# 3. Introduction to the System of Soviet Mass Housing. Type Design, Typification and Typology

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At first glance, developing a typology of standardized designs may seem tautological or paradoxical. Building typology as a discipline attempts to examine buildings for comparable parameters and assign them to individual groups. On the basis of preassigned criteria, a house is allocated to a type in a process in which the criteria can certainly be adjusted individually by the observer. "The type is the sum of local or regional agreements. This arises from how an urban society perceives, presents, uses, and builds its housing at a specific point in time" (Hoffmann-Axthelm 2011:12). The aim of defining a type is to filter out as many common features as possible. These can, in turn, be used as archetypes as the basis for a new design. This most likely explains why the urban historian Dieter Hoffmann-Axthelm comes to the conclusion that "typology is the opposite of typisation" (2011).

However, the standardization of designs works on the assumption that "it is possible and practical for buildings which are intended for the same purpose and are of the same capacity to be built a number of times in the same form. This is under the condition that requirements imposed upon a building must be typical and valid for the highest number of cases possible, depending on their function and capacity, and that the mode of implementation, with regards to building materials and construction methods, must similarly be the same for the highest number of cases possible" (Schmidt 1957). At first glance, a standardized building therefore hardly seems suitable for a typological analysis—after all, it embodies the perfect solution, which has been formulated with the design as the target. On closer inspection, even differences between standardized designs manifest themselves. When comparing finished standard-

ized designs with an identical serial number, for instance, different characteristic features certainly become apparent.

*Figure 1: The construction industry in the Soviet Union was centrally organised. All authorities and political decision makers were subject to instructions issued by the Central Committee, the highest body of the Communist Party of the Soviet Union (CPSU).*


*Source:* Soviet Modernism 1955–1991: Unknown Stories Exhibition in the Vienna Architecture Centre: 8 November 2012 to 25 February 2013. Revised Graphics: Masako Tomokiyo.

A few limitations apply to the typological classification of mass prefabricated residential buildings. Different social objectives as well as different living and working conditions—in the case of the Soviet Union under investigation here—are not always a reliable criterion owing to political and social conditions. A systematic classification of prefabrication in the Soviet Union and its socialist brother states in the history of twentieth century mass housing, with regards to the building typology and architectural history, has not yet

been issued. Through this study, which arose twenty years after the dissolution of the Soviet Union and the social change associated with it, a nonideological contribution is thus submitted to a debate on the typology of Soviet standardized designs and Soviet Modernism in general. The comparative analysis of mass housing between 1955 and 1991, taking its regional peculiarities into account, aims to simplify typology. It is precisely the use of mass production methods in a culturally different context that enhances awareness of the crucial parameters of prefabrication: although interpretations of mass architecture differ, its structure and essence have always remained easily perceptible. Besides nomenclature, the construction, design and urban development aspects also provide a framework. The ten parameters are also to be understood as an instrument that assigns serial mass housing to their three generations.

## 3.1 Organization in the Planning and Construction Sector

In common with other socialist countries, mass housing in the Soviet Union was a task for the state, which determined the volume and the locations of new buildings, regulated the free provision and usage of land, and even organized and financed construction. Therefore, the production of mass housing in the Soviet Union was a construction job for the government. Official design institutes planned the series of buildings and the state building concerns constructed them. Three stakeholders initially emerged in mass housing: the first was the construction of housing by the state; the second, housing cooperatives (an alliance of state administrations and institutions); and the third, individual mass housing (state enterprises which constructed houses for their workers). In the first half of the 1970s, a fourth stakeholder—agricultural production cooperatives—began to build apartments for its workers and their relatives. The respective shares of the total volume of new buildings differed widely. "In the cities and working class settlements, the share of mass housing construction by the state amounted to 80 percent of total construction activity between the years 1966 to 1975. The share of cooperative and individual building amounted to approximately 10 percent each" (Rubanenko 1976:14). Taken as a whole, there is a trend toward an increased share of construction of housing by the state in cities and rural areas. Between the years 1961 and 1975, its share of total construction activity increased from 51 percent to 68 percent. Therefore, an examination of the role of state design institutes and state building concerns is crucial for developing a basic understanding of the planning and construction

sector in the Soviet Union. In various design institutes—which assisted with planning tasks in individual cities—architects, city planners, engineers, and technicians worked under one roof. The design institute followed an integrated working method and therefore assumed responsibility for the entire planning process.[1] Since each standard design was officially registered, this meant that the projects were only subject to a simplified procedure for planning in which the connections to the urban infrastructure had to be evidenced. After this was authorized, the state housebuilding factories obtained detailed plans of standardized designs and was henceforth responsible for the site management and implementation. In respect of standard designs, no construction plans—in the traditional sense of the word—were necessary. Rather, it was a matter of assembly plans for industrially prefabricated elements. Planning permission and design details were compiled in a large A3-format album under the title *Proekt*. Upon completion, these were archived in the filing cabinets of the design institutes.

The main features of Soviet mass housing are reflected in the organization of committees and institutes as well as their relations to each other. Following a nationwide competition in 1957 for the development of prefabricated residential buildings throughout the USSR, various brick and prefabricated first-generation standard designs were created. However, second-generation standard designs that were issued in 1963 by the Council of Ministers were dominated by a strictly hierarchical development phase using block sections. The rigid system was relaxed for third-generation standard designs: the development of new product ranges of prefabricated elements was henceforth made the responsibility of more than two dozen design institutes. The transition between the generations of standard designs was accompanied by various factors. Since around the beginning of the 1960s, shortly after the widespread implementation of industrial mass housing, a certain disillusionment had taken root among planners and occupants, thereby forcing the Council of Ministers of the USSR to intervene. The results of first-generation serial mass housing were too monotonous and inadequately tailored to the needs of separate regions. In the periodical *Arkhitektura SSSR* (Architecture of the USSR), Anatoly Polyansky, the Russian architect who helped design the pioneer camp Artek in Crimea, reflected in hindsight upon the monotony of mass housing from this period. "The mass construction of apartments and social institutions has become a characteristic feature of Soviet architecture, shaping its profile. It is

1 For the system and operation of Soviet design institutes, see: Matveeva 1979.

therefore the duty of each architect to contribute his utmost to the further development of the architecture of mass housing. Most buildings of this type, however, are characterized by a lack of expression and monotony." Polyansky was not alone in his opinion (1966).

