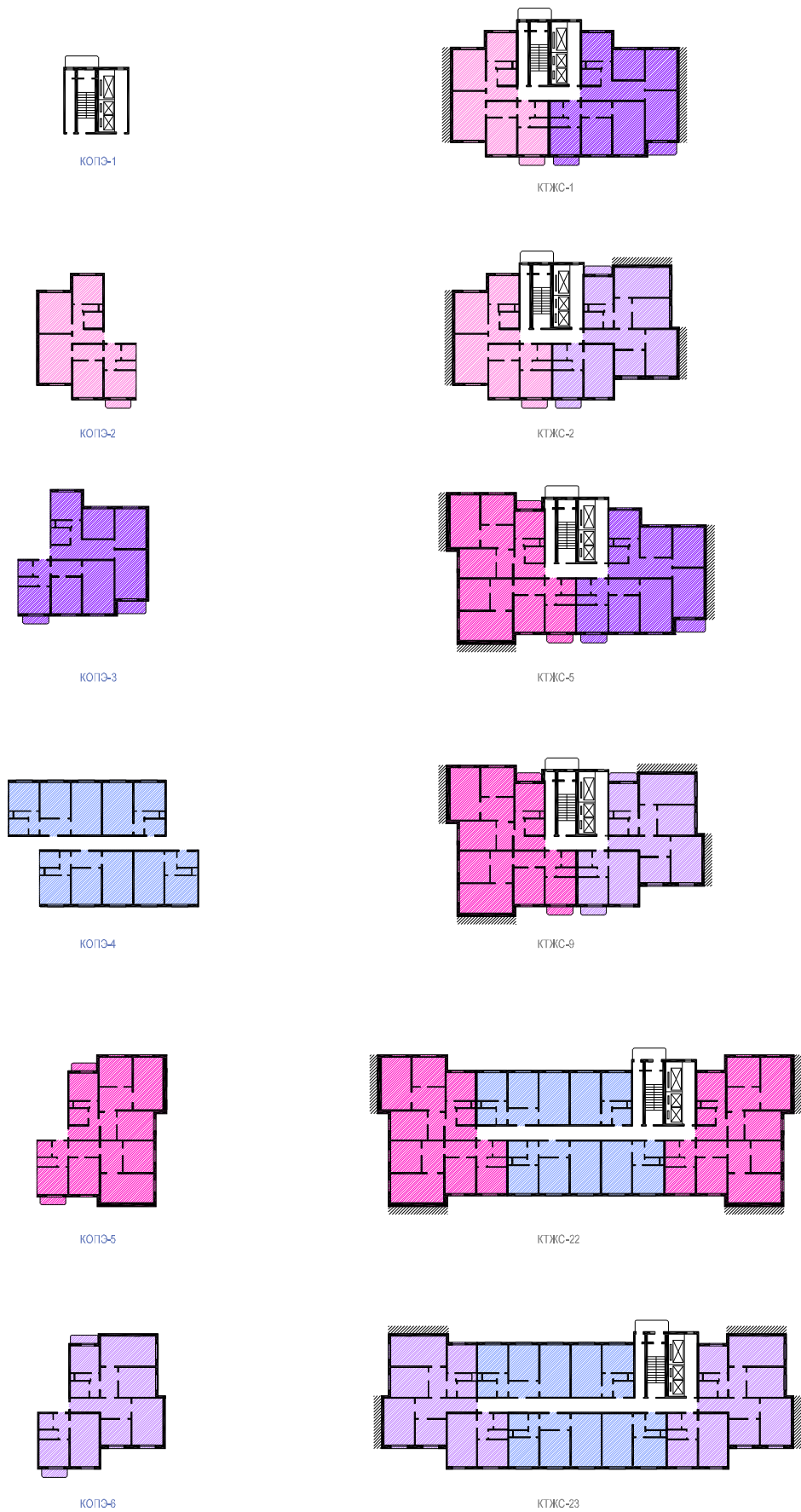
**Figure 174.** 1MG-601J TOWER  
(1965-1982)



**Figure 175.** KMS-101 TOWER  
(1966-1992)



**Figure 176.** Location of the Experimental Towers in Moscow according to wikimapia.org and tipdoma.ru



**Figure 177.** Design of the formation of different compositions of the KOPE typology, based on combining elements.



## KOPE TOWER

The type of tower that predominates in the 1980s is the KOPE, which translates roughly into "organization of elements in space." The name refers to the additive system of construction, assembling piece upon piece with cranes. There are no pillars but reinforced concrete walls supported on top of each other.

Within this additive system, there are three categories of elements: cell element (the smallest and most indivisible), the housing unit, and lastly the KOPE building.

### Cell Element

Each constructive element was designed to be as versatile as possible so as to allow the creation of many types of apartments at lower production cost. Every stage was optimized: the design, management, logistics, machinery and the final construction.

One of the liberating aspects that the KOPE type brought in was that, regardless of the dimensions and geometry of the ground, it was always possible to find a configuration to suit it.

There are seven main compositional elements. KOPE-1 is the vertical communication element (formed by two lifts and the stairwell). KOPE-2, KOPE-3, KOPE-4 and KOPE-4a are intermediate modules (sometimes type 2 was also used for upright finishings). KOPE 5-6 was designed for corners and 90° rotations.

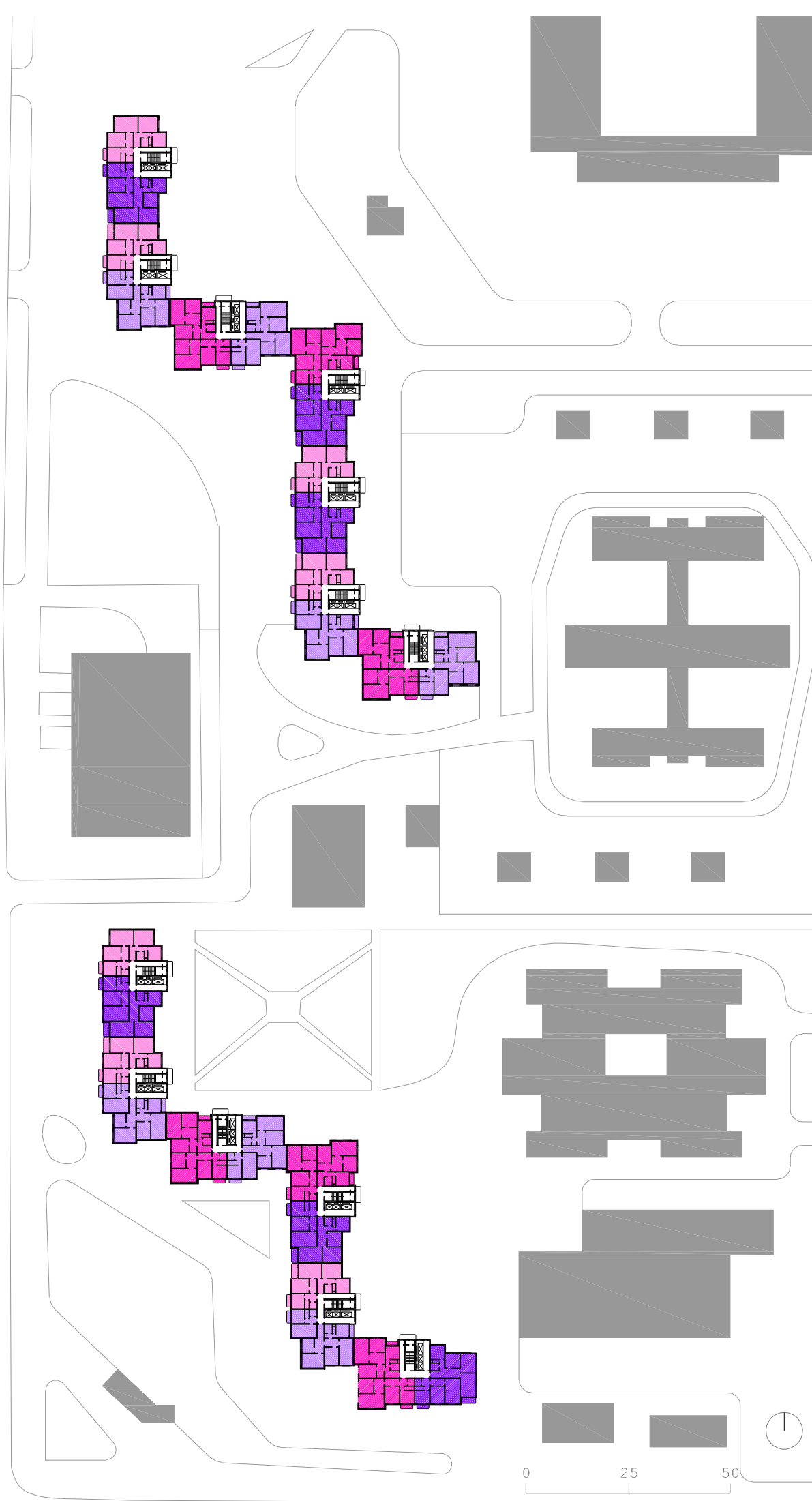
Another version is the KEB, which are the same modules as above but they incorporate a special dividing wall that makes it possible to add an additional housing unit.

### Housing Unit

The composition of various KOPE elements generated different KTJS housing units. These modules join to create the final building. More than twenty different housing units could be created, which, when joined together, could produce innumerable types of KOPE buildings. The KOPE typology became widespread throughout the Moscow periphery.

### KOPE Building

The most important KOPE buildings are the 80, 85, 87, 2000, M-Parus, Bashnia M1 (M1 tower) y Bashnia M2 versions (these last two versions have been built since 2008).



**Figure 178.** Examples of infinite multiplication of the KOPE constructive system on Altufieskoe Avenue, in the north of Moscow.

## KOPE 80 Building (1981-1985)

This is the first type that was developed, in 1980 as its name suggests (A.G. Rochegov, Mosproject 1). Its height varies between 12 and 22 storeys and the clear height between floors was 2.64 m.

The KOPE system provided plenty of structural stability and a strong guarantee against fire. It was possible to plan for apartments of between one and six rooms. Ultimately, it was the most economic, most versatile and most durable system. There were only two issues: the sound insulation was deficient and the interior layout of each apartment could not be altered.

One of the greatest inconveniences was the difficulty of making modifications to the interior distribution once built, because the majority of the divisions were made from reinforced concrete. That also affected the ground floor, which was difficult to adapt to commercial use.

The first KOPE buildings were built very close to Novie Cheremushky (on Aca-demika Pilugina 12) in 1982, and their construction signified a renaissance of the prefabricated tower. The tower formed part of an ensemble of high-rise buildings that were organised around a central space of 300 x 200 m, the configuration of which is reminiscent of a Stalinist "kvartal". The rest of the KOPE buildings of the ensemble were built between 1983 and 1987, all with 18 storeys.

One of the first examples of the KOPE 80 towers were built in 1984 on Filevsky Bulvar 11, by one of the bends of the Moscow River (in the west between Third Ring Road and MKAD), which reminds us again of every one of the previous towers and of the importance of the Moscow River as reference element.



**Figure 179.** Kope Tower in Novoperedelkino rayon, located in south-west periphery of Moscow.

KOPE TOWER (1981-)

📍 Soviet (1981-1991)

📍 Postsoviet (1991-)



**Figure 180.** Location in Moscow of KOPes found using wikimapia.org and tipdoma.ru



**Figure 181.** KOPE towers near Altufieskoe Avenue. Photo from "Construction and Architecture of Moscow". Photo -1985

## CONCLUSION

### THE INFINITE TOWERS OF MOSCOW. BEAUTY UNKNOWN

There is a general feeling of rejection towards the image offered by the Moscow periphery. This is in contrast to the feeling of beauty aroused by its historic centre. However, the Moscow periphery hides an unacknowledged beauty that resides neither in the decoration of its buildings nor in the design of its public spaces, but in the convincing nature with which the dream of providing housing for a whole city was made real. An experiment that would be extended to the entire Soviet Union.

Moscow continues to be the big unknown of European capitals. It must be remembered that Moscow, before and after the Russian Revolution (1917), extended to little more than the Kremlin. When it became the capital of Russia once again (after St. Petersburg held the honour for two centuries) the immeasurable task was undertaken of turning it into the image of a new social, political and economic model. In the century since then Moscow has become a metropolis of 15 million inhabitants with an area approximately 40 km in diameter. The transformation during these years has been immense, unprecedented and incomparable to any other European city.

The Kremlin and Red Square are the postcards that dominate the media and the city's international image, preventing the rest of the world from seeing the true Moscow, which is none other than its periphery. That is where 70% of its population lives, and it is waiting to be rescued from its current state of abandon. However, the urban genetics of the Moscow suburb, the raion, and the construction system of prefabricated panels that enabled the massive construction of housing at low cost, is still in force today.

But it should not be forgotten that originally the Kremlin was not beautiful but practical. Its defensive structure followed the criteria of geometry and military order, which gave form to each of its elements. For example, the Kremlin is in the form of an equilateral triangle, minimizing the material resources needed for the construction of its walls. The towers located on its angles are cylindrical, as opposed to the rest, which are parallelepipeds. The distance between them is decided by the maximum effective range of an archer, and the circular design of the towers enables a view of 360 degrees. Moreover, the cylindrical form gives the tower greater stability given the complexity of the Moscow terrain, saturated in water and consisting of expansive clay. One of the cylindrical towers served as water storage, of great importance in case of siege. In the centre of the triangle is the Ivan the Great Bell Tower, which was the main tower of communication for the whole city and is the tallest among them. In this invisible geometry lies the true beauty of the Kremlin. It's exterior style pleases the eye but its beauty is superficial\*.

\* The great Russian engineer Vladimir Shukhov recalled the words of Adolf Loos when entering the argument as to what was beautiful or not: "(...) the ancient Greeks also understood something about beauty. And they only worked in a practical way, without even thinking about beauty. And when an object was so practical that it could not be made more so, then they called it beautiful." Continuing with Shukhov, no doubt there are those who consider the Shabolovskaya radio tower nothing more than a jumble of iron, although it is clear that it is an essential part of the Moscow heritage and an international landmark of engineering.

But where is the beauty of the Moscow periphery? If we look at the principles upon which the design of each outlying district or raion is based, we discover the grandeur of the periphery. In this design nothing is left to chance. The height and position of each building, the distance between them, the density of the whole, the position of the main avenue, the maximum distance between the apartment blocks and each infrastructure - schools, nurseries, hospitals, administration, bunkers, and so on - were all calculated according to an established pattern. The design of each raion combines architecture, urbanism, geology, topography, geometry and statistics and true beauty lies in the optimal combination of these internal laws.

The conditions for the construction of a new raion were dictated in a manual called the SNiP - the technical building code of the USSR, where everything was stipulated. For example, the maximum distance allowed from an apartment block to a nursery school was 300m, 750m to a school (or 500m to a primary school), 1000m to a hospital, 500m to a pharmacy, and 500m to food stores. Another characteristic

element of each raion was the bunker, the capacity of which was usually of 250 inhabitants, although there are examples with capacity for 2000 and even 6000 people. The maximum density for every outlying neighbourhood was 450 inhabitants per hectare. The minimum distance between buildings was 25m according to fire safety regulations, although the actual distance was always much greater to ensure optimal sunlight. Nadezhda V. Orleanskaya explained that there were also military reasons behind the large distance between the high-rise prefabricated buildings:

"Regarding the distance between the buildings, military rules were followed (in case a bomb were to fall), and this is why the distances are so large. Thus while I worked on the development of the General Plan, a military officer was present who checked that the distance between the buildings was one and a half times the height of the building. Later the need for this military calculation disappeared, but the rule remained in force."

The Moscow periphery is in contrast with the Stalinist city, whose beauty was focused on the mimesis of architectural forms and styles from the past. For example, the series of high-rise administrative buildings, known internationally as the Seven Sisters of Moscow, import the neo-gothic language and art deco of the American skyscrapers of the 1920s. This same language reached the spaces of the metro, which in its entirety was a palatial stage, a reality that cast the dream of a future full of riches onto a population immersed in misery.

The beauty of the Moscow high-rise administrative buildings (1949-54) is found not in each individual form but in the group of towers as a whole. In fact, they were built simultaneously, in the most emblematic locations - a monumental action that rebuilt the lost skyline of the city. The high-rise buildings of Moscow are the result of a process that began with the Palace of the Soviets, which was a monument to Lenin according to Stalin - an idea that was born out of the unexpected success of the Lenin Mausoleum and continued until after the Second World War. Then the symbolism of the Palace of the Soviets was replaced by the high-rise building of Moscow State University. Thus, the idea of building a monument to Lenin was practically concurrent with the duration of the Stalinist period, from 1925 to 1951, a constant theme of Soviet architecture before the succession of Khrushchev.

The Palace of the Soviets was planned to surpass any other previous tower, both in height and in beauty. Its design was a composition of various towers: a steel structure like the Eiffel Tower in Paris, a Babylonian tower and an



American skyscraper. Altogether, the ideal tower symbolized the conversion of all these earlier cultures to Communism through its coronation with an enormous statue of Lenin.

Both the Palace of the Soviets and the high-rise administrative buildings replaced the protective function of the Orthodox cathedrals and monasteries. Vladimir Paperny explained the significance of the high-rise administrative buildings thus: "For me it's the return to tradition more than borrowing from the west, because first of all, all the monasteries also have military purposes. They were the walls protecting the city, so in this sense those "monasteries" were protecting the city but this time from the air.

With the ascension to power of Nikita Khrushchev, the message of protection was transformed. Symbols and monuments were replaced by realities aimed at improving the living conditions of the masses. Protection was provided with the construction of prefabricated housing that in its entirety was a social container that housed all of the Soviet Union. As happened with the Palace of the Soviets and the high-rise administrative building, the social housing building underwent a vertical transformation. Initially designed as a five-storey building, in just two decades it became a prefabricated high-rise of up to 22 floors.

Possibly not even Khrushchev could imagine the reach that his speech, given in December 1954 and aimed at solving the overwhelming lack of housing, was going to have. It was the beginning of massive internal migration within the city itself, from the communal barracks made of wood to the new apartment buildings known as "khrushchyovkas". Kilometre-long queues started to form of people applying for new housing, while equally long queues formed to visit the Lenin Mausoleum. Two different social phenomena derived from the one same hope: the Soviet dream.

After the success of this social action, demand for housing grew exponentially and made it necessary to increase the density parameters of each neighbourhood. The first experimental "microraiions" of Novye Cheremushky(1958) incorporated towers of eight and nine storeys into the urban composition of the microraiion, but soon the towers were twelve storeys high. In the 1960s the first brick towers were built, in four types - Vulij, Smirnovskaya, Tishinskayaand Moskvoretskaya - of fourteen and sixteen floors. These towers kept the construction system of the khrushchyovkas but, as they were intended for the Soviet elite, their facades were embellished with brick. In the 1970s and 1980s the industrialization of housing was accelerated and different types of towers appeared, in particular the P4, I-521-A, I-700-A, Lebed, 1-MG-601 and

the KMS Towers. Some of these were experimental like the P4 Tower which, with its capacity to be joined together was reminiscent of Vladimirov's schemes (1924); and others like the I-MG-601, quite widespread throughout Moscow, which was an early experience of the KOPE system.

The KOPE system itself was more than a type of tower: it was a construction system that offered unprecedented versatility and economy. In their different types - 80, 85, 87 - the KOPE towers ended up inundating the Moscow periphery during the 1980s, and are still being built today in improved versions, such as the KOPE 2000 tower, the M-Parusor the M1 and M2 towers.

In summary, architecture played an important role in the representation of the Soviet ideal and the tower was the typology that ended up taking on this leading role, with its form evolving as the context changed. With the passage of time the Soviet tower underwent a kind of urban explosion, from the original Utopian version up to the most realist version - an evolution that can be synthesised in the formula 1-8-∞. Originally, the ideal envisaged was expressed by the Monument Tower - the Monument to the Third International and the Palace of the Soviets (1). Later, the synthetic form of the monument tower is replaced by a series of towers - the high-rise administrative buildings - that are a modern interpretation of the new gates of the city that substituted the representative function of the medieval triumphal arches(8). Finally, the Soviet tower is endlessly multiplied in order to house the masses of Moscow, becoming an infinite series of prefabricated towers (∞). Of all the towers of Moscow, the prefabricated towers are the most authentic, revealing themselves as they are, simple and denuded, without a skin to beautify them. It is basic, minimal, essential architecture, and it is in these values that beauty can be found.

The Soviet tower of Moscow was one and many at the same time. It was born as a monument tower of steel and as time passed it mutated in form, being transformed into skyscraper, palace, high-rise building and prefabricated tower. Some of these towers never went beyond the page, others came to be built, but all of them reconstructed the image of Soviet Moscow and are the essence of the city today. At first the Soviet tower was young, visionary, central and singular, and finally became a mature, pragmatic, peripheral and plural tower. A process that sums up the life of the Soviet tower as the architectural expression of the Soviet ideal.

After the Soviet era, production inertia meant that the prefabricated towers continued to be built (except for a short stoppage between 1991 and 1996), and they were

subsequently improved, although they maintained the same construction principles. These included the new KOPE tower, the iceberg tower, the P-44K, I-155 and the I-1822 towers.

Nonetheless, the architecture of Moscow has also continued to react to global trends, and the twenty-first century has seen the building of a new business district (CINM), recently finished. This is a group of office skyscrapers located in the southeast of the city, whose design is a compositional interpretation of the Kremlin. The towers, located next to the Moscow River, form an ellipse around the "cathedral of commerce", a shopping centre typical of the new consumerist age. The towers are joined in their foundations, and are reminiscent of the project that Ivan Leonidov proposed for the Heavy Industry Building (1934), in which an ensemble of towers were joined by a base that assured structural stability. It was an idea that Leonidov had observed in Saint Basil's Cathedral and he suggested it be used for this new building in Red Square. This interpretation of the principles of traditional Russian architecture also appears in other modern towers, such as the skyscraper on Mosfilmovskaya Street, which has parallels with the Ivan the Great Bell Tower. These modern skyscrapers are the new expression of the tower in Moscow.

But apart from these occasional interventions made in the twenty-first century, the spirit of Moscow continues to be the stamp left by the Soviet era, and more specifically the infinite series of prefabricated towers that make up its periphery. A singular, massive, extraordinary, unique and unrepeatable work of construction, Moscow was the testing ground of prefabricated architecture for the entire Soviet Union, building thousands of prefabricated high-rise buildings of social housing in just three decades, a fact that ought to hold a prominent place in the history of architecture. It is a beauty yet to be discovered.

Nevertheless, Moscow now has to find its own way of undertaking this process of periphery reconstruction. It has to consider the growth within the city itself as one of its most daunting challenges, optimizing infrastructure resources and providing every one of its neighbourhoods with greater identity.



KRUSHCHEVKY TOWER  
(1958-1968)

- 8/9 Storey
- 12 Storey



BRICK TOWER  
(1962-1986)



P-4 TOWER  
(1975-1994)



KOPE TOWER  
(1981-)

- Soviet (1981-1991)
- Postsoviet (1991-)



I-700A TOWER  
(1980-1990)



I-521A TOWER  
(1974-1994)



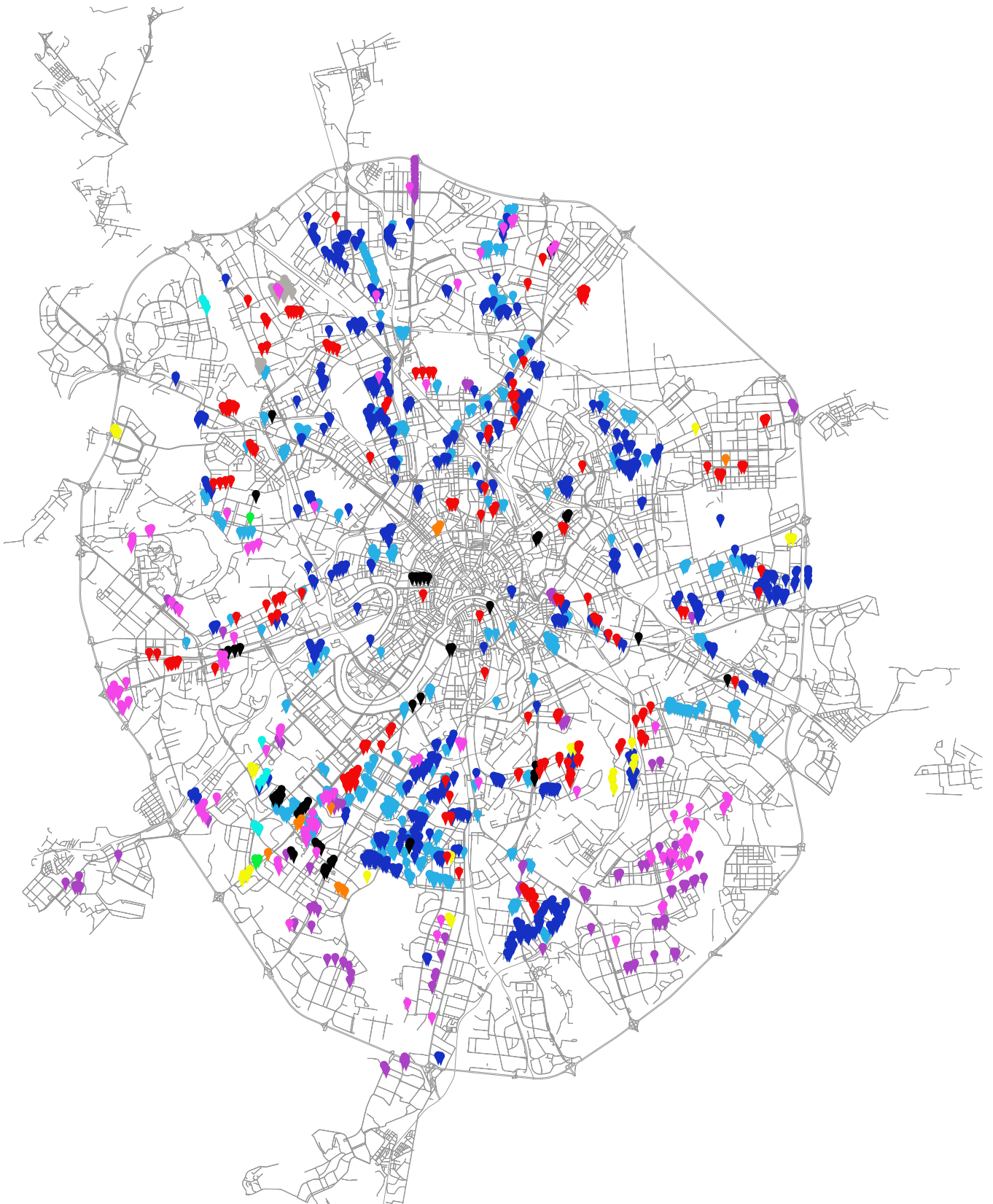
LEBED TOWER  
(1972-1977)



IMG-601J TOWER  
(1965-1982)



KMS-101 TOWER  
(1966-1992)



**Figure 182.** Location of prefabricated Soviet towers of Moscow according to wikimapia.org and tipdoma.ru

## LIST OF PREFABRICATED SOVIET TOWERS OF MOSCOW (according to the map page 191)



			Мира просп., 181	9	1962	Зацепский Вал ул., 6/13	9	1963
60-летия Октября просп., 31/18	8	1958	Мосфильмовская ул., 24	9	1962	Каховка ул., 13 корп.2	9	1963
60-летия Октября просп., 31/18	8	1958	Мосфильмовская ул., 34	9	1962	Каховка ул., 5 корп.4	9	1963
60-летия Октября просп., 31/18	8	1958	Мосфильмовская ул., 36	9	1962	Каховка ул., 5 корп.5	9	1963
Ивана Бабушкина ул., 18 корп.1	8	1958	Нахимовский просп., 14	9	1962	Каширское ш., 36	9	1963
Ивана Бабушкина ул., 18 корп.2	8	1958	Нахимовский просп., 16	9	1962	Каширское ш., 38	9	1963
Крупской ул., 4 корп.2	8	1958	Нахимовский просп., 18	9	1962	Каширское ш., 40	9	1963
Крупской ул., 8 корп.2	8	1958	Нахимовский просп., 20	9	1962	Красная Пресня ул., 8	9	1963
Ленинградский просп., 74 корп.2	8	1958	Нахимовский просп., 37 корп.1	9	1962	Ленинградское ш., 22	9	1963
Ленинградский просп., 74 корп.3	8	1958	Нахимовский просп., 37 корп.2	9	1962	Ленинградское ш., 24 корп.1	9	1963
Ленинградский просп., 78 корп.3	8	1958	Нахимовский просп., 39 корп.1	9	1962	Ленинградское ш., 24 корп.2	9	1963
Ленинградский просп., 74 корп.5	8	1959	Нахимовский просп., 39 корп.2	9	1962	Лобачевского ул., 10	9	1963
Василисы Кожинной ул., 26/2	8	1960	Нахимовский просп., 41 корп.1	9	1962	Лобачевского ул., 12	9	1963
Звездный бул., 12 корп.1	8	1960	Нахимовский просп., 41/45 корп.1	9	1962	Лобачевского ул., 16	9	1963
Звездный бул., 16/2	8	1960	Новаторов ул., 18 корп.1	9	1962	Лобачевского ул., 18	9	1963
Звездный бул., 8 корп.1	8	1960	Новаторов ул., 30 корп.1	9	1962	Лобачевского ул., 40	9	1963
Ленинградский просп., 78 корп.2	8	1960	Новокузнецкая ул., 35-37	9	1962	Маршала Рокоссовского бул., 13	9	1963
Нахимовский просп., 59	8	1960	Новокузнецкая ул., 35-37 стр.2	9	1962	Маршала Рокоссовского бул., 8к1	9	1963
Нахимовский просп., 61 корп.2	8	1960	Новочеремушкинская ул., 53 корп.1	9	1962	Маршала Рокоссовского бул., 8к2	9	1963
Нахимовский просп., 63 корп.1	8	1960	Новочеремушкинская ул., 55 корп.1	9	1962	Маршала Рокоссовского бул., 8к3	9	1963
Профсоюзная ул., 44 корп.2	8	1960	Орлова Комдива ул., 6	9	1962	Мира просп., 169	9	1963
Чонгарский бул., 26	8	1960	Плеханова ул., 3 корп.1	9	1962	Мира просп., 173	9	1963
1905 года ул., 11	9	1961	Ракетный бул., 1	9	1962	Мира просп., 175	9	1963
1905 года ул., 9 корп.1	9	1961	Ракетный бул., 3	9	1962	Мосфильмовская ул., 22	9	1963
1905 года ул., 9 корп.2	9	1961	Ракетный бул., 5	9	1962	Новаторов ул., 18 корп.2	9	1963
Звездный бул., 10	9	1961	Ракетный бул., 7	9	1962	Новочеремушкинская ул., 53	9	1963
Звездный бул., 34 корп.1	8	1961	Русакоская ул., 11	9	1962	Новочеремушкинская ул., 53	9	1963
Звездный бул., 42 корп.1	8	1961	Севастопольский просп., 16	9	1962	Плеханова ул., 3 корп.2	9	1963
Карамышевская наб., 50	9	1961	Севастопольский просп., 28	9	1962	Профсоюзная ул., 44 корп.3	9	1963
Карамышевская наб., 58	9	1961	Седова ул., 2 корп.2	9	1962	Профсоюзная ул., 44 корп.4	9	1963
Каширское ш., 6 корп.1	8	1961	Седова ул., 6 корп.2	9	1962	Профсоюзная ул., 44 корп.5	9	1963
Краснохолмская наб., 3	9	1961	Старомарьинское ш., 16	9	1962	Профсоюзная ул., 44 корп.6	9	1963
Нахимовский просп., 67 корп.1	8	1961	Старомарьинское ш., 20	9	1962	Профсоюзная ул., 44 корп.7	9	1963
Нахимовский просп., 67 корп.3	8	1961	Херсонская ул., 36 корп.1	9	1962	Русанова пр., 31 корп.2	9	1963
Профсоюзная ул., 28/53	8	1961	Цюрупы ул., 20 корп.2	9	1962	Русанова пр., 33 корп.2	9	1963
Саляма Адила ул., 1/46	9	1961	Цюрупы ул., 26 корп.2	9	1962	Севастопольский просп., 30	9	1963
Хуторская 2-я ул., 18 корп.1	9	1961	Черемушкинская Большая ул., 57	9	1962	Севастопольский просп., 32	9	1963
Хуторская 2-я ул., 6/14 корп.1	9	1961	Черноморский бул., 11 корп.1	9	1962	Севастопольский просп., 34	9	1963
Цюрупы ул., 18 корп.2	9	1961	Черноморский бул., 15 корп.1	9	1962	Севастопольский просп., 36	9	1963
Цюрупы ул., 22 корп.2	9	1961	Шереметьевская ул., 41	9	1962	Севастопольский просп., 38	9	1963
Цюрупы ул., 24 корп.2	9	1961	Шереметьевская ул., 83	9	1962	Севастопольский просп., 44	9	1963
Черкизовская Большая ул., 2 корп.	9	1961	60-летия Октября просп., 3 корп.2	11	1963	Севастопольский просп., 46	9	1963
60-летия Октября просп., 3 корп.1	9	1962	60-летия Октября просп., 3 корп.3	11	1963	Севастопольский просп., 46	9	1963
Бутырская ул., 89	9	1962	Азовская ул., 7 корп.1	9	1963	Севастопольский просп., 46	9	1963
Бутырская ул., 91	9	1962	Азовская ул., 9 корп.1	9	1963	Севастопольский просп., 48	9	1963
Бутырская ул., 93	9	1962	Алабяна ул., 19 корп.1	9	1963	Севастопольский просп., 48	9	1963
Бутырская ул., 95	9	1962	Алабяна ул., 19 корп.2	9	1963	Седова ул., 4 корп.2	9	1963
Варшавское ш., 49 корп.1	9	1962	Архитектора Власова ул., 19 корп.2	9	1963	Седова ул., 8 корп.2	9	1963
Велозаводская ул., 2 корп.1	9	1962	Архитектора Власова ул., 19 корп.4	9	1963	Удальцова ул., 3 корп.10	9	1963
Велозаводская ул., 2 корп.4	9	1962	Архитектора Власова ул., 19 корп.5	9	1963	Удальцова ул., 3 корп.11	9	1963
Волгоградский просп., 127 корп.3	9	1962	Болотниковская ул., 21 корп.1	9	1963	Удальцова ул., 3 корп.2	9	1963
Волгоградский просп., 131 корп.4	9	1962	Болотниковская ул., 21 корп.2	9	1963	Удальцова ул., 3 корп.3	9	1963
Волгоградский просп., 48/19	9	1962	Вавилова ул., 70 корп.1	9	1963	Удальцова ул., 3 корп.4	9	1963
Волгоградский просп., 50 корп.1	9	1962	Варшавское ш., 78/2	9	1963	Удальцова ул., 3 корп.5	9	1963
Волгоградский просп., 52 корп.1	9	1962	Волгоградский просп., 82/37	9	1963	Удальцова ул., 3 корп.6	9	1963
Волгоградский просп., 56 корп.1	9	1962	Волгоградский просп., 93	9	1963	Удальцова ул., 3 корп.7	9	1963
Волгоградский просп., 60 корп.1	9	1962	Волгоградский просп., 95	9	1963	Удальцова ул., 3 корп.8	9	1963
Волгоградский просп., 64 корп.1	9	1962	Волгоградский просп., 97 корп.1	9	1963	Удальцова ул., 3 корп.9	9	1963
Волгоградский просп., 68 корп.1	9	1962	Волков пер., 5	9	1963	Черноморский бул., 19 корп.1	9	1963
Волгоградский просп., 72 корп.1	9	1962	Высокая ул., 13	9	1963	Черноморский бул., 23 корп.1	9	1963
Волгоградский просп., 76 корп.1	9	1962	Гарибальди ул., 20/29 корп.1	9	1963	Черноморский бул., 7 корп.1	9	1963
Волгоградский просп., 80/2 корп.1	9	1962	Гарибальди ул., 8 корп.2	9	1963	Черноморский бул., 7 корп.2	9	1963
Волоколамское ш., 18 корп.1	9	1962	Гарибальди ул., 8 корп.3	9	1963	Черноморский бул., 7 корп.3	9	1963
Волоколамское ш., 20/2	9	1962	Гарибальди ул., 8 корп.4	9	1963	Черноморский бул., 7 корп.4	9	1963
Годовикова ул., 14	9	1962	Гарибальди ул., 8 корп.5	9	1963	Черноморский бул., 7 корп.5	9	1963
Зарайская ул., 47 корп.2	12	1962	Дежнева пр., 22 корп.3	9	1963	Черноморский бул., 7 корп.6	9	1963
Карамышевская наб., 10 корп.1	9	1962	Дежнева пр., 24	9	1963	Чонгарский бул., 22 корп.1	9	1963
Карамышевская наб., 18 корп.1	9	1962	Дежнева пр., 28	9	1963	60-летия Октября просп., 3	12	1964
Карамышевская наб., 26 корп.1	9	1962	Дежнева пр., 32	9	1963	60-летия Октября просп., 5	12	1964
Карамышевская наб., 32/2	9	1962	Живописная ул., 5 корп.2	9	1963	Академика Королева ул., 14	9	1964
Красная Пресня ул., 12	9	1962	Живописная ул., 5 корп.3	9	1963	Алабяна ул., 17 корп.1	9	1964
Красная Пресня ул., 14	9	1962	Живописная ул., 5 корп.4	9	1963	Алабяна ул., 17 корп.2	9	1964
Маршала Рокоссовского бул., 17	9	1962	Живописная ул., 5 корп.5	9	1963	Асеева ул., 6	12	1964

Балаклавский просп., 20 корп.2	9	1964	Снежная ул., 5	9	1964	Зарайская ул., 39	9	1965
Балаклавский просп., 20 корп.3	9	1964	Стасовой ул., 12	9	1964	Кавказский бул., 21 корп.2	12	1965
Балаклавский просп., 32 корп.1	9	1964	Стасовой ул., 14	9	1964	Каспийская ул., 30 корп.1	9	1965
Бескудниковский бул., 10 корп.1	9	1964	Стасовой ул., 14 корп.3	9	1964	Каспийская ул., 30 корп.2	9	1965
Бескудниковский бул., 16 корп.1	9	1964	Трехгорный Вал ул., 3	12	1964	Каховка ул., 23 корп.1	9	1965
Бескудниковский бул., 16 корп.2	9	1964	Усачева ул., 21	9	1964	Каховка ул., 29 корп.1	12	1965
Бескудниковский бул., 16 корп.3	9	1964	Хорошевское ш., 76 корп.4	9	1964	Каховка ул., 29 корп.2	12	1965
Бескудниковский бул., 16 корп.4	9	1964	Хорошевское ш., 76 корп.5	9	1964	Каховка ул., 31 корп.1	12	1965
Бескудниковский бул., 20 корп.1	9	1964	Черкизовская Большая ул., 1 корп.1	9	1964	Каховка ул., 35 корп.1	12	1965
Волгоградский просп., 10	9	1964	Черкизовская Большая ул., 1 корп.2	9	1964	Каховка ул., 35 корп.2	12	1965
Волгоградский просп., 12	9	1964	Черкизовская Большая ул., 2 корп.2	9	1964	Каширское ш., 26 корп.1	9	1965
Волгоградский просп., 14	9	1964	Чонгарский бул., 28	9	1964	Каширское ш., 26 корп.2	9	1965
Волков пер., 17 стр.1	9	1964	60-летия Октября просп., 5 корп.2	13	1965	Каширское ш., 26 корп.3	9	1965
Высокая ул., 15	9	1964	Академика Королева ул., 7 корп.1	12	1965	Керченская ул., 32	12	1965
Высокая ул., 17	9	1964	Академика Скрябина ул., 30 корп.1	9	1965	Ковров пер., 18	12	1965
Гарибальди ул., 4 корп.5	9	1964	Балаклавский просп., 30 корп.2	9	1965	Константинова ул., 1	9	1965
Гарибальди ул., 4 корп.6	9	1964	Балаклавский просп., 32 корп.2	9	1965	Константинова ул., 3	9	1965
Даниловская наб., 6 корп.8	9	1964	Балаклавский просп., 38	12	1965	Константинова ул., 5	9	1965
Дежнева пр., 14	9	1964	Балаклавский просп., 40	12	1965	Красноуниверситетский пр., 21	12	1965
Дежнева пр., 30 корп.3	9	1964	Балаклавский просп., 42	12	1965	Красноуниверситетский пр., 25/38	12	1965
Ивана Бабушкина ул., 12 корп.1	9	1964	Балаклавский просп., 44	12	1965	Красноуниверситетский пр., 4 корп.20-А	12	1965
Ивана Бабушкина ул., 12 корп.2	9	1964	Балаклавский просп., 46 корп.1	12	1965	Красноуниверситетский пр., 4 корп.А	12	1965
Каховка ул., 10/12 корп.1	9	1964	Балаклавский просп., 46 корп.2	12	1965	Кржижановского ул., 26	9	1965
Каховка ул., 10/12 корп.2	9	1964	Баннный пер., 7 корп.1	12	1965	Кржижановского ул., 28	9	1965
Каховка ул., 13 корп.8	9	1964	Берников пер., 4	12	1965	Куусина ул., 6 корп.9	12	1965
Каховка ул., 23 корп.2	9	1964	Бескудниковский бул., 10 корп.2	9	1965	Ленинградское ш., 110/2	12	1965
Каховка ул., 25 корп.1	9	1964	Бескудниковский бул., 10 корп.3	9	1965	Ломоносовский просп., 39	9	1965
Каховка ул., 25 корп.2	9	1964	Бескудниковский бул., 10 корп.4	9	1965	Ломоносовский просп., 41	9	1965
Каховка ул., 27 корп.1	9	1964	Бескудниковский бул., 20 корп.2	9	1965	Металлургов ул., 27	9	1965
Каховка ул., 27 корп.2	9	1964	Бескудниковский бул., 20 корп.3	9	1965	Мира просп., 131 корп.1	9	1965
Каховка ул., 3 корп.2	9	1964	Бескудниковский бул., 20 корп.4	9	1965	Мира просп., 188	12	1965
Каховка ул., 39 корп.1	12	1964	Бескудниковский бул., 28 корп.1	9	1965	Мира просп., 194	9	1965
Каховка ул., 39 корп.2	12	1964	Бескудниковский бул., 28 корп.2	9	1965	Мира просп., 85А	12	1965
Каховка ул., 5 корп.3	9	1964	Бескудниковский бул., 28 корп.3	9	1965	Мосфильмовский 2-й пер., 6	12	1965
Ленинский просп., 91 корп.2	9	1964	Бескудниковский бул., 28 корп.4	9	1965	Наримановская ул., 25 корп.1	9	1965
Ленинский просп., 91 корп.3	9	1964	Бескудниковский бул., 32 корп.1	9	1965	Новинки ул., 17	12	1965
Ленинский просп., 95 корп.2	9	1964	Бескудниковский бул., 32 корп.2	9	1965	Новинки ул., 21	12	1965
Ленинский просп., 95 корп.3	9	1964	Бескудниковский бул., 32 корп.3	9	1965	Новинки ул., 23 корп.2	12	1965
Лобачевского ул., 22	9	1964	Бескудниковский бул., 32 корп.4	9	1965	Новоалексеевская ул., 3А	12	1965
Лобачевского ул., 44	9	1964	Бехтерева ул., 11 корп.1	9	1965	Новоалексеевская ул., 7	12	1965
Лобачевского ул., 44а	9	1964	Бехтерева ул., 11 корп.2	9	1965	Новогиреевская ул., 19/2	9	1965
Лобачевского ул., 46	9	1964	Бехтерева ул., 7 корп.1	9	1965	Обручева ул., 37	12	1965
Малахитовая ул., 12 корп.2	12	1964	Бехтерева ул., 7 корп.2	9	1965	Обручева ул., 39	12	1965
Маршала Рокоссовского бул., 7	9	1964	Бехтерева ул., 7 корп.3	9	1965	Обручева ул., 47	12	1965
Металлургов ул., 27А	9	1964	Бехтерева ул., 9 корп.1	9	1965	Обручева ул., 49	12	1965
Мира просп., 190	9	1964	Бехтерева ул., 9 корп.2	9	1965	Обручева ул., 51	12	1965
Мира просп., 198	9	1964	Бехтерева ул., 9 корп.3	9	1965	Обручева ул., 53	12	1965
Мира просп., 202	9	1964	Буракова ул., 5 корп.1	12	1965	Обручева ул., 57	12	1965
Мосфильмовский 2-й пер., 10	12	1964	Буракова ул., 5 корп.2	12	1965	Обручева ул., 59	12	1965
Нагорная ул., 14 корп.1	9	1964	Вавилова ул., 70 корп.2	12	1965	Обручева ул., 61	12	1965
Нагорный бул., 4 корп.1	9	1964	Вавилова ул., 70 корп.3	12	1965	Обручева ул., 63	12	1965
Нижегородская ул., 11Б	9	1964	Вавилова ул., 74/22	9	1965	Орджоникидзе ул., 6 корп.2	9	1965
Нижегородская ул., 11В	9	1964	Винокурова ул., 17 корп.1	12	1965	Орджоникидзе ул., 6/9	9	1965
Новаторов ул., 38 корп.1	9	1964	Винокурова ул., 17 корп.2	12	1965	Панферова ул., 18	9	1965
Новаторов ул., 38 корп.2	9	1964	Винокурова ул., 17 корп.3	12	1965	Перекопская ул., 1 корп.1	12	1965
Новаторов ул., 40 корп.14	9	1964	Винокурова ул., 17 корп.4	12	1965	Перекопская ул., 11 корп.1	12	1965
Новаторов ул., 40 корп.15	9	1964	Волгоградский просп., 158 корп.1	9	1965	Перекопская ул., 11 корп.4	12	1965
Обручева ул., 11 корп.2	9	1964	Волгоградский просп., 18	9	1965	Перекопская ул., 14 корп.2	12	1965
Обручева ул., 11 корп.3	9	1964	Волгоградский просп., 20	9	1965	Перекопская ул., 3	12	1965
Обручева ул., 19 корп.1	9	1964	Волгоградский просп., 22	9	1965	Перекопская ул., 5	12	1965
Обручева ул., 19 корп.2	9	1964	Высокая ул., 16	9	1965	Плеханова ул., 3 корп.4	9	1965
Обручева ул., 35 корп.1	12	1964	Высокая ул., 18	9	1965	Протопоповский пер., 3	9	1965
Обручева ул., 41	12	1964	Высокая ул., 20	9	1965	Протопоповский пер., 40	9	1965
Одесская ул., 14 корп.5	12	1964	Гастелло ул., 10	12	1965	Пырьева ул., 14	12	1965
Орджоникидзе ул., 6 корп.4	9	1964	Гастелло ул., 4	12	1965	Пырьева ул., 8	9	1965
Панферова ул., 20	9	1964	Гастелло ул., 6	12	1965	Старомарьинское ш., 10	12	1965
Перекопская ул., 10 корп.1	9	1964	Гастелло ул., 8	12	1965	Старомарьинское ш., 12	12	1965
Перекопская ул., 10 корп.2	9	1964	Гастелло ул., 8 корп.2	12	1965	Старомарьинское ш., 8	12	1965
Плеханова ул., 3 корп.3	9	1964	Дежнева пр., 2	9	1965	Сушецкий Вал ул., 73	12	1965
Русанова пр., 1/21	9	1964	Дежнева пр., 6 корп.1	9	1965	Тимирязевская ул., 30 корп.1	12	1965
Русанова пр., 35	9	1964	Зарайская ул., 17	9	1965	Тимирязевская ул., 32 корп.1	12	1965
Седова ул., 10 корп.2	9	1964	Зарайская ул., 37	9	1965	Тимирязевская ул., 34 корп.1	12	1965
Снежная ул., 1	9	1964	Зарайская ул., 37 стр.2	9	1965	Трехгорный Вал ул., 1	12	1965



