

# STILL STANDING

Cooperative strategies for the renovation of Soviet mass housing

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the degrees of

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Science in Real Estate Development**

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## ABSTRACT

Mass housing across the former Soviet Union is in varying states of disrepair, having lasted much longer than it was expected to when built in the 1960s. Treatment of the buildings varies greatly depending on context, as some are replaced, others are renovated, and many are neglected. But in most places, residents own their apartment units, having obtained them at a minimal cost following the collapse of the USSR. While this leaves many apartment owners responsible for common amenities that they don't have the means or incentives to maintain, it also puts them in a position to leverage the latent value of the Soviet structures they live in.

Current trends do not take full advantage of these circumstances, and it is often external developers who manage to profit from the land value of Soviet housing, leaving residents with inadequate compensation. No matter what happens to the buildings, the legacy of mass housing is deeply entrenched and will continue to shape the built environment for generations to come. We argue that it is essential to keep the original structures — with modifications and updates — to create agency for residents in how this legacy is carried into the future.

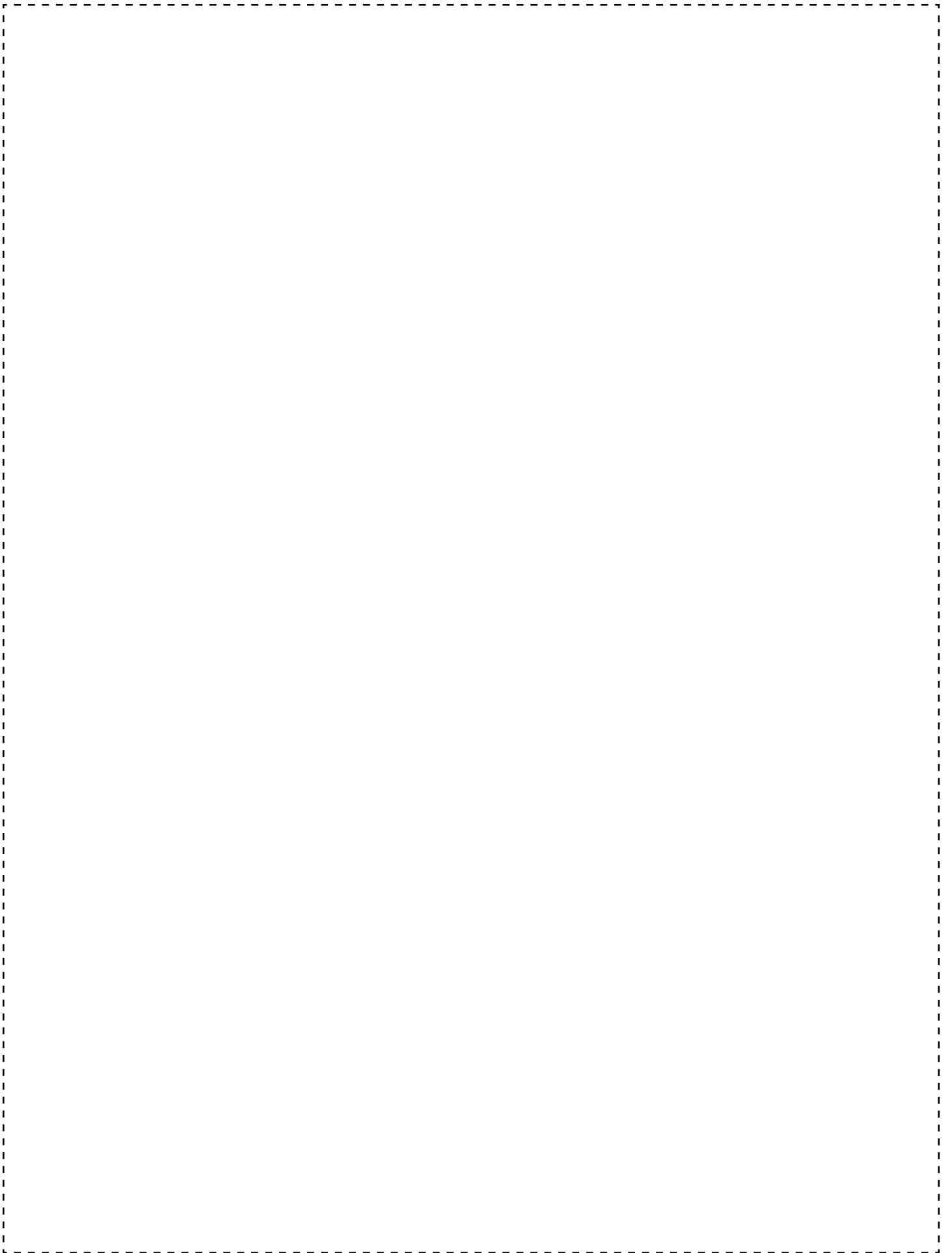
This thesis demonstrates three scenarios in which residents of the same type of prefabricated modernist housing — in sites spread across the former Soviet territory — collectively leverage their apartments to create renovations that serve their common interests. Using contemporary mass timber construction technology and taking full advantage of local real estate markets, residents can self-organize to improve their living spaces.

Thesis Advisor: Ana Miljački  
Associate Professor of Architecture

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STILL STANDING

ONE OF SEVEN

# COLLABORATIONS

EYTAN LEVI

BEN HOYLE

*If we're to take one thing from this thesis, it might be the idea that our environment is not built in isolation from its context. This project would not exist without the guidance, ideas, and help we received from a wide range of practitioners, experts and friends located both within and outside of former Soviet countries.*

## **Committee**

**Ana Miljački**, thank you for introducing us to the collective architecture practices of former Yugoslavia through the Belgrade studio we were both part of at MIT in the spring of 2019. You sparked our interest in the preservation of communist mass housing and opened up a new part of the world to both of us. We are grateful that you stayed with us as we built some of those first inclinations into our thesis topic over the past two years, and we look forward to continued collaborations with you.

**Susanne Schindler**, thank you for helping us tie together the loose threads that so often cropped up in our process. Your guidance and consistent feedback helped us develop and hold onto a strong position, which we might otherwise have lost sight of.

**Kairos Shen**, thank you for your pragmatism, and making us look more closely at the different scales of collectives and partnerships that would be required to achieve our interventions.



**Marc Simmons**, thank you for emphasizing the importance of making a nuanced argument about the preservation of Soviet buildings, and for sharing your expertise on what it might actually be like to work with them.

## On the Ground

**Maya Shopova**, thank you for inviting us to the workshop you organized along the Transsiberian railway in the summer of 2019. Without you, we would have never conducted the research on Soviet mass housing that led to this thesis.

**Katya Zabrovzki** and **Elizabeth A. Wood**, we are thankful for the generous support of the MIT-Russia program that covered the costs of our time in Russia. Katya, thank you for navigating swaths of administrative complexity on our behalf. Elizabeth, thank you providing us with a crash course in Russian history and Soviet urbanism before we left for Russia.

To the team at **APEX Project Bureau** in Moscow, thank you for welcoming us for two months and for letting us use one of your meeting rooms as our Moscow base.

**Alexander Mamaev**, thank you for starting a partnership between APEX and MIT and for providing us with resources to pursue our research from within your firm.

**Katya Krugalova**, our time in Russia would have been pointless had we not met you. Thank you for making sure that we had all we needed within and outside of APEX, and for taking charge of our basic education in what Russia is today.

**Sofia Pershinova**, we cannot thank you enough for your tireless administrative support throughout our stay in Russia, from organizing interviews with experts and planning construction site visits, to providing translations of documents we could not understand despite our 45-minute crash course in Russian at MIT.

**Denis Vodovin, Dmitriy Klimov, Evgeniy Anikin** and **Katya Kartyshova**, we learned more about contemporary prefabricated construction in Russia by speaking with you than we could ever have read in books. Many thanks for helping us discover Moscow outside of the office, and for always making us feel welcome.

**Alla Zibrova**, thank you for your eagerness to support our research and our explorations of Moscow. You gave us insights into your profession that we would not otherwise have understood, and used your knowledge of our context to make us feel all the more at home. Your support in verifying our cost estimates at the last minute was hugely helpful.

**Vitaliy Afonin**, thank you for your spirited recommendations of the specific projects and ideas we might be interested in, and for your technical support near the end of the project.

**Valeria** and **Katya Isaenko**, we will always remember the kindness you showed us. Thank you for the countless afternoons you both spent showing us around neighborhoods from different eras in Moscow. Thanks to you, we got a feel for the politics that dictate the preservation and demolition of buildings in Russia. As students, it is simple to study and observe buildings from the outside, but often much harder to get to know about the lives and experiences that play out within them. We will never forget the late afternoon we spent at the Isaenko family's apartment eating cake, drinking tea, looking at Katya's drawings, and enjoying time in one of the very buildings we were working on.

**Ilya Itievsky** and **Sergey Semenov**, thank you for walking us through the process of assessing which buildings get to remain and which must be demolished in the framework of Moscow's ongoing urban renewal.

**Olga Isaeva, Romea Muryń, Anastasia Vasileva, Ivana Simic** and **Francisco Lobo**, thank you for taking us to places we might never have visited otherwise, which have since become crucial in our understanding of Soviet construction.

**Ruslan Mannapov**, thank you for giving us insight into the energy and inventiveness of the new generation of Russian architects. We are still impressed by the student work you showed us at the TIArch program at Kazan State University of Architecture and Building Construction.

**Xenia Adjoubei**, thanks to you and your team of craftsmen at the Nikola Lenivets land art park for letting us discover your creative approach to reinvigorating the Russian countryside.

**Pavel Kuznetsov**, thank you for giving us a tour of the Melnikov House in Moscow and for showing us an alternative approach to architecture under communism.

## Research

**Antoine Picon**, thank you for your class at Harvard, which made us aware of the lineage of construction projects that paved the way for Soviet mass housing, and for giving us the opportunity to write up an academic analysis of our topic.

**Philipp Meuser** and **Dimitrij Zadorin**, the book you wrote together has been crucial to our understanding of Soviet mass housing. Thank you for speaking with us and for your incredible work in making Soviet material accessible and engaging to foreigners like us.

**Igor Stas** and **Nikita Silin**, thank you for answering our cold call when we were trying to get some local perspective about our site in Surgut.

**Kimberly Zarecor**, **Charissa Terranova**, **Christina Crawford**, thank you for talking us through how your respective academic pursuits have brought to light new questions about mass housing.

**Adam Tanaka**, thank you for providing your American perspective on the cooperative ownership systems we explored in our thesis.

**Nikolay Erofeev**, thank you very much for sharing archival material about the 1-467 building series we decided to work on.

**Peter Lazovskis**, thank you for serving as our local guide to Riga, albeit remotely. Your thesis and the resources you shared with helped us feel grounded on our Latvian site.

**Anastasiya Ponomaryova** and **Igor Vlasenko**, thank you for telling us about the deployment and evolution of Soviet mass housing in Ukraine. While we did not end up locating one of our sites in Kiev, the urban projects you described inspired new ideas for our thesis.

**Suzanne Harris-Brandts**, thank you for the many bibliographical references you shared with us right at the beginning of the research phase of our thesis.

**Brent Ryan**, thank you for the connections you made for us in Ukraine and the US as we were trying to gain access to local sources.

**Carlo Carbone**, thank you for answering our technical questions about the construction of the 1-467 housing series. You clarified points we'd been looking into for months, and your openness and optimism helped bolster our interest in renovating existing structures.

**Adriana Pablos Llona**, it was wonderful to work on parallel projects at parallel universities. Thank you for reminding us of the values we should not let go of in our work. We look forward to continued discussions about the adaptation of European mass housing with you.

## **Production**

**Marija Blagojević**, we are grateful for your guidance over the past year on our thesis. Since the first time we discussed our idea on a hike in a forest in Switzerland, you have offered us unparalleled strategic advice on how to implement our proposals. Thank you for a year of mentorship, and for sharing your unique knowledge of architectural design, urban planning, and real estate development.

**Daisy Zhang**, we are thankful for your extraordinarily diligent photo sessions over the final days of our thesis. Thank you for patiently letting us finish last minute touches on the models before you could take pictures of them, and for laboriously turning paper, cardboard and wood assemblies into hundreds of beautifully edited images that could speak to our project.

**Tim Cousin**, thank you for the continuous design consulting and moral support you provided by staying in studio during the final weeks of our thesis. In particular, we are grateful for the vernacular touch you brought to our models through the intricate 1:50 and 1:200 balconies you created while in the midst of your own final deadlines.

**Olivier Faber**, thank you for putting together our 1:50 kitchen elements — by far the most complex pieces of our models — with your legendary precision. They gave life to our spaces and we are particularly grateful that you found the energy to help us even while recovering from Covid.

**Carol-Anne Rodrigues**, thank you for devoting the days immediately after your studio review to assembling intricate 1:50 pieces of furniture and windows. We would have never reached the level of model finishes we wanted without your help.

**Jonathon Brearley**, thank you for envisioning and designing the lovely entourage figures you placed over our stop-motions. Our models came to life with your people going about their days within them. The thesis would have felt a lot less human without your contribution.

**Zhicheng Xu**, thank you for taking over our plans and giving them a layer of inhabitation. Your work was critical to help us convey the human presence we envisioned with our proposals.

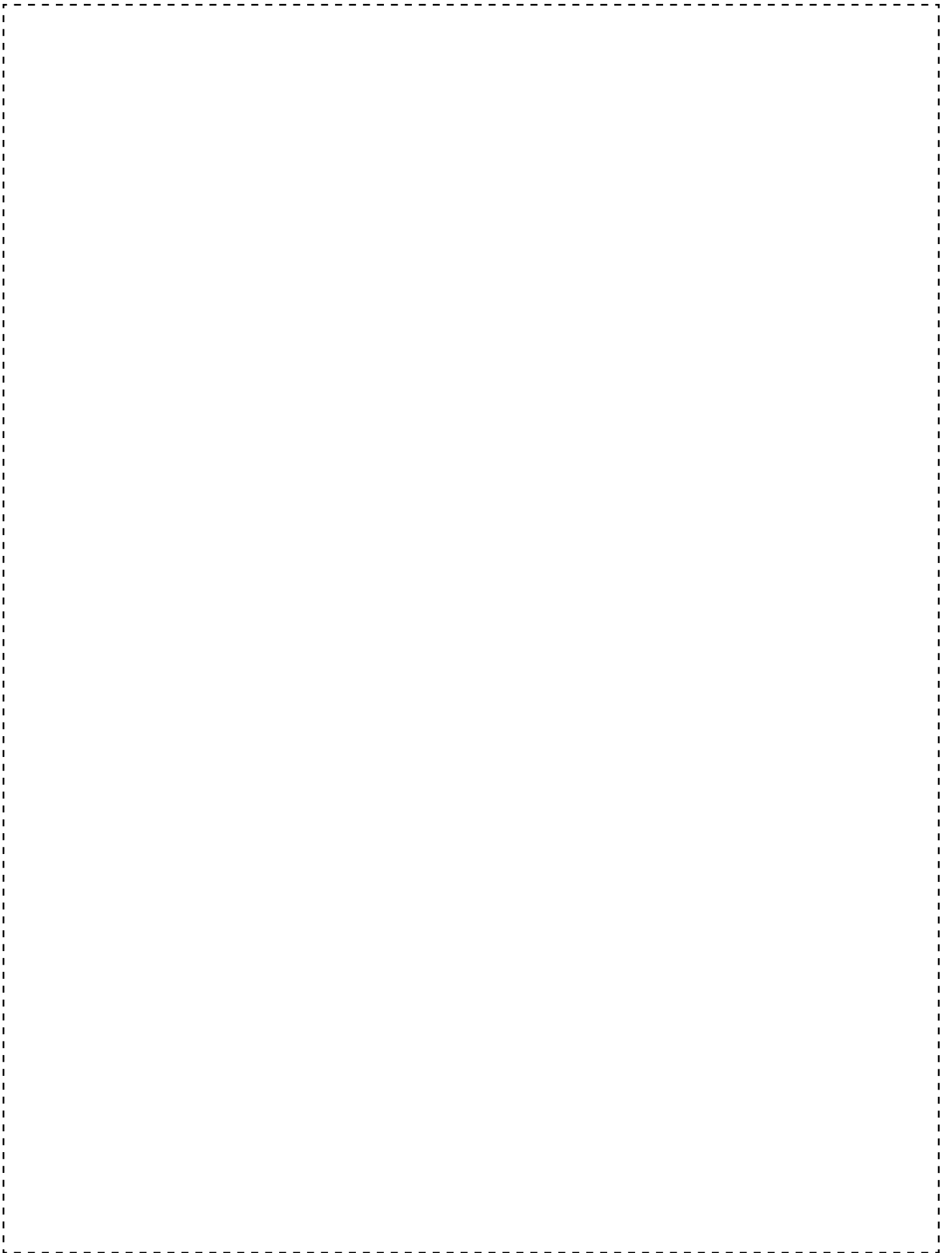
**Takayoshi Goto, Nina Guyot, Clara Copiglia** and **Eva Raffin**, thank you for being our architecture thesis counterparts in Switzerland and for providing continual support throughout our final year of architecture school.

**Louis de Saint-Affrique**, thank you for taking the time to think through our reflections with us and for supporting our process since we first started to think about working in Russia.

**Cynthia Stewart**, thank you for helping us through the complicated administrative process of putting together a thesis, and for the years of support, coffee beans, and answered questions at MIT. Finally, thanks for catching a small but critical typo on our first attempt to submit this thesis.







STILL STANDING

TWO OF SEVEN

# YOUR APARTMENT

EYTAN LEVI

BEN HOYLE



STILL STANDING

PRELUDE

YOUR APARTMENT

You have an apartment.



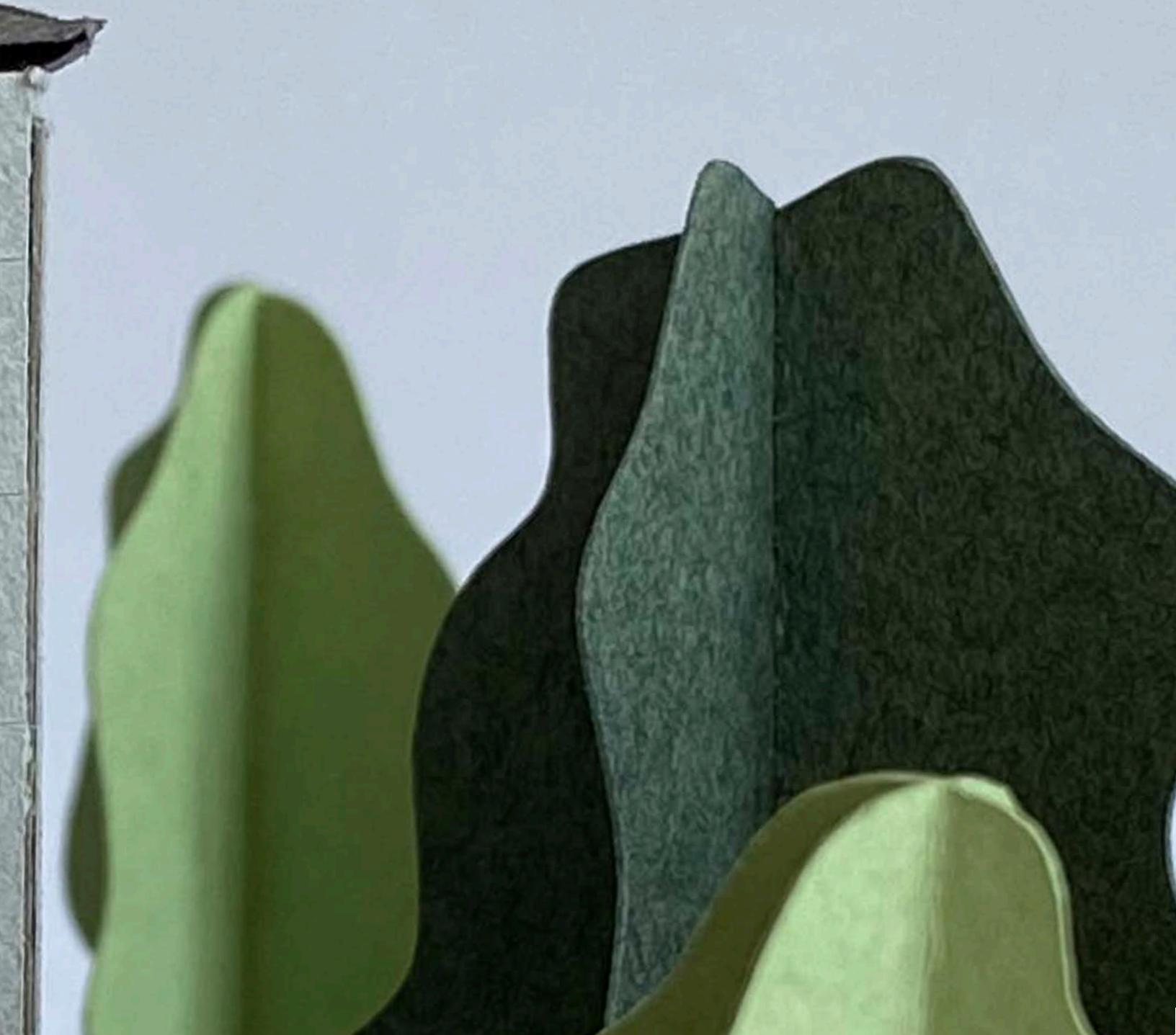


It's 45 square meters  
and is made of concrete.





It's been here since the 1960s, though it wasn't designed to last so long.





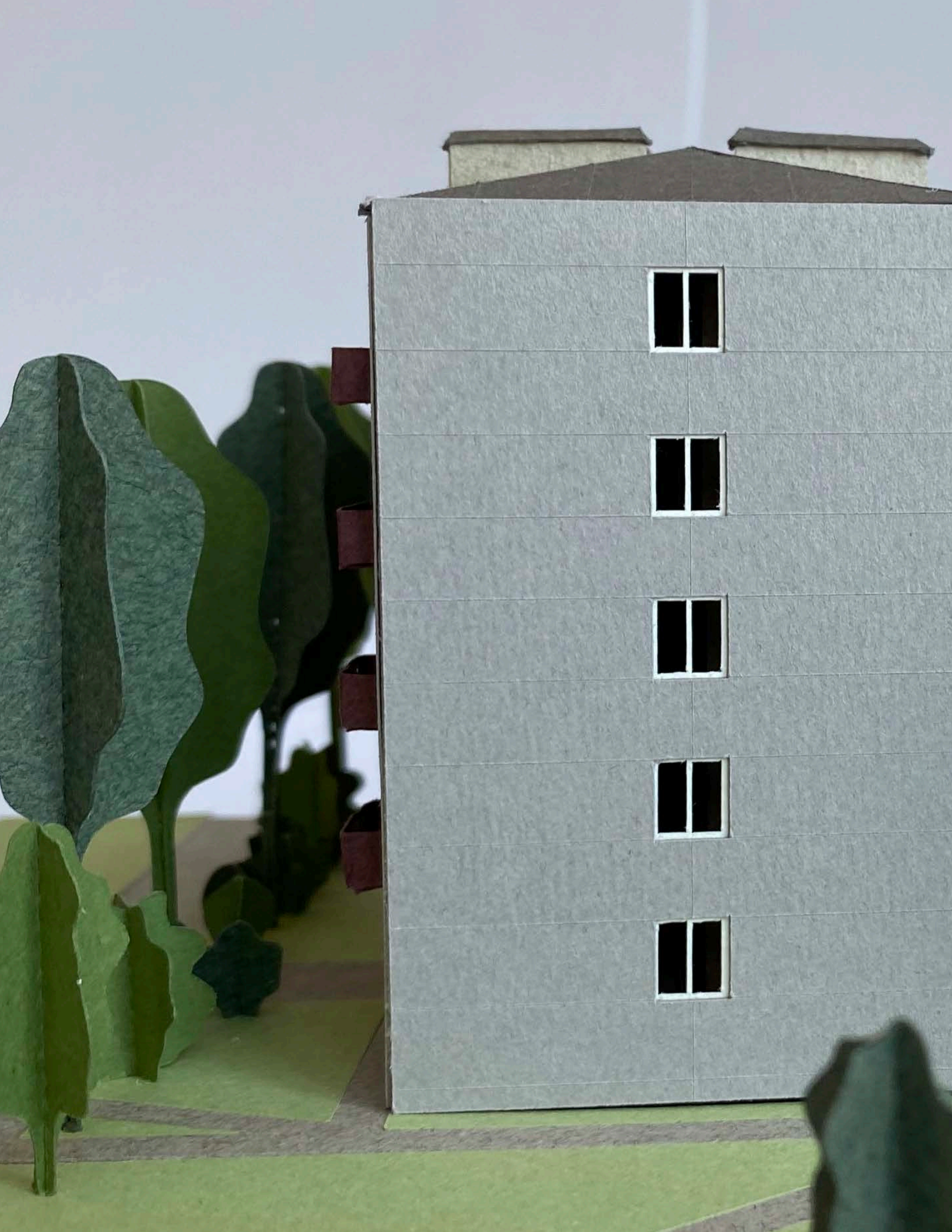


The insulation is bad, you can hear the neighbors, and it's pretty cramped.

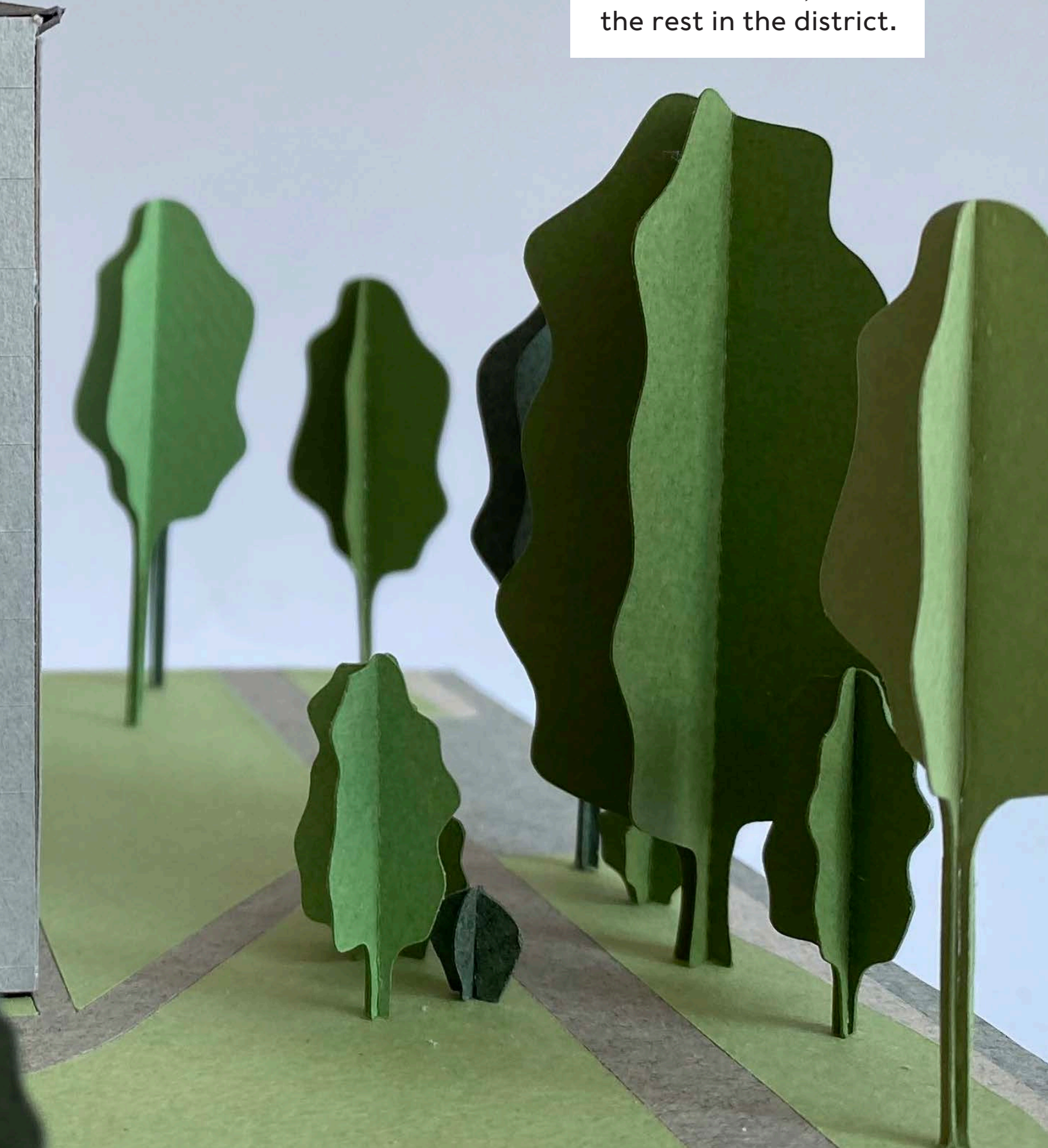
The stairwell is falling apart and hasn't been cleaned in years.







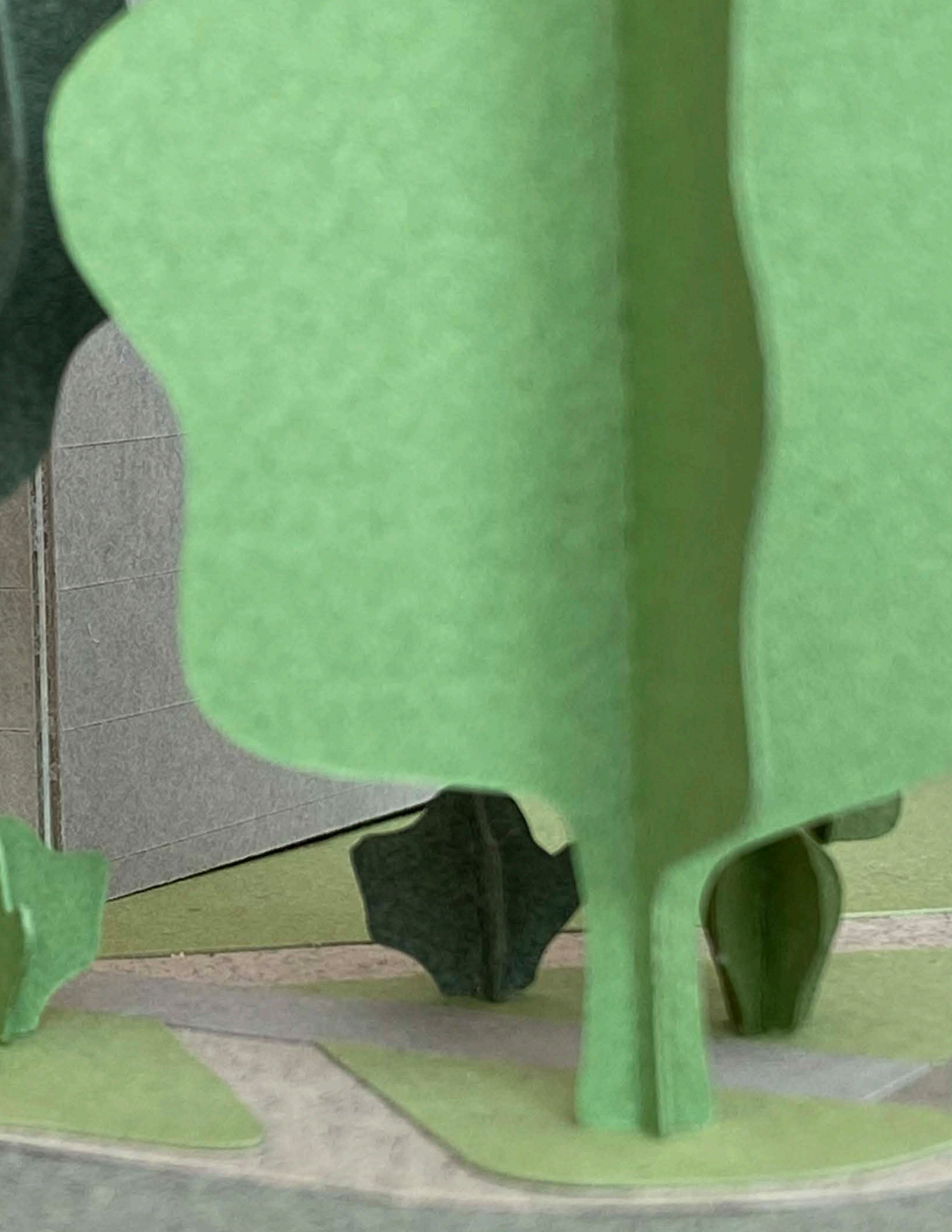
But the building is only five stories tall, as are the rest in the district.





And there's a lot of green space.







You've had family living in  
this apartment for years.





You are in any of thousands of places, because you're in a standardized apartment building from the 1-467 series that was built across giant swaths of the former Soviet Union.



STILL STANDING

INTRODUCTION

YOUR APARTMENT



Primorsky district of St. Petersburg.  
Source: Egor Rogalev, 2014



Mass housing across the world — most of it built in the second half of the 20<sup>th</sup> century — is still home to millions of people. Treatment of these buildings varies greatly depending on context, and residents often have limited options about what they can do with their apartments.



A gathering with friends who helped us get to know Moscow, 2019

The two of us learned about these buildings when we got funding through MIT to spend a summer in Russia in 2019. We were hosted by a local architecture firm, which supported us as we explored Soviet housing.



Eytan on the balcony of a Soviet-era apartment in Moscow

We visited housing districts  
in cities across Russia, the  
Baltics and the Caucasus.



Our stern ID cards for the Russian State Library in Moscow

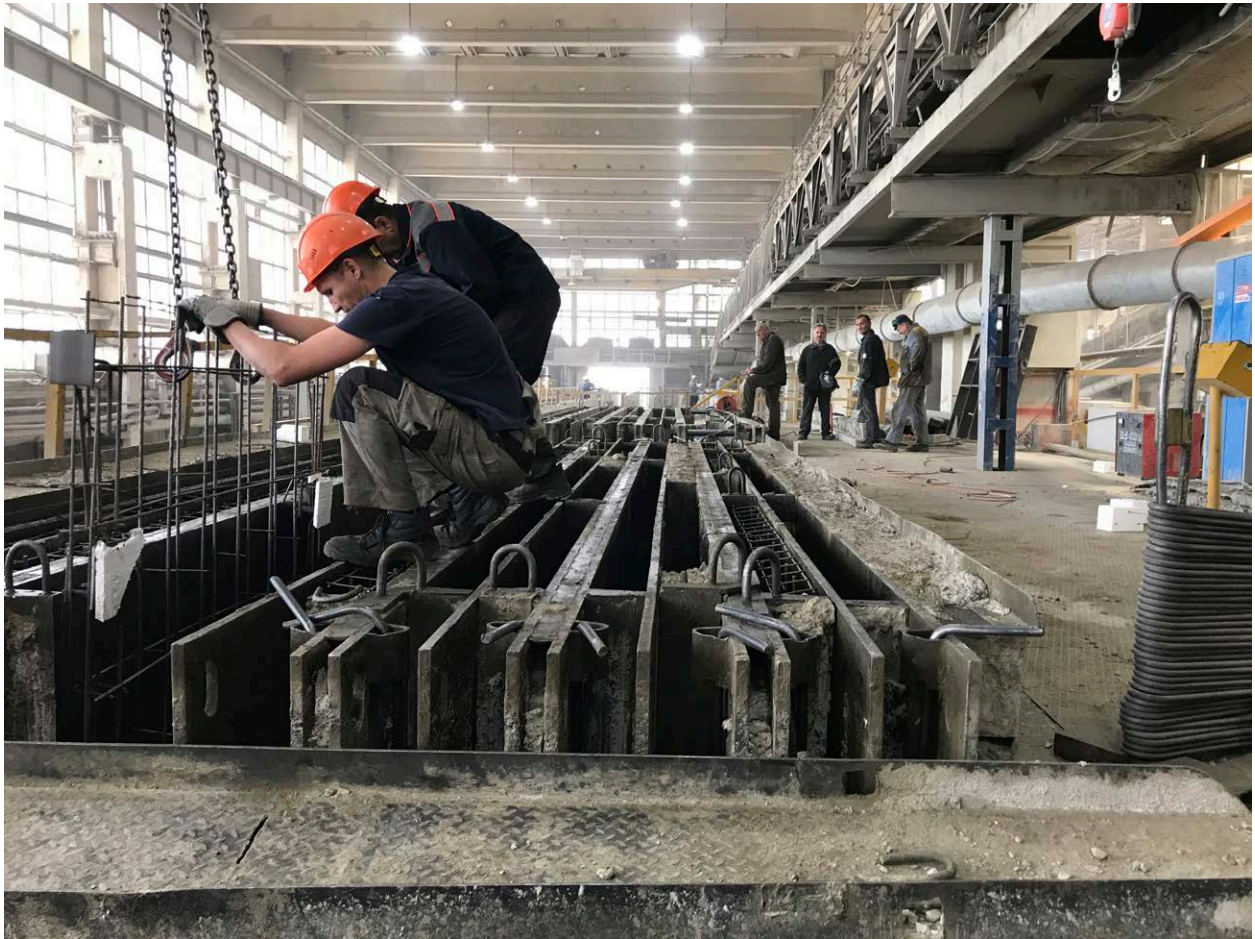
And while living in Moscow we spent time learning about these buildings in archives, through interviews, and thanks to tours from friends and colleagues.



A view from our colleague's Khrushchev-era apartment in Moscow



We had tea and cake at a family home at the top floor of one of the buildings, and were given a presentation by the consulting company that is organizing their widespread demolition.



A Soviet era house-building factory we visited, still in use by contemporary developers. Source: Eytan Levi, 2019

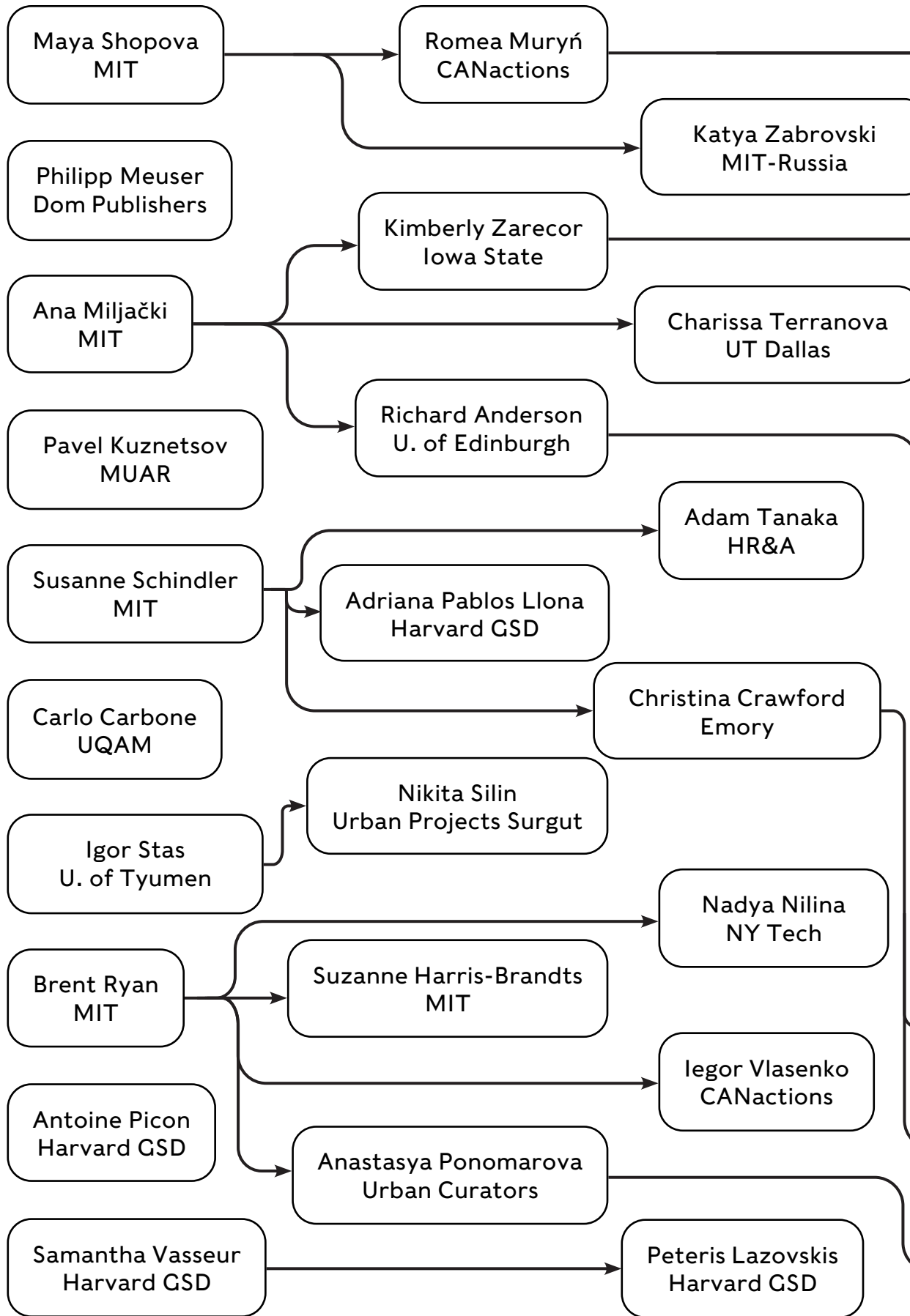
We became starkly aware of how different they are from what we know, but were lucky enough to be able to see them through the culture and people that they have come to shape.

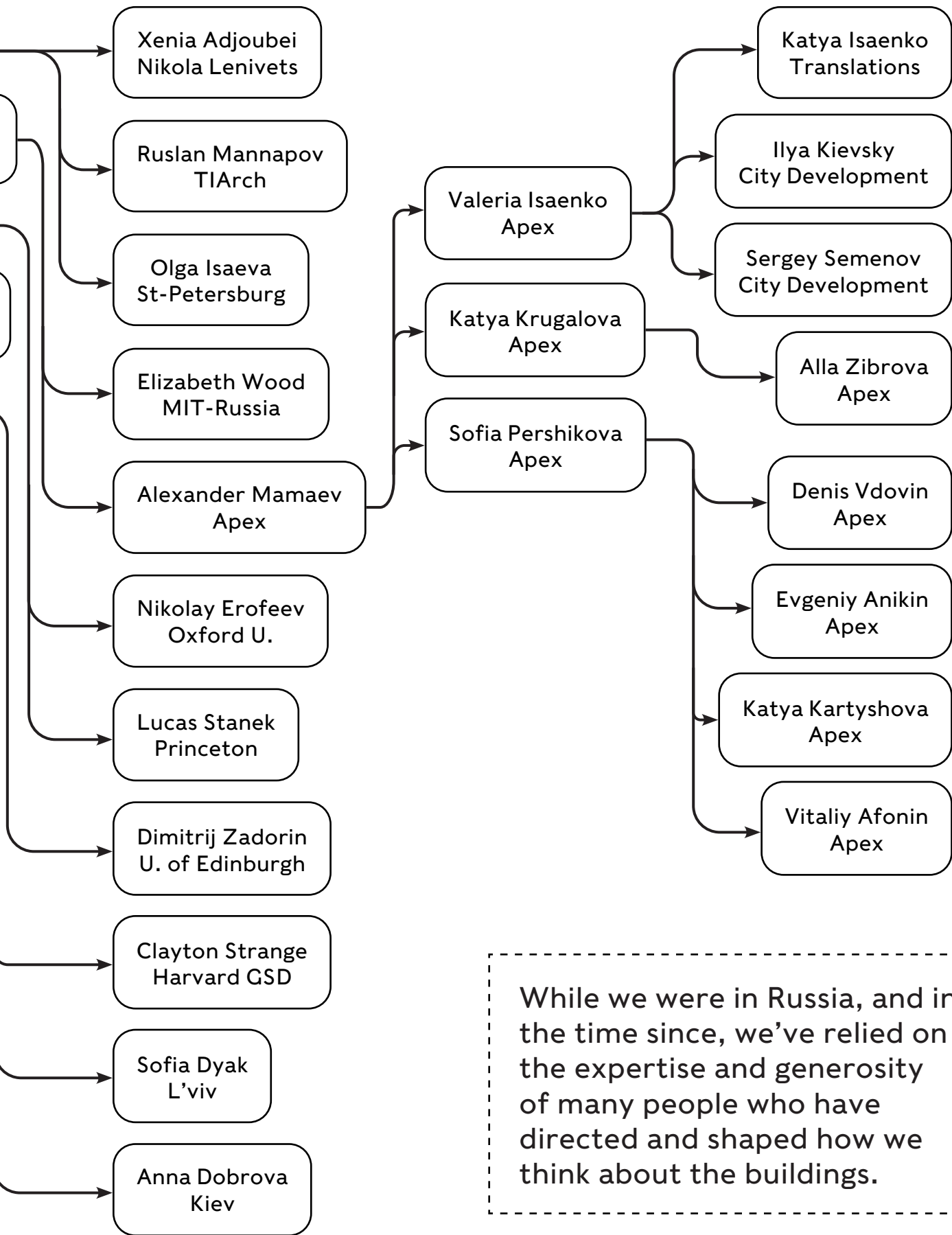


The childhood district of a friend we visited  
in Kazan. Source: Ben Hoyle, 2019

Some residents cherish them while others are eager to have them destroyed; in some places they've been wiped out, while elsewhere they are ubiquitous.

STILL STANDING (Ben Hoyle + Eytan Levi)







A Soviet housing district in Moscow. Source: Ben Hoyle, 2019

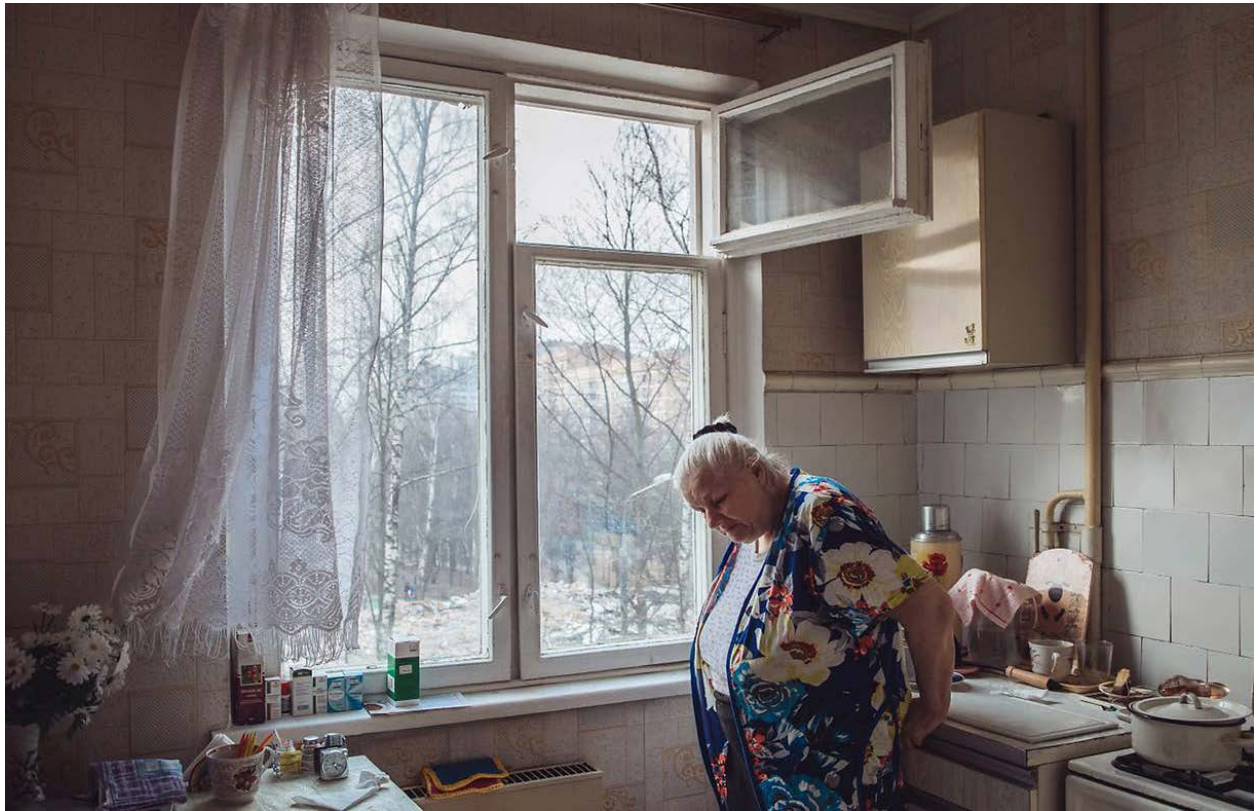


Through all of this, it has become clear to us that no matter what happens to Soviet mass housing, its legacy is deeply entrenched and will continue to shape the built environment for generations to come.



