

A New Interpretation of the Panel-Block

Future Scenarios for Prefabricated Housing in Riga

Master Thesis

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In Latvia, the panel-block system was utilized for over 30 years. During the Soviet era, prefabricated panel-block buildings were produced in series, with housing block models periodically updated, much like automobile models. This thesis analyses the three variations of 602. Series, a series of panel-block housing models produced in Riga. With the collapse of the Soviet Union panel-block housing production came to an abrupt halt. Leaving behind hundreds of pieces that were produced, but never assembled into buildings.

These leftover building elements can be found throughout the city of Riga, or more specifically within the 50 km radius from the factory where these elements were produced. For 35 years unused panels have been sleeping. Forgotten, grass and bushes have grown in-between the gaps of piles of these panels.

Since our awareness and understanding of architecture and its ecological implications have expanded, these forgotten panels possess immense potential. A potential for reuse. But also, a potential to face architecture that was produced by a totalitarian regime. A regime that used architecture as a tool for consolidation and expansion of its power and influence.

This thesis project explores the potential of the panels that are found on a vacant plot in Sarkandaugava, Riga, where considerable amounts of prefabricated materials from the Soviet era have been left behind for nature to consume them.

On this site, a new apartment building is being constructed through the initiative of a building group, refurbishing and reusing the existing panels. In this way, 602. Series is reimagined to address the current needs and expectations of modern housing in Latvia – a new interpretation of the panel-block emerges.

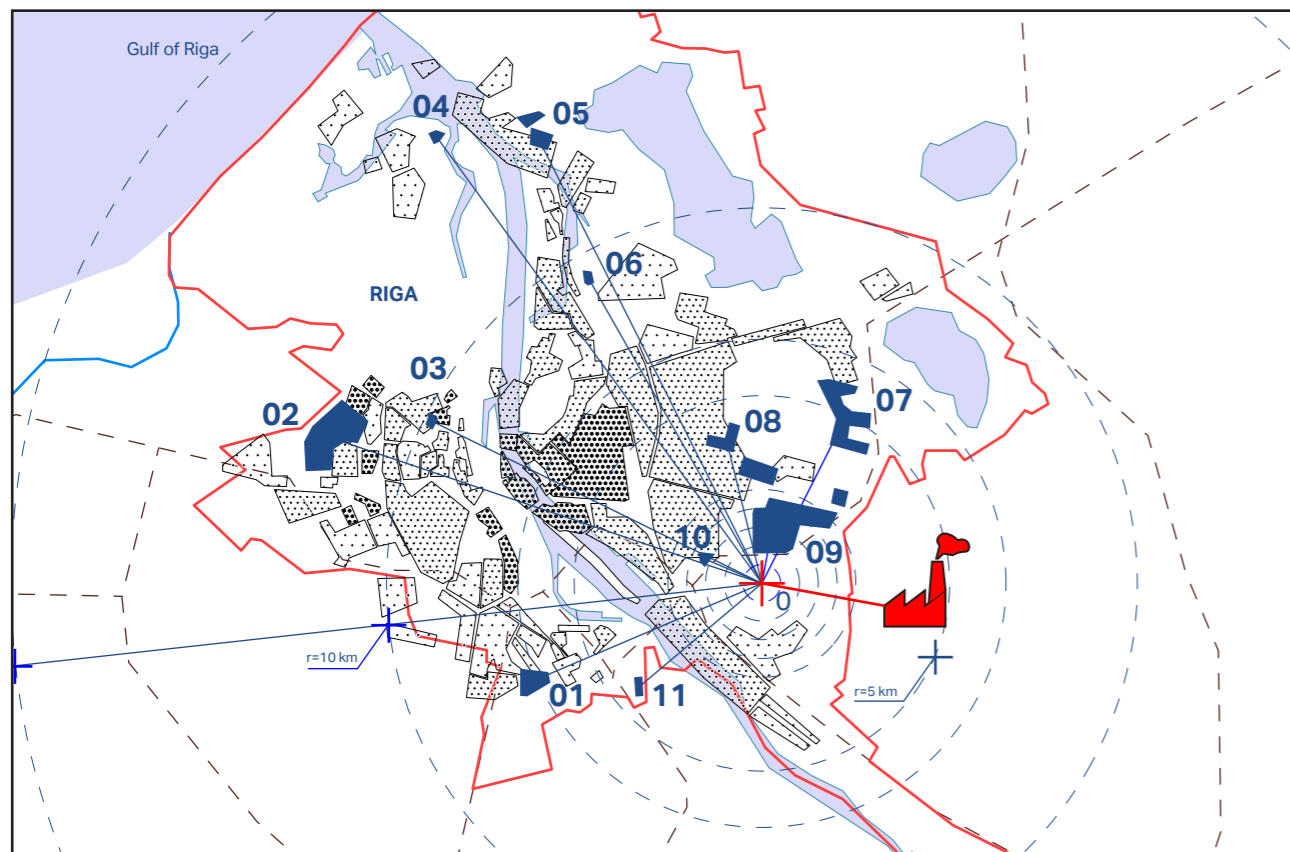
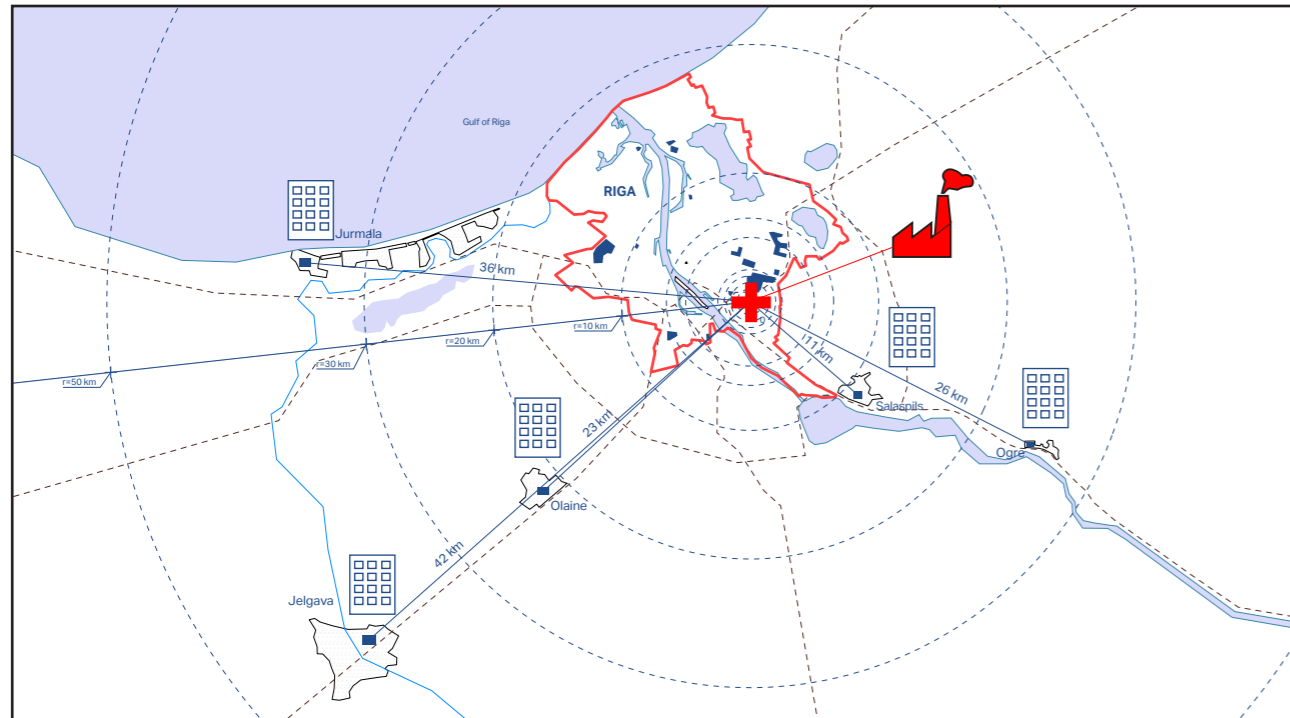