With the aim of improving the quality of both public and residential buildings, as well as accelerating the technical development process in the construction industry, the Council of Ministers of the USSR issued a decree on August 21,1963, titled *On Improvement of Design Practice in the Field of Civil Construction, Planning, and Construction of Cities*.

Decree No. 903 contained criticism of, among other things, the absence of six hundred master plans in Soviet cities in urban planning and the small-scale structure of too many independent design institutes within the context of mass housing. In the period that followed, planning procedures and construction became more centralized in the USSR. This resulted in Gosstroi, the State Committee for Construction, now functioning as the highest supervisory authority and being made fully responsible. In addition to ascertaining control of the content, the aim was to develop new series of mass housing or improve standard designs that were already available (see Serbinovich 1975). Although the USSR's Gosstroi made strategic decisions in Moscow about the future of mass housing and developed standards as well as guidelines, it was the responsibility of Gosstroi in the respective republics to make adjustments to Moscow's directives. Zonal design institutes such as TbilZNIIEP (Caucasus), KievZNIIEP (Southern Europe), SibZNIIEP (Siberia), LenZNIIEP (Northern Europe), and TashZNIIEP (Central Asia) assumed responsibility for the detailed planning of serial mass housing. Local design institutes and state building concerns now had the opportunity to implement slight modifications in relation to balconies, entrances, and mosaic facades. As a result of the restructuring measures, the Academy of Construction and Architecture was dissolved in 1964 and was instead merged into a department in the Academy of Sciences of the USSR. The transfer of responsibilities to regional and local levels in the development of standard designs continued at the beginning of the 1970s. Boris Rafailovich Rubanenko, the director of the Central Research Institute for the Experimental Planning of Housing (*ЦНИИЭП жилища*) in Moscow contributed significantly to the introduction of third-generation standard designs. After firstgeneration standard designs, which had only been able to mandate rows of housing, and second-generation standard designs consisting of wavy-shaped, meandering compositions using block sections, the newly developed series were more flexible in their combination. Based on a modular grid of 1.2 m, Rubanenko de-

veloped a standard catalog of elements. Each catalog was aimed at a different building typology (mass housing, public buildings, industrial buildings). Rubanenko took panels with a span of 3.0 m, 3.6 m, and 4.2 m into account for the construction of mass housing. For non-residential buildings, planners focused on the framing construction method. The catalog of wall and ceiling panels is complemented by intermediate elements and connecting modules, which meant prefabricated elements could consequently be installed flexibly or, for instance, be installed to fill the gaps between buildings. The recent Architecture Construction Technology System (ACTS), which was also a flexible system in terms of prefabricated construction, had an impact on the organizational structure of housing. Zonal series could now be adapted by design institutes to meet the individual requirements of the location where implemented.

For example, these specifications included adjustments to the three separate climate zones (south, central belt, and north) as well as additional soil types (permafrost, seismic region, and subsoil). Individual buildings were immediately possible because of the prefabricated system now being offered. In addition, the production of individual elements was not organized by a single housebuilding factory alone but rather by various state building concerns. These adopted a more decentralized approach owing to the influence of Taylorism. Rubanenko aimed to reduce the number of standard designs through the ACTS. As mass housing was dominated by economic constraints, this increased flexibility was to lead to lower costs. The division of production units among various housebuilding factories was also intended to produce the building elements catalog at a lower price and to simplify logistics. The new system elicited positive reactions within professional circles. In an article in the publication *Arkhitektura SSSR*, S. Kibirev and A. Olkhova (1970) praise "the new, to a greater extent more flexible methods for the standardization of designs, which combine development and implementation of standardized designs and individual designs for buildings." Architects would henceforth have greater creative possibilities with regard to the design of building ensembles. This not only applied to new buildings but also to the reconstruction of existing urban structures. Furthermore, an organization responsible for the standardization of designs was to be appointed whose purpose was to achieve a complete approximation of the design solution to specific construction conditions. "Twenty-six new project planning and construction districts in the USSR have been established for the development of standardized designs. This means, consequently, that each republic and individual region—which differ in terms of construction conditions—is able to obtain a series of standardized designs or variants

tailored to their own specific features. When this involves similar natural conditions, climate conditions, or other conditions, then the same series of standardized designs can be developed and used in several republics, which does in practice happen at the moment. In contrast to the earlier, predominantly centralized practice for the standardization of designs, design institutes of individual state committees and a number of cities, whose responsibility lies in the construction undertaken in the republics, contribute to the development of series of new standardized designs in addition to institutes belonging to Gosgrazhdanstroi." (Kibirev and Olkhova 1970) The new strategy specifically meant that institutes at a regional level—such as TashZNIIEP and TbilZNIIEP—could work together on, for instance, a series of mass housing with specific features to protect against seismic forces. However, this also meant that the nomenclature of standard designs could be significantly expanded, which made the series catalog of Soviet mass housing even more confusing.

## 3.2 Facade Decoration and Architectural Style

The constraints architects faced owing to cost-efficiency analyses and standards must be acknowledged in order to develop an understanding of the monotonous instances of mass housing produced in the USSR. Khrushchev had unsettled an entire generation of architects when in 1954 he publicly defamed colleagues, who in his opinion were responsible for the excessively high building costs. This blanket accusation—which did not take into consideration the circumstances of architects in the planning and construction process—had led to a cost control method; the consequences of this meant that any kind of architectural creativity could be stifled. In light of this, it is encouraging to note that architects were particularly creative in construction projects that gave them some leeway in the design. These tasks, as far as residential buildings were concerned, included three elements: facades / sun protection devices, balconies / loggias, and stairwells / entrances. Provided that the designs created by local architects were approved by local party committees, then large panels, prefabricated concrete elements, and architectural sun protection devices were sometimes assigned traditional decor. Facade mosaics are particularly noteworthy; these were embedded in concrete slabs and thus form a permanent link between architecture and art.