A St. Petersburg apartment building. Source: Hoyle, 2019

We argue that it is essential to keep the original buildings — with modifications and updates — to create agency for residents in how this legacy is carried into the future.



**Tatyana Chaynikova in her Soviet-era apartment.**  
Source: Max Avdeev, The Washington Post, 2017

We'll talk about three scenarios in which residents of the same type of prefabricated modernist housing — in sites spread across the former Soviet territory — collectively leverage their apartments to create renovations that serve their common interests.



Apartment extensions in Vorkuta.  
Source: Anton Obolensky, 2007

Our work is a contribution to the decades-long history of Soviet housing renovation, which has shaped and differentiated what were once identical structures.

With this in mind, we draw from both the history of the buildings as much as their current, varied circumstances, suggesting contextualized ways that the massive system of Soviet housing can be carried forward.



“It’s easy to build cheap and quickly!”  
Source: Tishkin Valentin Pavlovich, 1950s



But first, what exactly are these buildings? They have a nickname: Khrushchovki, derived from Nikita Khrushchev, the Soviet leader who succeeded Stalin, and in 1958 declared that all Soviet families, many of them living in slums and communal homes at the time, would be given an apartment of their own.



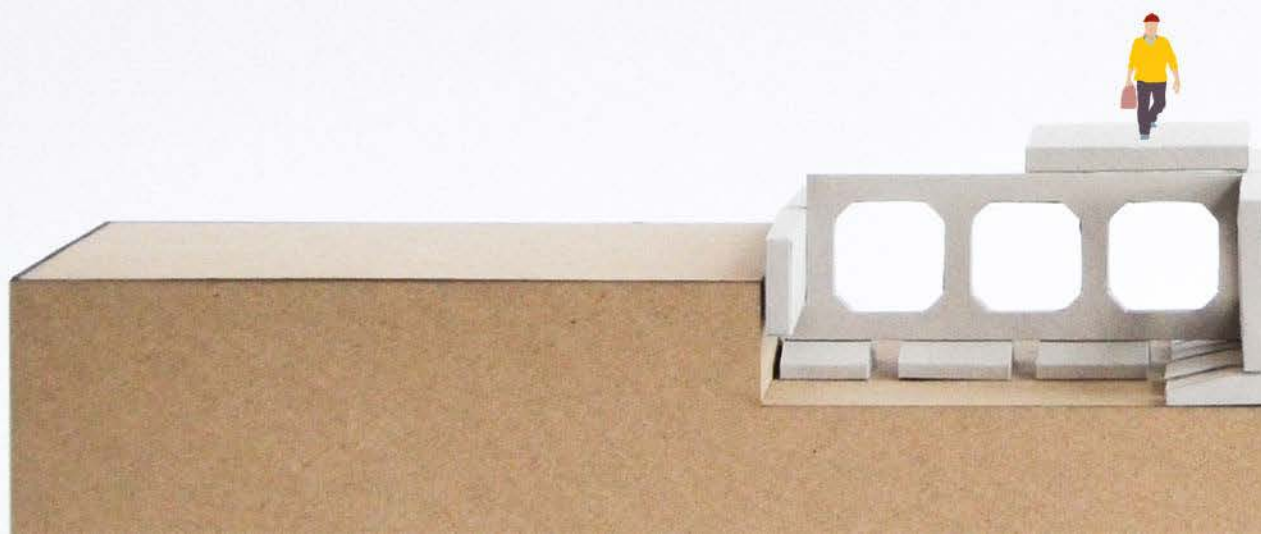
Map of Soviet Industry. Source: Archival Soviet document

His program was wildly ambitious, and its core tenet was to introduce the widespread industrialization of housing construction. Its effect remains unparalleled in its scale and impact. Between 1960 and 1975, 1.55 billion square meters of new housing were constructed, and 2 out of every 3 inhabitants of the USSR were rehoused.

But how did they do it? The cutting edge technology at the time was prefabricated panel housing, which used large concrete panels that were prefabricated in factories, then driven to site and assembled with cranes.







This type of building was designed in parallel with the systems that produced it, and both were ruthlessly optimized for efficiency and cost.



Rather than designing buildings, architects designed building series, which were effectively product lines. These were each developed, tested, refined, and only then constructed at an enormous scale.







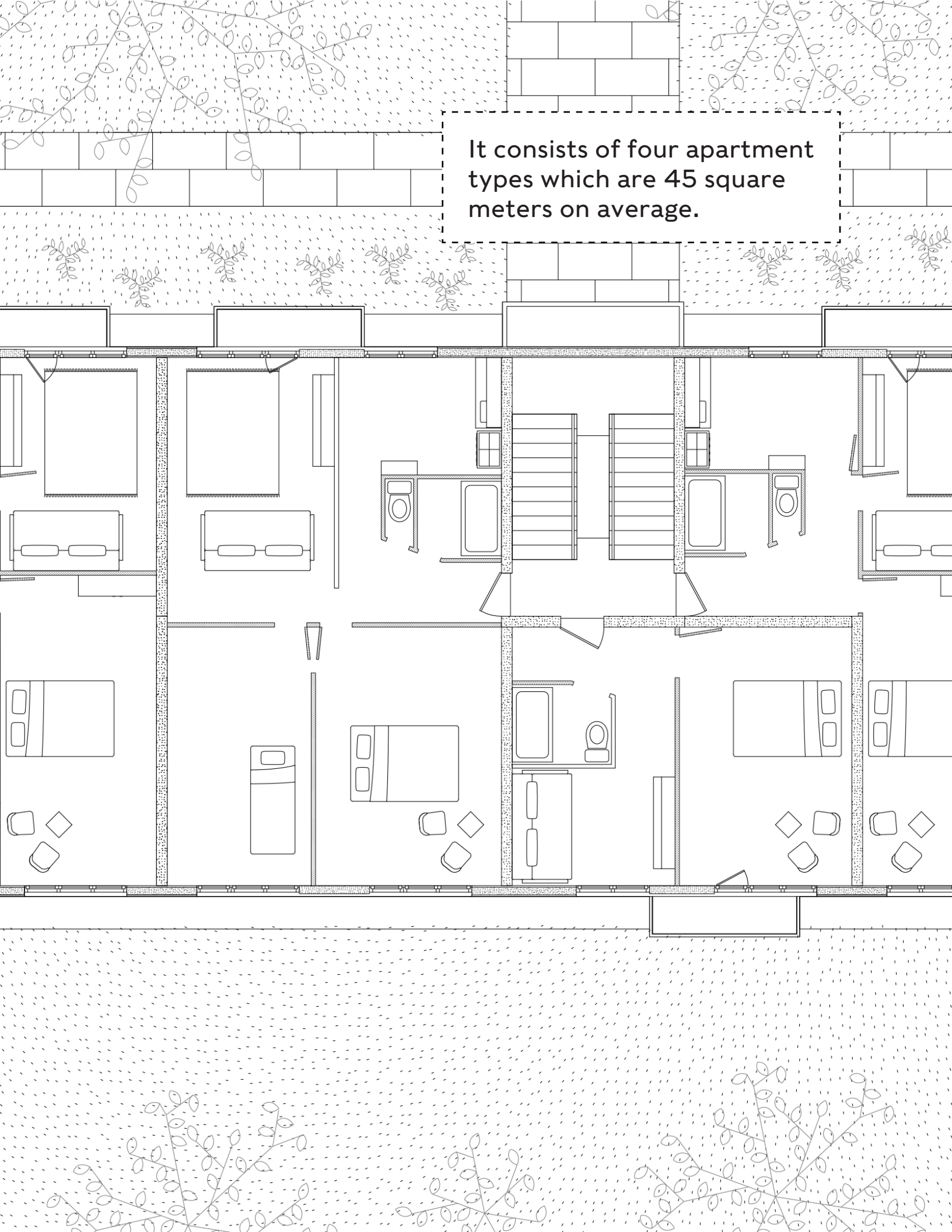


The type of building we will focus on is called a 1-467, which was built in the thousands across the USSR. This series is unique for its use of half-story tall facade panels, which can be removed without compromising the building structure.

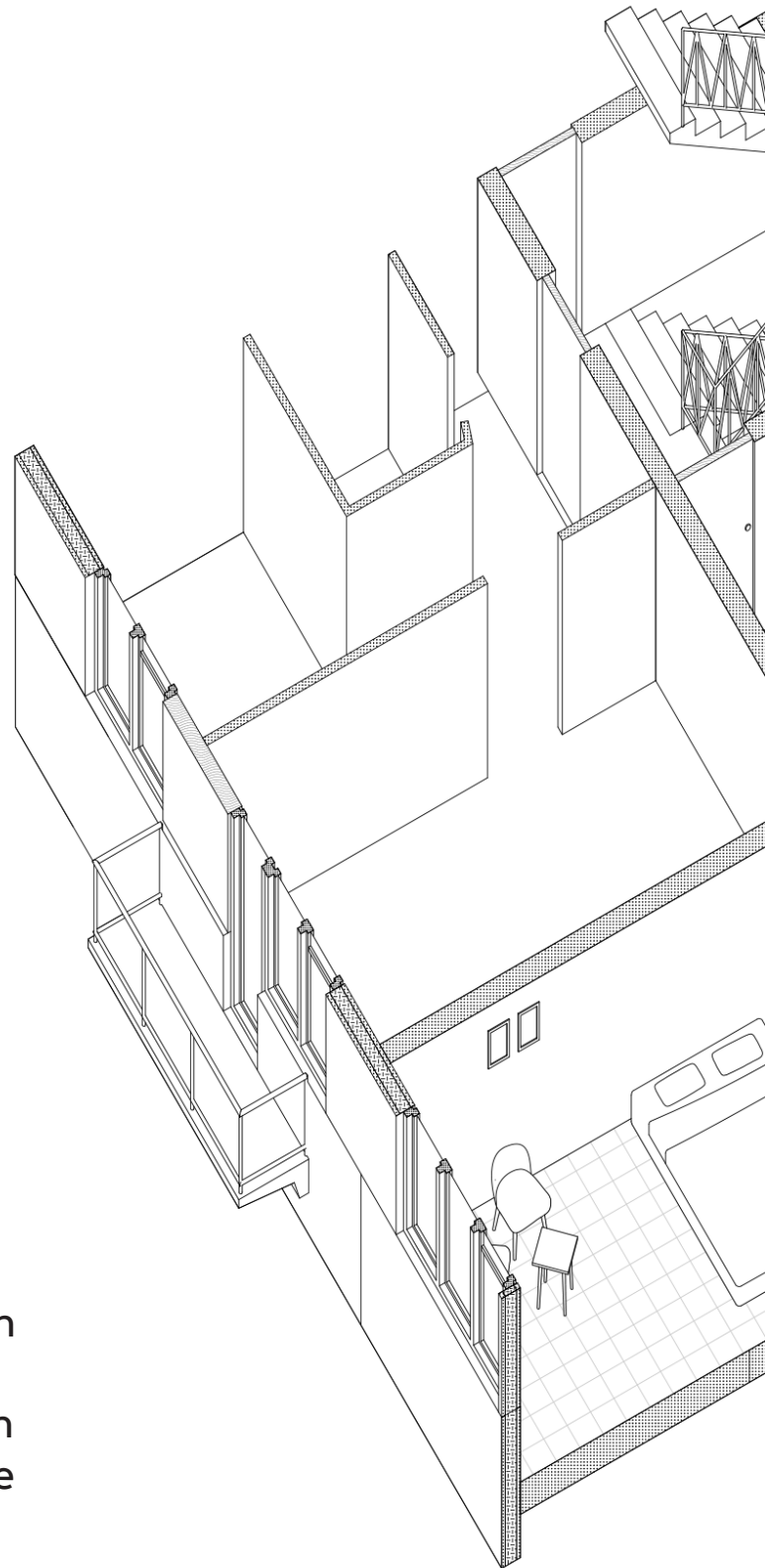


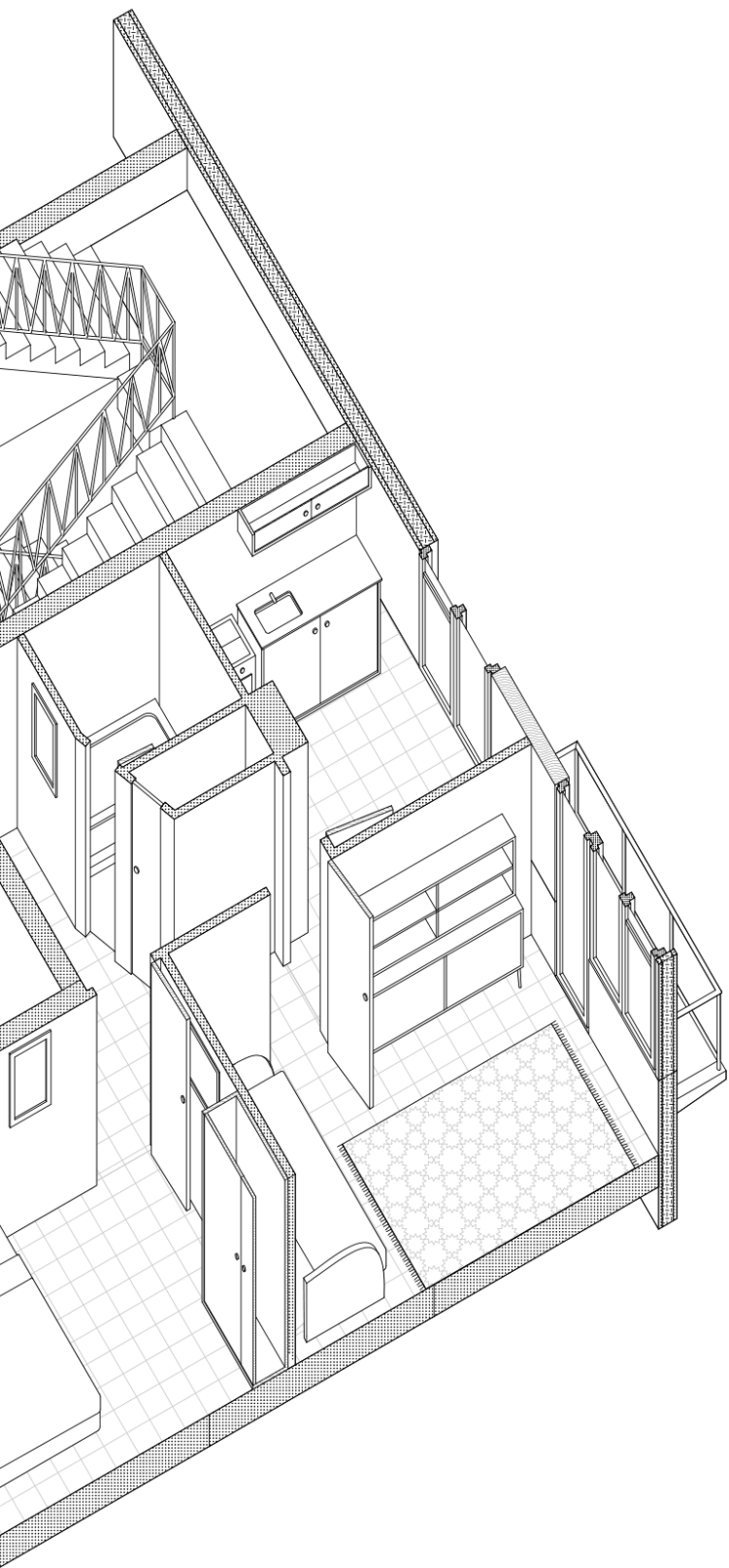


It consists of four apartment types which are 45 square meters on average.

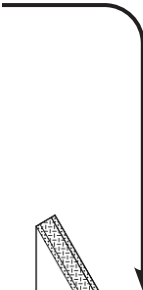


But today, a significant portion of the people living in these structures are confronted with urgent problems related to the decay of their living spaces.

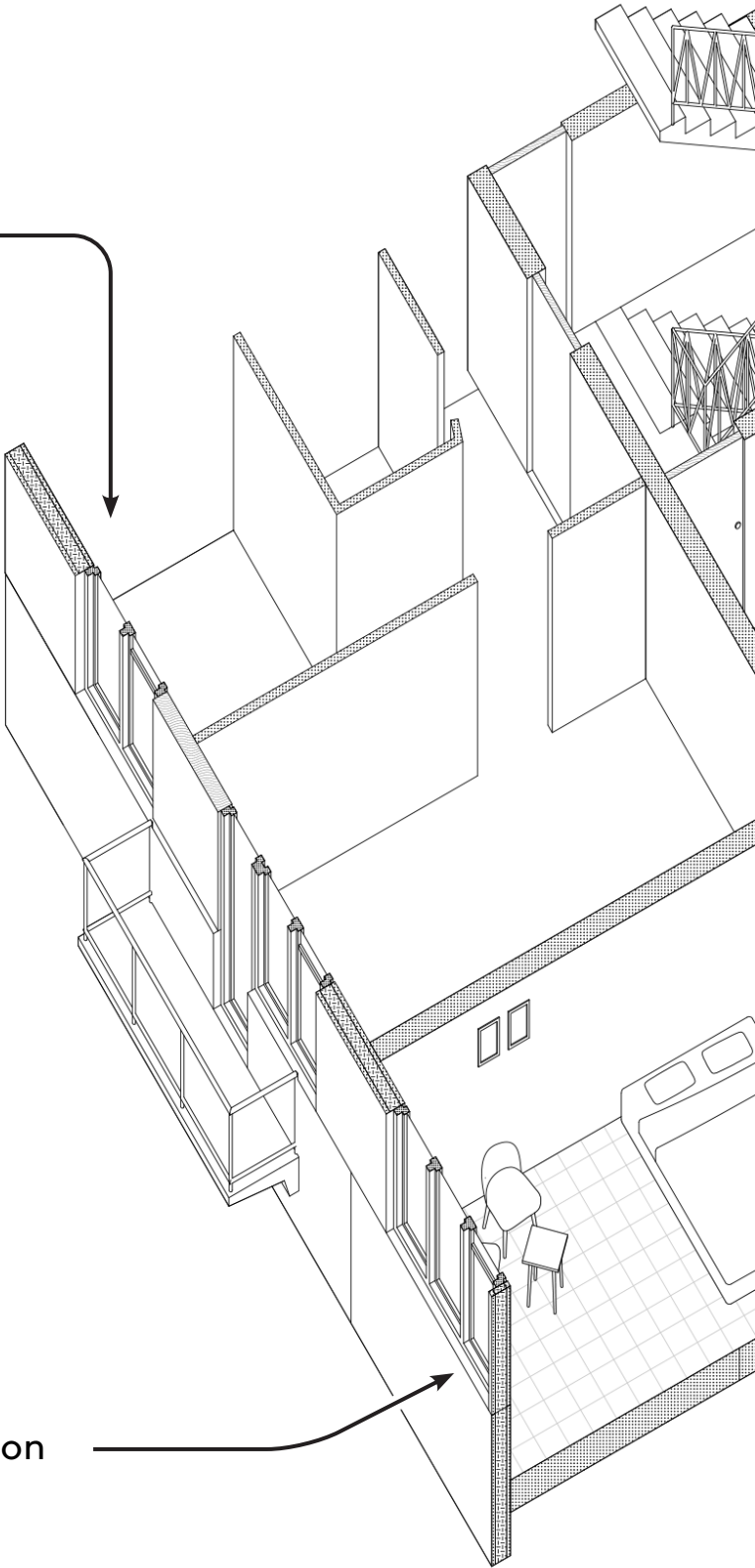




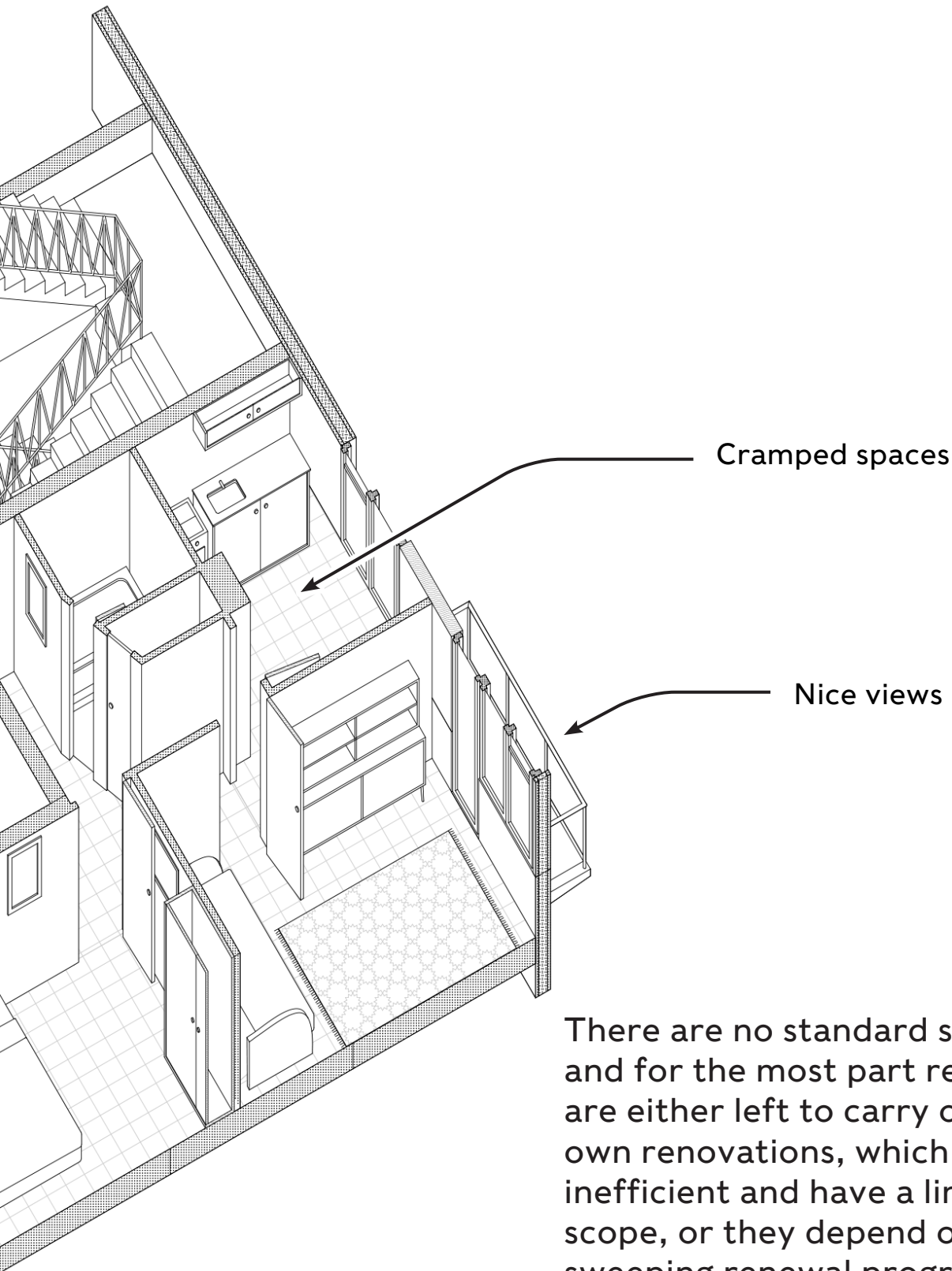
No sound insulation



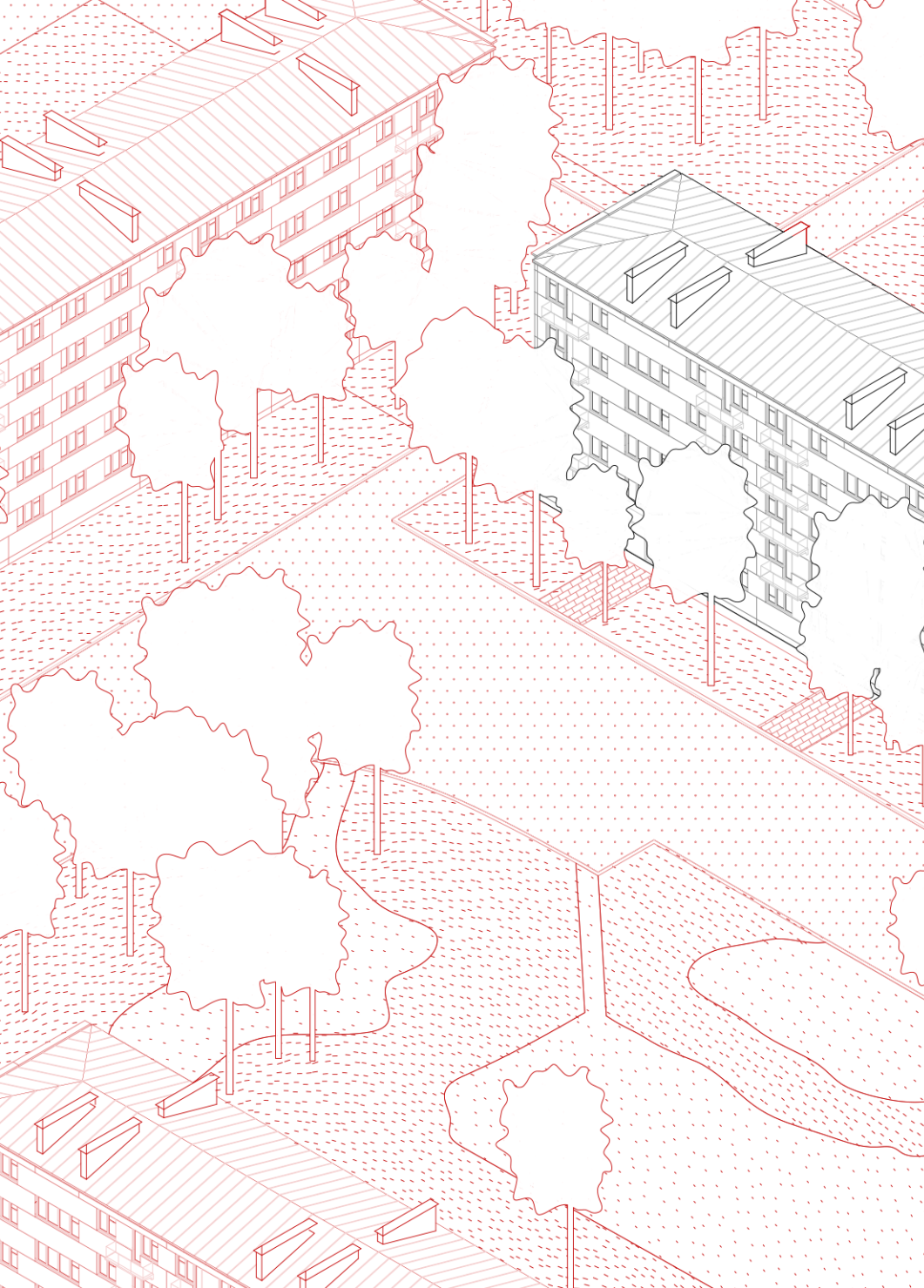
Lacking thermal insulation



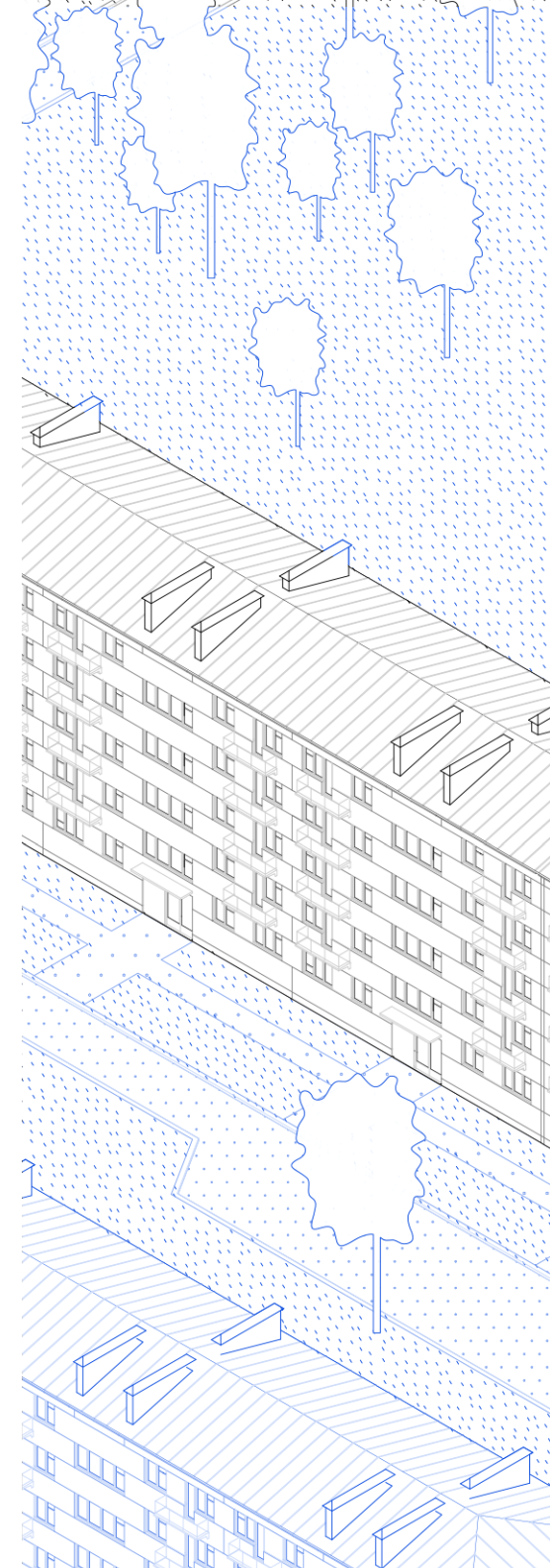




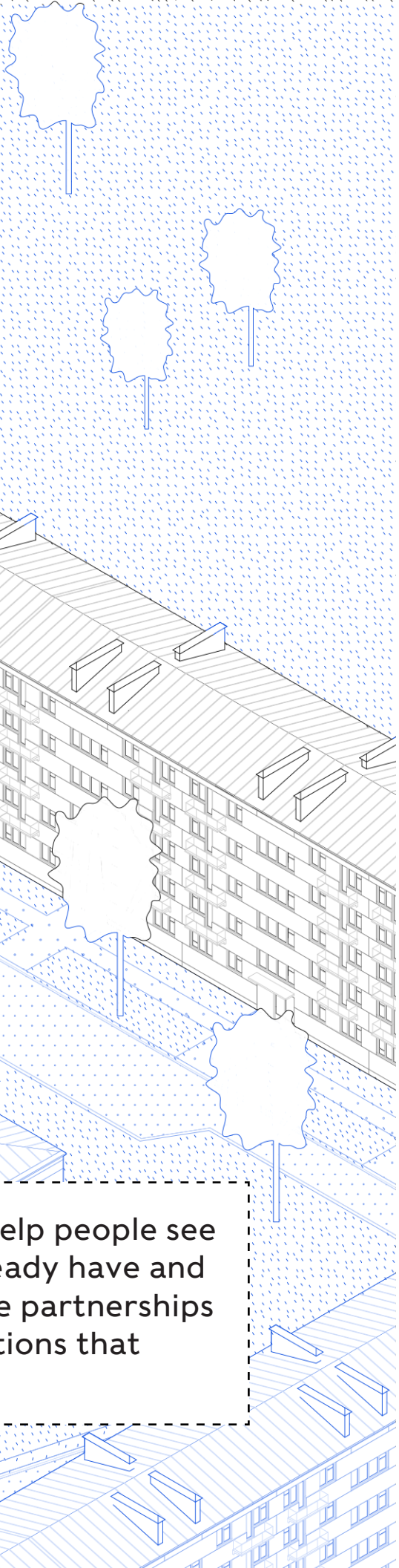
There are no standard solutions, and for the most part residents are either left to carry out their own renovations, which are inefficient and have a limited scope, or they depend on sweeping renewal programs, which give them few choices and fail to account for the value of their current apartments.



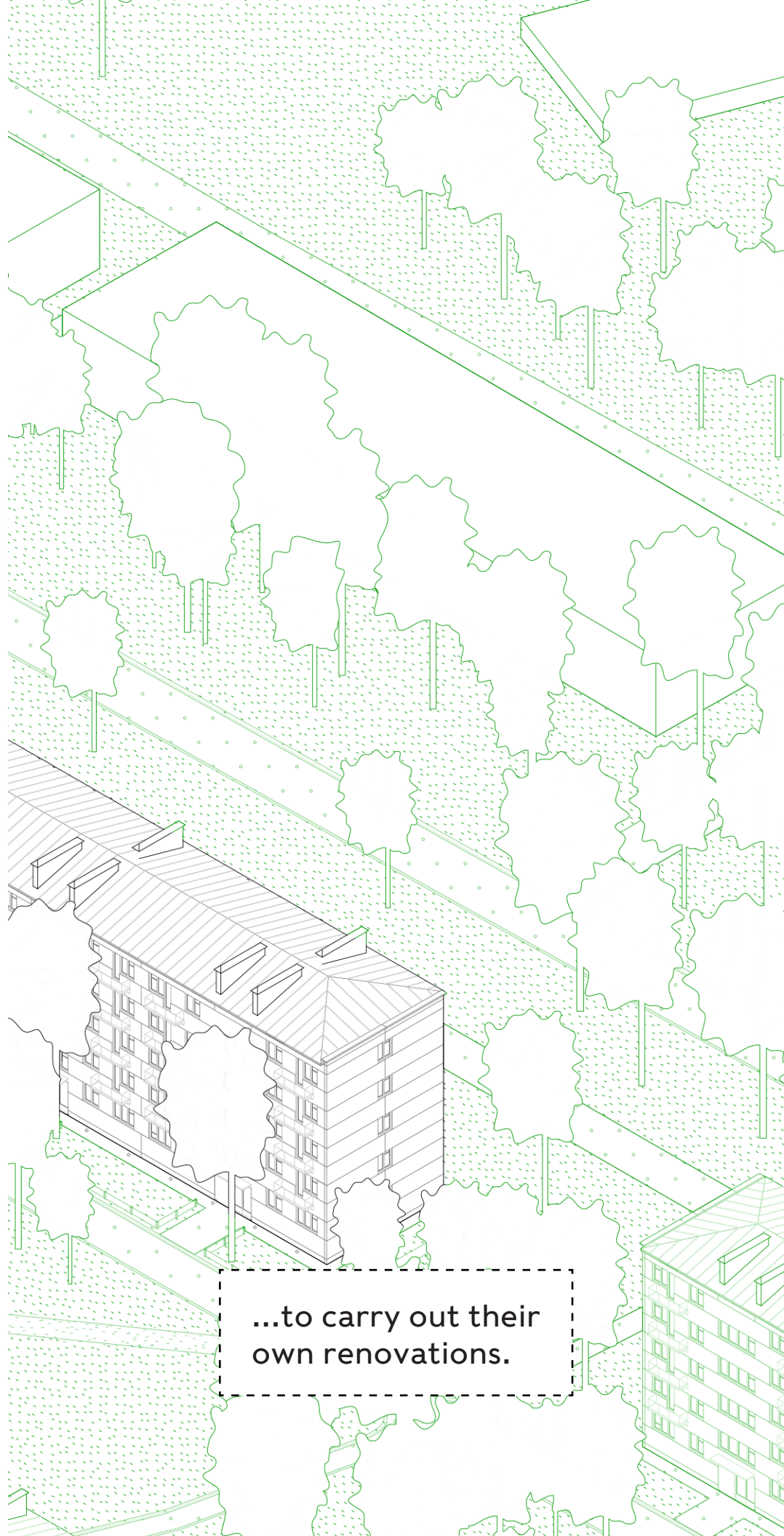
We suggest a series of alternatives, in which residents, builders and developers work with local stakeholders to achieve localized solutions that improve the living spaces of residents.



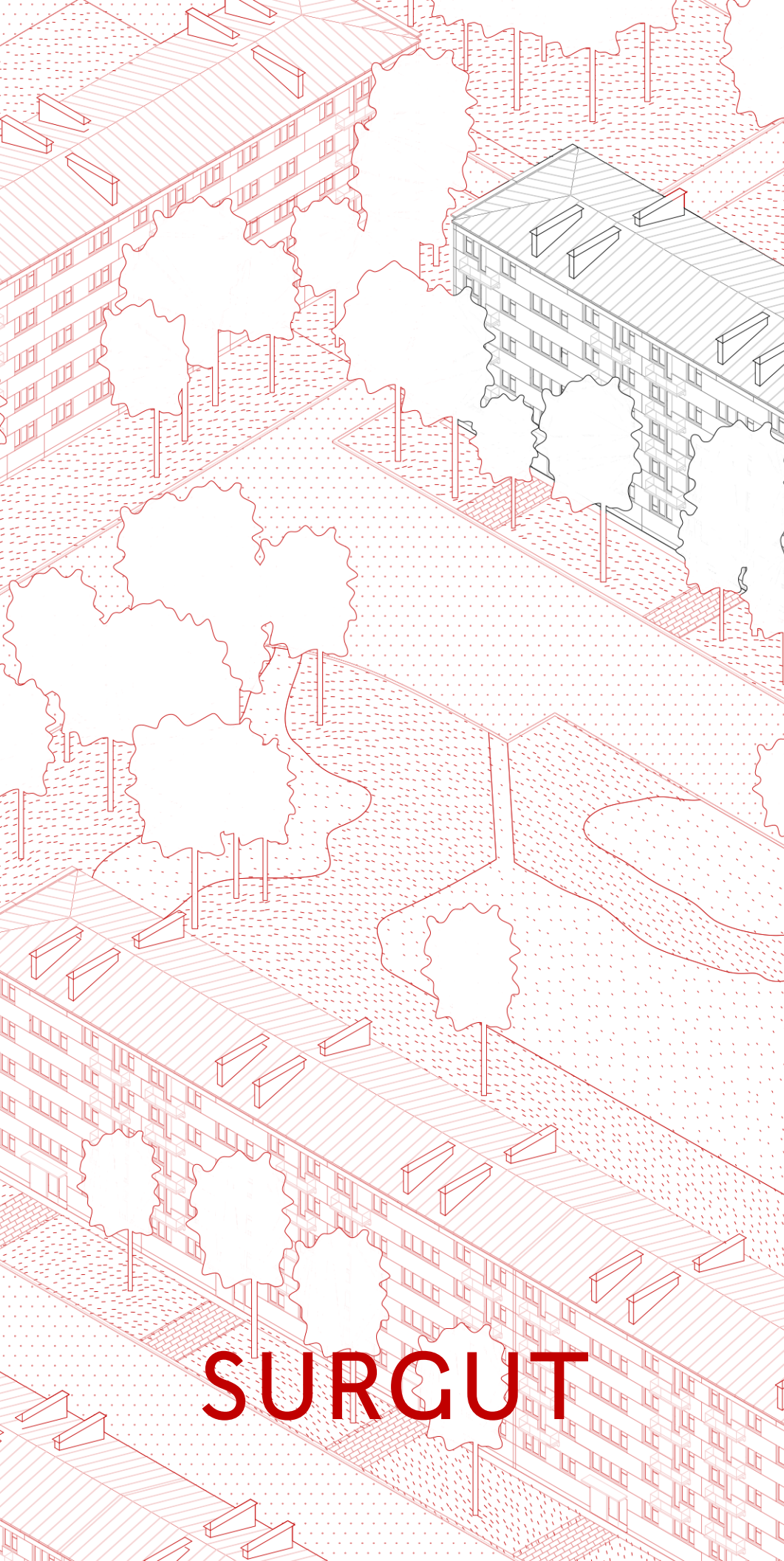
We strive to help what they already do to catalyze the and collaborate they'll need...



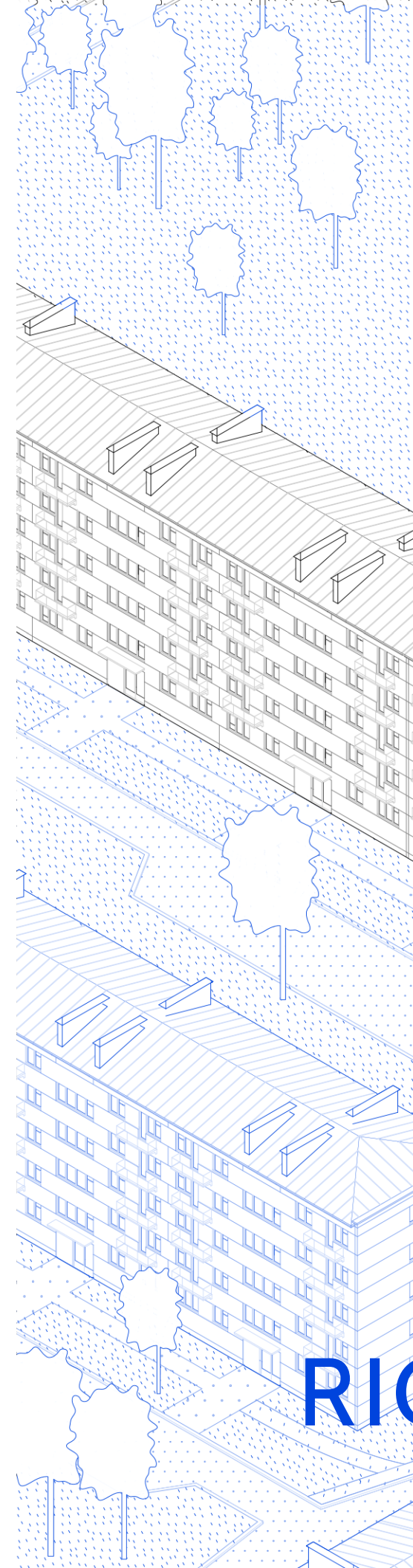
Help people see  
what they already have and  
the partnerships  
and solutions that



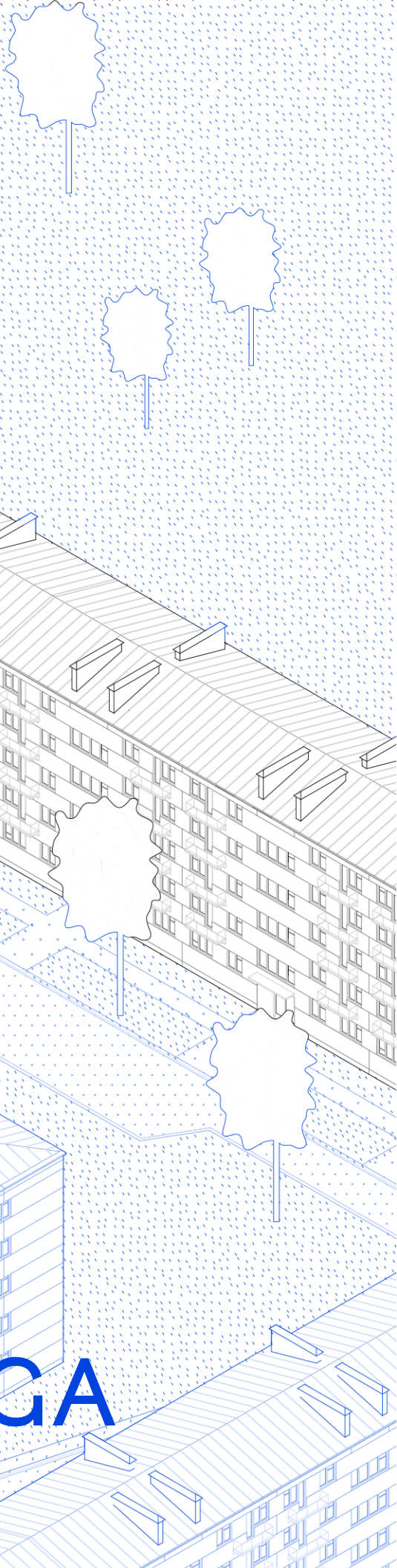
...to carry out their  
own renovations.



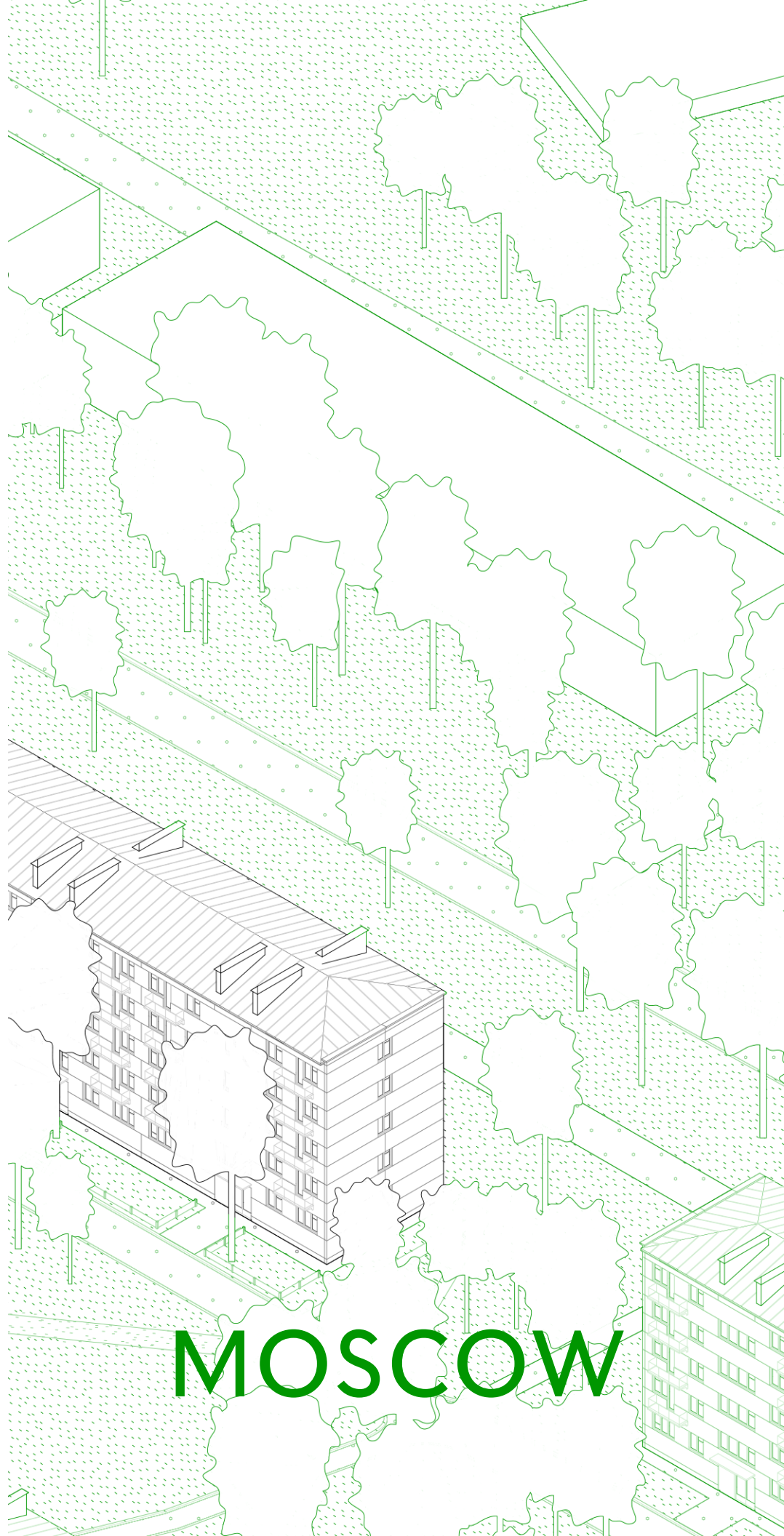
**SURGUT**



**RIO**



GA



MOSCOW



STILL STANDING

PLACES


YOUR APARTMENT

SURGUT



You're in Surgut, Siberia.