Three Generations of 602. Series
physical model

Photo: Antonia Autischer

The 50 km radius of 602. Series

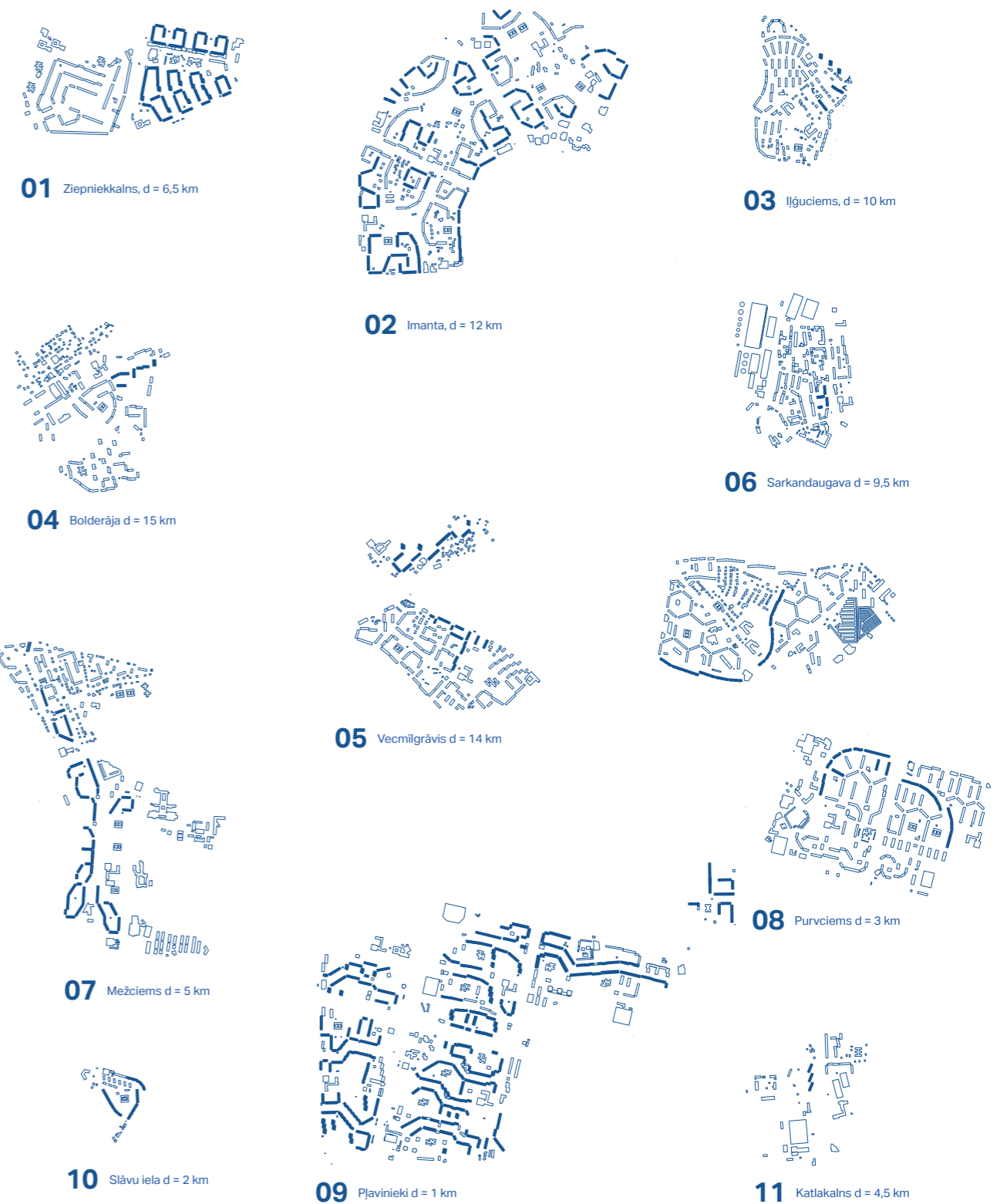
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The map depicts the distance between the factory that produced the building parts for the 602. Series and building sites. All 602. Series buildings can be found within a radius of 50 km from the factory. Proximity to the factory was of great importance because of economical considerations that governed housing production in the Soviet Union. The further the building site was located from the factory that produced the building parts, the higher were the construction costs due to increasingly complicated logistics.

Urban Context of the 602. Series in Riga

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Islands of 602. Series in Riga Schwarzplan

Schwarzplan of different neighborhoods or districts where 602. Series are located. Buildings depicted with blue fill - 602. Series



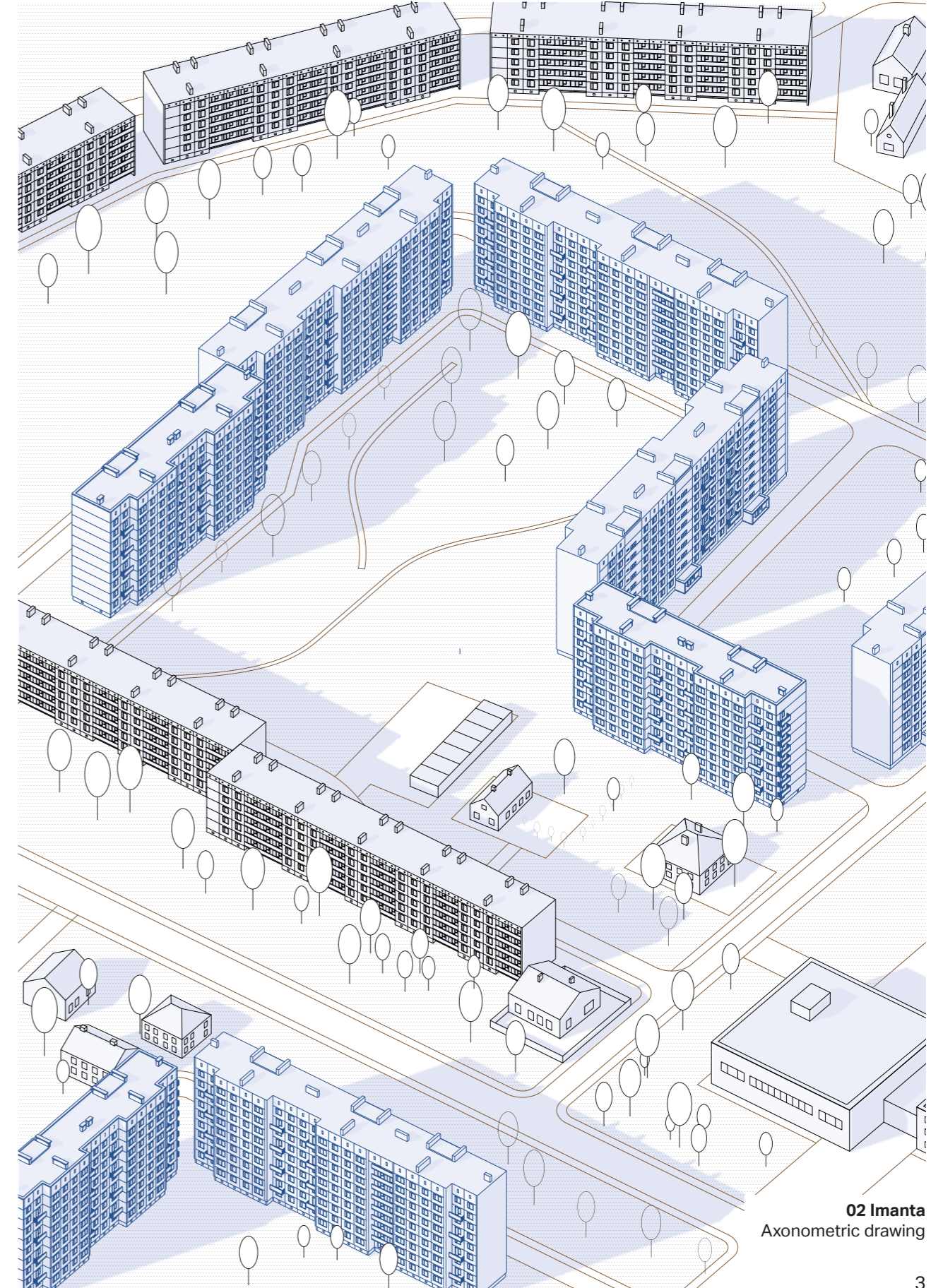
Site plan

A Typical Courtyard in Imanta

Photo: Normunds Pune

The existing situation in the neighborhood of Imanta:

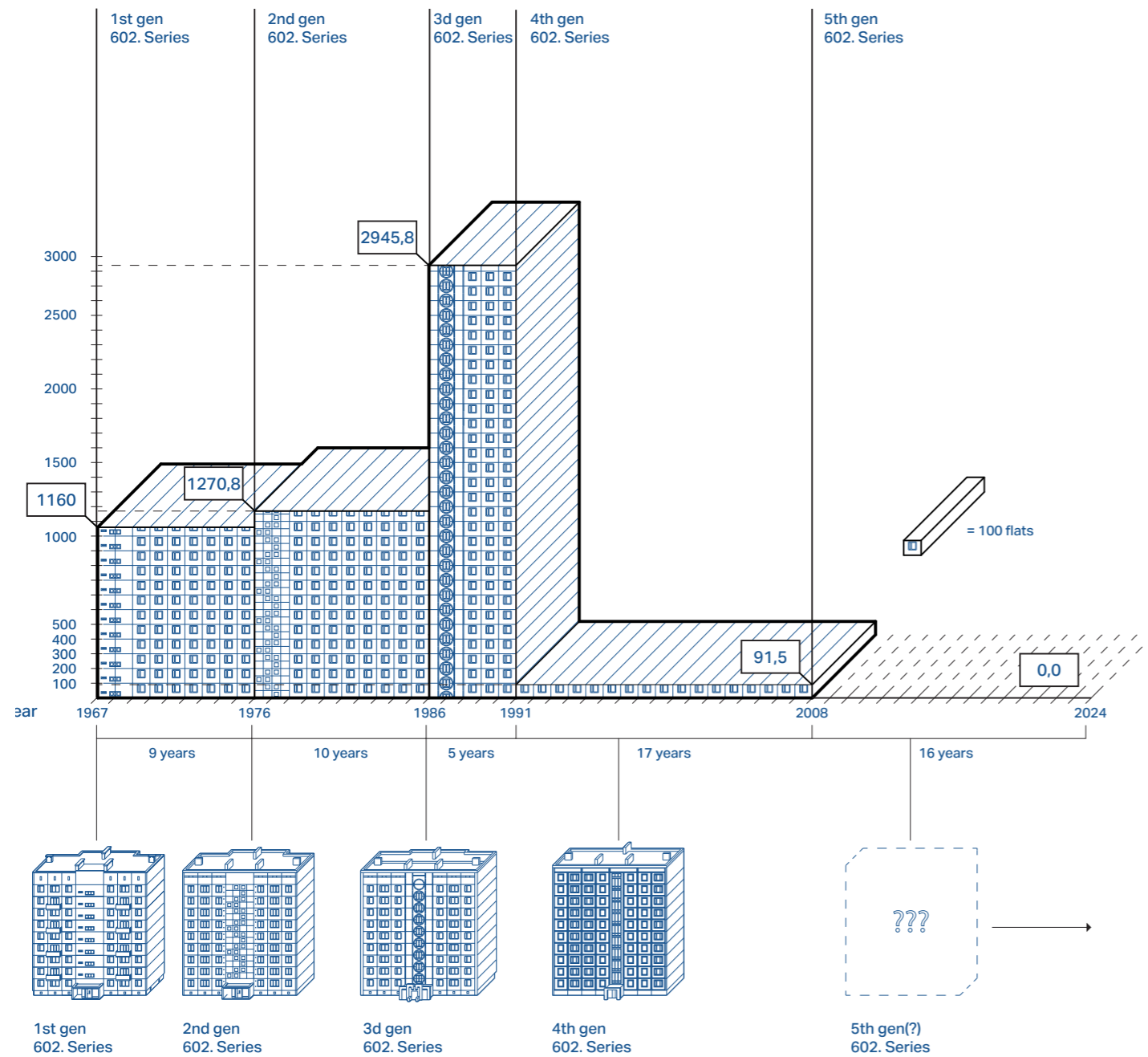
The first generation of the 602. Series buildings were built here in the late 60s/early 70s. This is one of the older microrayons in Riga. Besides the 602. Series, the so-called "Lithuanian project" series were built in large numbers.



02 Imanta
Axonometric drawing

A Timeline of 602. Series Housing Production

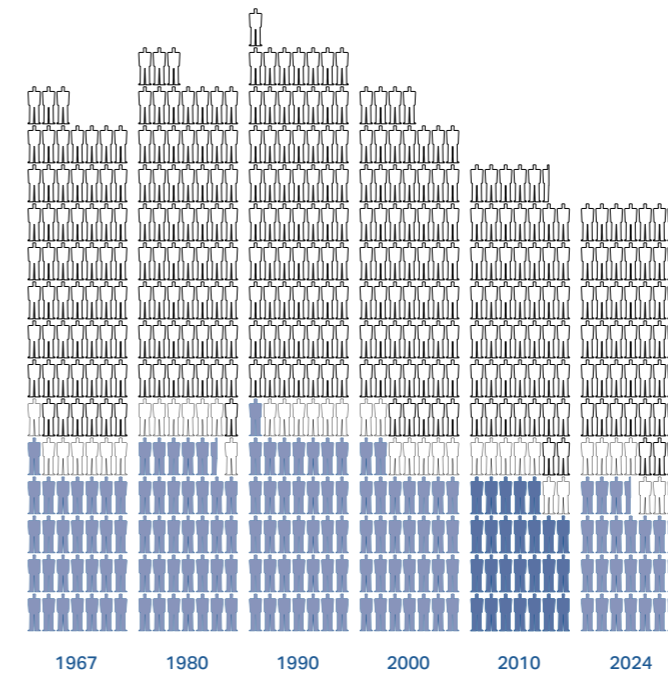
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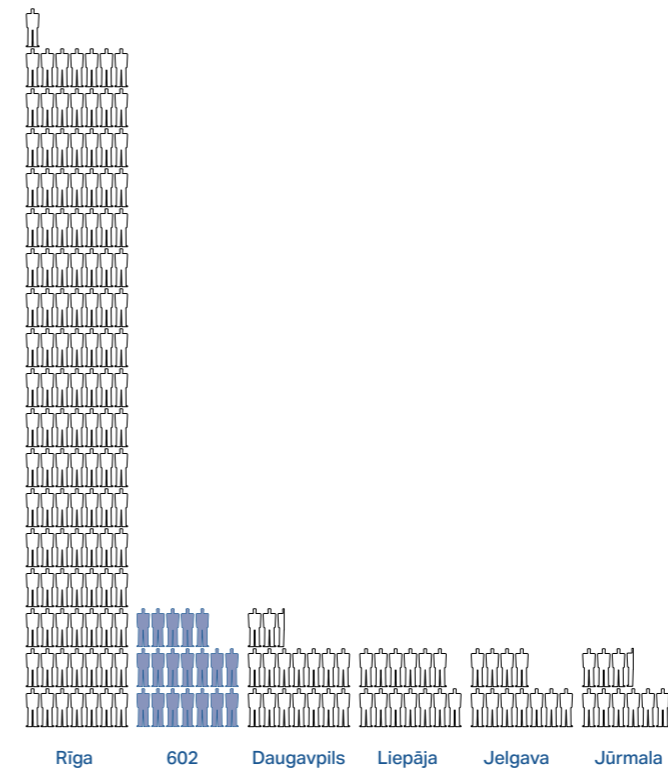
During the brief yet impactful history of the 602 Series housing production, an unprecedented number of units were constructed. At its peak in the mid-1980s, nearly 3,000 housing units of the third-generation 602 Series were being built annually.