This passion for architectural ornamentation was especially pronounced in the southern Soviet republics, such as the multiethnic Caucasus and Islam-

dominated Central Asia. In these regions, the Uzbek SSR particularly distinguished itself as a location where national traditions formed a symbiosis with Soviet construction standards. To this day, Tashkent is still considered a successful example of Moscow's attempt to give architects and housebuilding factories in the remote republics a certain creative freedom. At the same time, an undeniable analogy between the creative framework of prefabrication and the guiding principles of Islamic art, as well as the interchangeability of location demanded by Khrushchev—and the use of the same principle for every conceivable building type—was proven to be true in the process. Or, to put this more provocatively: the Soviet ideology of housing series and the Islamic set of rules about the use of repetitive basic shapes in construction are indeed based on two different cultural perceptions, but are largely similar in terms of applied architecture (see Meuser 2012). Since design and construction were strictly separated and construction management or artistic supervision by architectural designers was only available in exceptional cases—such as during the construction of important public buildings—this means there is no record of the names of the architects responsible for serial mass housing. To date, facade decoration as an independent art form has hardly merited much description. It may be that the example of Tashkent represents regional peculiarities in Soviet architecture. In particular, the reconstruction of the Uzbek SSR's capital city after the earthquake is proof of the exchange of know-how throughout the Soviet Union. The significance of architecture, which, in addition to space travel and military engineering, enjoyed a glowing reputation amongst the general public and politicians, is emphasized by the fact that the city's large-scale transformation as part of the People's Friendship was recognized by Soviet propaganda as a media-friendly topic.[2] In this respect, the building boom in Tashkent and the city's distinctive facade decoration have made a significant contribution to the style of Soviet architecture.

Particularly noteworthy is the architectural work carried out by the brothers Petr, Nikolai, and Alexander Zharsky in Tashkent. It is owing to them that more than two hundred facades featuring colorful mosaics or filigree reliefs were built in Tashkent. Their work represents a link between art and architecture. In the floral decoration and core motifs, the heritage of Islamic architecture is simultaneously combined with the euphoric mood prevalent regarding the future of Soviet modernity. The Zharsky brothers arrived in Tashkent in

2 The reconstruction of Tashkent is documented in numerous publications, such as: Arkhangelsky 1969.

1966 following the earthquake to share their ideas about the design of facades. "It is best to create something new, beautiful and useful in a place where a lot of construction work is being carried out. And at that time this city was Tashkent" (Zharsky 1972).

*Figure 2: A gable façade adorned with a mosaic in Tashkent, Chilanzar. In the newspaper Stroitel' Tashkenta (The Construction Worker of Tashkent) it states on 16 July 1972: "The first residential buildings featuring patterns at the gable end had already been built in 1966. These buildings were a gift from all the Soviet republics to the Uzbek people who have helped rebuild the capital city after the earthquake. Each Soviet republic adorned its residential buildings in accordance with its own national style."*

Source: Philipp Meuser.

The first decorative mural designed by the Zharsky brothers adorned a nine-story residential building located on Mukim street in the Chilanzar district. Four years later, the architect Yuri Miroshnichenko wrote (1987): "The design surprised architects. The composition, color and themes did not comply with the popular concept of Uzbek ornamentation. The red, brown, and gold colors; its height, the boldness of the composition and the imagination of the authors did not immediately draw us in. Only the need to implement these drawings testified to the obvious talent of the painters. Examining the first mural established the wide range of possibilities as to how to use Uzbekistan's cultural heritage. Their work was closer to the old works of art originating from Afrosiab and Pendshikent rather than those belonging to a later era, when a refined decorative style was common. The use of the earliest stylistic and compositional traditions which had been forgotten bestowed a particular value upon their work and made it stand out from the series of modern art." Even if the author's high regard is confined to the art found on the building, such praise for a prefabricated residential building was a rare occurrence when examining Soviet mass housing. Seen in this light, the works of the Zharsky brothers can be viewed as an exception in terms of both quality and quantity in Soviet construction history. The example of Tashkent nevertheless represents a nationwide attempt to alter monotonous prefabricated building facades through ornamentation, reliefs or by altering the layout of the facade elements and furthermore making them stand out from identical buildings of the same standard design. In this respect, facade decoration is an important feature of the architectural style of Soviet mass housing.

In addition to mosaics, Nikolai Zharsky, chief architect of the DSK-2 from 1972 to 1991, designed reliefs for exterior wall panels that were used for balcony parapets (closed construction) or sun protection devices in front of a loggia (open construction). These components had a significant impact on the cityscape, prompting Zharsky's employee Miroshnichenko (1987) to make the euphoric statement: "For some years now a group led by chief architect Zharsky and chief engineer Prassolova has worked on a new type of relief which is suitable for multistory facades. In contrast to the small reliefs that were developed previously, this experiment has met approval. Since then, a design team belonging to the housebuilding factory has worked intensively on planning. The buildings have since then become more diverse; municipalities have been assigned their own individual architectural appearance. Today such a thing as a unique Tashkent style does indeed exist!"

*Figure 3: Façade elements with openings for loggias in Tashkent.*
*Figure 4: Building screens featuring Islamic ornamentation in Bishkek.*

Source: Philipp Meuser.