A wide, paved road with white lane markings, lined with young trees in autumn. The trees have green and yellow leaves. A street lamp is visible on the right side of the road. The sky is clear and blue.

It was a minor town until the 1960s, when oil was found in the region and it swiftly expanded into a regional metropolis. Today, almost 400,000 people live here.



USSR

● Surgut,  
Russia

Source: Google Street View



Many buildings here are of the 1-467 series.



ОСТ. ПУШКИНА


Source: Google Street View

They're in bad shape.





Source: Google Street View

A photograph of a residential street. On the left, a large, leafy tree dominates the foreground, with the sun shining through its branches, creating a starburst effect. The street is paved and has a concrete curb. In the background, there are multi-story apartment buildings with balconies. A few people are visible on the street, including a person riding a bicycle. The sky is bright with some clouds.

They were built, along with many other buildings in the city, by the same companies that were founded to construct infrastructure for oil extraction in the region.





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и в мобильном приложении  
«Гарант».



3

Source: Yandex Maps



But even back then, the 1-467 design was out of place here. The average annual temperature is below freezing, yet they still built apartments with balconies and bad insulation.



Source: Google Street View



Oilfield infrastructure

You

The buildings were clearly designed for warmer places than Surgut.

# SURGUT, RUSSIA

— The factory that built your apartment



10km



Source: Google Earth

You, like all of your neighbors, live in a modified apartment.

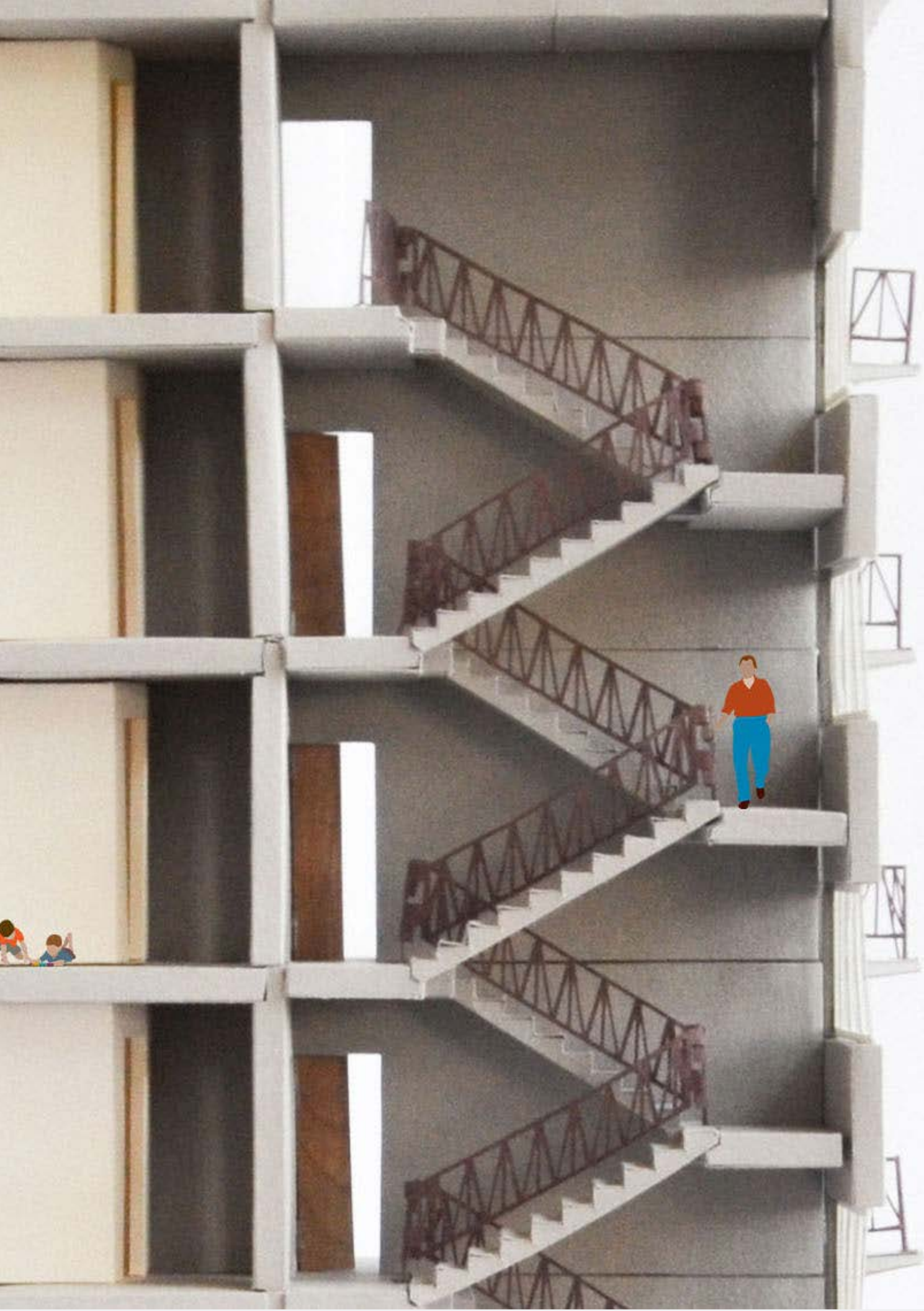




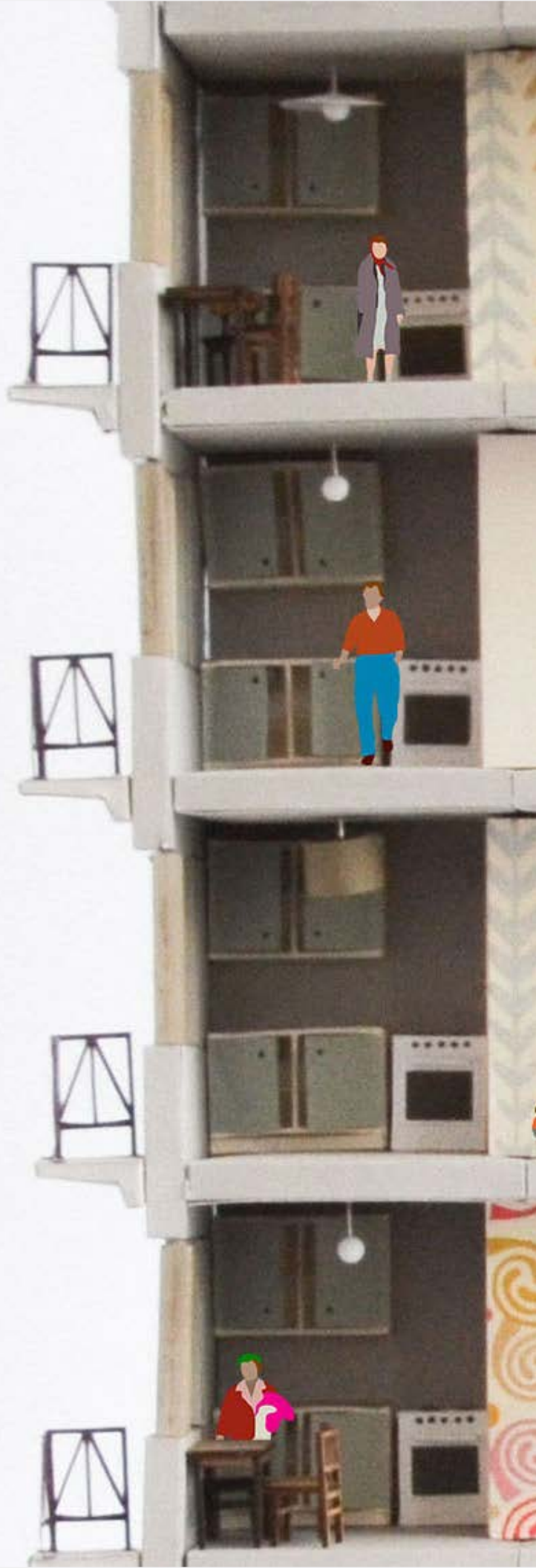
Years ago, your dad hired a friend to build walls around the balcony, so that he and your mom could use it for their plants.







These days there aren't any more plants, but you appreciate the extra space to store your shoes.



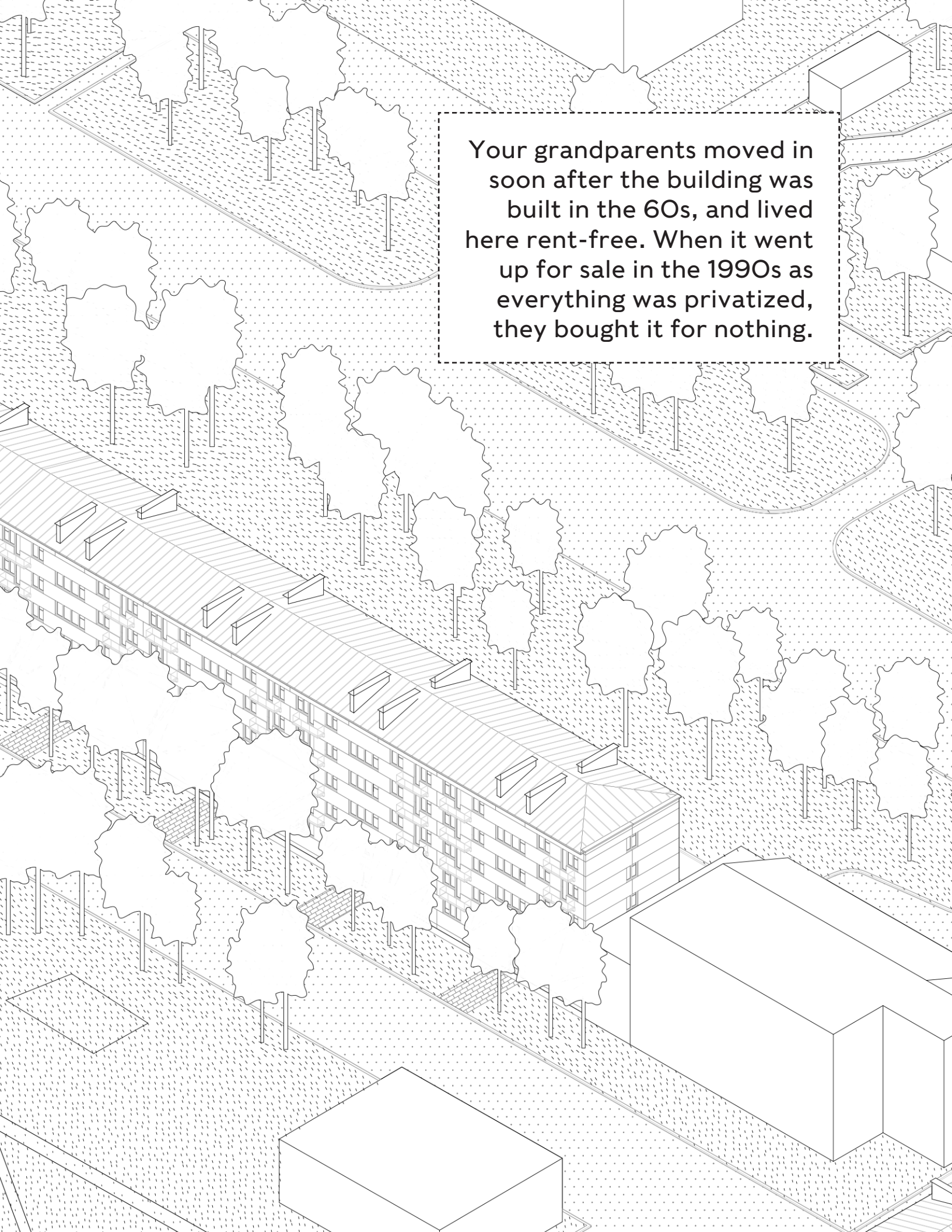


People have always changed these apartments, and doing so became all the more common after the USSR came apart in the 1990s.

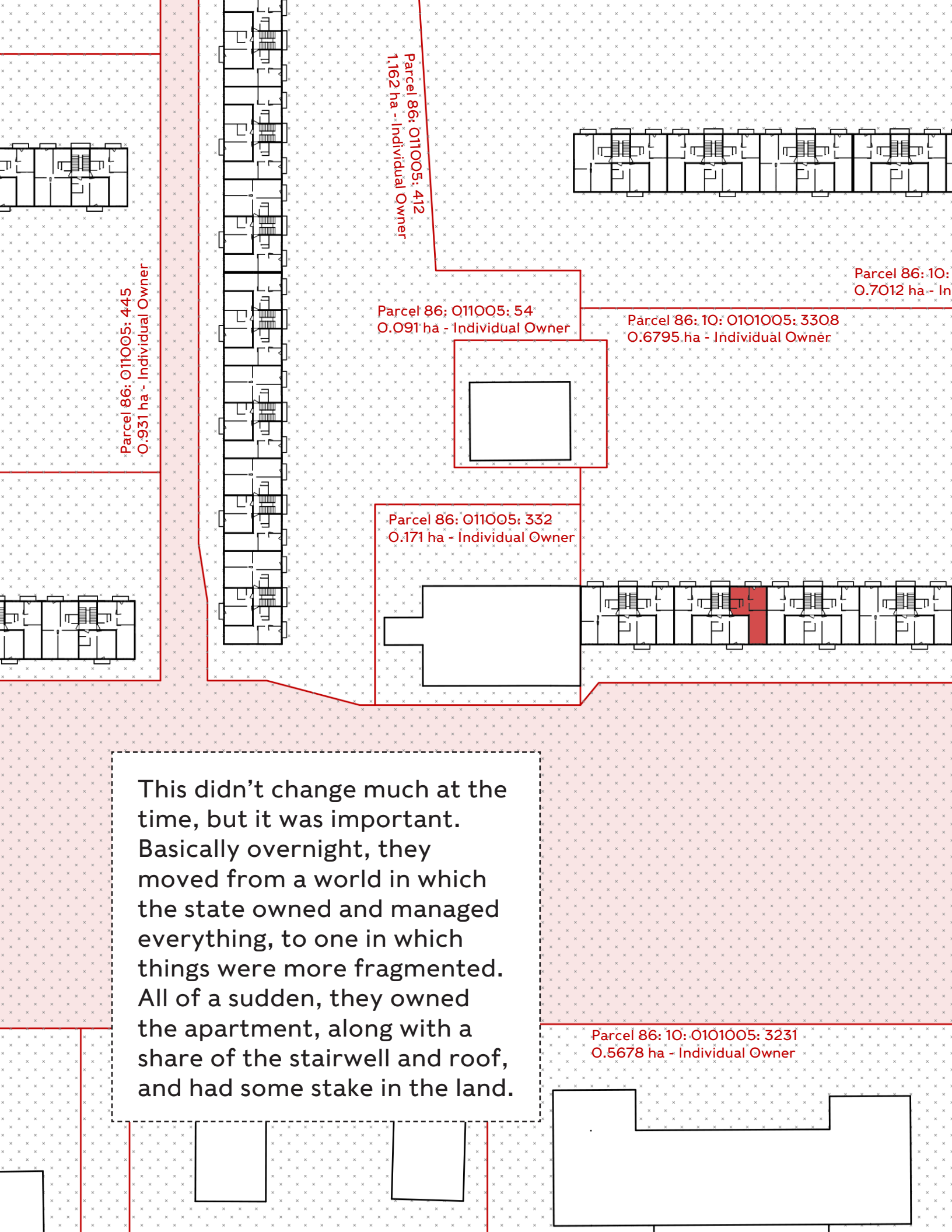








Your grandparents moved in soon after the building was built in the 60s, and lived here rent-free. When it went up for sale in the 1990s as everything was privatized, they bought it for nothing.



Parcel 86: 011005: 445  
0.931 ha - Individual Owner

Parcel 86: 011005: 412  
1.162 ha - Individual Owner

Parcel 86: 011005: 54  
0.091 ha - Individual Owner

Parcel 86: 10: 0101005: 3308  
0.6795 ha - Individual Owner

Parcel 86: 10:  
0.7012 ha - Individual Owner

Parcel 86: 011005: 332  
0.171 ha - Individual Owner

Parcel 86: 10: 0101005: 3231  
0.5678 ha - Individual Owner

This didn't change much at the time, but it was important. Basically overnight, they moved from a world in which the state owned and managed everything, to one in which things were more fragmented. All of a sudden, they owned the apartment, along with a share of the stairwell and roof, and had some stake in the land.



Parcel 86: 10: 0101005: 3277  
0.7072 ha - Individual Owner


Parcel 86: 10: 0101005: 61  
0.7072 ha - Individual Owner

Parcel 86: 10: 0101005: 92  
0.973 ha - Individual Owner

Parcel 86: 10: 0101005: 98  
1.261 ha - Individual Owner

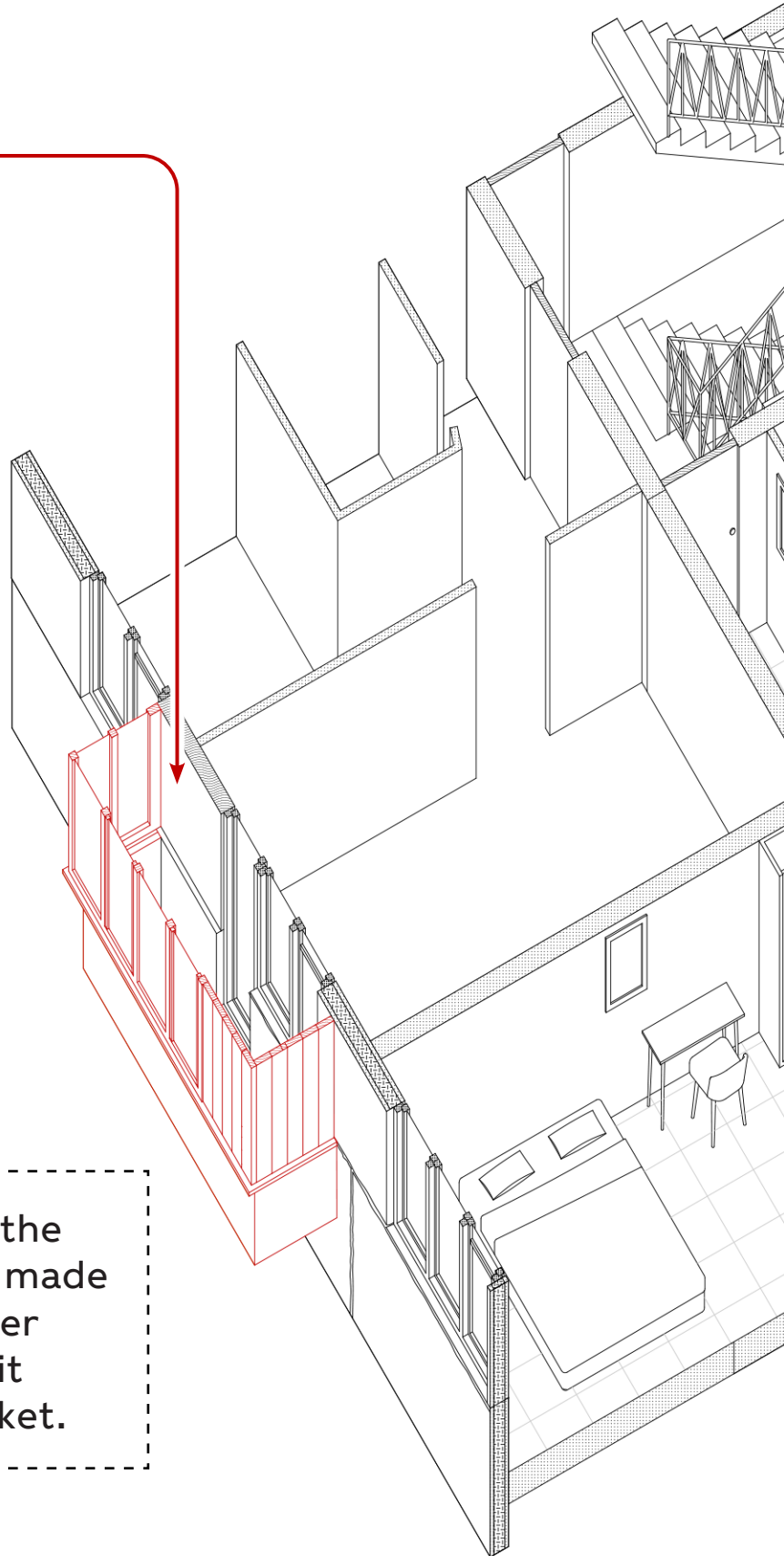
Parcel 86: 10: 0101005: 45  
0.7914 ha - Individual Owner

Parcel 86: 10: 0101005: 76  
0.3425 ha - Individual Owner

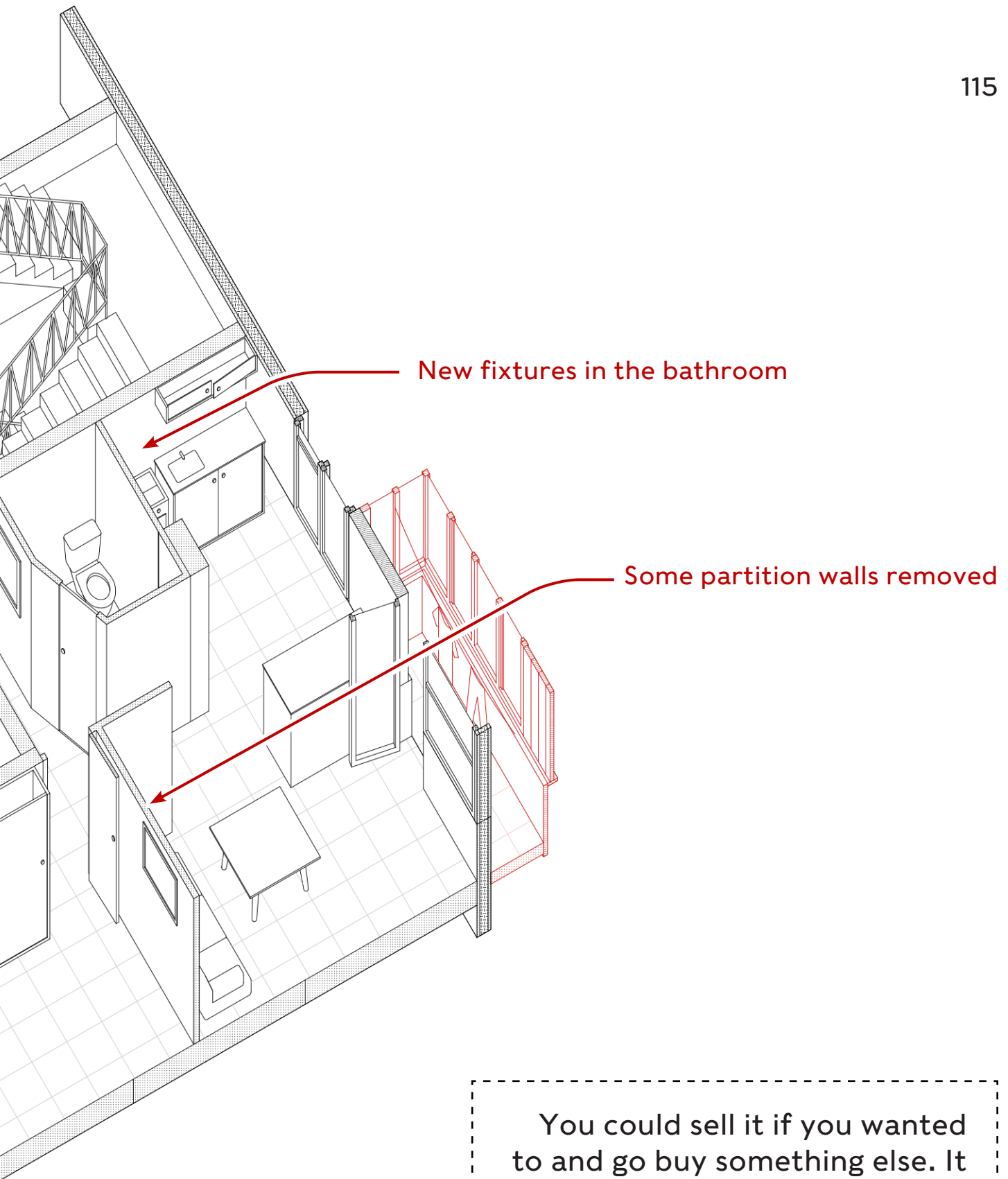
 Private  
 Public



Custom balcony enclosures



By the time you inherited the apartment, having a deed made a big difference — whatever you invested made the unit more valuable on the market.

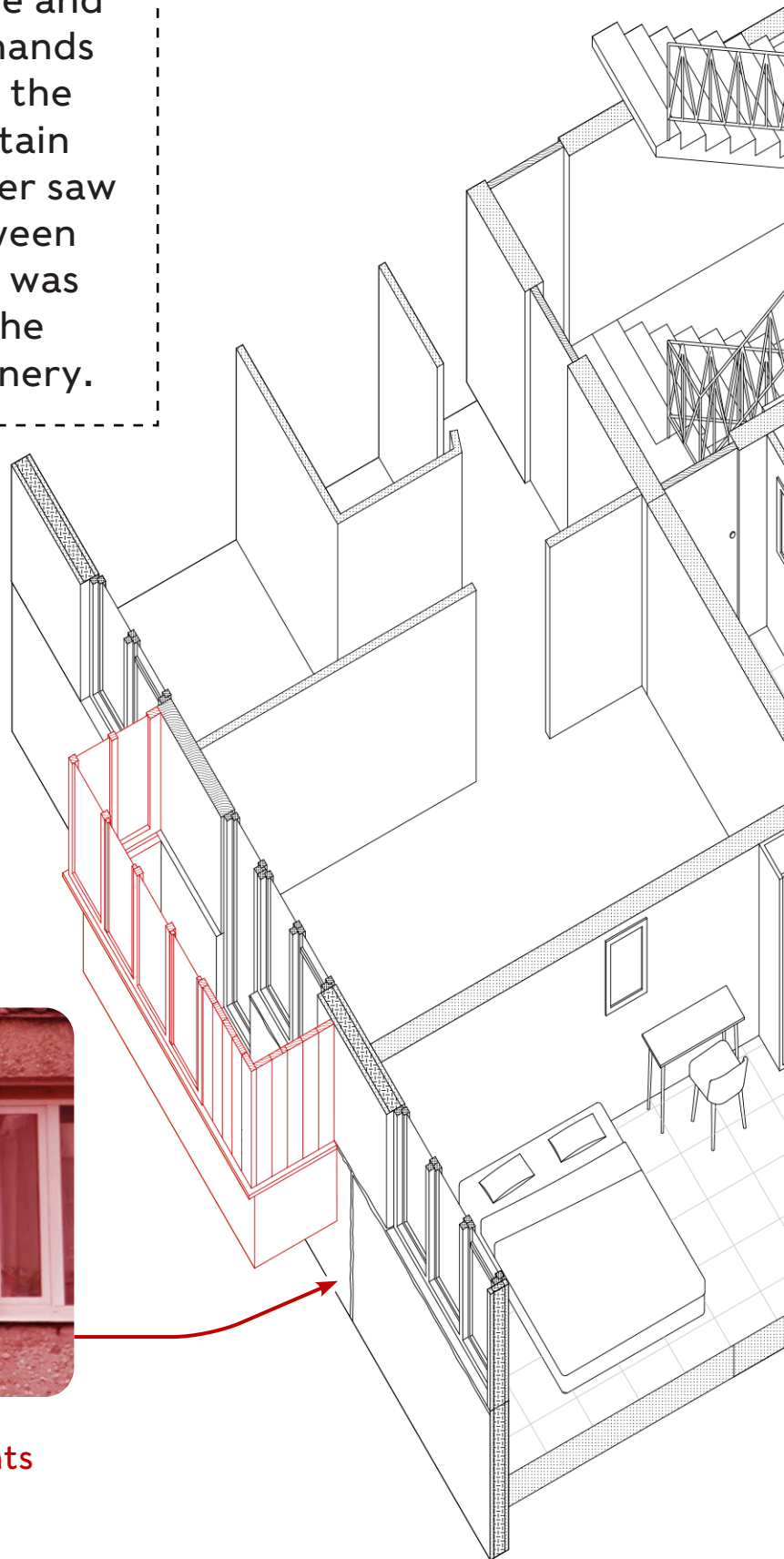


You could sell it if you wanted to and go buy something else. It was an asset. Your grandparents had never seen it this way.

At the same time the shift in ownership left public space and common property in the hands of people who didn't have the means or interest to maintain it. Your grandparents never saw much of a difference between their apartment and what was around it. Workers from the city tended to all the greenery.



Deteriorating facade joints





Unmaintained common spaces

Same 45m<sup>2</sup> of living space

But since the 1990s everyone has just focused on their own apartments. Unsurprisingly, this means that the stairwell is falling apart, nobody takes responsibility for problems with the walls and roof, and all the greenery is overgrown.





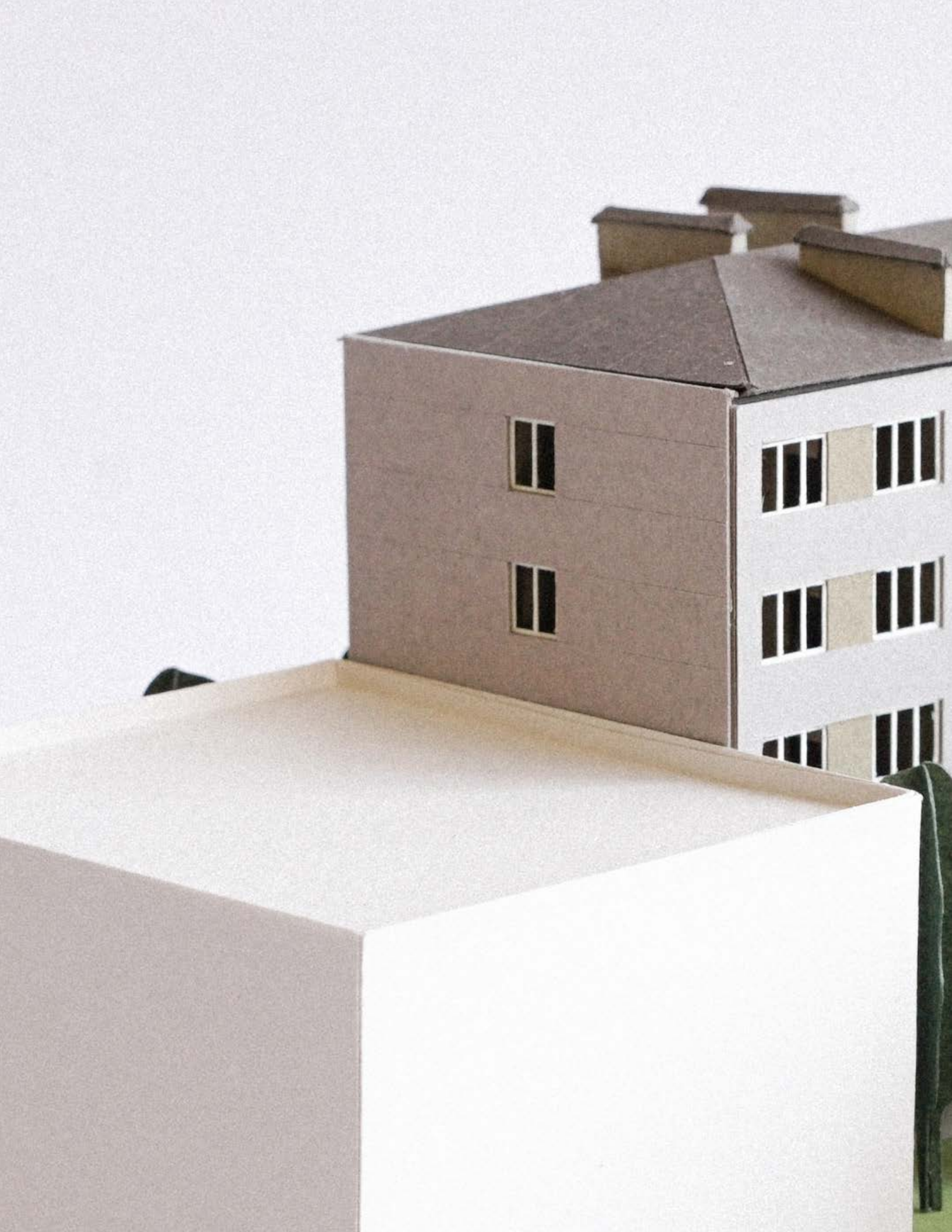
Imagine if you could use the fact of your ownership to navigate improvements to all of your common goods.



Surgut has the 4th highest salaries and real estate prices in Russia, and there are ways to do more.











RIGA

You're in Riga, Latvia,  
surrounded by 1-467  
residential buildings.



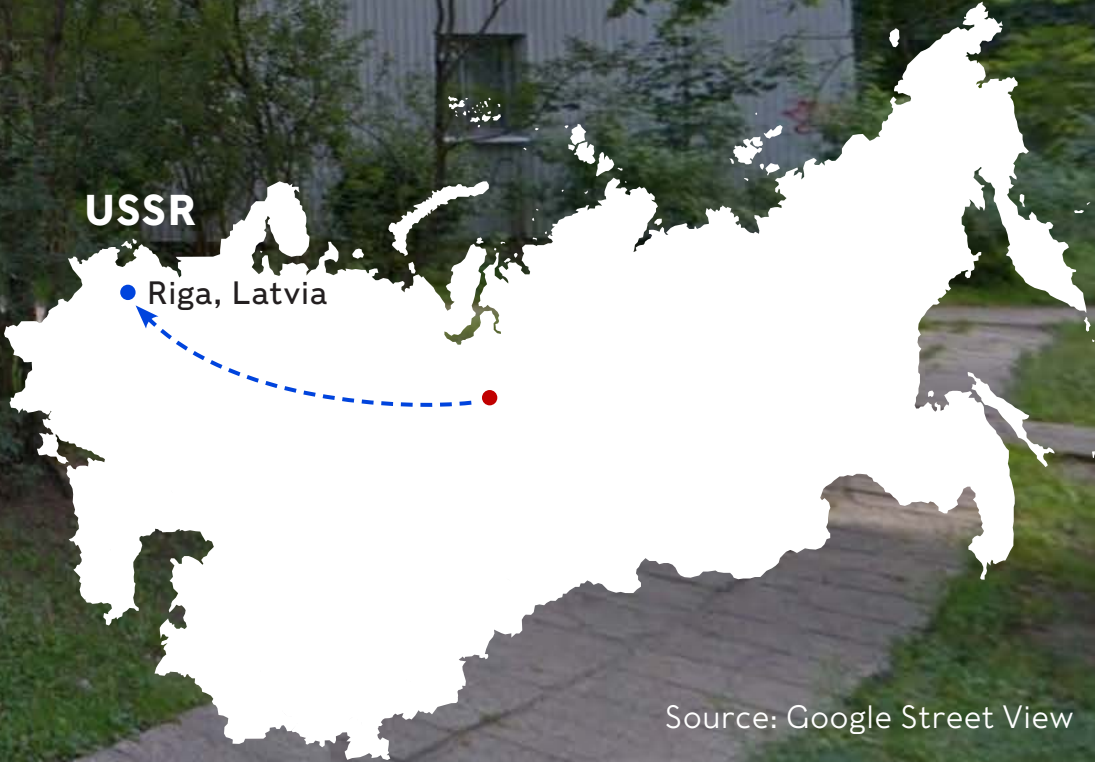
Albeit 2,700 km to  
the west of Surgut.





**USSR**

• Riga, Latvia



Source: Google Street View

You grew up here, in the Kengarags neighborhood. The buildings and the district were all designed and built as part of a master plan, with schools, trees, and parks that date back to Soviet times.








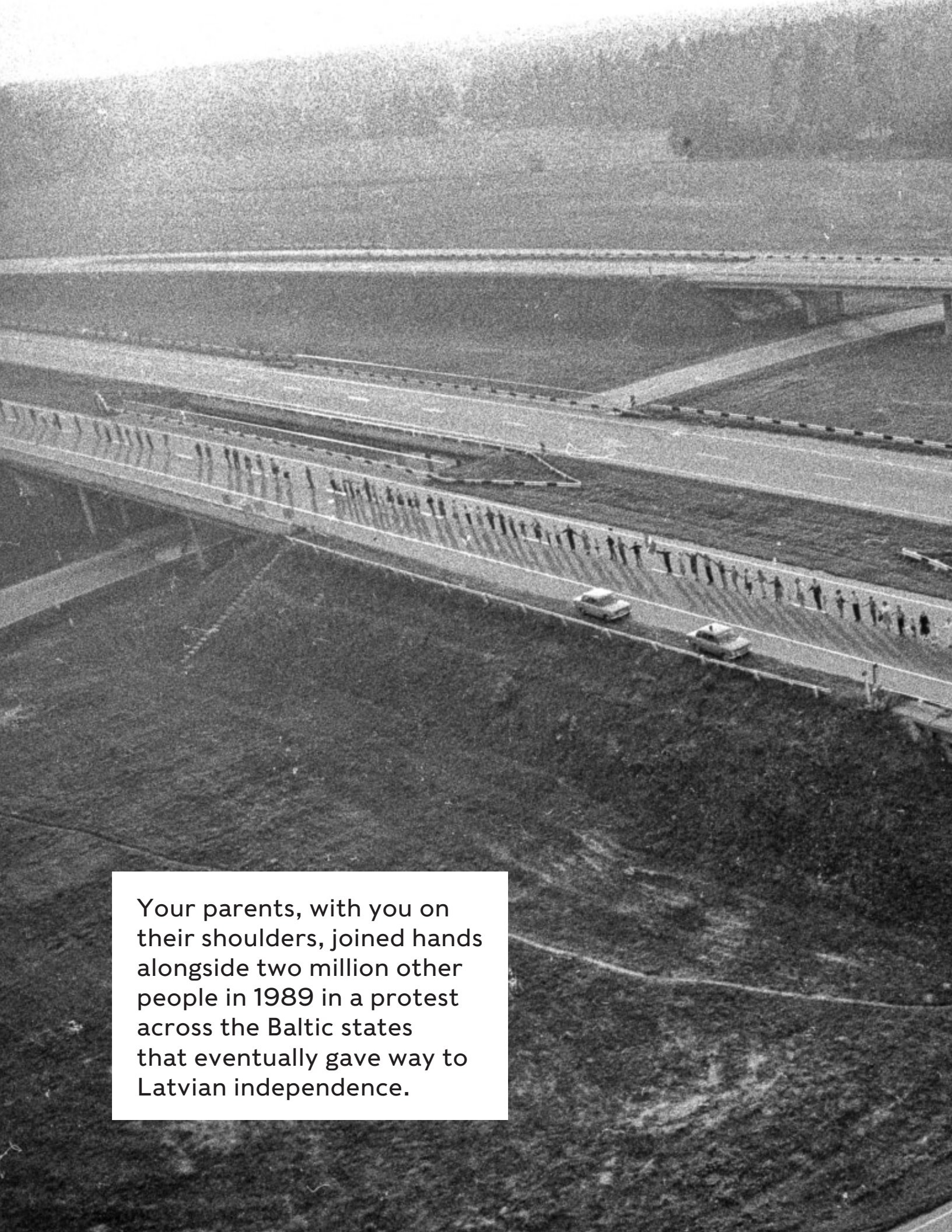
Source: Google Street View





But even though the district came from the same designs used for countless others across the former USSR, the country took a very different path post-collapse than most of the other Soviet republics.

Source: Google Street View



Your parents, with you on their shoulders, joined hands alongside two million other people in 1989 in a protest across the Baltic states that eventually gave way to Latvian independence.



A segment of the two million person long Baltic Way protest.  
Source: Aivars Liepins, 1989.



You

When you were in school, Latvia joined the EU, and at some point after university you traded in all your Lats for Euros.

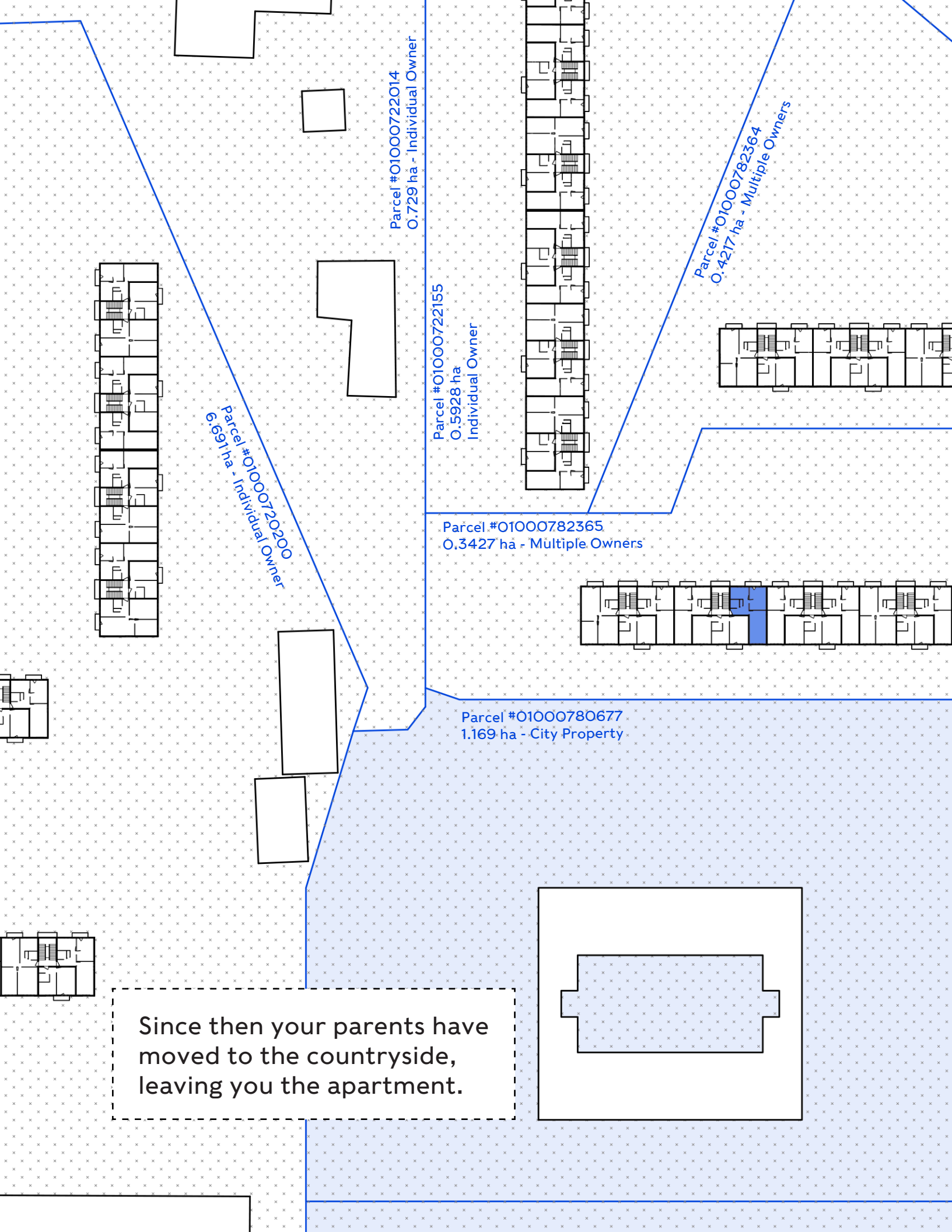
# RIGA, LATVIA

Path of the Baltic Way  
through Riga in 1989

10km

Source: Google Earth





Parcel #01000722014  
0.729 ha - Individual Owner

Parcel #01000722155  
0.5928 ha  
Individual Owner

Parcel #01000782364  
0.4217 ha - Multiple Owners

Parcel #01000720200  
6.691 ha - Individual Owner

Parcel #01000782365  
0.3427 ha - Multiple Owners

Parcel #01000780677  
1.169 ha - City Property

Since then your parents have moved to the countryside, leaving you the apartment.