Population Change in Latvia

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Each blue symbol represents 25 000 inhabitants in Riga
Each black symbol represents 25 000 that live outside of Riga

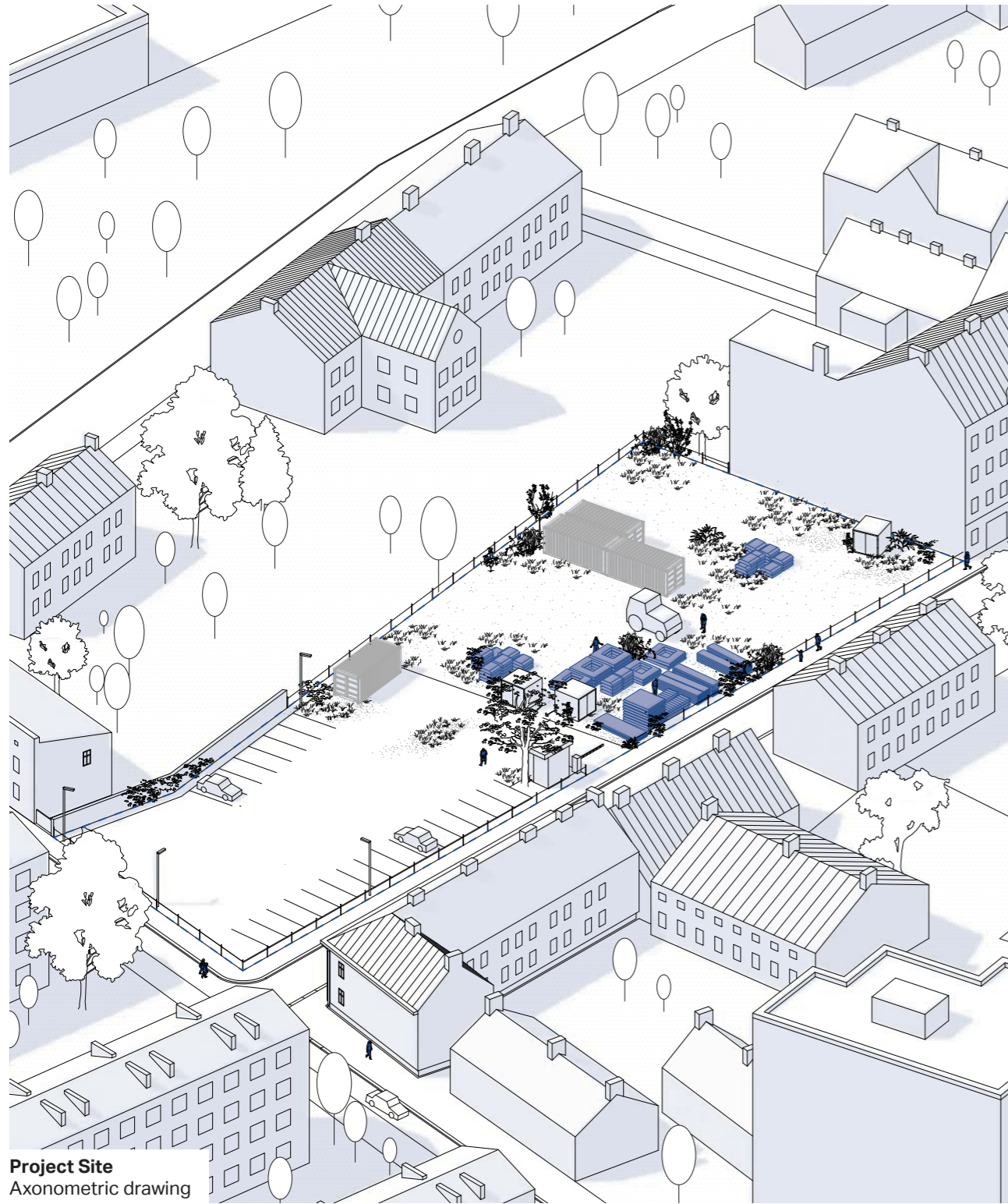


Each blue symbol represents 5 000 inhabitants living in 602. Series.
Each black symbol represents 5 000 that live in of 4 biggest cities in Latvia

Approximately 100 000 inhabitants live in a 602. Series. That would amount to be the second largest city in Latvia. Although Latvia is experiencing a population degrowth, population numbers in microrayons, where most of the 602. Series buildings are located, are stable.

Project Site

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Project Site
Axonometric drawing

The project site is situated in the neighborhood of Sarkandaugava:

A land plot on the intersection of Ziemeļu Street and Limbažu Street. For years this landplot has been used as a parking lot and a storage place for various prefabricated concrete elements. The immediate surroundings consist mainly of low-rise residential buildings. Within a 2-minute walking distance 4 other 602. Series buildings are located. The nearby port and brewery are important landmarks for the area.

Project Site - Building Site

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Building Materials on the Project Site

Photo: Normunds Pune

Project Site - Building Site.

An essential aspect of the design process is the consideration of the project site—the location where the building is constructed and ultimately completed, but also viewed more broadly as a place of extraction and construction. In this case, the specific conditions—a neglected vacant lot used for storing building materials, particularly prefabricated concrete panels—play a guiding and determining role in shaping the design process of the New Residential Building.