The issue of style in Soviet mass housing situated outside the Uzbek SSR is reduced to "the basic principles and fundamental features of a Soviet architectural style" ("Problemy stilya" 1963). During a discussion about the design and theory of a socialist architectural style at the Central House of Architecture in Moscow on July 9 and 10, 1963, the chairman of the Commission for Theory and Criticism, Georgy A. Gradov, presented his views relating to the theory of design as well as a socialist architectural style deriving therefrom. Far from making any historical references to established architectural theorists, Gradov proposed the development of a national style: "Keynote speeches made by party leaders on issues such as the development of Soviet art and the decrees issued at the July Plenary Session by the Central Committee of the CPSU with regard to the upcoming tasks in the Party's ideological struggle during the present stage of building communism in our country are of fundamental importance for solving pressing problems related to the theory and practice of architecture" ("Problemy stilya" 1963). According to Gradov, architectural styles from the past developed spontaneously over long historic periods. Furthermore, in the capitalist system this process assumed a contradictory character. Under the rule of bourgeois ideology and the conditions of competitive struggle of the free market economy, the quest for style is taken over by fleeting trends. "Unlike the capitalist world, we bring a degree of order to the developing process of Soviet architecture, as our work is based on knowledge of objective laws pertaining to the development of society. We have the opportunity to influence the development of socialist architectural style" ("Problemy stilya" 1963). With his attempt

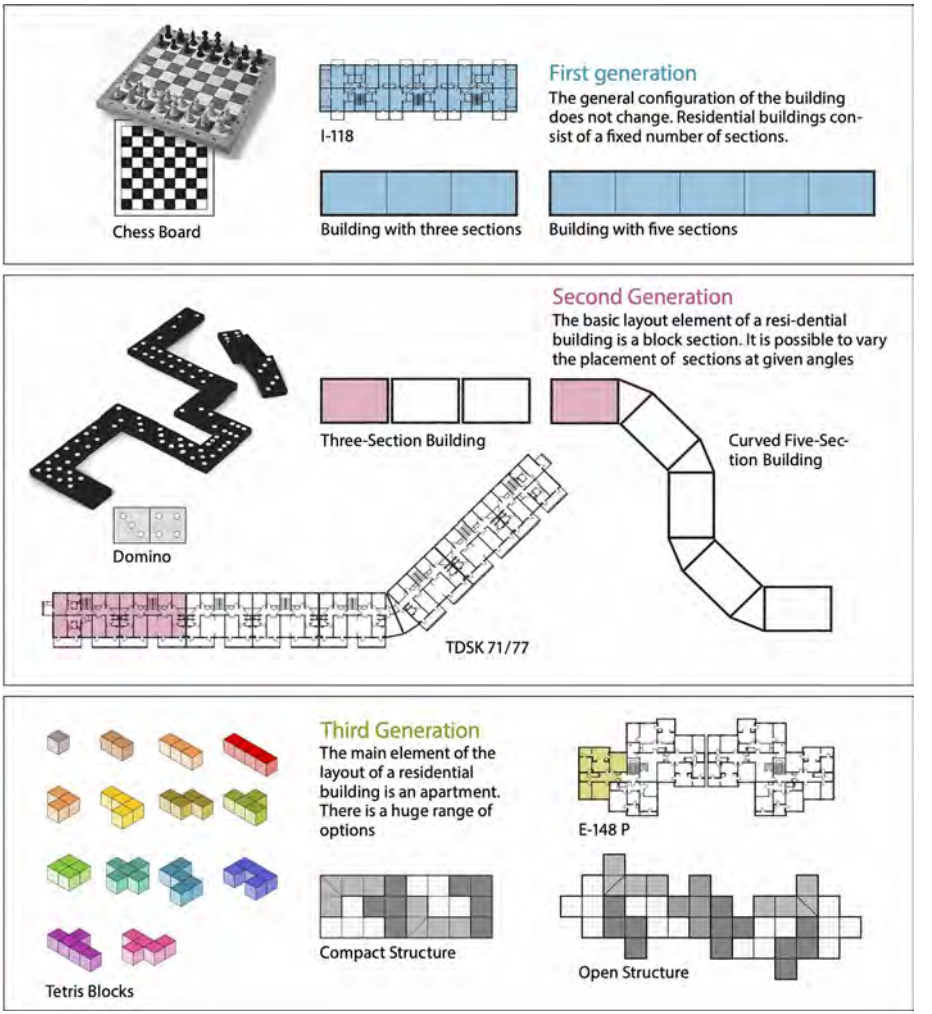
at a definition entirely devoid of meaning, Gradov draws on a statement by Khrushchev (1990) at the Twentieth Congress of the CPSU on the future of architecture: "It is a matter of honor for our architects to create an architectural style which embodies the best of what the architectural thinking of mankind has gained in the past. Therefore, this style ought to draw on the most advanced creations of Soviet architecture. Buildings which are yet to be built must offer maximum comfort and be durable, economic, and beautiful." Khrushchev had described the basics of architecture in his demand for Vitruvius's three-part rubric *firmitas, utilitas, venustas*, but expanded on this to cover the demand for cost-effectiveness. Gradov, who was still training and working as an architect in Stalin's time, was indeed geared towards a line of academic thinking acquired through a traditional architectural education. However, he attempted to distance himself from his past and was quoted in the conference report of the journal *Arkhitektura SSSR* saying: "The key battle against superfluous expenditure and the desire for decorative architecture has led to a victory for change. A victory for a creative target course which is characterized by honest architectural solutions and forms. Grave consequences owing to the cult of personality have been overcome" ("Problemy stilya" 1963).[3] Foundations in terms of a theoretical style are also discussed further on in the conference report. According to a conference participant, for instance, the style of Soviet architecture evolves in line with—and under the active influence of—continuous technical-scientific progress being made in the construction field: "In the current conditions, the examination of three influential aspects of technical and scientific progress and their effect on style is of interest: (a) style and the standardization of designs; (b) style and new construction materials; (c) style and prefabricated mass housing. Modern design and style methods are closely interrelated." By adopting this approach, Soviet architectural theory opted for an autonomous path within an international context of construction and design. The style is firmly illustrated by the example of the All-Union Series I-468: "Principles of typification which are constantly being perfected, standardization, and widespread unification play a significant role in generally robust stylistic features. Let us consider first of all the complex Series I-468, which is prevalent in the Urals and Siberia. This series comprises both prefabricated residential buildings and community facilities. All of the main design parameters for the series are based on a uniform spatial-unit system, so that the unit of planning is maintained for