Трехгорный Вал ул., 18	9	1965	Зарайская ул., 35	9	1966	Севастопольский просп., 7 корп.2	9	1966
Федеративный просп., 2/19	9	1965	Ивановская ул., 16	12	1966	Севастопольский просп., 7 корп.3	9	1966
Федеративный просп., 32 корп.1	12	1965	Инженерная ул., 30	9	1966	Седова ул., 5 корп.1	12	1966
Херсонская ул., 15	12	1965	Кавказский бул., 21	12	1966	Снежная ул., 12	12	1966
Херсонская ул., 19	12	1965	Кадомцева пр., 17	12	1966	Снежная ул., 14 корп.2	12	1966
Херсонская ул., 21	12	1965	Кадомцева пр., 19	12	1966	Снежная ул., 14 корп.3	12	1966
Херсонская ул., 23	12	1965	Кадомцева пр., 21	12	1966	Сторожевая ул., 18А	9	1966
Херсонская ул., 25	12	1965	Каспийская ул., 30 корп.3	9	1966	Сущевский Вал ул., 60 корп.1	9	1966
Херсонская ул., 29	12	1965	Каспийская ул., 30 корп.4	9	1966	Сущевский Вал ул., 69	12	1966
Херсонская ул., 31	12	1965	Каховка ул., 5 корп.2	9	1966	Сущевский Вал ул., 71	12	1966
Херсонская ул., 33	12	1965	Каховка ул., 6	12	1966	Тимирязевская ул., 17А	12	1966
Херсонская ул., 35	12	1965	Каховка ул., 7 корп.2	9	1966	Тимирязевская ул., 19	12	1966
Хорошевское ш., 36А	9	1965	Константинова ул., 24 корп.2	12	1966	Тимирязевская ул., 23	12	1966
Хуторская 2-я ул., 20	9	1965	Коштоянца ул., 1/83	12	1966	Тихомирова ул., 11 корп.1	9	1966
Черемушкинская Большая ул., 10	12	1965	Коштоянца ул., 33	12	1966	Тихомирова ул., 11 корп.2	9	1966
Черемушкинская Большая ул., 14	12	1965	Краснофлотский пр., 13	12	1966	Тихомирова ул., 15 корп.1	9	1966
Черемушкинская Большая ул., 18	12	1965	Краснофлотский пр., 17	12	1966	Тихомирова ул., 15 корп.2	9	1966
Черемушкинская Большая ул., 18	12	1965	Краснофлотский пр., 19	12	1966	Трехгорный Вал ул., 24	9	1966
Черкизовская Большая ул., 4	12	1965	Краснофлотский пр., 23	12	1966	Федеративный просп., 21 корп.1	12	1966
Черкизовская Большая ул., 4	12	1965	Краснофлотский пр., 3	12	1966	Филевская Малая ул., 28/1 стр.1	12	1966
Шокальского пр., 1	12	1965	Краснофлотский пр., 5	12	1966	Филевская Малая ул., 30 корп.1	12	1966
Авиационная ул., 70 корп.4	12	1966	Криворожская ул., 5 корп.2	12	1966	Херсонская ул., 13	12	1966
Азовская ул., 21	9	1966	Куусинена ул., 6 корп.10	12	1966	Черемушкинская Большая ул., 22 к.1	12	1966
Академическая Большая ул., 24	12	1966	Куусинена ул., 6 корп.12	12	1966	Черемушкинская Большая ул., 3 к.1	12	1966
Алабяна ул., 21 корп.1	9	1966	Лазоревый пр., 16	12	1966	Черемушкинская Большая ул., 35 к.1	12	1966
Алабяна ул., 21 корп.2	9	1966	Лазоревый пр., 18	12	1966	Черемушкинская Большая ул., 39	12	1966
Архитектора Власова ул., 43	12	1966	Лазоревый пр., 20	12	1966	Черемушкинская Большая ул., 5 к.1	12	1966
Архитектора Власова ул., 47	12	1966	Металлургов ул., 2	9	1966	Черемушкинская Большая ул., 7 к.1	12	1966
Астрадамская ул., 9 корп.1	9	1966	Металлургов ул., 38	12	1966	Черкизовская Большая ул., 24 к.3	9	1966
Астрадамская ул., 9 корп.2	9	1966	Металлургов ул., 4	9	1966	Черкизовская Большая ул., 32 корп.2	12	1966
Башиловская ул., 6	9	1966	Металлургов ул., 40 стр.1	12	1966	Черкизовская Большая ул., 6 корп.6	12	1966
Башиловская ул., 8	9	1966	Металлургов ул., 42	12	1966	Черкизовская Большая ул., 6 корп.7	12	1966
Бескудниковский бул., 40 корп.1	12	1966	Металлургов ул., 46 корп.2	12	1966	Черкизовская Большая ул., 6 корп.8	12	1966
Болотниковская ул., 38 корп.1	12	1966	Металлургов ул., 6	9	1966	Чонгарский бул., 21	12	1966
Болотниковская ул., 38 корп.2	12	1966	Металлургов ул., 8/20 стр.1	9	1966	Чонгарский бул., 23	12	1966
Болотниковская ул., 38 корп.3	12	1966	Мира просп., 131 корп.2	9	1966	Чонгарский бул., 30	9	1966
Болотниковская ул., 38 корп.4	12	1966	Мосфильмовская ул., 4А	9	1966	Шокальского пр., 15	12	1966
Болотниковская ул., 40 корп.1	12	1966	Мосфильмовский 2-й пер., 1	12	1966	Шокальского пр., 17	12	1966
Болотниковская ул., 40 корп.2	12	1966	Мосфильмовский 2-й пер., 3	12	1966	Шокальского пр., 23	9	1966
Болотниковская ул., 40 корп.3	12	1966	Мясниковская 1-я ул., 20	9	1966	Шокальского пр., 29 корп.1	12	1966
Болотниковская ул., 40 корп.4	12	1966	Нагорная ул., 12 корп.1	9	1966	Юшуньская Малая ул., 6 корп.3	9	1966
Буракова ул., 11	12	1966	Наримановская ул., 25 корп.2	9	1966	Авиационная ул., 70 корп.2	12	1967
Владимирская 1-я ул., 23 корп.1	9	1966	Наримановская ул., 25 корп.3	9	1966	Авиационная ул., 70 корп.3	12	1967
Владимирская 1-я ул., 23 корп.2	9	1966	Наримановская ул., 27	9	1966	Авиационная ул., 74 корп.1	12	1967
Владимирская 1-я ул., 23 корп.3	9	1966	Нижегородская ул., 10 корп.1	12	1966	Авиационная ул., 74 корп.2	12	1967
Волгоградский просп., 164 корп.1	9	1966	Нижегородская ул., 10 корп.2	12	1966	Авиационная ул., 74 корп.3	12	1967
Волгоградский просп., 164 корп.	9	1966	Нижегородская ул., 12	12	1966	Авиационная ул., 74 корп.4	12	1967
Волгоградский просп., 9 корп.2	9	1966	Нижегородская ул., 14 корп.1	12	1966	Академика Скрябина ул., 26 корп.2	9	1967
Вучетича ул., 13	12	1966	Нижегородская ул., 14 корп.2	12	1966	Академика Скрябина ул., 26 корп.3	9	1967
Вучетича ул., 16	12	1966	Нижегородская ул., 6	12	1966	Академика Скрябина ул., 26 корп.4	9	1967
Вучетича ул., 8	12	1966	Нижегородская ул., 94 корп.3	12	1966	Академика Скрябина ул., 26 корп.5	9	1967
Гастелло ул., 12	12	1966	Новинки ул., 13	12	1966	Академическая Большая ул., 73 корп.2	12	1967
Гастелло ул., 14	12	1966	Новинки ул., 15	12	1966	Анненская ул., 3	12	1967
Гостиничный пр., 2	9	1966	Новинки ул., 19	12	1966	Анненская ул., 7	12	1967
Гостиничный пр., 4	9	1966	Новинки ул., 6 корп.1	12	1966	Астрадамская ул., 5	12	1967
Грузинская Малая ул., 31	12	1966	Новинки ул., 6 корп.2	12	1966	Башиловская ул., 29	12	1967
Грузинская Малая ул., 33	12	1966	Новоалексеевская ул., 4 корп.3	12	1966	Бескудниковский бул., 40 корп.2	12	1967
Грузинская Малая ул., 35	12	1966	Новогиреевская ул., 20/34	9	1966	Бескудниковский бул., 40 корп.3	12	1967
Дмитровское ш., 105 корп.2	12	1966	Новолесная ул., 18 корп.2	12	1966	Бескудниковский бул., 55 корп.2	12	1967
Дмитровское ш., 105 корп.3	12	1966	Новолесная ул., 7 корп.2	12	1966	Бескудниковский бул., 57 корп.1	12	1967
Дмитровское ш., 105 корп.4	12	1966	Озерная ул., 38	12	1966	Бехтерева ул., 33	12	1967
Дмитровское ш., 105 корп.5	12	1966	Песчаная ул., 6	12	1966	Бехтерева ул., 37	12	1967
Дмитровское ш., 105 корп.6	12	1966	Пресненский Вал ул., 42	12	1966	Бехтерева ул., 37 корп.1	12	1967
Дмитровское ш., 64 корп.1	12	1966	Протопоповский пер., 38	9	1966	Болотниковская ул., 3 корп.6	12	1967
Дмитровское ш., 64 корп.2	12	1966	Пугачевская 2-я ул., 8 корп.1	12	1966	Болотниковская ул., 33 корп.1А	12	1967
Дмитровское ш., 64 корп.3	12	1966	Пырьева ул., 10	9	1966	Буракова ул., 9 стр.1	12	1967
Дмитровское ш., 65 корп.1	9	1966	Пырьева ул., 16	12	1966	Василисы Кожжиной ул., 4	12	1967
Дубки ул., 12	12	1966	Пырьева ул., 18	12	1966	Волгоградский просп., 3 стр.1	9	1967
Дубки ул., 13	12	1966	Расковой ул., 24А	12	1966	Волгоградский просп., 5	9	1967
Дубнинская ул., 1	12	1966	Севастопольский просп., 12	12	1966	Волоколамское ш., 92 корп.1	12	1967
Живописная ул., 12 корп.2	12	1966	Севастопольский просп., 12	12	1966	Волоколамское ш., 92 корп.2	12	1967
Живописная ул., 15	12	1966	Севастопольский просп., 50/11	12	1966	Вучетича ул., 19	12	1967
Живописная ул., 17 корп.1	12	1966	Севастопольский просп., 52	12	1966	Вучетича ул., 28 корп.5	12	1967








Гончарова ул., 3	12	1967	Песчаная ул., 4	12	1967	Гончарова ул., 13 корп.1	12	1968
Гончарова ул., 5	12	1967	Плеханова ул., 25 корп.5	12	1967	Гражданская 1-я ул., 97	12	1968
Гончарова ул., 7	12	1967	Пролетарский просп., 14/49 корп.1	12	1967	Дмитровское ш., 101 корп.1	12	1968
Дмитровское ш., 105 корп.1	12	1967	Пролетарский просп., 14/49 корп.2	12	1967	Дмитровское ш., 103 корп.1	12	1968
Дубки ул., 7	12	1967	Пролетарский просп., 14/49 корп.3	12	1967	Дмитровское ш., 159 корп.42	12	1968
Жебрунова ул., 5	12	1967	Пугачевская 2-я ул., 14 корп.2	12	1967	Ереванская ул., 26 корп.1	12	1968
Живописная ул., 12 корп.1	12	1967	Пугачевская 2-я ул., 14 корп.3	12	1967	Ереванская ул., 28 корп.1	12	1968
Зарайская ул., 27	9	1967	Пугачевская 2-я ул., 14 корп.4	12	1967	Ереванская ул., 28 корп.2	12	1968
Зарайская ул., 31	9	1967	Пугачевская 2-я ул., 8 корп.2	12	1967	Ивановская ул., 20	12	1968
Зарайская ул., 53	12	1967	Пугачевская 2-я ул., 8 корп.3	12	1967	Инженерная ул., 13	12	1968
Зарайская ул., 66	12	1967	Пугачевская 2-я ул., 8 корп.6	12	1967	Кавказский бул., 29 корп.3	12	1968
Ивановская ул., 26	12	1967	Ракетный бул., 13 корп.1	12	1967	Кавказский бул., 29 корп.3 стр.1	12	1968
Кавказский бул., 11	12	1967	Ракетный бул., 15	12	1967	Кавказский бул., 29 корп.3 стр.2	12	1968
Кавказский бул., 15	12	1967	Саввинский Малый пер., 5	12	1967	Кавказский бул., 29 корп.3 стр.3	12	1968
Каховка ул., 22 корп.5	12	1967	Севанская ул., 21 корп.1	12	1967	Кавказский бул., 39 корп.1	12	1968
Константинова ул., 10 корп.2	12	1967	Севастопольский просп., 9 корп.1	9	1967	Кавказский бул., 39 корп.2	12	1968
Константинова ул., 32 корп.2	12	1967	Серебрякова пр., 9 корп.2	12	1967	Каспийская ул., 20 корп.3	12	1968
Коровинское ш., 13к1	12	1967	Серебрякова пр., 9 корп.3	12	1967	Каспийская ул., 30 корп.5	12	1968
Коровинское ш., 17 корп.1	12	1967	Симферопольский бул., 16 корп.2	12	1967	Каспийская ул., 30 корп.6	12	1968
Коровинское ш., 18	12	1967	Симферопольский бул., 16 корп.3	12	1967	Каспийская ул., 30 корп.7	12	1968
Коровинское ш., 19	12	1967	Симферопольский бул., 16 корп.4	12	1967	Квесисская 2-я ул., 24	12	1968
Коровинское ш., 19 корп.1	12	1967	Снежная ул., 4	12	1967	Коровинское ш., 1 корп.1	12	1968
Коровинское ш., 19 корп.2	12	1967	Снежная ул., 6	12	1967	Криворожская ул., 11	12	1968
Коровинское ш., 21 корп.1	12	1967	Снежная ул., 8	12	1967	Мастерова ул., 6 корп.1	12	1968
Коровинское ш., 23	12	1967	Союзный просп., 20 корп.3	12	1967	Мастерова ул., 6 корп.2	12	1968
Коровинское ш., 23 корп.1	12	1967	Союзный просп., 20 корп.4	12	1967	Медиков ул., 22 корп.3	12	1968
Коровинское ш., 25/30	12	1967	Союзный просп., 6 корп.1	12	1967	Медиков ул., 4	12	1968
Коровинское ш., 26/2	12	1967	Союзный просп., 6 корп.2	12	1967	Мира просп., 182 корп.2	12	1968
Коровинское ш., 5 корп.1	12	1967	Союзный просп., 6 корп.3	12	1967	Мира просп., 200 корп.2	12	1968
Коровинское ш., 9 корп.1	12	1967	Союзный просп., 8 корп.1	12	1967	Молостовых ул., 14 корп.2	12	1968
Криворожская ул., 13	12	1967	Союзный просп., 8 корп.2	12	1967	Молостовых ул., 14 корп.3	12	1968
Криворожская ул., 21 корп.1	12	1967	Тимирязевская ул., 11	12	1967	Мосфильмовский 2-й пер., 14	12	1968
Криворожская ул., 21 корп.2	12	1967	Тимирязевская ул., 15	12	1967	Нагорная ул., 17 корп.2	12	1968
Криворожская ул., 23 корп.2	12	1967	Тишинский Большой пер., 37 стр.1	12	1967	Нагорная ул., 17 корп.3	12	1968
Криворожская ул., 7	12	1967	Тишинский Большой пер., 41	12	1967	Нагорная ул., 17 корп.4	12	1968
Криворожская ул., 9	12	1967	Федеративный просп., 34 корп.1	12	1967	Нагорная ул., 19 корп.3	12	1968
Куусинена ул., 6 корп.11	12	1967	Федеративный просп., 34 корп.2	12	1967	Нагорная ул., 19 корп.4	12	1968
Лазоревый пр., 14	12	1967	Филевская Малая ул., 14 корп.2	9	1967	Нагорная ул., 19 корп.5	12	1968
Медиков ул., 12	12	1967	Филевская Малая ул., 32	12	1967	Нагорная ул., 27 корп.3	12	1968
Медиков ул., 16	12	1967	Хлобыстова ул., 14 корп.2	12	1967	Нагорная ул., 7 корп.5	12	1968
Медиков ул., 20	12	1967	Хлобыстова ул., 16 корп.1	12	1967	Нансена пр., 6 корп.1	12	1968
Медиков ул., 8	12	1967	Хлобыстова ул., 18 корп.2	12	1967	Нансена пр., 6 корп.2	12	1968
Металлургов ул., 11	9	1967	Хлобыстова ул., 20 корп.1	12	1967	Наримановская ул., 13	12	1968
Металлургов ул., 48 корп.3	12	1967	Хорошевское ш., 39 корп.1	12	1967	Нахимовский просп., 23	12	1968
Металлургов ул., 48 корп.4	12	1967	Черемушкинская Большая ул., 20	12	1967	Нахимовский просп., 23 корп.4	12	1968
Мира просп., 182 корп.3	12	1967	Черепановых пр., 44	12	1967	Нахимовский просп., 23 корп.5	12	1968
Мосфильмовский 2-й пер., 18	12	1967	Черкизовская Большая ул., 22 корп.	9	1967	Нахимовский просп., 4 корп.19	12	1968
Мосфильмовский 2-й пер., 22	12	1967	Черкизовская Большая ул., 32 корп.	12	1967	Нахимовский просп., 4 корп.34	12	1968
Мосфильмовский 2-й пер., 24	12	1967	Черкизовская Большая ул., 8 корп.	12	1967	Нижегородская ул., 4 корп.2	12	1968
Мясниковская 1-я ул., 18	9	1967	Шокальского пр., 31 корп.2	12	1967	Нижегородская ул., 88 корп.2	12	1968
Нагорная ул., 25 корп.1	12	1967	Шокальского пр., 31 корп.3	12	1967	Николяемская ул., 9	12	1968
Нагорная ул., 25 корп.2	12	1967	Академика Скрябина ул., 5 корп.1	12	1968	Новогиревская ул., 20/34 корп.2	9	1968
Нагорная ул., 27 корп.2	12	1967	Академика Скрябина ул., 7 корп.2	12	1968	Одесская ул., 11	12	1968
Нагорная ул., 33	12	1967	Академическая Большая ул., 17	12	1968	Отрадный пр., 11	12	1968
Нагорная ул., 35 корп.23	12	1967	Академическая Большая ул., 22	12	1968	Песчаная ул., 8	12	1968
Нахимовский просп., 25 корп.1	12	1967	Академическая Большая ул., 23А	12	1968	Плеханова ул., 16 корп.1	12	1968
Нахимовский просп., 4 корп.16	12	1967	Академическая Большая ул., 24	12	1968	Плеханова ул., 25 корп.1	12	1968
Нахимовский просп., 4 корп.21	12	1967	Академическая Большая ул., 29Б	12	1968	Плеханова ул., 25 корп.2	12	1968
Нахимовский просп., 4 корп.30	12	1967	Академическая Большая ул., 73	12	1968	Плеханова ул., 25 корп.3	12	1968
Нижегородская ул., 16	12	1967	Академическая Большая ул., 77	12	1968	Плеханова ул., 25 корп.4	12	1968
Нижегородская ул., 4 корп.1	12	1967	Академическая Большая ул., 77	12	1968	Поликарпова ул., 21 корп.4	12	1968
Новозаводская ул., 2 корп.9	9	1967	Алтуфьевское ш., 79	12	1968	Пугачевская 2-я ул., 9 корп.1	12	1968
Новолесная ул., 17А	12	1967	Берников пер., 5	12	1968	Путевой пр., 44	12	1968
Новолесная ул., 18 корп.3	12	1967	Бескудниковский бул., 55 корп.1	12	1968	Пырьева ул., 20	12	1968
Одесская ул., 18 корп.1	12	1967	Бескудниковский бул., 55 корп.3	12	1968	Рабочая ул., 14	12	1968
Одесская ул., 18 корп.2	12	1967	Бескудниковский бул., 57 корп.2	12	1968	Рабочая ул., 25	12	1968
Одесская ул., 18 корп.3	12	1967	Бескудниковский бул., 57 корп.3	12	1968	Рогожский Поселок ул., 7	12	1968
Октябрьская ул., 91 корп.3	9	1967	Бехтерева ул., 37 корп.2	12	1968	Свободный просп., 16	12	1968
Октябрьская ул., 91 корп.4	9	1967	Бехтерева ул., 37 корп.3	12	1968	Севанская ул., 13 корп.1	12	1968
Орлова Комдива ул., 10	9	1967	Бехтерева ул., 37 корп.4	12	1968	Севанская ул., 15 корп.1	12	1968
Отрадный пр., 9 корп.2	12	1967	Болотниковская ул., 3 корп.7	12	1968	Севанская ул., 38	12	1968
Павла Корчагина ул., 1	12	1967	Варшавское ш., 50	12	1968	Севастопольский просп., 3 корп.1	12	1968
Перекопская ул., 17 корп.5	12	1967	Гарибальди ул., 20/29 корп.2	9	1968	Симферопольский бул., 16 корп.5	12	1968

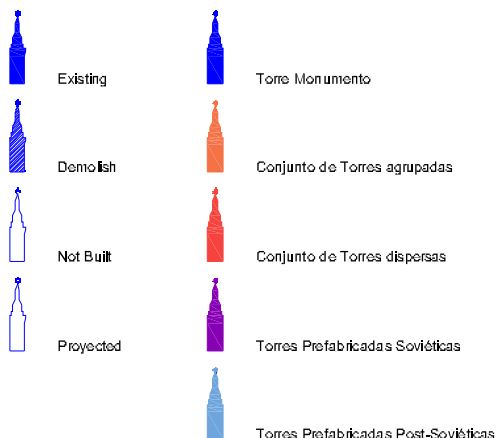
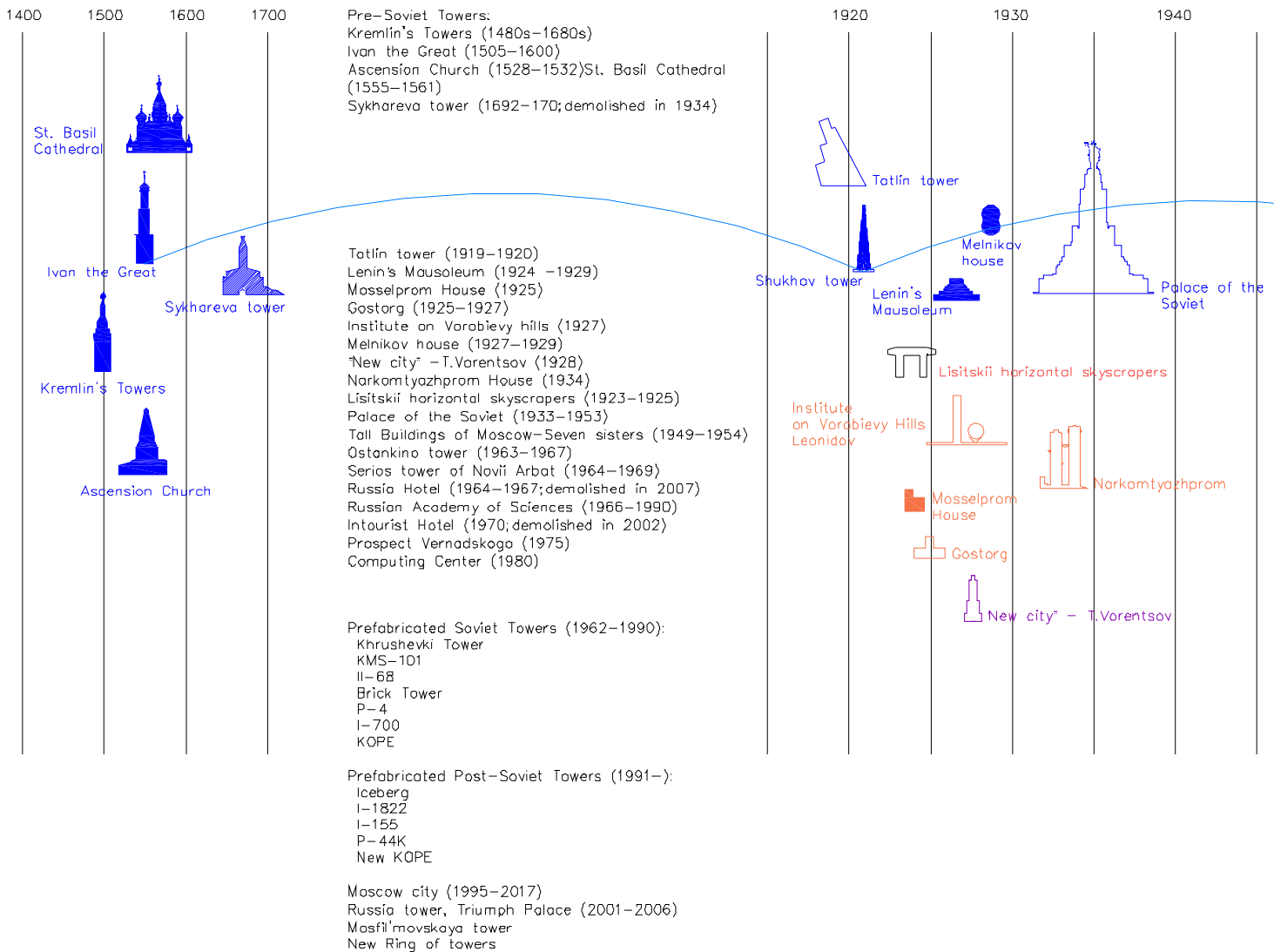
Гончарова ул., 3	12	1967	Песчаная ул., 4	12	1967	Гончарова ул., 13 корп.1	12	1968
Гончарова ул., 5	12	1967	Плеханова ул., 25 корп.5	12	1967	Гражданская 1-я ул., 97	12	1968
Гончарова ул., 7	12	1967	Пролетарский просп., 14/49 корп.1	12	1967	Дмитровское ш., 101 корп.1	12	1968
Дмитровское ш., 105 корп.1	12	1967	Пролетарский просп., 14/49 корп.2	12	1967	Дмитровское ш., 103 корп.1	12	1968
Дубки ул., 7	12	1967	Пролетарский просп., 14/49 корп.3	12	1967	Дмитровское ш., 159 корп.	12	1968
Жебрунова ул., 5	12	1967	Пугачевская 2-я ул., 14 корп.2	12	1967	Ереванская ул., 26 корп.1	12	1968
Живописная ул., 12 корп.1	12	1967	Пугачевская 2-я ул., 14 корп.3	12	1967	Ереванская ул., 28 корп.1	12	1968
Зарайская ул., 27	9	1967	Пугачевская 2-я ул., 14 корп.4	12	1967	Ереванская ул., 28 корп.2	12	1968
Зарайская ул., 31	9	1967	Пугачевская 2-я ул., 8 корп.2	12	1967	Ивановская ул., 20	12	1968
Зарайская ул., 53	12	1967	Пугачевская 2-я ул., 8 корп.3	12	1967	Инженерная ул., 13	12	1968
Зарайская ул., 66	12	1967	Пугачевская 2-я ул., 8 корп.6	12	1967	Кавказский бул., 29 корп.3	12	1968
Ивановский ул., 26	12	1967	Ракетный бул., 13 корп.1	12	1967	Кавказский бул., 29 корп.3 стр.1	12	1968
Кавказский бул., 11	12	1967	Ракетный бул., 15	12	1967	Кавказский бул., 29 корп.3 стр.2	12	1968
Кавказский бул., 15	12	1967	Саввинский Малый пер., 5	12	1967	Кавказский бул., 29 корп.3 стр.3	12	1968
Каховка ул., 22 корп.5	12	1967	Севанская ул., 21 корп.1	12	1967	Кавказский бул., 39 корп.1	12	1968
Константинова ул., 10 корп.2	12	1967	Севастопольский просп., 9 корп.1	9	1967	Кавказский бул., 39 корп.2	12	1968
Константинова ул., 32 корп.2	12	1967	Серебрякова пр., 9 корп.2	12	1967	Каспийская ул., 20 корп.3	12	1968
Коровинское ш., 13к1	12	1967	Серебрякова пр., 9 корп.3	12	1967	Каспийская ул., 30 корп.5	12	1968
Коровинское ш., 17 корп.1	12	1967	Симферопольский бул., 16 корп.2	12	1967	Каспийская ул., 30 корп.6	12	1968
Коровинское ш., 18	12	1967	Симферопольский бул., 16 корп.3	12	1967	Каспийская ул., 30 корп.7	12	1968
Коровинское ш., 19	12	1967	Симферопольский бул., 16 корп.4	12	1967	Квесисская 2-я ул., 24	12	1968
Коровинское ш., 19 корп.1	12	1967	Снежная ул., 4	12	1967	Коровинское ш., 1 корп.1	12	1968
Коровинское ш., 19 корп.2	12	1967	Снежная ул., 6	12	1967	Криворожская ул., 11	12	1968
Коровинское ш., 21 корп.1	12	1967	Снежная ул., 8	12	1967	Мастерова ул., 6 корп.1	12	1968
Коровинское ш., 23	12	1967	Союзный просп., 20 корп.3	12	1967	Мастерова ул., 6 корп.2	12	1968
Коровинское ш., 23 корп.1	12	1967	Союзный просп., 20 корп.4	12	1967	Медиков ул., 22 корп.3	12	1968
Коровинское ш., 25/30	12	1967	Союзный просп., 6 корп.1	12	1967	Медиков ул., 4	12	1968
Коровинское ш., 26/2	12	1967	Союзный просп., 6 корп.2	12	1967	Мира просп., 182 корп.2	12	1968
Коровинское ш., 5 корп.1	12	1967	Союзный просп., 6 корп.3	12	1967	Мира просп., 200 корп.2	12	1968
Коровинское ш., 9 корп.1	12	1967	Союзный просп., 8 корп.1	12	1967	Молостовых ул., 14 корп.2	12	1968
Криворожская ул., 13	12	1967	Союзный просп., 8 корп.2	12	1967	Молостовых ул., 14 корп.3	12	1968
Криворожская ул., 21 корп.1	12	1967	Тимирязевская ул., 11	12	1967	Мосфильмовский 2-й пер., 14	12	1968
Криворожская ул., 21 корп.2	12	1967	Тимирязевская ул., 15	12	1967	Нагорная ул., 17 корп.2	12	1968
Криворожская ул., 23 корп.2	12	1967	Тишинский Большой пер., 37 стр.1	12	1967	Нагорная ул., 17 корп.3	12	1968
Криворожская ул., 7	12	1967	Тишинский Большой пер., 41	12	1967	Нагорная ул., 17 корп.4	12	1968
Криворожская ул., 9	12	1967	Федеративный просп., 34 корп.1	12	1967	Нагорная ул., 19 корп.3	12	1968
Куусинена ул., 6 корп.11	12	1967	Федеративный просп., 34 корп.2	12	1967	Нагорная ул., 19 корп.4	12	1968
Лазоревый пр., 14	12	1967	Филевская Малая ул., 14 корп.2	9	1967	Нагорная ул., 19 корп.5	12	1968
Медиков ул., 12	12	1967	Филевская Малая ул., 32	12	1967	Нагорная ул., 27 корп.3	12	1968
Медиков ул., 16	12	1967	Хлобыстова ул., 14 корп.2	12	1967	Нагорная ул., 7 корп.5	12	1968
Медиков ул., 20	12	1967	Хлобыстова ул., 16 корп.1	12	1967	Нансена пр., 6 корп.1	12	1968
Медиков ул., 8	12	1967	Хлобыстова ул., 18 корп.2	12	1967	Нансена пр., 6 корп.2	12	1968
Металлургов ул., 11	9	1967	Хлобыстова ул., 20 корп.1	12	1967	Наримановская ул., 13	12	1968
Металлургов ул., 48 корп.3	12	1967	Хорошевское ш., 39 корп.1	12	1967	Нахимовский просп., 23	12	1968
Металлургов ул., 48 корп.4	12	1967	Черемушкинская Большая ул., 20	12	1967	Нахимовский просп., 23 корп.4	12	1968
Мира просп., 182 корп.3	12	1967	Черепановых пр., 44	12	1967	Нахимовский просп., 23 корп.5	12	1968
Мосфильмовский 2-й пер., 18	12	1967	Черкизовская Большая ул., 22	9	1967	Нахимовский просп., 4 корп.19	12	1968
Мосфильмовский 2-й пер., 22	12	1967	Черкизовская Большая ул., 32	12	1967	Нахимовский просп., 4 корп.34	12	1968
Мосфильмовский 2-й пер., 24	12	1967	Черкизовская Большая ул., 8	12	1967	Нижегородская ул., 4 корп.2	12	1968
Мясниковская 1-я ул., 18	9	1967	Шокальского пр., 31 корп.2	12	1967	Нижегородская ул., 88 корп.2	12	1968
Нагорная ул., 25 корп.1	12	1967	Шокальского пр., 31 корп.3	12	1967	Николянская ул., 9	12	1968
Нагорная ул., 25 корп.2	12	1967	Академика Скрябина ул., 5 корп.1	12	1968	Новогиревская ул., 20/34	9	1968
Нагорная ул., 27 корп.2	12	1967	Академика Скрябина ул., 7 корп.2	12	1968	Одесская ул., 11	12	1968
Нагорная ул., 33	12	1967	Академическая Большая ул., 17	12	1968	Отрадный пр., 11	12	1968
Нагорная ул., 35 корп.23	12	1967	Академическая Большая ул., 22	12	1968	Песчаная ул., 8	12	1968
Нахимовский просп., 25 корп.1	12	1967	Академическая Большая ул., 23А	12	1968	Плеханова ул., 16 корп.1	12	1968
Нахимовский просп., 4 корп.16	12	1967	Академическая Большая ул., 24	12	1968	Плеханова ул., 25 корп.1	12	1968
Нахимовский просп., 4 корп.21	12	1967	Академическая Большая ул., 29Б	12	1968	Плеханова ул., 25 корп.2	12	1968
Нахимовский просп., 4 корп.30	12	1967	Академическая Большая ул., 73	12	1968	Плеханова ул., 25 корп.3	12	1968
Нижегородская ул., 16	12	1967	Академическая Большая ул., 77	12	1968	Плеханова ул., 25 корп.4	12	1968
Нижегородская ул., 4 корп.1	12	1967	Академическая Большая ул., 77	12	1968	Поликарпова ул., 21 корп.4	12	1968
Новозаводская ул., 2 корп.9	9	1967	Алтуфьевское ш., 79	12	1968	Пугачевская 2-я ул., 9 корп.1	12	1968
Новолесная ул., 17А	12	1967	Берников пер., 5	12	1968	Путевой пр., 44	12	1968
Новолесная ул., 18 корп.3	12	1967	Бескудниковский бул., 55 корп.1	12	1968	Пырьева ул., 20	12	1968
Одесская ул., 18 корп.1	12	1967	Бескудниковский бул., 55 корп.3	12	1968	Рабочая ул., 14	12	1968
Одесская ул., 18 корп.2	12	1967	Бескудниковский бул., 57 корп.2	12	1968	Рабочая ул., 25	12	1968
Одесская ул., 18 корп.3	12	1967	Бескудниковский бул., 57 корп.3	12	1968	Рогожский Поселок ул., 7	12	1968
Октябрьская ул., 91 корп.3	9	1967	Бехтерева ул., 37 корп.2	12	1968	Свободный просп., 16	12	1968
Октябрьская ул., 91 корп.4	9	1967	Бехтерева ул., 37 корп.3	12	1968	Севанская ул., 13 корп.1	12	1968
Орлова Комдива ул., 10	9	1967	Бехтерева ул., 37 корп.4	12	1968	Севанская ул., 15 корп.1	12	1968
Отрадный пр., 9 корп.2	12	1967	Болотниковская ул., 3 корп.7	12	1968	Севанская ул., 38	12	1968
Павла Корчагина ул., 1	12	1967	Варшавское ш., 50	12	1968	Севастопольский просп., 3	12	1968
Перекопская ул., 17 корп.5	12	1967	Гарибальди ул., 20/29 корп.2	9	1968	Симферопольский бул., 16	12	1968