Parcel #01000720341003  
0.3564 ha - Multiple Owners

Parcel #01000782314  
0.6059 ha - Individual Owner

Parcel #01000782309  
0.3298 ha - Individual Owner

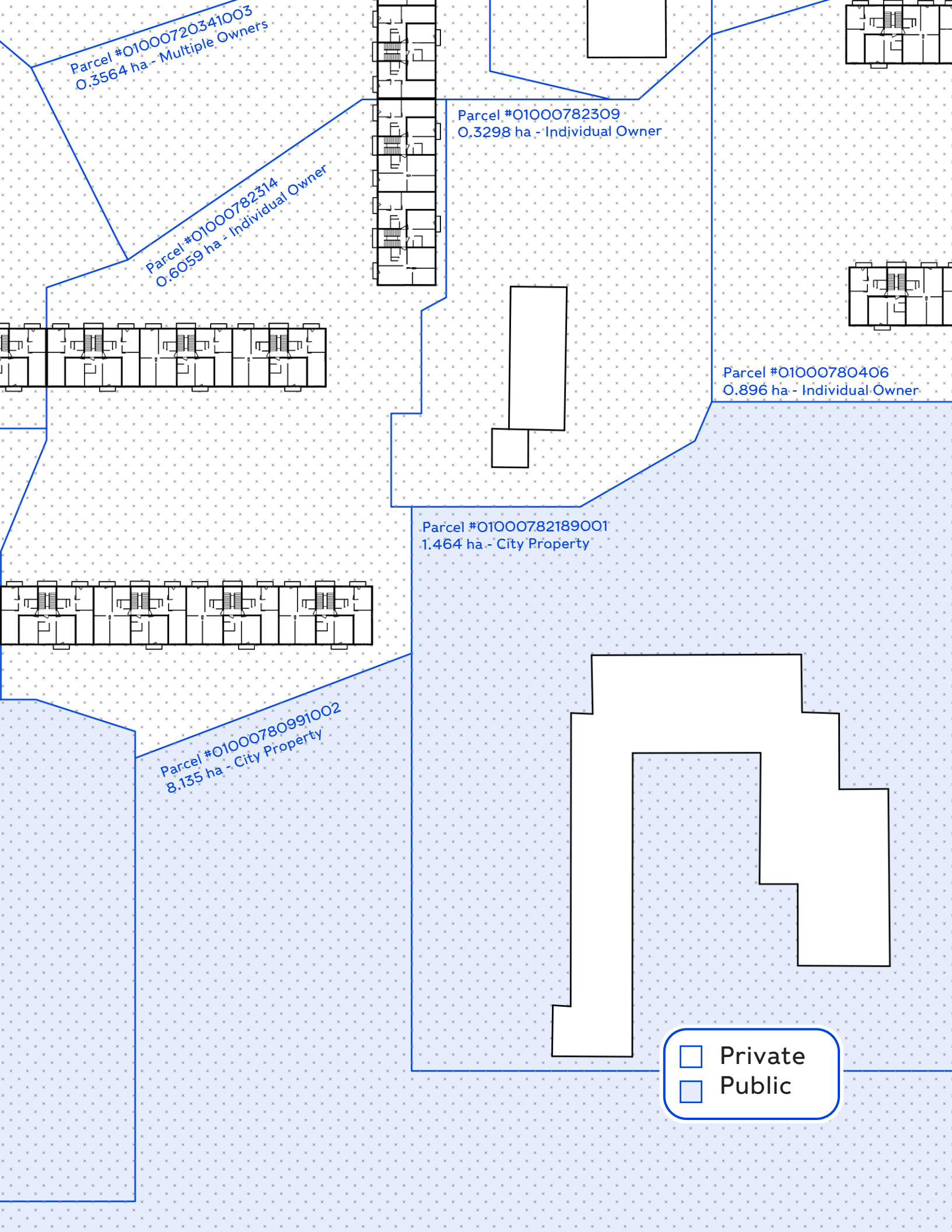
Parcel #01000780406  
0.896 ha - Individual Owner

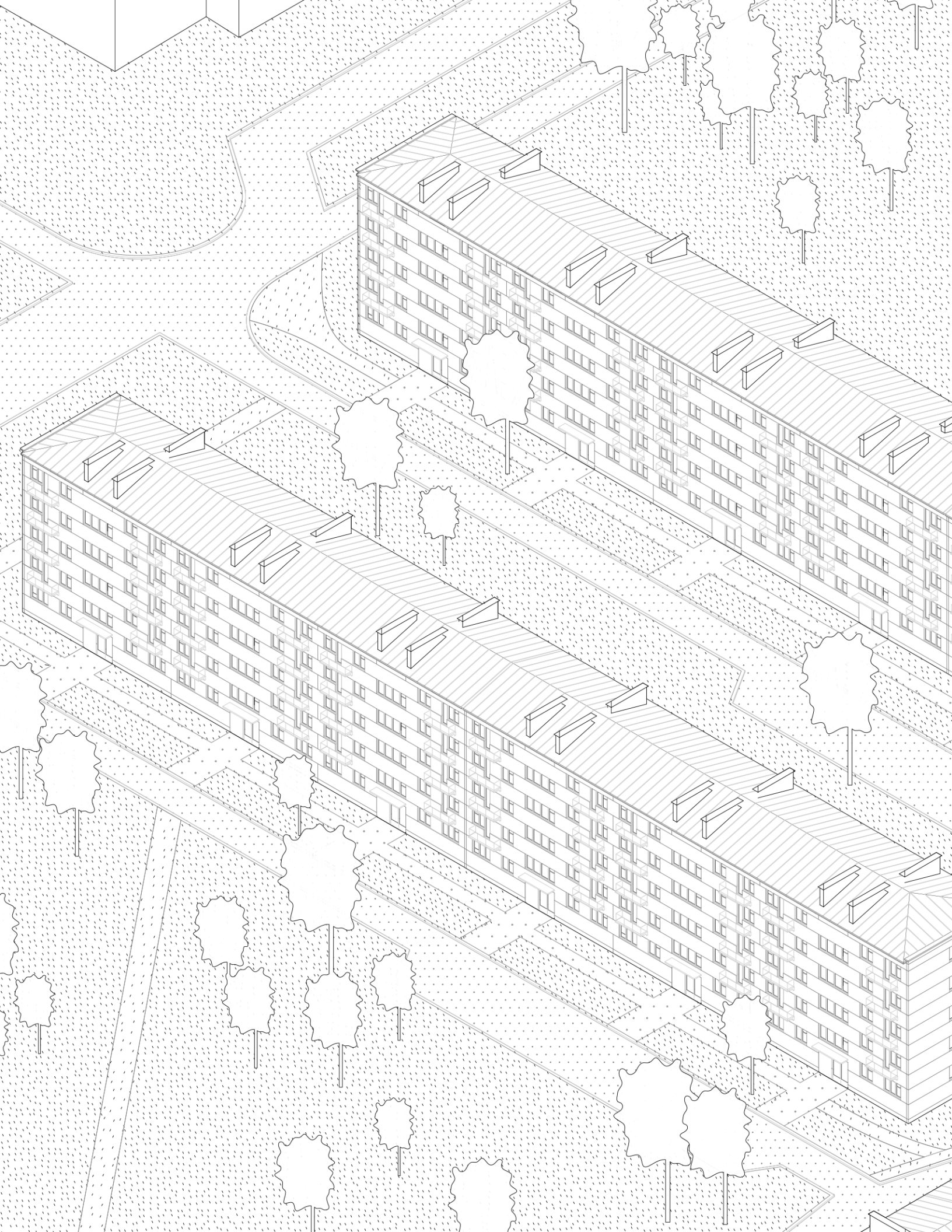
Parcel #01000782189001  
1.464 ha - City Property

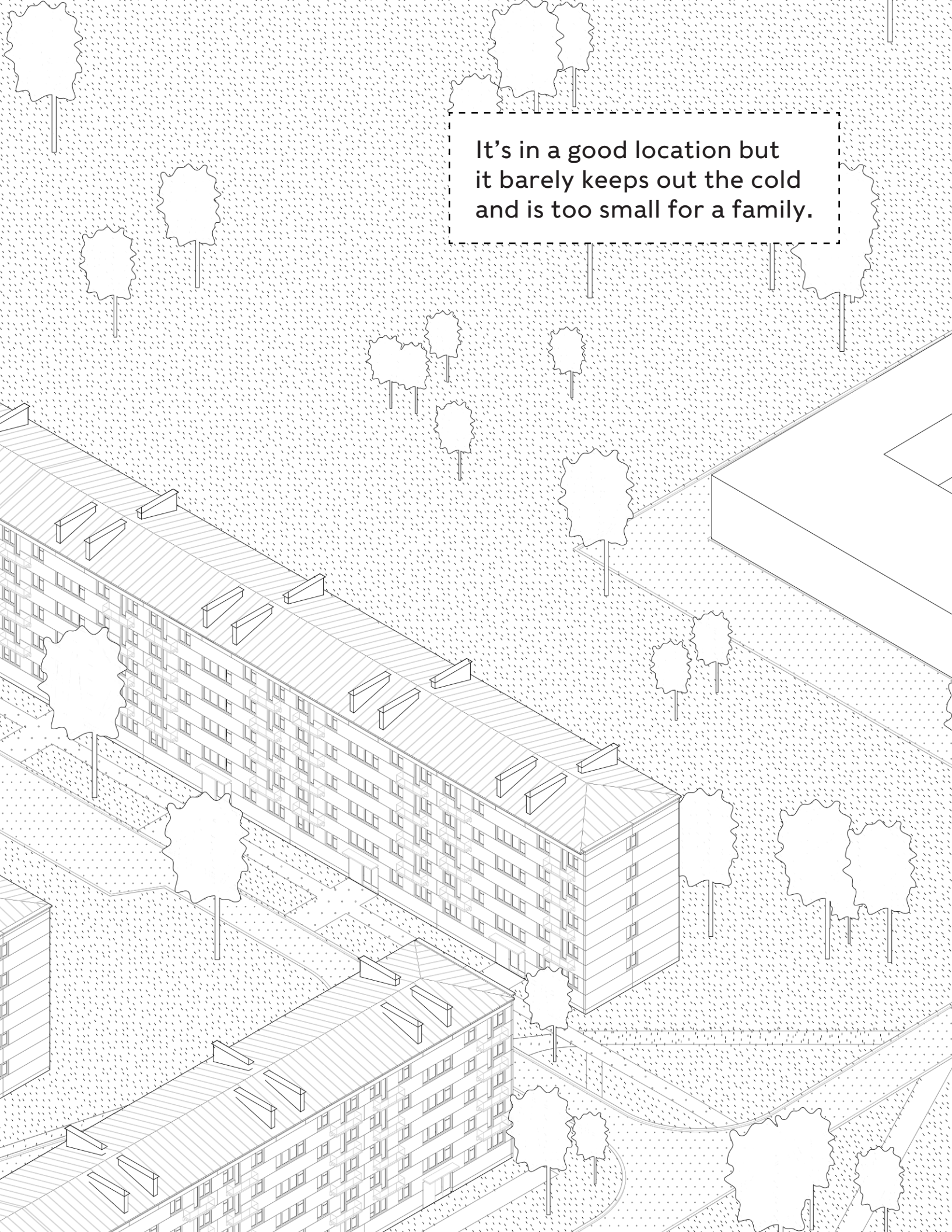
Parcel #01000780991002  
8.135 ha - City Property

Legend:

- Private
- Public







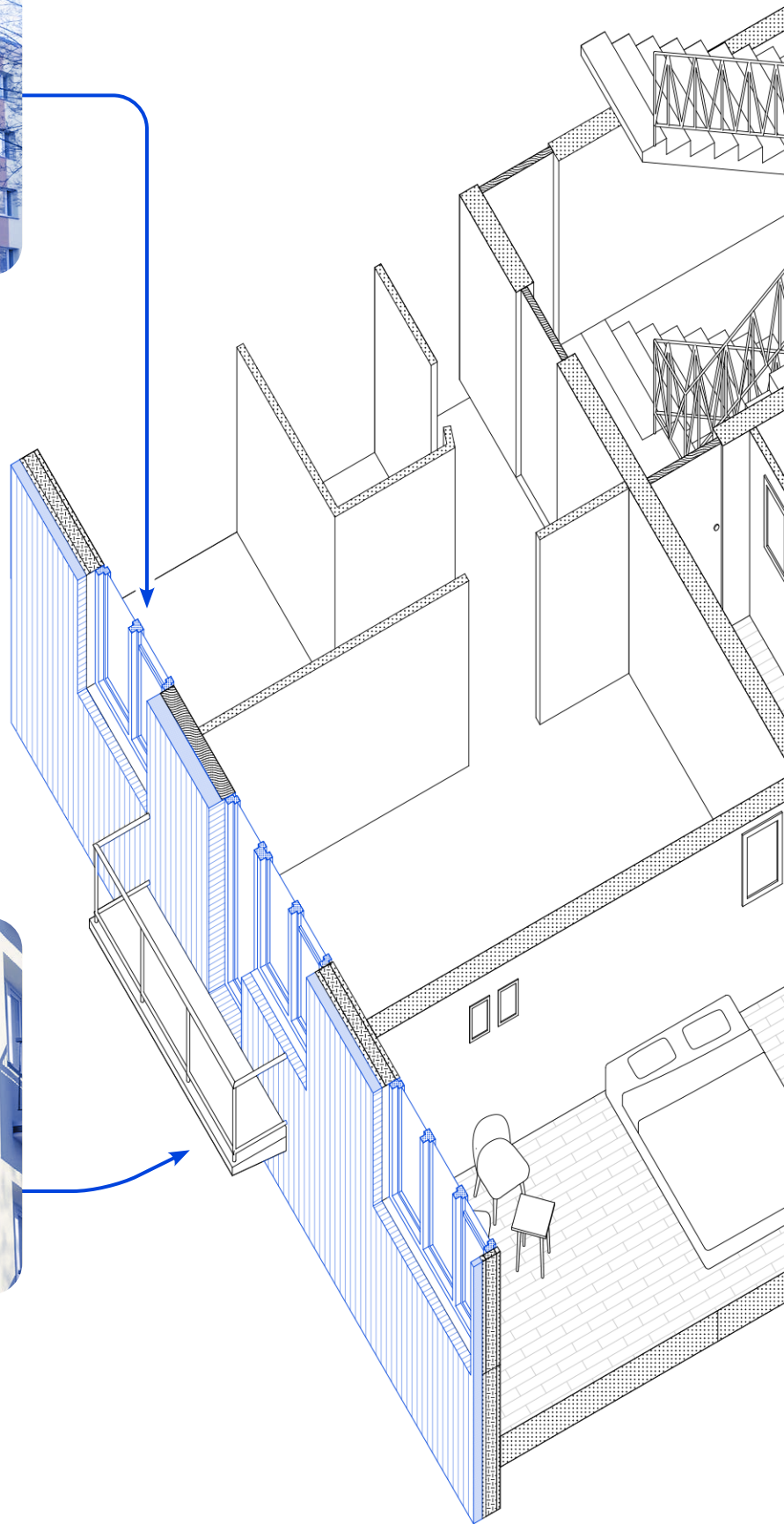
It's in a good location but  
it barely keeps out the cold  
and is too small for a family.

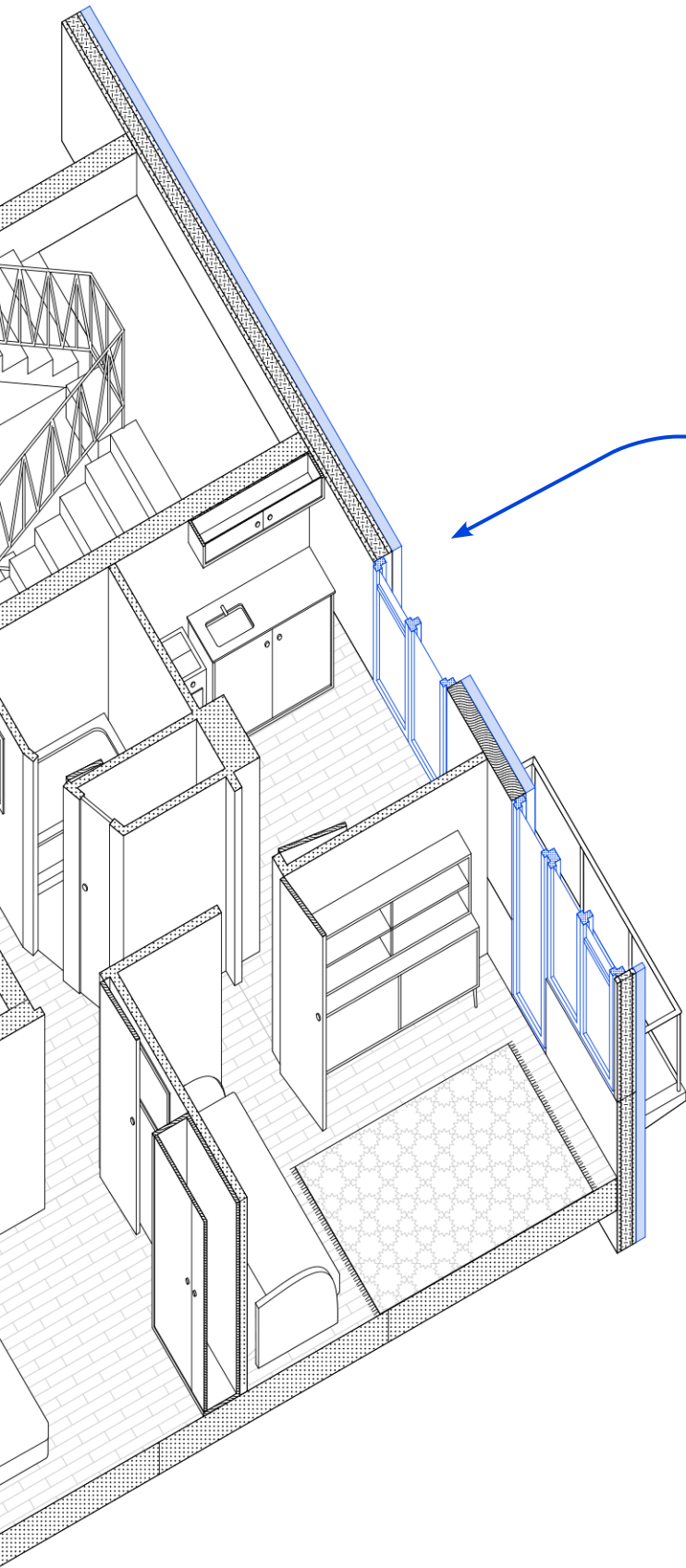


New facade insulation



New balconies

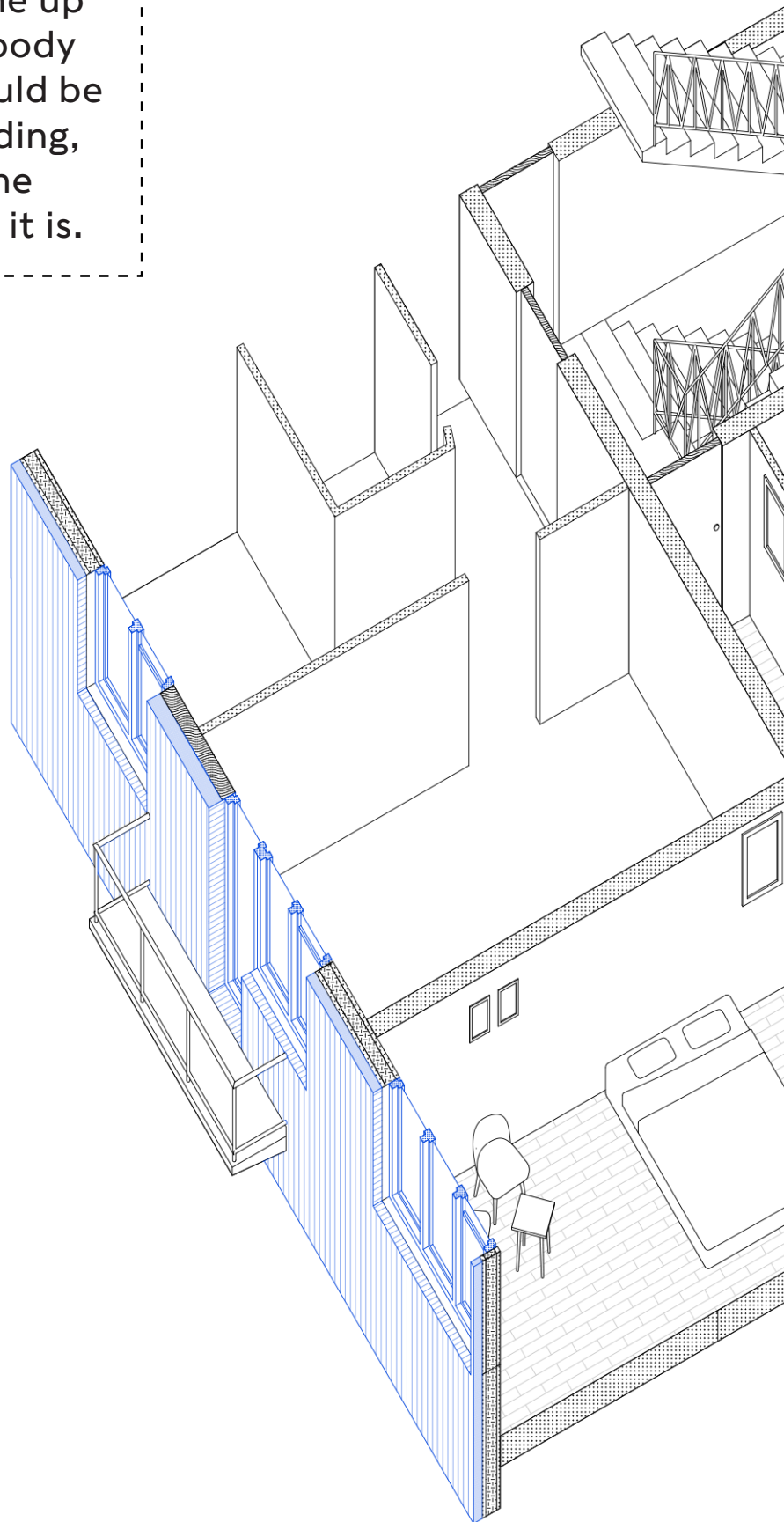


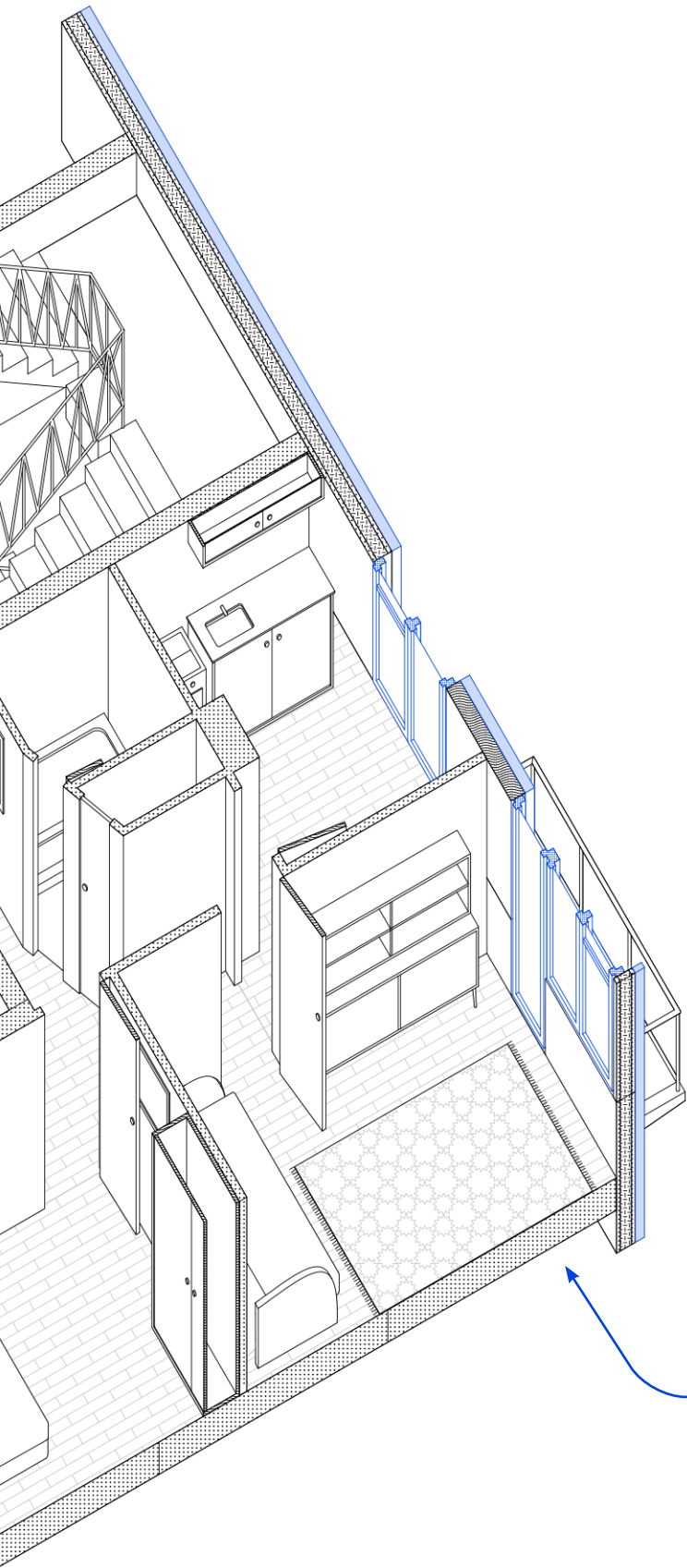


New double pane windows

There is EU money available to invest in new insulation for Latvian buildings.

But when the idea of tapping into these funds has come up with your neighbors, nobody can agree whether it would be worthwhile, so your building, like all but a handful in the district, has remained as it is.



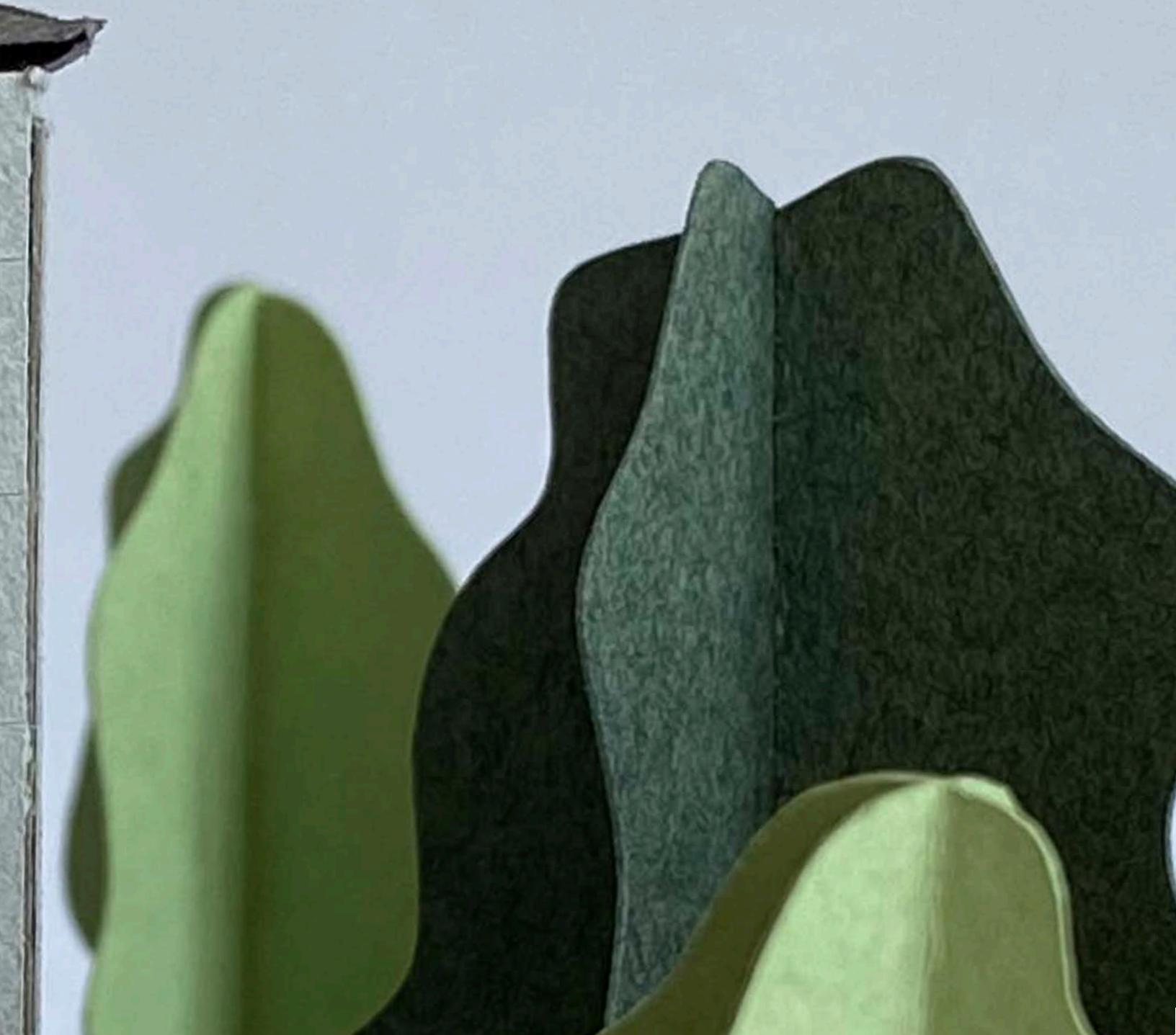


Same cramped floor plan





Imagine if you had more say over the renovation, and could get more out of it than a layer of insulation.

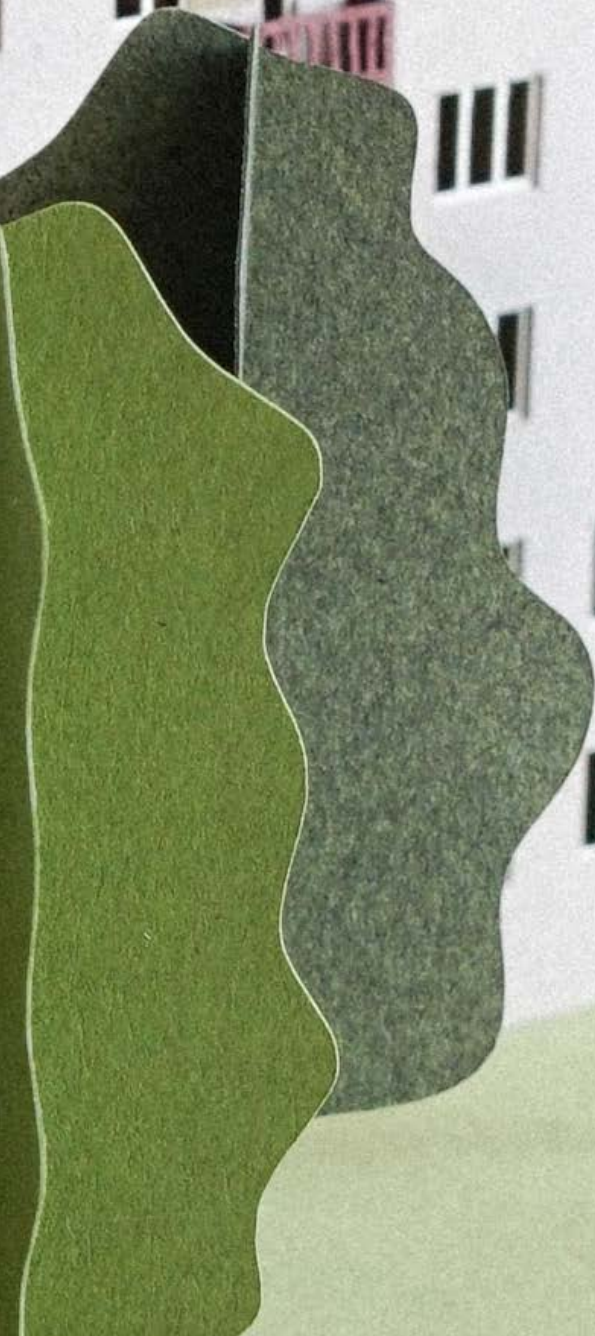






If the project could appeal to more people, then you'd be able to get more out of it together.







MOSCOW

You, finally, are in Zelenograd.



It's a satellite district of Moscow about 50 km from the center.







©2019 Google

©2019 Google

USSR


Moscow,  
Russia

Source: Google Street View



ХОЛОДИЛЬНИКОВ

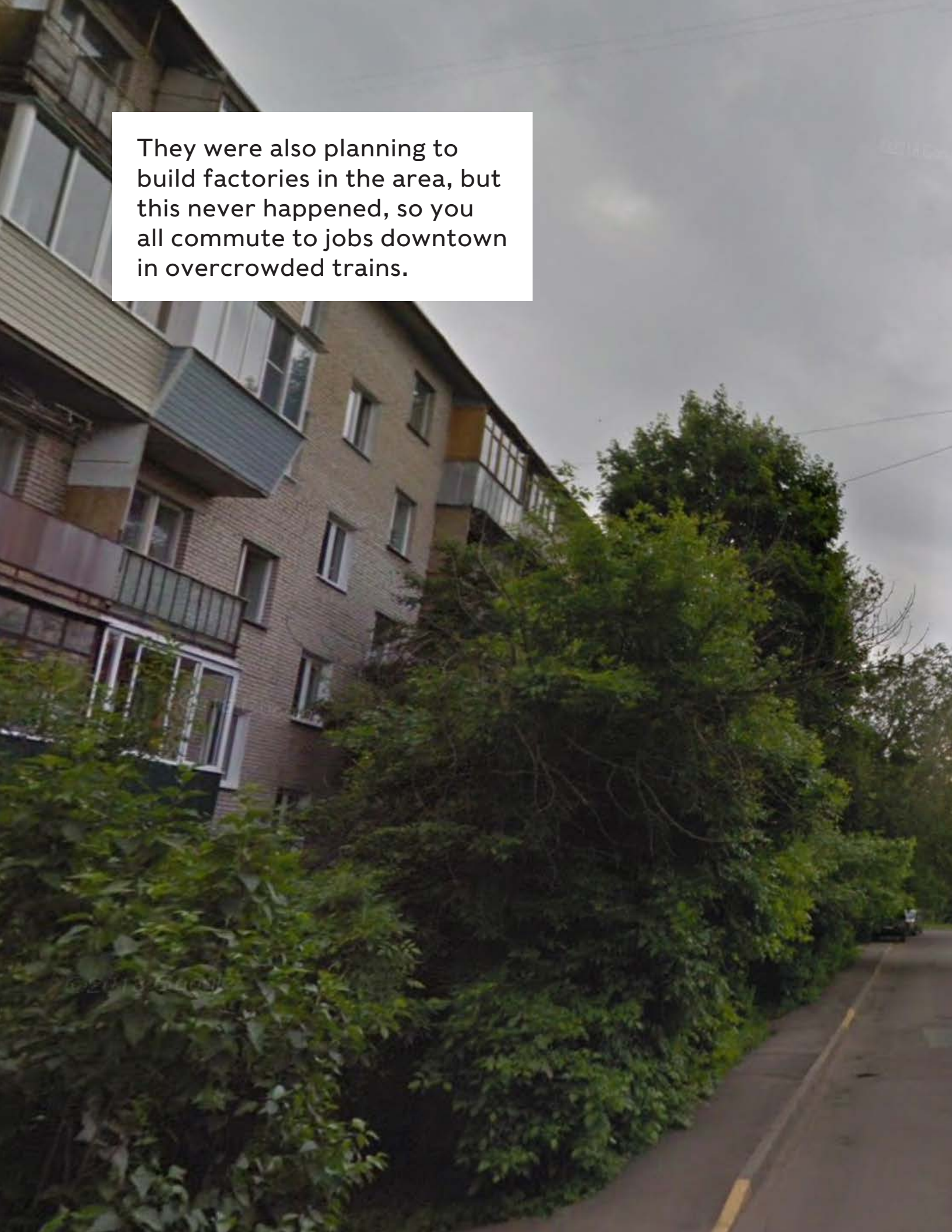
ПТ  
14

A multi-story apartment building with a yellow facade and red accents, partially obscured by trees in the foreground. The building has several windows and balconies. The trees in the foreground are mostly birches with light-colored bark and green leaves. The ground in the foreground is a mix of dirt and grass.

This whole area was planned and built in the 1960s, when the city wanted somewhere new to house its growing population.

Source: Google Street View

They were also planning to build factories in the area, but this never happened, so you all commute to jobs downtown in overcrowded trains.





Source: Google Street View



The one factory they did build was to make concrete parts for buildings.



Source: Google Street View



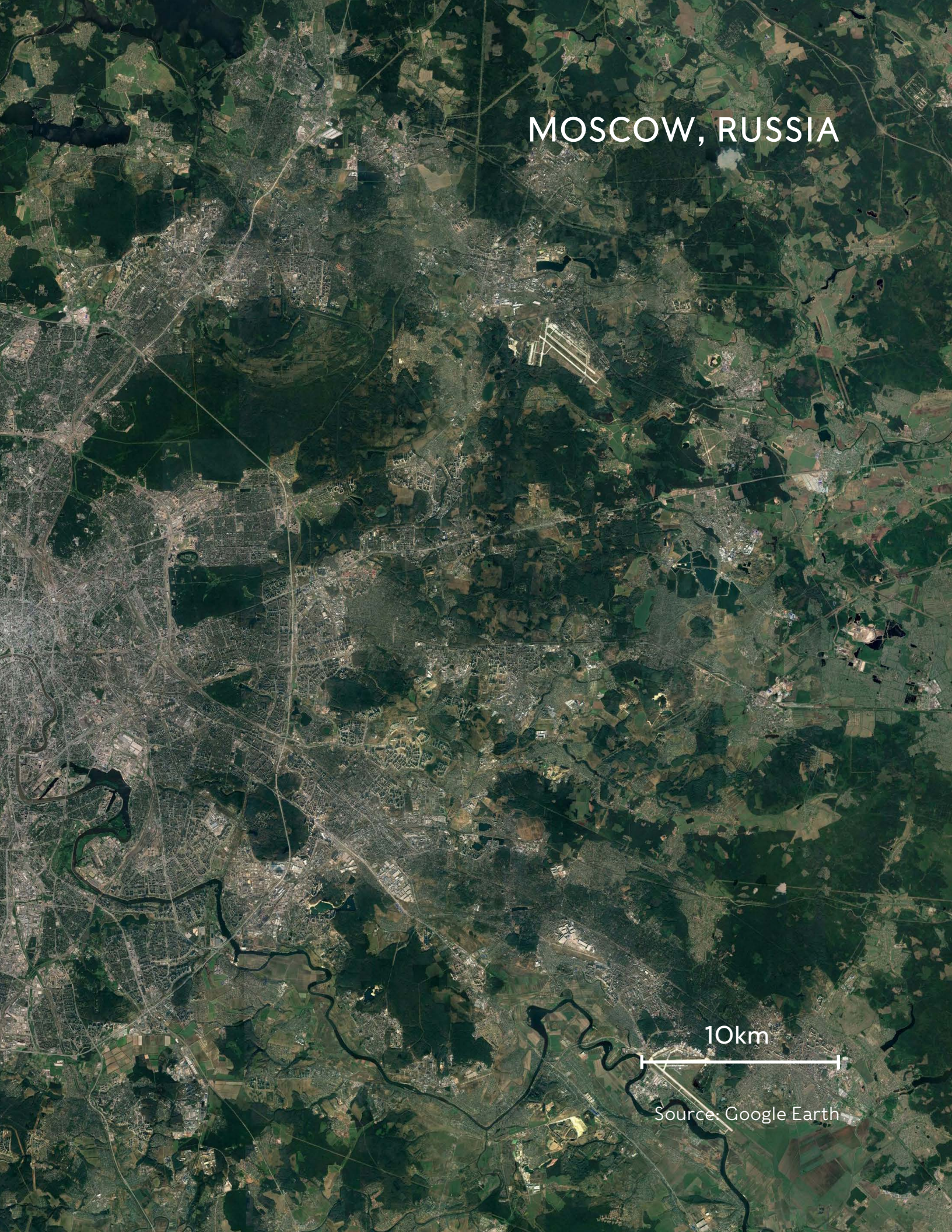
You

The factory that built  
your apartment

This happened everywhere in the USSR, where hundreds of prefabricated concrete facilities were built to make building elements for thousands of apartments across the country.

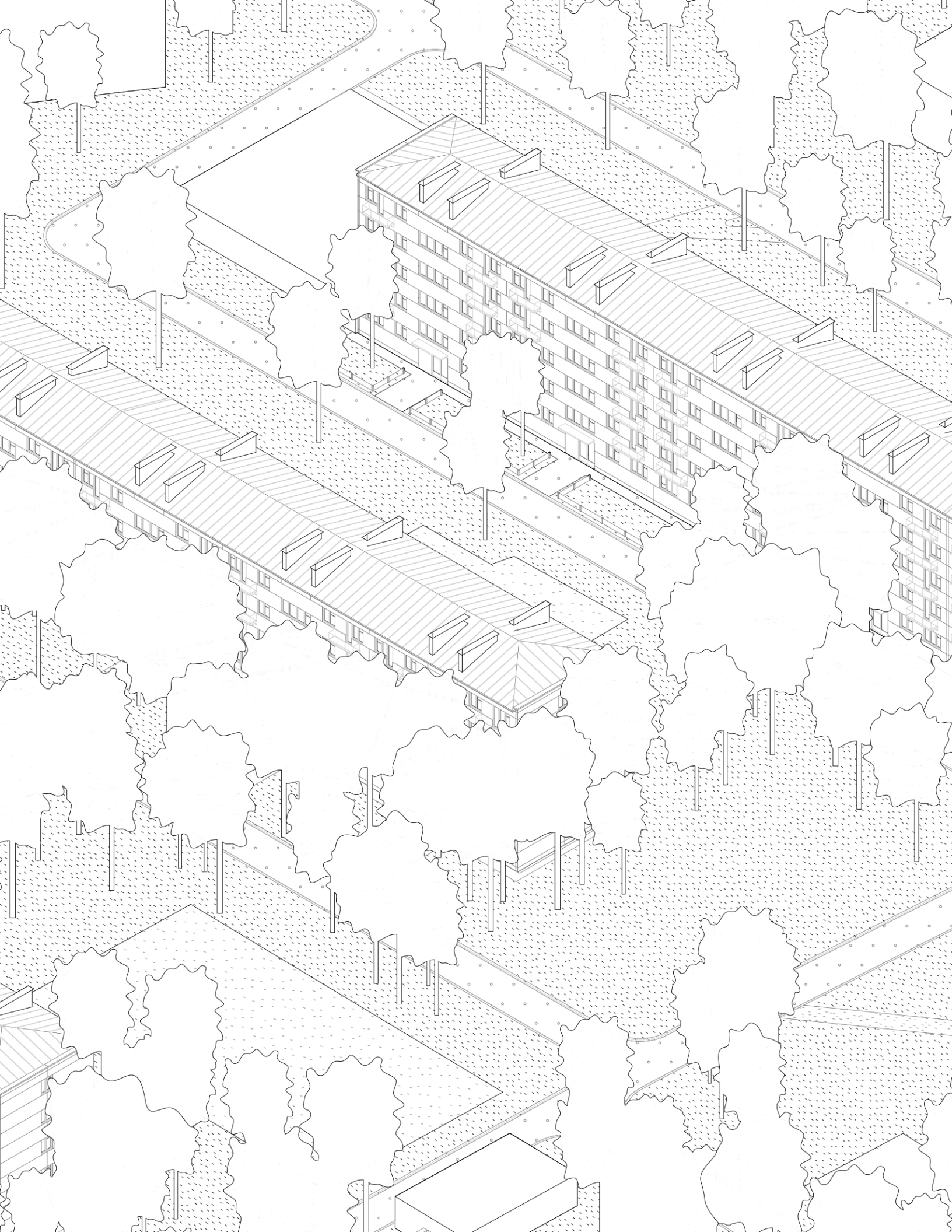


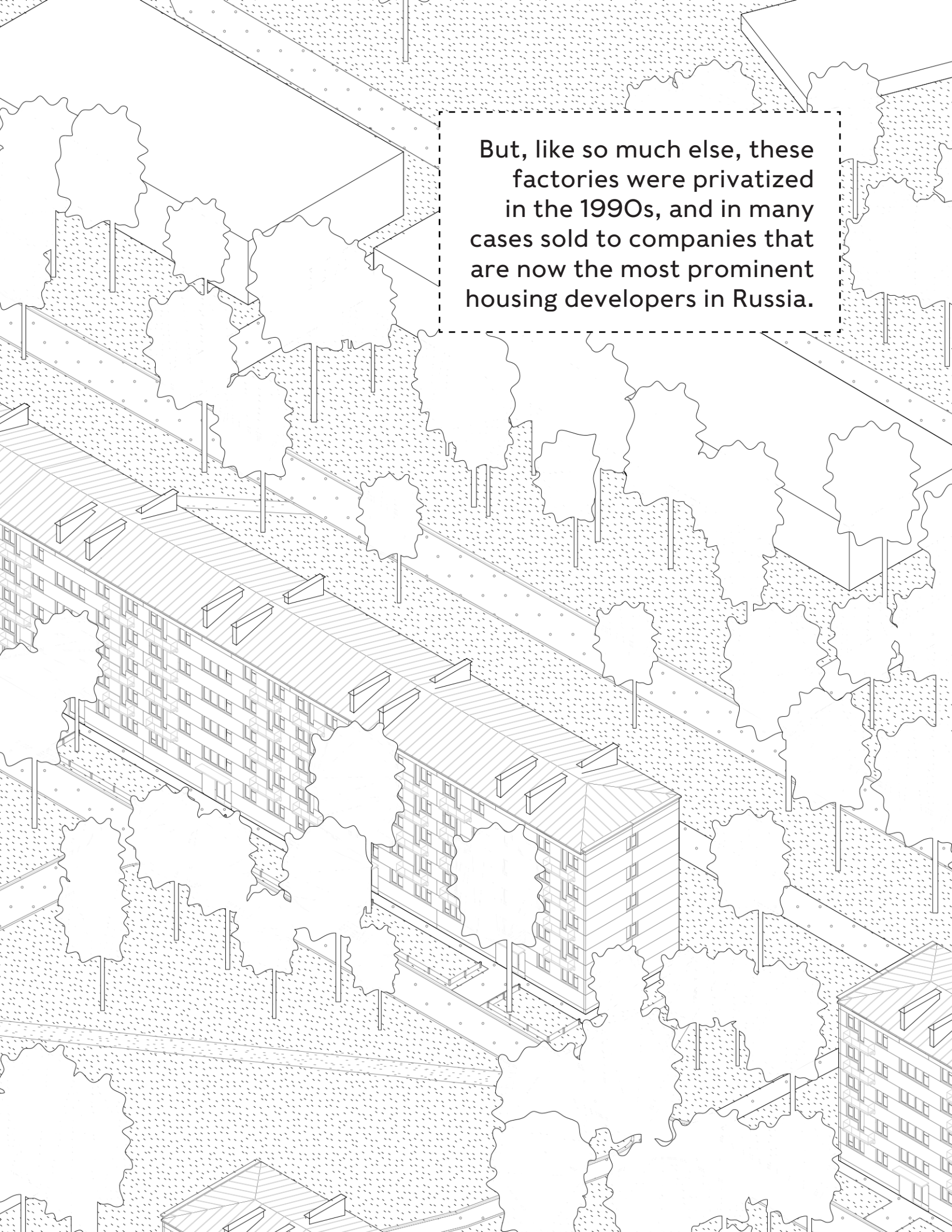
# MOSCOW, RUSSIA



10km

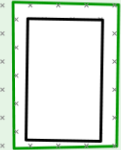
Source: Google Earth



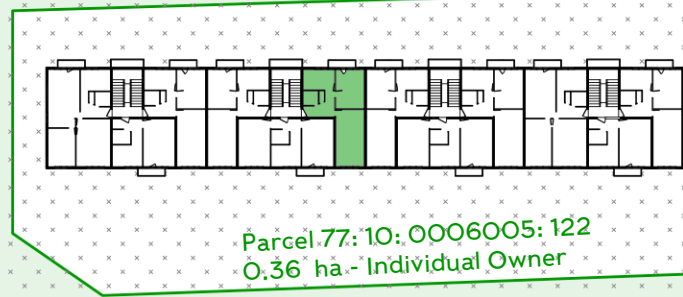


But, like so much else, these factories were privatized in the 1990s, and in many cases sold to companies that are now the most prominent housing developers in Russia.

Parcel 77: 10; 0006005: 6  
0.011 ha - Individual Owner



Slated for demolition under  
Moscow's reconstruction  
program



Parcel 77: 10: 0006005: 122  
0.36 ha - Individual Owner

Parcel 77: 10; 0006006: 2546  
0.21 ha - Individual Owner

In Moscow, these  
developers have partnered  
with the city government to  
execute the largest urban  
renewal program in Europe.

