

## OUTLIVING OBSOLESCENCE: LONGEVITY, IDEOLOGY, AND STYLE IN SOVIET MASS HOUSING

Elise E. Schlecht - Emory University

**ABSTRACT:** The Soviet concept of planned architectural obsolescence is elusive. In Soviet literature, it is little more than a footnote. In Western architectural literature, it is resoundingly absent. This paper aims to rectify this oversight, examining how the predetermination of building lifespans affected attitudes toward residential design and construction in Soviet Russia and in the lives of Soviet citizens. Of particular concern is the aesthetic implementation of ideology in the generational development of prefabricated micro-neighborhoods, or mikroraiony, the meanings attached to their planned destruction, and the ultimate significance of their endurance beyond the dates of their planned destruction. This work analyzes the technological development of Soviet prefabricated mikroraiony to elucidate the political underpinnings that simultaneously guided technological and design innovation and fueled ideological obsolescence of previous types. By presenting a series of case studies of the dynamics of post-Stalinist housing blocks and mikroraiony as codified in Stroitelnye normy i pravila [Building Codes and Regulations], longevity schedules, and material grades, this work establishes how the flexibility of the typology of Soviet prefabricated residential architecture facilitated the imposition of state ideology into public space. The planned destruction of material remnants of that ideology in favor of new vestiges of a more advanced socialism would have been the ultimate marker of socialist progress. Archival sources are further consulted to contrast these intentions with the reality of Soviet Russian mass housing and the tumultuous relationships between residents and their homes. The concept of the repair society is extended to the macroscopic level to explain the material-emotional considerations underlying the 2017 protests against the demolition of Soviet-era housing in Moscow. Despite the trauma associated with the mutually abrasive material environment that is Soviet prefabricated mass housing, the people have been unwilling to sacrifice their long-standing and often contentious relationships with “obsolete” buildings. As such relationships existed and continue to exist irrespective of typological advancement, this work interrogates the usefulness of the type/model paradigm in the differentiation of architecture and buildings. Ultimately, the frictional experiential relationship between user and structure is proposed as a more accurate determinant in the Soviet Russian case.

**KEYWORDS:** obsolescence, Soviet mass housing, mikroraiony, Gosstroj, repair society.

## INTRODUCTION

In July 2017, President Vladimir Putin shocked the Russian people and the world at large by authorizing the demolition of 4,500 Soviet-era apartment buildings in the city of Moscow. Authorities alleged that the slated buildings were functionally obsolete and even dangerous because of years of neglect. Despite this, thousands joined to protest the demolition of their homes and to assert their value (Figure 1). Ultimately, 3,500 more buildings were saved from the same fate, preventing developers from appropriating the land for new luxury apartment complexes and funneling former residents to inexpensively constructed high-rises on the outskirts of the city (“Putin Signs Bill” 2017). The zeal of the residents’ response matched the unusualness of this state drive to demolish Soviet infrastructure. Since the collapse of the Soviet Union in the 1990s, the more typical approach in Russia has been to continue utilizing, maintaining, and reinventing Soviet prefabricated housing, despite the comparative efficiency and safety of demolition and rebuilding in accordance with contemporary standards (Hatherley 2016, 93).

The concept of a structure’s fixed longevity and the necessity of cyclical replacement has been part of the Russian context since the dawn of the Soviet Union. In 1954, the State Committee for Construction, or Gosstroj, created the first demolition schedule for Soviet residential housing (Union of Soviet Socialist Republics 1956, 94–95).<sup>1</sup> This schedule divided residential housing into three grades designed to endure for 100, 50, and 20 years, after which time they would be demolished and replaced with designs conforming to the latest technological and social standards (Union of Soviet Socialist Republics 1954, 21).<sup>2</sup> As of 1965, the number of grades had grown to six, with buildings now constructed to endure for a minimum of 150, 120, 100, 50, 30, or 15 years (Table 1). This paper examines how the predetermination of building lifespans affected attitudes toward architectural design and construction in Soviet Russia and in the lives of Soviet citizens. Specifically, this study focuses on this aesthetic implementation of ideology in the construction of Soviet prefabricated micro-neighborhoods, or *mikroraiony*, the meanings attached to their planned destruction, and the ultimate significance of their endurance beyond the dates of their planned destruction.



Figure 1: Half-demolished panel-constructed residential building with a new development under construction in the background, Moscow. Source: Archinect 2017.

Classification of residential buildings by building grade and projected longevity		
Building grade	Defining construction elements	Building longevity (period of service) in years
I	Stone buildings of the highest quality: stone or concrete foundations, stone (brick) walls, reinforced concrete large block and large panel façades	150
II	Standard stone buildings: stone foundations, stone (brick) or large block walls, reinforced concrete or mixed (wood and reinforced concrete) façades	120
III	Lightweight stone buildings: stone or concrete foundations, lightweight brick, slag concrete, or shell rock walls, wood or reinforced concrete façades	100
IV	Log or adobe buildings: rubble foundations, log, mixed (brick and wooden)	50
V	Prefabricated wooden panel, frame, adobe, and timber framed buildings: foundation on wooden or rubble pillars, frame, adobe, or other walls, wooden façades	30
VI	Frame-reed and other lightweight buildings	15

Table 1: Residential building classification system adopted during the redevelopment of longevity guidelines by the K.D. Pamfilov Academy of Communal Property. Source: Kolotilkin 1965 (author's translation).

From this perspective, I will analyze the technological development of Soviet prefabricated mikroraiony to elucidate the ideological underpinnings that simultaneously guided technological and design innovation and fueled obsolescence of previous types. Presenting a series of case studies of the dynamics of post-Stalinist housing blocks and mikroraiony as codified in *Stroitelnye normy i pravila* [Building Codes and Regulations], longevity schedules, and material grades, I will establish how the flexibility of the typology of Soviet prefabricated residential architecture facilitated the imposition of state ideology into public space. In addition, I analyze the meaning of the destruction of these physical markers of ideology as a manifestation of the arrival of an improved social order and the overall significance of construction with the intent to destroy.

Despite the state's original intentions, these structures have outlived their prescribed lifespans. Although they were conceived and built with the knowledge that social advancements would necessitate their eventual obsolescence, the do-it-yourself repairs and renovations that permitted the buildings to fulfill their mandated lifespans in fact staved off obsolescence of any kind, political or otherwise. Intimate relationships of repair and maintenance continue to exist between buildings and their residents in post-Soviet Russia to this day, making the overwhelming tendency to reduce these spaces to the status of relics an inherently problematic one. I attempt to describe the reality of Soviet spaces as active cultural spaces imbued with meaning that exceeds that of relics of a bygone society. To do so, I examine the concept of property in post-Soviet spaces, popular efforts to prevent the destruction of Soviet housing, and the growing interest in recognizing the vibrancy of Soviet spaces.

## 1. OBSOLESCENCE EAST AND WEST

The history of architectural obsolescence is a long one, with changing times and changing fashions forming a cycle of construction, destruction, and reconstruction that necessitates the adjustment of the architectural paradigm to accommodate this perpetual dynamism. Yet, under the Soviet Russian paradigm of *dolgovechnost'* [longevity], as outlined as early

as 1955 in *Stroitelnye normy i pravila* [Building Norms and Guidelines], public buildings in the Soviet Union were assigned fixed lifespans even before the processes of design and construction began, challenging this conventional conception of obsolescence (SNiP II-B.4-55, 21). Daniel Abramson's *Obsolescence: An Architectural History* (2016), which addresses the concept of obsolescence from a Western perspective, states:

Communist obsolescence was calculated not upon the amortization and flux of invested capital, but upon the anticipated and more or less endless pace of socialist development. Obsolescence would be constant. Advancing technologies and social improvements would necessitate new architectures. (59)

However, Alexei Gutnov et al. establish in *The Ideal Communist City* (1968) that post-Stalinist architecture, specifically housing, did not merely reflect progress toward the realization of the communist future; rather, its goals were more immediate, and in this regard, served as its driver.