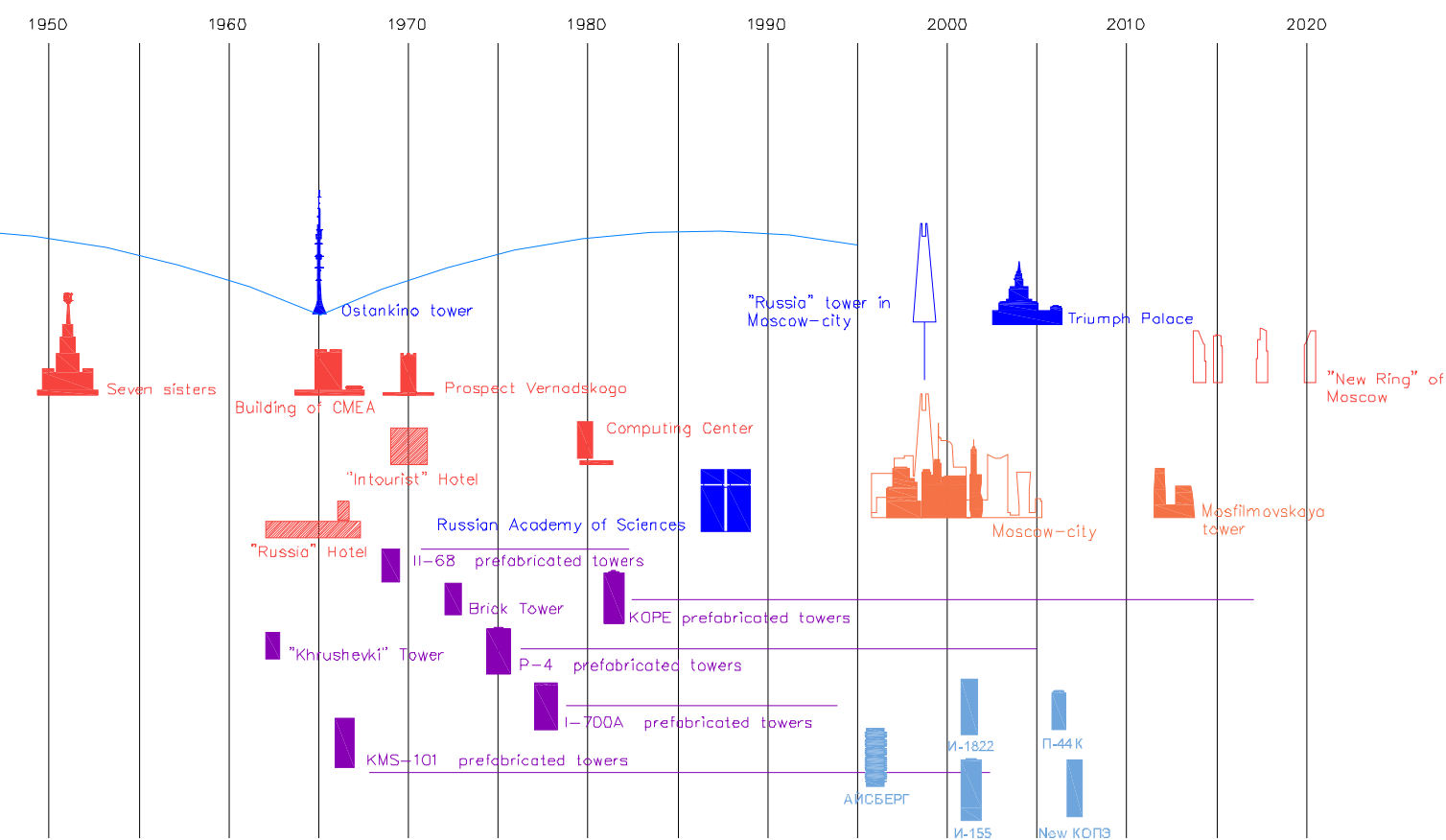
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Союзный просп., 12 корп.1	12	1968	Нахимовский просп., 23 корп.3	12	1969	Мастерская ул., 17 корп.1	12	1970
Союзный просп., 12 корп.2	12	1968	Нахимовский просп., 25 корп.2	12	1969	Мастерская ул., 17 корп.2	12	1970
Союзный просп., 20 корп.1	12	1968	Нахимовский просп., 25 корп.3	12	1969	Медиков ул., 24	12	1970
Союзный просп., 20 корп.2	12	1968	Нахимовский просп., 27 корп.3	12	1969	Молостовых ул., 16 корп.2	12	1970
Союзный просп., 22 корп.1	12	1968	Нахимовский просп., 27 корп.4	12	1969	Молостовых ул., 16 корп.3	12	1970
Союзный просп., 6 корп.4	12	1968	Новинки ул., 9	12	1969	Нагатинская наб., 60 корп.2	12	1970
Федеративный просп., 32 корп.2	12	1968	Новогиревский ул., 10 корп.1	12	1969	Нагатинская наб., 60 корп.3	12	1970
Фрязевская ул., 11 корп.2	12	1968	Новохоловская ул., 4	12	1969	Нагатинская ул., 11 корп.1	12	1970
Фрязевская ул., 11 корп.3	12	1968	Орлова Комдива ул., 2/37 корп.2	12	1969	Нагорная ул., 5 корп.15	12	1970
Фрязевская ул., 11 корп.4	12	1968	Очаковская Большая ул., 45 корп.	12	1969	Нагорная ул., 5 корп.3	12	1970
Фрязевская ул., 11 корп.5	12	1968	Плеханова ул., 20	12	1969	Путевой пр., 36	12	1970
Фрязевская ул., 9 корп.2	12	1968	Полбина ул., 34	12	1969	Путевой пр., 42	12	1970
Фрязевская ул., 9 корп.3	12	1968	Полбина ул., 48	12	1969	Ракетный бул., 9 корп.1	12	1970
Фрязевская ул., 9 корп.3 стр.2	12	1968	Просторная ул., 12 корп.3	12	1969	Рогожский Поселок ул., 5	12	1970
Халтуринская ул., 9 корп.2	12	1968	Просторная ул., 14 корп.2	12	1969	Синичкина 2-я ул., 13	12	1970
Халтуринская ул., 9 корп.3	12	1968	Путевой пр., 24	12	1969	Стрелецкая ул., 13	12	1970
Хорошевское ш., 39 корп.2	12	1968	Путевой пр., 28	12	1969	Тимуровская ул., 3 корп.2	12	1970
Черепановых пр., 62/14	12	1968	Путевой пр., 32	12	1969	Тишинский Большой пер., 43	12	1970
Черепановых пр., 64 корп.2	12	1968	Пырьева ул., 9	12	1969	Федеративный просп., 26 корп.4	12	1970
Черепановых пр., 70	12	1968	Рогожский Поселок ул., 3	12	1969	Федеративный просп., 28А	12	1970
Черкизовская Большая ул., 32	12	1968	Сайкина ул., 2	12	1969	Чертановская ул., 31 корп.1	12	1970
Черкизовская Большая ул., 5	12	1968	Свободный просп., 30 корп.2	12	1969	Чертановская ул., 31 корп.2	12	1970
Энергетическая ул., 13	12	1968	Севанская ул., 46 корп.1	12	1969	Шелепихинская наб., 8	12	1970
Энергетическая ул., 9 корп.1	12	1968	Севанская ул., 46 корп.2	12	1969	Шелепихинская наб., 8 стркорп.2	12	1970
Академическая Большая ул., 25А	12	1969	Севанская ул., 46 корп.3	12	1969	Шереметьевская ул., 43	12	1970
Бакинская ул., 5	12	1969	Севастопольский просп., 51 корп.	12	1969	Шереметьевская ул., 45	12	1970
Бакинская ул., 7	12	1969	Седова ул., 15 корп.2	12	1969	Шоссейная ул., 11	12	1970
Бехтерева ул., 39 корп.1	12	1969	Смирновская ул., 1	12	1969	Шоссейная ул., 13	12	1970
Бехтерева ул., 39 корп.2	12	1969	Союзный просп., 13 корп.1	12	1969	Шоссейная ул., 14	12	1970
Бехтерева ул., 39 корп.3	12	1969	Союзный просп., 13 корп.2	12	1969	Шоссейная ул., 25	12	1970
Ботаническая ул., 1	9	1969	Союзный просп., 15 корп.1	12	1969	Энергетическая ул., 11	12	1970
Веселая ул., 16	12	1969	Союзный просп., 15 корп.2	12	1969	Бехтерева ул., 43 корп.1	12	1971
Винокурова ул., 20	12	1969	Союзный просп., 22 корп.2	12	1969	Бехтерева ул., 43 корп.2	12	1971
Владимирская 1-я ул., 47	12	1969	Союзный просп., 9 корп.1	12	1969	Болотниковская ул., 38 корп.5	12	1971
Годовикова ул., 1 корп.2	12	1969	Союзный просп., 9 корп.2	12	1969	Болотниковская ул., 38 корп.6	12	1971
Гончарова ул., 11А	12	1969	Стрелецкая ул., 10	12	1969	Варшавское ш., 145 корп.5	12	1971
Гончарова ул., 11Б	12	1969	Стремянный пер., 16-18 стр.1	12	1969	Варшавское ш., 145 корп.7	12	1971
Гражданская 1-я ул., 95	12	1969	Тенистый пр., 8	12	1969	Варшавское ш., 145В корп. 10	12	1971
Гражданская 1-я ул., 99 корп.1	12	1969	Тимуровская ул., 9	12	1969	Волкова Космонавта ул., 11	12	1971
Гражданская 1-я ул., 99 корп.2	12	1969	Федеративный просп., 46 корп.2	12	1969	Гончарова ул., 5А	12	1971
Грузинская Малая ул., 25	12	1969	Фрязевская ул., 11 корп.1	12	1969	Грузинская Малая ул., 37	12	1971
Дмитровское ш., 57 корп.2	12	1969	Фрязевская ул., 3 корп.1	12	1969	Дмитровское ш., 31	12	1971
Зарайская ул., 51 корп.1	12	1969	Фрязевская ул., 9 корп.1	12	1969	Загородное ш., 10 корп.5	12	1971
Звездный бул., 5 корп.2	12	1969	Черкизовская Большая ул., 5	12	1969	Зарайская ул., 25 корп.2	12	1971
Измайловское ш., 45	12	1969	Шмитовский пр., 18	12	1969	Зарайская ул., 51 корп.2	12	1971
Кавказский бул., 1/1 корп.1	12	1969	Шмитовский пр., 22 стр.1	12	1969	Кавказский бул., 35 корп.4	12	1971
Кавказский бул., 1/1 корп.2	12	1969	Шмитовский пр., 24	12	1969	Каспийская ул., 10	12	1971
Кавказский бул., 1/1 корп.3	12	1969	Шмитовский пр., 28 стр.1	12	1969	Каспийская ул., 10 корп.1	12	1971
Кавказский бул., 10	12	1969	Шмитовский пр., 30 стр.1	12	1969	Нагатинская наб., 60 корп.1	12	1971
Кавказский бул., 29 корп.1	12	1969	Шмитовский пр., 35 стр.1	12	1969	Наримановская ул., 22 корп.1	12	1971
Кавказский бул., 29 корп.1 стр.2	12	1969	Шоссейная ул., 12	12	1969	Озерная ул., 40	12	1971
Кавказский бул., 29 корп.1 стр.3	12	1969	Шоссейная ул., 27	12	1969	Очаковская Большая ул., 47	12	1971
Кавказский бул., 35 корп.1	12	1969	Шоссейная ул., 35	12	1969	Севанская ул., 12	12	1971
Кавказский бул., 35 корп.2	12	1969	Шоссейная ул., 5	12	1969	Севастопольский просп., 1 корп.1	12	1971
Кавказский бул., 35 корп.3	12	1969	Шоссейная ул., 9	12	1969	Синичкина 2-я ул., 22	12	1971
Кавказский бул., 8	12	1969	Щепкина ул., 64 стр.1	12	1969	Сталеваров ул., 22 корп.1	12	1971
Квесиская 2-я ул., 22	12	1969	Щепкина ул., 64 стр.2	12	1969	Сталеваров ул., 26	12	1971
Ковров пер., 16	12	1969	Бакинская ул., 9	12	1970	Стрелецкая ул., 8	12	1971
Константинова ул., 10 корп.1	12	1969	Банный пер., 7 корп.2	12	1970	Студенческая ул., 17	12	1971
Коптевский М. пр., 6 корп.1	12	1969	Василисы Кожинной ул., 10	12	1970	Судостроительная ул., 39	12	1971
Малахитовая ул., 23	12	1969	Вучетича ул., 5	12	1970	Федеративный просп., 30	12	1971
Медиков ул., 22 корп.3	12	1969	Дмитровское ш., 39 корп.2	12	1970	Халтуринская ул., 9 корп.4	12	1971
Медиков ул., 26 корп.3	12	1969	Дубнинская ул., 65	12	1970	Черепановых пр., 66	12	1971
Медиков ул., 26 корп.3 стр.1	12	1969	Загородное ш., 10 корп.6	12	1970	Черкизовская Большая ул., 32 корп.3	12	1971
Металлургов ул., 9/21	9	1969	Загородное ш., 7 корп.1	12	1970	Черкизовская Большая ул., корп.171	12	1971
Нагатинская ул., 11 корп.2	12	1969	Зарайская ул., 47	12	1970	Шоссейная ул., 29 корп.1	12	1971
Нагатинская ул., 13 корп.1	12	1969	Зарайская ул., 47 корп.1	12	1970	Балаклавский просп., 52 корп.1	12	1972
Нагатинская ул., 13 корп.2	12	1969	Зарайская ул., 49 корп.1	12	1970	Балаклавский просп., 52 корп.2	12	1972
Нагатинская ул., 15 корп.1	12	1969	Измайловское ш., 33	12	1970	Балаклавский просп., 54	12	1972
Нагатинская ул., 15 корп.2	12	1969	Каспийская ул., 2/1	12	1970	Башиловская ул., 3 корп.2	12	1972
Нагатинская ул., 9 корп.1	12	1969	Каспийская ул., 2/1 стр.2	12	1970	Загородное ш., 5 корп.1	12	1972
Нагатинская ул., 9 корп.2	12	1969	Коптевский М. пр., 6 корп.2	12	1970	Каспийская ул., 20 корп.2	12	1972

Каспийская ул., 20 корп.2	12	1972	Михалковская ул., 16	15	1970	Люблинская ул., 31/1	14	1974
Молостовых ул., 14 корп.5	12	1972	Пролетарский просп., 27	15	1970	Нахимовский просп., 9 корп.1	14	1974
Молостовых ул., 14 корп.5 стр.1	12	1972	Пролетарский просп., 29	15	1970	Нижегородская ул., 80 корп.3	12	1974
Новинки ул., 27 корп.1	12	1972	Пролетарский просп., 31	14	1970	Парковая 10-я ул., 6	12	1974
Новинки ул., 31	12	1972	Ракетный бул., 13 корп.2	13	1970	Селезневская ул., 30 корп.1	15	1974
Новогиреевская ул., 20/34 корп.1	9	1972	Трофимова ул., 28 корп.2	12	1971	Селезневская ул., 30 корп.2	15	1974
Плеханова ул., 24	12	1972	Артюхиной ул., 5	12	1971	Судостроительная ул., 31 корп.3	14	1974
Плеханова ул., 30	12	1972	Артюхиной ул., 7/7	14	1971	Филевская Малая ул., 18 корп.3	12	1974
Плеханова ул., 33 стр.1	12	1972	Бориса Галушкина ул., 8/18	14	1971	Академика Комарова ул., 3	14	1975
Просторная ул., 8	12	1972	Вавилова ул., 31 корп.1	14	1971	Багратионовский пр., 6 корп.2	12	1975
Пырьева ул., 22	12	1972	Вавилова ул., 85	14	1971	Вавилова ул., 52 корп.3	14	1975
Севанская ул., 46 корп.4	12	1972	Гарибальди ул., 15 корп.2	14	1971	Вешних Вод ул., 6 корп.1	14	1975
Синичкина 2-я ул., 26	12	1972	Гарибальди ул., 15 корп.3	14	1971	Волоколамское ш., 56	14	1975
Сокольническая 2-я ул., 8	12	1972	Криворожская ул., 31	16	1971	Гурьянова ул., 11	12	1975
Сталеваров ул., 18 корп.1	12	1972	Малый Власьевский пер., 7	14	1971	Кастанаевская ул., 7	12	1975
Судостроительная ул., 37/11	12	1972	Маршала Бирюзова ул., 40	15	1971	Речников ул., 36	12	1975
Федеративный просп., 30А корп.1	12	1972	Пролетарский просп., 23	15	1971	Смирновская ул., 3	12	1975
Федеративный просп., 30А корп.2	12	1972	Пролетарский просп., 25	15	1971	6-я Парковая ул., 13	14	1976
Шелепихинская наб., 20	12	1972	Пролетарский просп., 43 корп.1	15	1971	Волоколамское ш., 58	14	1976
Башиловская ул., 30	12	1973	Пролетарский просп., 45	15	1971	Гришина ул., 23 корп.5	12	1976
Дмитрия Ульянова ул., 43 корп.2	12	1973	Пролетарский просп., 85	14	1971	Ивана Бабушкина ул., 4 корп.1	12	1976
Каспийская ул., 30 корп.8	12	1973	Ракетный бул., 11 корп.2	14	1971	Нахимовский просп., 9 корп.2	14	1976
Молостовых ул., 14 корп.6	12	1973	Флотская ул., 48 корп.1	15	1972	Парковая 6-я ул., 13 стр.1	14	1976
Плеханова ул., 35	12	1973	Дубки ул., 4А	15	1972	Паршина ул., 35 корп.1	14	1976
Сталеваров ул., 14 корп.3	12	1973	Кавказский бул., 20	15	1972	Свободный просп., 28	14	1976
Стрелецкий 4-й пр., 4	12	1973	Кавказский бул., 22	14	1972	Федеративный просп., 21 корп.2	12	1976
Судостроительная ул., 41	12	1973	Маршала Бирюзова ул., 34	14	1972	1-я Прядильная ул., 12	12	1977
Хорошевское ш., 36Б	9	1973	Маршала Бирюзова ул., 36	14	1972	Волоколамское ш., 60	14	1977
Каспийская ул., 2 корп.2	12	1974	Маршала Бирюзова ул., 38	14	1972	Гурьянова ул., 7	12	1977
Пырьева ул., 24	12	1974	Михалковская ул., 12	14	1972	просп. Андропова, 17 корпус 2	12	1977
Башиловская ул., 21 стр.1	12	1976	Нахимовский просп., 11 корп.1	14	1972	Прядильная 1-я ул., 12	12	1977
 <b>Brick tower</b>	14	1967	Нахимовский просп., 11 корп.2	14	1972	Селезневская ул., 34 стр.2	15	1977
Авангардная ул., 15	14	1967	Новоалексеевская ул., 20	14	1972	Сеславинская ул., 16 корп.2	12	1977
Вавилова ул., 56 корп.1	14	1967	Пролетарский просп., 33 корп.2	15	1972	Сеславинская ул., 32 корп.2	12	1977
Вавилова ул., 56 корп.2	14	1967	Пролетарский просп., 33 корп.3	15	1972	Шепелюгинская ул., 16	14	1977
Гляровского ул., 54	14	1968	Пролетарский просп., 33 корп.4	15	1972	Шкулева ул., 3Б	12	1978
Авангардная ул., 13	14	1968	Судостроительная ул., 31 корп.4	14	1972	Енисейская ул., 12 стр.1	14	1979
Академика Скрябина ул., 3	14	1968	Судостроительная ул., 55	14	1972	Рабочая ул., 13	12	1979
Бажова ул., 1	14	1968	Флотская ул., 48 корп.2	14	1972	Сеславинская ул., 12 корп.2	12	1979
Бажова ул., 1	14	1968	Щелковское ш., 84	14	1972	Вавилова ул., 60 корп.4	14	1980
Кронштадтский бул., 45 корп.1	14	1968	Дубки ул., 2А	15	1973	Вавилова ул., 60 корп.5	14	1980
Кронштадтский бул., 45 корп.2	14	1968	Мира просп., 91 корп.3	14	1973	Вешних Вод ул., 58 корп.2	14	1980
Михалковская ул., 20	14	1969	Паршина ул., 11	14	1973	Вешних Вод ул., 58 корп.3	14	1980
Вавилова ул., 25	14	1969	Паршина ул., 19	14	1973	Вешних Вод ул., 8 корп.2	14	1980
Вавилова ул., 73	14	1969	Паршина ул., 27	14	1973	Вешних Вод ул., 8 корп.3	14	1980
Вавилова ул., 75	14	1969	Пролетарский просп., 35	15	1973	Нагорная ул., 19 корп.2	14	1980
Габричевского ул., 10 корп.4	14	1969	Пролетарский просп., 37	15	1973	Первомайская Средняя ул., 14	12	1980
Кронштадтский бул., 45 корп.3	14	1969	Пролетарский просп., 39	15	1973	Речников ул., 14 корп.1	12	1980
Мира просп., 91 корп.1	14	1969	Пролетарский просп., 41	15	1973	8-я ул. Текстильщиков, 7в	12	1981
Михалковская ул., 24	14	1969	Пролетарский просп., 43 корп.2	15	1973	Артамонова ул., 16 корп.1	12	1981
Можайское ш., 16	14	1969	Пролетарский просп., 43 корп.3	15	1973	Кленовый бул., 8 корпус 3	12	1981
Можайское ш., 18 корп.1	14	1969	Рабочая ул., 4 стр.1	12	1973	Плющева ул., 15 корп.4	12	1981
Можайское ш., 20	14	1969	Смирновская ул., 9	12	1973	Сеславинская ул., 10	12	1981
Можайское ш., 22	14	1969	Смирновская ул., 9 корп.7	12	1973	Речников ул., 14 корп.2	12	1982
Можайское ш., 24	14	1969	Стромынка ул., 19	14	1973	5-я Парковая ул., 18	12	1983
Можайское ш., 26	14	1969	Судостроительная ул., 57	14	1973	6-я Парковая ул., 17	12	1983
Симферопольский бул., 27	13	1969	Судостроительная ул., 59	14	1973	Высокая ул., 5 корп.2	12	1983
Трофимова ул., 28	13	1969	Учинская ул., 11	14	1973	Парковая 5-я ул., 18	12	1983
Трофимова ул., 28 корп.1	14	1970	Щелковское ш., 86	14	1973	Плеханова ул., 26 стр.3	12	1984
Академика Комарова ул., 13	14	1970	10 -я Парковая ул., 17	12	1974	Высокая ул., 5 корп.1	12	1985
Академика Комарова ул., 7	14	1970	2-я Филевская ул., 10/13 корпус	12	1974	Гришина ул., 20	12	1985
Балаклавский просп., 4 корп.7	14	1970	2-я Филевская ул., 10/13 корпус	12	1974	Затонная ул., 13 корп.3	12	1985
Вавилова ул. 79	14	1970	Академика Комарова ул., 1	14	1974			
Вавилова ул., 77	14	1970	Ботанический пер., 12	14	1974	 <b>1МГ-601Ж</b>		
Вавилова ул., 83	14	1970	Вавилова ул., 52 корп.4	14	1974	Ленинский просп., 102	19	1967
Вавилова ул., 87	14	1970	Вешних Вод ул., 4 корп.1	14	1974	Ленинский просп., 110 корп.1	19	1967
Вавилова ул., 93	14	1970	Вешних Вод ул., 56 корп.1	14	1974	Ленинский просп., 122	19	1967
Габричевского ул., 10 корп.2	14	1970	Волоколамское ш., 54	14	1974	Ленинский просп., 92	19	1967
Габричевского ул., 10 корп.3	14	1970	Габричевского ул., 10 корп.1	14	1974	Ленинский просп., 94а	19	1967
Гарибальди ул., 15 корп.1	14	1970	Гурьянова ул., 13	12	1974	Новый Арбат ул., 10	24	1967
Гляровского ул., 8	14	1970	Дубининская ул., 84	14	1974	Новый Арбат ул., 6	24	1967
Менжинского ул., 28 корп.3	14	1970	Кастанаевская ул., 13 корп.1	12	1974	Орджоникидзе ул., д.13	15	1967
Менжинского ул., 28 корп.4	14	1970	Кибальчича ул., 12 корп.2	14	1974	Вавилова ул., 8	16	1968
Мира просп., 91 корп.2	14	1970	Ладожская ул., 13	12	1974	Вернадского просп., 24а	16	1968
			Ладожская ул., 15	12	1974			

Донская ул. , 1	15	1968	Нагатинская наб., 70	22	1984
Ленинский пр-т, д.1	15	1968	Чертановская ул., 27 корп.1	22	1984
Новый Арбат ул., 16	24	1968	Лобачевского ул., 94	22	1985
Новый Арбат ул., 22	24	1968	Лобачевского ул., 98	22	1985
Новый Арбат ул., 26	24	1968	Мусы Джалиля ул., 8 корп.2	22	1985
Бутлерова ул., 1	15	1969	Мусы Джалиля ул., 8 корп.3	22	1985
Бутлерова ул., 3	15	1969	Неманский пр., 13 корпус 1	22	1985
Вернадского просп., 38а	16	1969	ул. Кулакова, 18	22	1985
Вернадского просп., 50а	16	1969	Мусы Джалиля ул., 8 корп.1	22	1986
Вернадского просп., 59	16	1969	Мусы Джалиля ул., 8 корп.4	22	1986
Вернадского просп., 59а	16	1969	Неманский пр., 13 корпус 2	22	1986
Вернадского просп., 64а	16	1969	Мусы Джалиля ул., 19 корп.1	22	1988
Вернадского просп., 70а	16	1969	Полбина ул., 32	22	1988
Озерковская наб., д.2/1	17	1969	Саянская ул., 7 корп.1	22	1988
Славянский бул., 11 корп. 1	19	1970	Ялтинская ул., 1	22	1988
Славянский бул., 3	19	1970	Полбина ул., 30	22	1989
Славянский бул., 7 корп. 1	19	1970	Саянская ул., 11 корп.1	22	1990
Славянский бул., 15 корп. 1	19	1971	Щелковское ш., 21 корп.2	22	1990
Андропова просп., 19	17	1972	Гурьянова ул., 65	21	1991
Профсоюзная ул., 83 корп.3	16	1972	Гурьянова ул., 67	21	1991
Андропова просп., 13/32	17	1973	Гурьянова ул., 55	22	1992
Андропова просп., 21	17	1973	Гурьянова ул., 49	22	1993
Басманная Стар. ул., д.24	16	1973	Кировоградская ул., 8 корп.4	24	1994
Бутлерова ул., 5	15	1973	Кировоградская ул., 8 корп.3	24	1995
Керченская ул., 1А корп.3	15	1973	 Lebed		
Островитянова ул. д.21	15	1973	Ленинградское шоссе, 29	17	1972
Профсоюзная ул., 69	15	1973	Фестивальная ул., 18	17	1972
Профсоюзная ул., 73	15	1973	Ленинградское шоссе, 31	17	1973
Профсоюзная ул., 83 корп.2	15	1973	Ленинградское шоссе, 33	17	1973
Басманная Стар. ул., д.28/2	16	1974	Ленинградское шоссе, 35	17-	1973
Зеленодольская ул., 3 корпус 2	15	1974	ул. Ляпидевского, 8 корп.1	18	1973
Керченская ул., 1А корп.1	15	1974	Фестивальная ул., 20	17	1973
Керченская ул., 1А корп.2	15	1974	ул. Ляпидевского, 12	17	1974
Керченская ул., д.1А корп.1,2,3	15	1974	ул. Ляпидевского, 14	17	1974
Летчика Бабушкина ул. д.37 корп. 2	16	1974	ул. Ляпидевского, 18	17	1974
Константина Царева ул., 12	16	1975	ул. Ляпидевского, 20/12	17	1974
Летчика Бабушкина ул. д.37 корп. 1	16	1975	ул. Ляпидевского, 6 корп.1	17	1975
Маршала Тухачевского ул., 18	16	1975	Фестивальная ул., 22	17	1975
Большая Юшуньская ул., 1а	16	1980	Фестивальная ул., 22к6	17	1975
Большая Юшуньская ул., 1а корп. 2	16	1980	Фестивальная ул., 30	17	1975
Большая Юшуньская ул., 1а корп. 3	16	1980	Флотская ул., 13 корп.3	17	1975
Большая Юшуньская ул., 1а корп. 4	16	1980	Флотская ул., 13 корп.4	17	1975
Профсоюзная ул., 83 корп.1	17	1981	Фестивальная ул., 28	17	1976
Рязанский пр-т 5	16	1981	Флотская ул., 17, корпус 1	17	1976
Миклухо-Макляя ул., 21 к. 2	17	1984	Флотская ул., 17, корпус 2	17	1976
Миклухо-Макляя ул., 21 к. 3	16	1989	Онежская ул., 53 корп.3	17	1977
 KMC-101			Онежская ул., 53 корп.4	17	1977
Воротниковский пер., 14/12	17	1976	 P4		
Ленинский просп., 109 корп.1	25	1976	26-ти Бакинских Комиссаров ул., 11	22	1975
Ленинский просп., 109/1 корп.3	25	1976	26-ти Бакинских Комиссаров ул., 9	22	1975
Садовая-Триумфальная ул., 18/20	17	1976	Вернадского просп., 109	22	1975
Садовая-Триумфальная ул., 22/31	17	1976	Мичуринский просп., 58	22	1979
Измайловский бул., 18	17	1977	ул. Свободы, 61 корпус 2	22	1980
Ленинский просп., 109/1 корп.2	25	1977	Коштыянца ул., 2	20	1981
Миклухо-Макляя ул., 44	25	1988	ул. Свободы, 61	22	1983
Миклухо-Макляя ул., 42	25	1990	Коштыянца ул., 10	20	1984
Академика Пилюгина ул., 20 корп.1	22	1992	Коштыянца ул., 6	20	1987
Миклухо-Макляя ул., 40	24	1995			
 И-521А					
Маршала Жукова просп., 31 корп.1	25	1979			
Чертановская ул., 65	25	1986			
Ленинский просп., 121/1 корп.2	25	1992			
Ленинский просп., 121/1 корп.1	25	1993			
Ленинский просп., 121/1 корп.3	25	1993			
 I-700А					
Ленинский просп., 125 корп.1	22	1981			
Ленинский просп., 131 корп.1	22	1982			
Нагатинская наб., 62	22	1982			
Ленинский просп., 131 корп.2	22	1983			
Ленинский просп., 137 корп.2	22	1983			
Нагатинская наб., 64	22	1983			
Новочеркасский бул., 5	22	1983			
Лобачевского ул., 96	22	1984			

# TOWERS OF MOSCOW





**Figure 183.** Timeline of the evolution of the Russian skyscraper from its origin with the towers of the Kremlin to the present day.



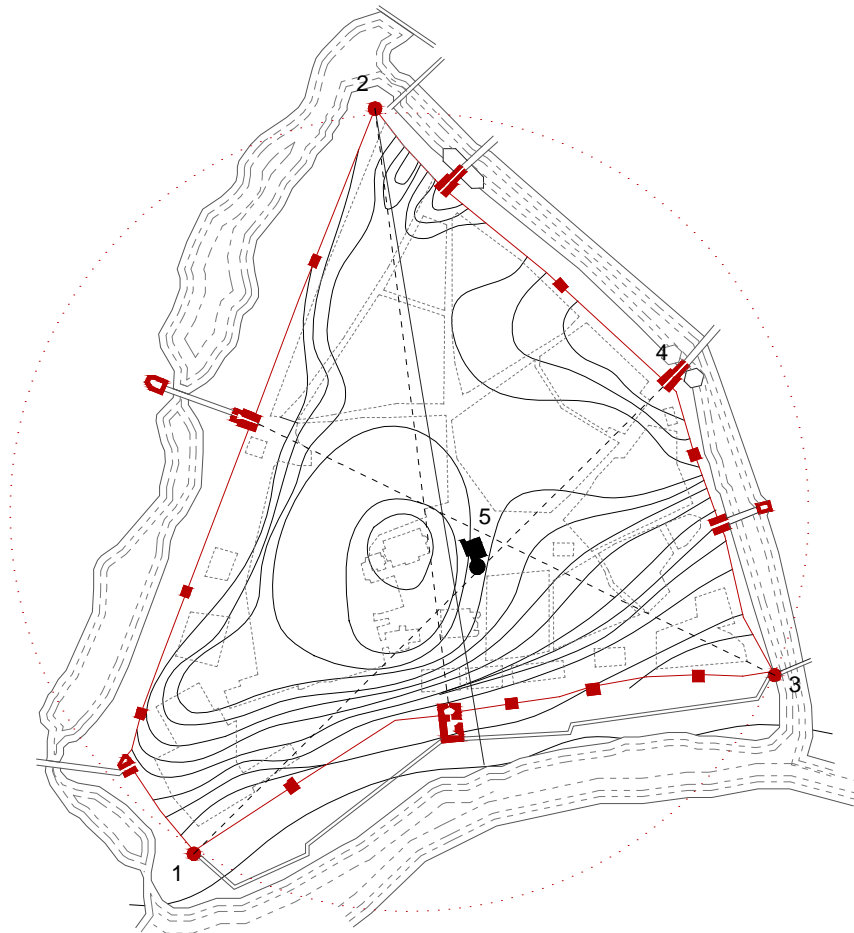


CATALOGUE OF TOWERS

MOSCOW'S MIDDLE AGED TOWERS

# Kremlin's Towers

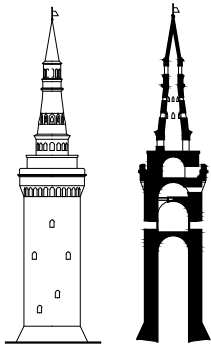
1482-1495



Planta general  
Location plan

- 1 - Vodovzvodnaya Tower
- 2 - Arsenalnaya Tower
- 3 - Beklemishevskaya Tower
- 4 - Spasskaya Tower
- 5 - Ivan The Great

Kremlin's Tower  
 Vodovzvodnaya Tower and Arsenalnaya Tower  
 1482-1495



Alzado  
 Elevation

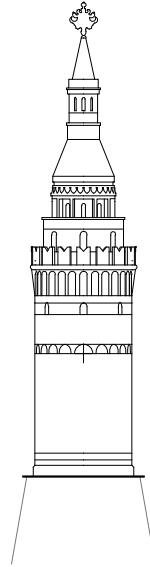


Planta. Nivel +3  
 Floor plan. Level +3

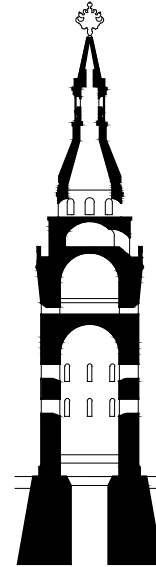


Planta. Nivel +5  
 Floor plan. Level +5

Sección  
 Section



Alzado  
 Elevation



Sección  
 Section



Planta. Nivel +2  
 Floor plan. Level +2



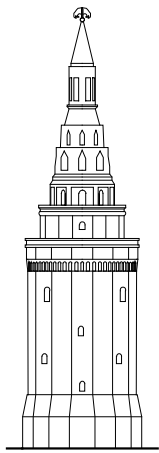
Planta. Nivel +4  
 Floor plan. Level +4



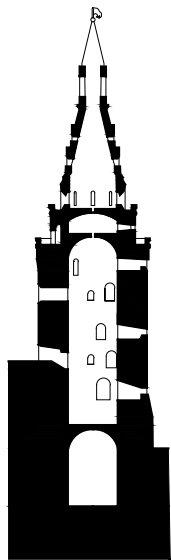
Planta. Nivel +5  
 Floor plan. Level +5

0 10 20

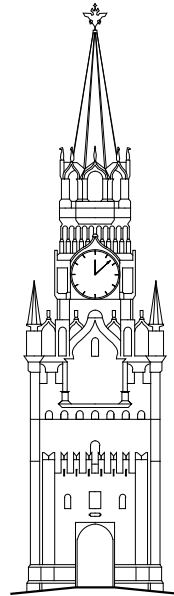
Kremlin's Tower  
 Beklemisevskaya Tower and spasskaya Tower  
 1482-1495



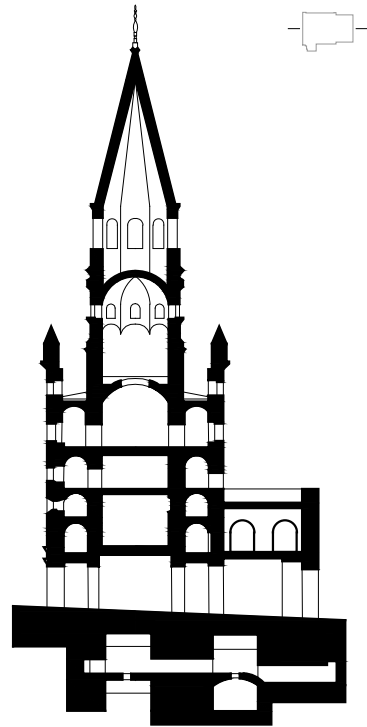
Alzado  
 Elevation



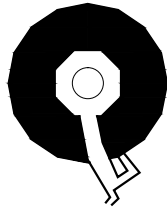
Sección  
 Section



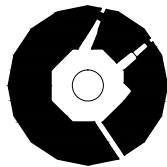
Alzado  
 Elevation



Sección  
 Section



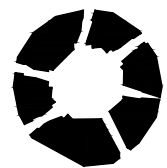
Planta Baja  
 Ground Floor plan.



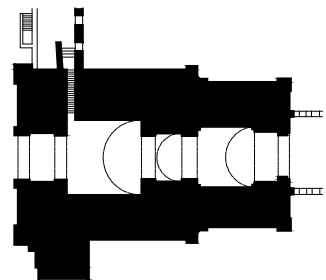
Planta. Nivel +1  
 Floor plan. Level +1



Planta. Nivel +2  
 Floor plan. Level +2



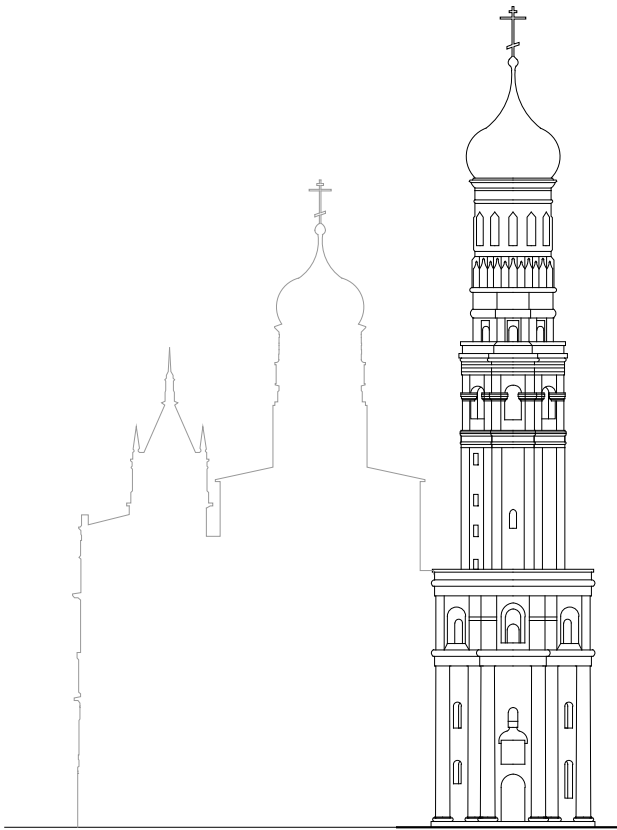
Planta. Nivel +3  
 Floor plan. Level +3



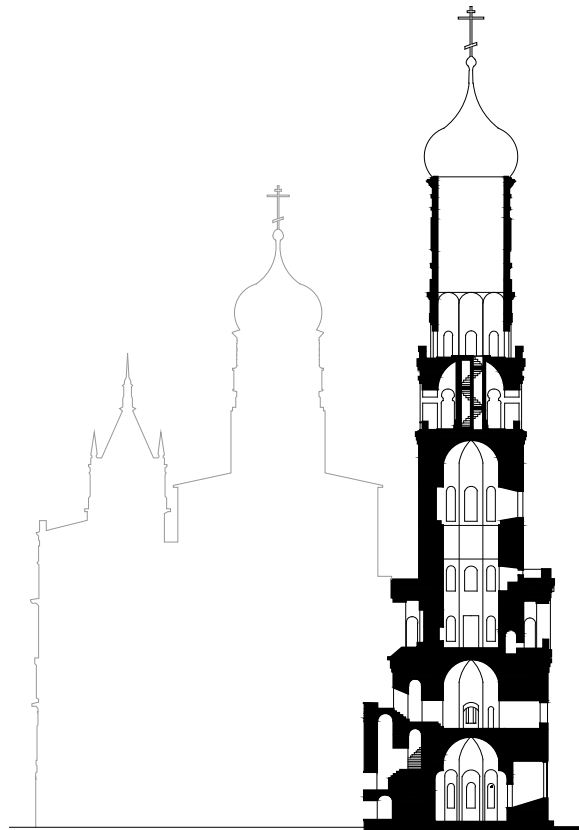
Planta Baja  
 Ground Floor plan.