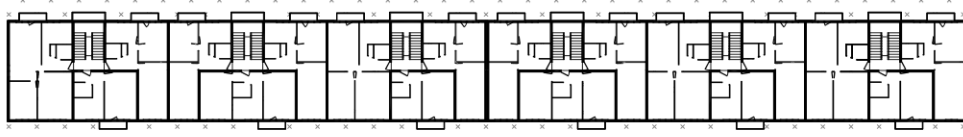
Parcel 77: 10: 0006006: 5  
0.21 ha - Individual Owner

Parcel 77: 10: 0006006: 55  
0.13 ha - Individual Owner



Parcel 77: 10: 0006006: 5  
1.1 ha - Individual Owner





Parcel 77: 10: 0006005: 108  
0.26 ha - Individual Owner

Parcel 77: 10: 0006005: 97  
0.061 ha - Individual Owner

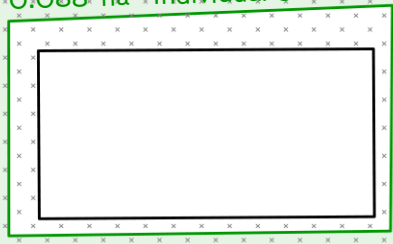
Parcel 77: 10: 0006005: 9  
0.076 ha - Individual Owner

Parcel 77: 10: 0006005: 50  
0.077 ha  
Individual Owner



Parcel 77: 10: 0006005: 24  
0.28 ha - Individual Owner

Parcel 77: 10: 0006006: 54  
0.088 ha - Individual Owner

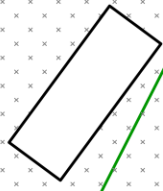


Parcel 77: 10: 0006006: 345  
2.7 ha - City Property

Parcel 77: 10: 0006006: 3  
0.74 ha - Individual Owner

Legend:

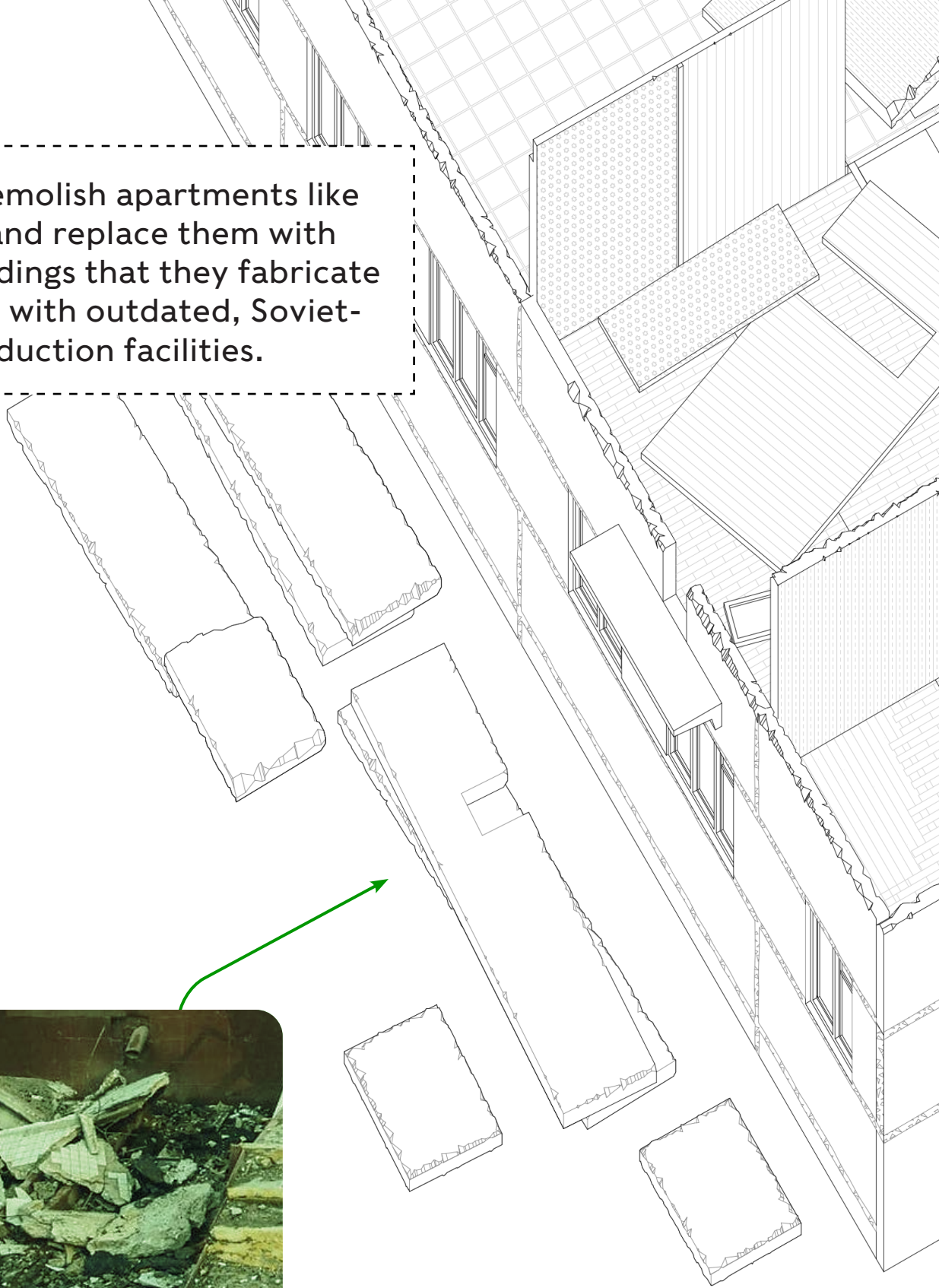
- Private
- Public

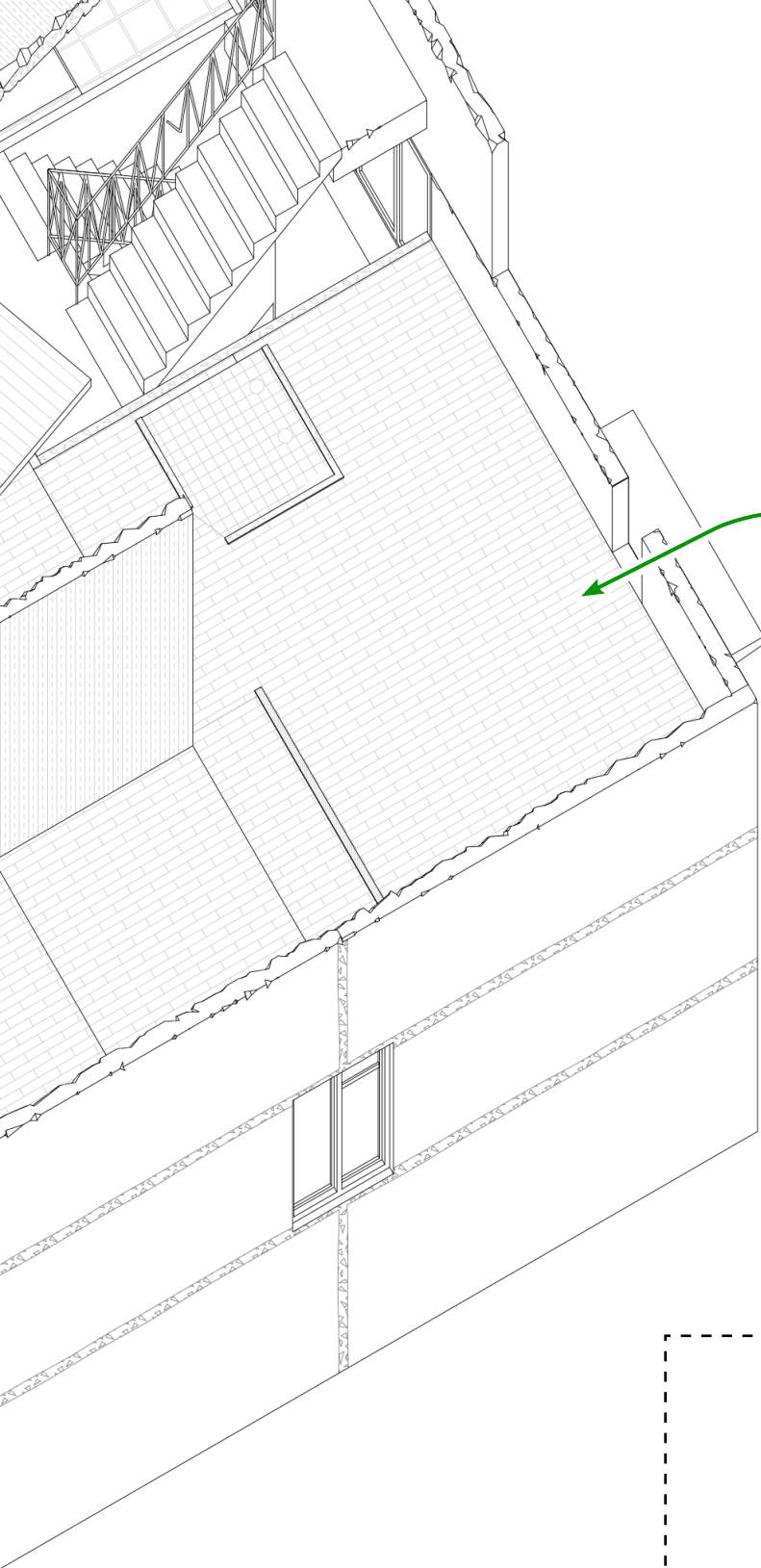


They demolish apartments like yours, and replace them with tall buildings that they fabricate cheaply with outdated, Soviet-era production facilities.

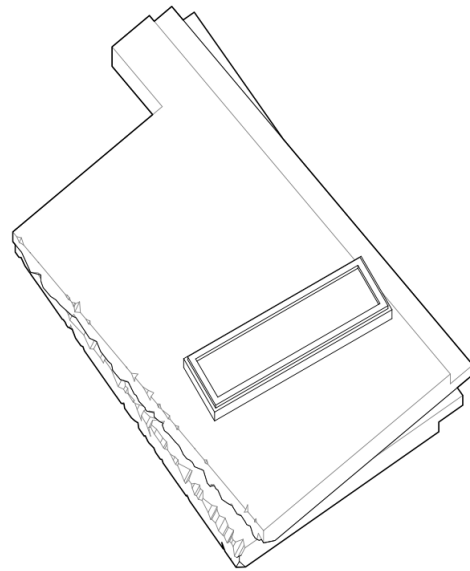


The panels are typically broken into rubble

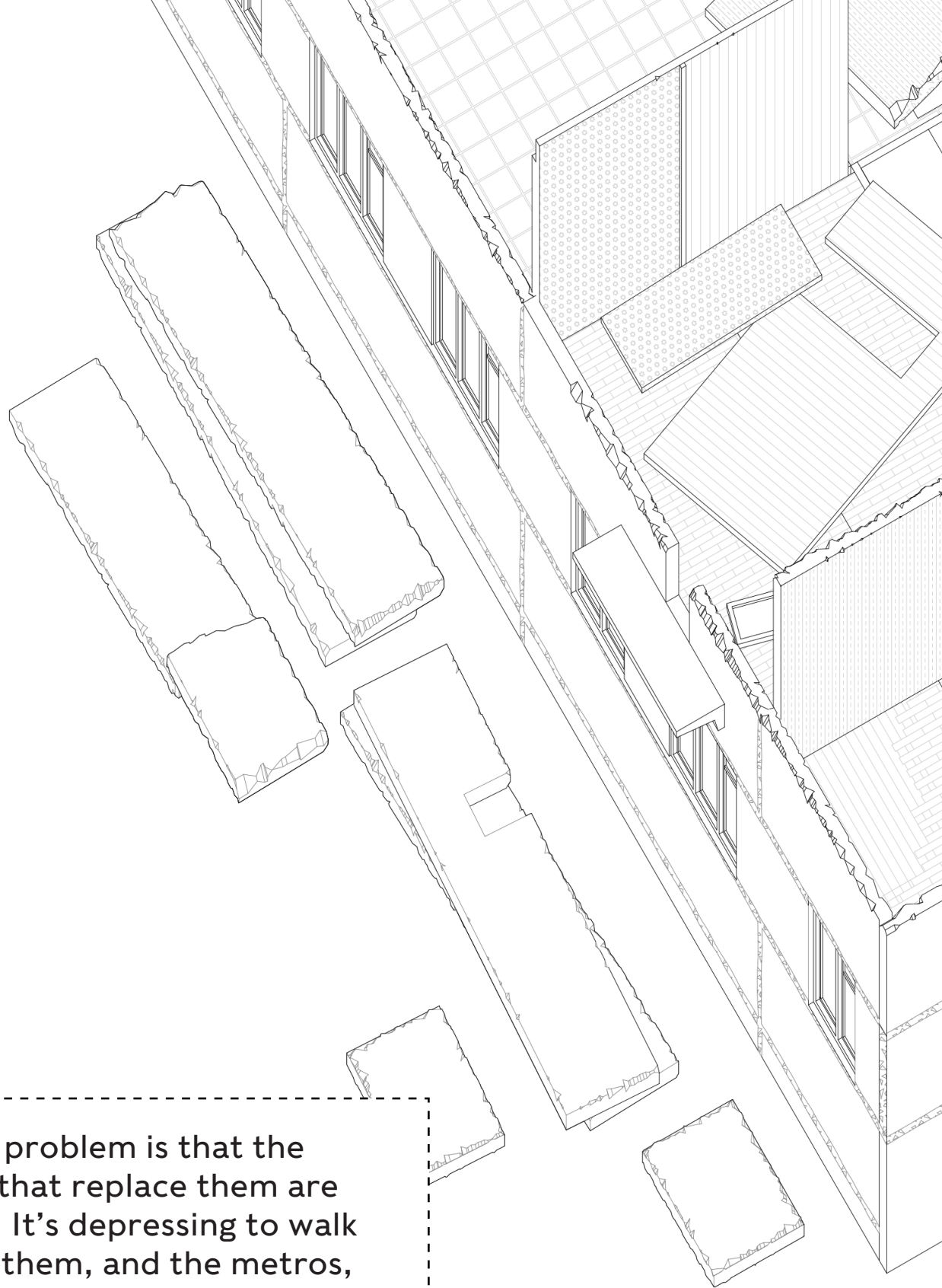




Widespread demolition  
is underway

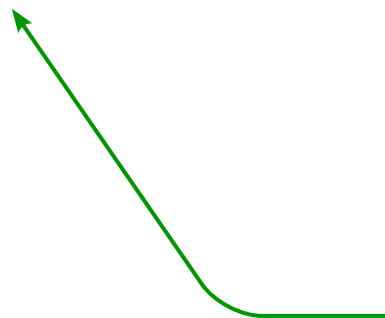
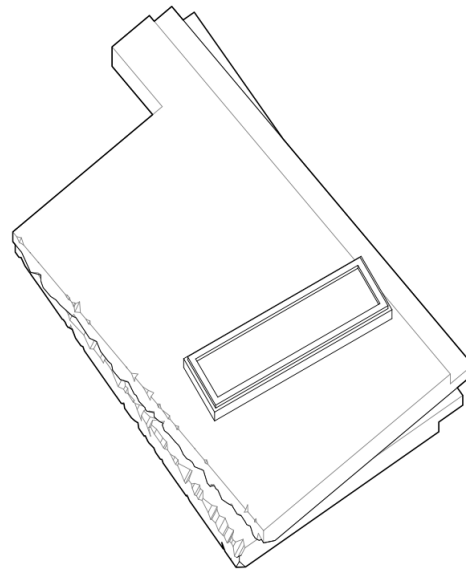
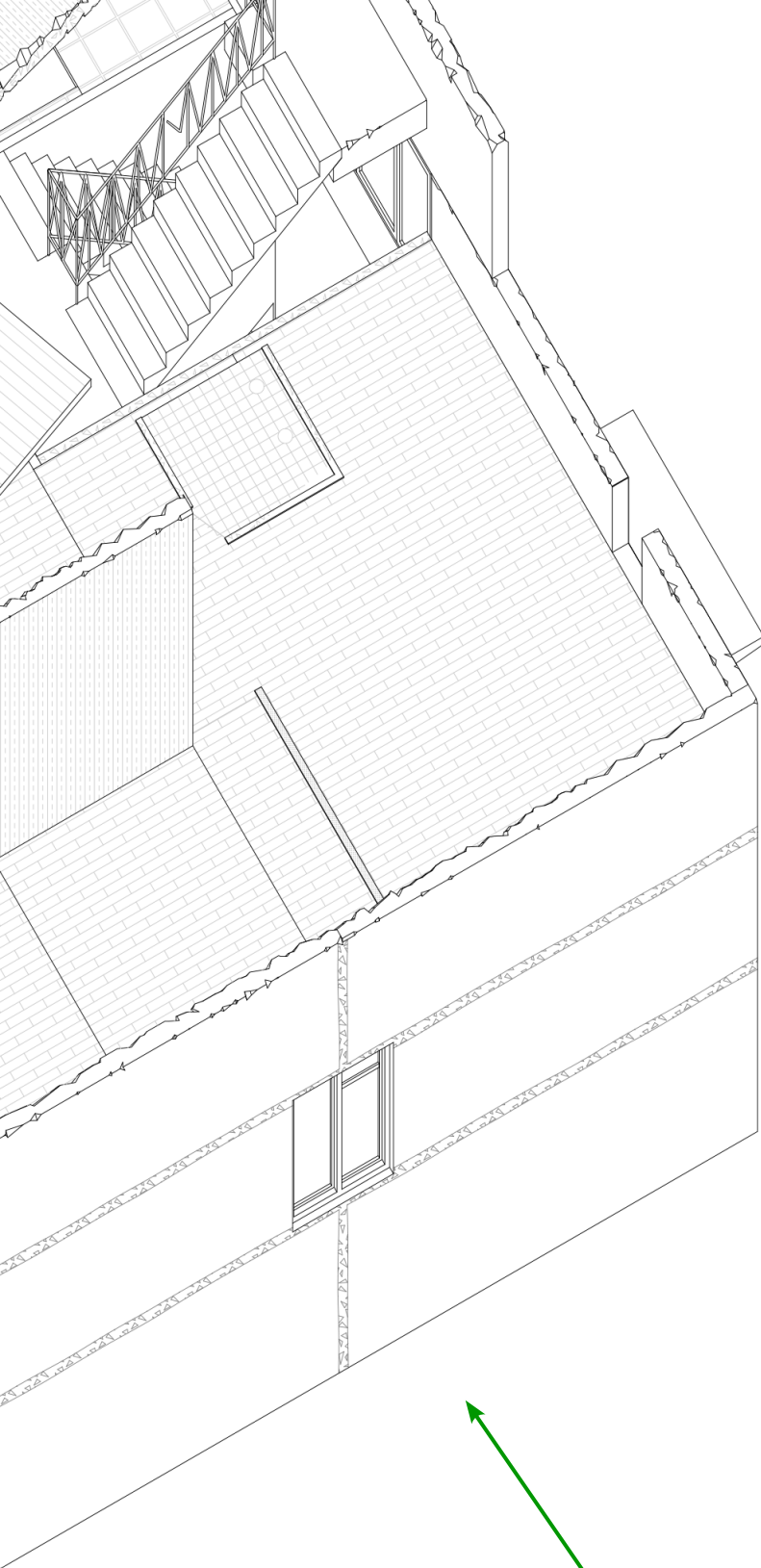


They claim that they won't demolish a building unless 60% of residents agree to be relocated, but you've heard otherwise from more friends than you can count. Some powerful people want these buildings to come down, and they're making it happen.



The big problem is that the towers that replace them are too tall. It's depressing to walk around them, and the metros, schools and infrastructure in their neighborhoods end up overloaded by all the new residents.





New structures profitably  
densify the same land

You don't like what this is doing to the city, but what it shows you is that developers can make a lot of money off of buildings like yours.










They claim that you'll get an upgraded apartment if you agree to move, but we believe there are better alternatives in which you stay put.











We think you should see your apartment as a starting point, rather than an asset that can be traded and replaced.





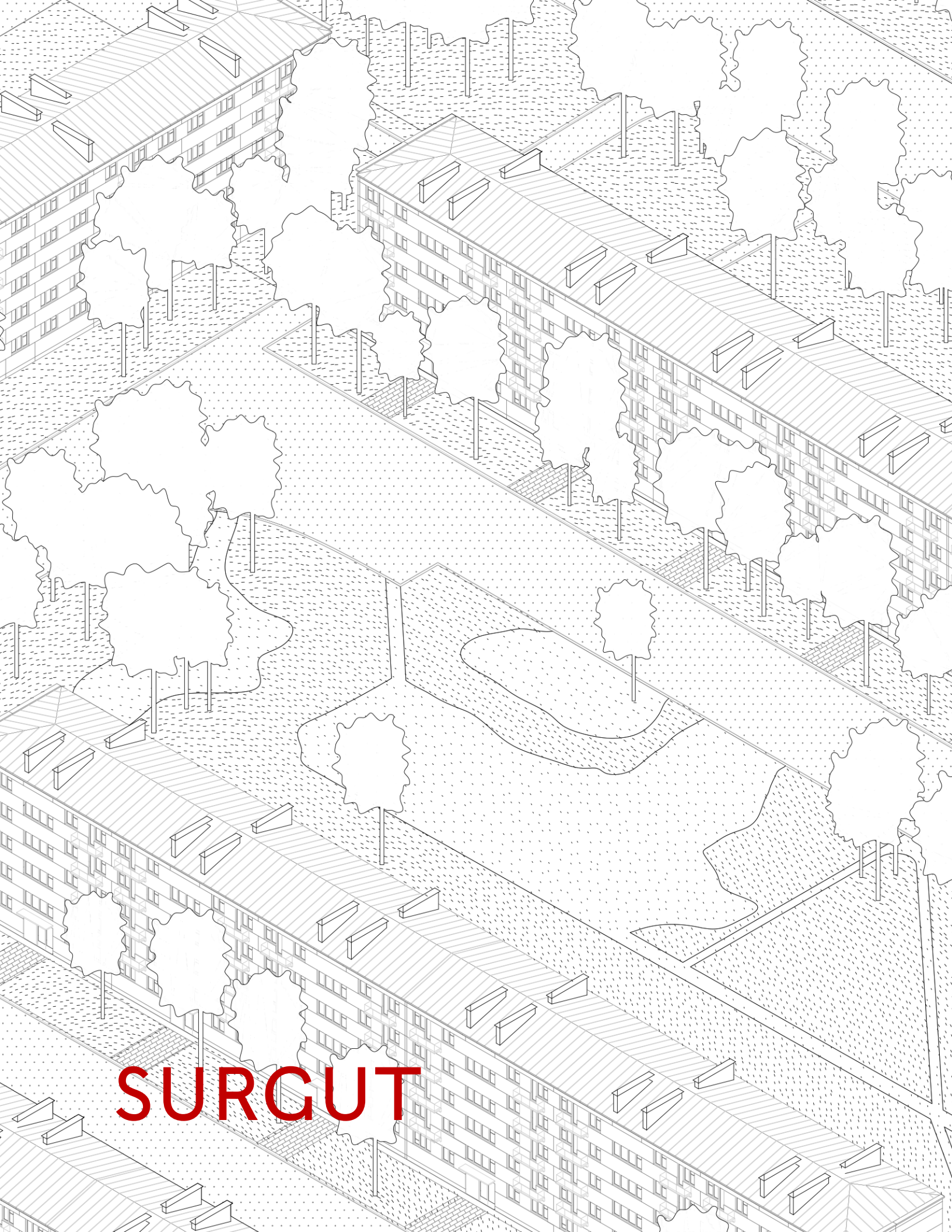
By leveraging different parts of it, you can take a more active role in how the city gets shaped around you.



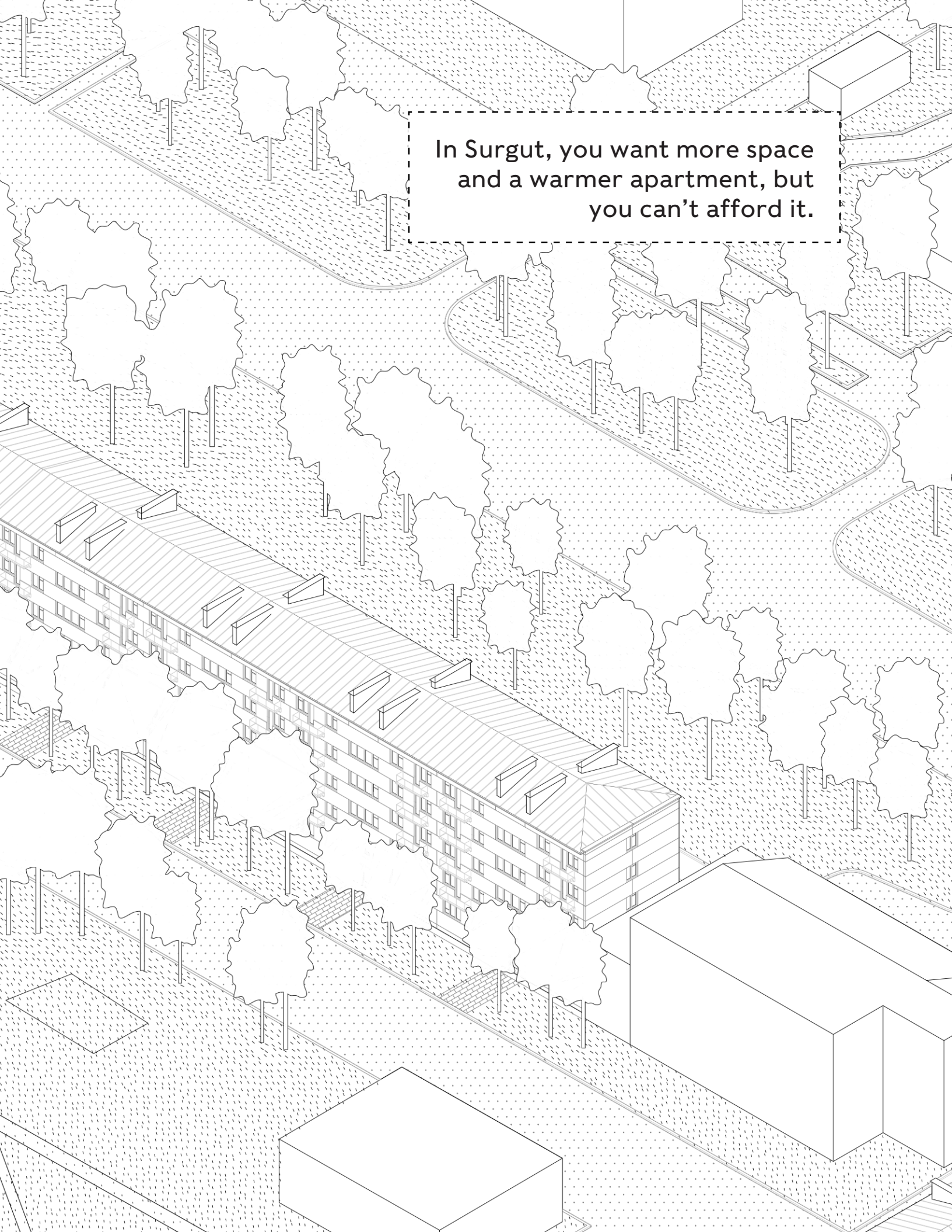
STILL STANDING

PROPOSALS

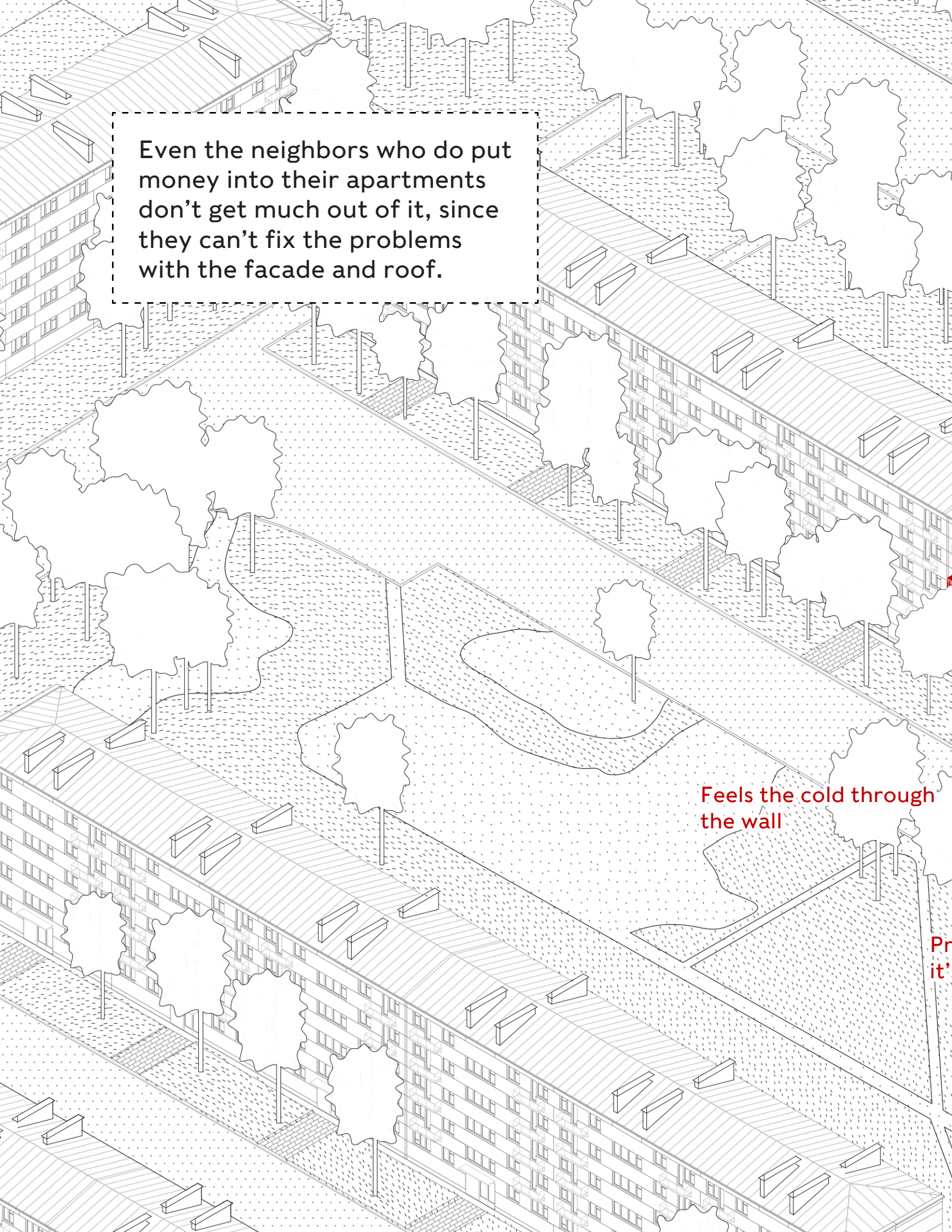
YOUR APARTMENT



**SURGUT**



In Surgut, you want more space  
and a warmer apartment, but  
you can't afford it.

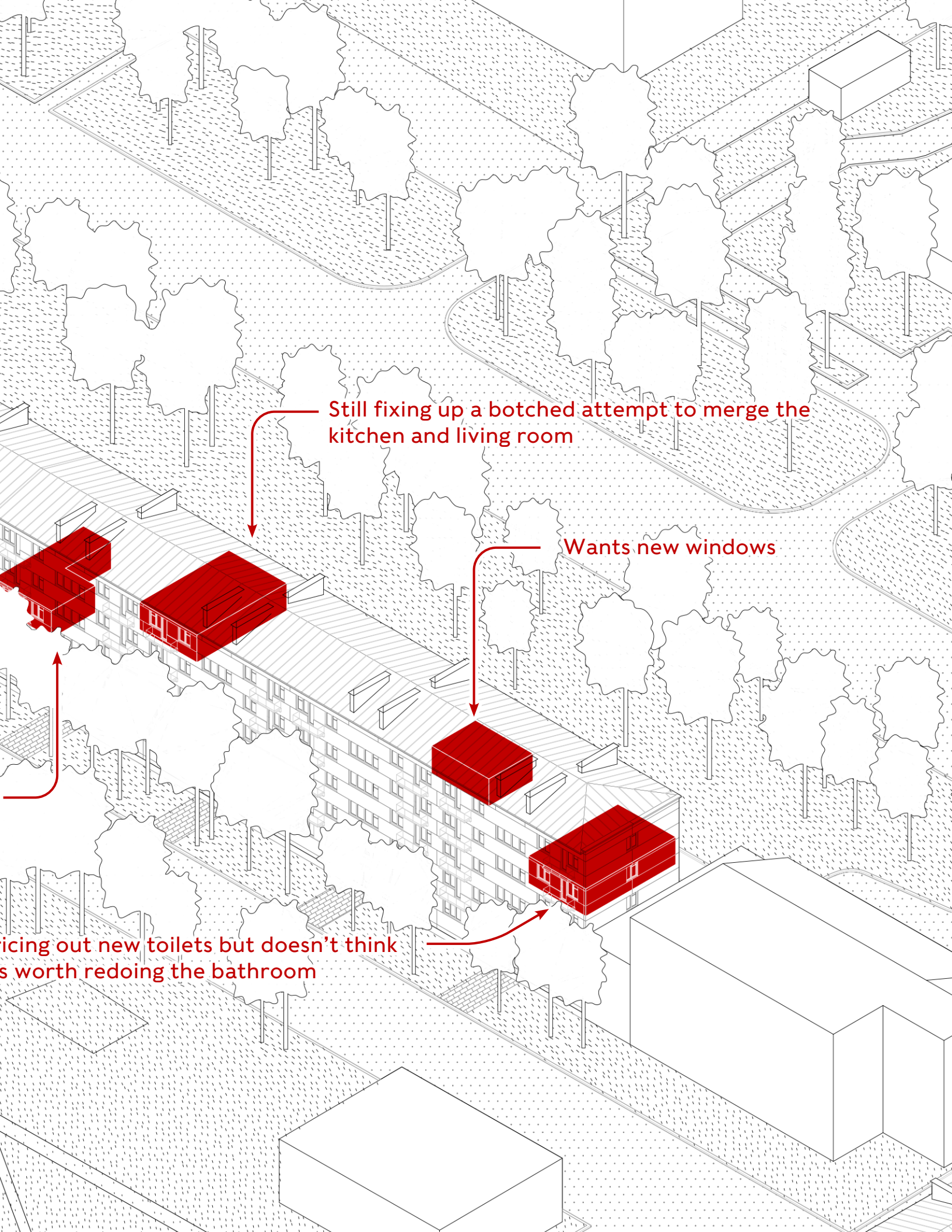


Even the neighbors who do put money into their apartments don't get much out of it, since they can't fix the problems with the facade and roof.

Feels the cold through the wall

Pr  
it'

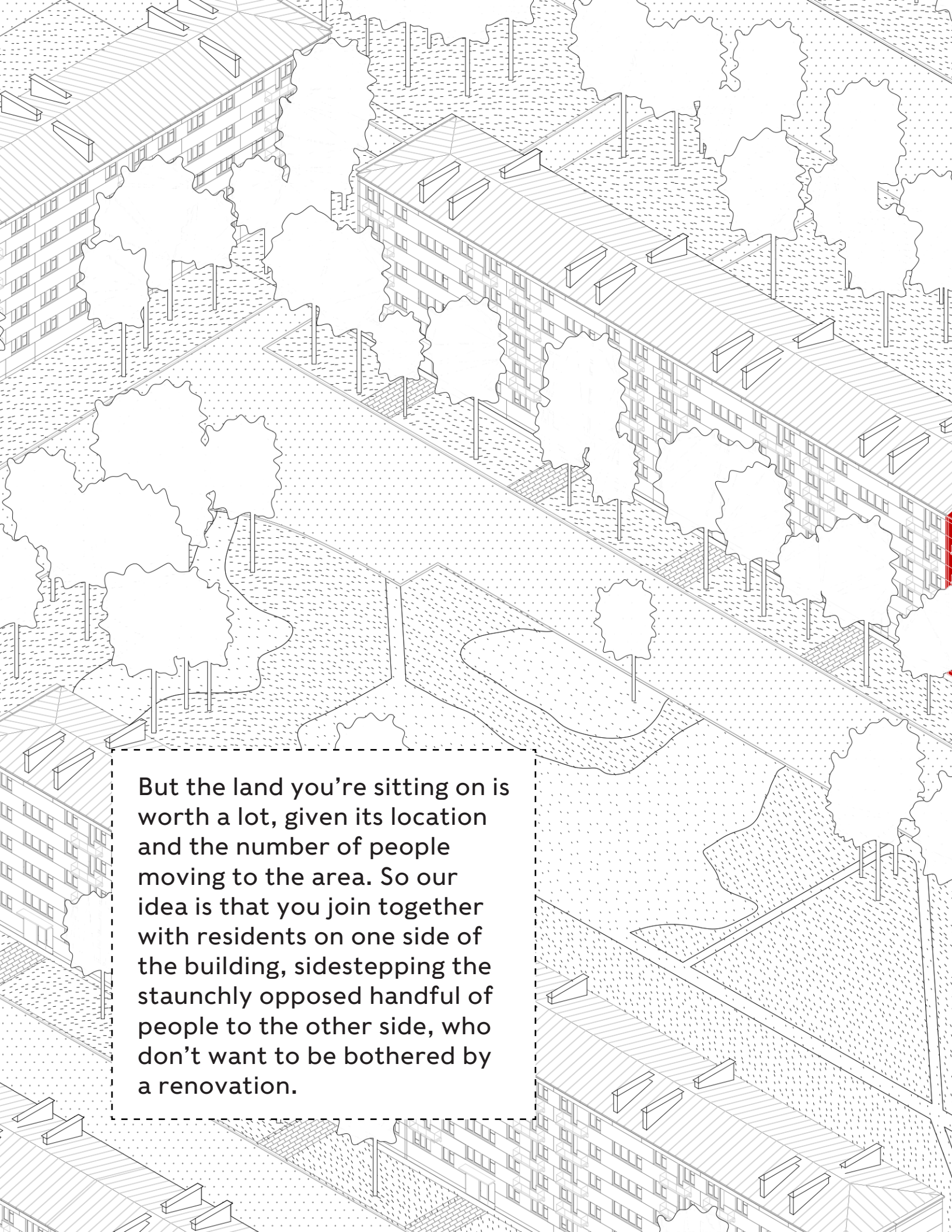




Still fixing up a botched attempt to merge the kitchen and living room

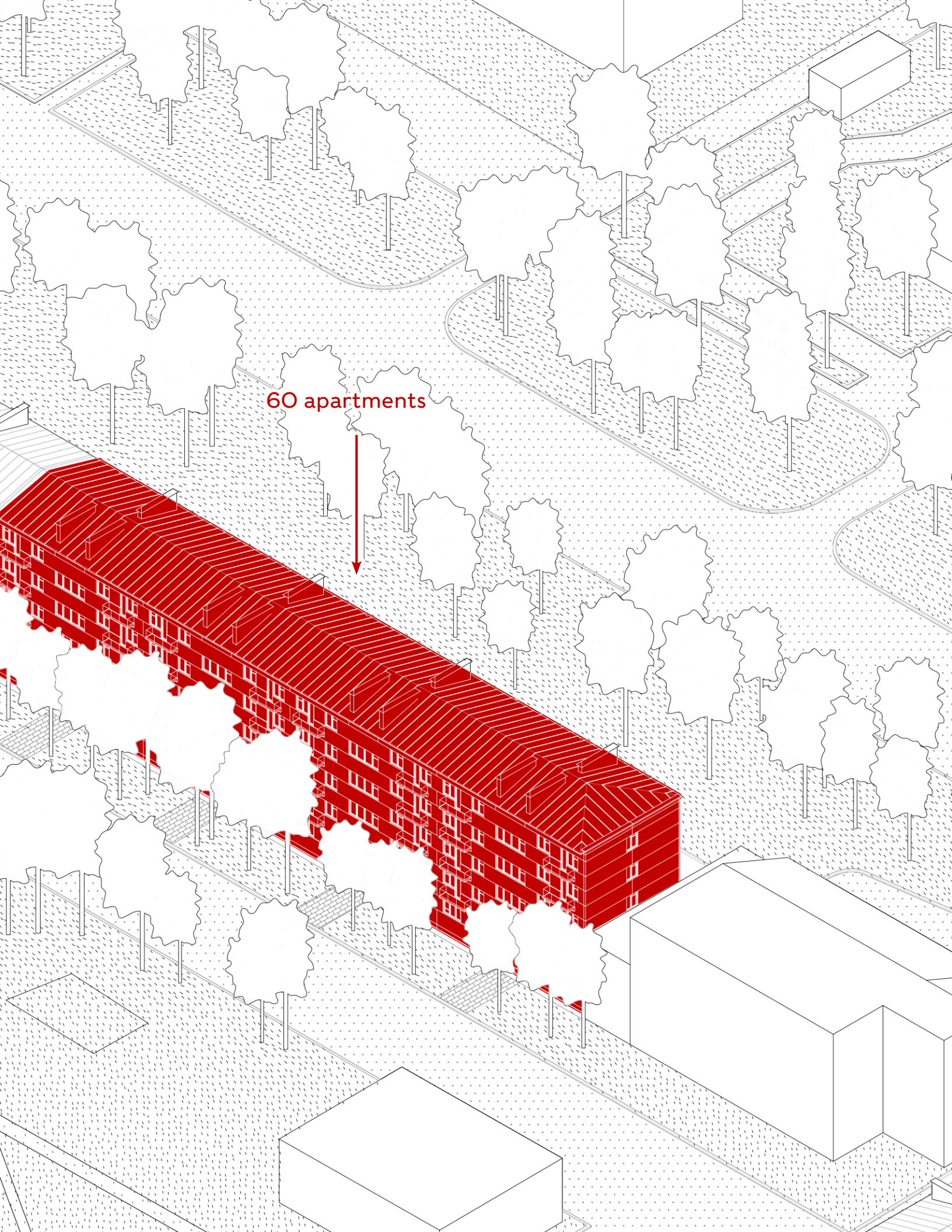
Wants new windows

Planning out new toilets but doesn't think it's worth redoing the bathroom



But the land you're sitting on is worth a lot, given its location and the number of people moving to the area. So our idea is that you join together with residents on one side of the building, sidestepping the staunchly opposed handful of people to the other side, who don't want to be bothered by a renovation.

60 apartments

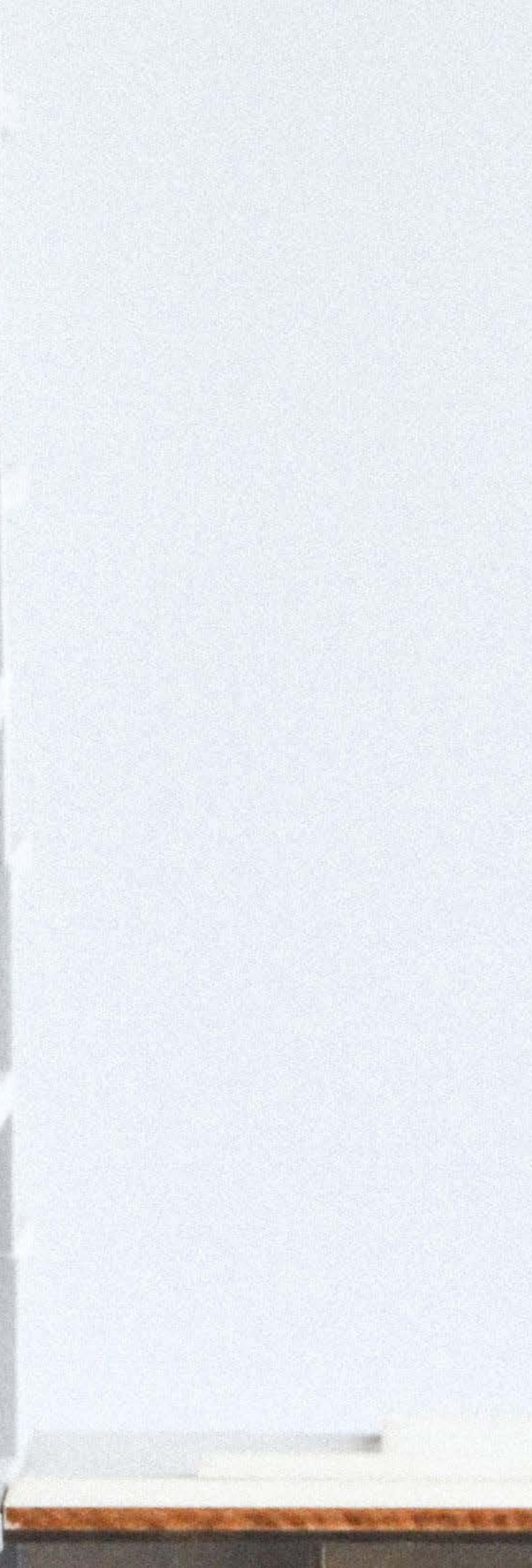




**Together you decide to  
build new apartments  
next to your building.**



The design makes use of the original structure by first removing some existing facade panels...





...then building new units  
onto current stairwells.





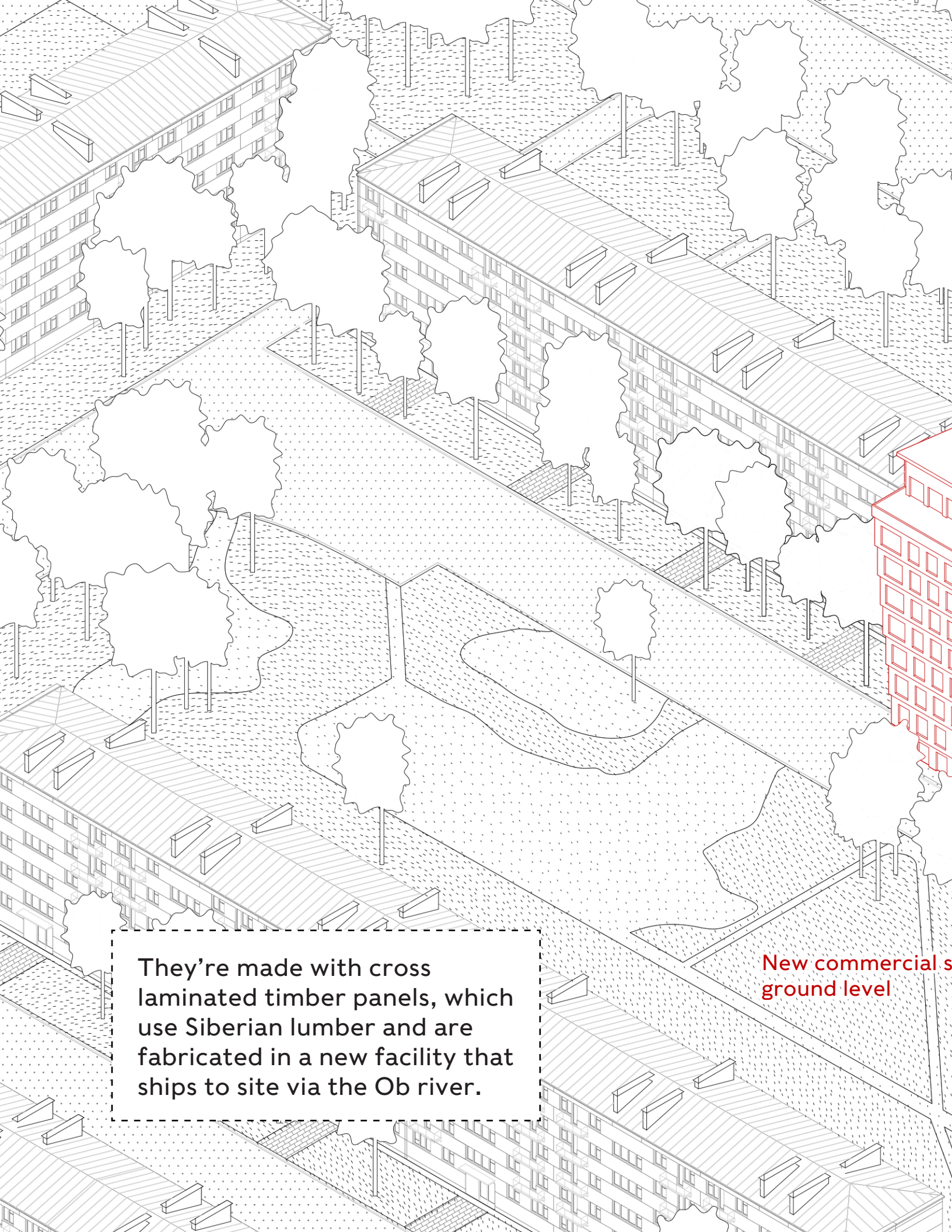
By selling these off, you can finance the new construction, as well as renovations to existing apartments and the construction of new common spaces. Since these benefits would come at no cost to residents, most of them opt in. Together, you form a housing cooperative, and you join the board that directs the project.





The towers fit 22 new apartments.





They're made with cross laminated timber panels, which use Siberian lumber and are fabricated in a new facility that ships to site via the Ob river.