The first residential works to be declared obsolete in the early years of Soviet Russia were those that most blatantly embodied the class structure of the capitalist world—that is, the sprawling luxurious apartments of the bourgeoisie (Jahn 1990, 215). In an “unrestrained housing revolution” marked by extensive looting and violent property appropriation, ideologically obsolete bourgeois housing was refashioned into communal apartments (216–21). Planners were tasked not only with the redistribution and maintenance of newly collectivized property, but also with the creation of a uniquely Soviet material environment that would foster socialist ideals among the people. As of 1965, 40 percent of total capital investment in residential infrastructure was dedicated to the renovation and maintenance of existing housing stock, while approximately 20 percent of all state capital was directed toward new residential construction (Kolotilkin 1965, 7). New constructions were designed to endure only until a set minimum age, as the objective was to transform the socialist urban plan in conjunction with the material and ideological advancement of socialism as a whole; revision and improvement were seen as direct indicators of political progress (Varga-Harris 2015, 76). The cycle of urban renewal demanded the perpetual shedding of the old, the familiar, and the comfortable in favor of the new, the bold, and the future.

In this manner, the converse of Abramson's statement can also be seen to be true in the Soviet case. New architecture would necessitate advancing technologies and social improvements. Ideological and functional obsolescence can thus be seen as goals to be simultaneously achieved and resisted. While the desire for innovation made ideological obsolescence inevitable and even desirable, this obsolescence was to be accomplished through the improvement of building technology, residential design, and social infrastructure and policy, not through a building's physical inability to endure.

## 2. THE BIRTH OF PREFABRICATION

Nikita Khrushchev's accession as First Secretary of the Communist Party in 1953 marked a turning point in the Soviet residential building program on a number of fronts. Following the death of Stalin, Khrushchev restructured the post-World War II rebuilding plan that had begun under his predecessor, shifting the focus away from industry and toward housing development in a bid to correct the Soviet Union's severe housing shortage. He rejected the Socialist Realist architectural program, denouncing Stalinist architecture as one of “ornate excesses,” and designated rapid satisfaction of immediate physical need as the first priority for the post-Stalinist Soviet building program (Union of Soviet Socialist Republics 1955). Per capita living space in the Soviet Union as of 1950 was only 4.89 square meters, with only 38.4 percent of housing produced by the state (Morton 1984, 72). Under the Sixth Five-Year Plan (1956–60), investment in housing development more than doubled, with an average of 2 million housing units built per year from 1957 onward. In 1959, 2.7 million units were built, the highest rate of housing construction in the USSR (Morton 1984).

The first wave of post-Stalinist mass housing construction resulted in relatively



Figure 2: Regular development of model I-447 khrushchevki. Source: Meuser and Zadorin 2016.

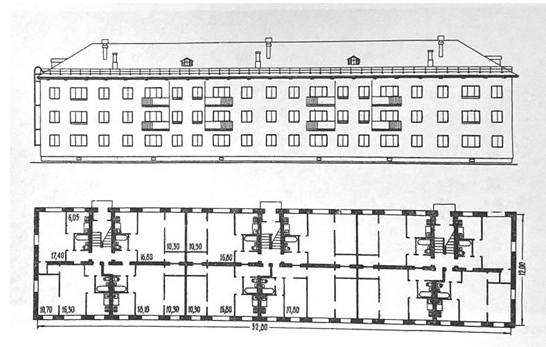


Figure 3: Elevation and first floor plan of model I-447C-1 for thirty-six flats (1957). Source: Meuser and Zadorin 2016.

simple structures. Rectangular five-story (any higher and an elevator would have been required by law) mortared brick or concrete block constructions known as *khrushchevki* were produced and reproduced across Soviet Russia with little variation (Figures 2, 3). The prototypical models, I-447 and its variants, I-447C-1 through I-447C-32, as they would come to be known, consisted of two, three, or four joined segments, each with their own entrance and stairwell. They featured a slightly pitched roof, a façade punctuated by climatically impractical balconies (which residents subsequently enclosed and used for storage), and cramped interiors, the dimensions of which were later greatly reduced.<sup>3</sup> Furthermore, Union-wide standards were set for sanitation, climate control, soundproofing, fire resistance, and earthquake-proofing in seismically active regions (SNiP II-B.4-55). Gosstroj codified these standards in *Stroitelnye normy i pravila* (SNiP); however, they were frequently little more than ideals.

Despite the regimentation of every aspect of the design, these early brick structures were only envisioned as a stopgap measure. Following their breakneck production in the mid- to late 1950s, which somewhat eased the housing crisis, Soviet planners looked to more efficient construction methods. The year 1958 marked the beginning of the first generation of prefabricated mass housing construction. Soviet engineers had experimented with prefabricated panel construction and individual prefabricated structural elements during the first wave of post-Stalinist construction, and architects began to implement the newly developed methods on a larger scale.

The K-7 plan is often cited as the first of the large-panel khrushchevki, but it was in fact the I-464 and I-464A plans that established the primacy of prefabricated modular panel construction systems. Produced from 1958–64 and 1961–74 respectively, I-464 became the most widely used plan in this first period of large-panel developments owing to its efficient and economic construction (Meuser and Zadorin 2016, 193). As architectural historians Philip Meuser and Dmitriy Zadorin explain:

Because floor slabs were supported along the perimeter, all four walls were capable of transferring both vertical and horizontal loads. The modest dimensions of the constructive cells allowed for the thinning of wall panels to 12 cm and to 10 cm for floor slabs, while the plain sectional elements helped to simplify production, making it cheaper. ... Given the thicknesses of the panels, there were no problems with cracks, a frequent shortcoming of thin-walled constructions that could be solved only by very expensive additional reinforcement. (194–95)

However, the I-464 and its successor models had very little aesthetic variation. These largely flat-roofed (per a 1961 design revision) five-story blocks featured four standardized apartments per stairwell on every floor, each with a private balcony (Figures 4, 5) (195).<sup>4</sup> This first generation of prefabricated panel construction largely resulted in the monotonous rows of rectangular buildings characteristic of earlier khrushchevki. Housebuilding



Figure 4: Model of a tile-faced large-panel I-464 block for 80 apartments. Note the mélange of residents' modifications to balconies and windows, disrupting the otherwise homogeneous façade. Source: Putintsev 2019.

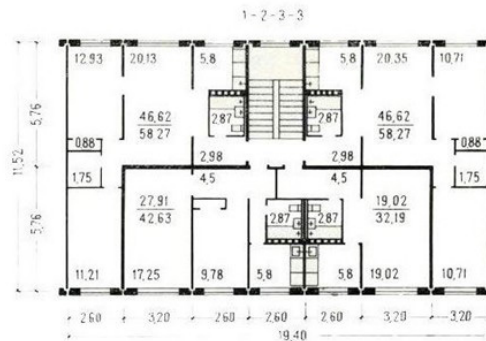


Figure 5: Floor plan for one section of a standard I-464 apartment building. Like I-447, multiple sections were joined to create larger apartment blocks, although these sections were not internally connected and could only be accessed via their own stairwell. Source: Metrkvadratny c.1960s.

factories were largely unable to accommodate this variety, and factory leadership often settled on one design in the hopes that they would be able to broaden production in the future. However, some efforts were made to vary building façades to promote distinction between buildings, and by extension, to create a more engaging environment. Entrances and balcony parapets were now executed in a variety of materials, finishes, and colors (Figure 6). Staggered building heights were also introduced on a limited basis to create a more varied skyline (183). Most significantly, the prefabricated panels were mechanically treated or finished in ceramic tile, roughcast, or colored concrete to prevent the “faceless monotony” of endless rows of identical apartments punctuated by equally regimented green spaces.

While residents moving to new housing developments from communal apartments overwhelmingly praised their new homes, the designs (or lack thereof) for the surrounding spaces drew significant criticism. Susan Reid (2018) describes the “undefined” spaces between housing blocks as “non-places”; lacking playgrounds, benches, or amenities of any kind, these spaces often failed to meet the minimal standard of being in any way green (164–65). Reid states:

Igor' (St. Petersburg) recalls, as many of my interviewees do, his mixed emotions on receiving a



Figure 6: Nine entrance variants for the I-335, demonstrating range of color and material for exterior modular elements. Source: Meuser and Zadorin 2016.

new flat: happiness tainted by anger and disappointment that, when they first moved in, the yard space was unusable because it was still cluttered with the debris left behind by the builders. It “was of course terribly joyful for us,” but, “all around there was nothing.” (165)

Planners would address these shortcomings in the next prefabricated generation.