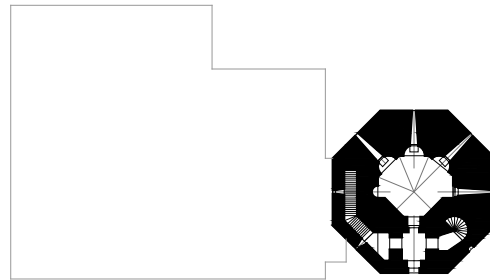
Ivan the Great  
1505-1600



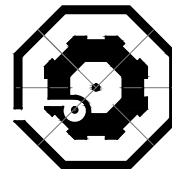
Alzado  
Elevation



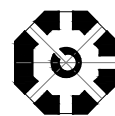
Sección trans  
Cross section



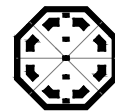
Planta baja  
Ground floor plan



Planta baja  
Ground floor plan



Planta baja  
Ground floor plan

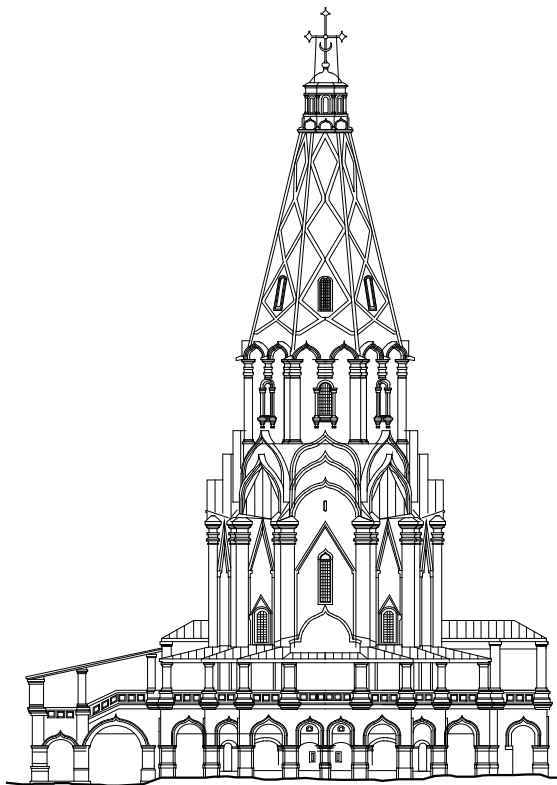
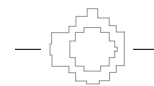


Planta baja  
Ground floor plan

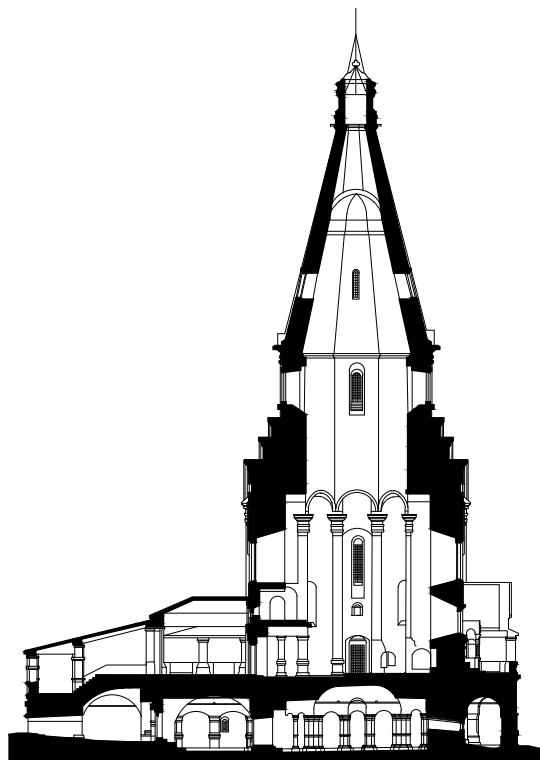


# Ascension Church

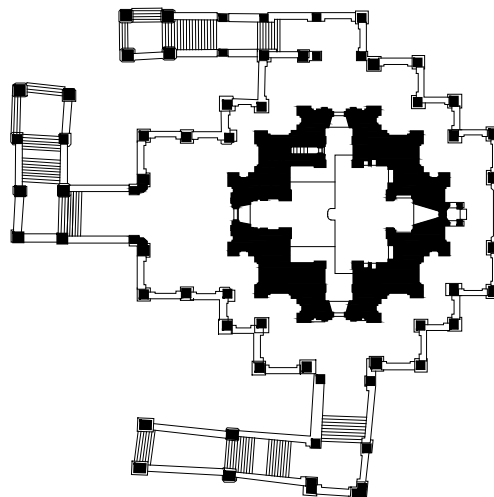
1528-1532



Alzado  
Elevation



Sección  
Section

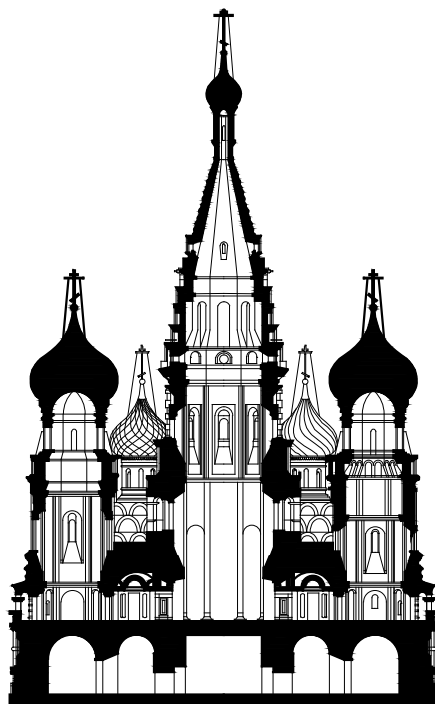


Planta baja  
Ground floor plan

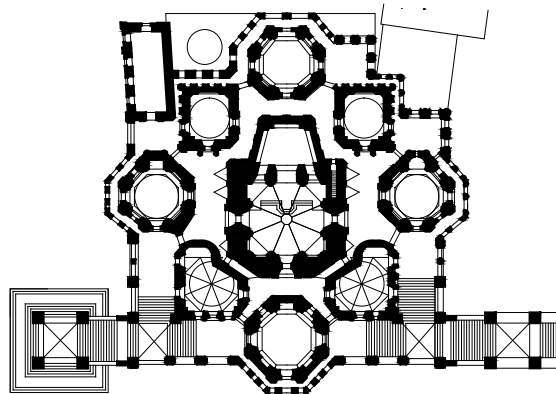
0 10 20

# St. Basil Cathedral

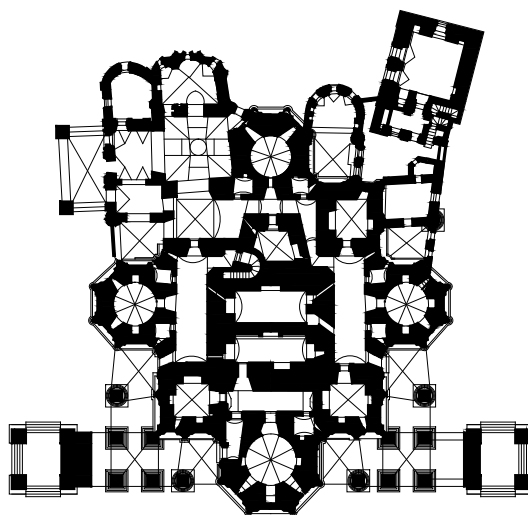
1555-1561



Sección Transversal  
Cross section



Planta baja  
Ground floor plan

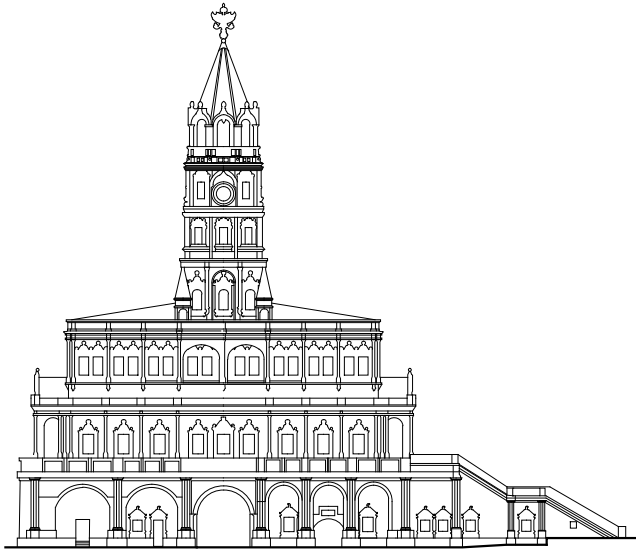


Planta sótano  
Basement floor plan

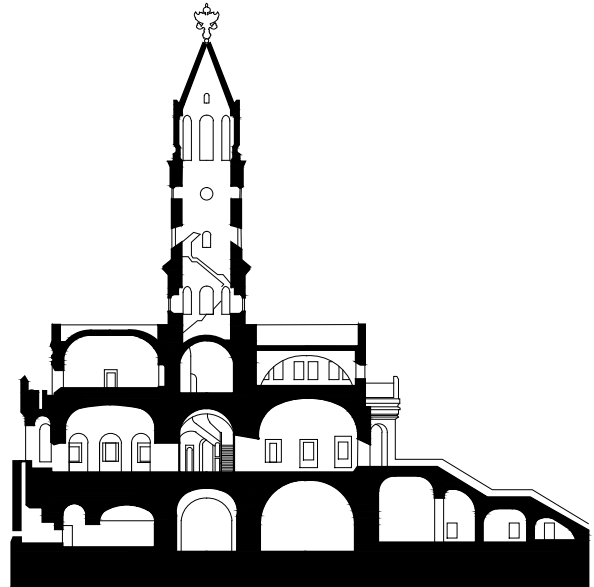
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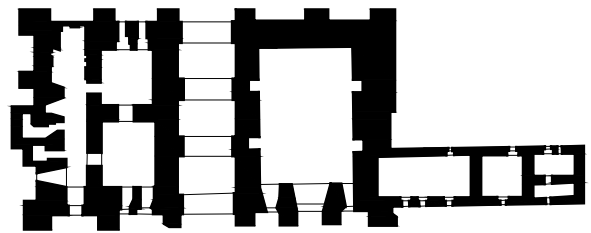
Sykhareva Tower  
1692-1701



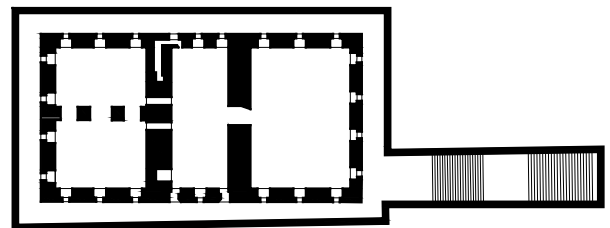
Alzado  
Elevation



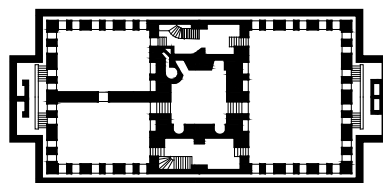
Sección longitudinal  
Longitudinal section



Planta sótano  
Basement floor plan



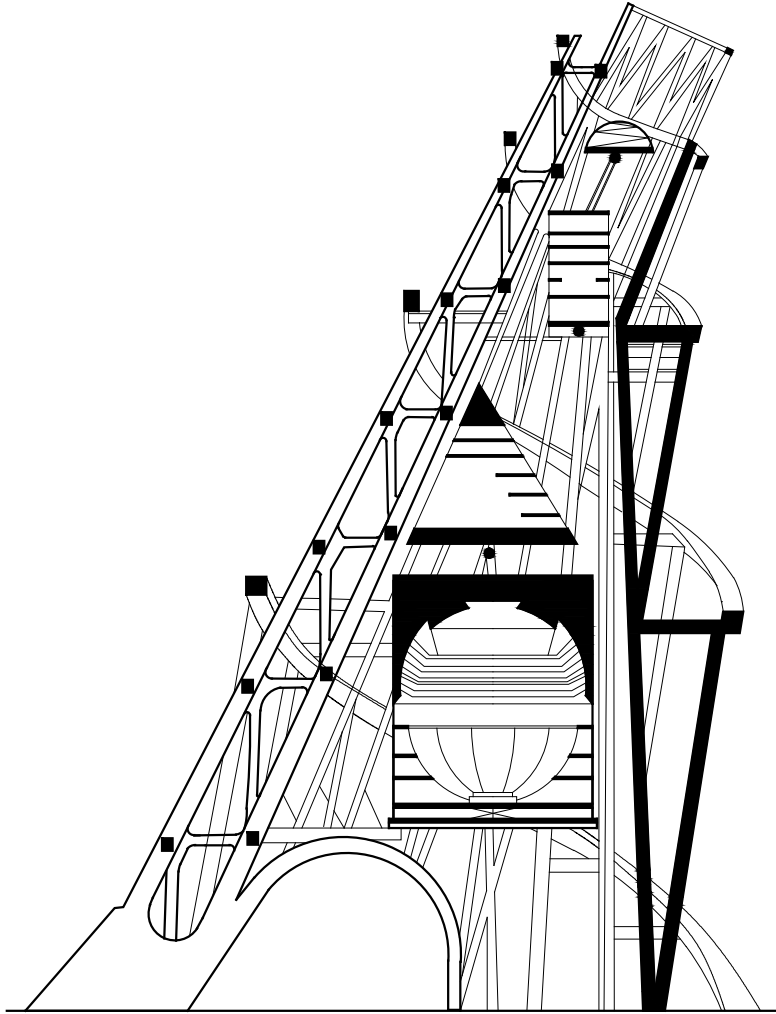
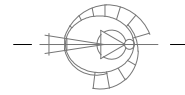
Planta baja  
Ground floor plan



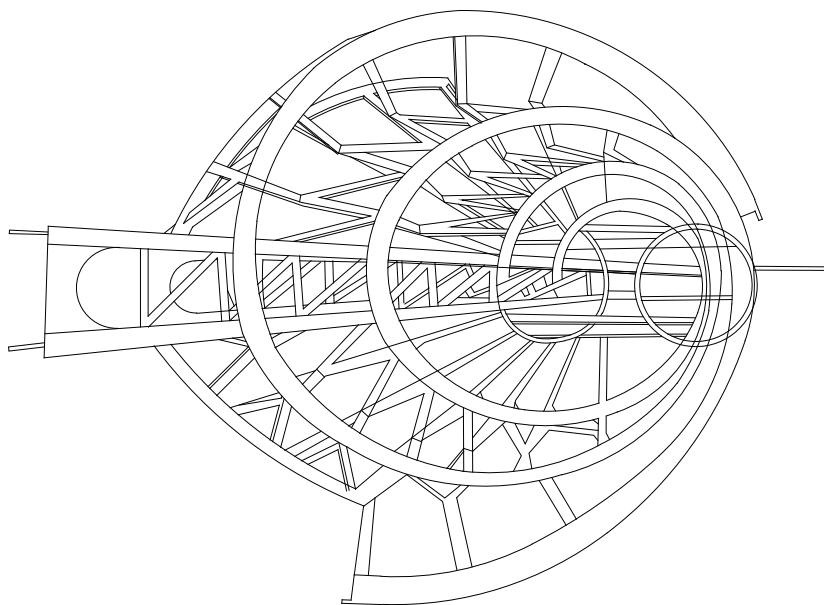
Planta primera  
First floor plan

1 - MONUMENT TOWER

Tatlin Tower  
1919-1920



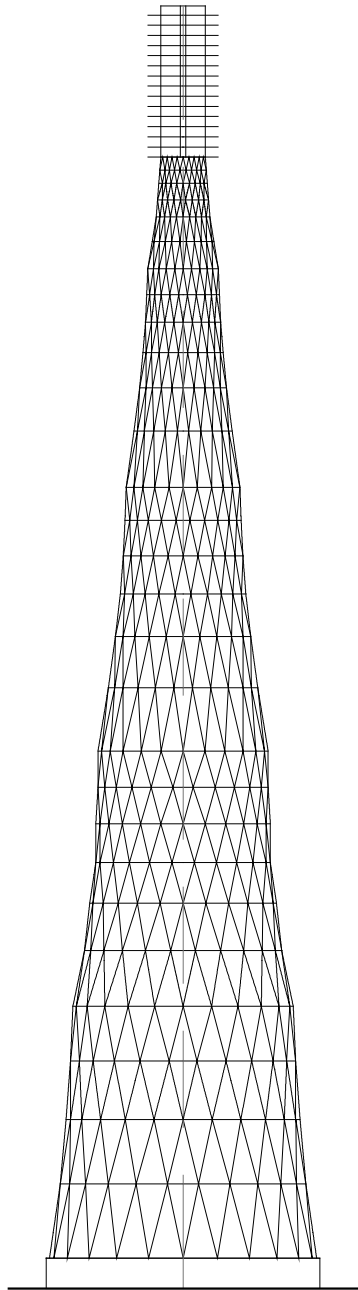
Sección longitudinal  
Longitudinal section



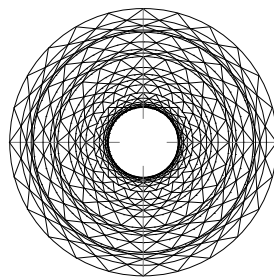
Planta de cubierta  
Roof floor plan

0 50 100

Shukhov Tower  
1919-1922



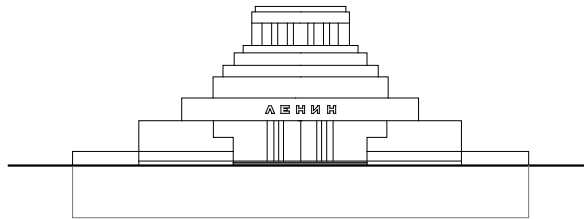
Alzado  
Elevation



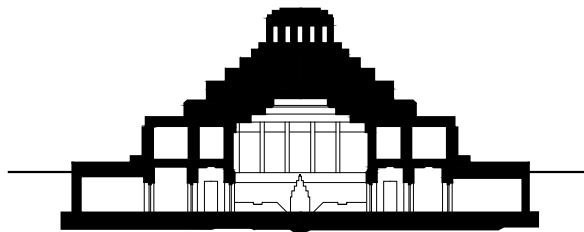
Planta  
Floor plan



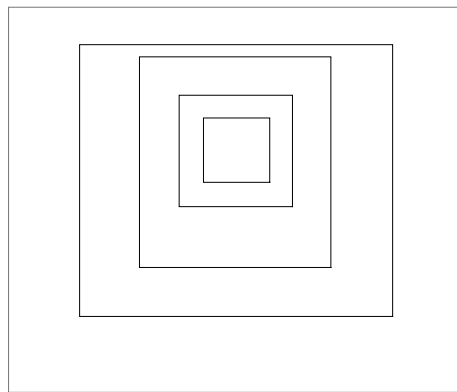
Lenin's Mausoleum  
1924-1929



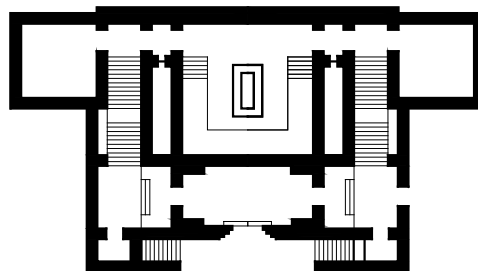
Alzado  
Elevation



Sección transversal  
Cross section



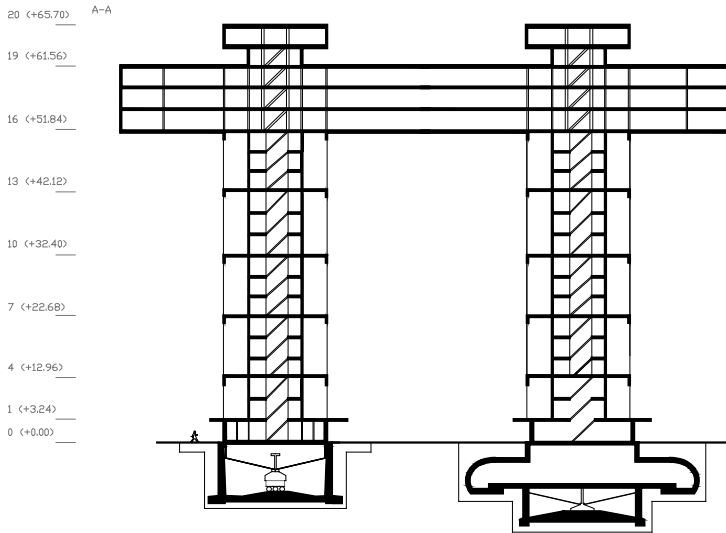
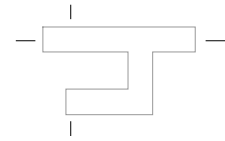
Planta de cubiertas  
Roof floor plan



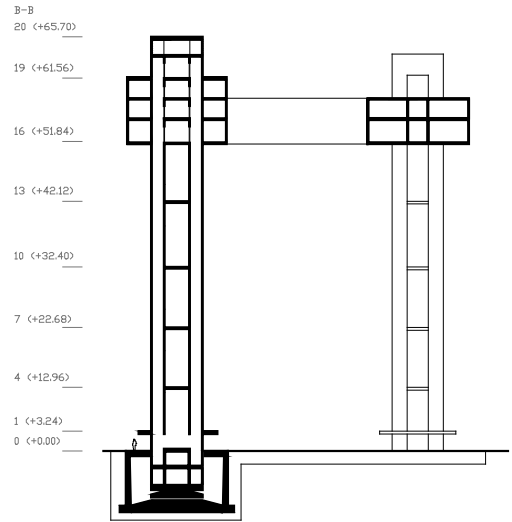
Planta baja  
Ground floor plan



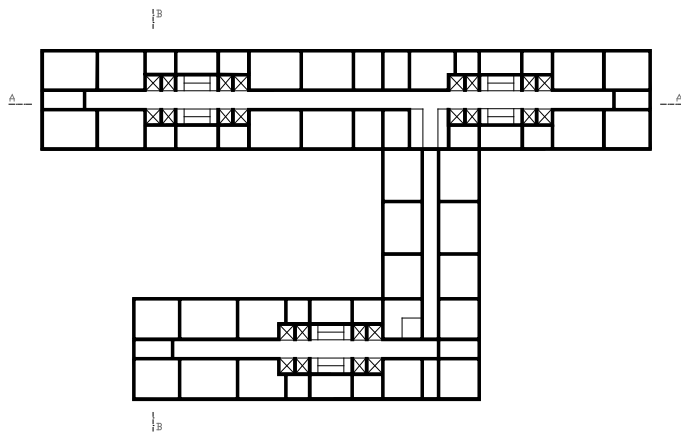
Lissitzky, Horizontal Skyscrapers  
1923-1925



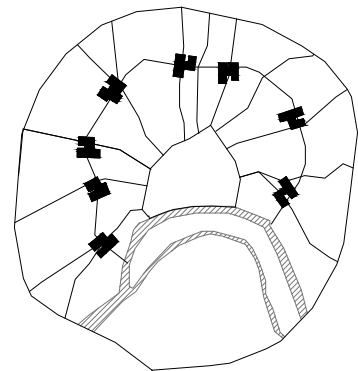
Sección longitudinal  
Longitudinal section



Sección Transversal  
Cross section

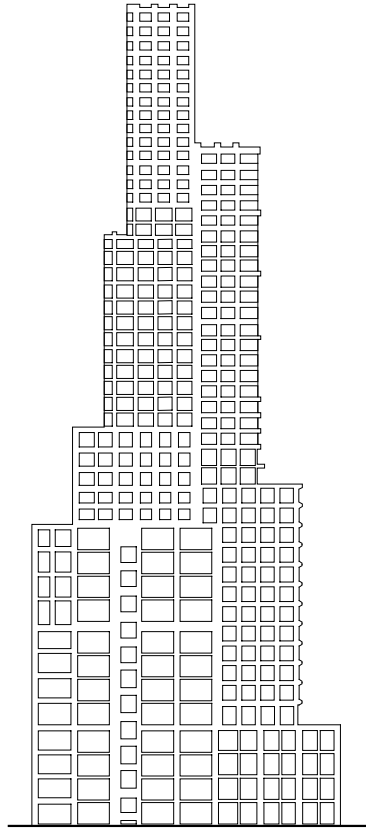


Planta. Nivel +16  
Floor plan. Level +16

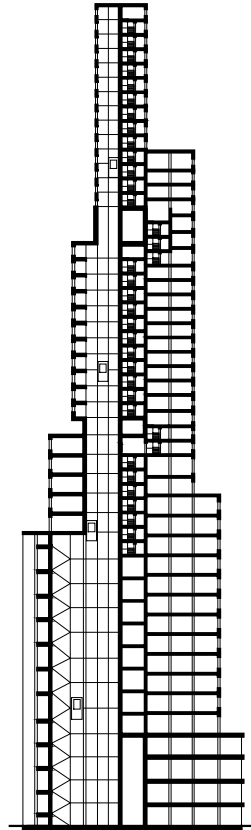


El Lisitsky  
in borders of Moscow in 1925 with division  
of city districts at that time

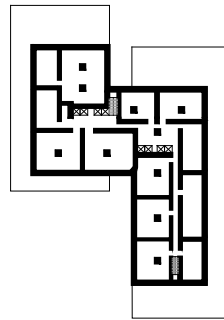




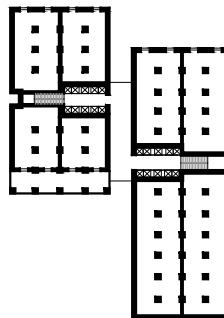
Alzado  
Elevation



Sección transversal  
Cross section



Planta. Nivel +14  
Floor plan. Level +14

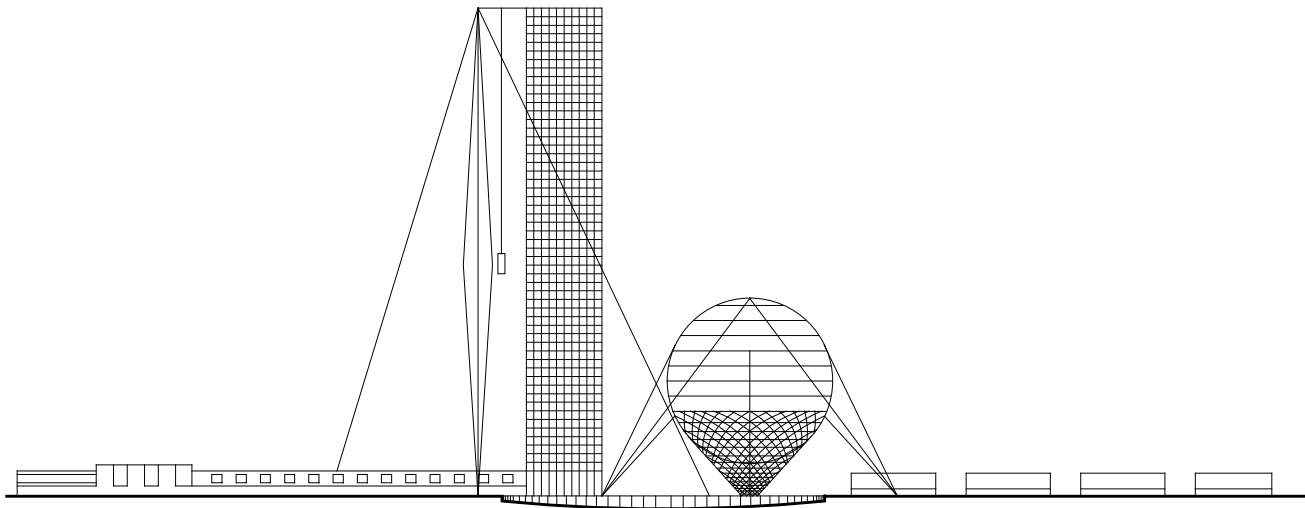


Planta Baja  
Ground Floor plan

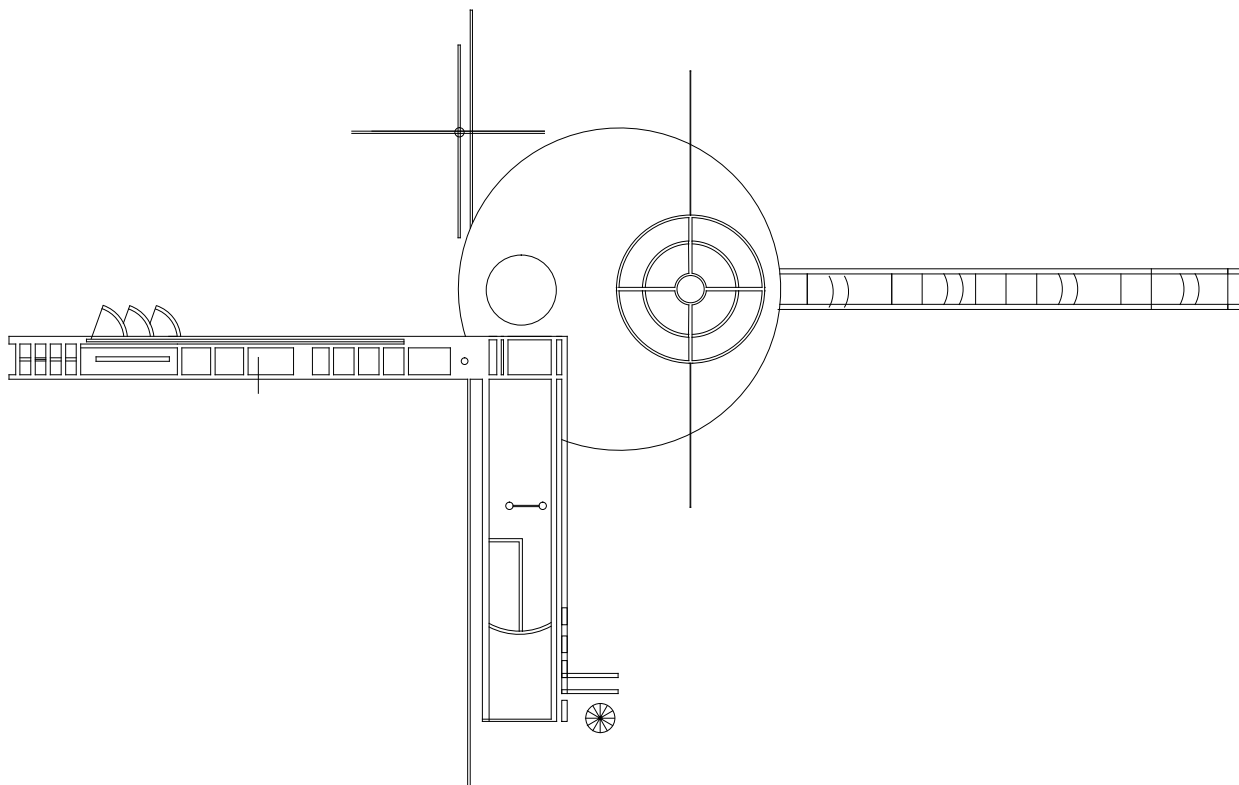


# Institute on Vorobiev Hills

1927



Alzado  
Elevation



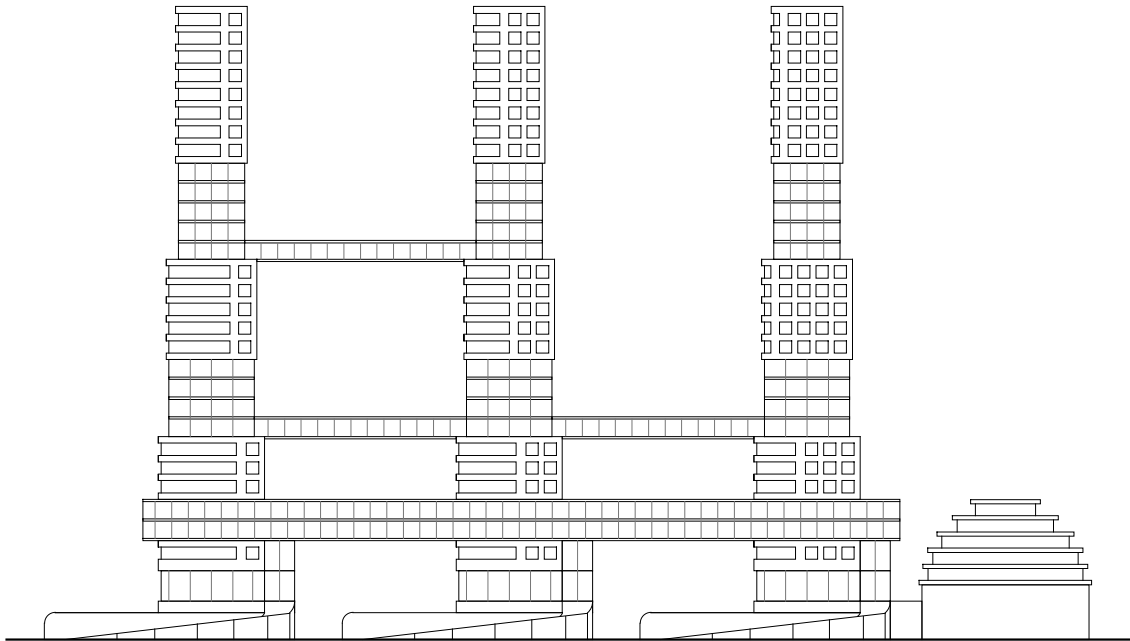
Planta de cubiertas  
Roof floor plan



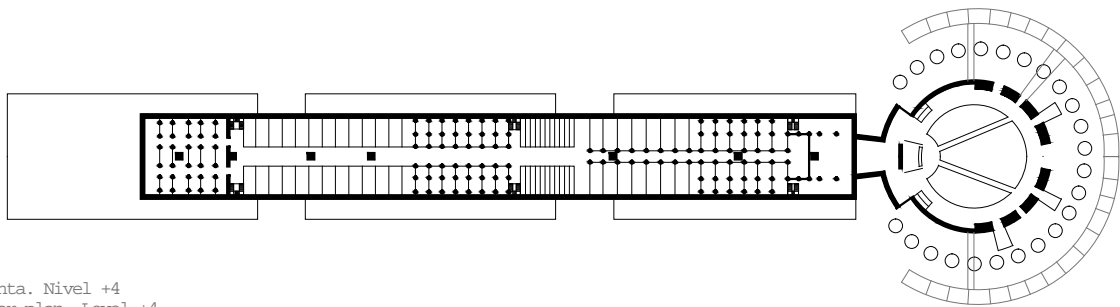


# Komitern Building

1929



Alzado  
Elevation

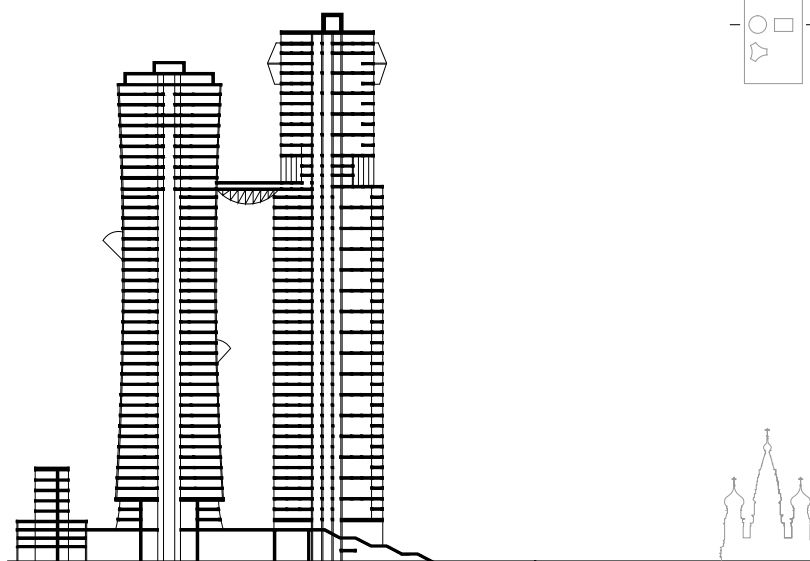


Planta. Nivel +4  
Floor plan. Level +4

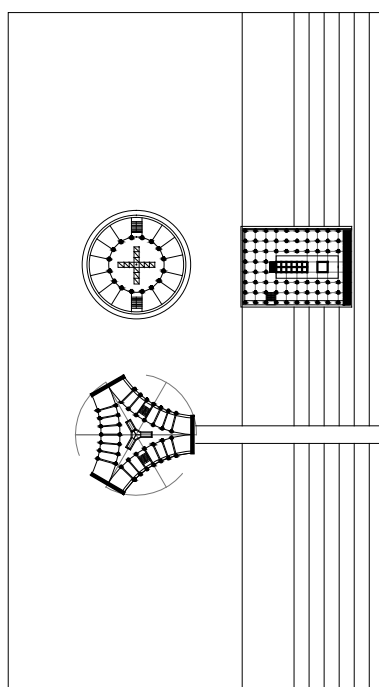


# Narkomtyazhprom House

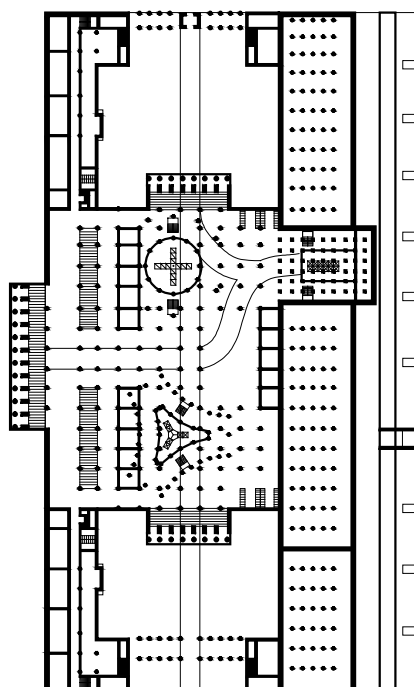
1934



Sección transversal  
Cross section



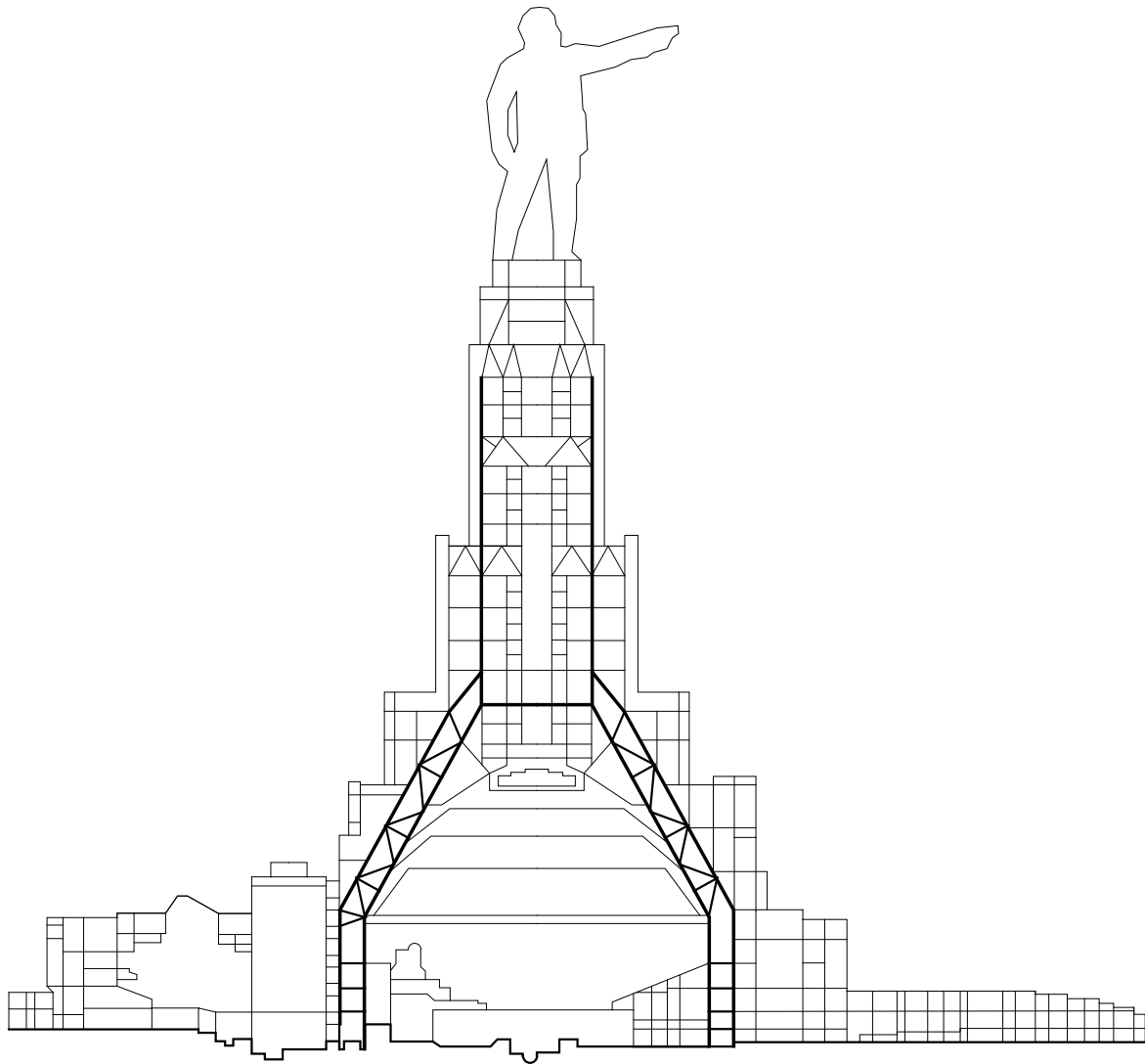
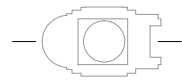
Planta baja  
Ground floor plan



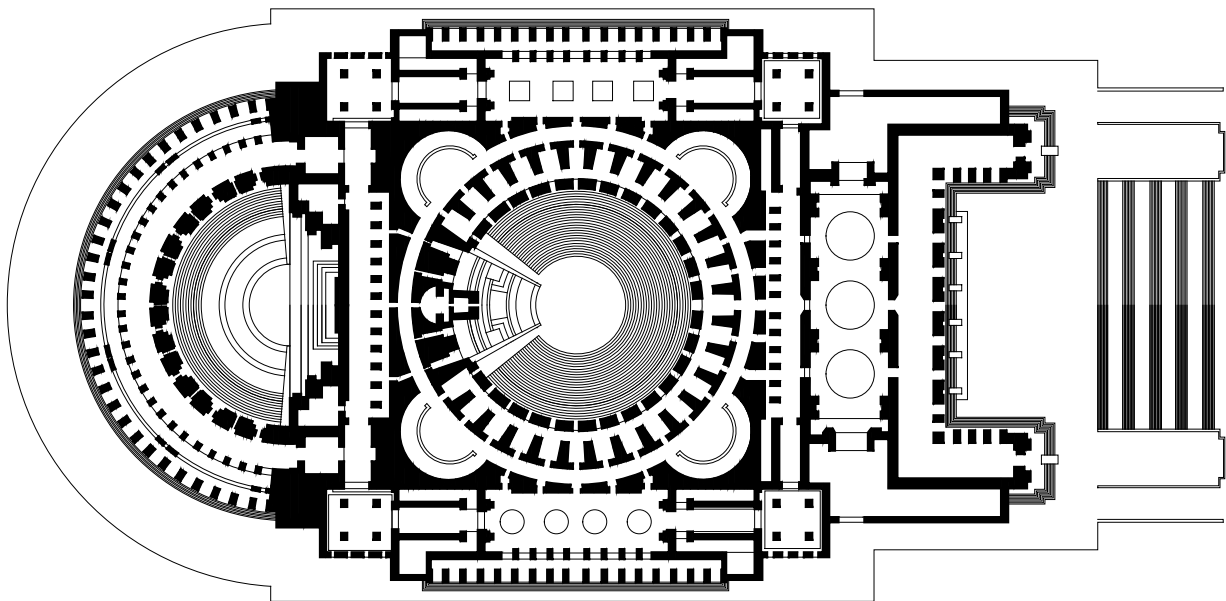
Planta sótano  
Basement floor plan

# Palace of the Soviets

1933-1953



Esquema de sección longitudinal  
Longitudinal section schema

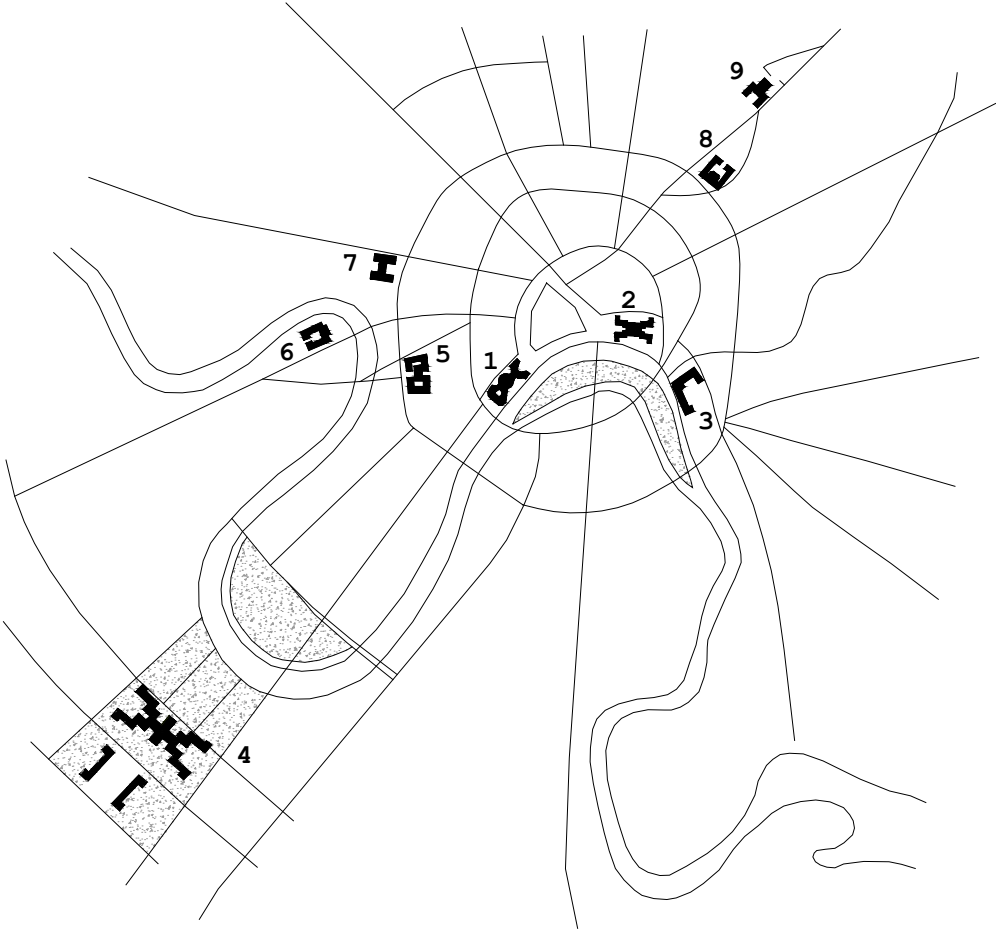


Planta principal  
Main Floor Plan

0 50 100

8 - HIGH-RISE BUILDINGS

Administrative tall buildings of Moscow



- 1 - Palacio de los Soviets
- 2 - Zariaide
- 3 - Kotelnicheskaja
- 4 - University
- 5 - Smolenskaia
- 6 - Ukraina Hotel
- 7 - Vosstaine Square
- 8 - Krasnie Vorota
- 9 - Komsomolskaia