New commercial ground level

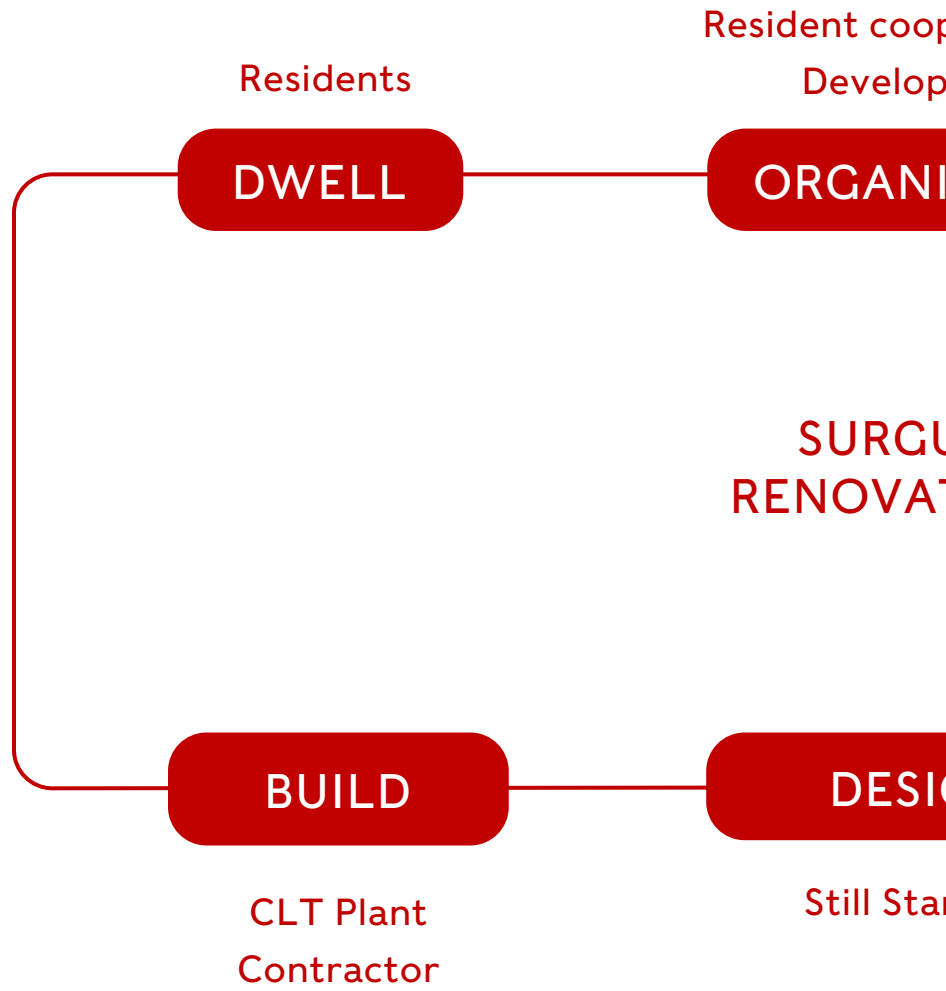


Circulation extends from existing stairwell

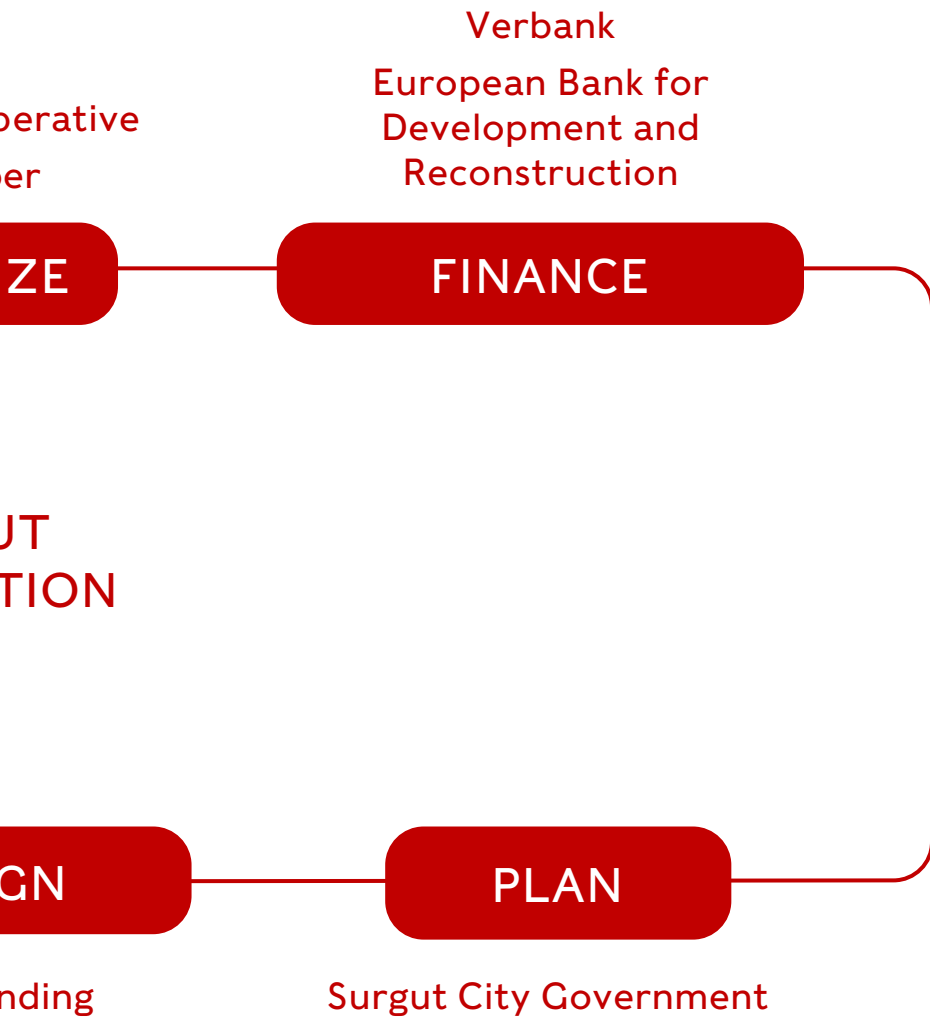
The diagram shows a central building with a red outline, a taller building to its left, and a lower building to its right. A red arrow points from the text 'Circulation extends from existing stairwell' to the top of the central building. Another red arrow points from the text 'Common space at building roof' to the roof of the central building. A third red arrow points from the text 'Common space at building roof' to the ground level near the base of the central building. The surrounding area is filled with trees and a path.

Common space at building roof

Common space at building roof







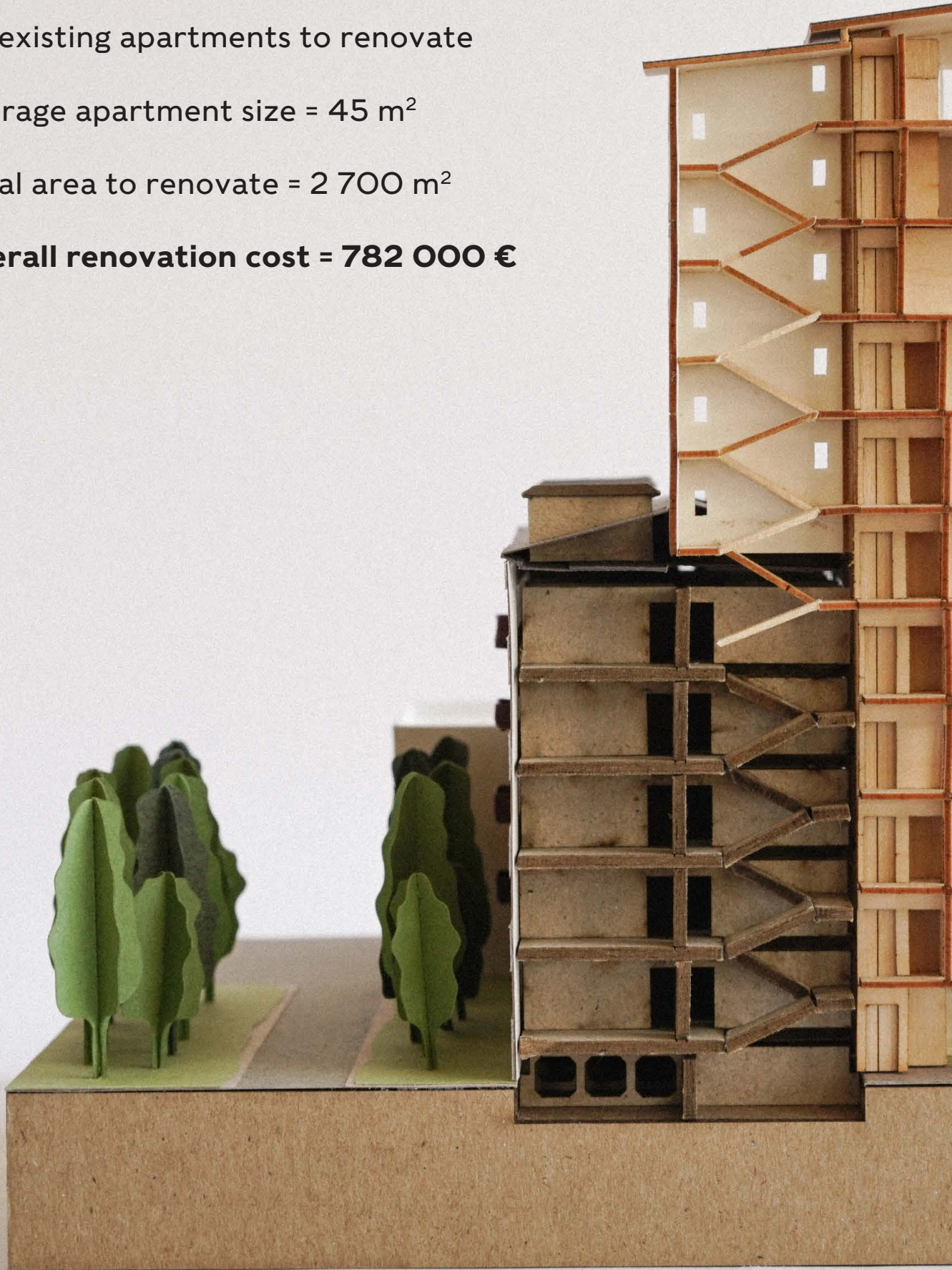
You get a developer to price out the new design. They source bids from different contractors, which you cite when getting a loan from Verbank.

60 existing apartments to renovate

Average apartment size = 45 m<sup>2</sup>

Total area to renovate = 2 700 m<sup>2</sup>

**Overall renovation cost = 782 000 €**





Price / m<sup>2</sup> of a new apartment = 1 041 €

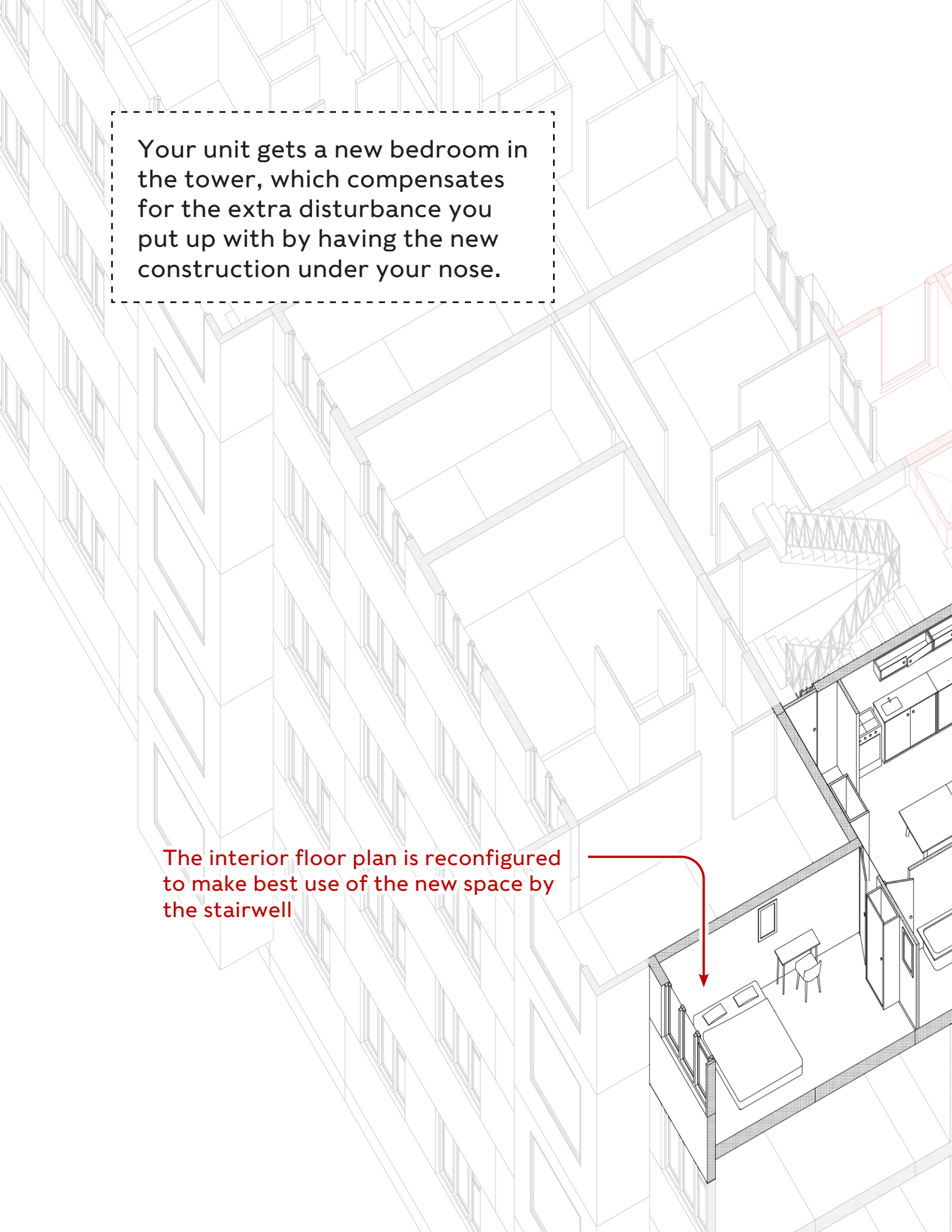
Price of a 60 m<sup>2</sup> apartment = 62 460 €

Renovation is cost-free  
with 22 new apartments

**Overall construction cost = 653 037 €**

**Cost to residents = 0 €**

The European Bank for Development and Reconstruction gives your cooperative a loan, as part of a 6 million euro contract they've signed for housing improvements in the area. You petition the city of Surgut for a more flexible zoning ordinance to build taller on your plot, which they grant you under the logic that others might do the same and slowly improve housing across the city.



Your unit gets a new bedroom in the tower, which compensates for the extra disturbance you put up with by having the new construction under your nose.

The interior floor plan is reconfigured to make best use of the new space by the stairwell





Apartments next to the tower  
get a new room

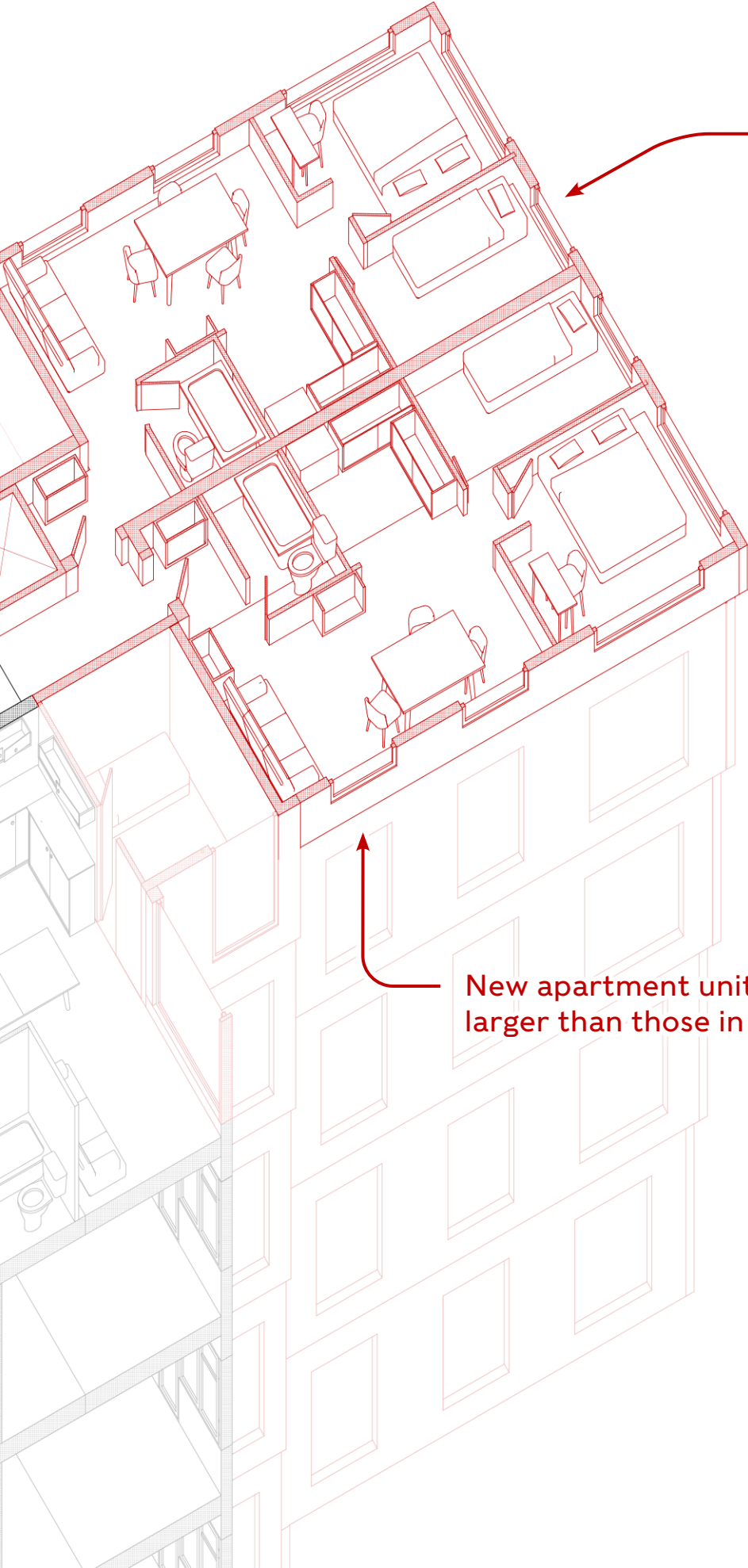
The bathroom is moved  
and renovated



The entire stairwell gets access to a new elevator

The new tower connects to the existing stairwell

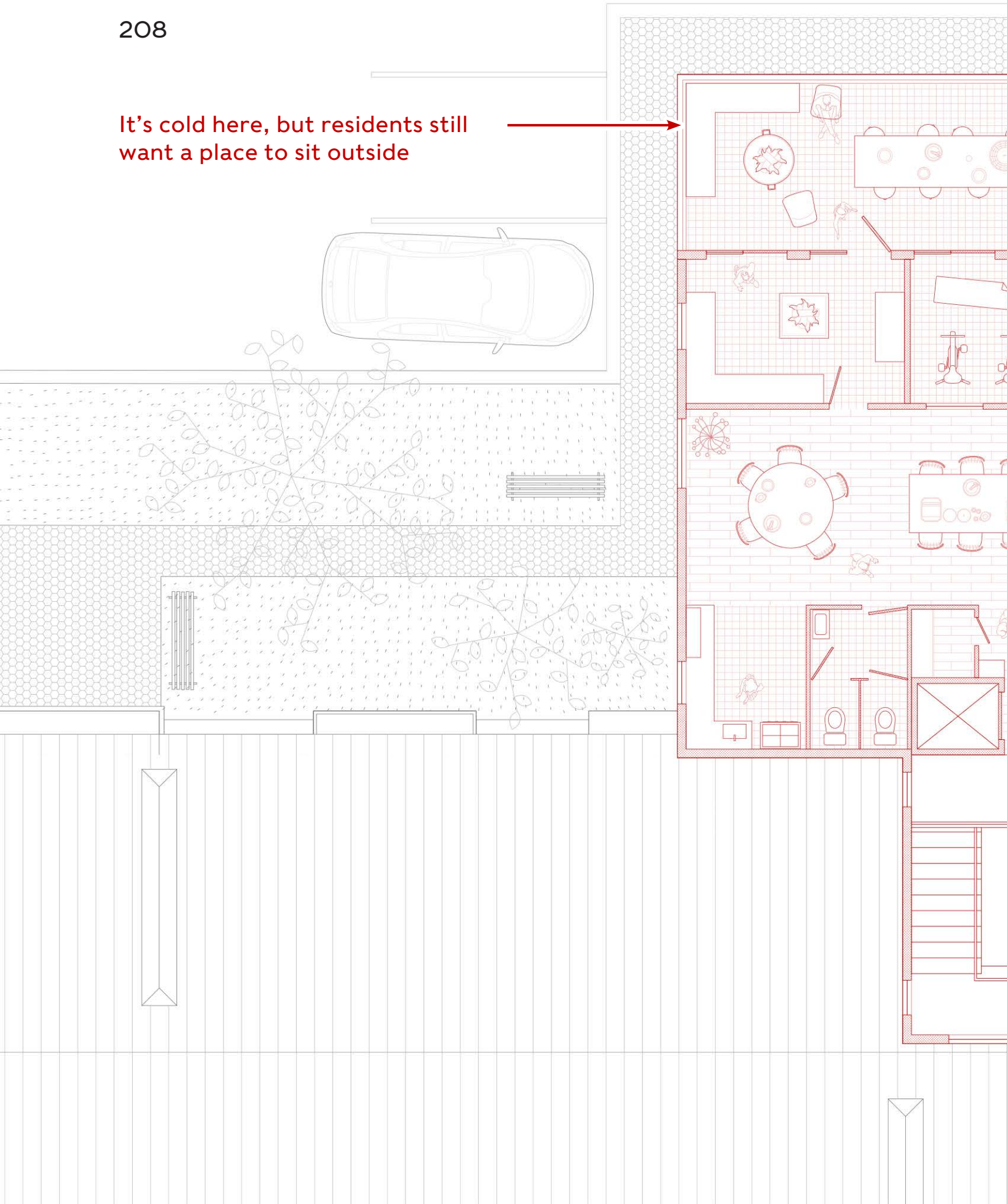
Your cooperative sells off the new units for slightly below market rate, and you vet the applicants for people who would fit in with the group.



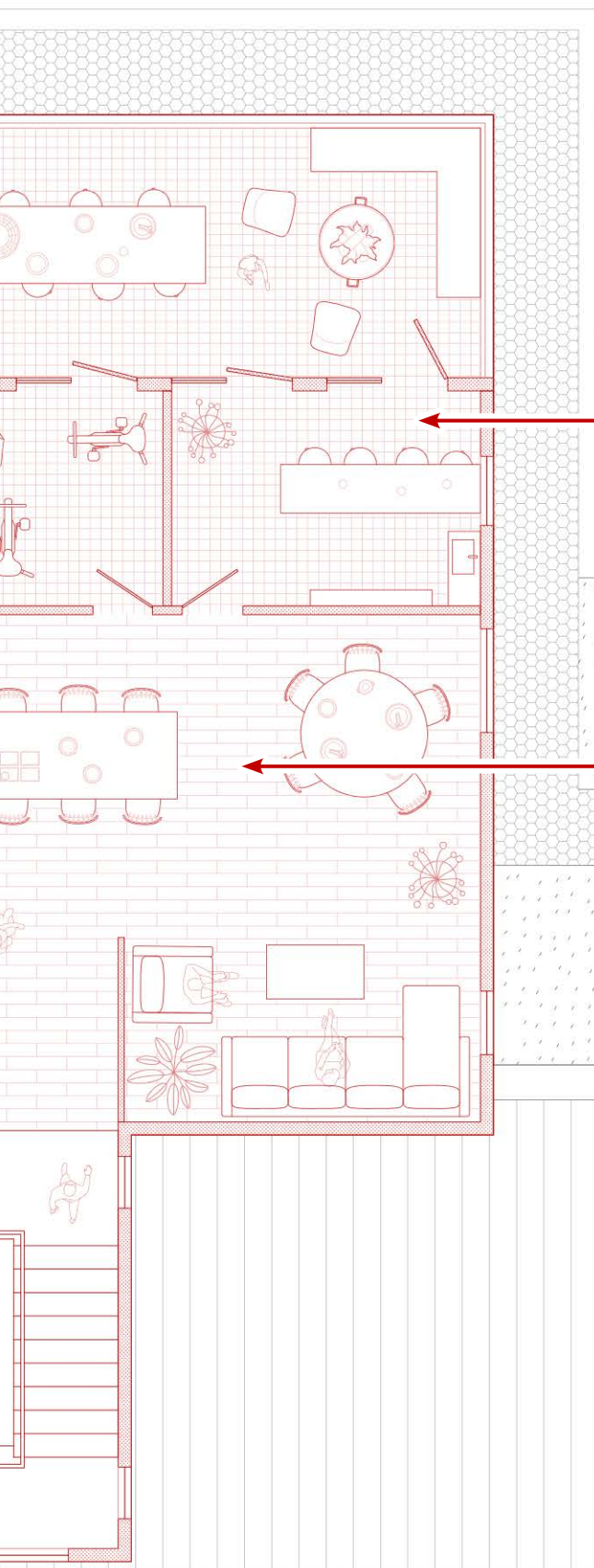
New units have two bedrooms

New apartment units in the tower are larger than those in current building

It's cold here, but residents still want a place to sit outside



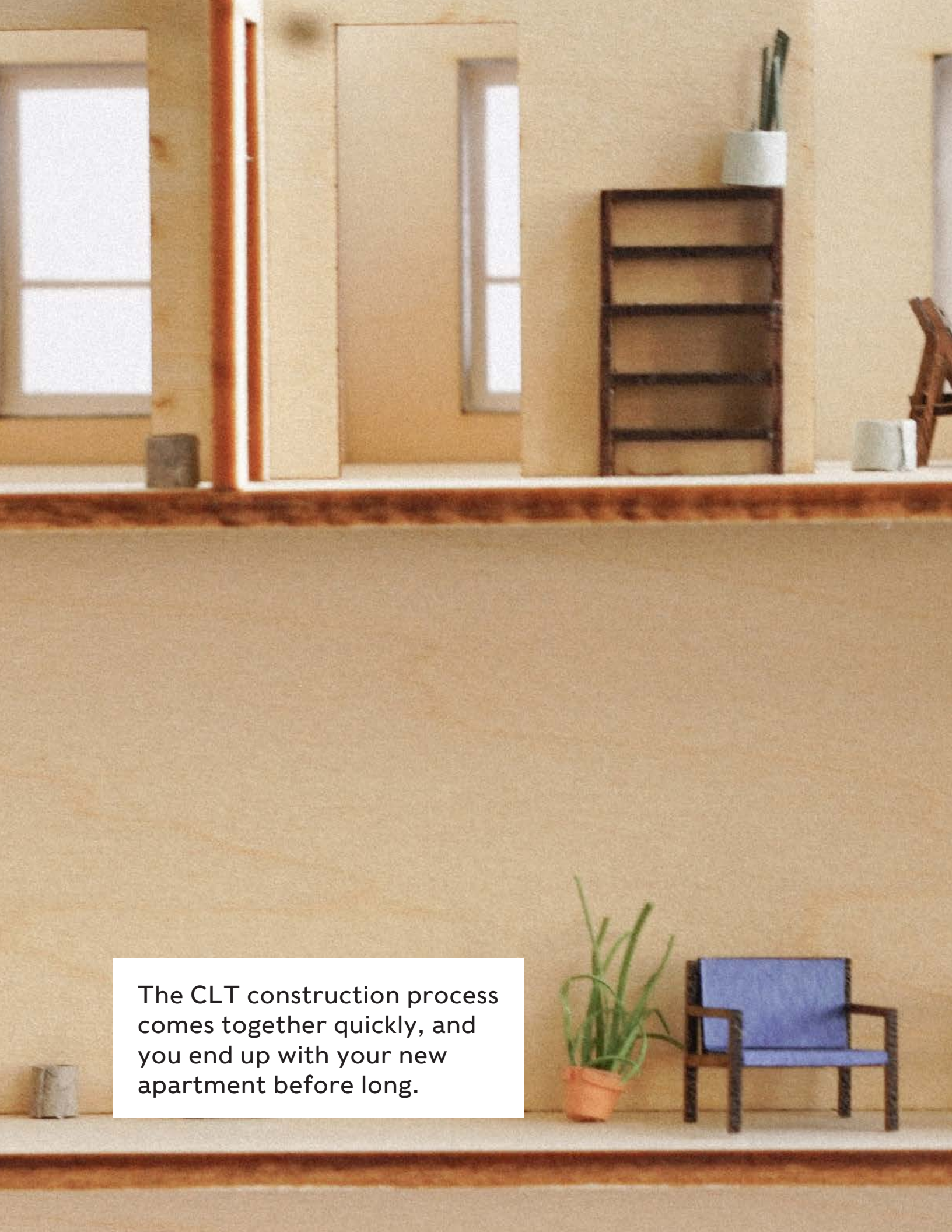




A sauna, a gym and a bar can help warm people up on their way outside

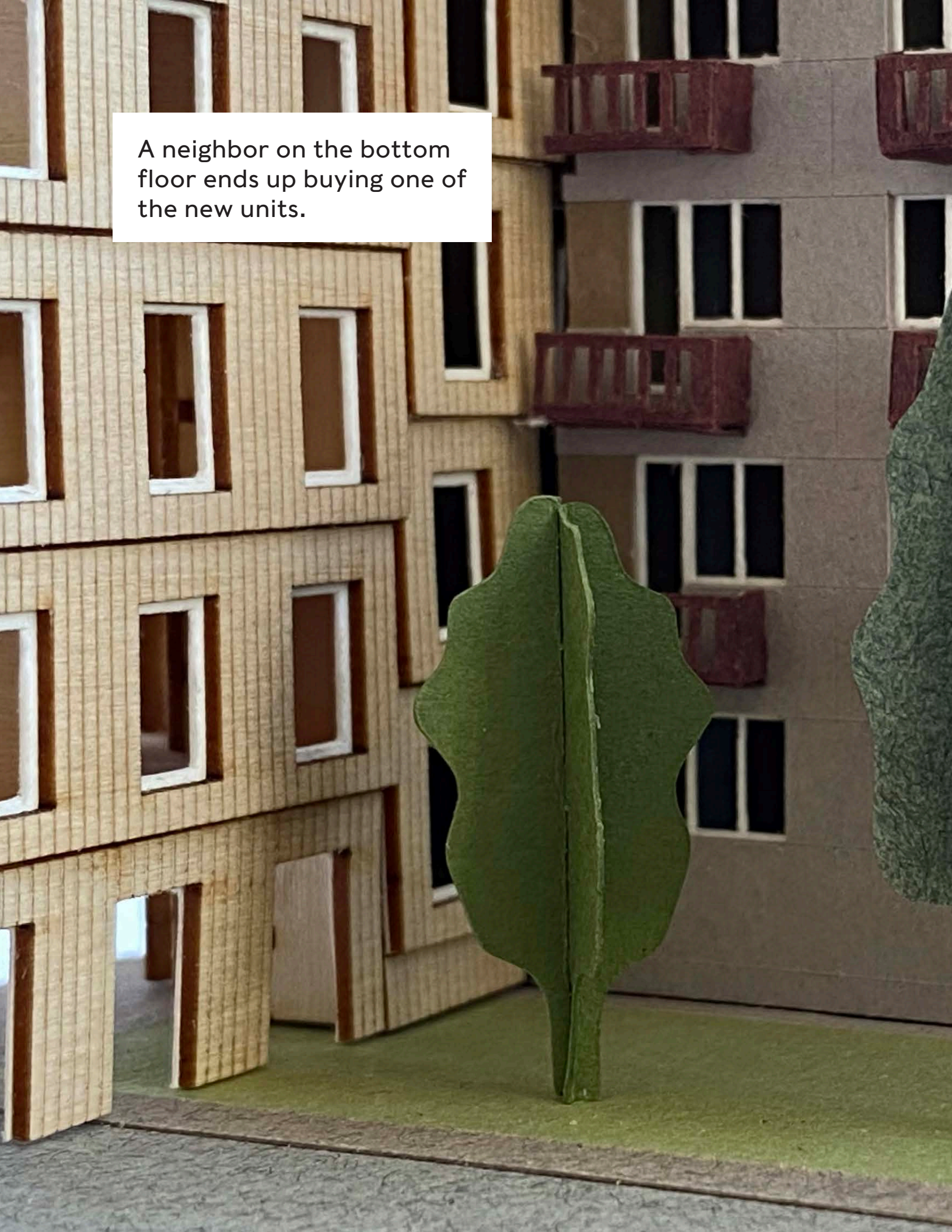
Enclosed common areas usable year round

The whole cooperative has access to common spaces on the roof of the new tower. It has a big common room, along with a bar, some exercise equipment and a sauna that connect to a terrace, kept warm in winter with fire pits.

The image shows a minimalist interior space. A thick, horizontal wooden beam runs across the middle of the frame. Above the beam, there are several rectangular openings in the wall, some of which appear to be windows or doorways. On the right side, above the beam, there is a dark wooden shelving unit with four shelves. A white cylindrical object, possibly a vase or container, sits on the top shelf. Below the beam, the wall is a plain, light-colored surface. In the lower right corner, there is a blue upholstered armchair with dark wooden legs. To the left of the chair is a potted plant with long, green, blade-like leaves in a terracotta pot. The overall aesthetic is clean and modern, emphasizing natural materials and simple furniture.

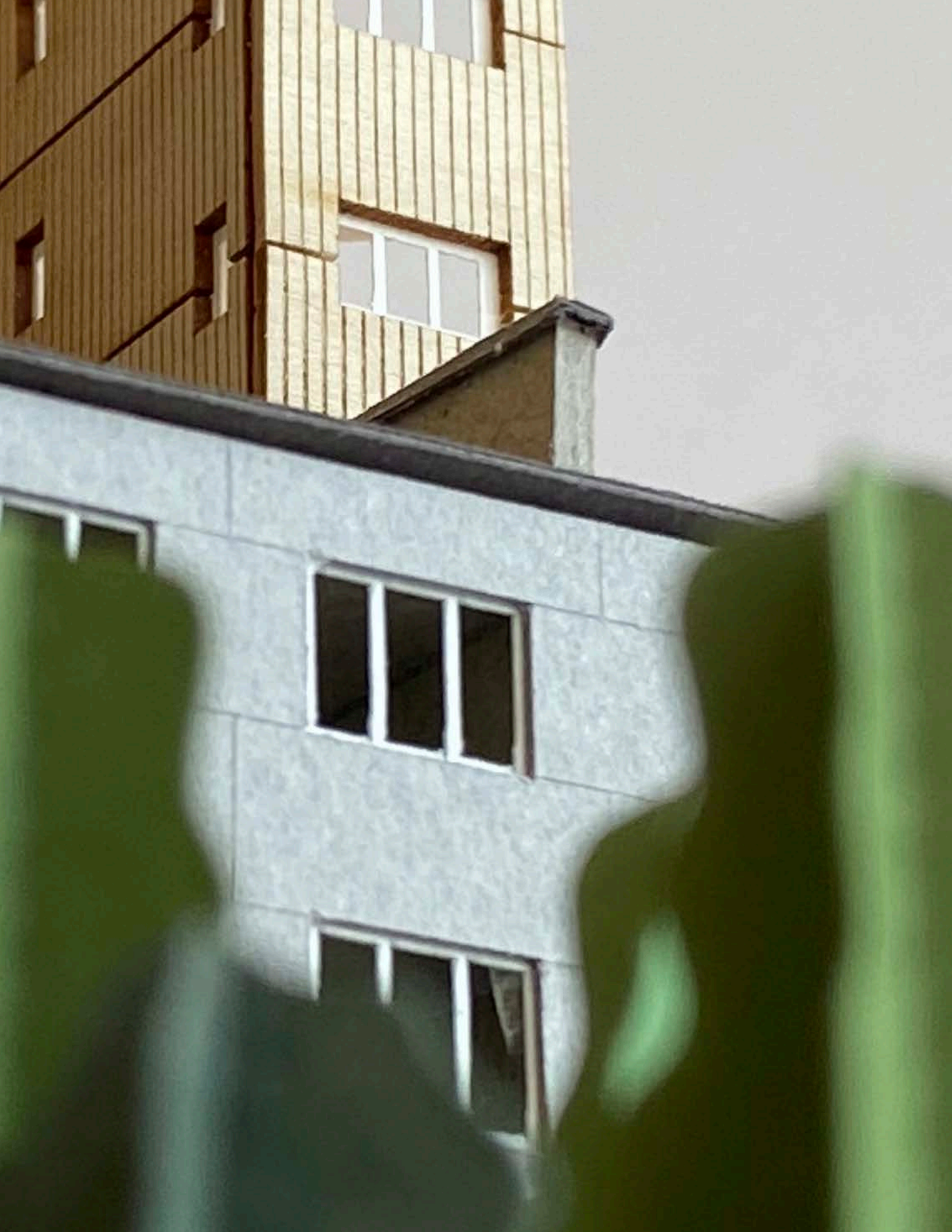


A neighbor on the bottom floor ends up buying one of the new units.













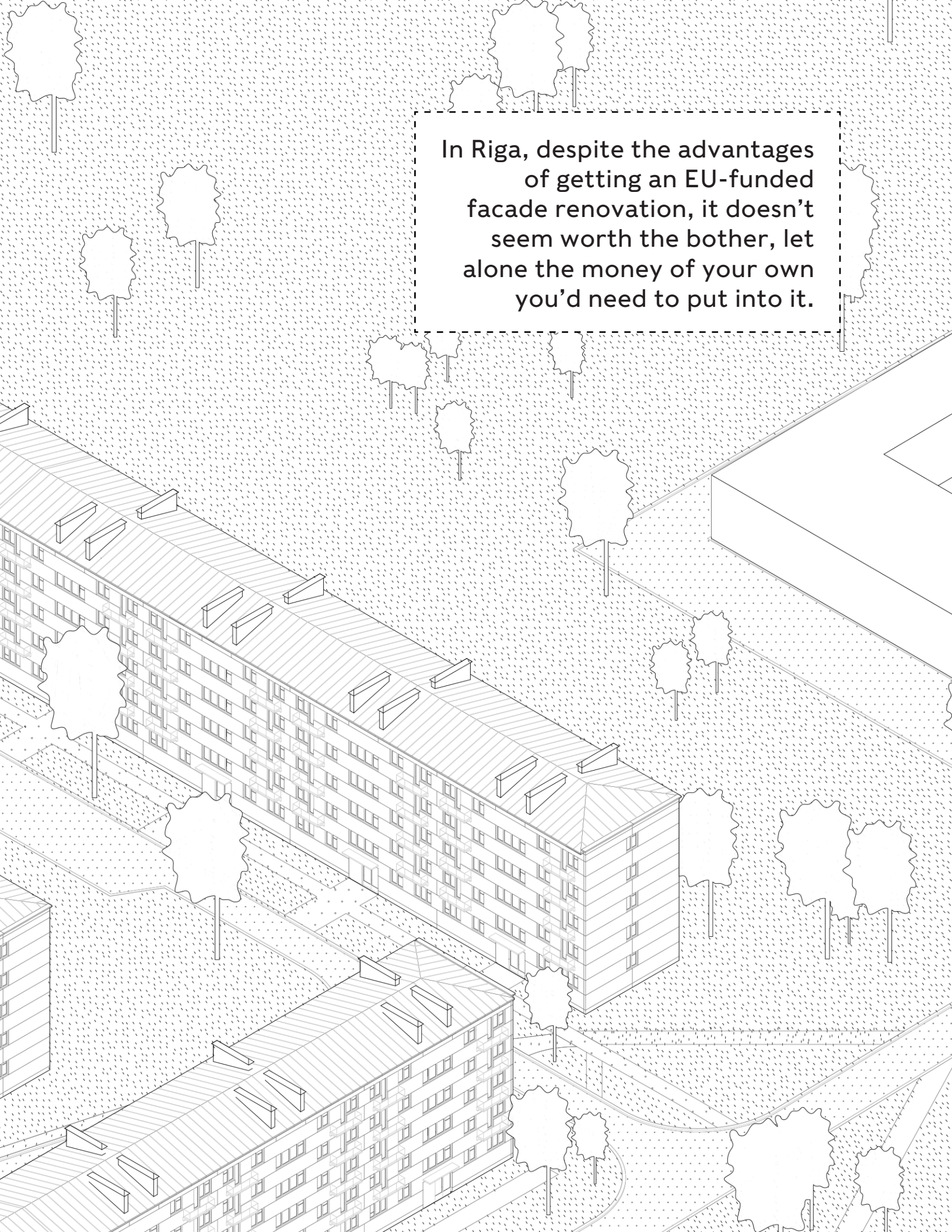




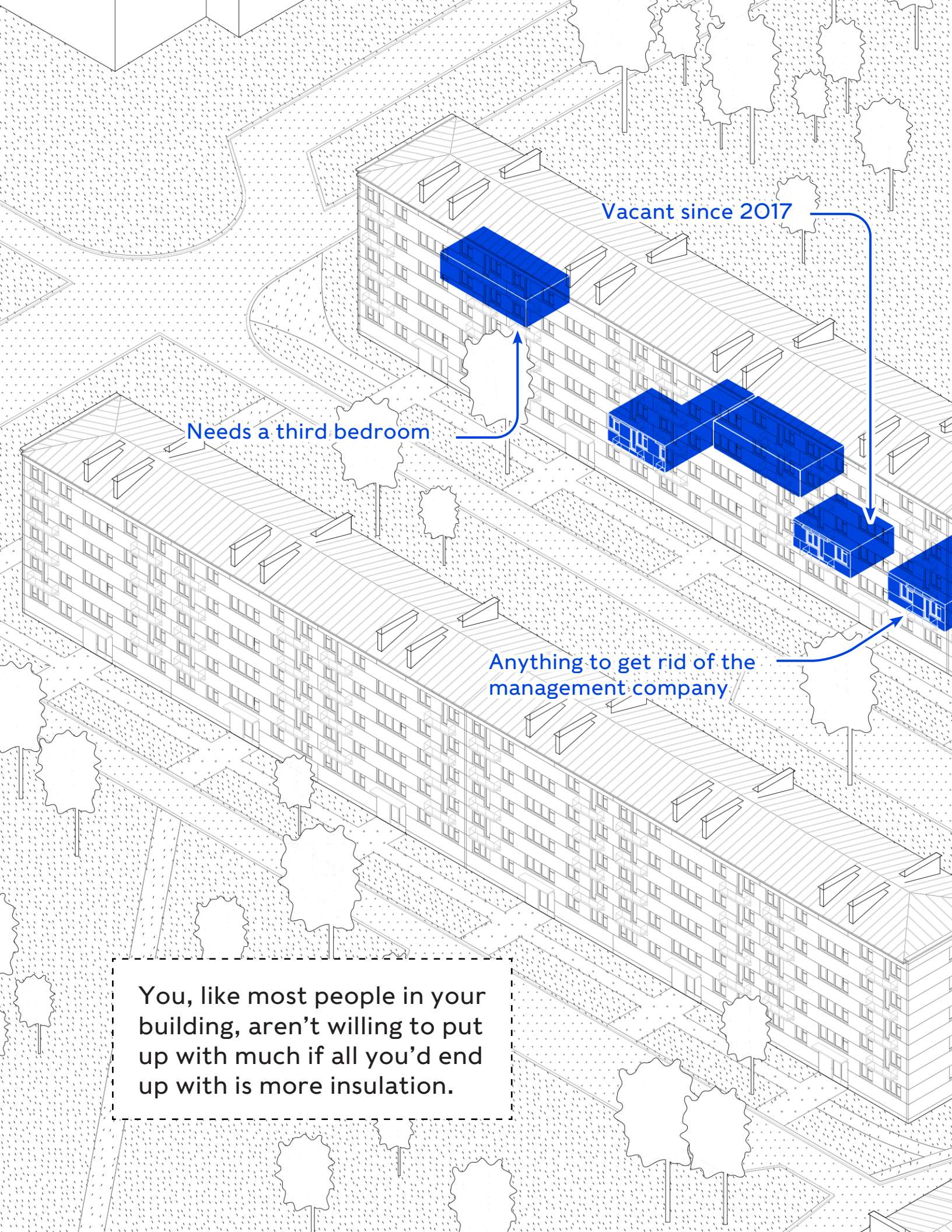




**RIGA**



In Riga, despite the advantages of getting an EU-funded facade renovation, it doesn't seem worth the bother, let alone the money of your own you'd need to put into it.

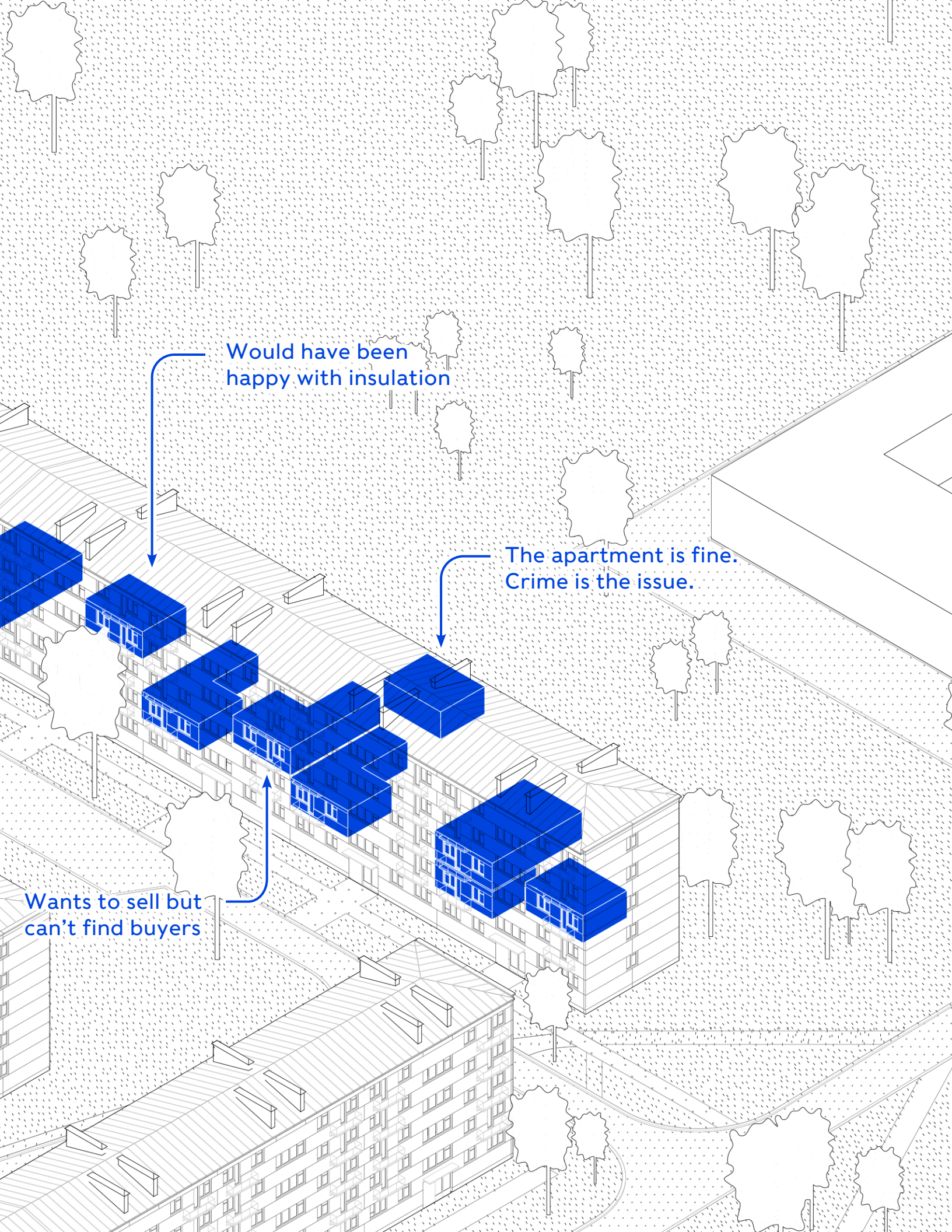


Vacant since 2017

Needs a third bedroom

Anything to get rid of the management company

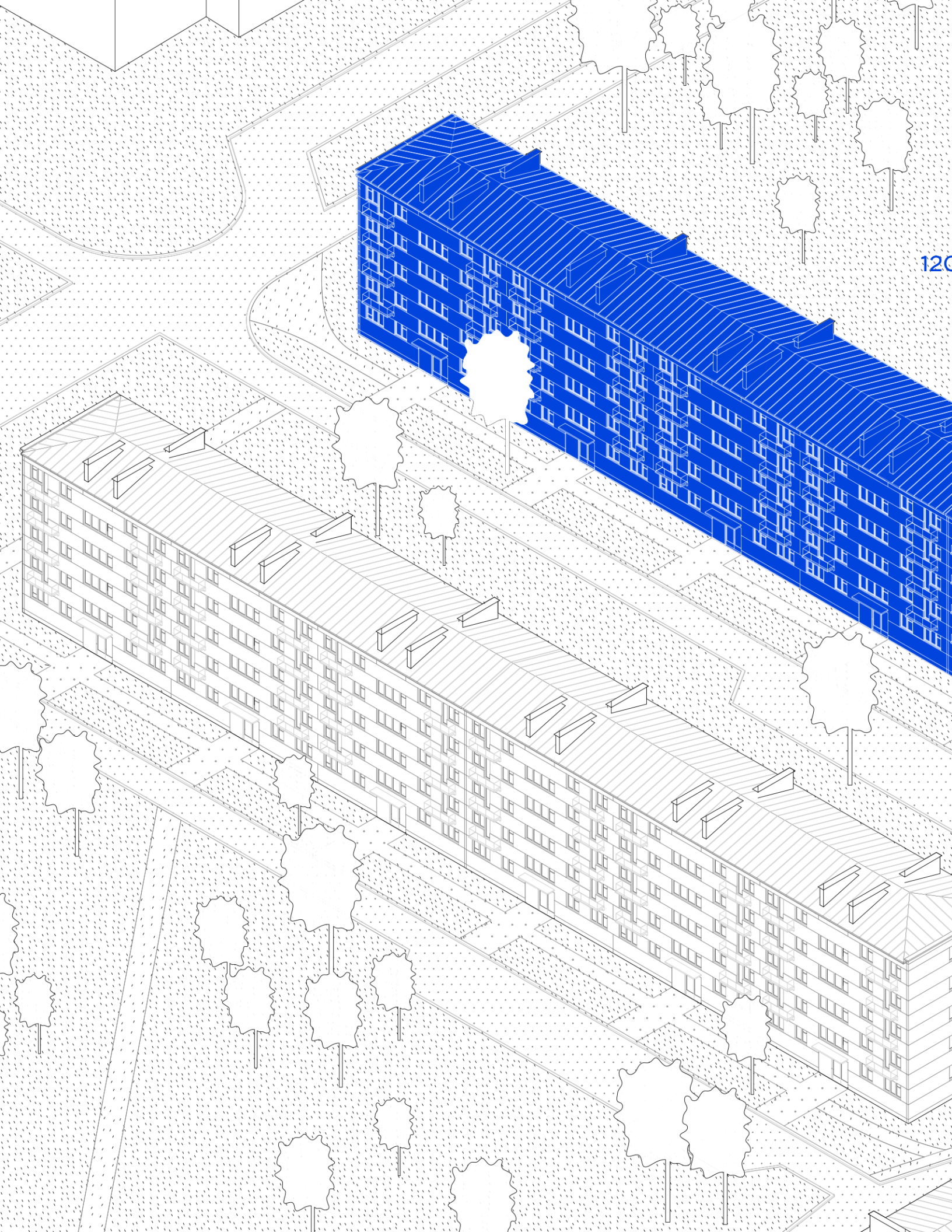
You, like most people in your building, aren't willing to put up with much if all you'd end up with is more insulation.