### 3. CASE STUDIES

#### 3.1. GENERATION 2

The second generation of Soviet prefabricated housing, developed under Khrushchev and implemented from approximately 1963 to 1971, shifted the focus of the construction program away from the satisfaction of basic needs (as the housing crisis had significantly improved) toward comfort and societal advancement. The segmented rectangular constructions of the first generation now gave way to a cornucopia of designs, including towers and meandering block-sectional “ships” in a variety of shapes and configurations, in addition to rectangular blocks. These complexes were usually of a larger scale and featured improved apartment plans. The most consequential innovation, however, was the inclusion of usable public space and new collective services.

Having largely rejected the first generation’s characteristic rows of apartment blocks interspersed by largely flat grassy or wooded areas, the occasional ground-floor shop, and nothing more, officials now called for plans that more actively incorporated social services into the fabric of the neighborhood. The concept of the *mikroraion*—developed in the 1950s and early 1960s, but not meaningfully implemented until the late 1960s and early 1970s—was established to foster the network of social services and community relationships essential to the development of socialist society, guiding socialist urban planning until the collapse of the Soviet Union (Figure 7) (Meuser and Zadorin 2016, 149).<sup>5</sup> In addition to housing, the new standards specified that residential districts include within walking distance childcare and educational facilities, social services, playgrounds, event spaces, green space, shops, and access to transportation to larger commercial

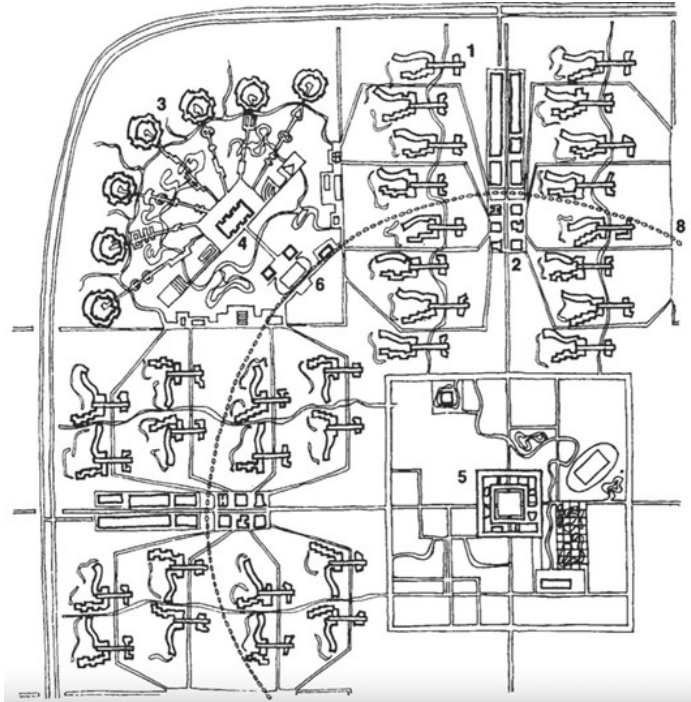


Figure 7: Diagram of a theoretical mikroraion fulfilling the criteria of the New Unit of Settlement (NUS). Legend: 1) primary residential units; 2) community center for the sector; 3) school community complex; 4) academic center; 5) community center for the NUS; 6) sports complex; 7) highway; 8) rapid transport above pedestrian level. Source: Gutnov et al. 1968.

centers and places of work (Meuser and Zadorin 2016; Gutnov et al. 1968, 27; Varga-Harris 2015, 47). Contrary to prevailing accounts of the post-World War II housing boom, which criticize the projects built as haphazard products of convenience or economy, form was an intentional driver of ideology, not merely its receptacle. Convenience and budget contributed to the extensive use of prefabricated elements in the construction of mikroraiony; however, the manner in which ideology was intentionally promoted through design must not be ignored. In the words of architectural historian Catherine Cooke, “state and buildings here were equivalent as aesthetic objects and conceptually interchangeable” (1997, 147).

The block-sectional “ships,” produced primarily in Leningrad beginning in the early 1970s, presented the most radical integration of housing and social infrastructure achieved in a Soviet Russian mikroraion, emblematic of the broader emphasis placed on social services in the second generation of prefabricated housing. These high-rise buildings consisted of block sections organized in centralized or sinuous linear plans often suggesting organic forms (Figure 8). One of the most dramatic examples of this method is *dom-zmeya* [the snake house], located in Leningrad’s Sosnovaya Polyana district. Constructed from 1970 to 1979, the series LG-600A-14 combined linear-trefoil, block-segment apartment complex mimics the curves of a nearby river, sheltering in its shadow a variety of recreation areas, schools, shops, and transportation networks in addition to green space (Figure 9).

Reminiscent of the organizational structure espoused by Gutnov in *The Ideal Communist City*, the transition to more densely packed mikroraiony, and specifically to more aesthetically appealing apartment block design, represented a decisive step forward in the development of the socialist urban plan. In the words of Michele Cera and Guido Sechi (2020):

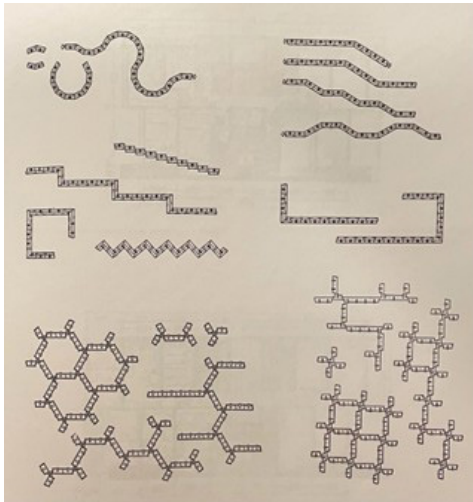


Figure 8 (Left): Compositional possibilities of the new block-sectional method: linear (above), trefoil (bottom left), and cross (bottom right) structures. Source: Meuser and Zadorin 2016.

Figure 9 (Right): The snake house, a linear block-sectional complex by Naum Zakharovich Matusevich and Evgeny Mikhailovich Poltoratsky, Sosnovaya Polyana, Leningrad, 1970–79. Legend: 1) residential complex; 2) middle school; 3) soccer field; 4) park; 5) kindergarten; 6) beauty salon (within residential complex); 7) playground; 8) rail line; 9) kindergarten; 10) nature preserve. Source: Orekhov 2018 (labeled by author).

The ideological relevance of the phenomenon was to a large extent strengthened by the strict relation that was envisaged, under Stalin, between urban space, welfare, and industry; but these aspects were decisively strengthened during the Khrushchev years when company towns became specific socio-spatial environments where the company owned residential housing and service infrastructure and was responsible for welfare provision, giving way to an interconnected system and, hence, to a distinctive community and way of life. (20)

The scope of Cera and Sechi's analysis is limited to the Soviet Russian industrial town of Tolyatti in the Samarskaya oblast. However, their statement reflects the general ideology of Soviet residential development in the 1960s and beyond. The interconnectivity of residential infrastructure and the broader network of social services was the hallmark of the socialist urban plan, one that was facilitated by the transition away from evenly spaced rows of identical apartment buildings and toward more visually varied geometric compositions.

The incorporation of social services into the urban plan was eagerly welcomed. In *Stories of House and Home: Soviet Apartment Life in the Khrushchev Years* (2015), Christine Varga-Harris describes how the aesthetic stimulation and improved social logistics of mikrorayony purportedly inspired increased productivity in keeping with socialist ideology:

Designating services and facilities aimed at promoting enjoyable leisure as fundamental to urban planning, one factory newspaper declared, these are "not trifles [*melochi*], nor secondary things" because "both the mood of people and their labor productivity" depend on the manner in which daily life is organized and on the availability of consumer and cultural amenities. Individuals who were inspired to work more efficiently after moving into new apartments with bright, spacious rooms affirmed this. One group of new residents cited their "wonderful building" for making them "want to work even more, even better, in order to show gratitude." (47)

In this manner, the advancement of urban residential planning under Khrushchev served to both reflect and advance the contemporary state of the socialist cause.