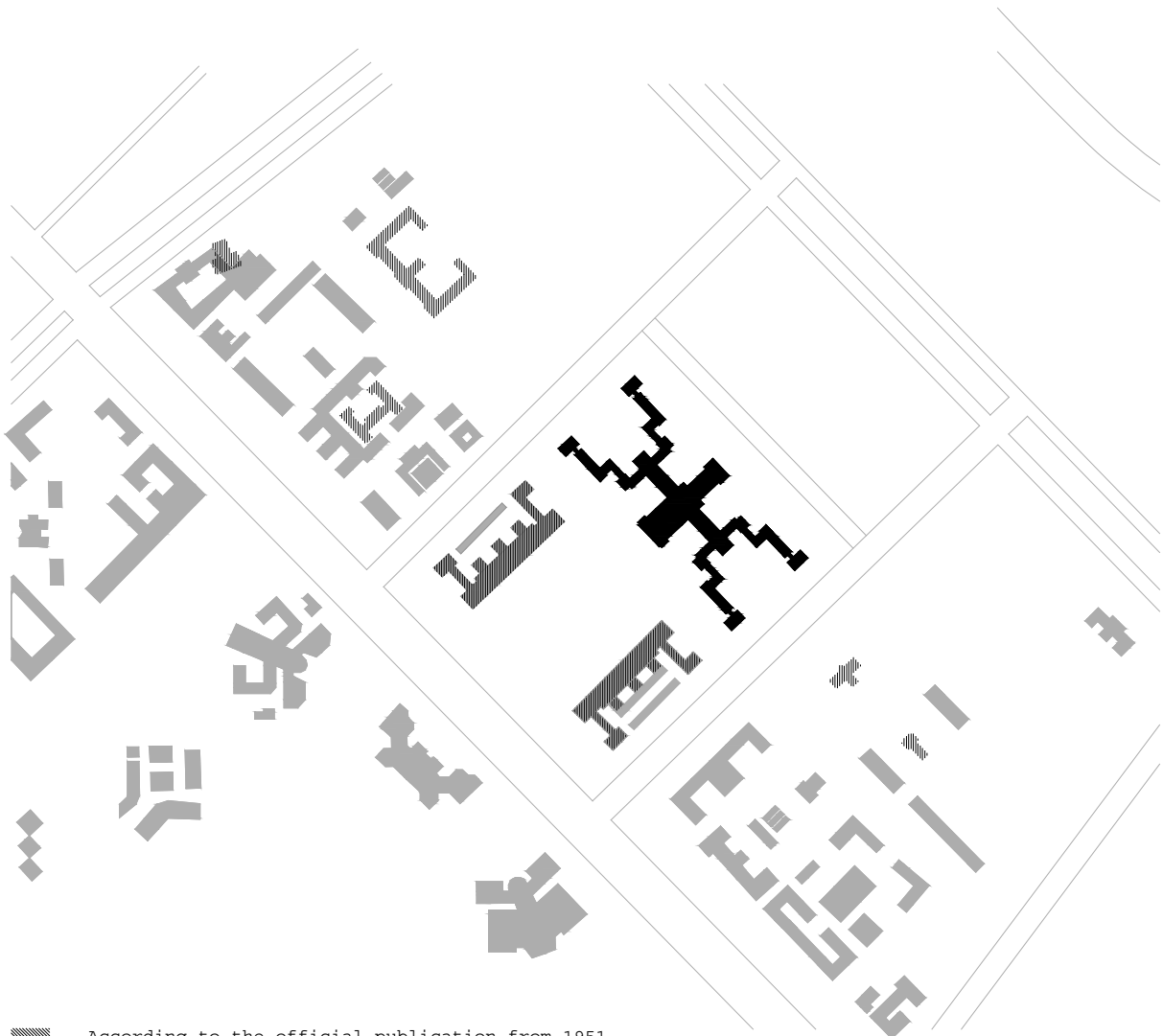
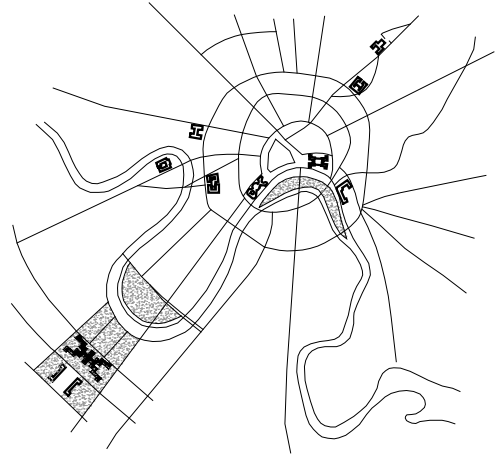
## Moscow State University on Lenin's Hills

Pyramidal composition of Moscow State University is made of 78 m high wings and 247 m central tower and is placed on the main symmetrical axes in 1280 meters from the river facing the center of the city. The broad space between the river and the main building is left free which is why the complex could be seen from great distances. Task was to put numerous of students facilities into unconventional form of a skyscraper that now contains student residence and apartments for professors in the wings and swimming pool, museum, gyms, classrooms, a club with a event hall, dance ball, Rectorate and museum in the highrise part. The physics and chemistry buildings, placed perpendicularly to the main building, organize a broad and open student courtyard that directly connects to the city square. The Northwest part of the site houses a botanical gardens with the buildings of similar purpose.

Planimetría de los Edificios Altos Administrativos de Moscú según la publicación original de 1951, encontrada en la Biblioteca del Parque VDNJ de Moscú.

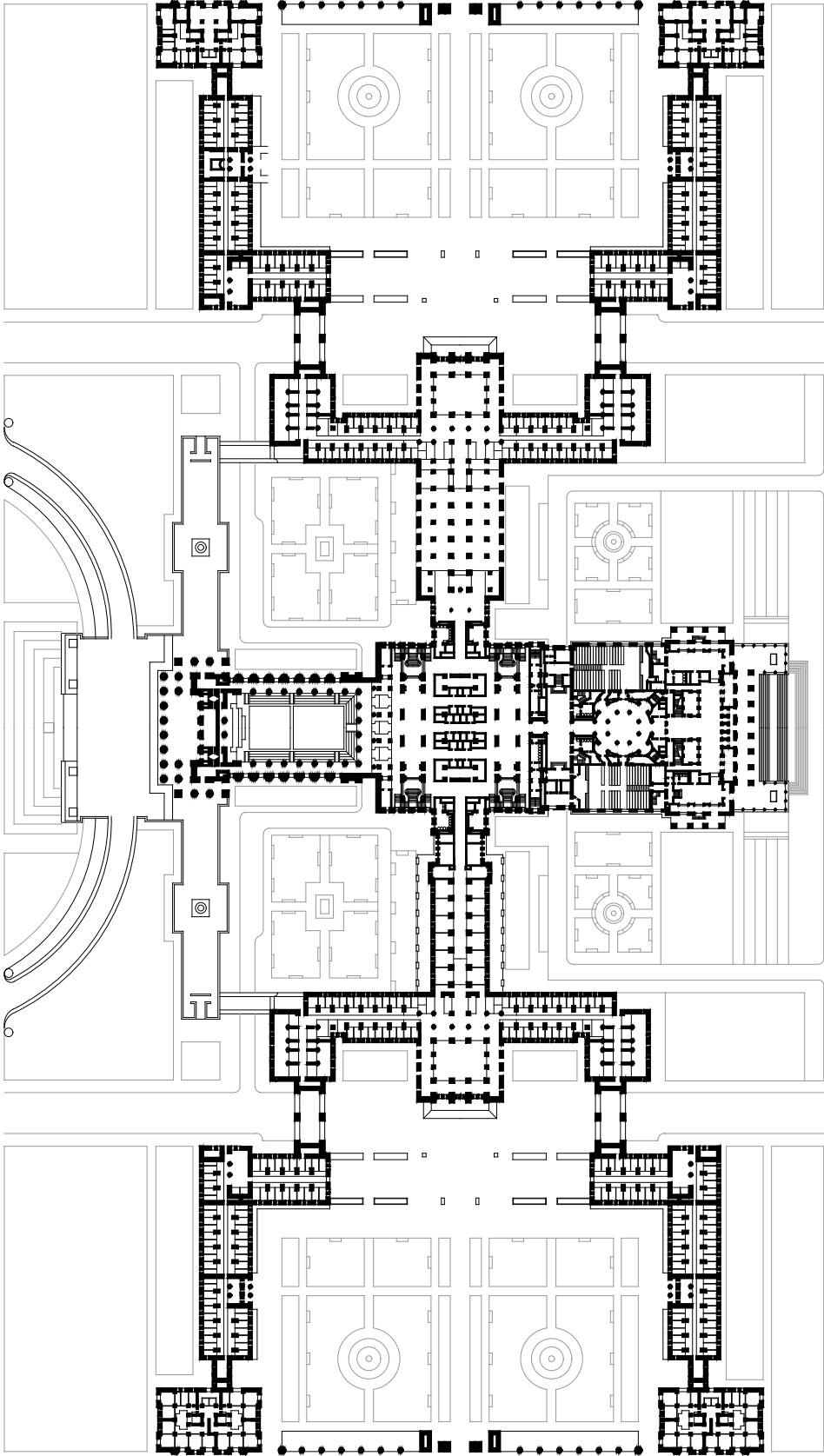
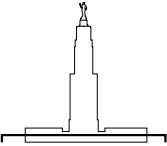
# Moscow State University on Lenin's Hills

MSU on Vorob'yevi hills (previous name - Leninskiye hills) (1949-1953) Height of building 239 m Authors: full members of Academy of architecture of USSR L.V. Rudnev (1 prize of Stalin's award), S.E. Chernishev (1 prize of Stalin's award), A.F. Khryakov (1 prize of Stalin's award). Main engineer V.N. Nasonov (1 prize of Stalin's award). Co-authors: of main building - arc. P.N. Zinoviev, of other finishing parts and elements of complex arc. - M.N. Moshchinsky, I.S. Goloshchapov, G.V. Selugin, V.S. Shevchenko, G.A. Aseev, A.B. Bergelson, M.V. Adrianov, U.A. Baransky, V.V. Bekker, U.S. Somov, Kh.M. Sorin and of general site plan V.N. Kolpakova; engineer D.A. Kasatkina, M.F. Gunger, B.V. Shchepetov, U.P. Byalinovich, E.P. Stanislavsky, B.A. Djerkovich, A.N. Kondratieva, K.M. Kochunov, T.A. Melik-Arakelyan, I.P. Sveshnikov, G.S. Khromov.



According to the official publication from 1951.  
According to Google Maps 2015.

Moscow State University on Lenin's Hills

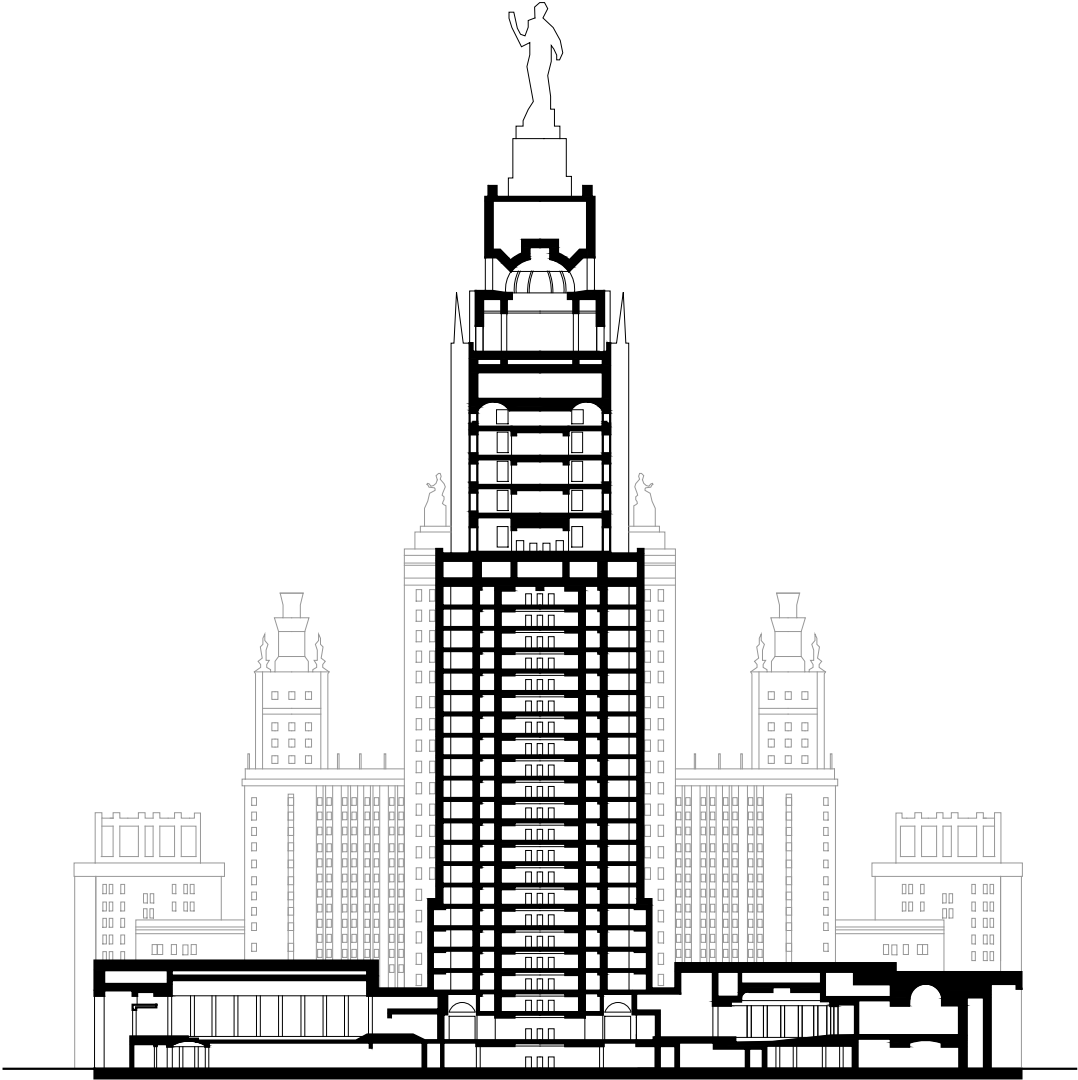
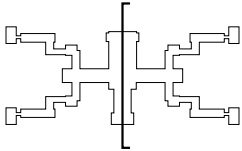


Planta baja  
Ground floor plan





Moscow State University on Lenin's Hills




Sección transversal

Cross section



## Administrative building on Smolenskaya Square

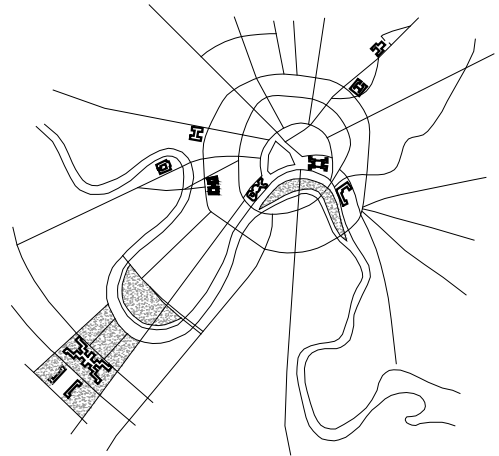


This 172 meter, 27 story building was built between 1948 and 1953 and overseen by V.G.Gelfreih and A.B.Minkus with the task to transform the architecture image of the Smolenskaya square district. The building is offset into the depth of the site providing public space in front which provides better visibility for the building from the square as well as from the near points of view, and also provides more interesting plastical composition and enabling richer play of light and shadow. Currently, it houses the offices for the Ministry of Foreign Affairs for the Russian Federation. The Ministry is covered by a light external stone wall with projecting pilasters and pylons. Its interior is splendidly decorated with stones and metals. The Visotka's construction system is reinforced concrete frame with rigid fittings. The walls are perforated brick and ceramic hollow blocks.

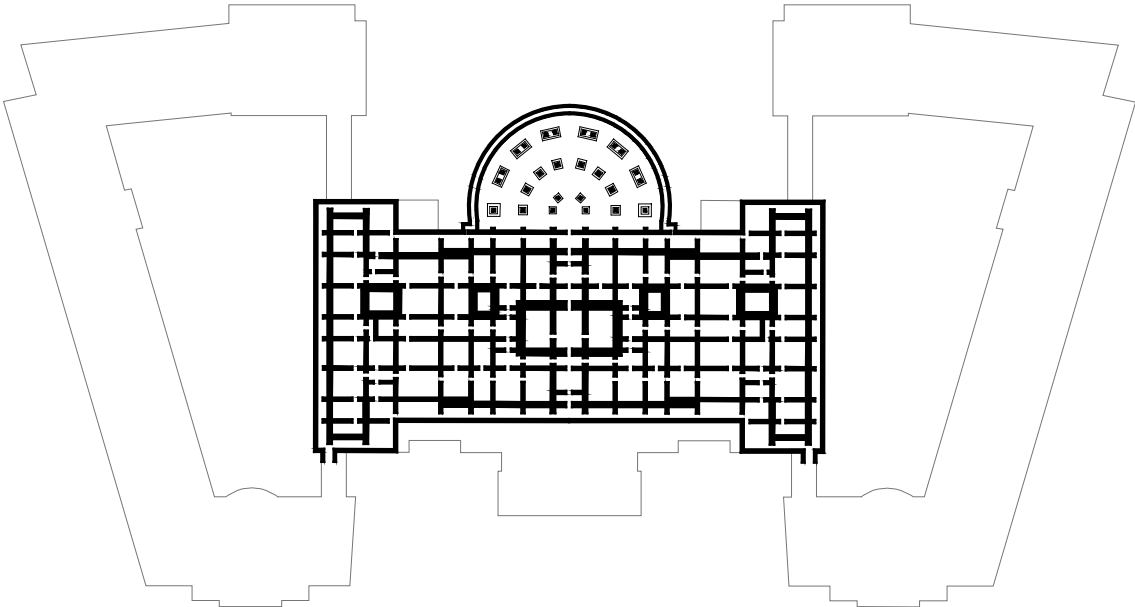
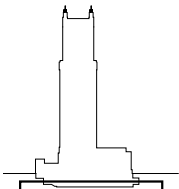
Planimetría de los Edificios Altos Administrativos de Moscú según la publicación original de 1951, encontrada en la Biblioteca del Parque VDNJ en Moscú.

## Administrative building on Smolenskaya Square

Administrative building on Smolensko-Spasskaya Square (the Ministry of Foreign Affairs of USSR) (1949-1956) Height of building 170 m  
Authors: full members of Academy of architecture of USSR V.G. Gelfreikh (1 prize of Stalin's award) and arc. M.A. Minkus (1 prize of Stalin's award).  
Main engineer G.M. Limanovsky (1 prize of Stalin's award). Co-authors of facades: arc. U.I. Abramov, G.P. Yakovlev, N.N. Prokhorenko; of interiors L.V. Varzar. Main engineer of engineering equipment S.L. Gomberg.



Administrative building on Smolenskaya Square

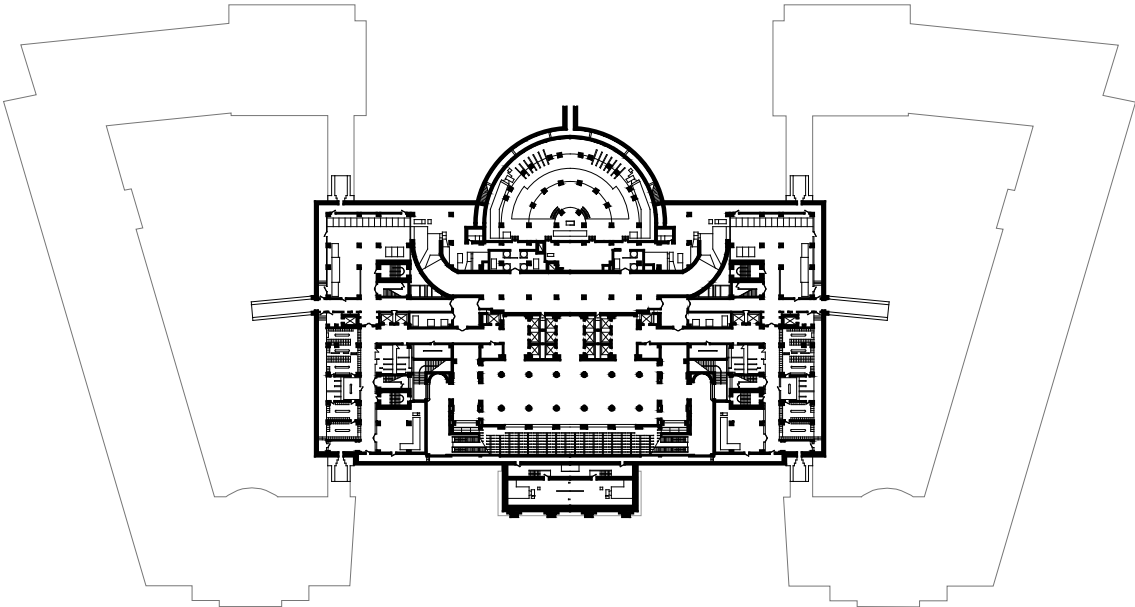
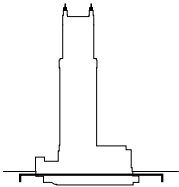


Planta sótano. Nivel -2  
Basement floor plan. Level -2



0 25 50

Administrative building on Smolenskaya Square

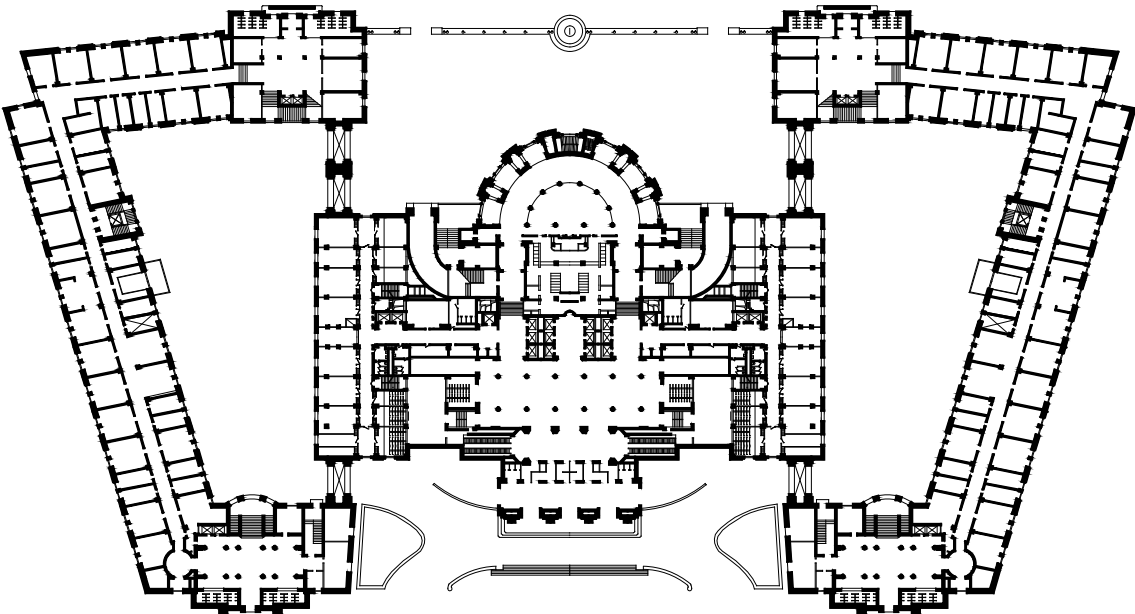
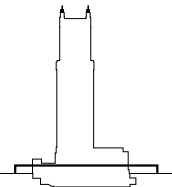


Planta sótano. Nivel -1  
Basement floor plan. Level -1



0 25 50

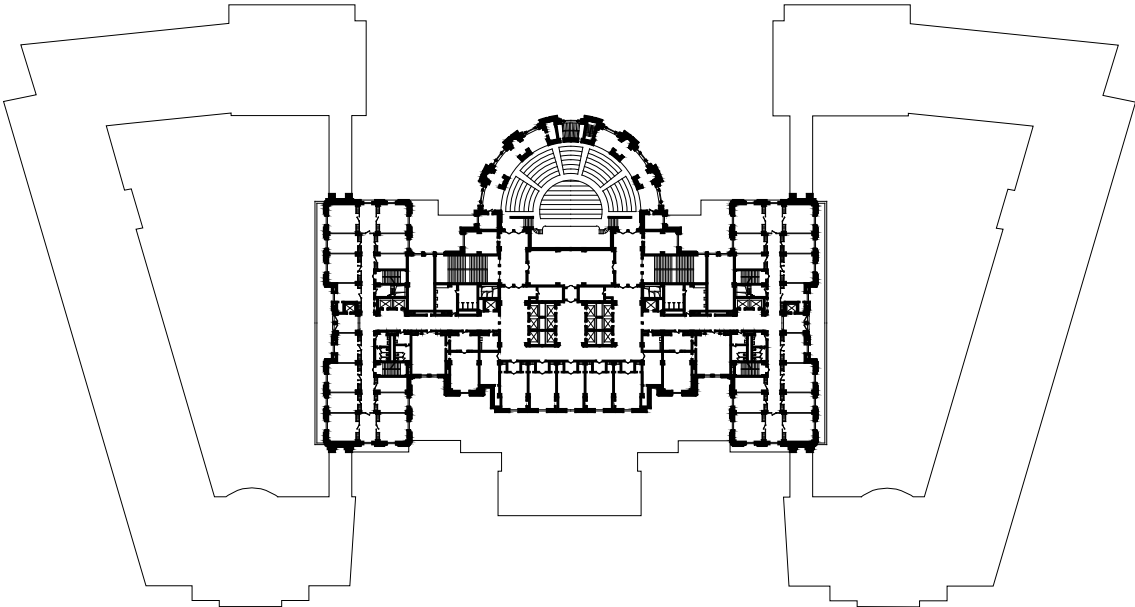
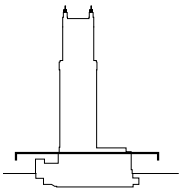
Administrative building on Smolenskaya Square



Planta Baja  
Ground floor plan



Administrative building on Smolenskaya Square

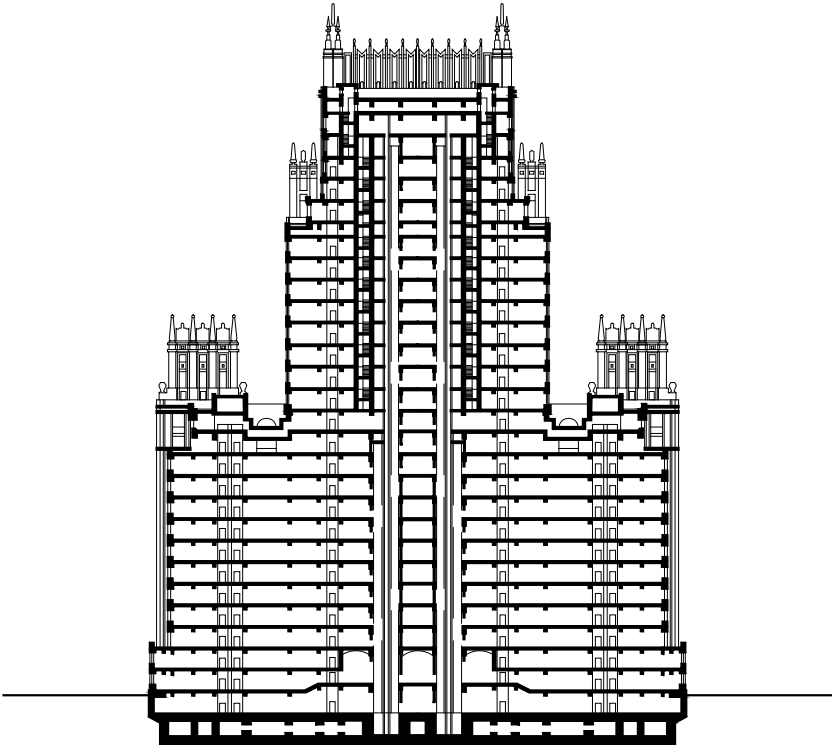
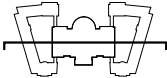


Planta Primera  
First floor plan



0 25 50

Administrative building on Smolenskaya Square

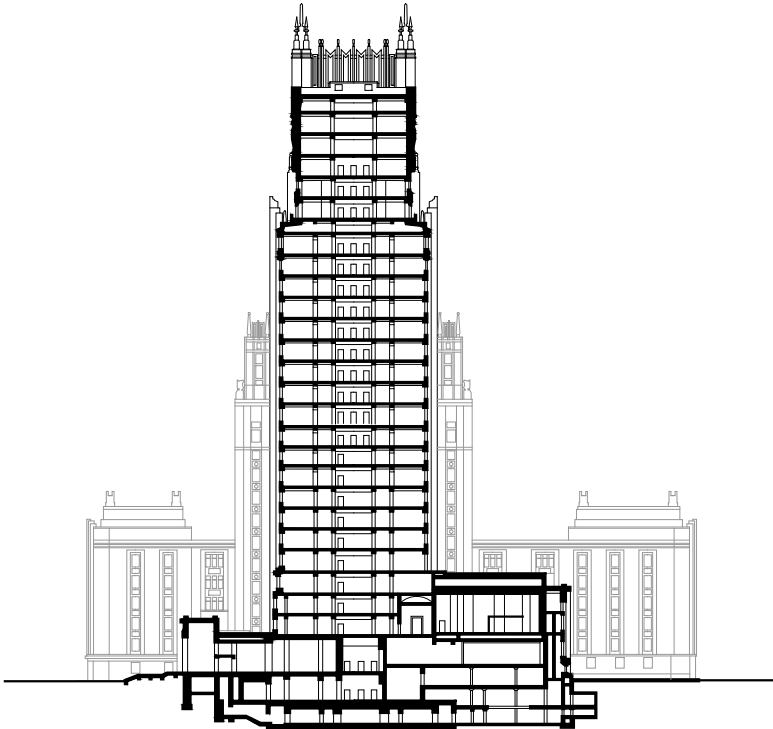
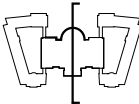


Sección longitudinal  
Longitudinal section

0 25 50



Administrative building on Smolenskaya Square



Sección trasnversal  
Cross section



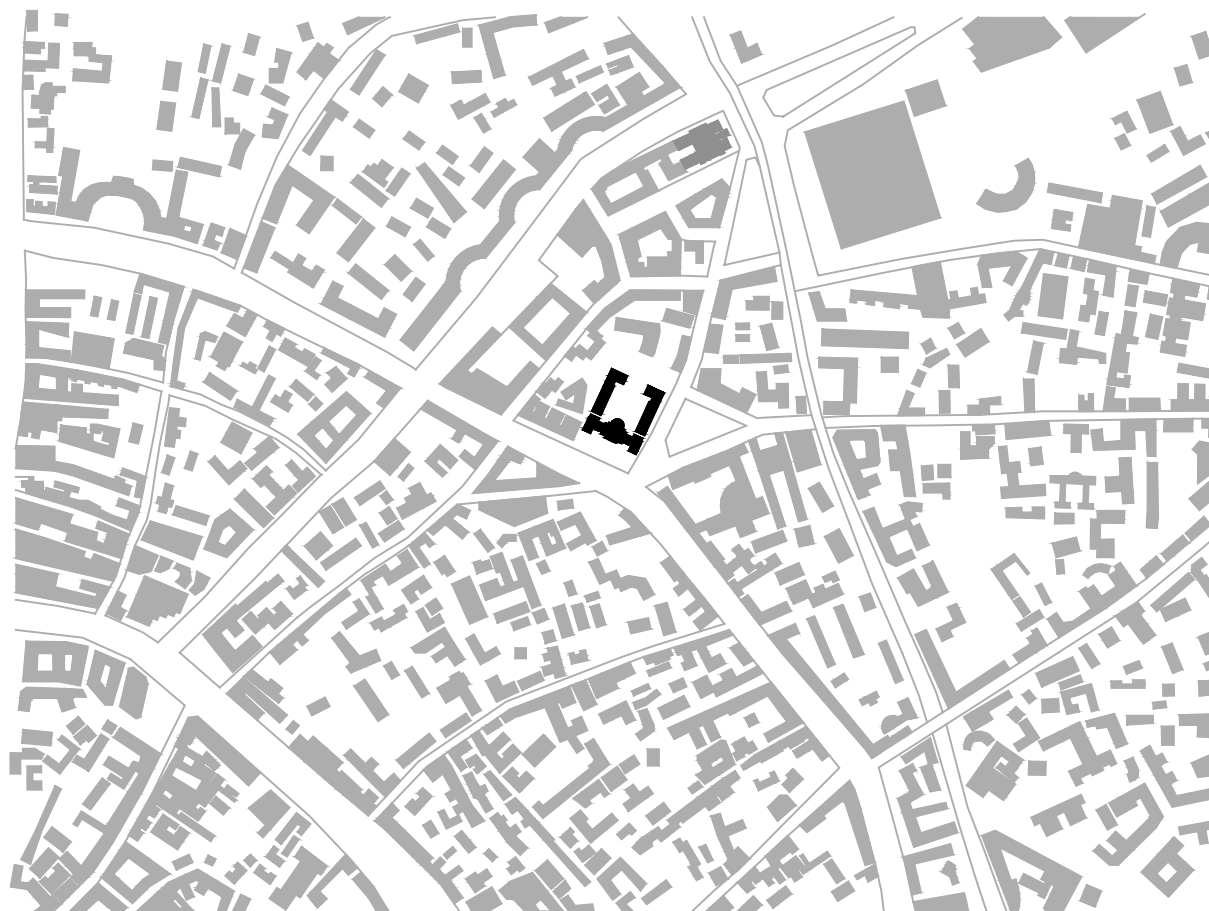
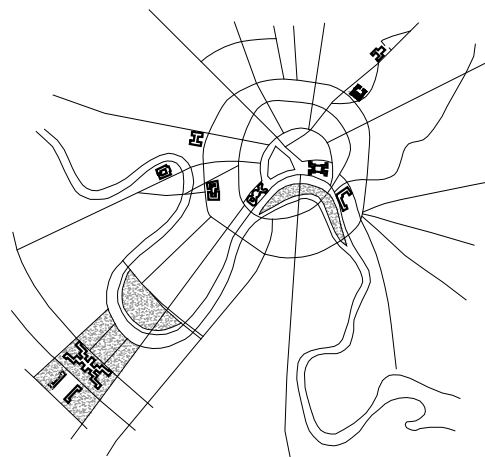
Administrative and residential building  
on Red Gates Square

The tallest part of the building, the 16-storey high central part is occupied by the Ministry of Railways, side 1-11 storey wings are residential and the basement opens up with the second exit of the Red Gates metro station. Building hides cozy yard with central elevation that hides garages. Collaboration between Duskin and V.M. Abramov lead to a completely new method of construction: the building was erected with some forward inclination in order to compensate for the foundation setting and to avoid damage to the inclined tunnel of the e s c a l a t o r .

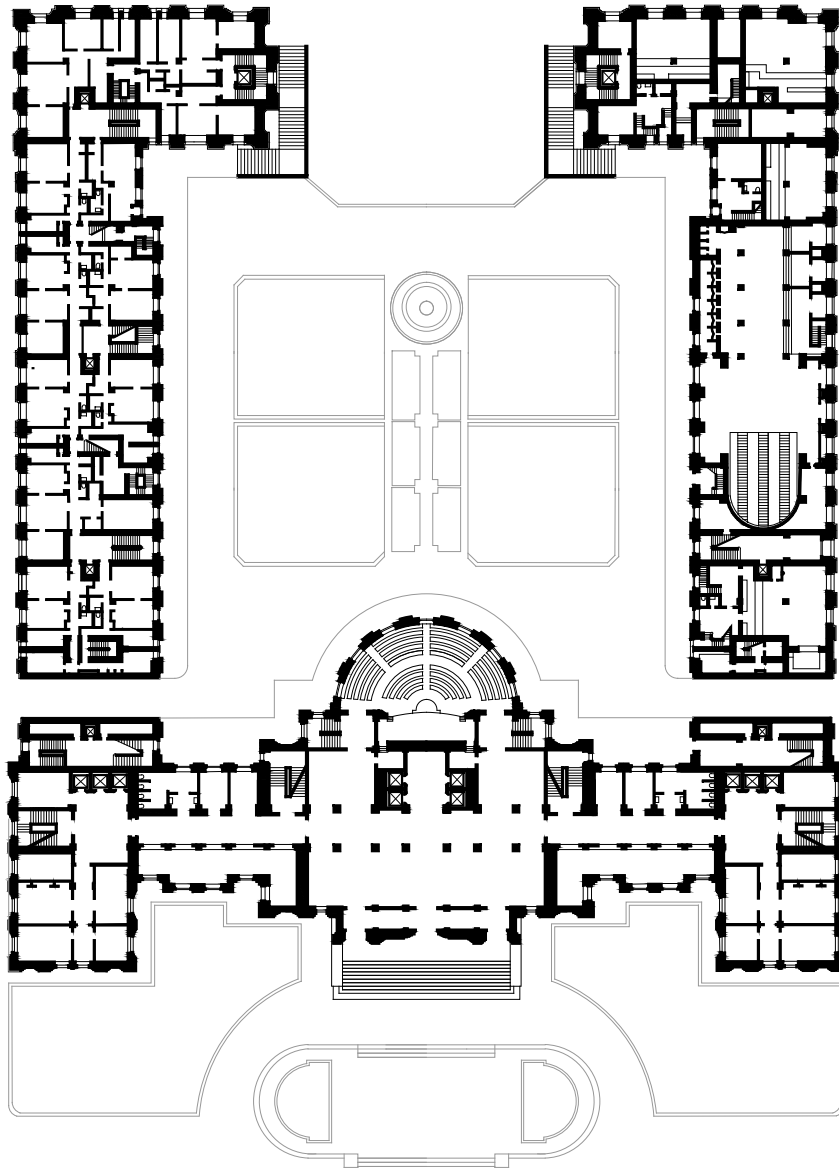
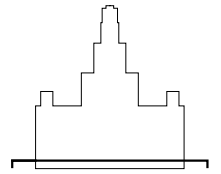
Planimetría de los Edificios Altos  
Administrativos de Moscú según la  
publicación original de 1951, encontrada  
en la Biblioteca del Parque VDNJ en Moscú.

## Administrative and residential building on Red Gates Square

Administrative building near Krasnie Vorota (previous name Lermontovskaya Square, building of Ministry of railways of USSR) (1949-1952) Height of building 134 m Authors: member-correspondent of Academy of architecture USSR A.N. Dushkin (2 prize of Stalin's award) and B.S. Mezencev (2 prize of Stalin's award). Main engineer V.M. Abramov. The head of special works for ground freezing Y.A. Dorman. Architects who were in development of the project: A.S. Markelov, A.A. Tikhonov, I.M. Potrubach, A.F. Strelkov, V.A. Avdeev, M.P. Bubnov, A.S. Markova, M.A. Zhivova, G.G. Akvilev, I.V. Zhirnov; engineers: A.I. Marienko, R.I. Laevsky, L.R. Glier, Y.S. Nekhamkes, A.F. Ginzburg, S.A. Protasov.