3 All further quotes in this section are also taken from this source or are cited there.

several construction variants. Consequently, this enables most of the community facilities to be constructed using a limited range of prefabricated elements that also applies to buildings with a different composition of apartments, number of floors, and different facade lengths. On the one hand, the new principles for the standardization of complex housing series played a significant role in common features emerging in the structure of different buildings; on the other hand, these new principles offered the possibility of adding variety to the development of microdistricts and designing these in a more expressive fashion." The production process in the housebuilding factory, with its serial building units, was declared the main parameter of style in the conference report. This further mentions that the evolution of style depends to a large extent on the type of construction materials being used and the structure itself. According to the conference report, it is not difficult to prove that the desire to emphasize the autonomy of style from materials and designs is only characteristic of *style limitations*, for a stylized and mere formal approach to architecture. Of course, prefabricated reinforced concrete elements and the extensive use of synthetic construction materials are the principal mechanism whereby a Soviet architectural style is developed. "A completely new feature involved in the evolution of socialist architectural style—a feature which has only emerged in the past few years—is its association with prefabricated mass housing and a construction output based on the workflow, whereby we constantly endeavor to enlarge assembly parts, increase the level of prefabrication to the maximum and reduce the required assembly work." The Moscow architecture conference in the summer of 1963 had a significant impact on the style of Soviet mass housing—not least owing to its monotonous style, which led Khrushchev (1964) to demand at the Central Committee Plenary Session in November 1962 that "unique architectural and artistic nuances must be created within the limits of what is possible and rational." For technical reasons, individual creative leeway when using large panels was limited to their surface treatment. At best, housebuilding factories were free to find different solutions with regard to loggias, balconies, and entrances. Against this backdrop, the Moscow conference also reached the conclusion that features of the new style were to include simple, functional architectural shapes that were structurally effective and which had a clear structure and cost-effective material usage. Debates about style in undemocratic cultural circles are always dominated by political rather than intellectual elites. Therefore, it is hardly surprising that the stylistic debate in the Soviet Union followed the political and planned economic framework of prefabricated mass housing. This makes the work carried out by the Zharsky brothers even more

remarkable, since they succeeded in using 2 percent of construction costs for artistic work in a planning and construction sector dominated by the economy. This proves that artistic drive and the civic engagement of individuals are able to insert a small mosaic stone into the style of Soviet mass housing.

*Figure 5: Diagram of the three generations of prefabricated housing in the USSR.*




Source: Philipp Meuser.

## 3.3 House, Block Section, Catalog of Elements

Following the broached structural-organizational, constructive, and creative aspects, as well as the influences of production and assembly on architecture, an attempt shall now be made to classify building typologies twenty to sixty years later, with the advantage of time. With regard to architectural history, this presents specific challenges, especially in that it concerns mass-produced standardized designs and also owing to the fact that architectural skills were not a prime concern during the planning process. Furthermore, this is a period of forty years over which—as has been discussed previously—mass housing typologies changed fundamentally. The major influential factors, among others, were politics (amendments to the SniP [construction norms and rules]), technology (a push for the modernization of industrial production), and finance (dictatorship of the economy). The fact that the dissolution of the Soviet Union meant that the political, economic, and social foundations of prefabrication in the former USSR had to undergo a process of transformation provides an incentive to view the period from 1955 to 1991 as an architectural epoch of the past. The fundamental concept of prefabrication—to produce individual parts that had been perfectly designed—and to manufacture these in large quantities in accordance with a system, invites the question as to whether the variability of mass-produced products is accompanied by a classification of the technology. The continuous refinement of serial mass housing—which led to larger panel dimensions owing to high-performance logistics—was accompanied by increasingly flexible systems. This can best be seen in a building proportionality which lies somewhere between architecture and urban planning. What is meant by that is the planning unit of the *section*, typical of socialist mass housing. The Russian concept of a *section* [*секция*] denotes the part of the building that is accessible via a staircase. There are at least two apartments per section; usually there are four apartments, and in rare cases, twelve. In the course of progress made between the 1950s and 1980s, the section came undone as an apartment cluster and became smaller and thus more flexible. Following the introduction of block sections, a previously inflexible sectional building gave way to a single-section house that could be assembled as a single-section or multisectional building as regards urban development. In the third phase, the block section decreased in importance as the smallest planning unit in favor of the apartment or residential group. This development can be illustrated through a comparison of the games chess, dominoes, and Tetris. Whereas chess is played on an unalterable chess board with individual squares,

in a game of dominoes the gaming pieces may be placed in a row or at right angles. The result is a shape made up of identical elements. Tetris, on the other hand, requires putting together any number of different types of blocks that can then be combined.

To distinguish residential buildings from the early phase, namely the late 1950s, the chessboard provides a good reference point, since it is not divisible and space must be distributed strategically within the prescribed limits. To begin with, this was a distinguishing criterion not only when dealing with mass housing; it only becomes a feature when the typology continues to evolve. Buildings made of inseparable sections became a signature of first-generation prefabricated mass housing. This includes, for instance, Series K-7 (panel), Series G-3 (block construction), Series I-477 (brick) and Series II-38 (spatial unit). All these housing series are united by the fact that the building as a whole was not alterable in its original version. Although multisectional buildings with three, four, or five sections could be designed and built since the individual sections were only separated from each other by a party wall—in other words, they were structurally indivisible—the sections as a whole represented a single building. This was indeed reflected in urban structures that were dominated by austere rows of housing. Variations were only possible when determining the size of the multisectional buildings that were to be taken into account in the design. Enhancing urban development was reduced to dominant features that had been strategically placed; these were usually nine-story single-section houses. For the most part, these were oriented toward the main roads and were supposed to mitigate the effect of the monotonous designs. Originally, these buildings were only intended to be used for a period of twenty to twenty-five years. Hence, the extent to which existing serial mass housing would subsequently have to be altered was irrelevant in the planning stages. Given that sidewall structures are involved when referring to several first-generation designs—whose facade components, for instance, cannot be replaced for structural reasons—these types have been on Moscow's lists of demolition programs for several years now.