### 3.2. GENERATION 3

The third generation of prefabricated mass housing, beginning around 1971 after a slow transition and enduring even after the fall of the Soviet Union, represented the most

substantial typological development in the Soviet urban plan. Following the propagation of *mikroraiony* and integration of social services into the residential landscape, Soviet planners turned their attention to the more qualitative aspects of everyday life in keeping with the Marxist principle that being (the material environment) determines consciousness (successful ideological dissemination). Construction tempos were to be maintained; however, the emphasis became the diversification of architecture and urban planning. Visual and functional variety would invigorate public space, facilitating and inspiring increased collective productivity. The typological range made possible by the creation of the Unified catalog of prefabricated elements and the proliferation of modular construction methods for both interiors and exteriors created a much more heterogeneous landscape. Individual buildings of the same series often resembled each other in name only. Discussing two of the most widespread of the modular adaptive series, Series 90 and 121, Meuser and Zadorin (2016) state:

There was nothing that could be identified as unique to this series; so many of its examples turned out to be mutually less alike than in comparison to analogous designs of other systems, and to Series 121 in particular, with which Series 90 developed in tandem in the 1970s. It should be acknowledged, however, that this very lack of recognisability was the ultimate goal of the Unified catalogue and of Soviet standardised architecture as a whole—the dream of prosperous inter-serial interchangeability of construction components, expressed both in plan and form. (349)

These structures (Figure 10) were characterized by comparatively dramatic variations in height, exterior geometry, floor plan, color, texture, and materials. This combination of modular building technology and diversified aesthetics would be the closest that Soviet Russia would come to achieving its vision of communist social infrastructure.

Yet, at any point, did Soviet Russian mass housing cease to be a mere collection of buildings and become capital-A architecture? Housing is often regarded as building as opposed to architecture, as it was for centuries the product of embodied tradition. Prefabricated mass housing of the Soviet kind stands in stark contrast to the vernacular and is therefore vindicated on this point. The concept of prefabrication, however, raises the question of type versus model, and by extension, whether the assembly of



Figure 10: Three examples of Series 121 apartment blocks, demonstrating the typological potential of the series. First: unidentified twelve-story apartment block; second: ten-story curvilinear block for 235 apartments, Tikhookeanskaya Street, Khabarovsk, 1988; third: five-story block, Kislyakov Street, Pskov, 2005. Source: Na dache foto 2015–2021.

modular elements can result in what might be considered Architecture as opposed to mere building. Theorist Antoine-Chrysostome Quatremère de Quincy's definition of the architectural type as a point of departure for creative possibility as opposed to a model to be followed would appear to demote the earlier phases of Soviet prefabricated housing to the level of modeled construction, as opposed to bona fide architectural design.

Philipp Meuser and Dmitri Zadorin's *Towards a Typology of Soviet Mass Housing: Prefabrication in the USSR, 1955–1991* (2016) presents a more nuanced perspective. Dividing the post-Stalinist prefabrication boom into three periods, the authors track the development of the Soviet building program from one concerned with the rapid satisfaction of an immediate physical need, to one concerned with the technical optimization of construction technology and prefabricated elements, to one that used these optimized technologies to push the limits of architectural design.<sup>6</sup> Meuser and Zadorin posit that only the first generation of post-Stalinist prefabricated housing could be classified as mimetic, modeled buildings, whereas the later generations used prefabricated elements and approved plans as points of creative departure rather than replication. I assert that the second generation of prefabricated housing was not so significantly diversified as to be considered genuinely typological. While building geometry featured considerable variation, façade finishes did not. In contrast, the third generation of Soviet housing allowed for considerable variation of both form and aesthetic. By this metric, then, only the third generation would be considered genuinely architectural, embodying the notion of type established by architect and theorist Rafael Moneo (1978):

The concept of type is in itself open to change insofar as it means a consciousness of actual facts, including, certainly, a recognition of the possibility of change. By looking at architectural objects as groups, as types, susceptible to differentiation in their secondary aspects, the partial obsolescences appearing in them can be appraised, and consequently one can act to change them. The type can thus be thought of as the *frame within which change operates*, a necessary term to the continuing dialectic required by history. From this point of view, the type, rather than being a "frozen mechanism" to produce architecture, becomes a way of denying the past, as well as a way of looking at the future. (27)

The denial of the past and orientation toward the future defines the third generation of Soviet mass housing as being the closest to the communist ideal. Stimulating hearts and minds through an aesthetically diversified landscape that promoted integrated social and cultural services, the planned obsolescence and replacement of these typological structures following the manifestation of perfect communism, and the "end of history" would have signified the ultimate sociopolitical achievement.

#### 4. ANTI/OBSCOLESCENCE

SNiP guidelines for residential housing were amended in 1958, 1964, 1971, 1985, and 1990 in conjunction with the generational developments in prefabricated mass housing, but the original demolition schedule was never replaced, only expanded.<sup>7</sup> From an ideological standpoint, Soviet material reality was predicated upon the assumption of a constant cycle of renewal, or the necessary obsolescence of the old in order to advance closer to the realization of communism. Despite the overall projected duration of each building class, individual building elements were recognized as having much shorter lifespans. Only the foundation, walls, and ceilings were intended to endure (although in many cases they did not due to environmental conditions) for the entire projected longevity span, with individual building components requiring periodic replacement (Table 2) (Union of Soviet Socialist Republics 1964a). The USSR Council of Ministers established local housing and maintenance offices (ZhEKs) in 1959 to take charge of such repairs (Golubev 2020, 95). However, these offices were mismanaged and backlogged to such a degree that the state encouraged the development of committees of resident volunteers (*domkomy*) to work with the ZhEKs and to carry out repairs (Golubev 2020). Citizen responsibility for residential maintenance and repairs could be interpreted as a step toward the realization of communism, had ZhEKs provided these

Projected service life for individual building elements (excerpt)							
N p/p	Engineering Equipment	Average Longevity in Years by Type of Building					
		I	II	III	IV	V	VI
16	<b>CENTRAL HEATING</b>						
	heating appliances – radiators	40	40	40	30	30	–
	pipelines	30	30	30	30	30	–
	cast iron boilers	25	25	25	25	25	–
	steel boilers	20	20	20	20	20	–
	pumps, fans, and electric motors	10	10	10	10	10	–
	pipeline insulation	10	10	10	10	10	–
	boiler linings (brick)	5	5	5	5	–	–
chimneys	10	10	10	10	–	–	
17	<b>HOT WATER</b>						
	pipelines	10	10	10	10	10	–
	piping insulation	10	10	10	10	10	–
18	<b>VENTILATION</b>						
	shafts and boxes	30	30	30	30	30	–
	slag-gypsum board exhaust ducts	30	30	30	30	30	–
	cinder-concrete slab exhaust ducts (bathrooms)	30	30	30	30	30	–
19	<b>WATER SUPPLY AND SEWERAGE</b>						
	black gas lines	15	15	15	15	15	15
	galvanized gas lines	30	30	30	30	30	30
	cast iron pipelines	40	40	40	40	30	15
	faucets and mixer taps	15	15	15	15	15	15
	earthenware fittings	15	15	15	15	15	15
	courtyard water supply and sewerage network	40	40	40	40	30	15
	enameled cast iron bathtubs	40	40	40	40	30	15
enameled cast iron sinks	30	30	30	30	30	15	
	wood-burning water heaters	20	20	20	20	20	15
20	<b>ELECTRIC LIGHTING</b>						
	open wiring	20	20	20	20	15	15
	concealed wiring	30	30	30	–	–	–
	inputs and main lines	30	30	30	30	30	15
	switches, sockets, etc.	10	10	10	10	10	10
21	<b>GAS</b>						
	internal and external network	20	20	20	20	20	15
	gas stoves	20	20	20	20	20	15
	gas water heaters	10	10	10	10	10	10
22	<b>ELEVATORS</b>						
	motors, winches, and ropes	15	15	–	–	–	–
	cars	30	30	–	–	–	–

Table 2: Regulatory average service life for six groups of residential buildings, their structural elements, building decoration, and engineering equipment based on material (excerpt highlighting engineering elements with lesser longevity than the overall average for the buildings in which they were installed). For full table, consult Table A.1 in Appendix A. Source: Union of Soviet Socialist Republics 1964a (author's translation).

services to begin with and gradually transferred authority to *domkomy* as a part of late socialist decentralization. In this case, however, *domkomy* assumed this role owing to the overwhelming lack of state accountability for the condition of mass housing beyond the construction process. Adding to the need for residents' involvement in repairs was the fact that they often moved into unfinished buildings, and environmental conditions and poor materials caused building elements to wear out prematurely (Varga-Harris 2015, 68–69).<sup>8</sup> This involvement fostered an intimate relationship between residents and their homes that in effect staved off the buildings' descent into functional obsolescence.