Administrative and residential building  
on Red Gates Square

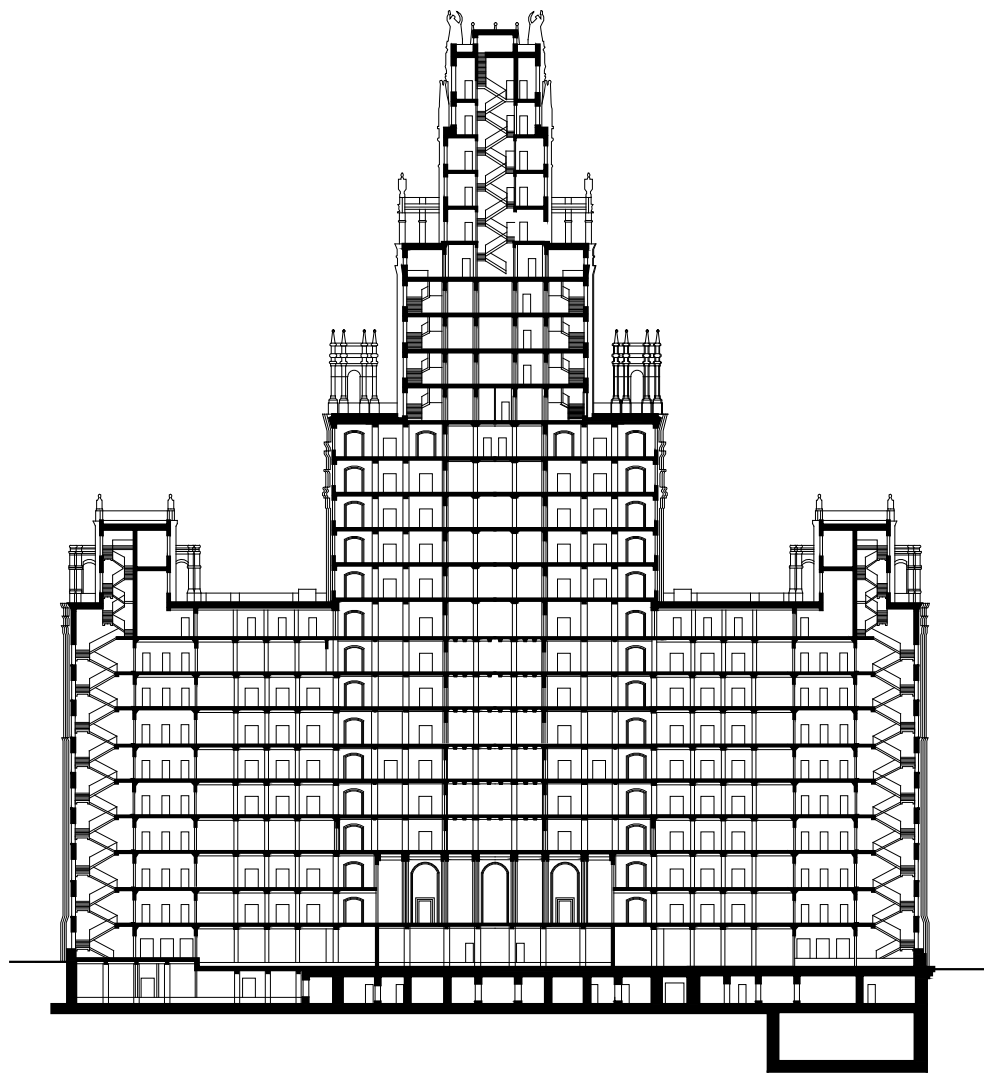
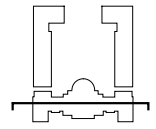


Planta baja  
Ground floor plan



0 25 50

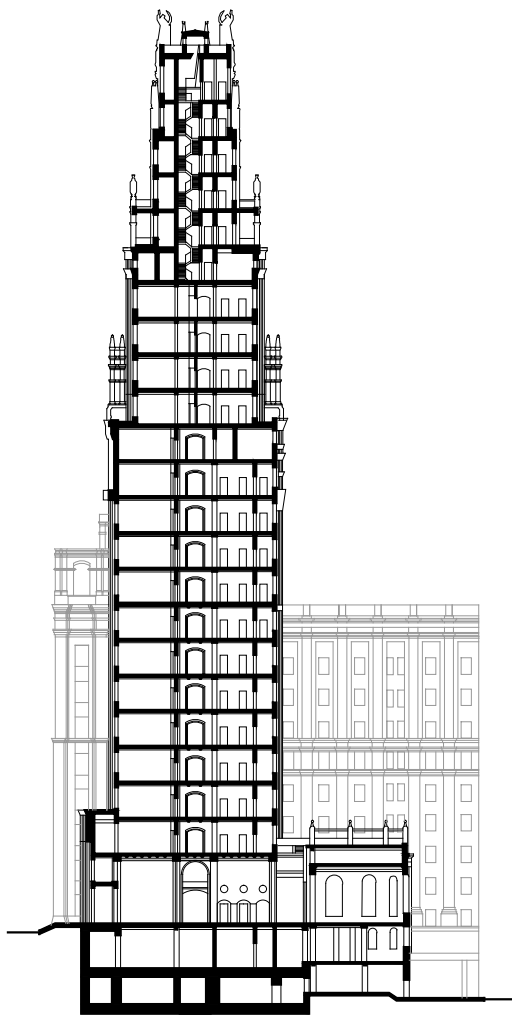
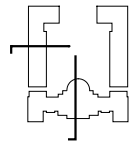
Administrative and residential building  
on Red Gates Square



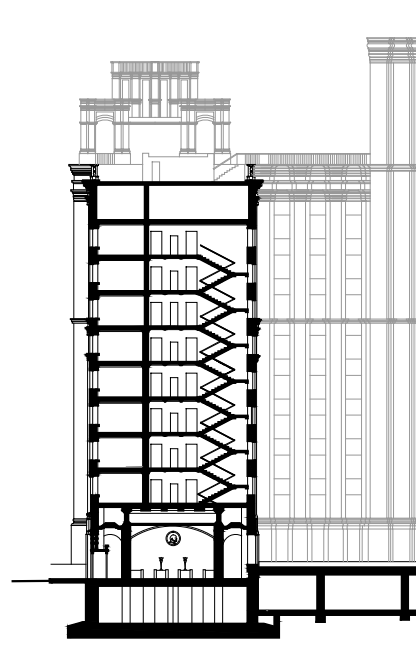
Sección longitudinal  
Longitudinal section

0 25 50

Administrative and residential building  
on Red Gates Square




Sección trasversal  
Cross section



Sección trasversal  
Cross section

0 25 50

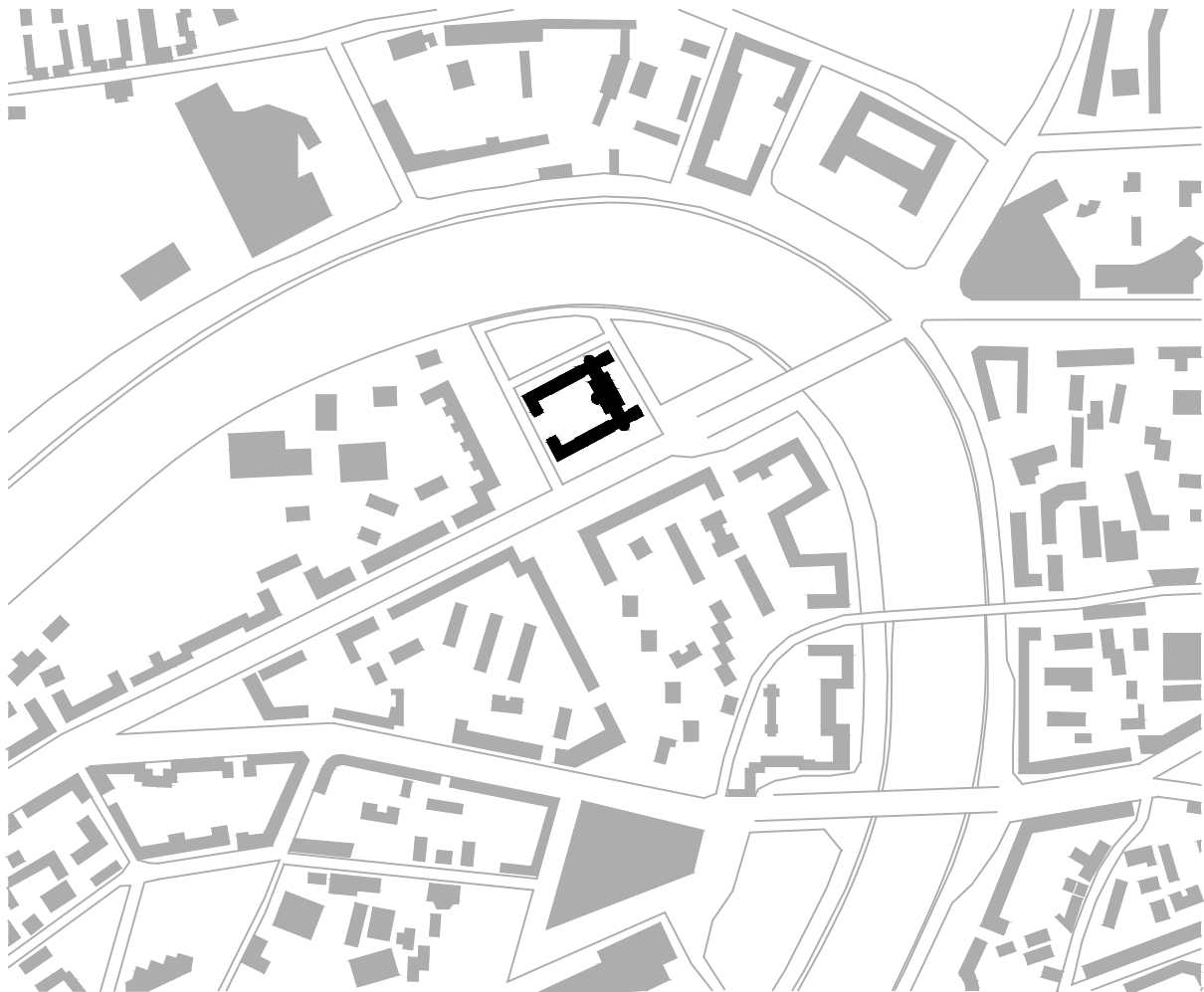
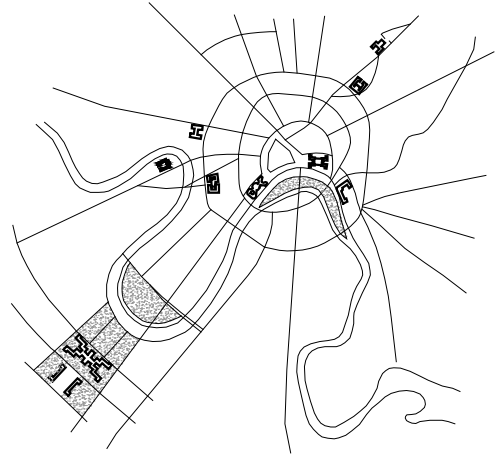


Hotel Ukraine and residential building  
on Dorogomilovskaya embankment

Being the question of the whole city area by the Drogomilovskaya curve of Moscow river, "Ukraine" hotel was contracted later than the other Moscow highrise buildings. The vertical volume faces the river towards the city center and The green "parterre" in front of the hotel provides public space and connection to the river. Following the celebration of 300th of Ukraine's reunification with Russia at 1953, building contains elements of Ukraine Baroque in decoration. Highrise 29-storeyed part faces the bridge and the 9- storeyed wings with flats determined the scale of the rhythm in the area. steel frame, walls are filled with large panels of foam concrete. The floors are precast panels with textured lower side, which provides ready ceiling for living spaces.

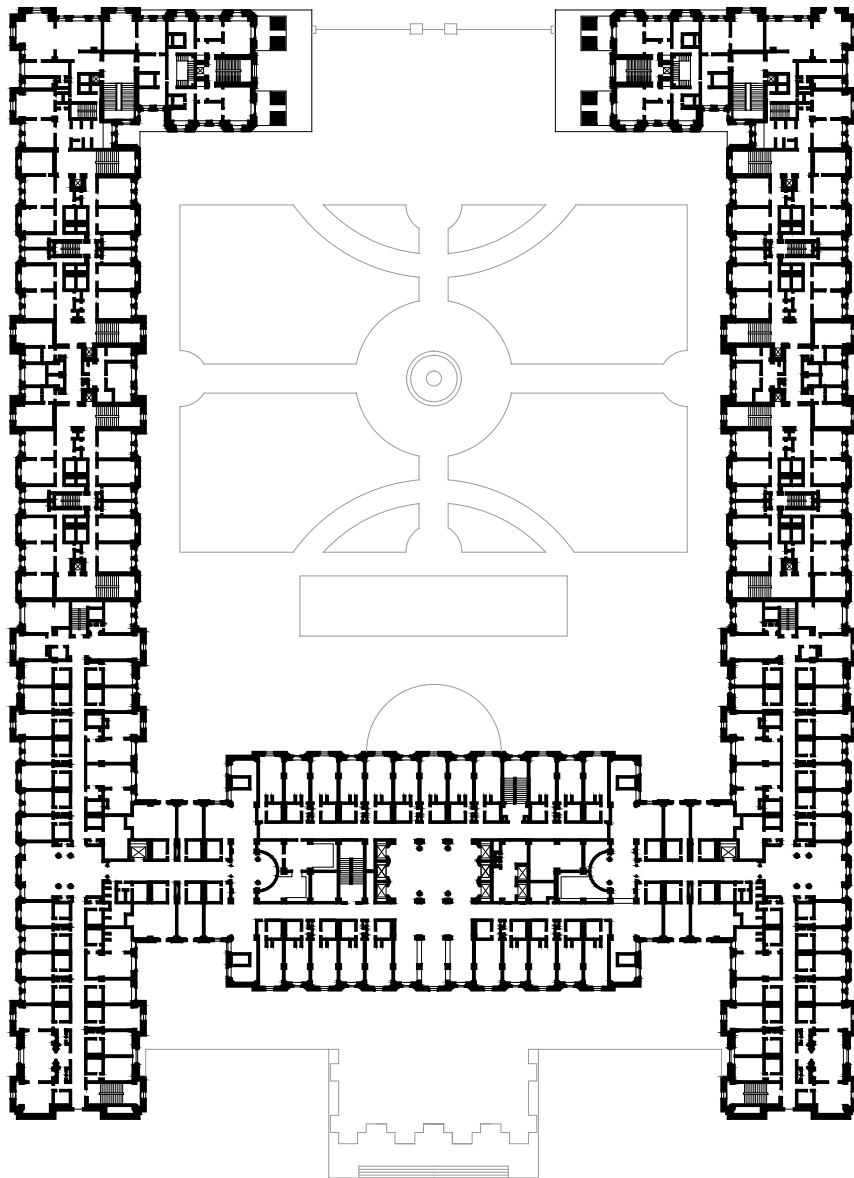
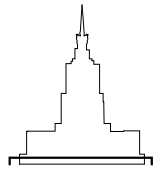
Hotel Ukraine and residential building  
on Dorogomilovskaya embankment

Hotel on Dorogomilovskaya embankment (Hotel Ukraina) (1949-1956). Height of building 170 m Authors: full members of Academy of architecture of USSR A.G. Mordvinov (1 prize of Stalin's award). Co-authors of the hotel project doctor of architecture V.K. Oltharzhevsky, of projects of residential buildings arc. V.G. Kalish. Main engineer P.A. Krasilnikov (1 prize of Stalin's award) I.A. Luchnikov. Architects who were in development of the project: M.V. Pershin, E.G. Mordvishev, V.A. Dubov, E.A. Stolyarov, S.F. Denisovsky, N.A. Surova, S.G. Kovikov; engineers N.A. Dikhovnichaya (construction system), B.N. Shumilin (metal construction), S.L. Gomberg (engineering equipment). B.V. Barkalov (conditioning and dust collecting), M.L. Samover (electrical equipment), E.V. Burke (telephonization, r a d i o p h i c a t i o n ) .





Hotel Ukraine and residential building  
on Dorogomilovskaya embankment

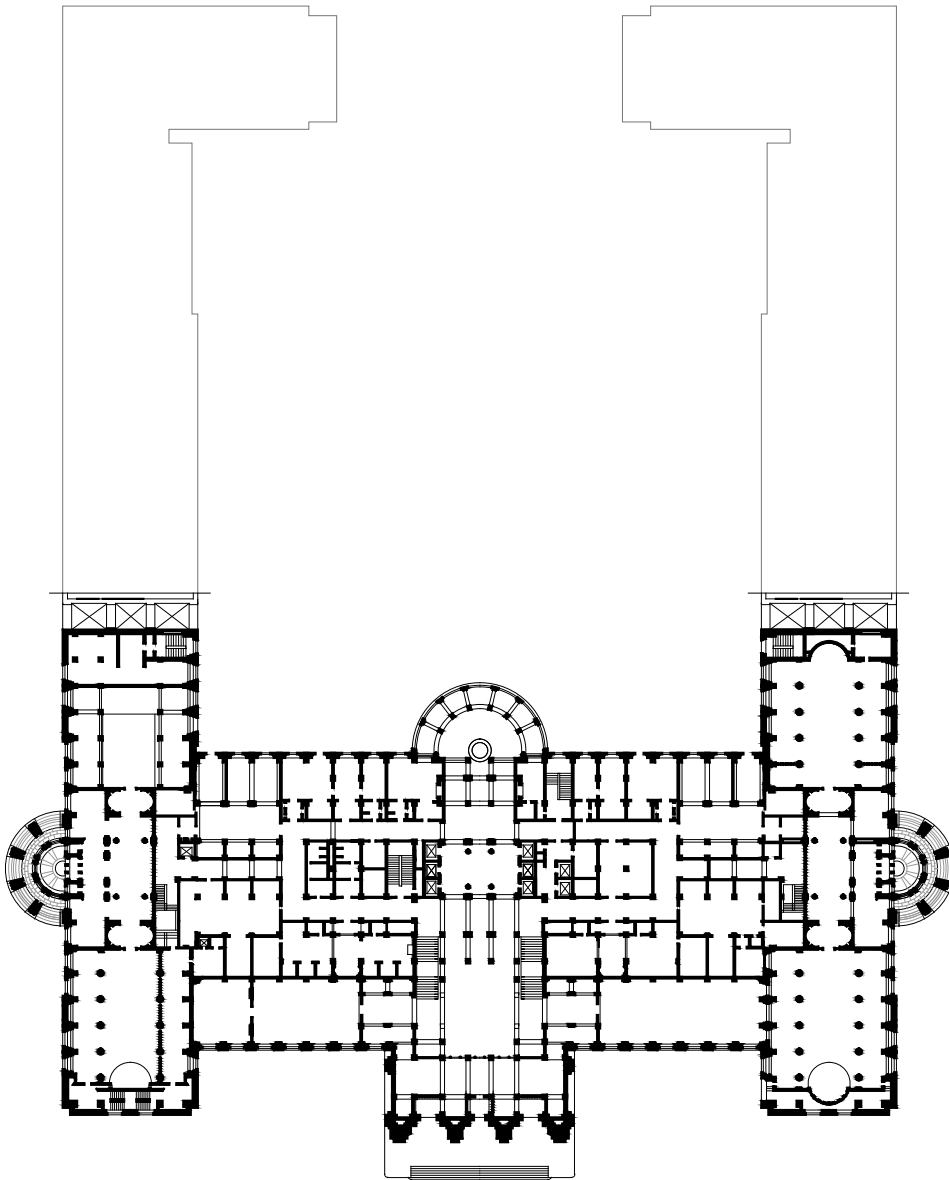
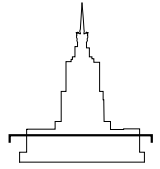


Planta sótano. Nivel -1  
Basement floor plan. Level - 1



0 25 50

Hotel Ukraine and residential building  
on Dorogomilovskaya embankment

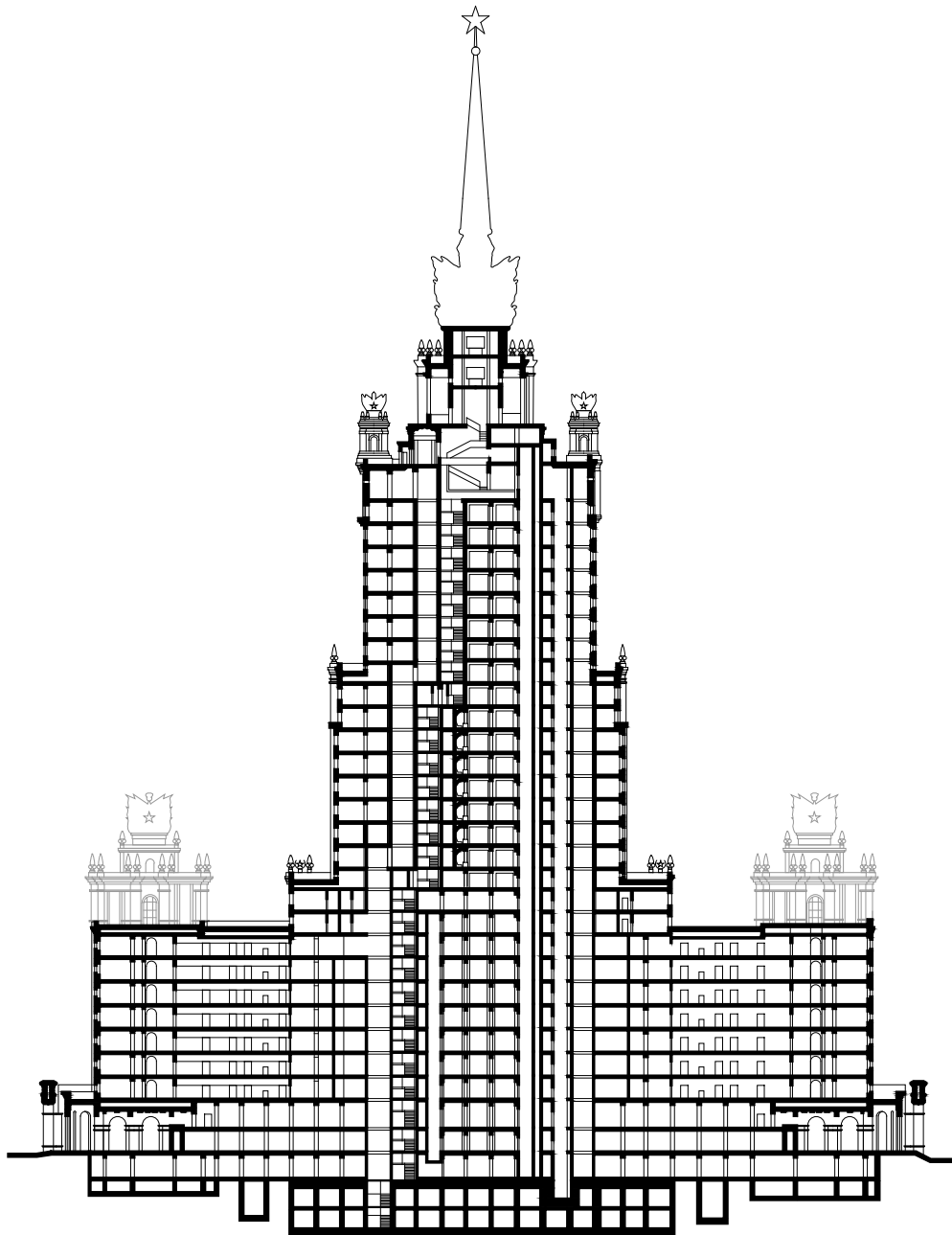
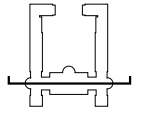


Planta baja  
Ground floor plan



0 25 50

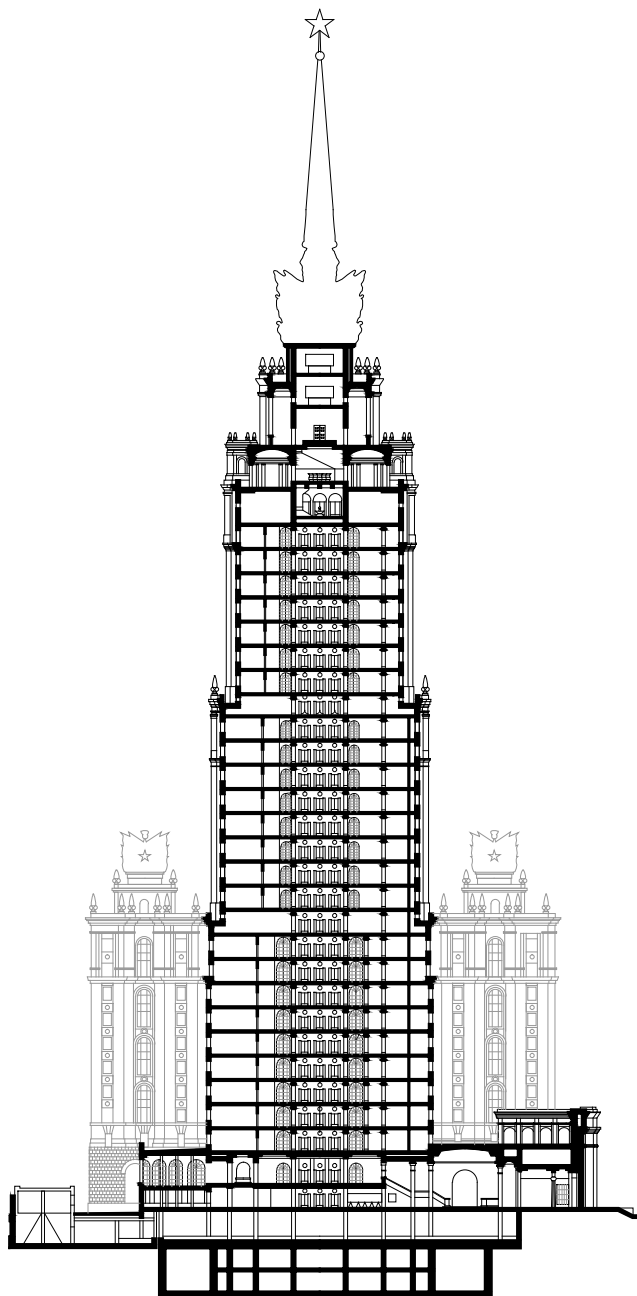
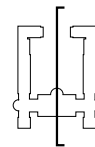
Hotel Ukraine and residential building  
on Dorogomilovskaya embankment



Sección longitudinal  
Longitudinal section

0 25 50

Hotel Ukraine and residential building  
on Dorogomilovskaya embankment



Sección transversal  
Cross section

0 25 50



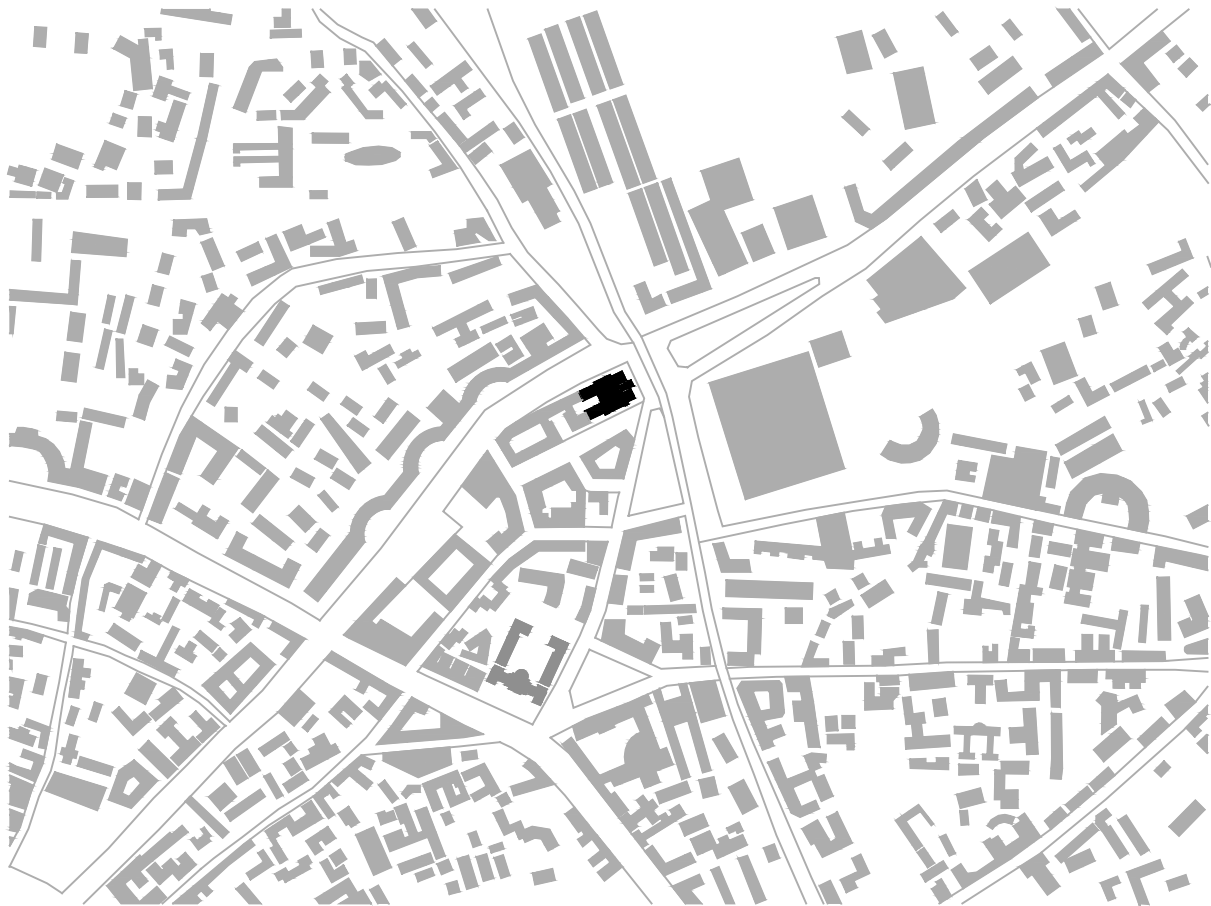
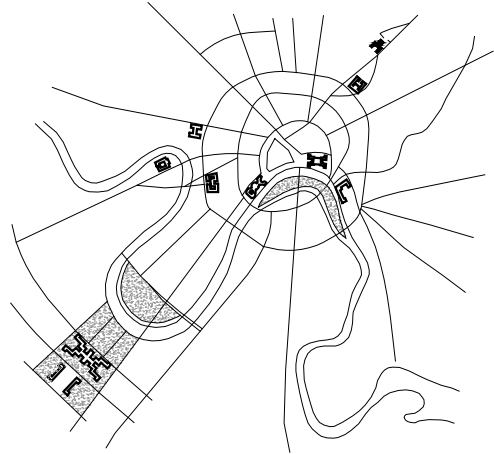
Hotel Leningrad on Komsomolskaya Square

Due to complex ground-water geology, during the building process of Leningradskaya Hotel, soil-freezing installation had to be used, and still, it was necessary to limit the height of the building. A central 19-storeyed pillar is squeezed between four 9-storeyed rectangular volumes. Also, the narrow building plot assigned to the project in the end of the elongated square which has defined a compact plan and a pronouncement of the vertical aspect of the construction. Building contains post office, reading room, savings bank, telegraph, a number of utility and administrative spaces, restaurant and canteen at the first floor. The bureau, main sitting room, and the hairdresser's salon are based on mezzanine floor. 2 - 17 floors house hotel rooms. The underground floor hosts numerous service facilities.

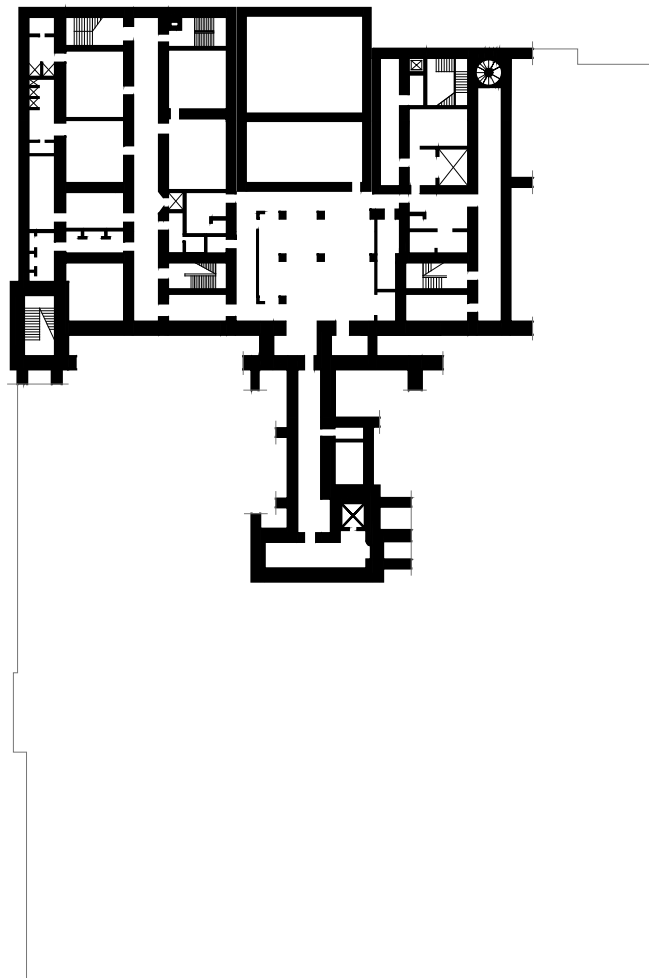
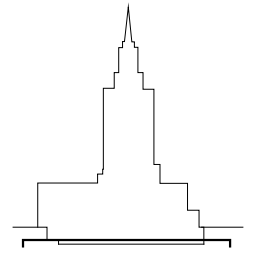
Planimetría de los Edificios Altos Administrativos de Moscú según la publicación original de 1951, encontrada en la Biblioteca del Parque VDNJ en Moscú.

## Hotel Leningrad on Komsomolskaya Square

Hotel on Komsomol'skaya Square (Hotel Leningradskaya) (1949-1952). Height of building 138 m Authors: full members of Academy of architecture of USSR L.M. Polyakov (2 prize of Stalin's award) and arc. A.B. Boretsky (2 prize of Stalin's award). Main engineer E.V. Matluk. Architects who were in development of the project: A.S. Rochegov, A.S. Obraztsov, M.A. Engel'ke, G.U. Askinazi, T.F. Pankova, Z.I. Rusanova, S.V. Stolyarov, L.Y. Yakusheva; engineers R.P. Morozov, A.N. Stroganov, K.K. Vitsrimer.



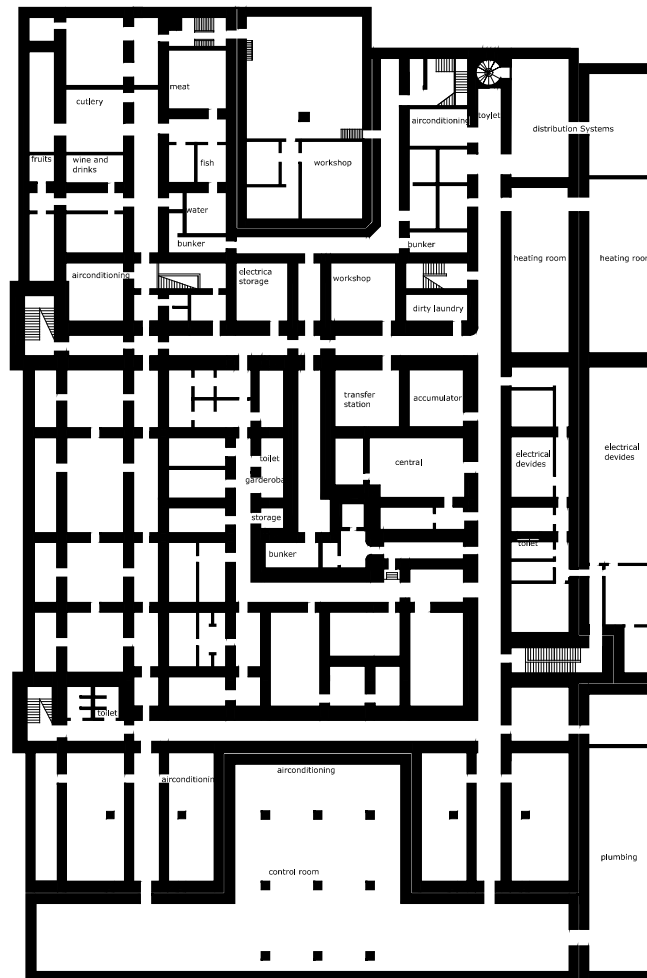
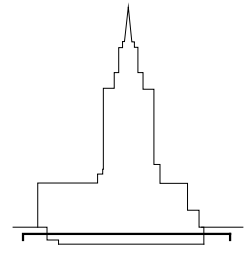
Hotel Leningrad on Komsomolskaya Square



Planta sótano. Nivel -2  
Basement floor plan. Level -2



Hotel Leningrad on Komsomolskaya Square

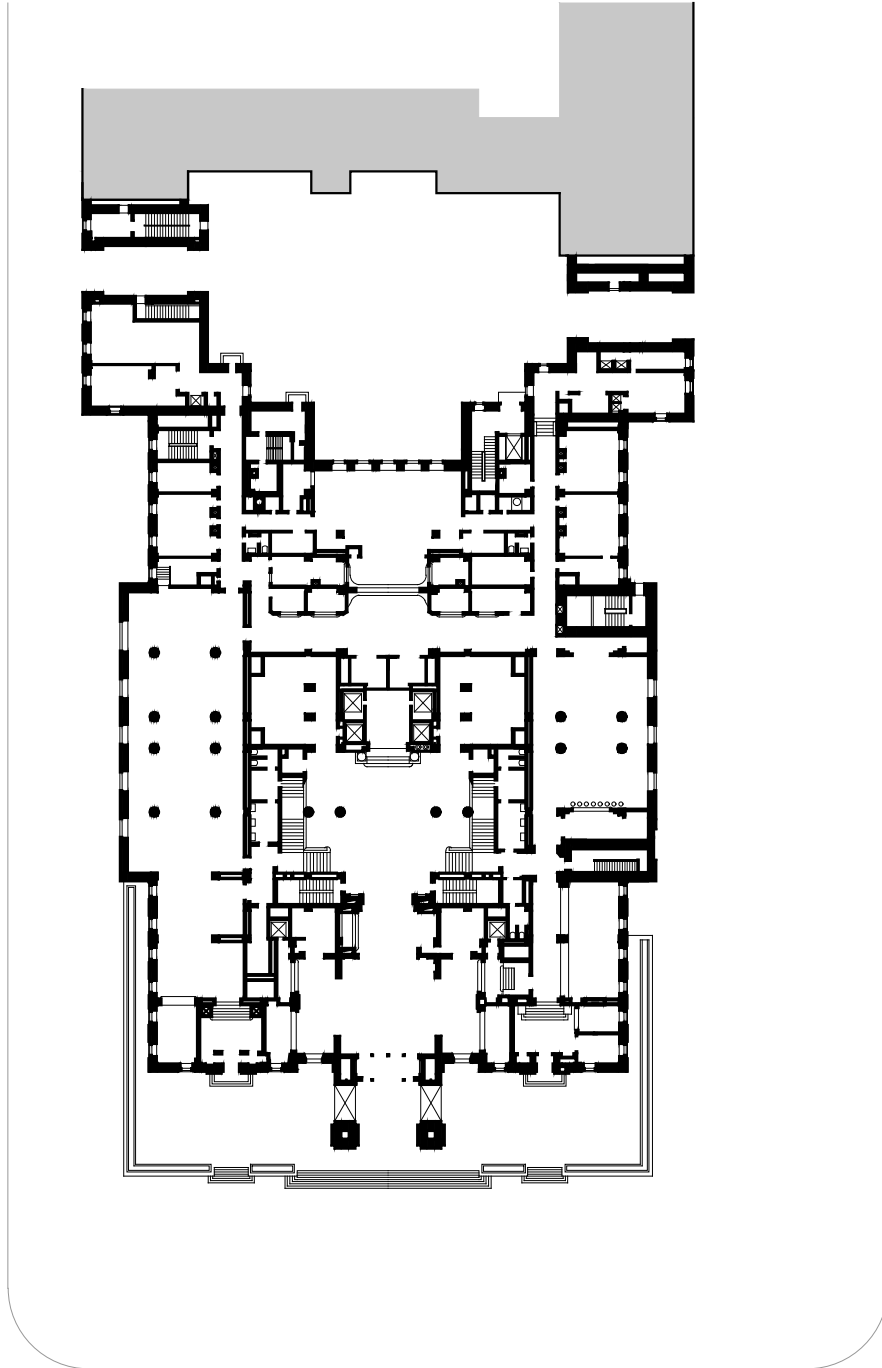
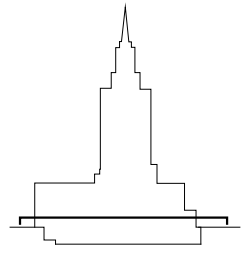


Planta sótano. Nivel -1  
Basement floor plan. Level -1





Hotel Leningrad on Komsomolskaya Square

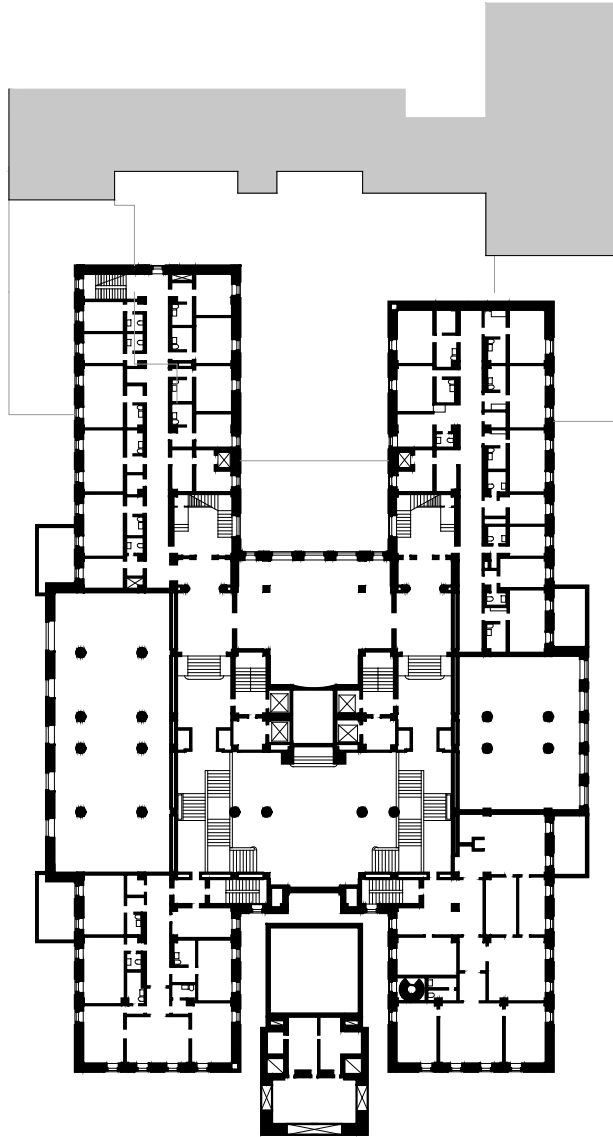
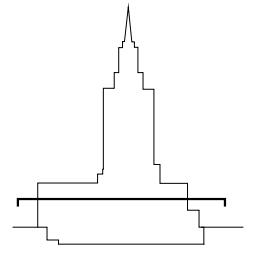


Planta Baja  
Ground floor plan



0 25 50

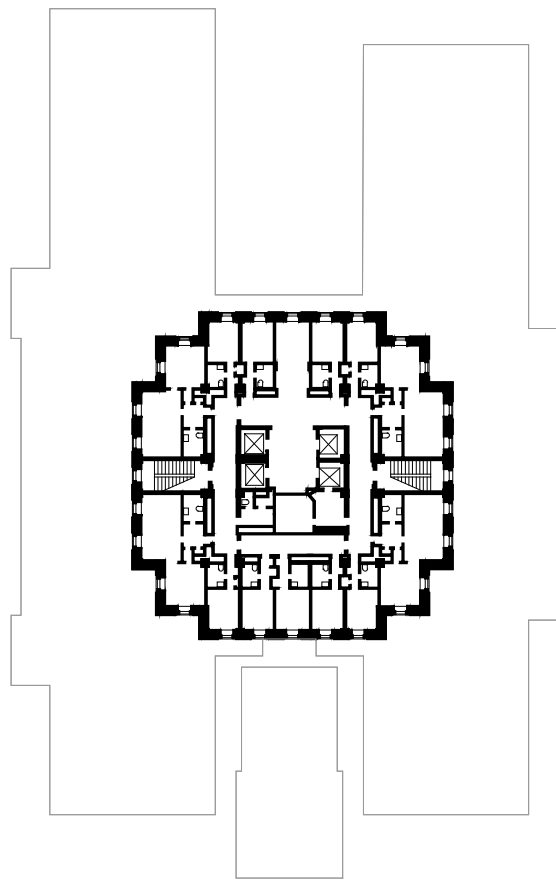
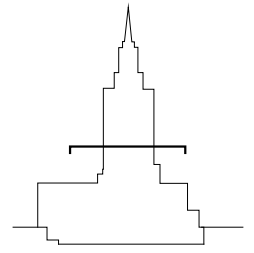
Hotel Leningrad on Komsomolskaya Square