Would have been  
happy with insulation

The apartment is fine.  
Crime is the issue.

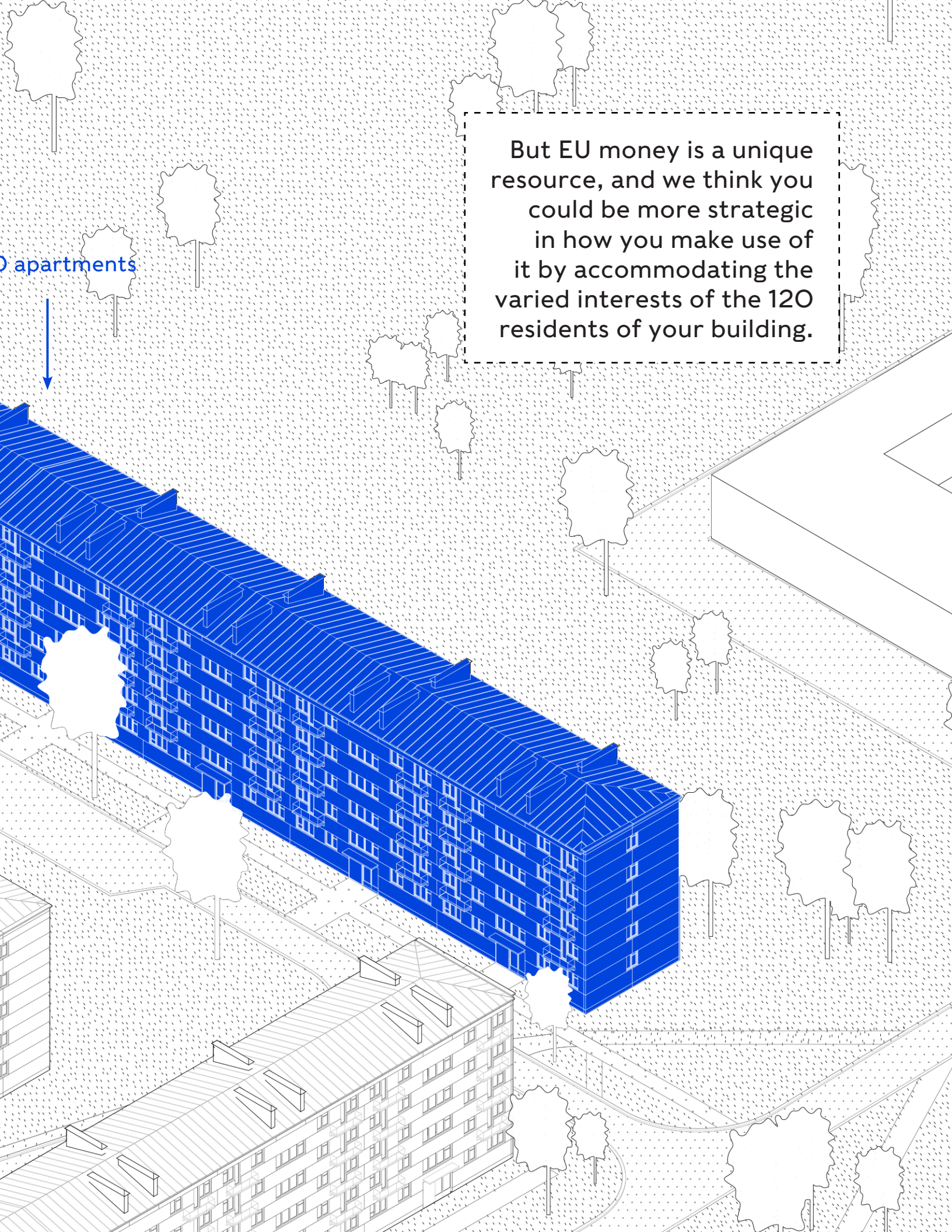
Wants to sell but  
can't find buyers





But EU money is a unique resource, and we think you could be more strategic in how you make use of it by accommodating the varied interests of the 120 residents of your building.


apartments



Instead of funding the entirety of a project, we think EU subsidies should go towards a baseline renovation for all apartments that include more space along with increased building performance.





A photograph of a modern, minimalist interior. On the right side, there is a light-colored wooden shelving unit with several shelves and a lower section with a window-like opening. Below the shelving unit is a matching light-colored wooden bench. The background is a plain white wall. The overall aesthetic is clean and contemporary.

Residents would still need to contribute some of their own money, via subsidized loans.












A detailed architectural model of a multi-story building. The model features several levels with miniature furniture, including dining tables and chairs. A prominent staircase with a dark wooden railing is visible on the right side. The model is constructed from light-colored material, possibly cardboard or foam, with various decorative elements like patterned paper and small lights. A white text box is overlaid on the upper right portion of the image.

But unlike insulation-based renovations, the additional space would increase their property value proportionally with their investment.







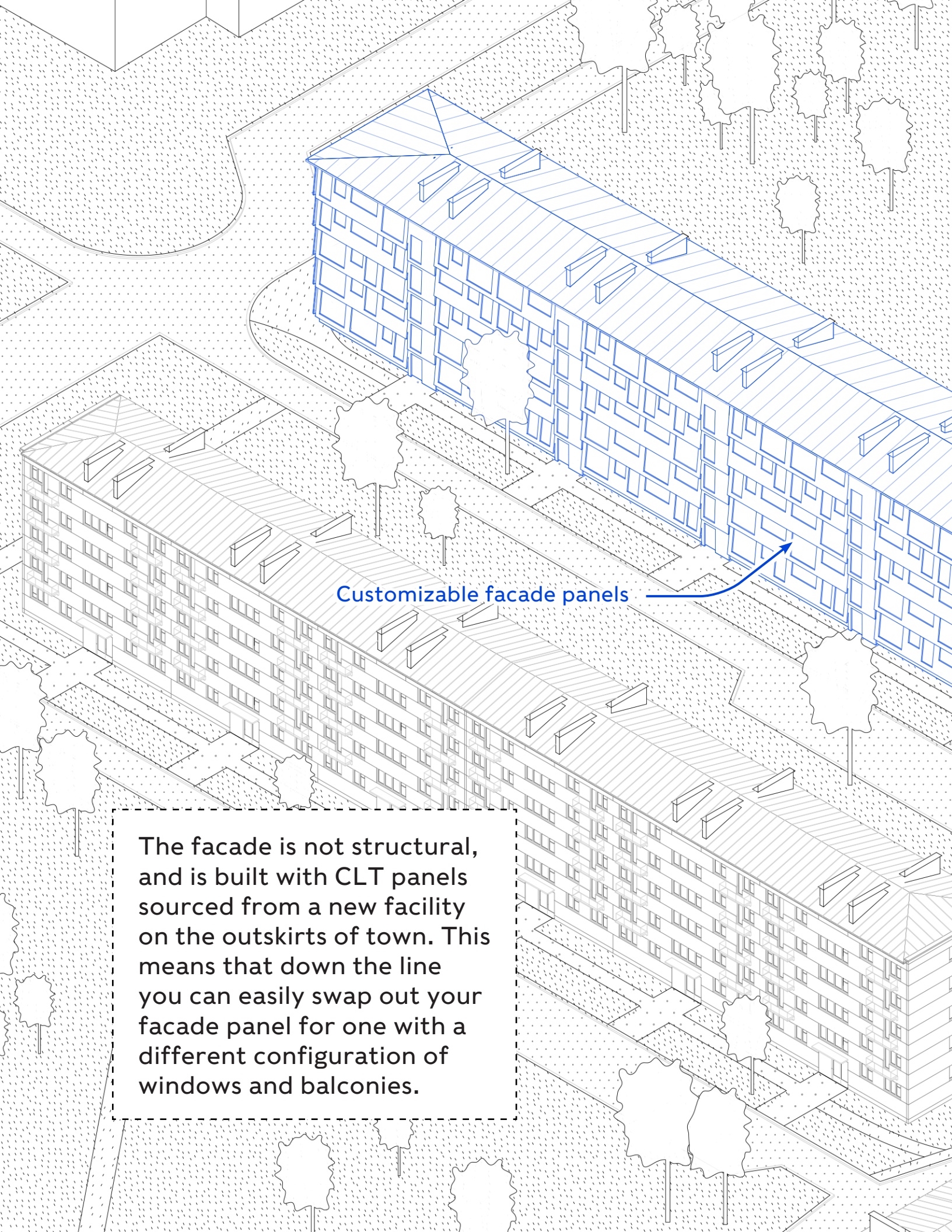








Those with more available to spend could invest it in facade panels with larger windows and a balcony.

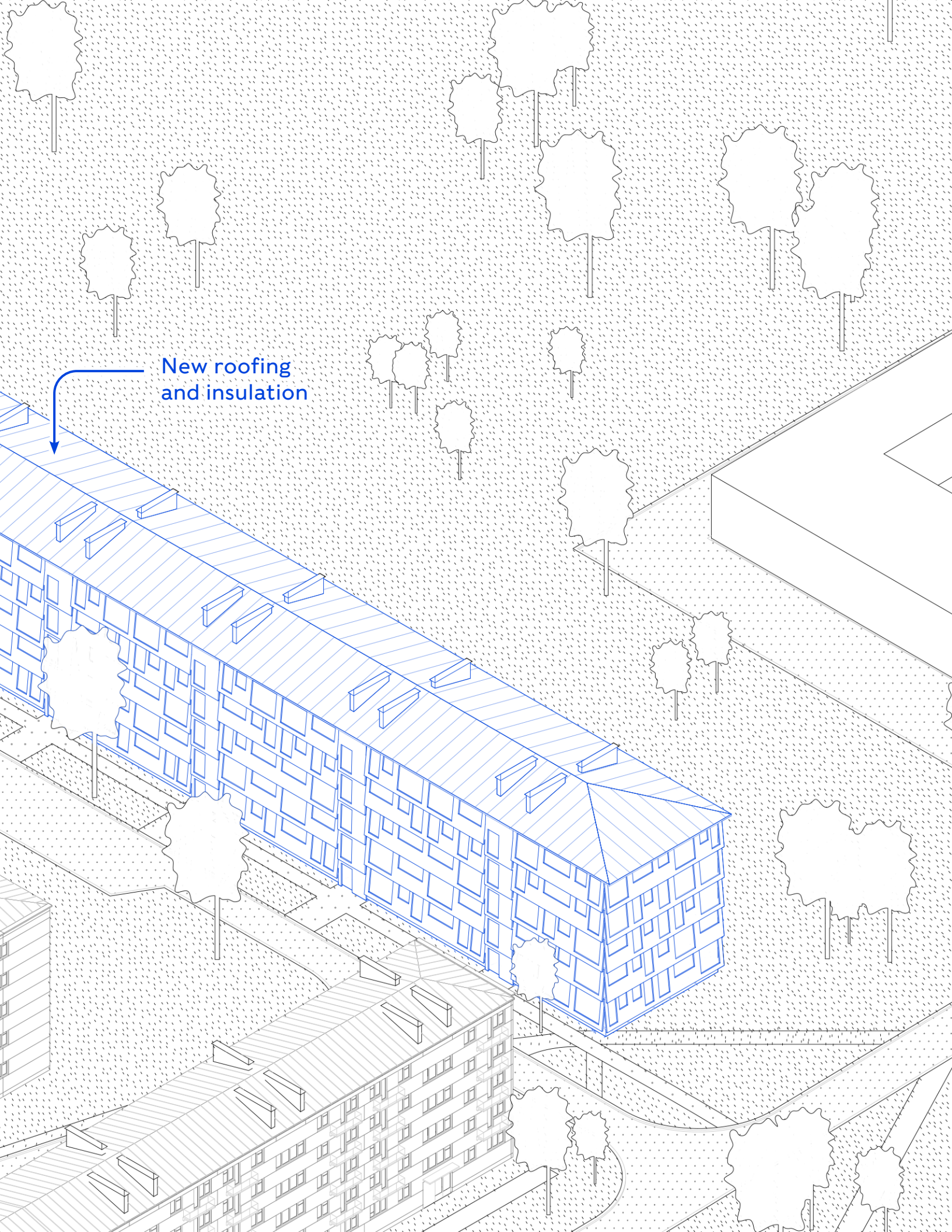


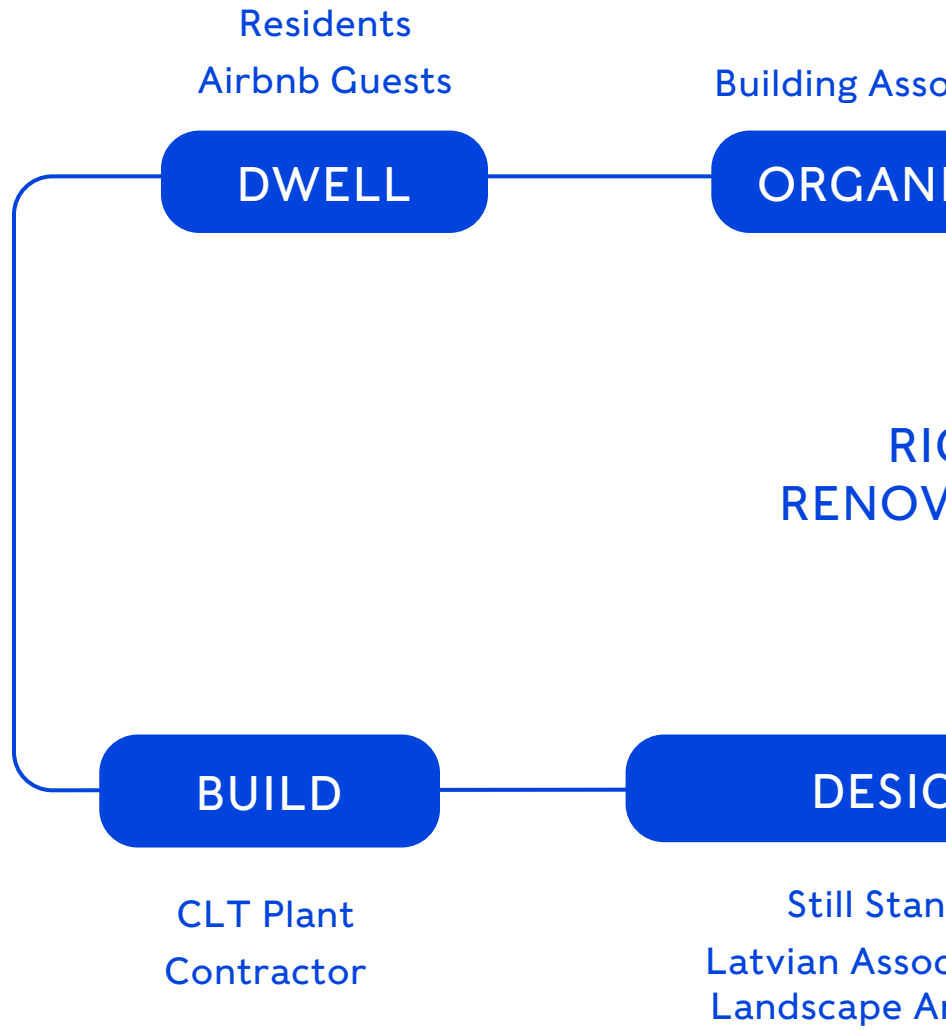
Customizable facade panels

The facade is not structural, and is built with CLT panels sourced from a new facility on the outskirts of town. This means that down the line you can easily swap out your facade panel for one with a different configuration of windows and balconies.

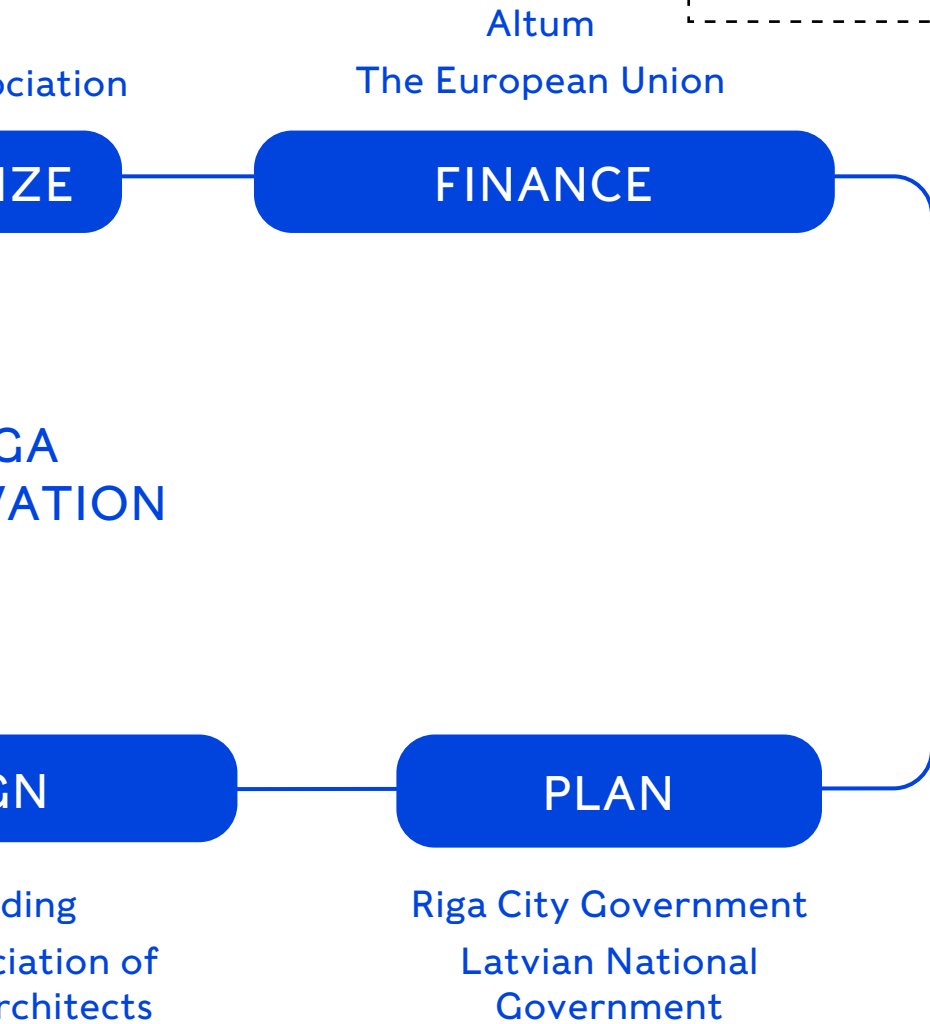


New roofing  
and insulation





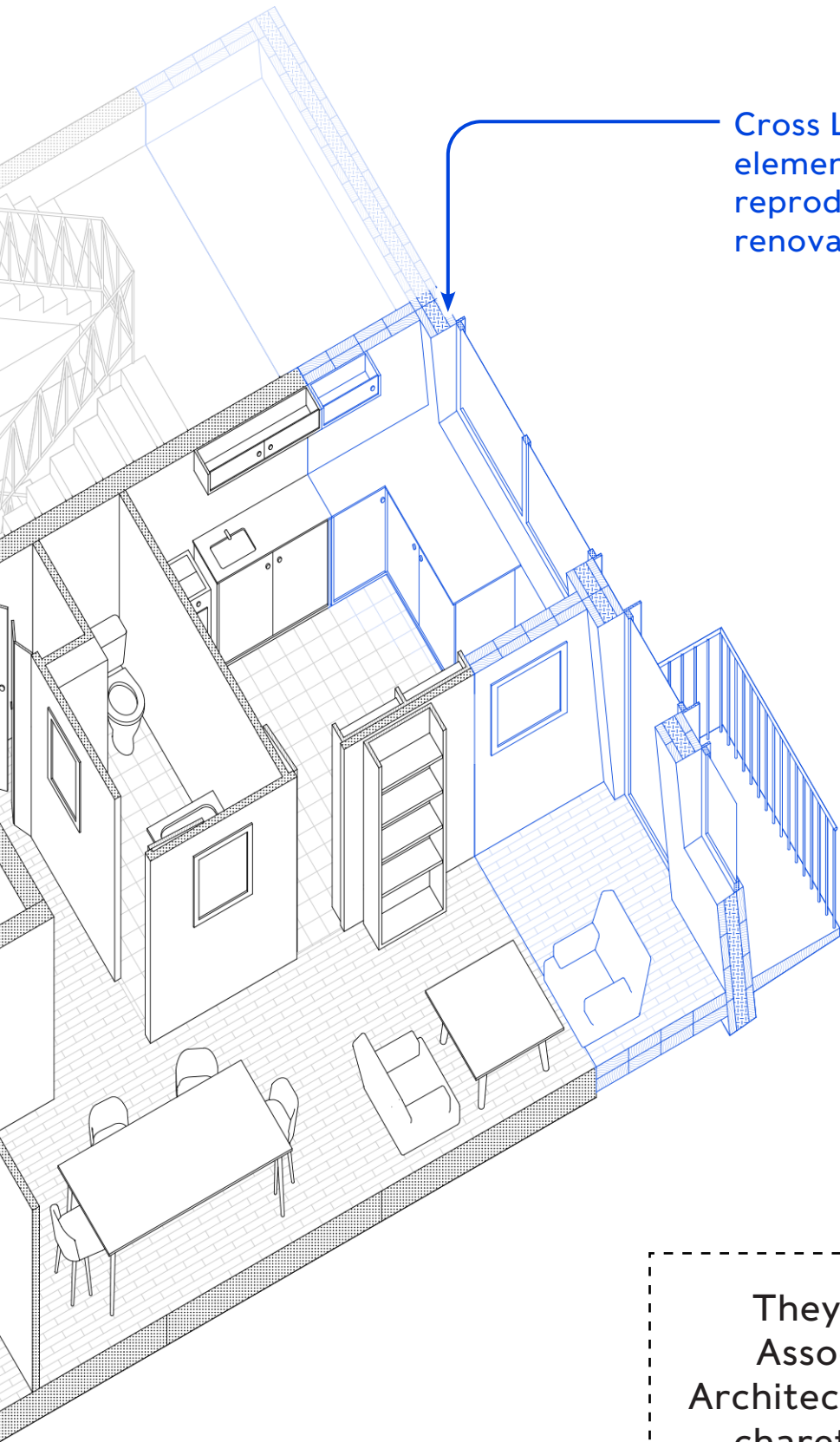
Your building association starts the project by combining the two plots of land that your building spans, and electing a new management team for the project.



The City of Riga makes additional financing available to pay for setup costs at the CLT factory, encouraging the use of the more sustainable material, which it hopes others will use in subsequent renovations.

Residents choose window and balcony size on their facade panels





Cross Laminated Timber elements could easily be reproduced for other building renovations

They also pay the Latvian Association of Landscape Architects to organize design charettes for a redesign of the garden space on your newly combined plot.

120 existing apartments to renovate

Average apartment size = 45 m<sup>2</sup>

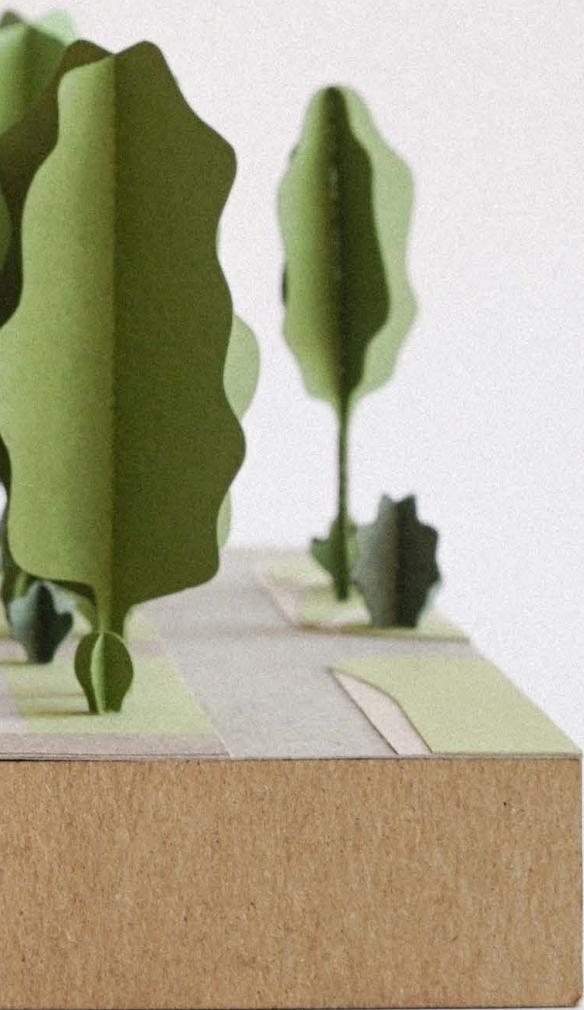
Total area to renovate = 5 400 m<sup>2</sup>

**Overall renovation cost = 1 243 400 €**



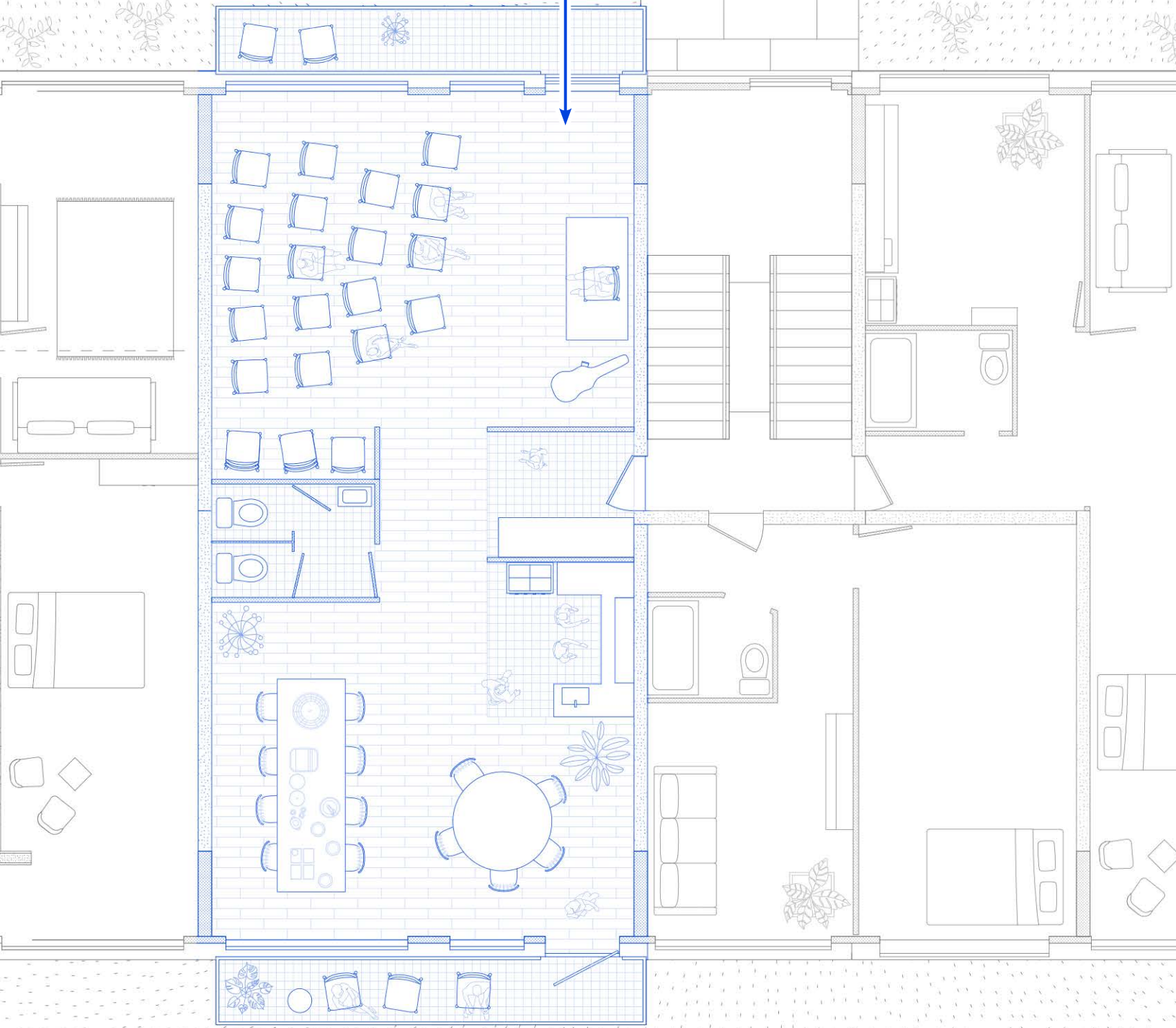
**Subsidies = 600 000 €**

**Cost to residents = 5 300 €**



The population of the city is shrinking, and there are two units in your building that have been on the market for months. Your building association gets a loan to buy them both, which it will pay off in part by renting out one of them on Airbnb.

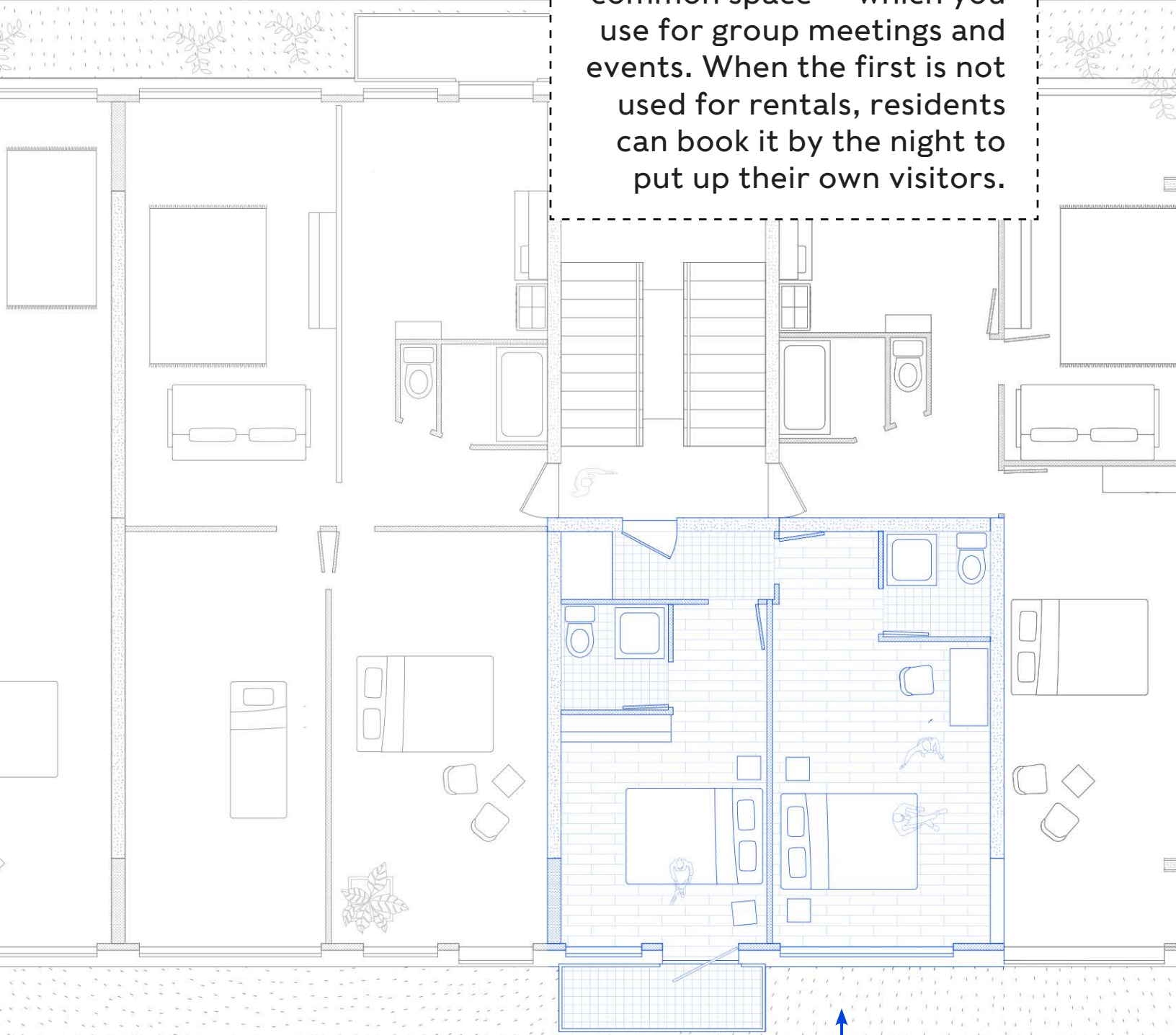
One apartment is converted into com  
for the whole building






Common spaces

You convert the other into a common space — which you use for group meetings and events. When the first is not used for rentals, residents can book it by the night to put up their own visitors.



One apartment is split into two guest suites, for rental income and residents' visitors



A photograph of a dining area. In the foreground, a wooden dining table and four chairs are visible. The table is dark wood, and the chairs have a slatted back. In the background, there is a green cabinet with two doors and a single door below. A patterned curtain with a leaf design is on the right. A white text box is overlaid on the image.

You coordinate with an older couple you know two stories up to swap apartments during construction. They have more space than they need, which you could use with your two kids.



In exchange, you pay them the difference in apartment values, which they spend on large windows and a balcony in their new unit.



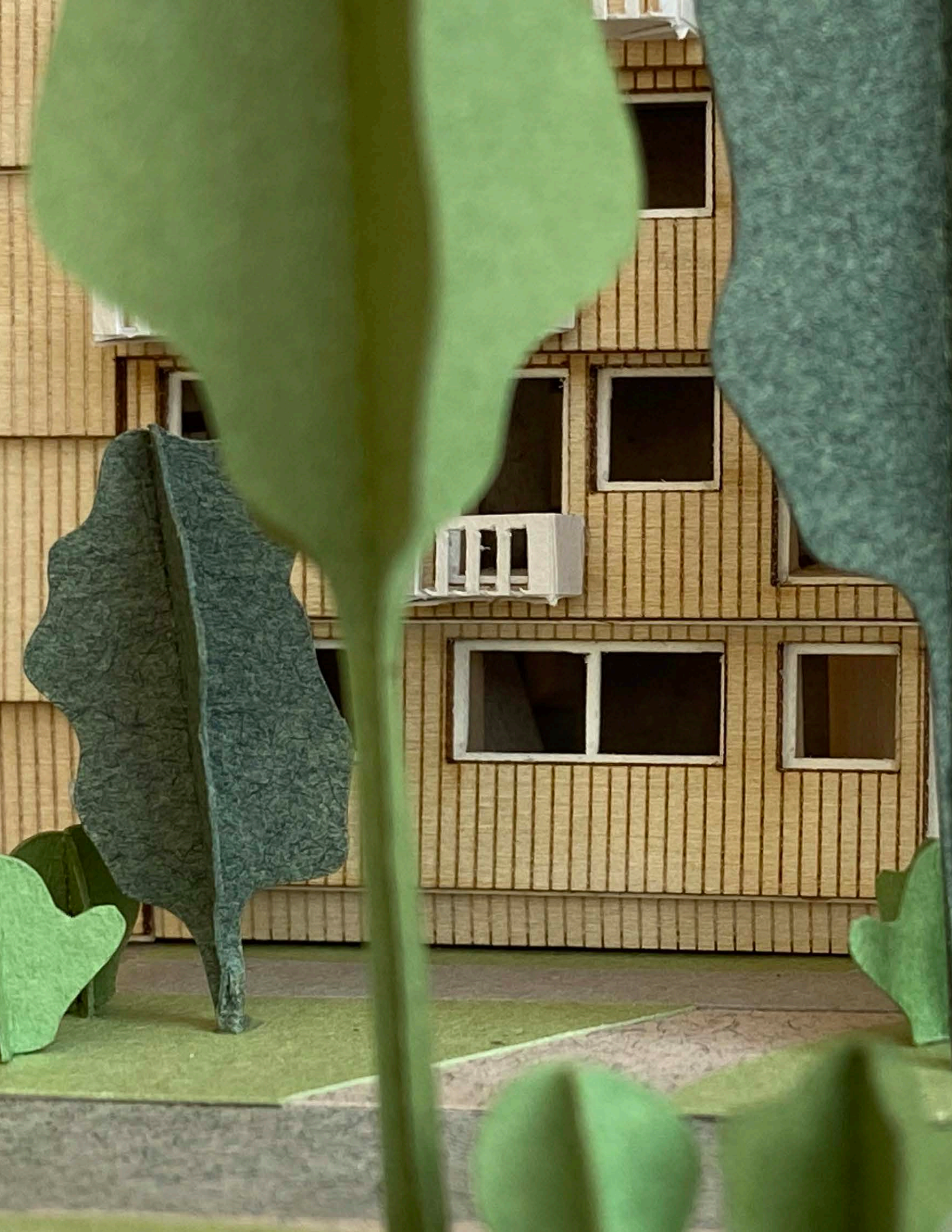


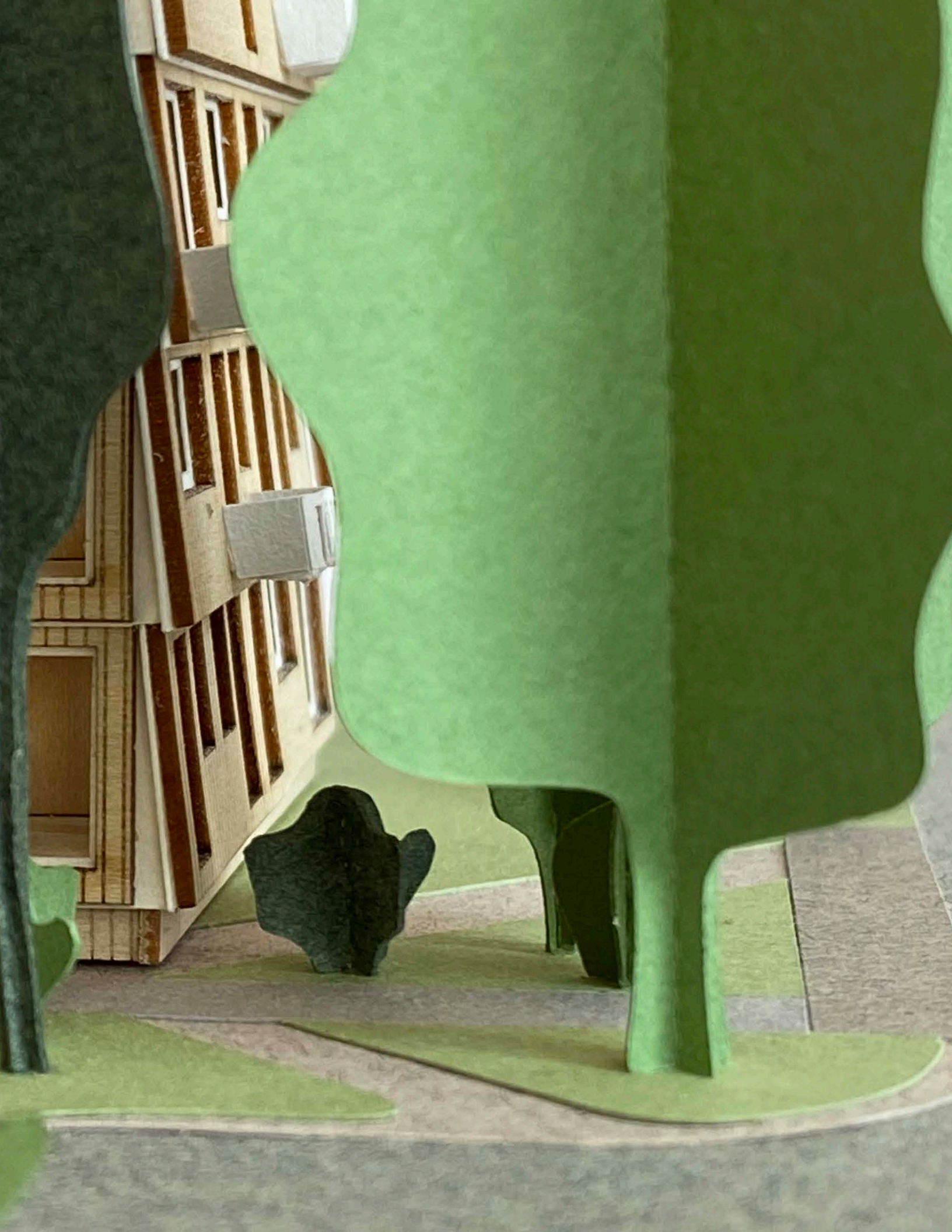










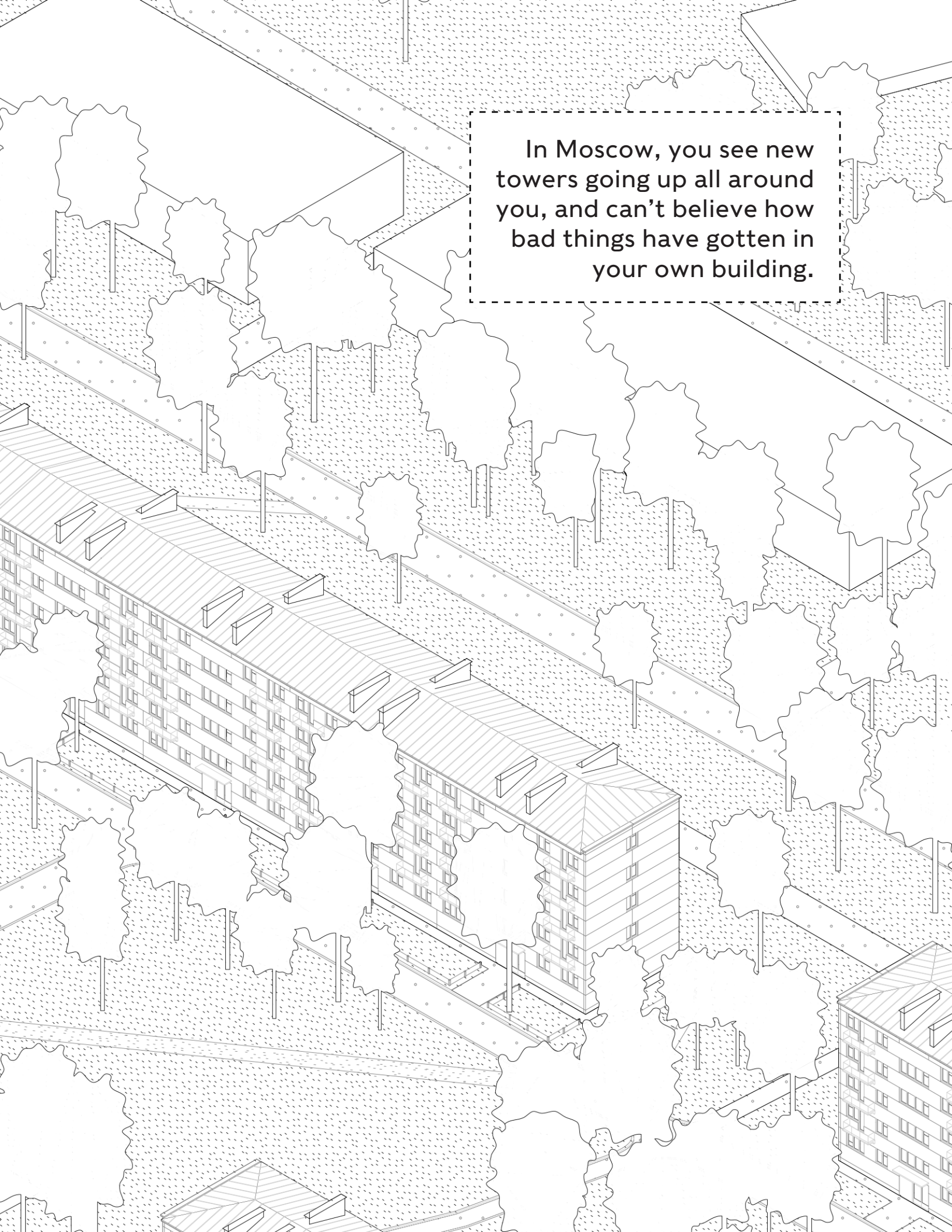




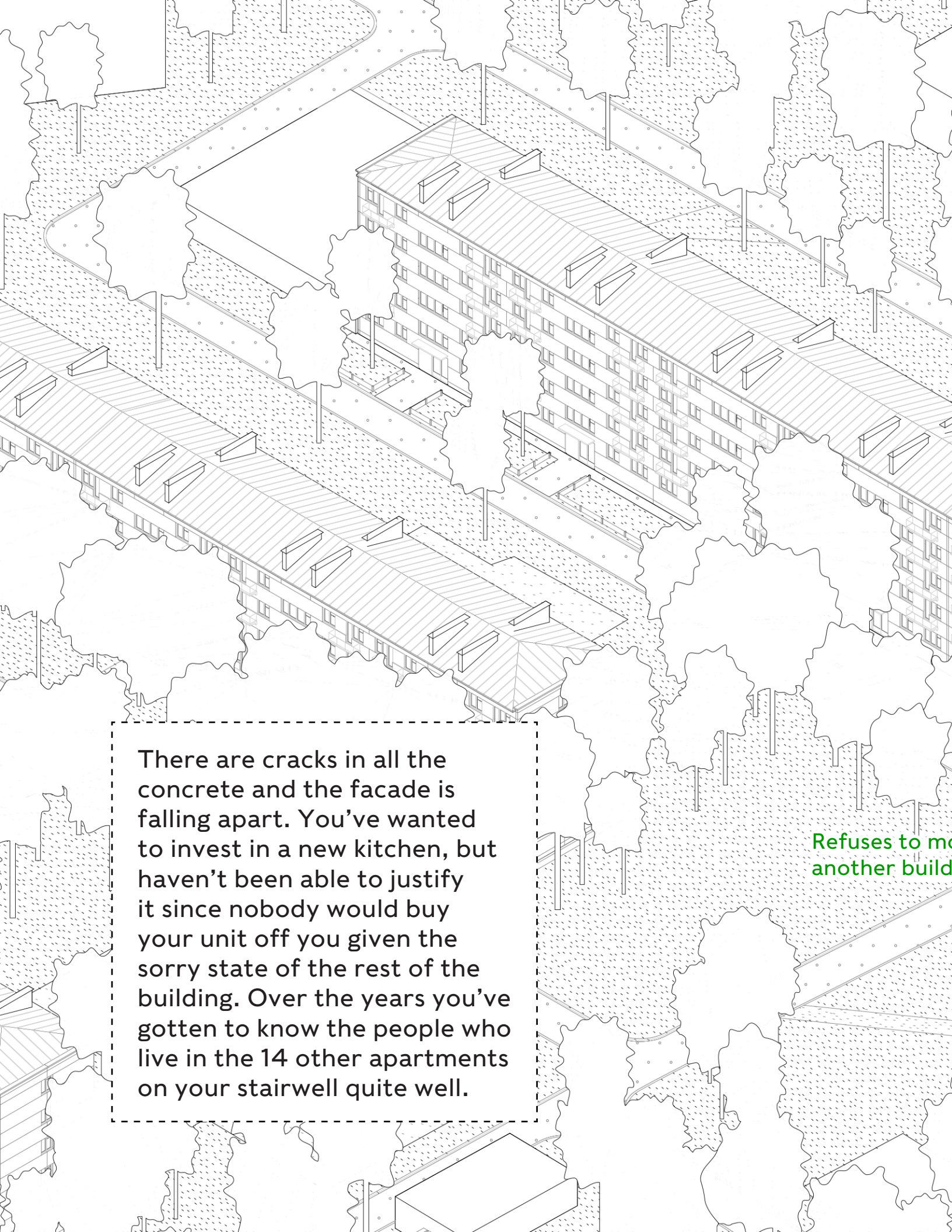




**MOSCOW**



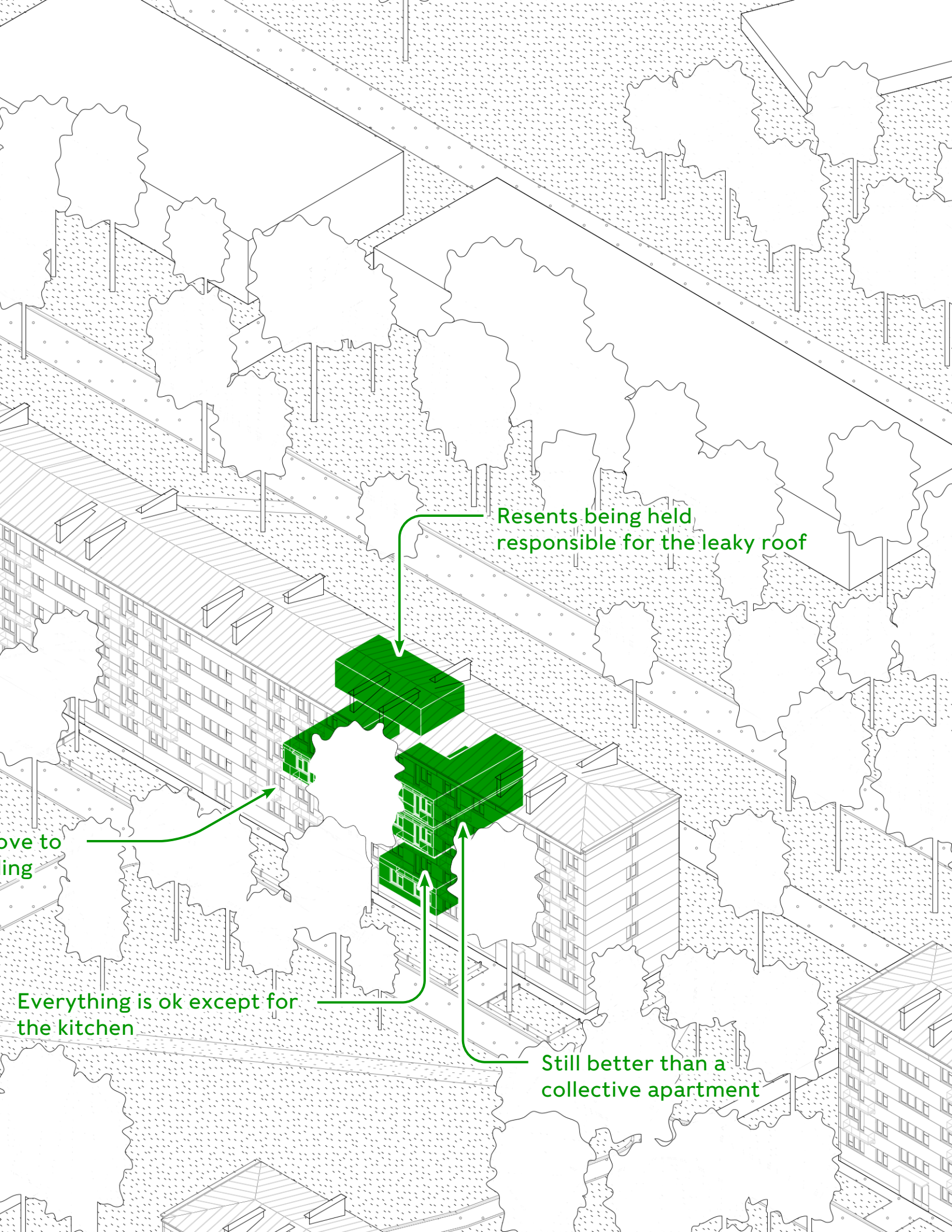
In Moscow, you see new towers going up all around you, and can't believe how bad things have gotten in your own building.