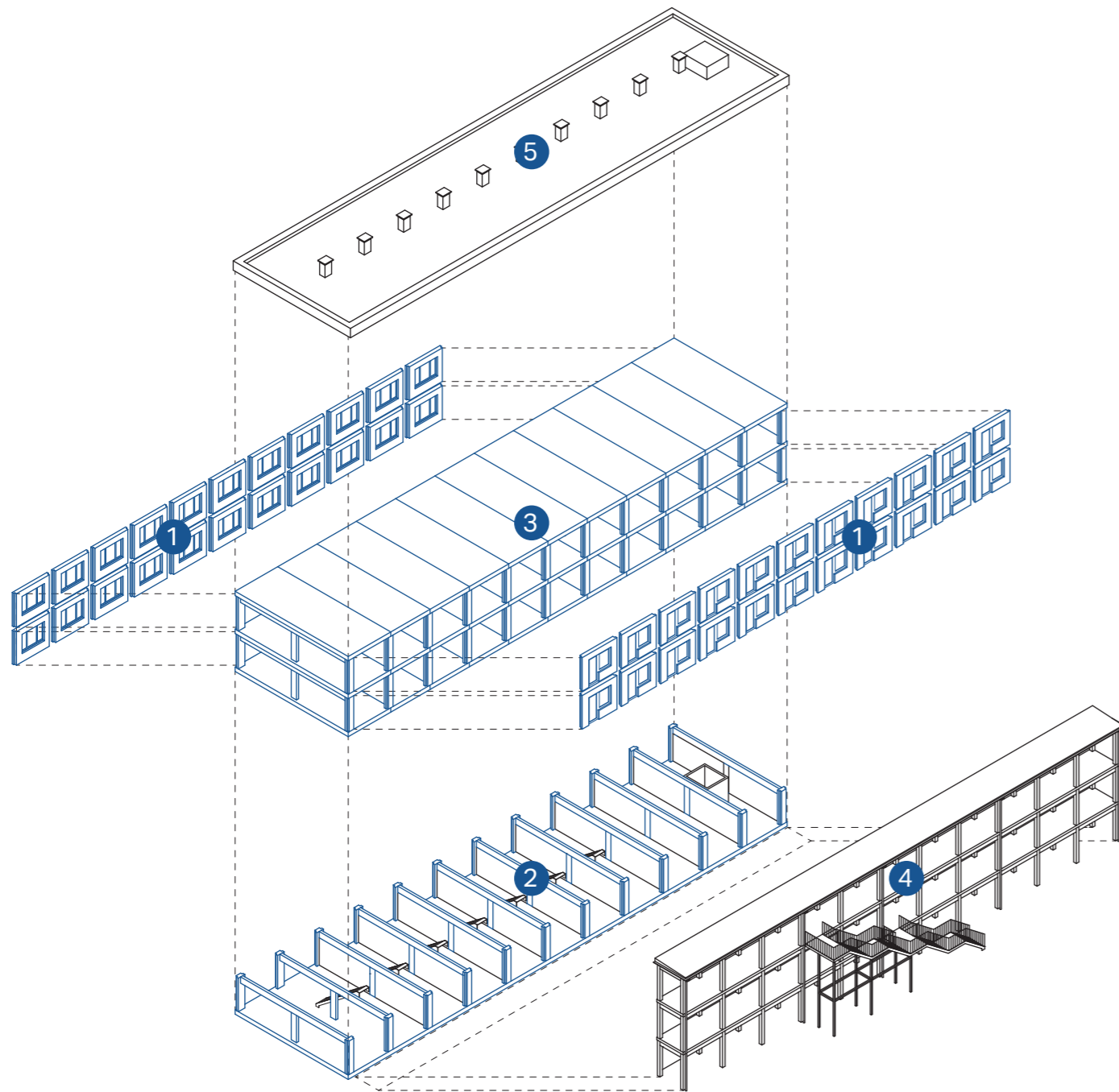
Entrance to the Project Site

Photo: Normunds Pune



Structure of the Building

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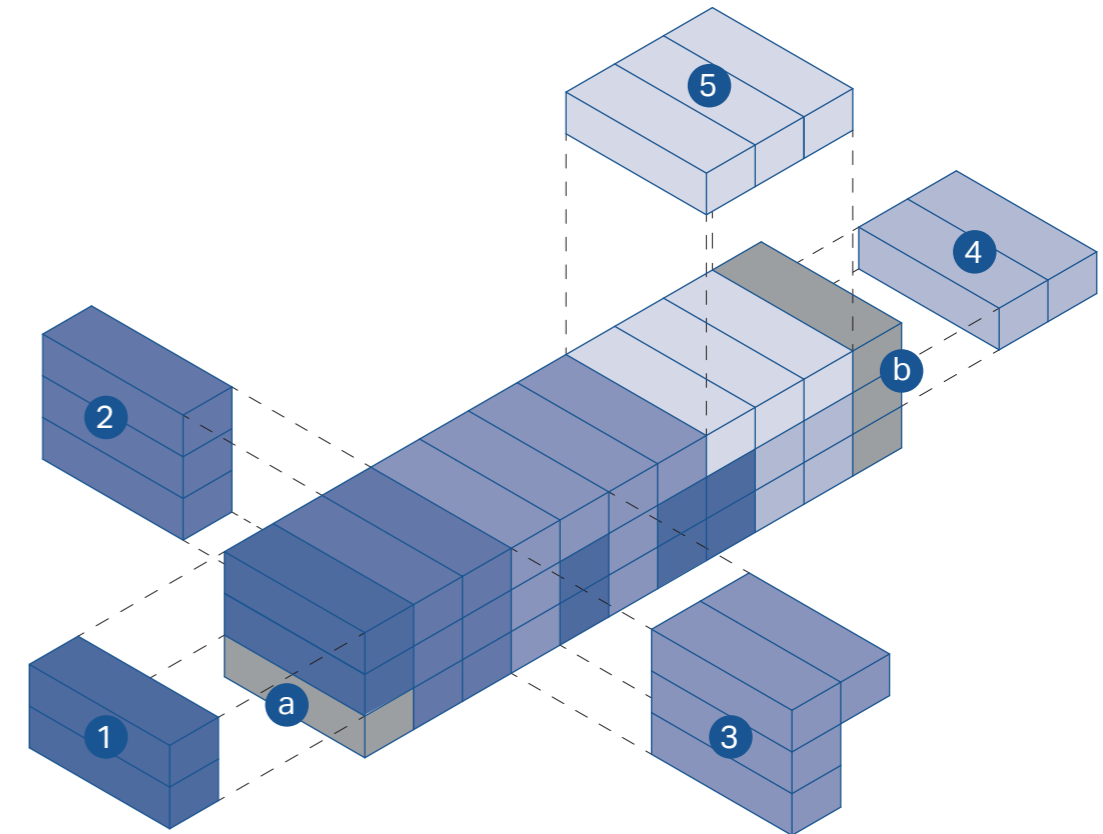
- 1 - re-used prefabricated panels;
- 2 - CLT column-beam structure;
- 3 - CLT slab elements
- 4 - communal balcony and emergency staircase;
- 5 - roof

Exploded Axonometric Drawing

The existing Soviet panels have been integrated into a contemporary prefabricated timber structure. Simplicity, modest span lengths, and the use of prefabricated structural elements allow for the construction of economical yet generous spatial configurations, which can also be adjusted or transformed as needed in the future.

Modularity of the Building

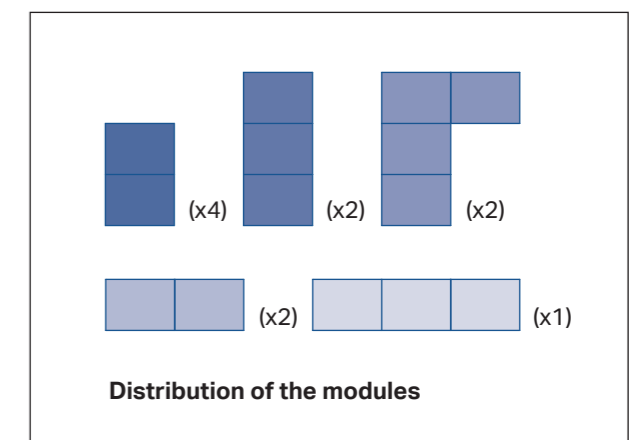
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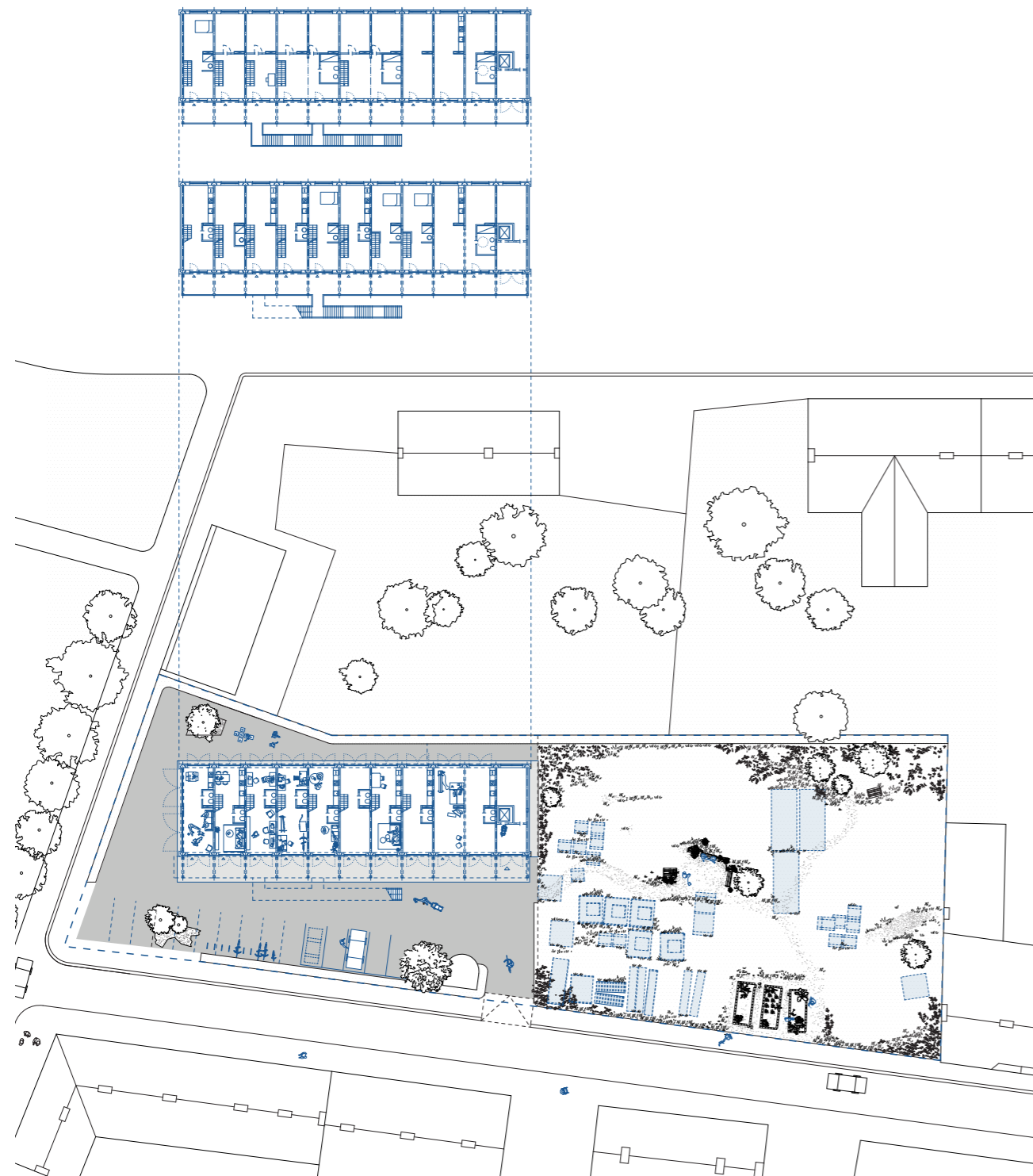