Planta. Nivel +5  
Floor plan. Level +5



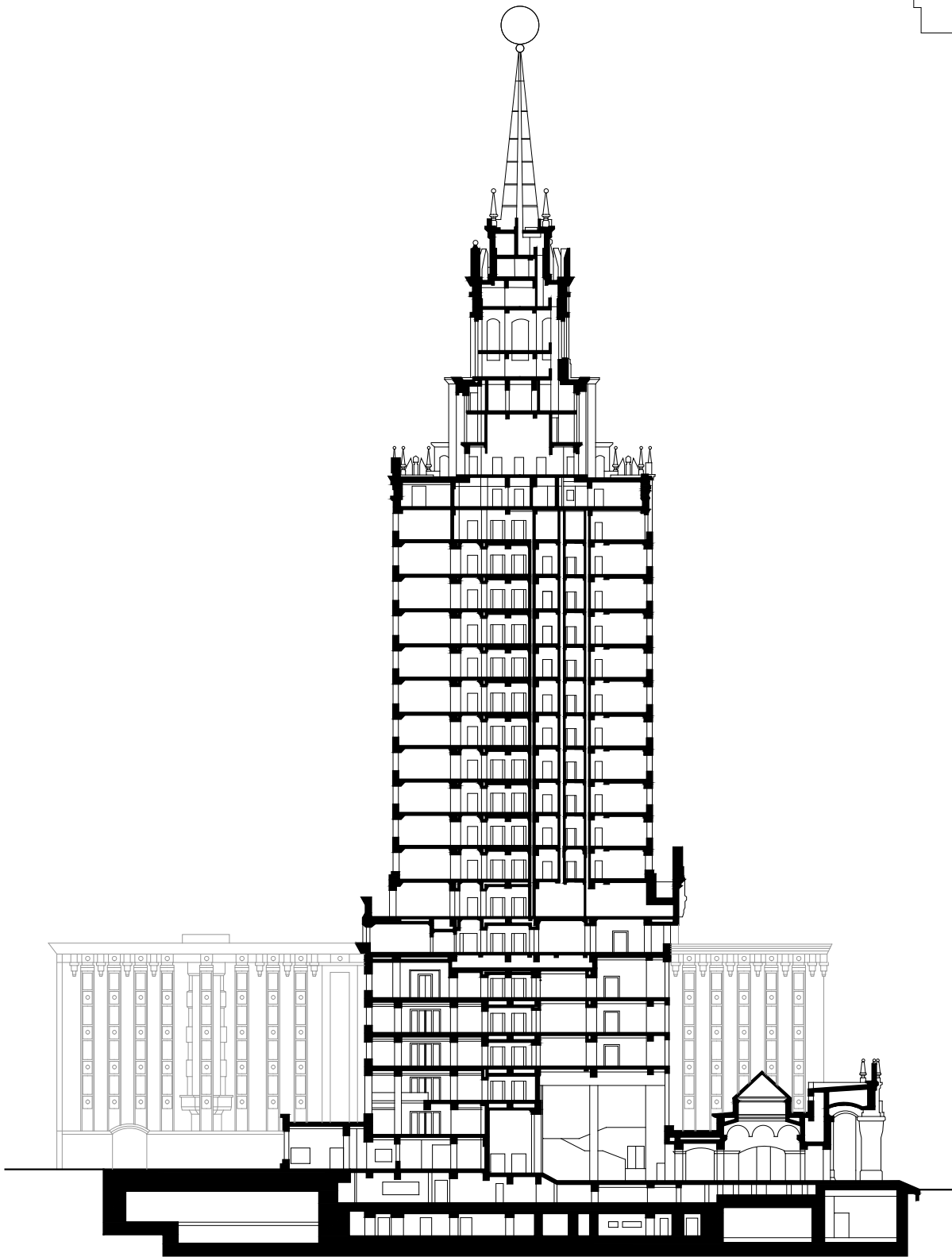
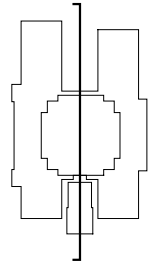
Hotel Leningrad on Komsomolskaya Square



Planta. Nivel +12  
Floor plan. Level +12



Hotel Leningrad on Komsomolskaya Square




Sección longitudinal  
Longitudinal section



## Residential building on Vosstania Square

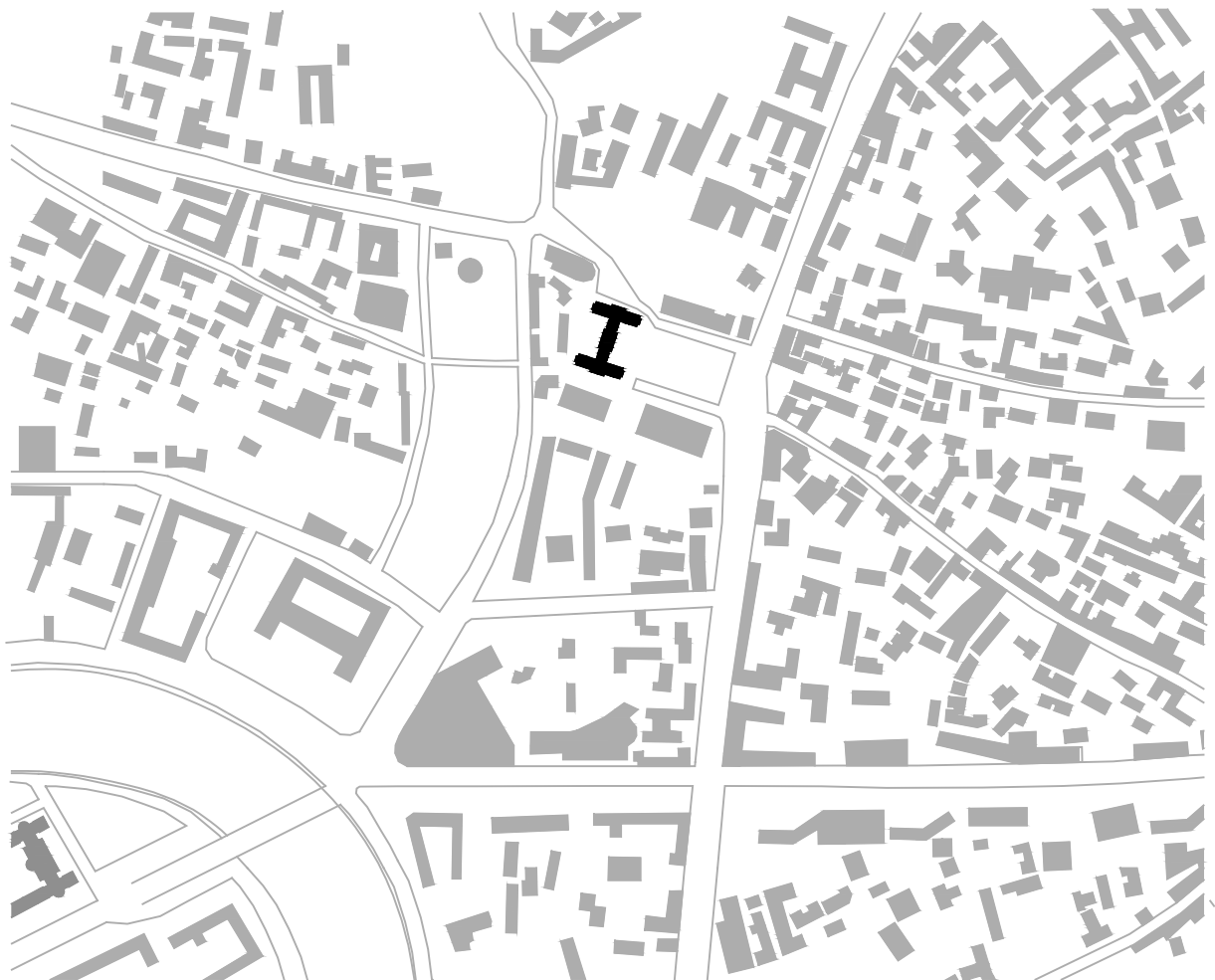
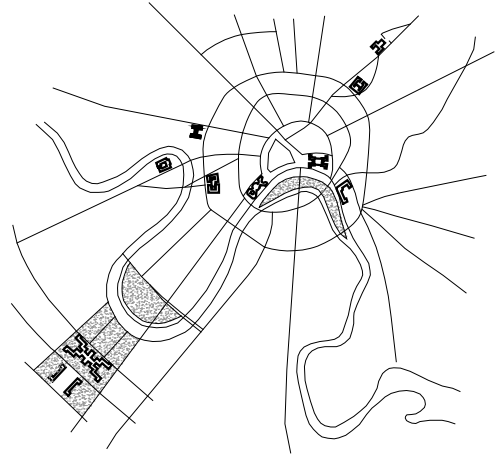
According to the original project, this residential house had to be most humble one of Moscow sisters. But it had grew up from 16 to 26-storeyed building and became proper multi-purpose complex. The relief of the site required a special stylobate to "hold" the building. Two and three-room planned flats are accompanied by grocery sores, service centers, cinema, banks and garages with impressive interiors. A public garden is laid in front of the facade, facing the Garden- ring road, the landscape design of the garden and the very plan of the Vosstaniya square formed part of projected specification. The construction system is precast reinforced concrete. The walls are filled with perforated bricks



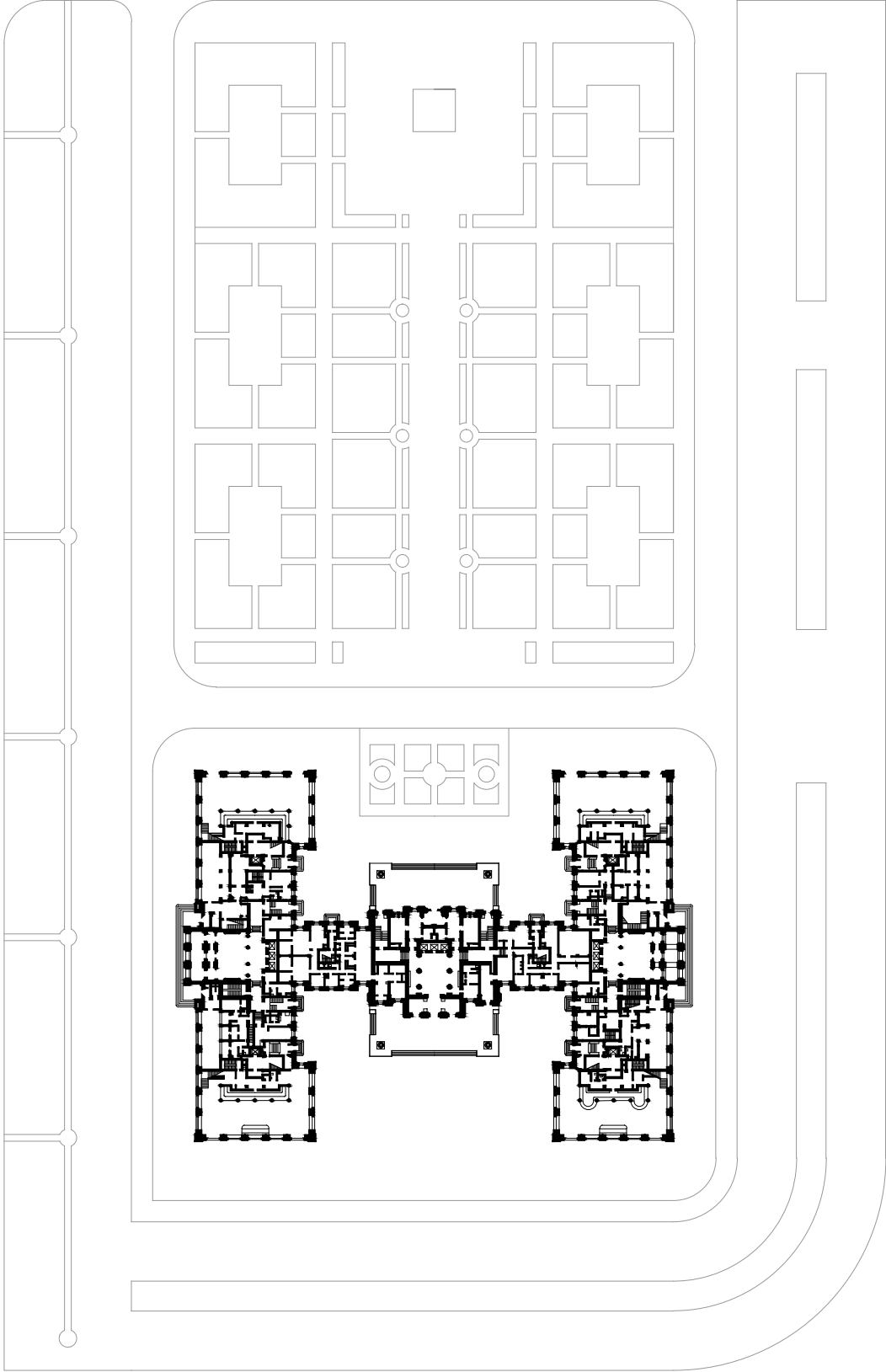
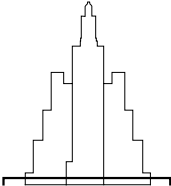
Planimetría de los Edificios Altos Administrativos de Moscú según la publicación original de 1951, encontrada en la Biblioteca del Parque VDNJ en Moscú.

## Residential building on Vosstania Square

Residential building on Kudrinskaya Square  
(previous name - Vosstaniya Square)  
(1949-1954) Height of building 159 m  
Authors: member-correspondent of Academy of  
architecture USSR M.V. Posokhin (2 prize of  
Stalin's award) and arc. A.A. Mndoyants (2  
prize of Stalin's award). Main engineer  
M.N. Vokhovsky. Architects who were in  
development of the project: U.V. Popov,  
N.M. Shchepetilnikov, A.V. Moiseev, N.A.  
Ushakov, V.I. Romanov, Y. E. Zislin, B.M.  
Zemler, V.A. Vasiliev, R.Y. Zakharyan;  
engineers S.I. Arkhipov, A.M. Fedoseeva,  
L.S. Mejekova, T.M. Lachinova, engineers of  
sanitary engineering: I.A. Nikolayevskaya,  
V.I. Mikhaylovsky, M.A. Gnidchin.



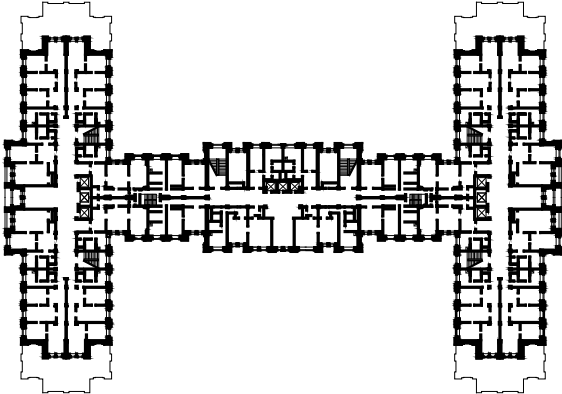
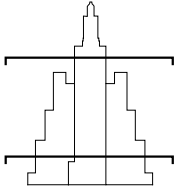
Residential building on Vosstania Square



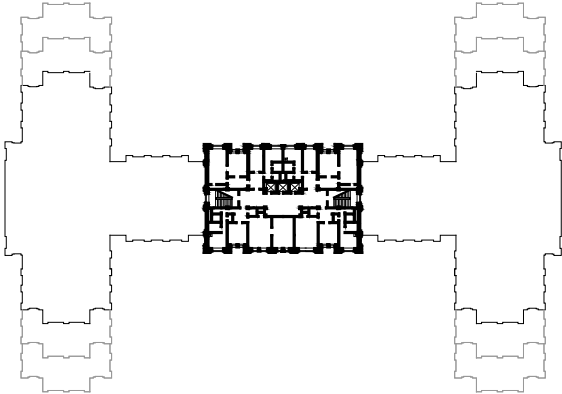
Planta baja  
Ground floor plan.



Residential building on Vosstania Square



Planta. Nivel +8  
Floor plan. Level +8

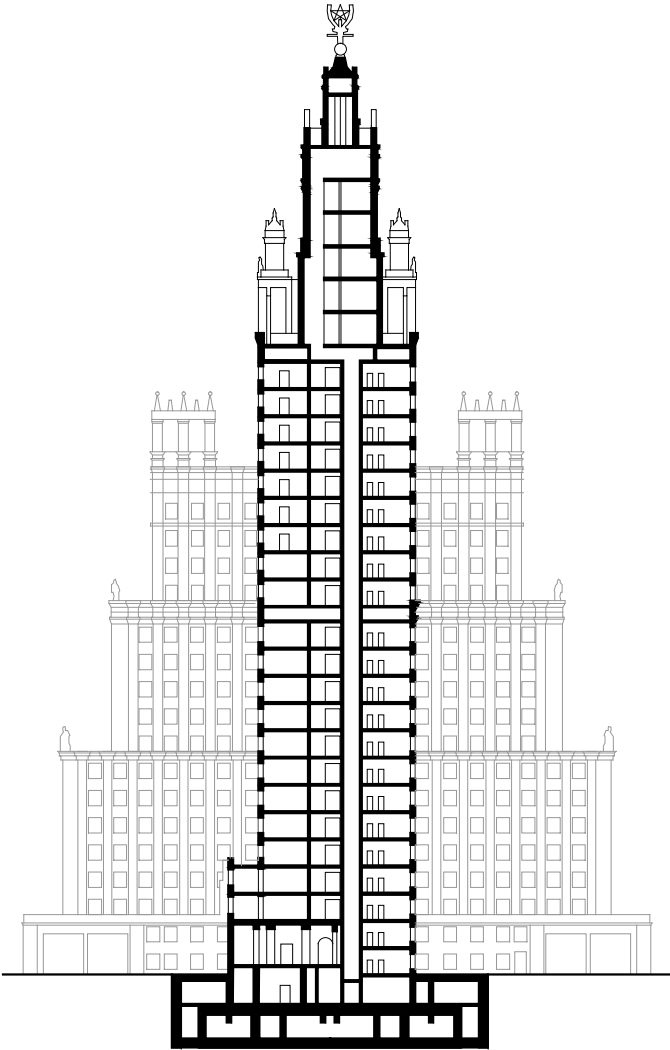
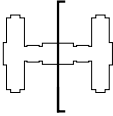


Planta. Nivel +20  
Floor plan. Level +20





Residential building on Vosstania Square



Sección transversal  
Cross section



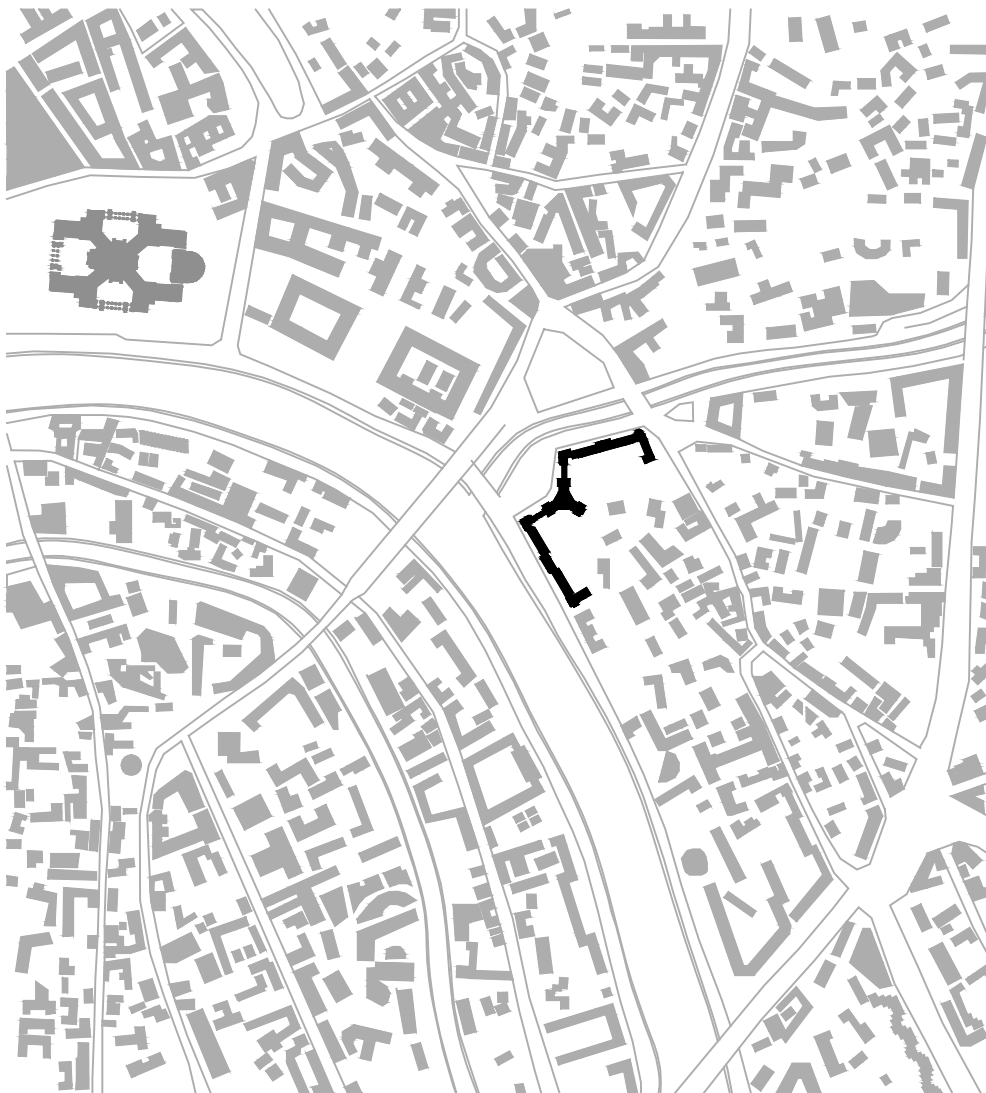
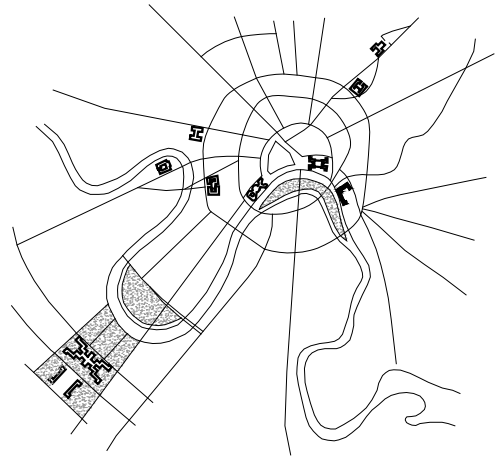


Residential building on Kotelnicheskaya

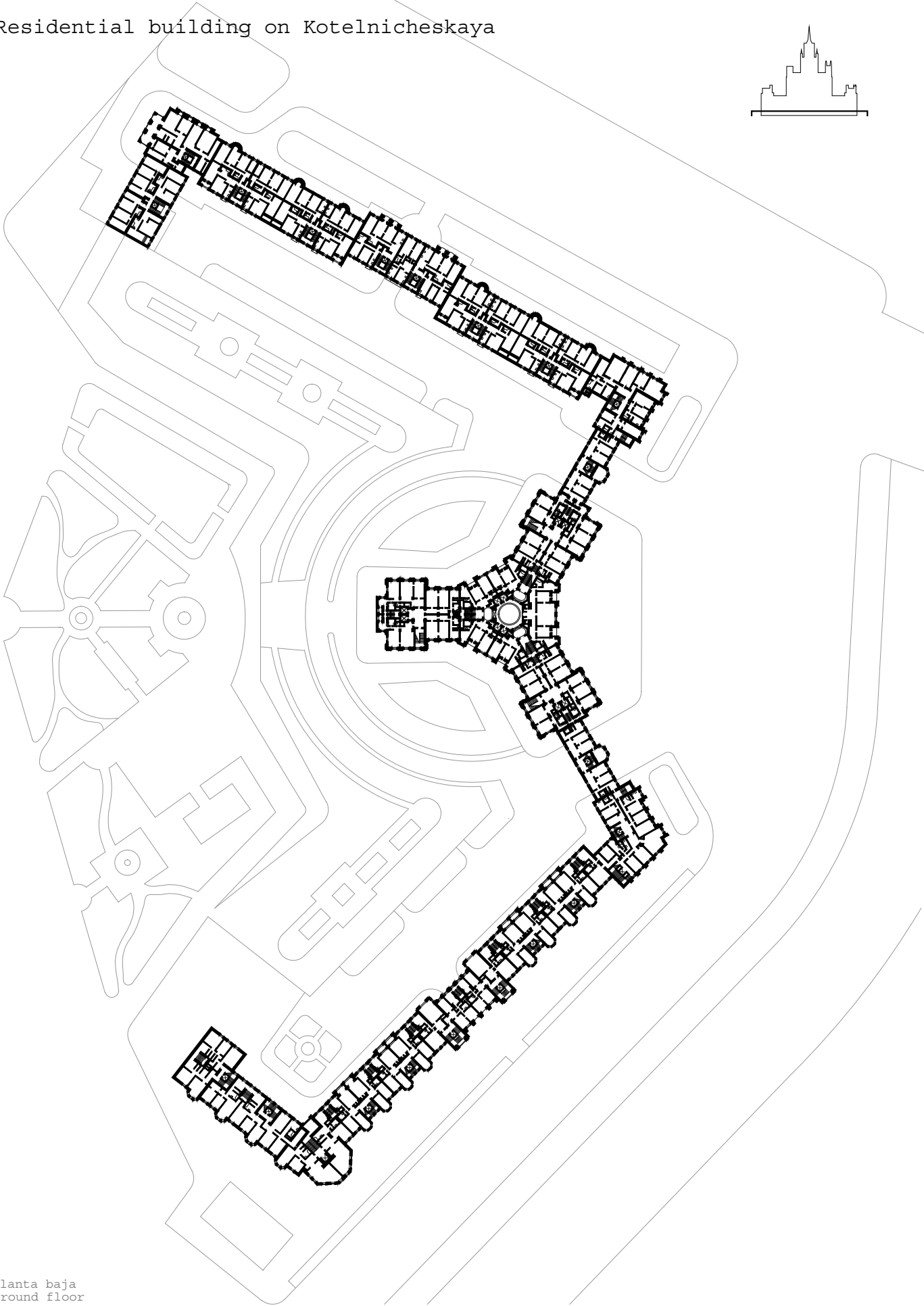
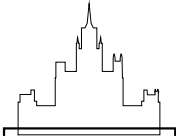
When idea of eight highrise buildings construction was made, it was logical to put Zaryadye office building and residential building for employees close to each other. That is how this building ended a the spectacular site by the Ustayinsky bridge and a Moscow river bend. Along the vertical axis, the building is divided into five tiers, each of them springs upwards with numerous decorations details. The basement is stoned in granite, accommodate shops, service centers and cinema theater. The structure is steel frame with rigid armature.

## Residential building on Kotelnicheskaya

Residential building on Koteln'nicheskaya embankment (1949-1952)  
Height of building 176 m Authors: full members of Academy of architecture of USSR D.N. Chechulin (2 prize of Stalin's award) and architect A.K. Rostkovsky (2 prize of Stalin's award). Main engineer L.M. Gokhman. Architects who were in development of the project: I.A. Chikalin, A.F. Strigin; engineers U.A. Dikhovichny, L.A. Muromets, P.A. Spishnov, L.I. Ochkin, U.E. Ermakov, D.S. Kosarev, G.V. Mirer, S.G. Perepelitskiy.



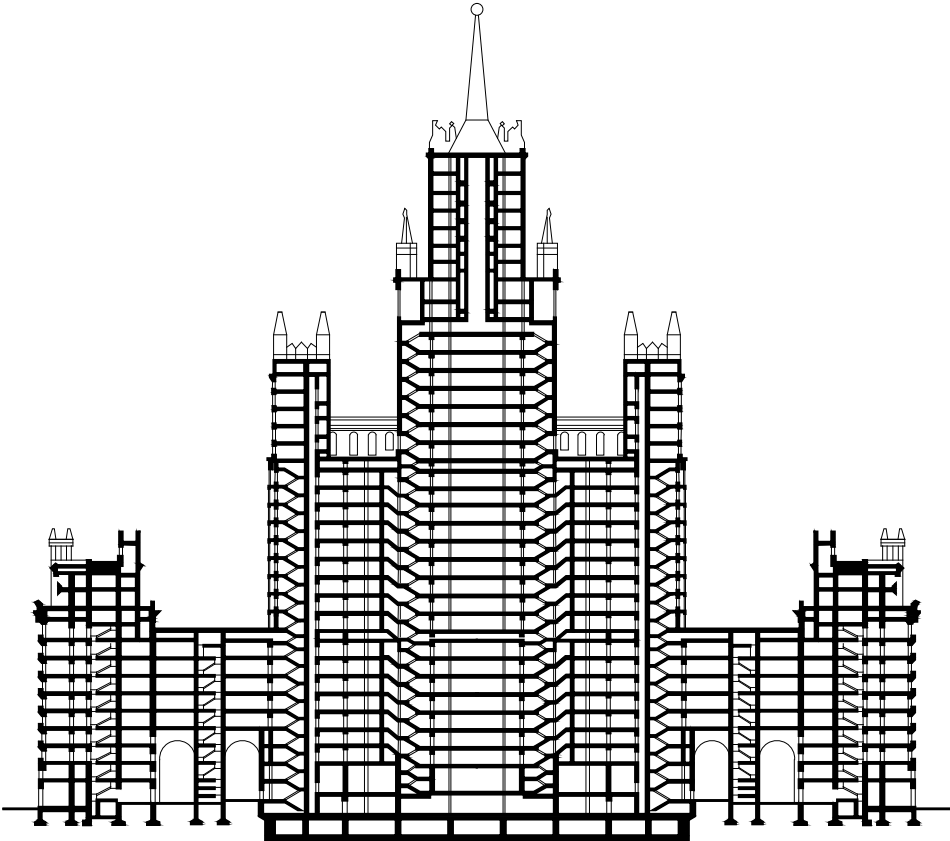
Residential building on Kotelnicheskaya



Planta baja  
Ground floor



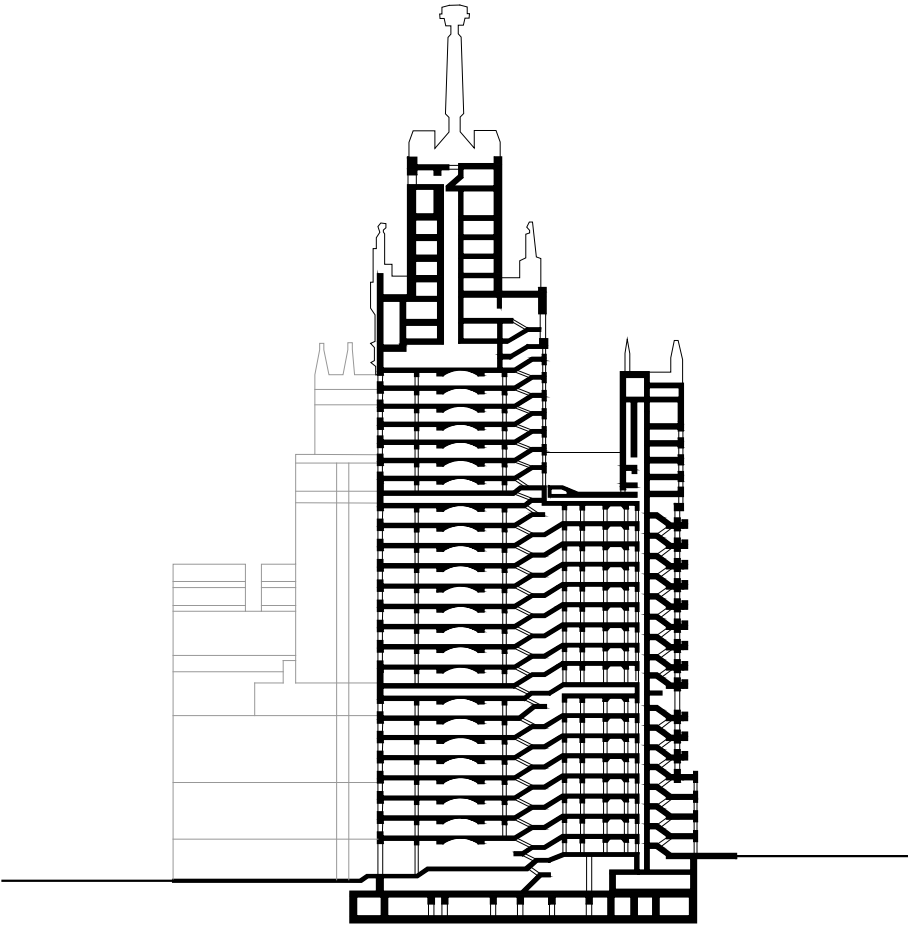
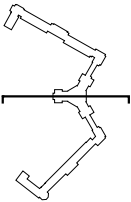
Residential building on Kotelnicheskaya



Sección Longitudinal  
Longitudinal section




Residential building on Kotelnicheskaya



Sección transversal  
Cross section

0 25 50

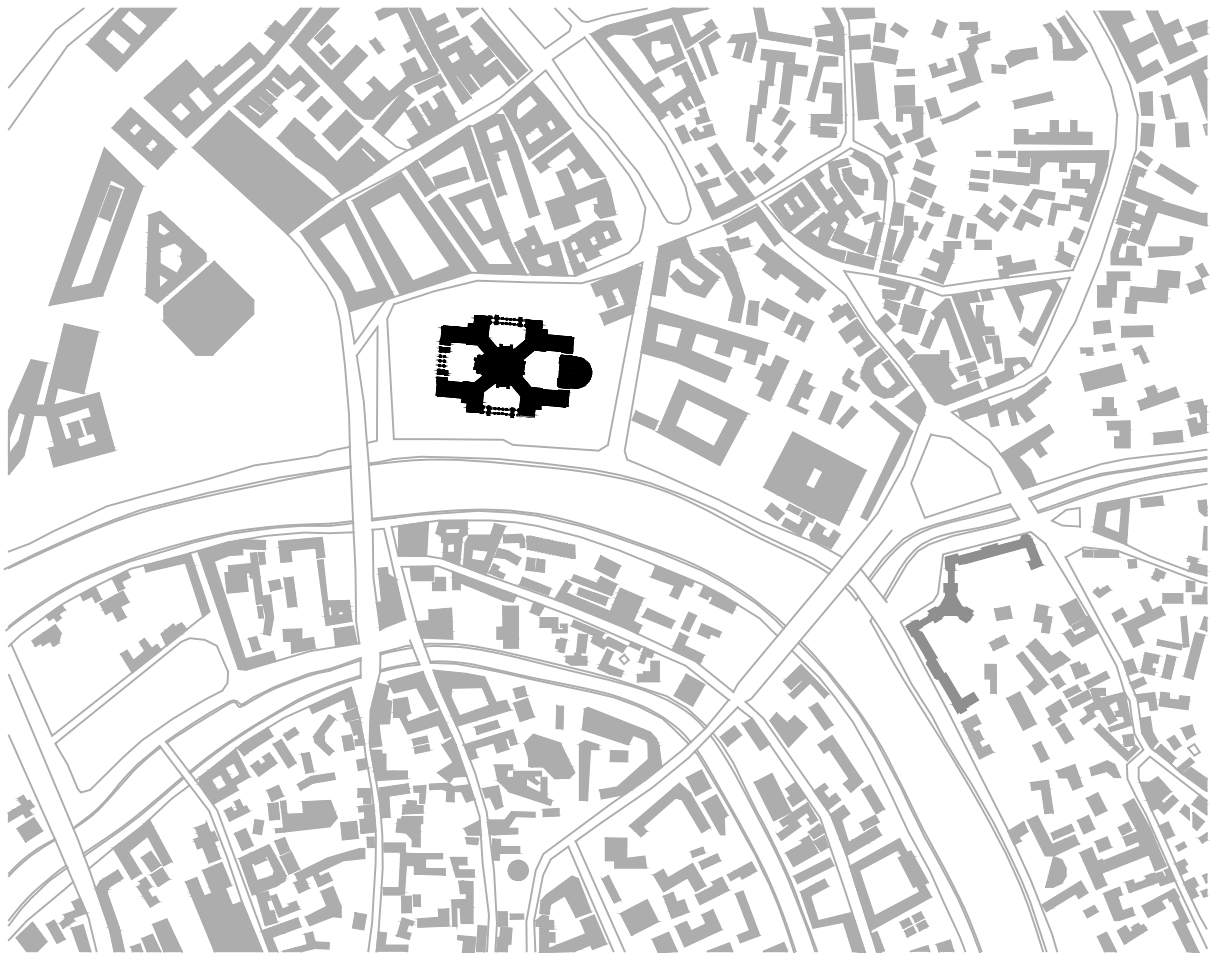
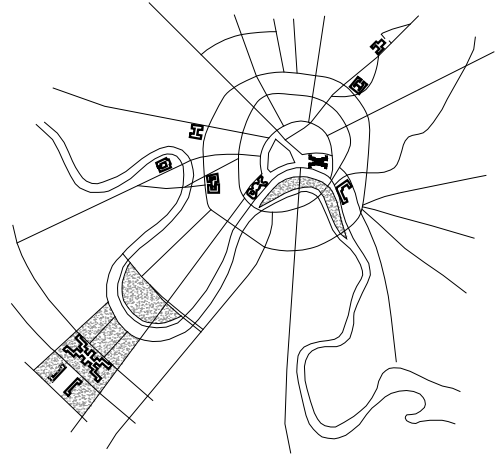


Administrative building on Zaryadye

The site in Zaryadye that in the 1930 was meant for people's Commissariat of Heavy Machine Industry was handed over to the Ministry of Interior and Ministry of State Security. The plan is a system of diagonal volumes with elevators situated at their intersection with the main facade oriented to the Red Square. The stylobate was supporting a powerful square-section pillar supported by smaller square towers in the corners. The project faced extremely hard conditions of the site (close to Kremlin) and demanded significant preparations (demolition of historic Zaryadye and fortification of Moscow river). Zaryadye building was never finished.

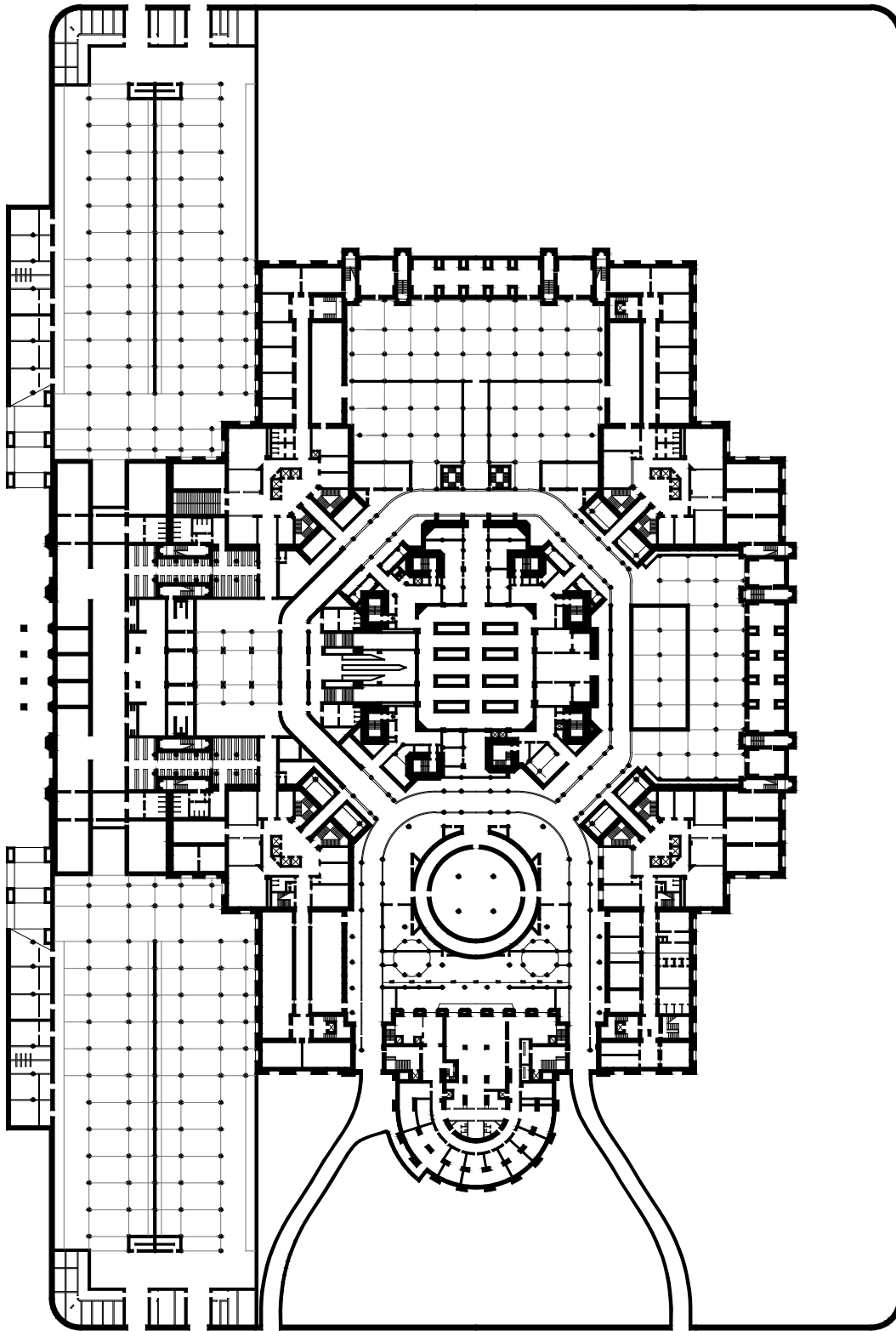
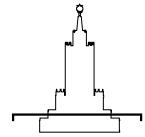
## Administrative building on Zaradiye

Administrative building in Zaradiye.  
Not built. Height of building 275 m  
Authors: full members of Academy of  
architecture of USSR D.N. Chechulin  
(1 prize of Stalin's award). Main  
engineer I.M. Tigranov (1 prize of  
Stalin's award). Architects who  
were in development of the project:  
A.F. Tarkhov, M.I. Bogolepov, A.V.  
Argo, L.F. Naumcheva, N.A.  
Kuznetsova, I.A. Sineva, U.S.  
Chuprinenko, eng. U.E. Ermakov.