At the beginning of the 1960s, serial mass housing could already be observed that complied with the sectional construction method but with a crucial difference. The individual section is a structurally independent section that appears as a single-section house or multisectional building. In terms of urban development, this represents a paradigm shift, since it was now possible for city planners and architects to vary the shapes of buildings. In order to liberate multisectional buildings from their former restraints of linearity,

design institutes now proceeded to develop intermediate modules—beyond those listed in the catalog of prefabricated elements for a section—to create curved forms. It was now possible to install sections based on an orthogonal floor plan to form a zigzag, circle, or caterpillar-like shape. Engineers mostly developed loggias or balcony units for gaps that arose due to bends. "Such a method, in which linear gable, corner, and angular blocks (at an angle of 150°) made of two sections with an overall length of 60 m were used as a basis, was also used by Workshop 12 of Lenproekt when elaborating the design for the development of the western part of Vasilyevsky Island. This yielded interesting results. Whereas buildings of any length can be constructed using middle and end sections, corner and angular sections offer the possibility of giving the design of the building as much scope for versatility as possible. This also ensures a pleasing urban effect" (Matusevich and Tovbin 1966:2). In addition to flexible urban planning, second-generation serial mass housing offers a choice of floor plan design. Up to six apartment sizes were included in the improved standardized designs, in contrast to the typical three (Rubanenko 1976:28). The modified standard designs were also assigned a suffix in their name. For example, letters such as *VM* [*вечная мерзлота* = permafrost]; *S* [*сейсмическая зона* = seismic zone]; or, according to geographic logic, *Li* (Lithuania) were assigned to Series I-464. First-generation standard designs were modified by zonal design institutes so they could also be constructed as block sections no later than after the introduction of further mass-housing types, such as 1LG-600 (Leningrad), 1MG-300 (Moscow), 1KG-480 (Kiev), and 1UZ-500 (Uzbekistan). It can be seen that residential building projects grew larger in parallel to progress being made in construction techniques and the adjustment of apartment sizes in the SNiP. Many second-generation buildings were not only taller but also curved like tapeworms through the microdistricts. At least city planners had achieved one aim with regard to urban development: the monotony of earlier years had been overcome in a single step. Soviet mass housing had reached a milestone that Polyansky had already defined a few years earlier: "The creative variability and interchangeability of the standard details will make it possible to give each building its own architectural style. This offers the architect limitless creative opportunities" (Polyansky 1966).

Third-generation serial mass housing hearkens back to the decree issued by the CC of the CPSU and the Council of Ministers of the USSR in May 1969. *On Measures for Improvement of the Quality of Residential and Civil Construction* led to the introduction of new standardized designs two years later with the aim of achieving greater architectural expressiveness and a unique cityscape. The new

standardized design series in the years 1971 to 1975 were more complex than their predecessors. In particular, frequently used types were now assigned additional variants for facades, entrances, balconies, loggias, and for expansion. Standardized designs for block sections were equipped with new floor plan variants, gable-end buildings, and corner buildings. Furthermore, a catalog now existed for standardized prefabricated elements. "The new, to a greater degree more flexible method for the standardization of designs, which merges the drafting and application of standardized and individual designs for mass housing, thereby offers architects greater creative possibilities for the design of architectural ensembles as well as for the new construction and reconstruction of the expanding development" (Kibirev and Olkhova 1970). The new strategy was geared towards establishing a stronger identity in residential areas by using a reduced number of standard designs and standardized prefabricated elements. This was a response to the monotony criticized throughout municipalities, but was also related to production methods increasingly tailored to suit a market need in housebuilding factories. The new planning method allowed floor plans to be assembled in which the apartment constituted the smallest unit of design—provided that the standardized infrastructure of the project permitted this. A complete catalog of standardized prefabricated elements was being prepared up until 1973. However, it still took several years before this could be used as a basis for the new Series KOPE. "This system was based on the principle of modules that are formed by apartments grouped together around stairwells. Each element of the plan acts independently but is compatible with all other parts of the building" (Solopova 2001).

Owing to the standardized production process in the Comecon member states, the examination of Soviet serial mass production of sections, block sections, and apartments can be applied to socialist mass housing in general. As of the mid-1980s, architects increasingly demanded that prefabrication be added to an intricate product range catalog. Adhering to the analogy of toys, the idea was not only to produce prefabricated elements for a specific series, but also to allow prefabricated elements to be used for housing series in general, similar to interlocking Lego pieces. At this particular time, however, the Soviet construction industry was faced with the dilemma of having to produce more and more apartments with an ever-decreasing budget. The attempts to develop a product range catalog for widespread use foundered during the general social, political, and economic upheaval toward the end of the Soviet Union.

## 3.4 Microdistrict and Residential Area

Never before in the history of architecture had industrial production methods made such a great impact on urban planning than during the last thirty years of the Soviet Union. The focus on the economy and production methods was so pronounced that the discipline of urban planning was forced to subjugate itself to the dictates of a building layout geared toward efficiency. From this, the conclusion might be drawn that the discipline of urban planning had abolished itself in favor of fulfilling guidelines. Given that developments in mass housing are particularly noticeable in urban structures, the tenth parameter of a typology of Soviet mass housing broaches the issue of the transformation of the Soviet city through industrially prefabricated mass housing. By comparing the expansion of the Soviet city in 1950 with that of 1990, a trend can be seen which leads from the neoclassical superblock to the socialist microdistrict. Although under Stalin residential buildings were still governed by traditional laws, private and public spaces were separated from each other, courtyard structures were designed inside the superblock [*квартал* = neighborhood], and a segmented cityscape featuring wide and narrow road spaces was built, a period under Khrushchev followed in which first-generation industrial residential buildings were designed in rows. At most, these were accentuated by tower blocks and were in keeping with the logic of assembly cranes.