#### 4.1. THE REPAIR SOCIETY

The extensive resistance of the citizens of Moscow and the Russian people at large to the demolition and replacement of Soviet housing in 2017 might seem irrational from a Western perspective. Both capitalism and socialism demand obsolescence, albeit for different reasons. Under capitalism, broken goods are replaced, only rarely repaired; perfectly functional items are replaced simply because of the availability and cost of a newer product (new products are often cheaper than repairs), the chicness of a new style, or the high value of land to be repurposed. In contrast, under socialism, obsolescence both drives and reflects a society's material advancement. These factors, combined with the popular western perception that the Soviet period was exclusively one of intense oppression and repression—something not to be looked back upon with fondness or nostalgia—drive our incredulity at the Russian people's refusal to accept the obsolescence of Soviet residential infrastructure.

The concept of the Soviet “repair society” explains a large part of the origins of this resistance. In their work of the same title, Ekaterina Gerasimova and Sof'ia Chuikina (2009) underscore how the Soviet economy, with its surpluses of undesired products and shortages of desired ones, necessitated the widespread development of individual skills of creative repair, customization, and refashioning that in turn became integral to the secondary economy of repair. Available products were purchased and subsequently customized at home to meet the user's exact desires. Unneeded items were often acquired and stored in anticipation of future scarcity or need, while broken items were saved to be refashioned altogether or used for parts for parts. The relationship between the Soviet people and their material environment is perhaps best expressed linguistically. Gerasimova and Chuikina point to the common origin of the Russian words *tovar* [good, product] and *tovarisch* [comrade], equating the sacrilege of discarding an old or damaged item to the abandonment of an injured friend. In their words:

The adaptation and mutual habituation between objects and people was often long and painful: breaking in a pair of boots, getting used to the uncomfortable handle of a tool ... The goods themselves prompted active personalization through their transformation and mutual adapt[at]ion. Sometimes after being thus “assimilated,” the item acquired a unique character and could be correctly used only by its owner. An old object was kept for a long time before being thrown away not only because a new one was expensive or unavailable but also because the painful stage of mutual abrasion between the owner and the old object had already run its course. (68)

Such processes of customization and mutual adaptation were not limited to the scale of individual objects. The ineffectuality of ZhEKs and the resulting establishment of residents as the primary source of repairs and modifications for impractical buildings notorious for constant breakdowns expanded this material relationship to a scale beyond that of the singular object. A prime example is the Soviet balcony. Even in such harsh climates as the Arctic Circle, Soviet Russian prefabricated housing featured open balconies that were subsequently enclosed by their residents and repurposed for storage, laundry, expanded living space, etc. (Dorfman 2020). Local leadership in the high latitudes even decided to remove balconies from some apartment blocks, as the effects of time and weather made them structurally unsafe.<sup>9</sup> Although the result of these interventions was a chaotic jumble of materials, colors, and building techniques that diminished the visual impact of the original façades, apartment buildings with unenclosed balconies continued to be

constructed by the state even after the fall of the Soviet Union. Thus, the relationship of the individual to state-provided residential construction was (and, in some cases, still is) characterized by the necessary adjustment of the individual to the apartment and the apartment to the individual.

## **5. THE IDEOLOGY OF DESTRUCTION**

The deliberate destruction of architecture is not a new phenomenon, nor is it one that has been neglected by scholars, although the context of study has largely been that of warfare and terrorism. Architectural historians Eyal Weizman and Andrew Herscher (2011) have posited that it is in fact the act of the politically motivated destruction of a work of architecture that endows it with broader social meaning, citing the destruction of mosques in Kosovo by the Serbian military, as well as the reconstruction of Palestinian refugee camps destroyed by Israeli artillery. By this metric, it takes the physical manifestation of placelessness for the former place to attain cultural salience (113–14). Extending their scholarship, I would propose that a building that is not destroyed in accordance with its intended lifespan gains new meaning within its sociological context.

The Soviet context is unique in that its buildings, unlike those cited by Weizman and Herscher, were not intended to endure indefinitely. Destruction in this case is, at least in theory, inherently nonviolent, planned as a part of the underlying ideology of perpetual social progress that would simultaneously facilitate and be facilitated by the advancement of construction methods and, more broadly, urban design. In a reversal of the theory of the meaning of politically motivated violent architectural destruction, in which significance is ascribed to a destroyed construction that held little significance in its intact state, an architectural work that is planned with the intention of destruction can be theorized to attain a greater significance at the point when that planned destruction fails to be realized.

Architecture destroyed by warfare, terrorism, or other intercultural conflict often attains the status of an inanimate martyr, or, at the very least, of an unfortunate casualty (Herscher 2014, 465). Nonetheless, the act of destruction takes on great symbolism for the culture against which such violence is inflicted. The cultural significance of Soviet housing infrastructure having outlived its own projected longevity is more complex. On the most basic level, the failure of the urban plan to be renewed in accordance with the anticipated pace of the approach of communism can be seen as marking the failure of the socialist project and the pernicious socioeconomic stagnation that characterized both the final years of the Soviet Union and its largely chaotic transition to capitalism in the 1990s and early 2000s. Moreover, it speaks to the attachment of the people to their material surroundings and their agency in making and maintaining their own residential environment.

While the desire to maintain the physical vestiges of Soviet reality may appear on its face a popular desire to revive the glories of the bygone socialist regime, the denial of obsolescence could not be further from the socialist worldview. In keeping with the constant state of urban renewal that both reflected the advancement of and served to advance socialist projects, obsolete buildings are not ideologically or socially “wrong, just inadequate,” as they would not be in step with the latest stage of sociopolitical development (Cherkaev 2018, 305). Soviet citizens themselves realized this and manipulated the situation to their advantage when they could. A 1958 appeal from residents of a crumbling communal housing block last renovated under Stalin cited the launch of Sputnik as justification for the renovation of their building, lamenting that a society capable of space exploration would house its citizens in such deplorable conditions (Varga-Harris 2015, 147). In the present day, there are different considerations at play for those whose homes were and are slated for demolition. Families fear being pushed out of low-rise buildings surrounded by green space in the city center and forced into suburban high-rises while real estate developers, and by extension the government, would usurp and profit from the sites they once called home (Associated Press 2017).

The protesters' rhetoric goes beyond these logistical concerns and government abuses, revealing the residents' relationships with their homes. These profound relationships are intrinsically linked to the reality of the Soviet economy of repair (Balmforth 2017). The works of Gerasimova and Chuikina (2009), anthropologist Katherine Verdery (1998), and others reveal that in the Soviet and post-Soviet contexts, attachment to the material world deepens when the process of construction, adaptation, and renovation of an object is prolonged, involving the ingenuity and discomfort of the user or their forebears. Verdery writes:

In a certain sense, these buildings embody the common suffering of all those who lost [property] to the collective: the structures were the result of everyone's combined labor, but alongside their sweat were blood and tears. Anyone ... who did not participate in that experience but wants to appropriate its results finds himself facing the community from the outside. (113)

While Verdery is discussing the nebulous legal status of a granary in post-communist Romania, the notion of infrastructure as the product of collective suffering, the fruits of which are still being enjoyed, extends to the Russian context as well. Despite the trauma of the mutually abrasive material environment associated with Soviet prefabricated mass housing and regardless of the possibility for improved living conditions in the suburbs, many residents are unwilling to sacrifice their long-standing and often contentious relationship with obsolete buildings.<sup>10</sup> These buildings, after all, are their homes.

Transcending all conceptions of architecture or building, these homes are first and foremost embodied spaces defined by a unique friction. This friction, the result of poorly executed good intentions, continues to demand resident attention and interaction on both physical and mental levels. And if Juhani Pallasmaa has taught us anything, it is that bona fide architectural relationships are never passive. Were these housing blocks built perfectly, there would be no friction, and the resident and the building would in essence live separate lives. Architecture in the Soviet case, then, transcends concerns of prefabrication, typology, perceived state failings, etc., and exists quietly in the cracks.