- 1 - duplex;
- 2 - triplex;
- 3 - triplex (+);
- 4 - simple (2);
- 5 - simple (3);
- a - communal space;
- b - access and technical facilities

Diagram

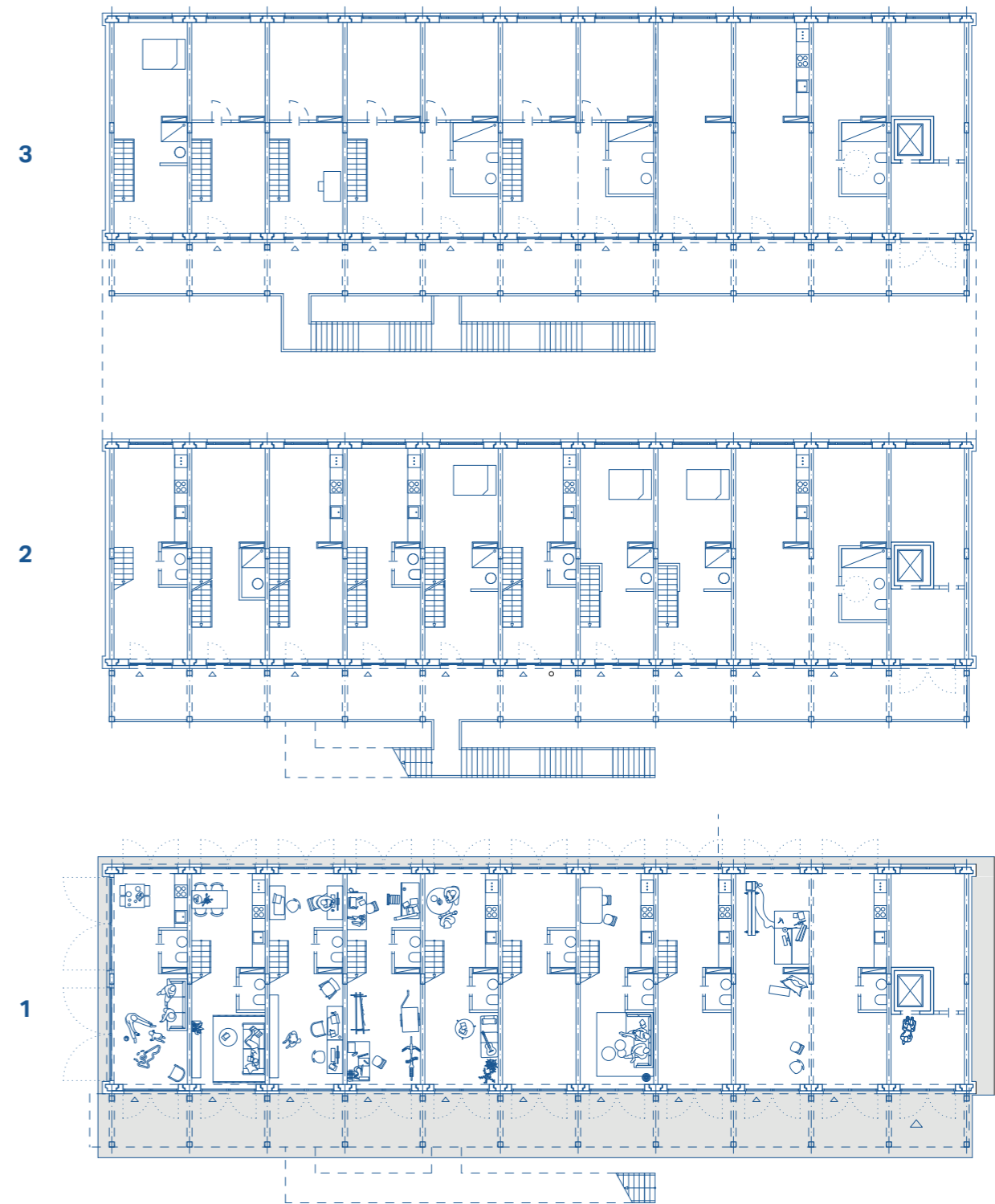
The New Building is made up of 33 modules. The size of a module is 3,6 m (width) x 11,0 m (length). The modules are stacked on 3 levels. There are 11 housing units planned, although adjustments - extension or compression of units in a modular manner - because of the timber column-beam structure - are possible.





Situation plan

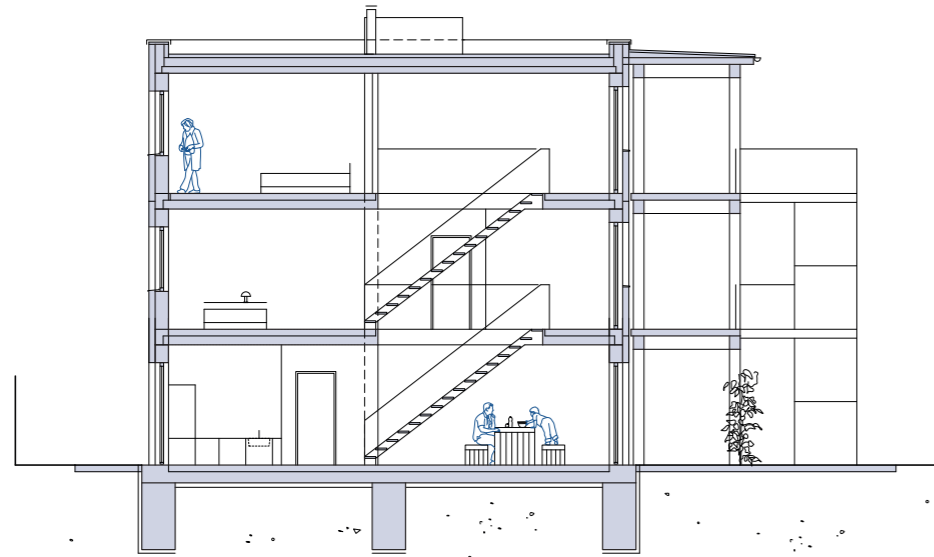
The New Building is located on the former parking lot. The area where the construction panels were formerly being stored is adjusted for public use.