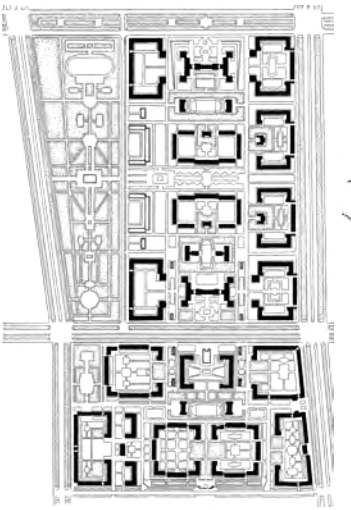
A comprehensive understanding of socialist urban planning can be absorbed through a comparison with urban development in market-oriented societies. "This is because the socialist city is based on a completely different set of laws, namely: class equality in the Soviet society; the absence of exploitation and unemployment; elimination of private ownership of land, a system of state-planned economy and demand for the best living conditions for the masses. All these factors offer unprecedented opportunities to create a ceaseless perfection of our cities. Socialism has completely changed life in the cities. Originating from an instrument of socialist oppression, the city has undergone a transformation to become a hub of freelance and creative work, a place of equality and friendship for its inhabitants" (Boris Svetlichny, quoted in Frolic 1964). A consistent implementation of philosophical-political ideals was only possible in a state-run society and economy—through the exclusion and oppression of private-sector initiatives and civil society engagement. When Soviet city planners—who divided the city landscape into traffic areas for automobile and pedestrian traffic—borrowed the term *superblock* from the Anglo-Saxon world, which means contemporary urban planning, they

unwittingly established the basis of Soviet urban planning up until the 1990s. A superblock covered about 15 hectares of land along a main access route and offered apartments for approximately six thousand people. In addition to residential buildings and in line with requirements, each superblock included crèches, kindergartens, a primary school, a venue for meetings or a club, shops, children's playgrounds, and a park. Everything had to be located within walking distance. Major roads with open spaces separated the superblocks from each other. An internal access route could only be used by delivery vehicles or served as an escape and rescue route. In densely populated areas, a superblock sometimes only covered 3 to 8 hectares of land (Parkins 1953:39f).

Residential buildings that form distinctive corners (mostly through towers or bay windows) are characteristic of the period until the middle of the 1950s and therefore aim to define a block. However, as tailor-made solutions were expensive and seldom allowed an appropriate use of space, this idea with regard to urban development also met heavy criticism during Khrushchev's speech at the National Conference of Builders in December 1954. "The conference demonstrated that when it comes to planning residential and public buildings, many architects took too little account of economic issues or the interior design of buildings and apartments; that they did not show any consideration towards the need to ensure comfort for people; [and] that they planned too generously, were concerned about external factors, incurred unjustified expenditures regarding facades, and did not care about the laws of prefabrication. Many architects and engineers interpreted the task of Soviet urban planning in a one-sided manner; paid close attention to the exterior of road infrastructures and squares; worked too little on the planning of residential areas; and forgot that in terms of urban planning there is an overriding need in our country to ensure comfort for local residents. In some projects, road infrastructures and community facilities were not set out efficiently enough. The main districts were not built on or rebuilt as scheduled and the construction of residential and public buildings was scattered over large isolated areas, as a result of which the provision of comfort and community services increased in price. In some cities there was an unwarranted tendency not to design the most economically advantageous four- to five-story residential buildings, but rather to design buildings to be as tall as possible. At the same time, many single-story residential buildings were being built, which led to the cities being unreasonably expanded and the terrain of the city being used inefficiently" (Tutuchenko 1960). Khrushchev's speech in 1954 and the decree issued a year later, *On Elimi-*

*nation of Excesses in Design and Construction*, represented a paradigm shift in urban planning in the USSR.

*Figure 6: New residential buildings along Lomonosov prospekt in Moscow. The open space is divided by blocks in semi-public and public areas. Districts (kvartala) 1, 2 and 13 which were completed circa 1956 are shown.*
*Figure 7: Site plan of micro-district 1 in the Tashkent administrative district Kara Kamysh-II (Severo-Zapad-I). The urban structure is dominated by rows of housing and tower blocks. Social infrastructure is situated in the centre of the district (1966).*



Source: Abrossimov et al. 1958, p. 23.
Source: Merport/TashZNIIEP 1976, p. 30.

Upon switching from residential buildings to industrial production, it is possible to trace a chain of large-scale factors down to the smallest detail. The superblock was replaced by the microdistrict as a coherent planning unit for which, ideally, a single project engineer was responsible. A key requirement of the Athens Charter also remained valid when it came to planning the microdistrict. "A characteristic feature of the modern structure of the microdistrict in Soviet cities is that one of the key elements of human existence is absent in the planning system for residential complexes and when it comes to arranging the microdistrict: work" (Authors' collective 1969).