## CONCLUSION

What does this attachment indicate about contemporary Russian relationships toward Soviet infrastructure and material culture at large? The fact remains that Soviet material reality did not end with the Soviet Union's dissolution in 1991. The popular fetishization of Brutalism has reduced Soviet structures to relics of a bygone era, ignoring their continued social and political life (Kulić 2018; Rann 2014). However for those for whom these residences are an active reality, they remain vital and beloved (Reid 2018, 141–74). Architecture is, in the words of imperial historian John MacKenzie (2020), "the most intrusive of the material deposits of empires" (26), yet it is not static. "Even if hegemonic power relationships were implicated in their construction, buildings could never represent a permanent and unchanging authority" (24). Although Soviet housing could be considered politically obsolete given the collapse of the communist project, it is no less politically relevant in the "fuzzy"—not-fully-capitalist, not-fully-government-controlled—residential market that has emerged in the post-Soviet period (Verdery 1998, 103–5). The majority of these structures are obsolete according to Soviet demolition schedules and are generally not of significant aesthetic value (as opposed to their Stalinist counterparts). Their fate remains dependent upon the idiosyncrasies of post-Soviet property rights that overwhelmingly favor state authority, portending the manifestation of an obsolescence motivated by financial gain. One can only hope that residents will be able to continue to defend their homes against such state ambitions.

This project has endeavored to bring to the fore one of the more elusive concepts in Soviet architecture, that of planned obsolescence. While my analysis has been limited to residential architecture in Soviet Russia, the phenomenon extends far beyond these confines. Further scholarship is necessary to understand the dynamics of residential obsolescence in each individual Soviet republic. Despite centralized standards, execution varied depending on the specific climatic, geographic, cultural, and political contexts of

the former Soviet republics. These differences distinguished not only individual republics, but also individual cities within those republics. Furthermore, obsolescence has yet to be explored in the broader context of Soviet public buildings at large, as the concept was not limited to housing. It is my hope that this preliminary examination of the ideological underpinnings of Soviet Russian residential obsolescence and its effects on housing design may pave the way for a broader discussion of this increasingly relevant, politically charged dimension of the former Soviet built environment.

## APPENDIX A

Projected service life for individual building elements

N p/p	Building Type, Their Construction Elements, and Finishes	Average Longevity in Years by Type of Building					
		I	II	III	IV	V	VI
	<b>Residential Buildings</b>						
1	<b>Overall term of service for a residential building</b>	150	125	100	50	30	15
	<b>Construction Elements and Building Finishes</b>						
	<b>FOUNDATIONS</b>						
2	rubble with compound or cement mortar, concrete, or reinforced concrete	150	125	100	--	--	--
	rubble with lime mortar	--	--	--	50	--	--
	rubble or concrete pillars	--	--	--	--	30	--
	wood	--	--	--	--	10	10
	<b>WALLS</b>						
3	load-bearing stone (brick with a thickness of 2.5–3.5 bricks) or large-block with compound or cement mortar	150	--	--	--	--	--
	standard stone (brick with a thickness of 2–2.5 bricks), large-block and large-panel	--	125	--	--	--	--
	lightweight brick, slag concrete, and shell rock masonry	--	--	100	--	--	--
	log	--	--	--	50	--	--
	prefabricated wooden panel, frame, and adobe	--	--	--	--	30	--
	frame-reed and other light materials	--	--	--	--	--	15
	<b>CEILINGS</b>						
4	reinforced concrete prefabricated monolith	150	125	100	--	--	--
	with brick vaults or concrete fill on metal beams	--	125	100	--	--	--
	wood with metal beams	--	80	60	--	--	--
	wood with wooden beams	--	60	60	50	30	15
	<b>FLOORS</b>						
5	beech parquet on a plank base	50	50	50	--	--	--
	oak parquet or panels on a plank base	80	80	80	--	--	--
	plank	40	40	30	30	30	15
	linoleum	20	20	20	20	20	15

5	PVC tile	25	25	25	25	25	15
	ceramic tile on concrete	80	80	80	--	--	--
	marble-faced cement	40	40	40	--	--	--
	iron-plated cement	--	30	30	30	30	--
	mastic asphalt on polyvinyl acetate	--	30	30	30	30	--
6	<b>STAIRCASES</b>						
	landings of reinforced concrete, steps of stone over metal, reinforced concrete stringers, or a reinforced concrete slab	100	100	100	--	--	--
	marble-faced concrete	50	50	50	--	--	--
	wood	--	--	--	15	15	8
7	<b>ROOFS (LOAD-BEARING ELEMENTS)</b>						
	from precast reinforced concrete flooring	150	125	--	--	--	--
	precast reinforced concrete rafters and purlins	150	125	--	--	--	--
	precast reinforced concrete rafters and purlins	50	50	50	40	30	15
8	<b>ROOFING</b>						
	first-grade ceramic shingles	80	80	80	50	--	--
	asbestos (tiles and corrugate)	30	30	30	30	30	--
	black sheet steel	15	15	15	15	--	--
	galvanized sheet steel	25	25	25	25	--	--
	roll roofing (2-3 layers of Ruberoid and 1 layer of glassine)	12	12	12	12	10	8
	mastic asphalt on concrete	10	10	10	--	--	--
mastic asphalt	8	8	8	8	--	--	
9	<b>DOWNSPOUTS</b>						
	galvanized roofing steel	8	8	8	8	--	--
	black roofing steel	6	6	6	6	6	--
10	<b>ROOF PAINTING AND COATING</b>						
	two layers of lacquer over corrosion-resistant enamel primer on black roofing steel	4	4	4	4	--	--
	two layers of lacquer over drying oil primer on black roofing steel	3	3	3	3	--	--
	two layers of lacquer over natural oil primer on black roofing steel	5	5	5	5	--	--
	bituminous coating on Ruberoid	3	3	3	3	3	3
	resin coating on roofing felt	--	--	--	3	3	3
11	<b>PARTITIONS</b>						
	gypsum or gypsum fiber (living spaces)	60	60	60	--	--	--
	plastered wood (living spaces)	--	40	40	40	30	15
	cinder block, concrete, plastered brick (kitchens and bathrooms)	75	75	75	--	--	--
	plastered wood (kitchens and bathrooms)	--	30	30	30	30	15
12	<b>WINDOWS AND DOORS</b>						
	exterior doors	50	40	40	40	30	15
	interior doors	50	50	50	40	30	15
13	<b>HEATING AND KITCHEN STOVES</b>						
	wood-burning stoves (heating)	--	30	30	30	20	15

13	coal-burning stoves (heating)	--	20	20	20	20	15
	wood-burning kitchen stoves	25	25	25	25	20	15
	coal-burning kitchen stoves	20	20	20	20	15	15
	wood-burning kitchen stoves with heat shield	20	20	20	20	20	15
	coal-burning kitchen stoves with heat shield	15	15	15	15	15	15
<b>Internal Finishes</b>							
14	<b>PLASTERING</b>						
	on concrete and brick walls (living spaces)	60	60	60	--	--	--
	on wooden walls and partitions (living spaces)	40	40	40	40	30	15
	on wooden walls (bathrooms)	25	25	25	25	20	15
	in stairwells, lobbies, and other common spaces	40	40	40	30	30	15
	dry plaster (living spaces)	30	30	30	30	30	15
dry plaster (stairwells)	20	20	20	20	20	--	
15	<b>PAINT AND WALLPAPER</b>						
	adhesive paint (living spaces)	5	5	5	5	5	5
	basic wallpaper (living spaces)	5	5	5	5	5	5
	high quality wallpaper (living spaces)	8	8	8	--	--	--
	adhesive paint (common spaces)	3	3	3	3	--	--
	oil-based paint (joinery, living spaces)	8	8	8	8	8	8
	oil-based paint (stairwell, kitchen, and bathroom walls)	5	5	5	5	5	5
	oil-based paint (kitchen, corridor, and bathroom floors)	3	3	3	3	3	3
oil-based paint (plank floors in living spaces)	5	5	5	5	5	5	
<b>Engineering Equipment</b>							
16	<b>CENTRAL HEATING</b>						
	heating appliances—radiators	40	40	40	30	30	--
	pipelines	30	30	30	30	30	--
	cast iron boilers	25	25	25	25	25	--
	steel boilers	20	20	20	20	20	--
	pumps, fans, and electric motors	10	10	10	10	10	--
	pipeline insulation	10	10	10	10	10	--
	boiler linings (brick)	5	5	5	5	--	--
chimneys	10	10	10	10	--	--	
17	<b>HOT WATER</b>						
	pipelines	10	10	10	10	10	--
	pipings insulation	10	10	10	10	10	--
18	<b>VENTILATION</b>						
	shafts and boxes	30	30	30	30	30	--
	slag-gypsum board exhaust ducts	30	30	30	30	30	--
	cinder-concrete slab exhaust ducts (bathrooms)	30	30	30	30	30	--
19	<b>WATER SUPPLY AND SEWERAGE</b>						
	black gas lines	15	15	15	15	15	15
	galvanized gas lines	30	30	30	30	30	15
	cast iron pipelines	40	40	40	40	30	15