Administrative building on Zaradiye

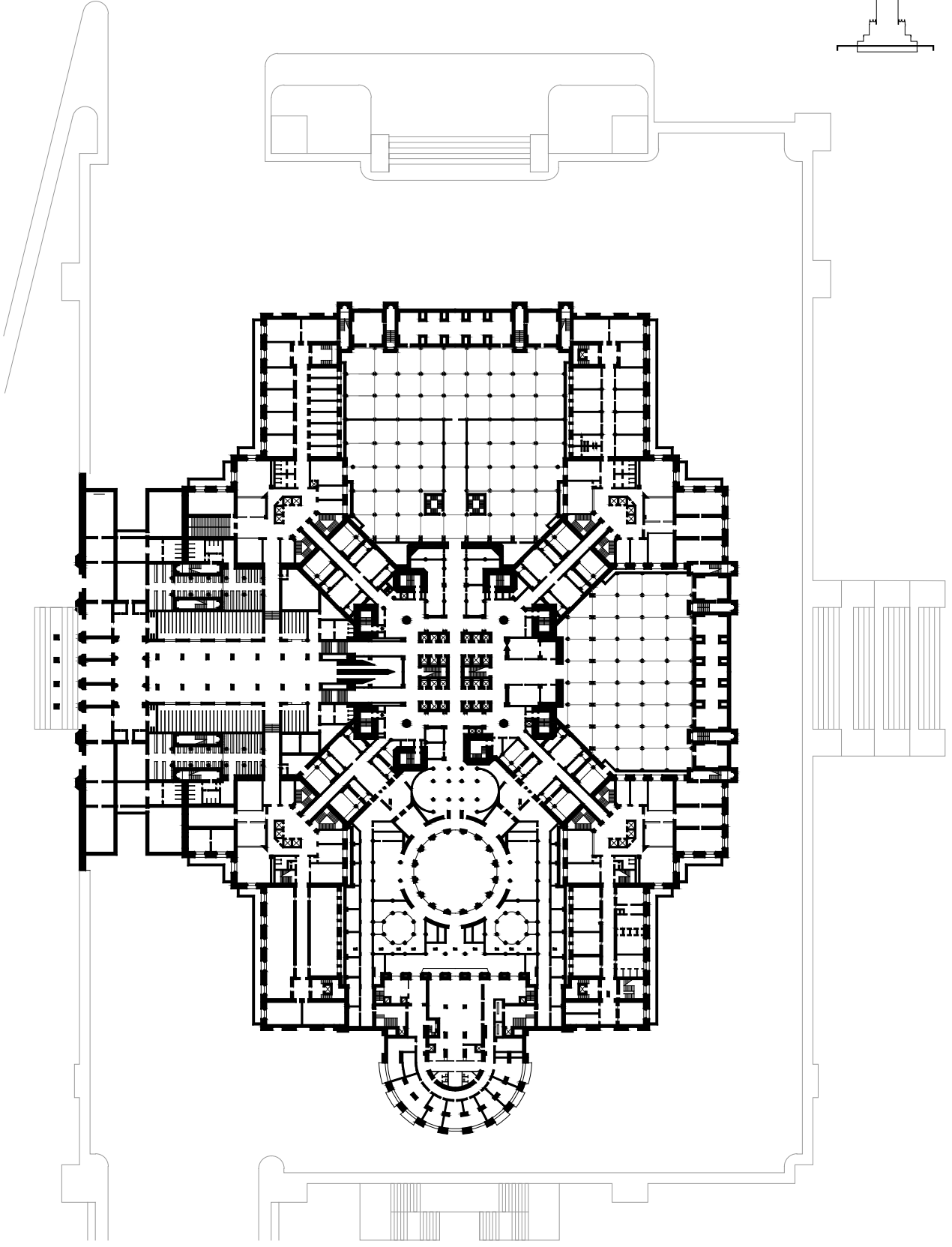
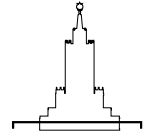


Planta sótano. Nivel -2  
Basement floor plan. Level -2



0 25 50

Administrative building on Zaradiye

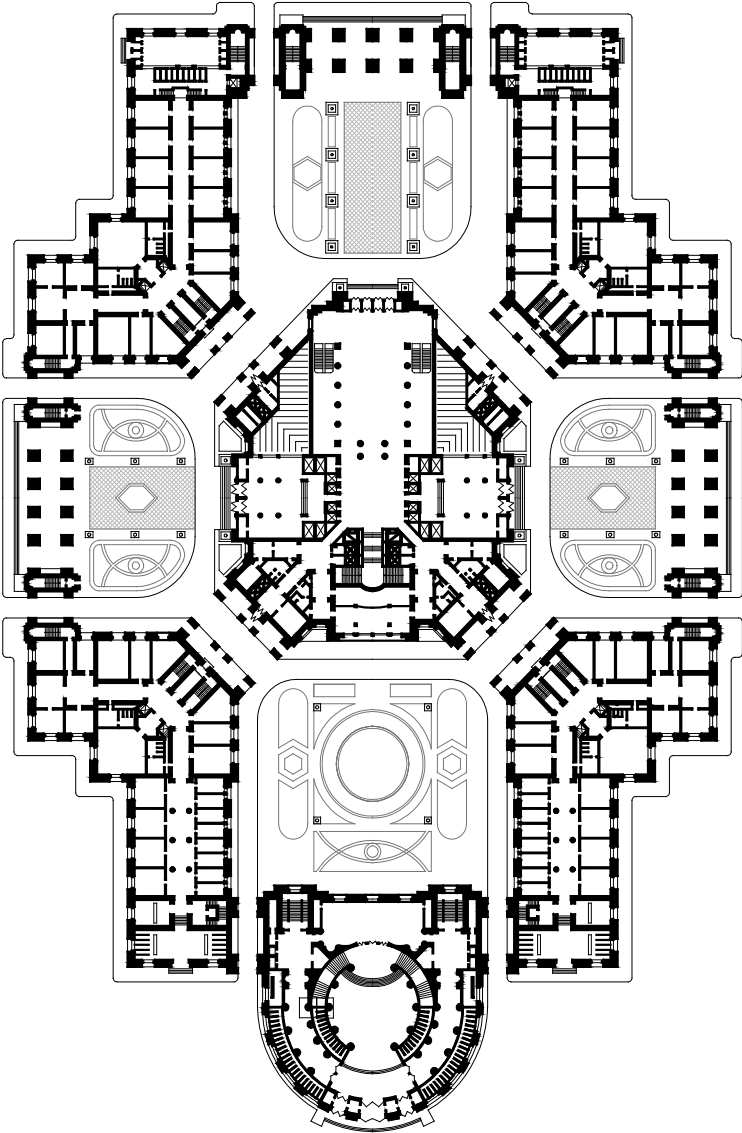
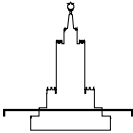


Planta sótano. Nivel -1  
Basement floor plan. Level -1



0 25 50

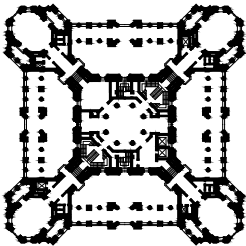
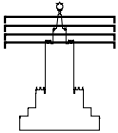
Administrative building on Zaradiye



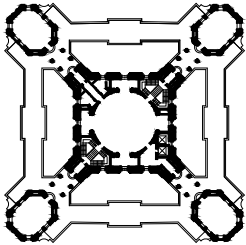
Planta baja  
Ground floor plan



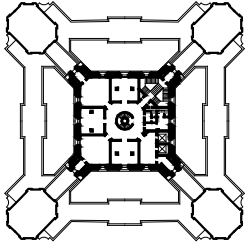
Administrative building on Zaradiye



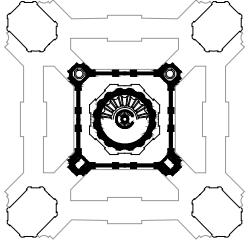
Planta. Nivel +37  
Floor plan. Level +37



Planta. Nivel +38  
Floor plan. Level +38



Planta. Nivel +40  
Floor plan. Level +40

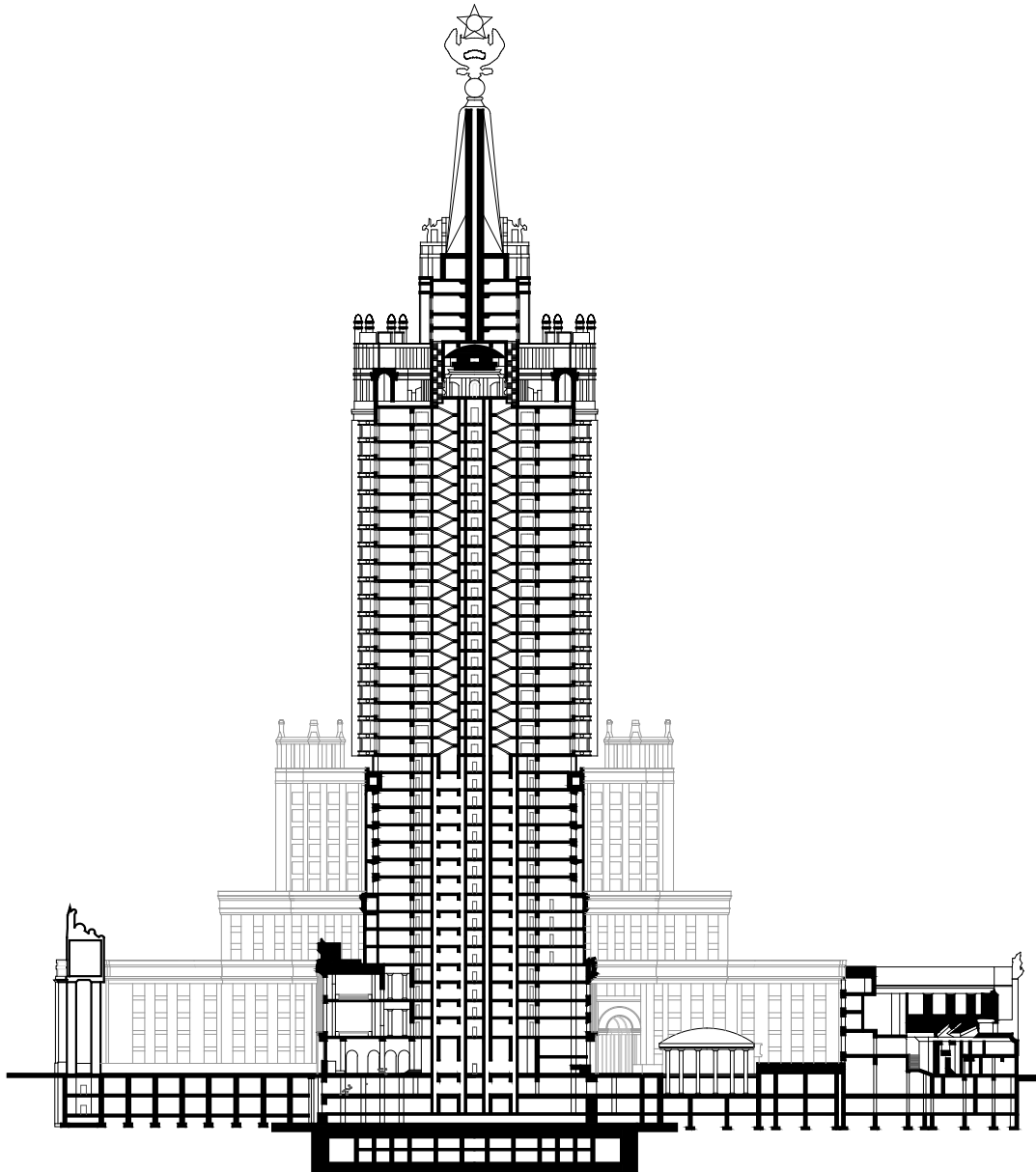
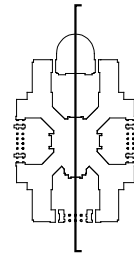


Planta. Nivel +45  
Floor plan. Level +45



0 25 50

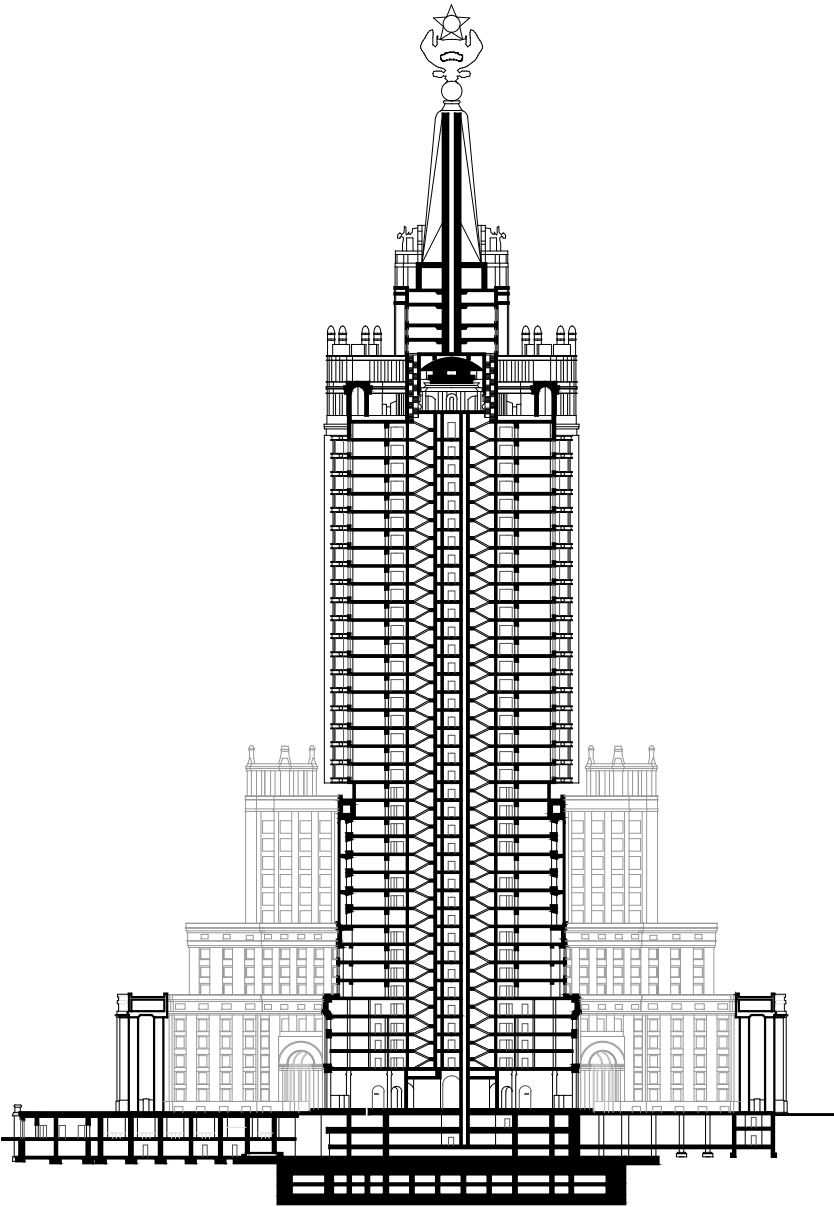
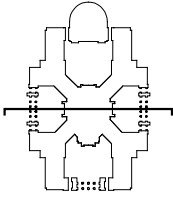
Administrative building on Zaradiye



Sección longitudinal  
Longitudinal section

0 25 50

Administrative building on Zaradiye



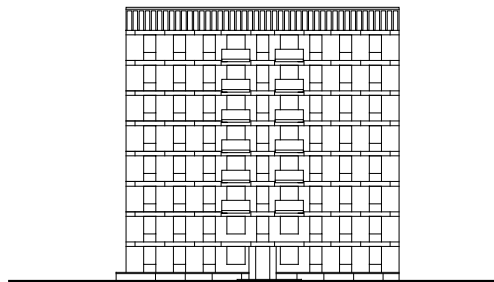
Sección transversal  
Cross section



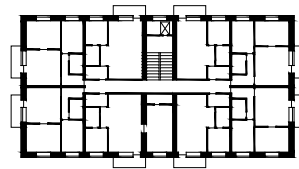
∞ - PREFABRICATED TOWER

# Khrushchyovka tower

1958-1976



Alzado  
Elevation



Planta tipo  
Floor plan type

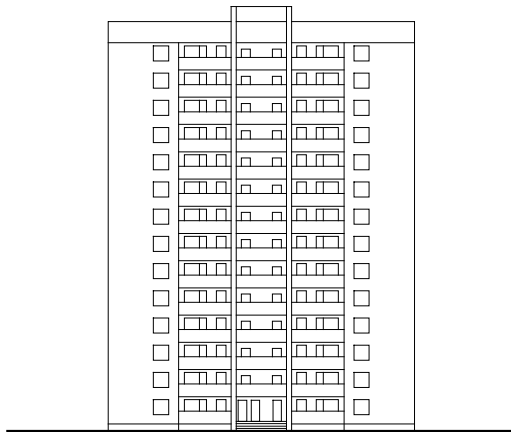




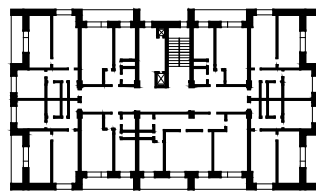
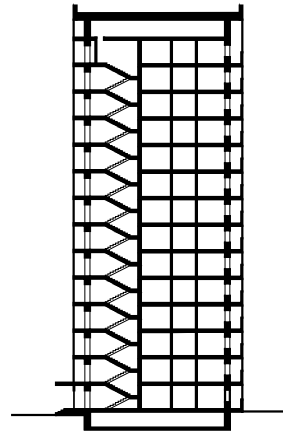
# Brick tower

1967-1985

Alzado  
Elevation



Sección  
Section

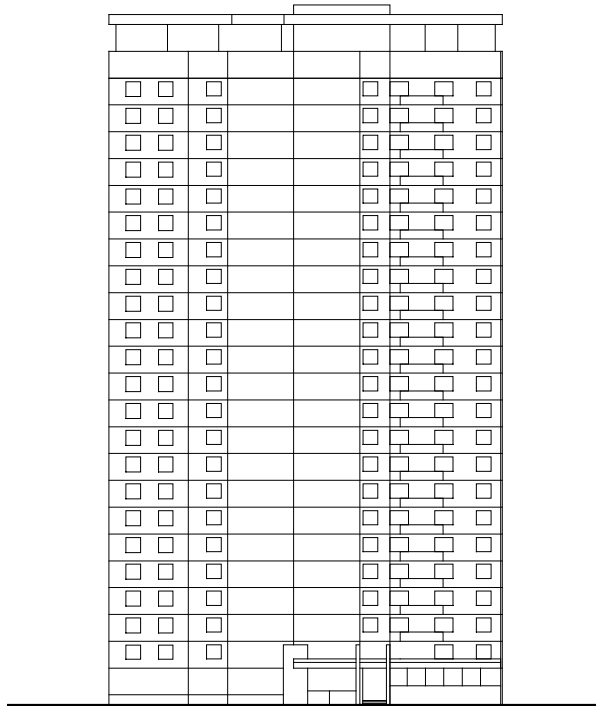


Planta tipo  
Floor plan type

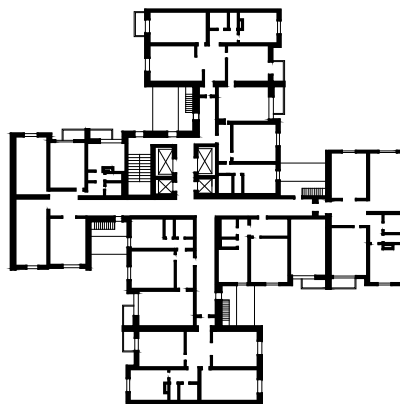


P4 tower

1975-1994



Alzado  
Elevation

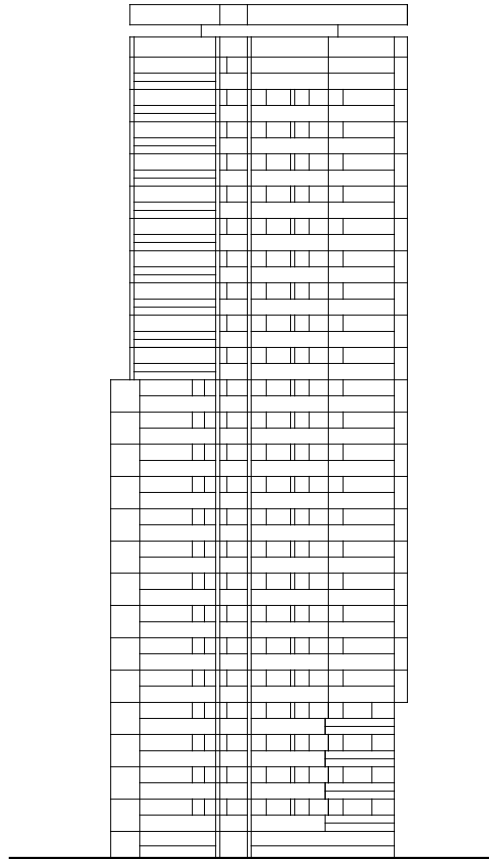


Planta tipo  
Floor plan type

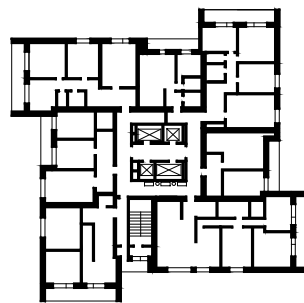


I-521-A tower

1974-1994



Alzado  
Elevation



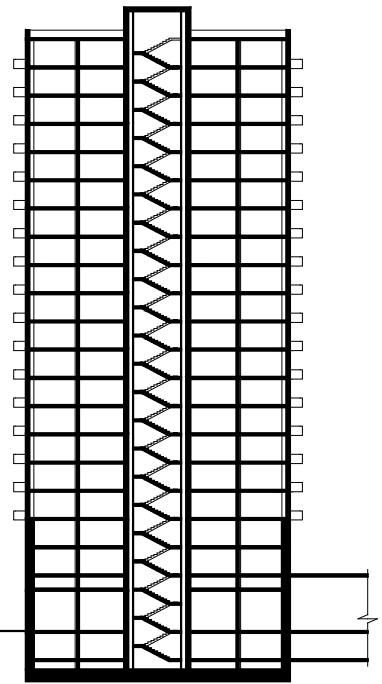
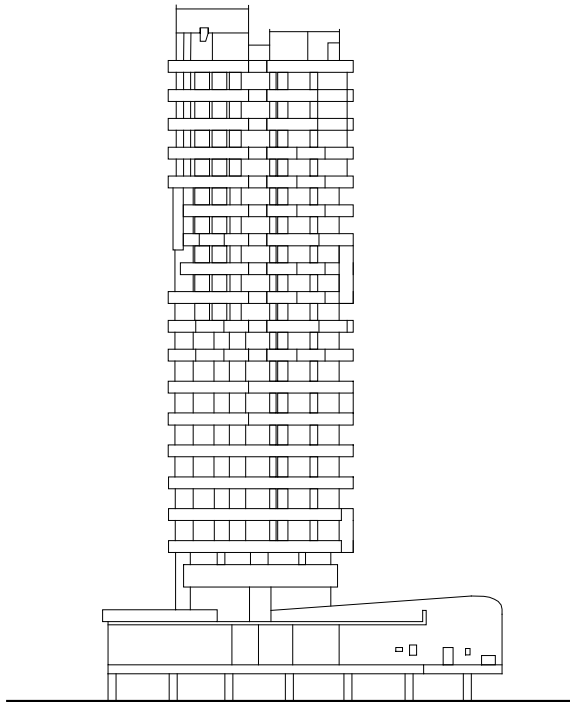
Planta tipo  
Floor plan type



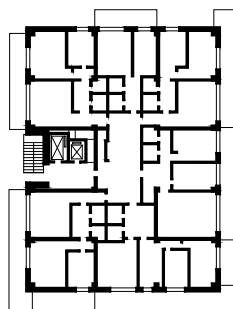
# Lebed tower

1972-1977

Alzado  
Elevation



Sección  
Section

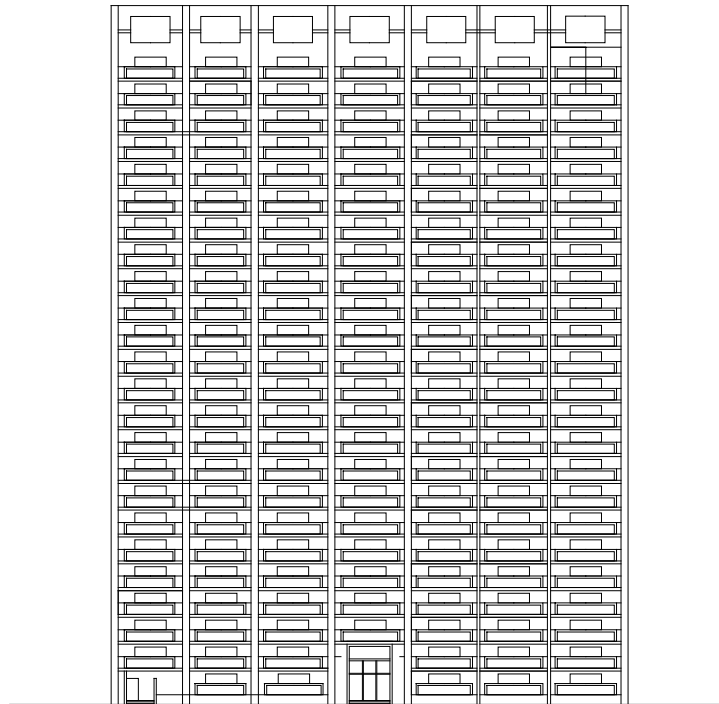


Planta tipo  
Floor plan type

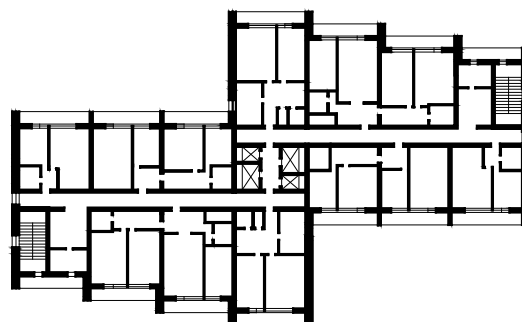


I-700-A tower

1977-1994



Alzado  
Elevation

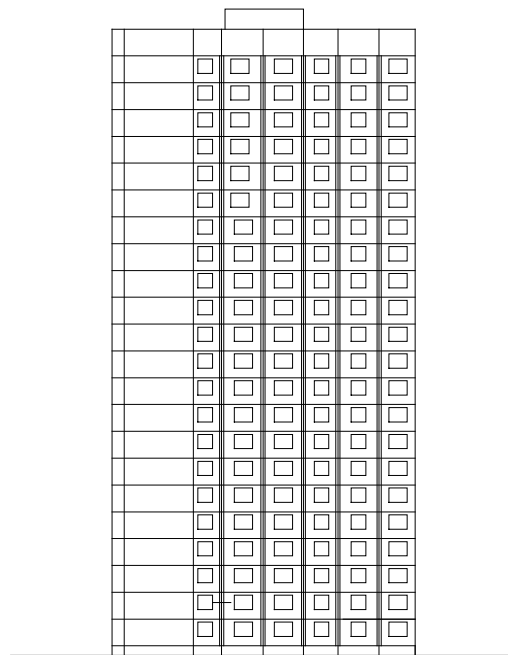


Planta tipo  
Floor plan type

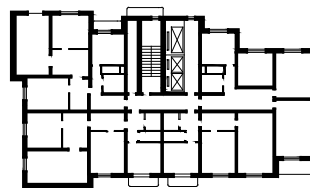


KOPE 80

1981-1986



Alzado  
Elevation

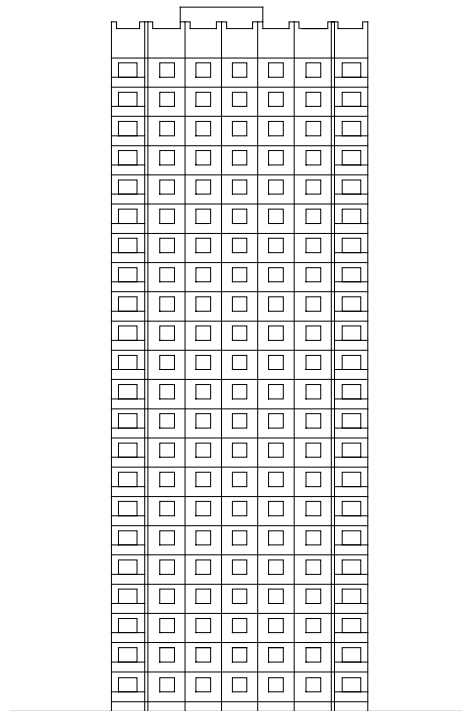


Planta tipo  
Floor plan type

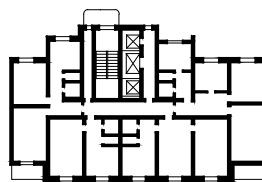


KOPE 80

1981-1986



Alzado  
Elevation

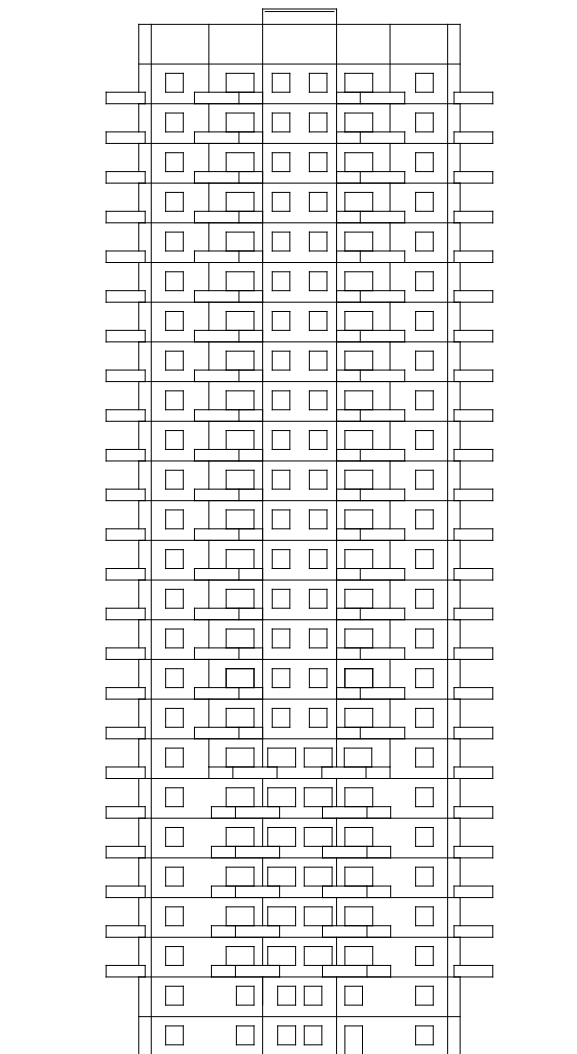


Planta tipo  
Floor plan type

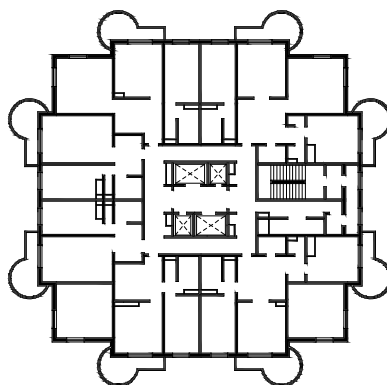


# Iceberg tower

1991-1996



Alzado  
Elevation



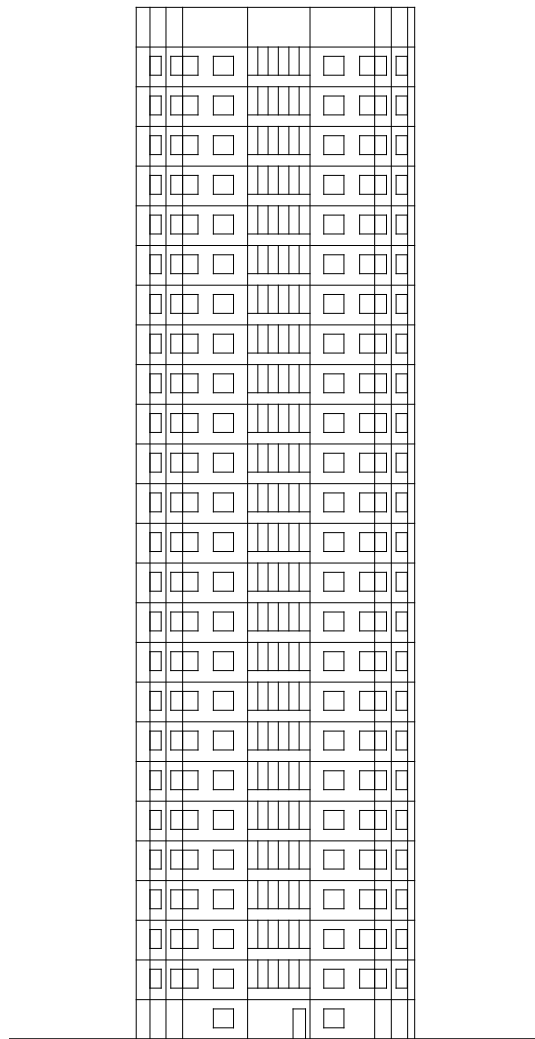
Planta tipo  
Floor plan type



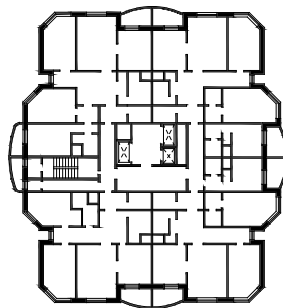


# Kope tower

1996-2015



Alzado  
Elevation

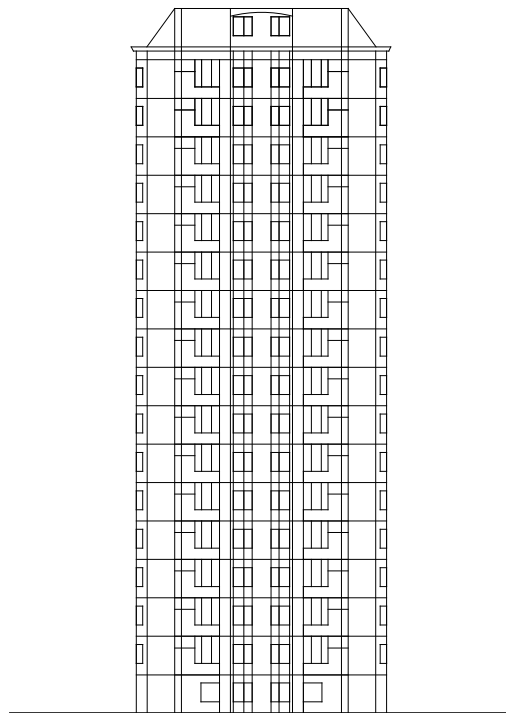


Planta tipo  
Floor plan type

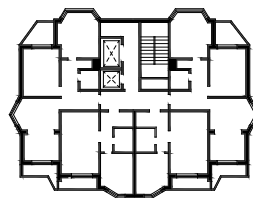


# P-44K tower

1996-2000



Alzado  
Elevation

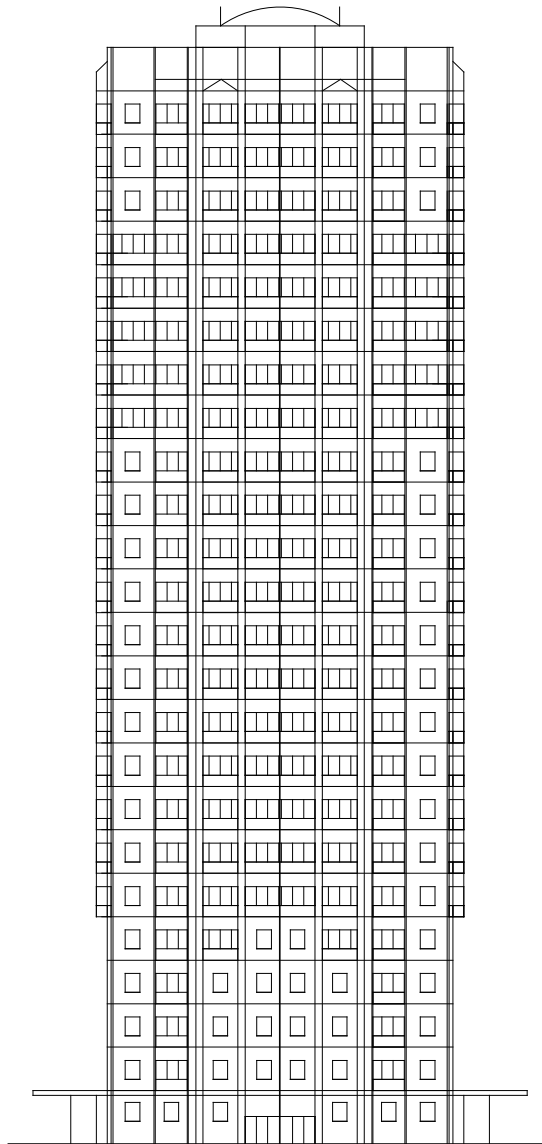


Planta tipo  
Floor plan type

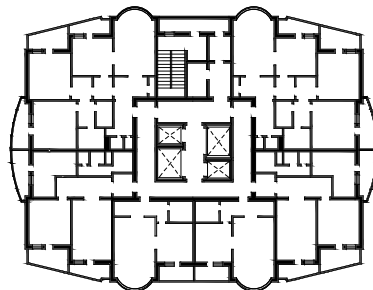


# I-155 tower

1998-2003



Alzado  
Elevation

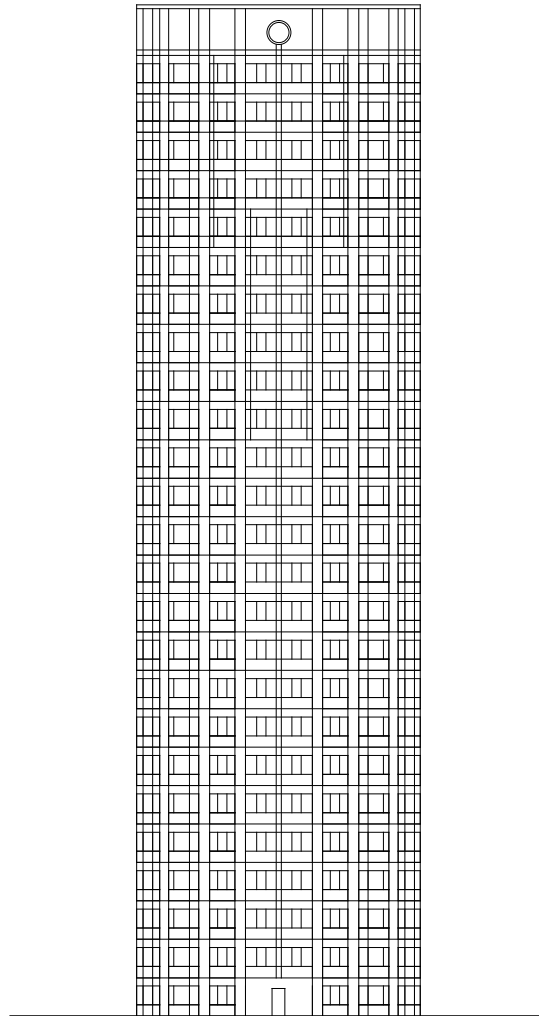


Planta tipo  
Floor plan type

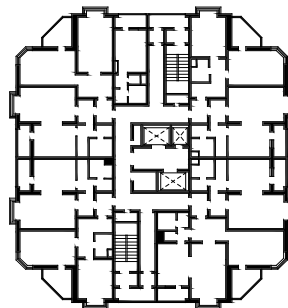


# I-1822 tower

1998-2004



Alzado  
Elevation



Planta tipo  
Floor plan type





## FIGURES

**Fig. 1.** p.18-19

Radial urban structure of Moscow. Palamarchuk P. G. Forty of forties. Kremlin and monasteries. First book. Moscow. LO «Book and business» 1992.

**Fig. 2.** p.22-23

View to Kremlin. Moscow. 1886, <http://humus.livejournal.com/2198396.html>

**Fig. 5.** p.26

“Social pyramid”. Museum of Contemporary History of Russia (former Museum of Revolution).

**Fig. 6.** p.30

Design for Victory Over the Sun opera. Selim O.Khan-Magomedov. Heroes of avant-garde. Lasar Lissitzky. 2011.

**Fig. 7.** p.30

The project of Monument to the III International. Shchusev Museum of Architecture. 1977.

**Fig. 8.** p.32

Monument to the III International. J-l. Cohen, C. Cooke, A.A. Strigalev, M. Tafuri. Constructivismo ruso.1994.

**Fig. 9.** p.32

Monument to the III International. Second Model. J-l. Cohen, C. Cooke, A.A. Strigalev, M. Tafuri. Constructivismo ruso.1994.

**Fig. 12.** p.36

First Shukhov water tower. Selim O.Khan-Magomedov. Vladimir Shukhov. 2011.

**Fig. 13.** p.36

Two-section tower. Selim O.Khan-Magomedov. Vladimir Shukhov. 2011.

**Fig. 14.** p.36

Six-section tower. Selim O.Khan-Magomedov. Vladimir Shukhov. 2011.

**Fig. 15.** p.36

Three- and Five-Tier grids-hell power line pylons. Selim O.Khan-Magomedov. Vladimir Shukhov. 2011.

**Fig. 18.** p. 40

K.S. Malevich. Arkitekton entre rascacielos en Nueva York. AA.VV. El Lissitzky. Wolkenbügel (1924-1925). Arquitecturas ausentes del siglo XX, n° 13, 2004.

**Fig. 19.** p.42

Vesnin brothers. Moscow Headquarters of Leningradskaya Pravda. Selim O.Khan-Magomedov. Las cien mejores obras maestras del vanguardismo arquitectónico soviético. 2004.

**Fig. 20.** p.42

Editorial office and printing houses of the «Izvestiya» newspaper. High-rise Russia. History of high-rise building in Russia. 2014.

**Fig. 21.** p.42

Editorial office and printing houses of the «Izvestiya» newspaper. Selim O.Khan-Magomedov. Heroes of avant-garde. Ivan Leonidov. 2011.

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