In the Soviet Union, a microdistrict denotes a new housing estate that was normally situated outside the traditional city center.[4] The microdistrict was the "city region that is exclusively or predominantly used for residential areas and whose appropriate use and functional arrangement complied with the guidelines provided" (Glatte and Grieß 1978). City planners designed microdistricts on a significantly larger scale compared to the earlier superblocks: the aim, however, was still to achieve the desired harmonious effect under Stalinist rule: "The microdistrict is to be designed in a uniform manner as regards architectural planning, with and without housing complexes. In the central planning area a microdistrict may consist of blocks of buildings" (Mosgorispolkom 1981:2). In line with the SNiP, a Soviet microdistrict covered 10 to 60 hectares or a maximum of 80. The concept of a car-free inner zone remained in place as well as the "planning parameters of short distances" (Martin Wimmer, interview with author, Sept. 3, 2013), so that the maximum distance to community facilities was not allowed to exceed 500 m and main road infrastructures determined the boundary between two microdistricts. Within the microdistrict, the planning unit was divided into residential groups. Among residential groups were "social institutions, whose assembly and capacity is determined by reference to the structure and concentration of the population and from which the walking distance is not to exceed 200 m" (Glatte and Grieß 1978). The population density was also predetermined: "The number of inhabitants of a microdistrict is not allowed to exceed twenty thousand for the period of calculation and 25,000 inhabitants for the first phase of construction. It must at least account for ten thousand inhabitants" (Mosgorispolkom 1981:10). Consistent with the characteristic style of mass housing, microdistricts and residential areas were assigned consecutive numbers which are even today still in use, just like the term *microdistrict*. The principle of coherent planning units, whereby the infrastructure facilities and installations were to be completed in addition to, and at the same time as, mass housing and which was associated with the concept of complex mass housing, became widespread in other socialist states. In the GDR the microdistrict corresponded to the residential area or—in everyday language—the housing complex. In principle, the structures of microdistricts followed three parameters: compass direction, topography, and the economics of the assembly crane. Since the building forms of the standard designs were predetermined, this meant that the urban design concept was greatly reduced to the fulfillment of guidelines. Remarkably, scientific studies were re-

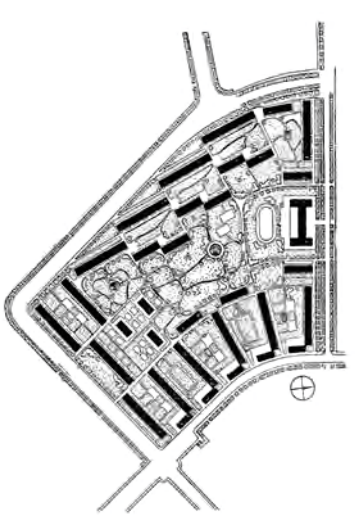
4 The term continues to be used in the countries of the former USSR.

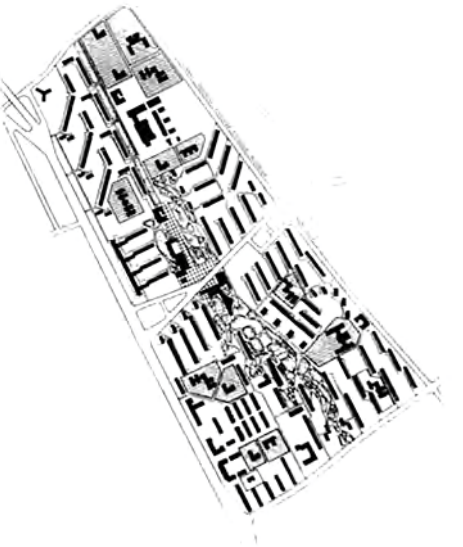
peatedly carried out on the altitude of the sun, noise emissions, or design theory. From today's perspective, these ideas may seem like proxy science owing to design restrictions. For example, the structure was subdivided into additive or integrative principles. Microdistricts close to industrial enterprises were governed to a large extent by the additive principle, whereas the integrative principle was followed without exception by microdistricts from the late phase of the Soviet Union. When it came to complying with guidelines, however, city planners and urban developers also endeavored to create individual ensembles and silhouettes in the public space by using expensive building types, such as the detached house. In the journal *Arkhitektura SSSR*, three architects outlined the following theories in 1966: "Single-section houses with a varying number of floors are essential to add variety to mass housing. Therefore, practical experience has shown that it is logical to combine five-story multisectional buildings with nine-story single-section houses. In districts where most of the nine-story multisectional buildings are situated, single-section houses must still be taller" (Kapustyan, Lubimova, and Lazareva 1966). What is striking here is the absence of a debate on architectural theory or urban planning based on the classical triad of *firmitas, utilitas*, and *venustas* or—with regard to urban planning—on the ideals of urban development history. Instead, abstract parameters and scientifically valid guidelines are a core issue in academic discourse. "In the search for style in mass housing, the formation of urban ensembles is a characteristic feature when it comes to the spatial composition of housing complexes and residential groups. Complex series of standardized designs are being created for housing associations. Large microdistricts are being constructed with these buildings in which the individual building no longer plays an independent role but is rather only a component of the overall organic complex, of the ensemble" ("Problemy stilya" 1963).

The decrease of socialist mass housing to satisfy demand led to an impoverishment of architectural diversity. Economic feasibility and savings in terms of material and costs dictated form, function, and structure. In an article in *Arkhitektura SSSR*, a major theme was production efficiency when it came to the question of Soviet architectural style. Diversity is defined here as a division of responsibilities between the construction factories. "A complex series of residential buildings and community facilities is currently being drawn up in Leningrad. Various housebuilding factories will be involved in the development of residential complexes and not only one factory, as has been the case thus far. This approach is lawful under the conditions of Leningrad, where several large firms exist. In other cities, permission can be given for the produc-

tion of prefabricated parts for the whole complex series to be organized in a factory; or cooperation can take place in specialized firms in cities and housing estates nearby" ("Problemy stilya" 1963). In terms of the actual implementation, this equated to an increased need for coordination for the main contractor, who was now dependent on the punctual service of construction factories. However, urban planning designs benefited from the breakdown of planning tasks and construction jobs. If residential buildings had still been additively arranged at the beginning of the 1960s, then housing complexes from the 1980s portrayed geometric patterns and meandering compositions.

*Figure 8: Master plan for the free development of a residential area with a site evaluation for the brightness of the apartments (1960).*
*Figure 9: The satellite town Khimki-Khovrino, situated in the northwest of Moscow, shortly after completion. The development site is exclusively for residential buildings with kindergartens and schools. The five- to nine-storey buildings make a monotonous impression.*





Source: Tutuchenko, Semen: Der Wohnungsbau in der UdSSR. Aufzeichnungen eines sowjetischen Architekten (Housing in the U.S.S.R.: Notes of an Architect). Moscow 1960, p. 118.
Source: Goldzamt, Edmund: Städtebau sozialistischer Länder (Urban Planning in Socialist Countries). Berlin 1974, p. 244.

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