19	faucets and mixer taps	15	15	15	15	15	15
	earthenware fittings	15	15	15	15	15	15
	courtyard water supply and sewerage network	40	40	40	40	30	15
	enameled cast iron bathtubs	40	40	40	40	30	15
	enameled cast iron sinks	30	30	30	30	30	15
	wood-burning water heaters	20	20	20	20	20	15
20	<b>ELECTRIC LIGHTING</b>						
	open wiring	20	20	20	20	15	15
	concealed wiring	30	30	30	--	--	--
	inputs and main lines	30	30	30	30	30	15
	switches, sockets, etc.	10	10	10	10	10	10
21	<b>GAS</b>						
	internal and external network	20	20	20	20	20	15
	gas stoves	20	20	20	20	20	15
	gas water heaters	10	10	10	10	10	10
22	<b>ELEVATORS</b>						
	motors, winches, and ropes	15	15	--	--	--	--
	cars	30	30	--	--	--	--
<b>Exterior Elements</b>							
23	<b>FAÇADE FINISHES</b>						
	galvanized roofing steel coverings for corbels, window pediments, and sills	8	8	8	8	--	--
	black roofing steel coverings for corbels, window pediments, and sills	6	6	6	6	--	--
	plastered brick	30	30	30	--	--	--
	plastered wood	--	--	--	20	15	15
	roughcast	50	50	50	--	--	--
	ceramic tile	75	75	75	--	--	--
	natural stone cladding	150	125	100	--	--	--
	perchlorovinyl and polyvinyl acetate paint on plaster	6	6	6	--	--	--
	silicate mineral paint	5	5	5	--	--	--
	oil-based paint on wood	--	--	--	6	6	6
	limewash	3	3	3	3	3	3
24	<b>BALCONIES</b>						
	load-bearing reinforced concrete beams and slab	150	125	100	--	--	--
	load-bearing metal beams with concrete slab	75	75	50	--	--	--
	load-bearing metal beams with plank slab	40	40	40	--	--	--
	load-bearing wooden beams with plank slab	--	--	--	20	15	--
	metal grate	40	40	40	--	--	--
	wooden lattice	--	--	--	10	10	--
	cement floor	20	20	20	--	--	--
	asphalt floor	10	10	10	--	--	--
25	<b>LANDSCAPING</b>						
	asphalt roads	20	20	20	--	--	--
	paved roads	--	--	--	20	20	15

25	paved sidewalks	15	15	15	15	15	--
	blind area—stone	--	--	--	10	10	--
	blind area—asphalt	15	15	--	--	--	--
	lawns	10	10	10	10	10	10
	recreational and children's spaces	15	15	15	15	15	15

Table A.1: Projected service life for individual building elements. Source: Union of Soviet Socialist Republics 1964a (author's translation).

## ENDNOTES

1 Gosstroj was established in 1950 to oversee all aspects of civil and residential infrastructural planning, from budgeting and oversight to design approval and regulation of construction practices.

2 Hereafter cited as SNiP II-B.4-55.

3 I-447 and its variants were perhaps the most commonly and widely produced of the brick and brick block khrushchevka designs. Nevertheless, these models were not widely applied in either Moscow or Leningrad, where regional variants more sensitive to the design of the respective cities were preferred. See Meuser and Zadorin 2016, 235.

4 The second-most popular plan of the first prefabricated generation, the I-335, featured a plan that was visually nearly identical to I-464, varying only in its structural characteristics (Meuser and Zadorin 2016, 205–23).

5 Contrary to the assertions of Meuser and Zadorin and others, I believe that the first wave of post-Stalinist mass housing and the first generation of prefabricated mass housing cannot be classified as mikroraiony due to their low concentration of social infrastructure beyond housing and green space. These housing estates might be better described as bedroom communities as opposed to mikroraiony. 6 Meuser and Zadorin also discuss a fourth generation of Soviet prefabricated housing. Designs for this generation were developed in the 1980s; however, they were only put into practice following the country's dissolution in the 1990s.

7 The 1985 and 1991 SNiP amendments do not specifically reference building longevity, but they do address fire resistance classifications, which had been directly linked to residential longevity classifications since the adoption of SNiP II-B.10-58. Preliminary research regarding this lack of direct commentary on longevity reveals it to be the result of widespread acceptance of fixed building longevity as an infrastructural norm, and not of the abandonment of the concept of planned obsolescence. See «Нормативная долговечность жилых зданий» [Normative Longevity of Residential Buildings] 2020; Union of Soviet Socialist Republics 1958, 3; Union of Soviet Socialist Republics 1964b, 3; Union of Soviet Socialist Republics 1978, 1; Union of Soviet Socialist Republics 1986, 3; Union of Soviet Socialist Republics 1999, 3.

8 For a discussion of the effects of climate on housing durability and material selection, see Kolotilkin 1965, 14–19.

9 In the early stages of the post-Stalinist construction boom, Northern cities prohibited the inclusion of balconies on five-story apartment blocks due to their superfluousness in such a cold climate. However, this policy was not developed until many such buildings had already been constructed, and it was never expanded to buildings taller than five stories. See TravelManiac 2021.

10 For a discussion of the process of mutual abrasion in the first half of the Soviet Union, see Buchli 1999. For a discussion of said process in the Armenian context, see Roters and Petrosyan 2018.

## REFERENCES

- Abramson, Daniel M. 2016. *Obsolescence: An Architectural History*. Chicago and London: University of Chicago Press.
- Associated Press in Moscow. 2017. "Protests in Moscow at Plan to Tear down Soviet-era Housing in Affluent Areas." *The Guardian*, May 14, 2017. <https://www.theguardian.com/world/2017/may/14/people-protest-moscow-plans-to-tear-down-housing>.
- Balmforth, Tom. 2017. "Moscow's Plan to Raze 'Khrushchyovki' Sparks Anger, Confusion Ahead of Elections." *RadioFreeEurope/Radioliberty*, May 6, 2017. <https://www.rferl.org/a/russia-moscow-khrushchyovki-demolition-housing-controversy-elections/28471341.html>.
- Buchli, Victor. 1999. *An Archaeology of Socialism*. Oxford: Berg.
- Cera, Michele and Guido Sechi. 2020. *Tolyatti: Exploring Soviet Spaces*. London: The Velvet Cell and VAC Foundation.
- Cherkaev, Xenia. 2018. "Self-Made Boats and Social Self-Management." *Cahiers du monde russe* 59 (2–3): 289–310. <https://doi.org/10.4000/monderusse.10422>.
- Cooke, Catherine. 1997. "Beauty as a Route to 'the Radiant Future': Responses of Soviet Architecture." *Journal of Design History* 10 (2): 137–60. <http://www.jstor.org/stable/1316129>.
- Dorfman, Sasha. 2020. «Лыжи, политические манифесты и рейвы: Как менялись наши балконы» [Skis, Political Manifestos, and Raves: How our Balconies Have Changed]. *Strelka Mag*, April 14, 2020. <https://strelkamag.com/ru/article/lyzhi-politicheskie-manifesty-i-reivy-kak-menyalis-nashi-balkony>.