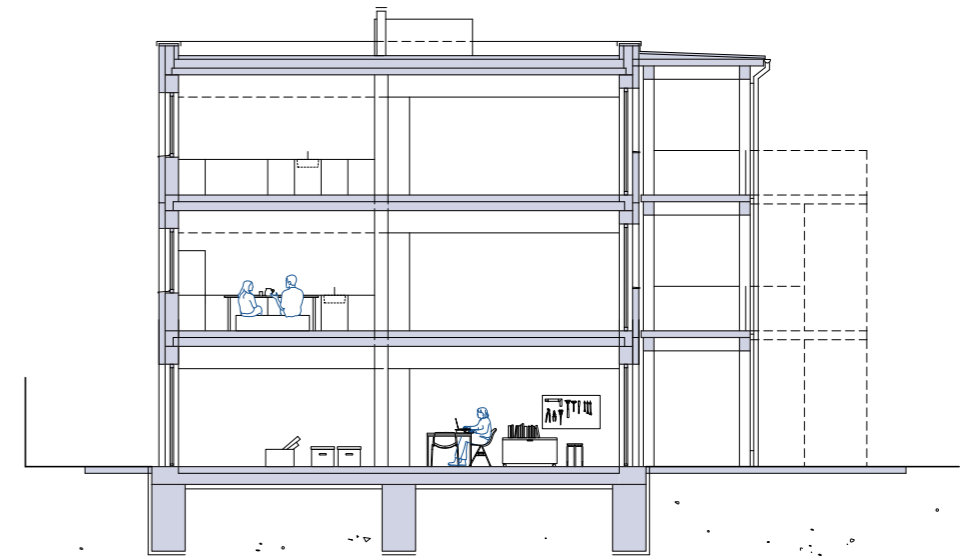
Ground plan

1 - ground floor; 2 - 1st floor; 3 - 2nd floor

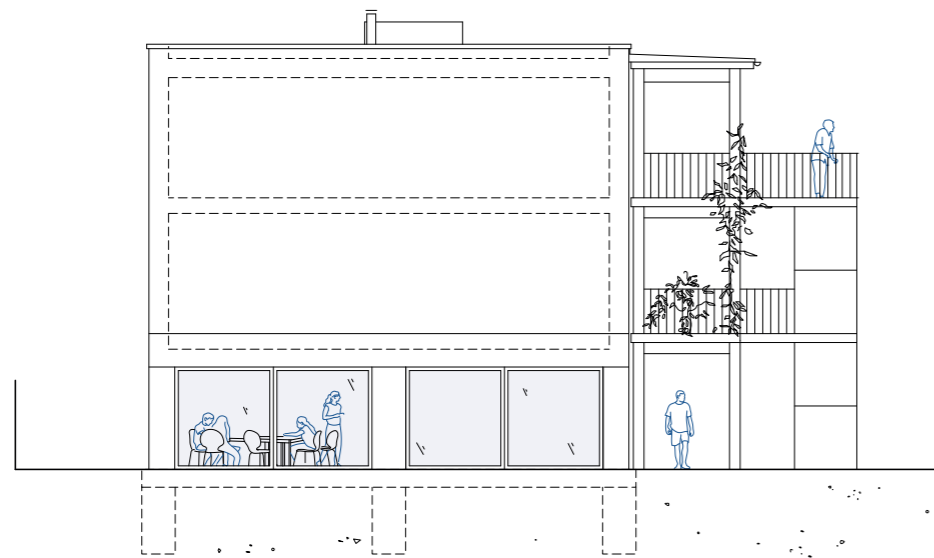
There are 11 housing units planned. Unit sizes vary between 79 - 158 m². Each unit, except of the type *Simple* has a ground-level access. Ground-level space is conceived as a multi-purpose area. It can be used either as a spacious living room/kitchen or as an office, workshop or cafe.



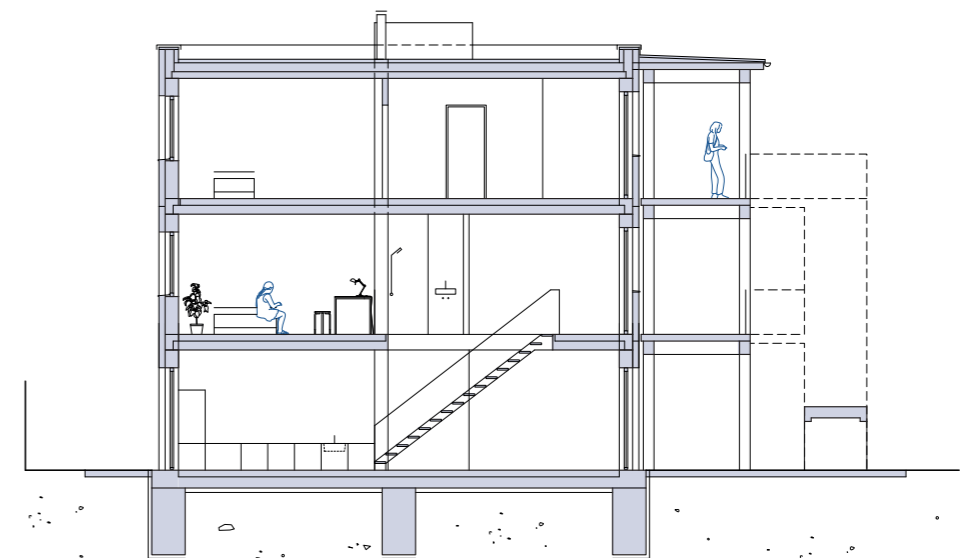
Section
In this Section a Housing Unit with 3 Vertical Modules (Triplex) is depicted.



Section
In this Section each Housing Unit is on its own floor (Simple).



Elevation
This elevation illustrates the Community Space located on the ground floor, along with the communal balconies and the emergency staircase.



Section
In this Section a Duplex Unit is depicted (Ground Floor - 1st Floor).

The New Building features three distinct types of housing units: Simple, Duplex, and Triplex

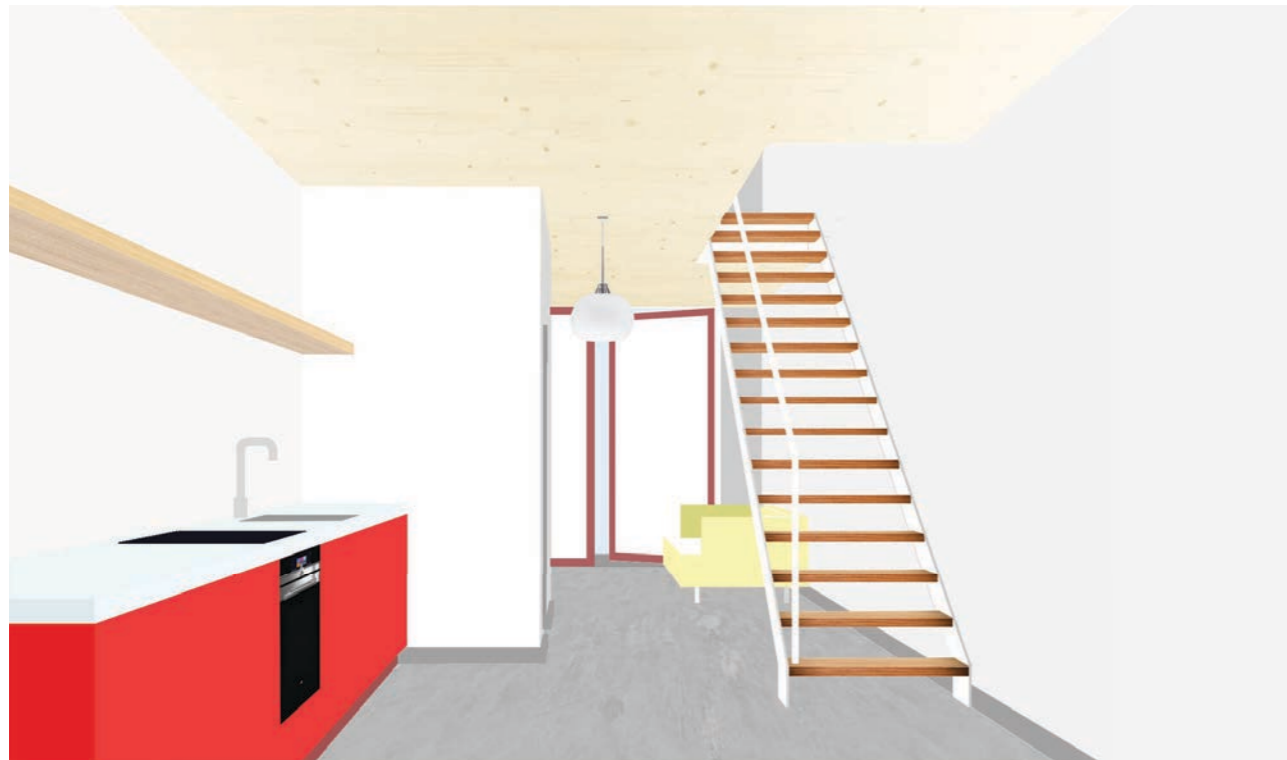
Interior

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First Floor

First floor of duplex unit: a bedroom, small bathroom and spacious area adjoining the communal balcony.



Ground Floor

Ground floor of duplex unit: kitchen with extended living room. Full-width window-doors on both front and backyard sides can be completely opened. Staircase leads to the second floor.

Exterior

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Perspective

View from the urban garden towards the building.

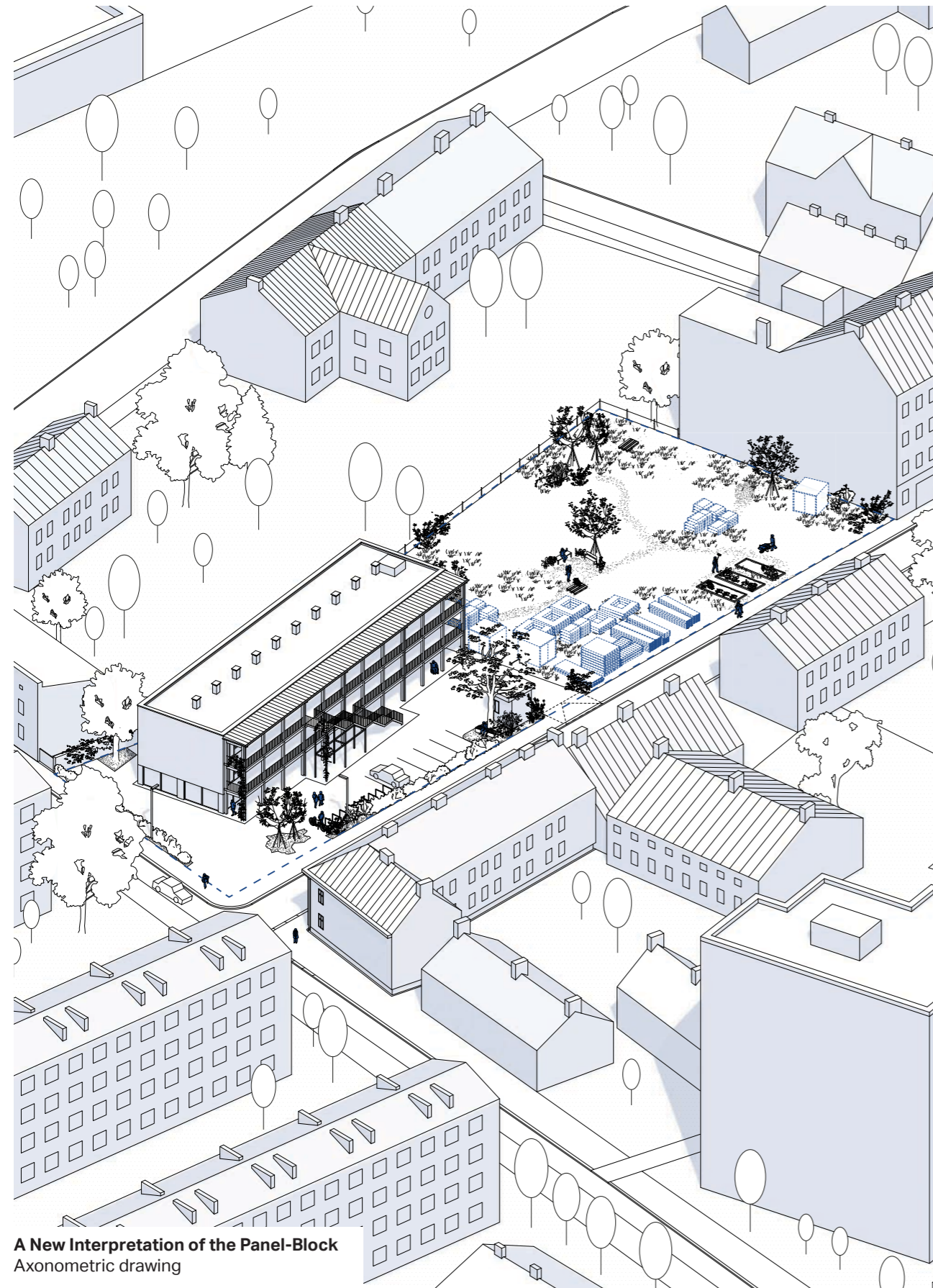


Physical model

Scale 1:100, view from the thesis exhibition
Photo: Normunds Pūne

Residential Building with 11 flat units

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A New Interpretation of the Panel-Block
Axonometric drawing

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The legacy of panel-block housing in Latvia embodies a complex intersection of ideology, materiality, and necessity. Emerging from an acute housing shortage and the Soviet state's drive for rapid urbanization, the 602. Series represents a utilitarian vision of architecture—standardized, prefabricated, and politically charged.

Architecture has always navigated between opposing forces—formally, as Ernst A. Plischke illustrates in his diagram, and socially. Whether private or public, architecture inevitably impacts the lives of many, and rarely satisfies all. The panel-block, built for everyone and yet for no one in particular, is a striking example of this tension.

During Plischke's active career—largely within the modernist period—architects leaned heavily on quantifiable principles to guide their decisions. His diagram can be read as a commentary on the architectural practice of the time, where he observed his peers veering toward one or the other extreme. While some of the terms he used may no longer be common in today's discourse, the underlying idea remains vital: architecture is shaped by numerous and often conflicting entities, from spatial and formal concerns to political, legal, and social dimensions. Balancing these parameters without privileging some at the expense of others remains a central and ongoing challenge.

In the New Interpretation of the Panel-Block, the decision to begin with the dimensions of an existing concrete panel as the design's starting point became a practical and conceptual exercise. The project—a cooperative housing initiative—led me to confront firsthand the intricate balancing act described by Plischke: between construction and form, function and spatial concept. Through this lens, the reuse of Soviet-era panels becomes not only an ecological or economic strategy but also a critical, situated response to the architectural legacy of the past—and a step toward a more inclusive, adaptive, and collaborative future.



Exhibition view
Photo: Normunds Pūne