- Gerasimova, Ekaterina and Sof'ia Chuikina. 2009. "The Repair Society." *Russian Studies in History* 48 (1): 58–74. <https://doi.org/10.2753/rsh1061-1983480104>.
- Golubev, Alexey. 2020. *The Things of Life: Materiality in Late Soviet Russia*. Ithaca: Cornell University Press.
- Gutnov, Alexei Elbrusovich, Andrei Viktorovich Baburov, Georgy Georgievich Dumenton, Zoya Vasilievna Kharitonova, Ilya Georgievich Lezhava, and Stanislav Alexeevich Sadovsky. 1968. *The Ideal Communist City*. New York: George Braziller.
- Hatherley, Owen. 2016. *Landscapes of Communism: A History of Buildings*. London: Penguin Books.
- Herscher, Andrew. 2014. "In Ruins: Architecture, Memory, Countermemory." *Journal of the Society of Architectural Historians* 73 (4): 464–69. <https://doi.org/10.1525/jsah.2014.73.4.464>.
- Jahn, Hubertus F. 1990. "The Housing Revolution in Petrograd 1917–1920." *Jahrbücher Für Geschichte Osteuropas* 38 (2): 212–27. <http://www.jstor.org/stable/41048384>.
- Kolotilkin, Boris Mikhailovich. 1965. Долговечность жилых зданий [Longevity of Residential Buildings]. Moscow: Stroyizdat.
- Kulić, Vladimir. 2018. "Orientalizing Socialism: Architecture, Media, and the Representations of Eastern Europe." *Architectural Histories*, June 13, 2018. <https://journal.eahn.org/articles/10.5334/ah.273/>.
- MacKenzie, John M. 2020. "Construction and Destruction." In *The British Empire through Buildings: Structure, Function, Meaning*, 1st ed., 23–50. Manchester: Manchester University Press. <http://www.jstor.org/stable/j.ctvxw3pbf.6>.
- Meuser, Philipp. 2016. *Seismic Modernism: Architecture and Housing in Soviet Tashkent*. Berlin: DOM.
- Meuser, Philipp, and Dimitrij Zadorin. 2016. *Towards a Typology of Soviet Mass Housing: Prefabrication in the USSR, 1955–1991*. Berlin: DOM.
- Moneo, Rafael. 1978. "On Typology." *Oppositions* 13 (Summer): 23–45.
- Morton, Henry W. 1984. "Housing in the Soviet Union." *Proceedings of the Academy of Political Science* 35 (3): 69–80. <https://doi.org/10.2307/1174118>.
- «Нормативная долговечность жилых зданий» [Normative Longevity of Residential Buildings]. 2020. Ekspertnoe-tekhnicheskoe biuro, November 16, 2020. <https://proekty-moskva.ru/statji-po-ekspertize/normativnaja-dolgovechnost-zhilyh-zdaniy.html>.
- Pallasmaa, Juhani. 2012. *The Eyes of the Skin: Architecture and the Senses*. Hoboken: Wiley.
- Pallasmaa, Juhani, and Matteo Zambelli. 2020. *Inseminations: Seeds for Architectural Thought*. Hoboken: Wiley.
- "Putin Signs Bill Authorizing Demolition of 4,500 Moscow Apartment Buildings." 2017. RadioFreeEurope/RadioLiberty. July 02, 2017. <https://www.rferl.org/a/putin-moscow-apartment-demolition-protests-relocation/28590076.html>.
- Rann, Jamie. 2014. "Beauty and the East: Allure and Exploitation in Post-Soviet Ruin Photography." *The Calvert Journal*, July 31, 2014. <https://www.calvertjournal.com/features/show/2950/russian-ruins-photography>.
- Reid, Susan E. 2018. "Palaces in Our Hearts: Caring for Khrushchevki." In *Architecture, Democracy and Emotions: The Politics of Feeling since 1945*, edited by Till Großmann and Philipp Nielsen, 141–74. Abingdon-on-Thames: Routledge.
- Roters, Katharina, and Sarhat Petrosyan, eds. 2018. *Utopia and Collapse: Rethinking Metsamor—The Armenian Atomic City*. Zürich: Park Books.
- TravelManiac. «Почему раньше в Норильске строили дома без балконов, а там где они были, их со временем срезают» [Why Norilsk Apartments Were Once Built without Balconies, and When They Were, How They Were Removed over Time]. *Yandex Zen*, January 10, 2021. <https://zen.yandex.ru/media/travelmaniac/pochemu-ranshe-v-norilске-stroili-doma-bez-balkonov-a-tam-gde-oni-byli-ih-so-vremenem-srezaiut-5ff37724af142f0b172bc82b>.
- Union of Soviet Socialist Republics. 1954. Gosudarstvennyi komitet soveta ministrov SSSR po delam stroitelstva. Строительные нормы и правила, часть II: Нормы строительного проектирования [Building Codes and Regulations, Part II: Building Design Standards]. II-B.4-55. Moscow: Gosstroyizdat.
- Union of Soviet Socialist Republics. 1955. Kommunisticheskaya partiya Sovetskogo soyuza i sovet ministrov SSSR. «Об устраниении излишеств в проектировании и строительстве» [On the Elimination of Excesses in Design and Construction]. By Nikita Sergeevich Khrushchev and Nikolai Alexandrovich Bulganin. [http://www.libussr.ru/doc\\_ussr/ussr\\_5043.htm](http://www.libussr.ru/doc_ussr/ussr_5043.htm).
- Union of Soviet Socialist Republics. 1956. Prezidium verkhnovo soveta SSSR. «Об образовании Государственного комитета Совета Министров СССР по делам строительства» [On the Formation of the USSR State Committee of Ministers of Construction]. 1950. In Сборник законов СССР и указов Президиума Верховного Совета СССР. 1938 г. — июль 1956 г. [Collected Laws of the USSR and Decrees of the USSR Supreme Soviet, 1938–July 1956], compiled by M. I. Iumashev and B. A. Zhaleyko, edited by L. I. Mandelshtam, 94–95. Moscow: Gosudarstvennoe izdatelstvo iuridicheskoy literatury.
- Union of Soviet Socialist Republics. 1958. Gosudarstvennyi komitet soveta ministrov SSSR po delam stroitelstva. Строительные нормы и правила, часть II, раздел В: Жилые здания [Building Codes and Regulations, Part II, Section V:

Residential Buildings]. II-B.10-58, second corrected edition. Moscow: Gosstroyizdat.

Union of Soviet Socialist Republics. 1964a. Gosudarstvennyi komitet po delam stroitelstvo SSSR. «О введении в действие положения о проведении планово-предупредительного ремонта жилых и общественных зданий» [On the Introduction of Provisions for the Preventative Maintenance of Residential and Public Buildings]. By Georgy Arkadyevich Karavaev. <http://pravo.levonevsky.org/baza/soviet/sss5662.htm>.

Union of Soviet Socialist Republics. 1964b. Gosudarstvennyi komitet soveta ministrov SSSR po delam stroitelstva. Строительные нормы и правила, часть II, раздел Л: Жилые здания – нормы проектирования [Building Codes and Regulations, Part II, Section L: Residential Design Standards]. II-Л.1-62. Moscow: Stroyizdat.

Union of Soviet Socialist Republics. 1978. Gosudarstvennyi komitet soveta ministrov SSSR po delam stroitelstva. Строительные нормы и правила, часть II, раздел Л: Жилые здания. Нормы проектирования [Building Codes and Regulations, Part II, Section L: Residential Design Standards]. II-Л.1-71. Moscow: Stroyizdat.

Union of Soviet Socialist Republics. 1986. Gosudarstvennyi komitet soveta ministrov SSSR po delam stroitelstva. Строительные нормы и правила: Жилые здания [Building Codes and Regulations: Residential Buildings]. 2.08.01-85. Moscow: Stroyizdat.

Union of Soviet Socialist Republics. 1999. Gosudarstvennyi komitet soveta ministrov SSSR po delam stroitelstva. Строительные нормы и правила: Жилые здания [Building Codes and Regulations: Residential Buildings]. 2.08.01-89. Moscow: Stroyizdat.

Varga-Harris, Christine. 2015. *Stories of House and Home: Soviet Apartment Life in the Khrushchev Years*. Ithaca and London: Cornell University Press, 2015.

Verdery, Katherine. 1998. "Fuzzy Property: Rights, Power, and Identity in Transylvania's Decollectivization." Essay. In *Transforming Post-Communist Political Economies*, edited by Joan M. Nelson, Charles Tilly, and Lee Walker, 102–17. Washington, DC: National Academies Press.

Walter, Alexander. 2017. "Thousands Protest in Moscow against Planned Demolition of Soviet-Era Housing Blocks." *Archinect*, May 15, 2017. <https://archinect.com/news/article/150007483/thousands-protest-in-moscow-against-planned-demolition-of-soviet-era-housing-blocks>.

Weizman, Eyal, and Andrew Herscher. 2011. "Conversation: Architecture, Violence, Evidence." *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism* 8 (1): 111–23. <https://doi.org/10.5749/futuante.8.1.0111>.