There are cracks in all the concrete and the facade is falling apart. You've wanted to invest in a new kitchen, but haven't been able to justify it since nobody would buy your unit off you given the sorry state of the rest of the building. Over the years you've gotten to know the people who live in the 14 other apartments on your stairwell quite well.

Refuses to move to another building



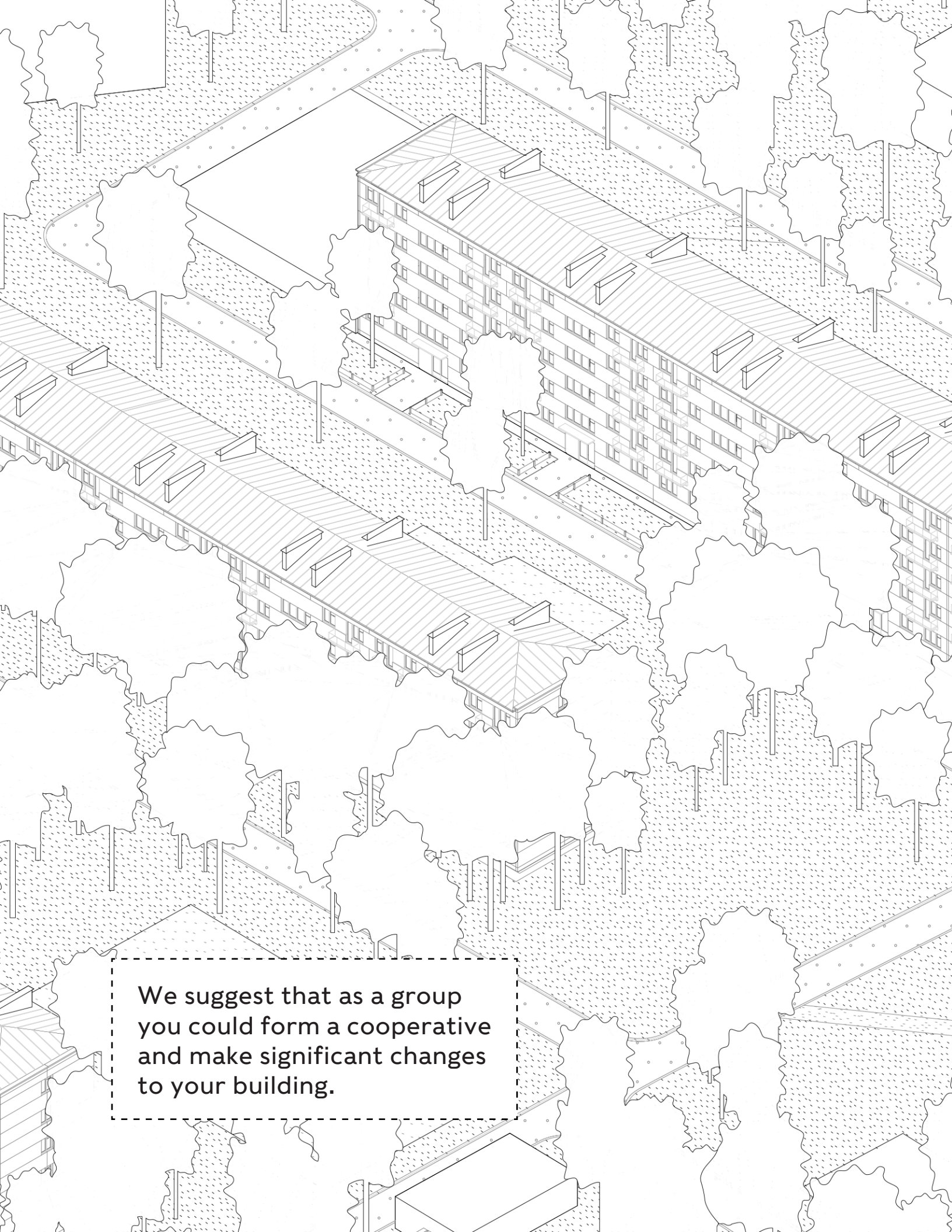


Resents being held responsible for the leaky roof

Love to living

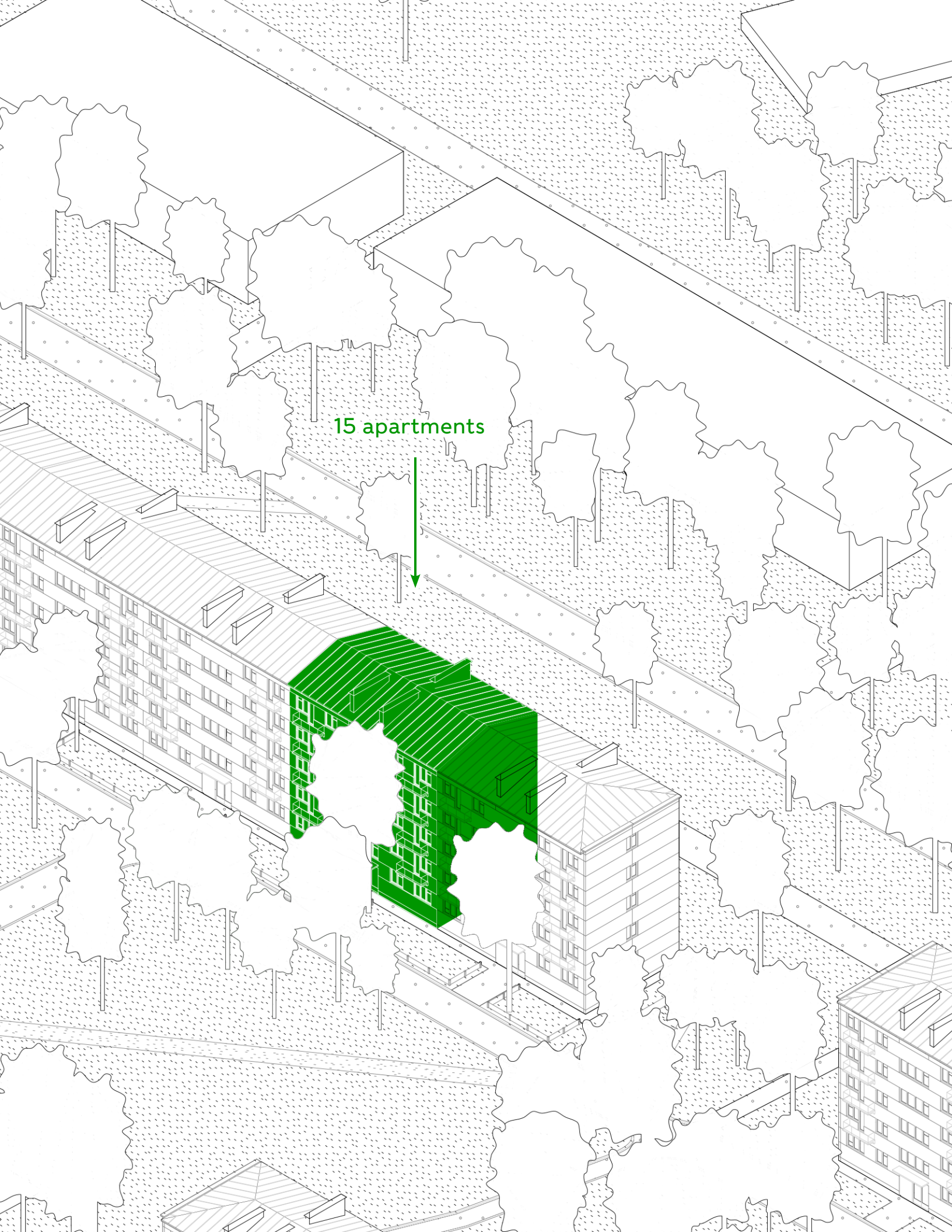
Everything is ok except for the kitchen

Still better than a collective apartment



We suggest that as a group you could form a cooperative and make significant changes to your building.

15 apartments





Here is a design where you  
only renovate the building  
around your stairwell.







Each apartment gets more floor space in a thickened facade...







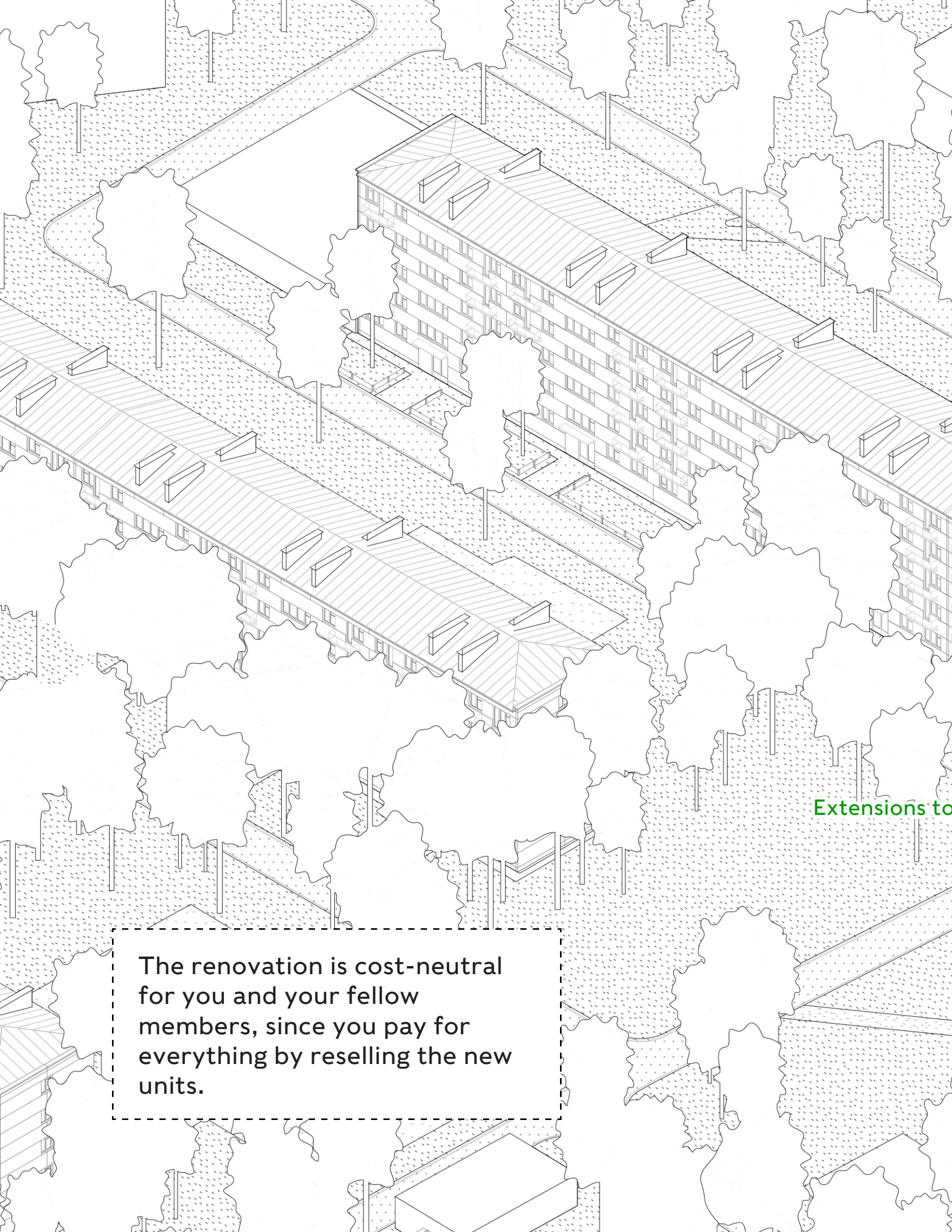


...which supports two floors of additional units at the top of the building.



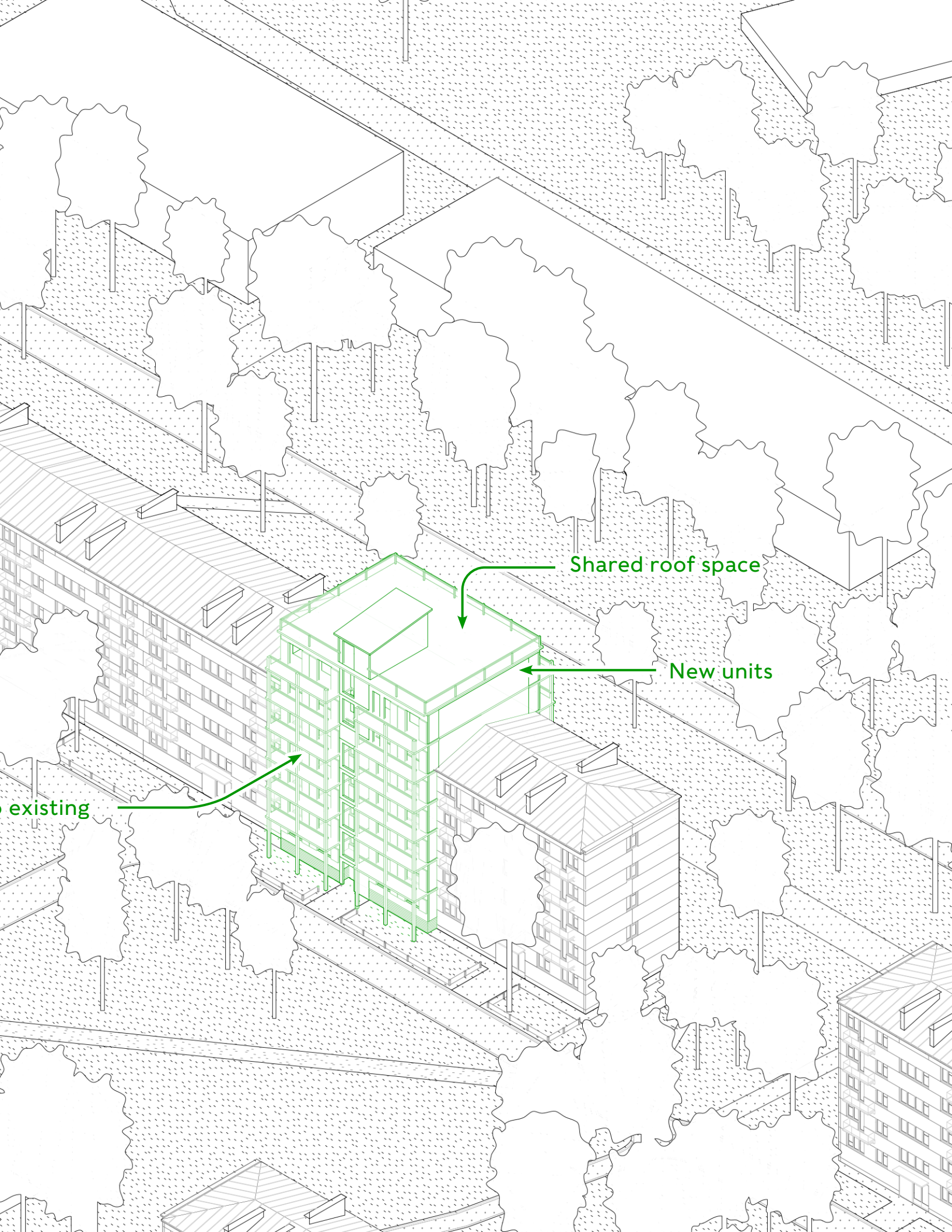






Extensions to

The renovation is cost-neutral for you and your fellow members, since you pay for everything by reselling the new units.

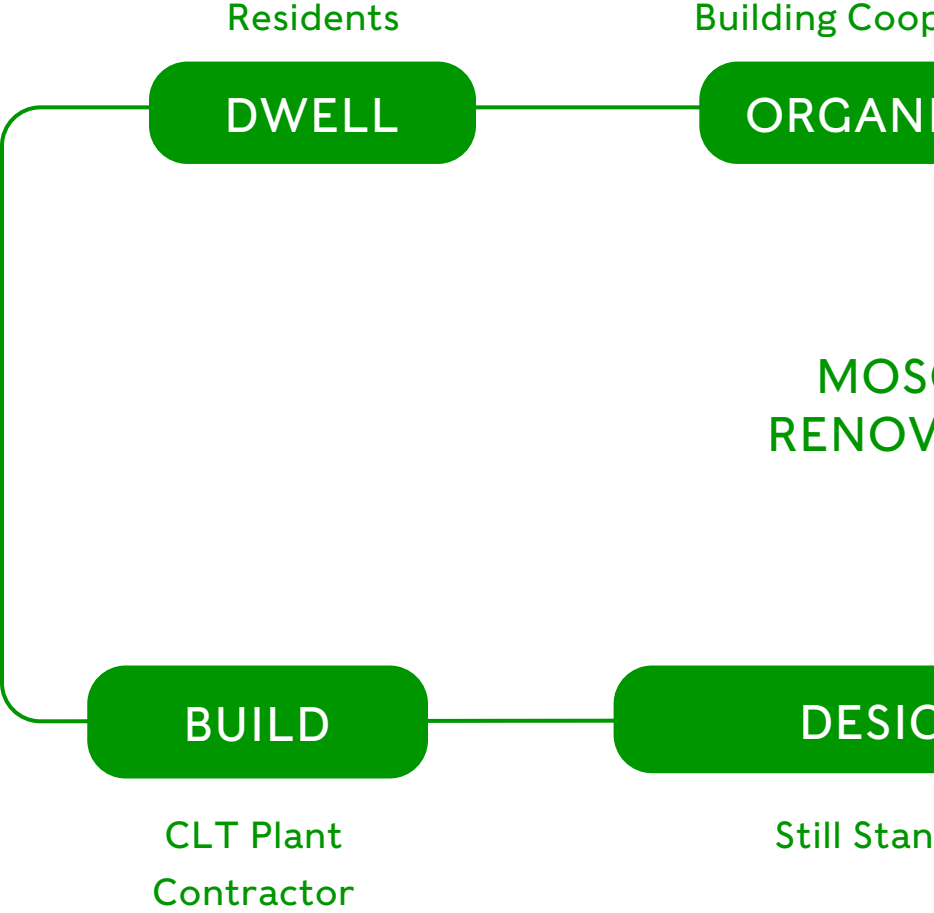


existing

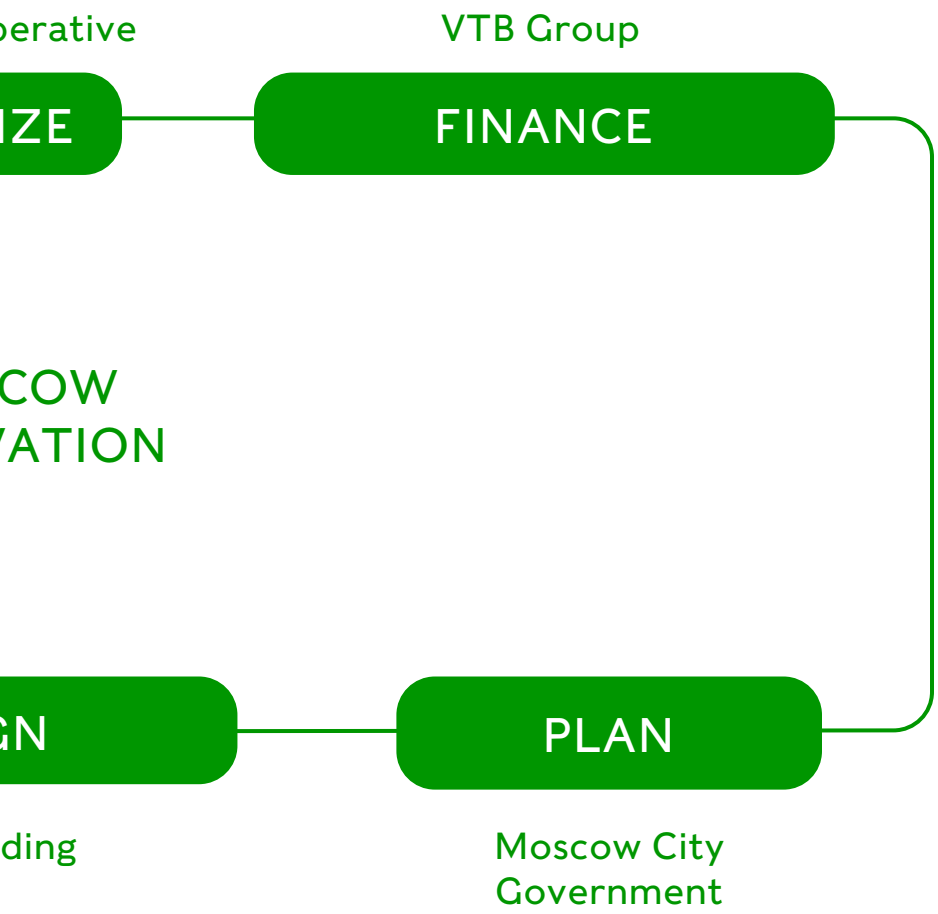
Shared roof space

New units

You use CLT panels from a factory in the region that's already supplying parts to a new construction site downtown.







15 existing apartments to renovate

Average apartment size = 45 m<sup>2</sup>

Total area to renovate = 675 m<sup>2</sup>

**Overall renovation cost = 214 000 €**




Price / m<sup>2</sup> of a new apartment = 1 150 €

Price of a 90 m<sup>2</sup> apartment = 103 500 €

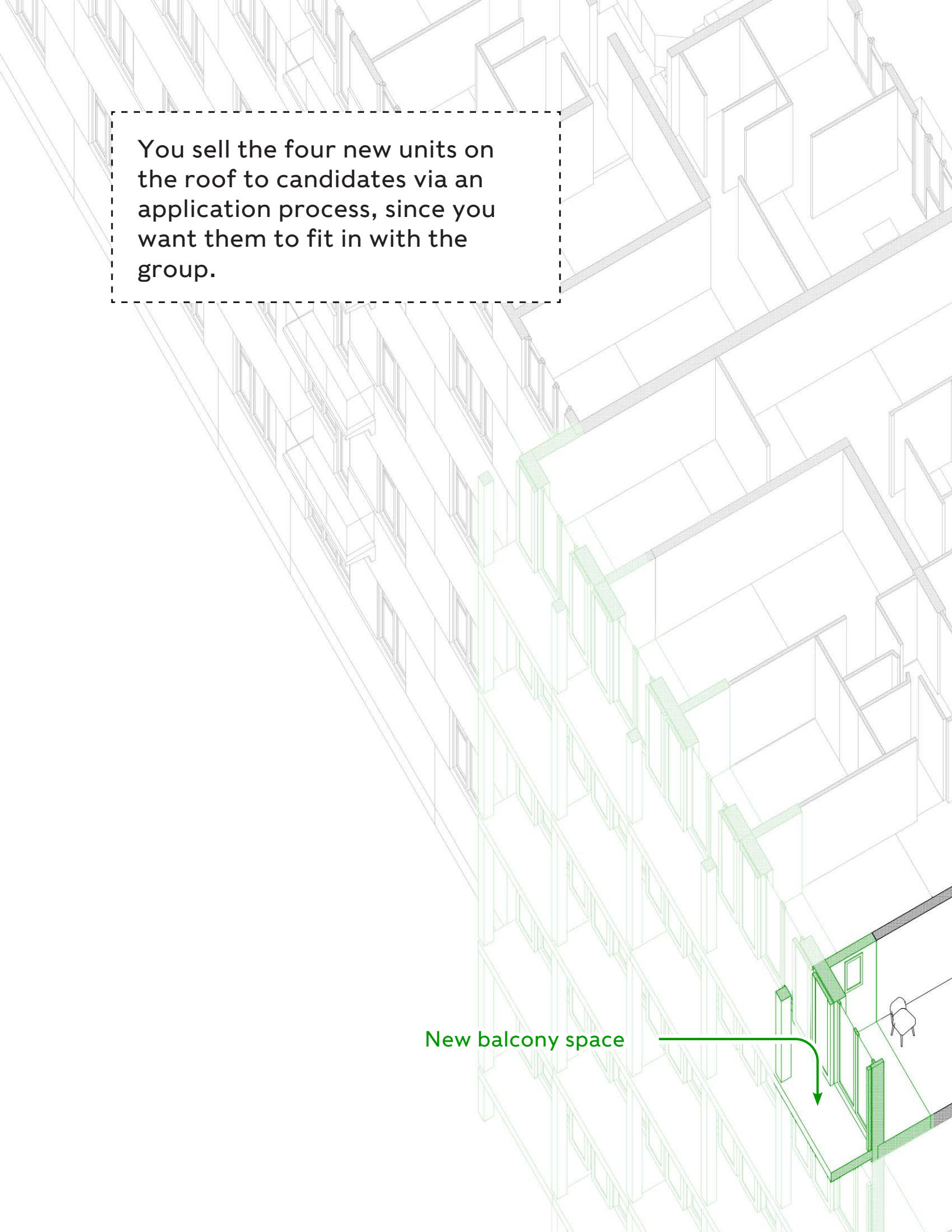
Renovation is cost-free with 4 new apartments

**Overall construction cost = 270 000 €**

**Cost to residents = 0 €**

A small green plant with several leaves is growing out of a rectangular wooden block. The block is light-colored wood and has a thin layer of green material on top. The plant is positioned on the left side of the block.

To make it happen, you work with the city's planning office, which is quick to give you authorizations since it wants to promote some small scale alternatives in parallel with the mass reconstruction going on across the city.

An architectural cutaway drawing of a multi-story building. The drawing shows the internal structure of several floors, including rooms, corridors, and a roof. A specific area on the roof is highlighted in green, indicating a new balcony space. A dashed black box in the upper left corner contains text. A green arrow points from the text 'New balcony space' to the highlighted area. A small figure of a person is visible on the roof level for scale.

You sell the four new units on the roof to candidates via an application process, since you want them to fit in with the group.

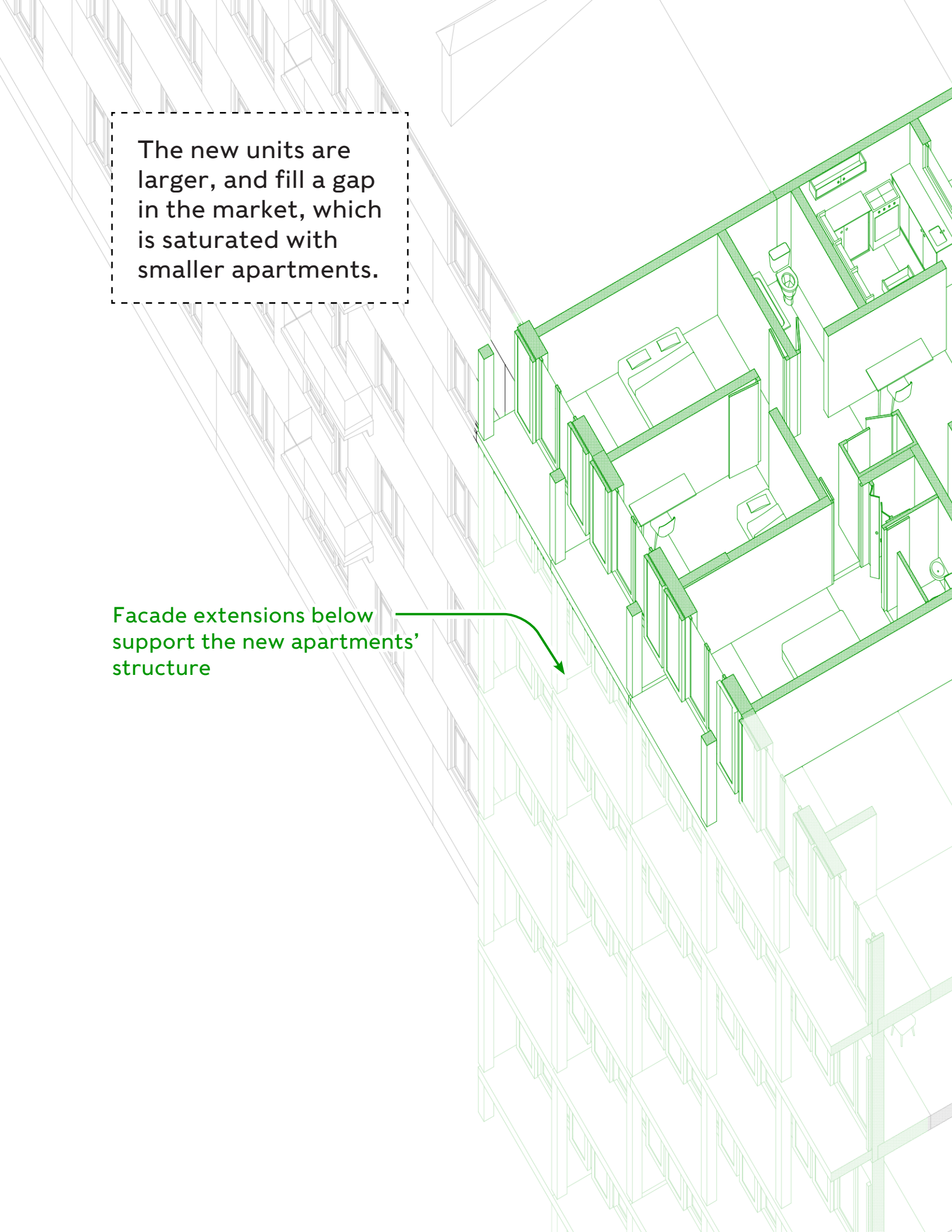
New balcony space

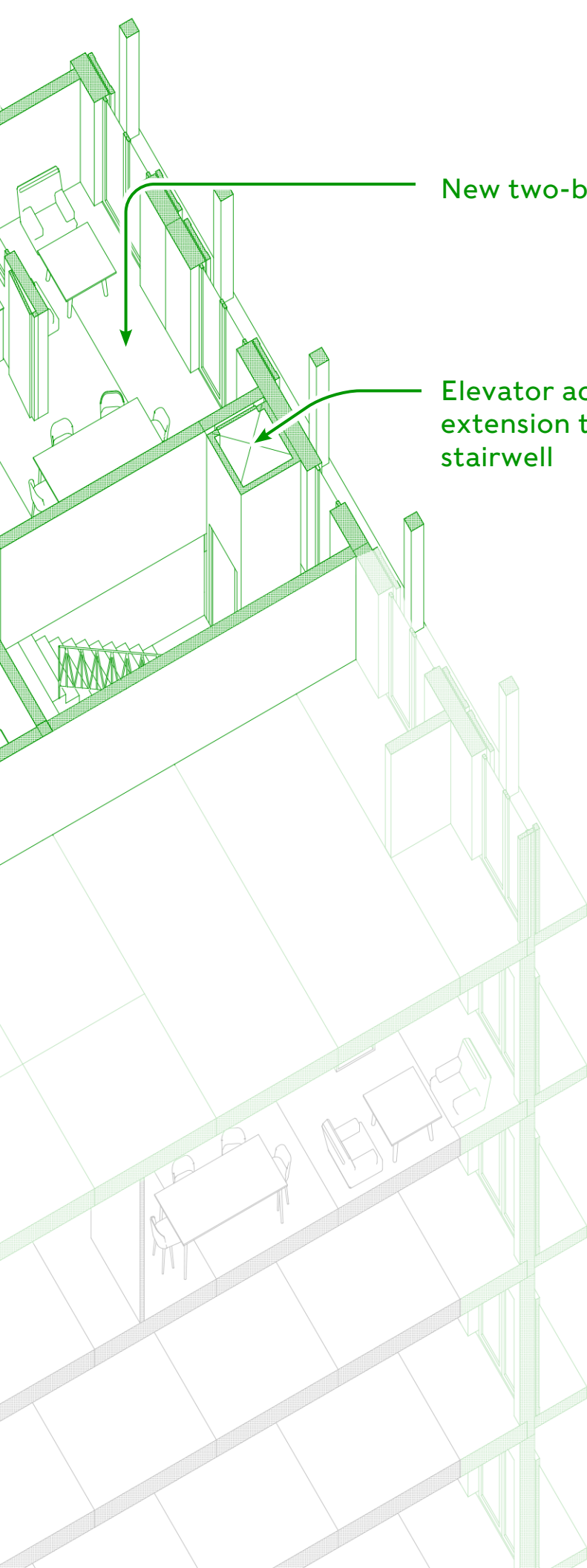


Interior extensions to existing units

The new units are larger, and fill a gap in the market, which is saturated with smaller apartments.

Facade extensions below support the new apartments' structure





New two-bedroom unit

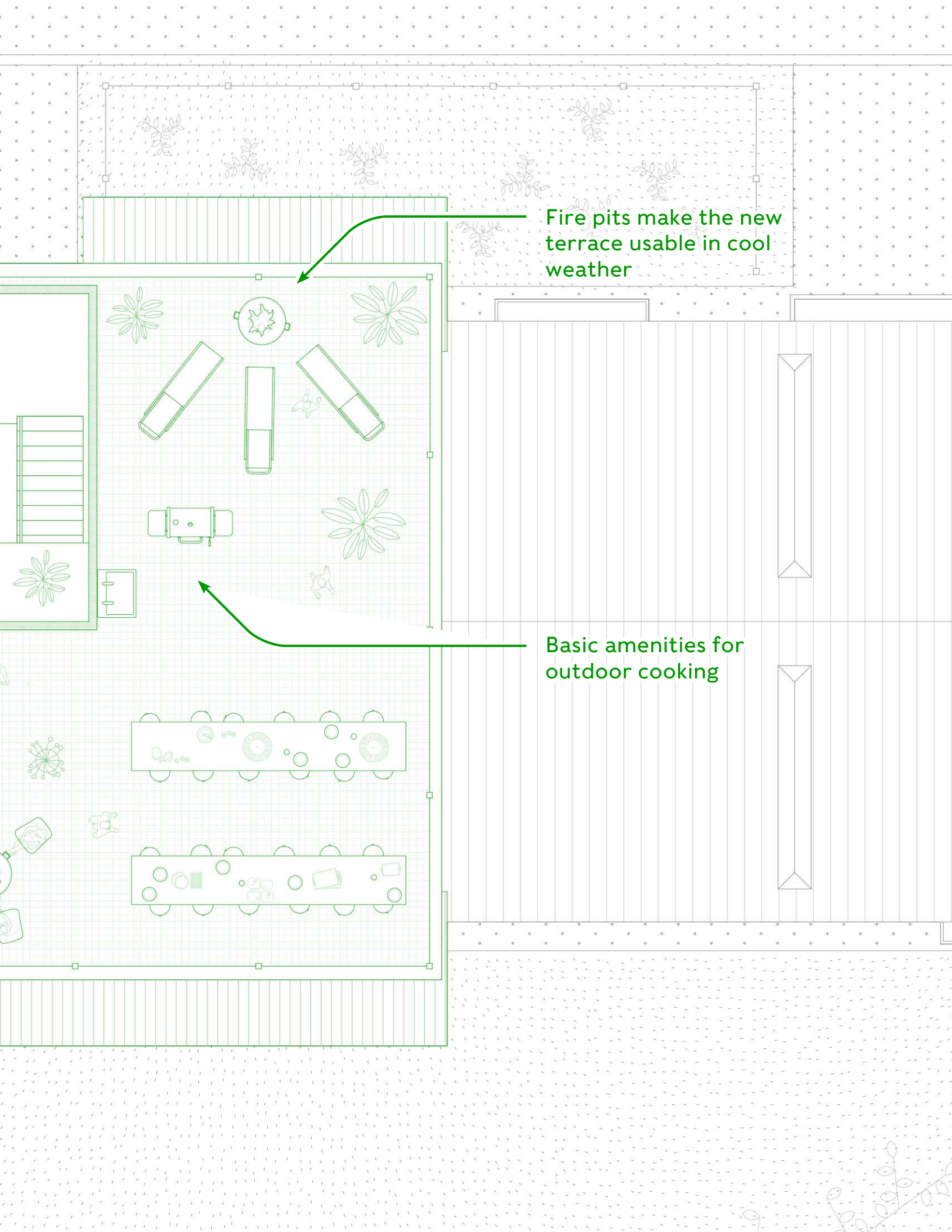
Elevator access through an extension to the existing stairwell

A detailed floor plan diagram of a rooftop area. The plan is divided into several sections. At the top, there is a rectangular area with a pattern of small dots and a decorative border of leaves and branches. Below this is a large area with vertical lines, representing a wall or a different material. To the right, a large rectangular area is outlined in green, containing a seating arrangement of 15 chairs and a long table with a circular table in front of it. There are also several decorative plants and a staircase on the right side. A green arrow points from the text 'Seating for group screenings and events' to the seating area. The bottom left corner has a pattern of small dots and a decorative border of leaves and branches.

Seating for group screenings and events

In addition to your own renovations, all of you get access to the new rooftop and an elevator.





The image shows a detailed architectural floor plan of an outdoor terrace. The terrace is divided into several sections. At the top, there is a rectangular area with a dotted pattern, possibly representing a lawn or a different paving material, containing several stylized plant icons. Below this is a large rectangular area with a vertical line pattern, representing a deck or a different paving material. This area contains a circular fire pit, a rectangular table, and several chairs. To the right of this area is another section with a vertical line pattern, containing a long rectangular table and two chairs. Below this is a large rectangular area with a vertical line pattern, representing a deck or a different paving material, containing a long rectangular table and two chairs. To the right of this area is another section with a vertical line pattern, containing a long rectangular table and two chairs. At the bottom, there is a rectangular area with a dotted pattern, possibly representing a lawn or a different paving material, containing several stylized plant icons. The entire terrace is enclosed by a wall on the left and right sides. The text 'Fire pits make the new terrace usable in cool weather' is written in green and has a green arrow pointing to the circular fire pit. The text 'Basic amenities for outdoor cooking' is written in green and has a green arrow pointing to the long rectangular table and chairs.

Fire pits make the new terrace usable in cool weather

Basic amenities for outdoor cooking

















These proposals are all very specific to where you are, and couldn't be identically replicated elsewhere.







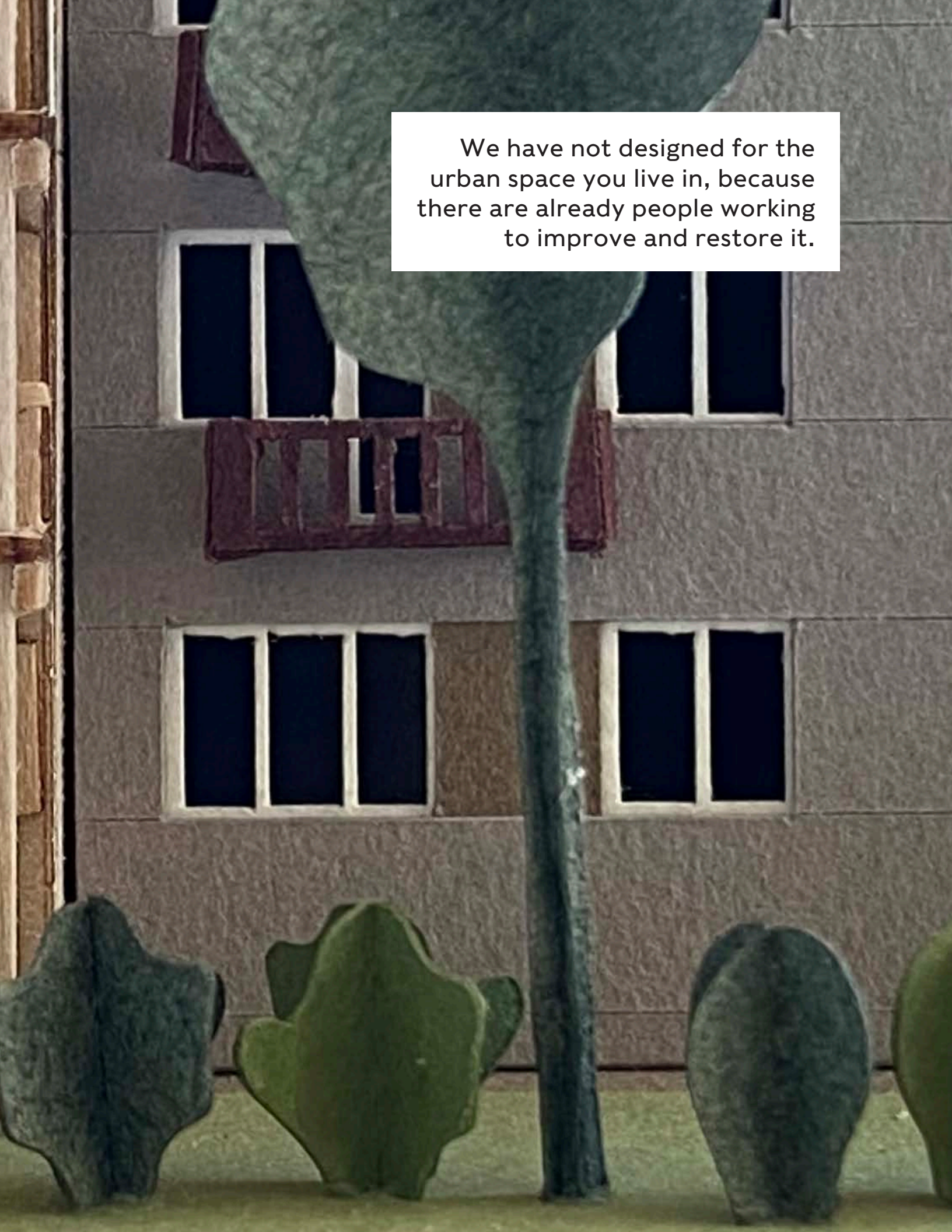
But we hope that by going through the process, you can inspire others to investigate how they might adapt your approach to a renovation to their circumstances.



Many people live in buildings like yours, albeit with variations and peculiarities.





A photograph of a model city building. The building is a multi-story structure with a textured, greyish-brown facade. It has several windows, some of which are dark, suggesting they are not lit. A balcony with a reddish-brown railing is visible on the second floor. In the foreground, there is a large, dark green tree with a thick trunk and a large, rounded canopy. To the left of the tree, there are several smaller, stylized green plants. The overall scene is a miniature representation of an urban environment.

We have not designed for the urban space you live in, because there are already people working to improve and restore it.





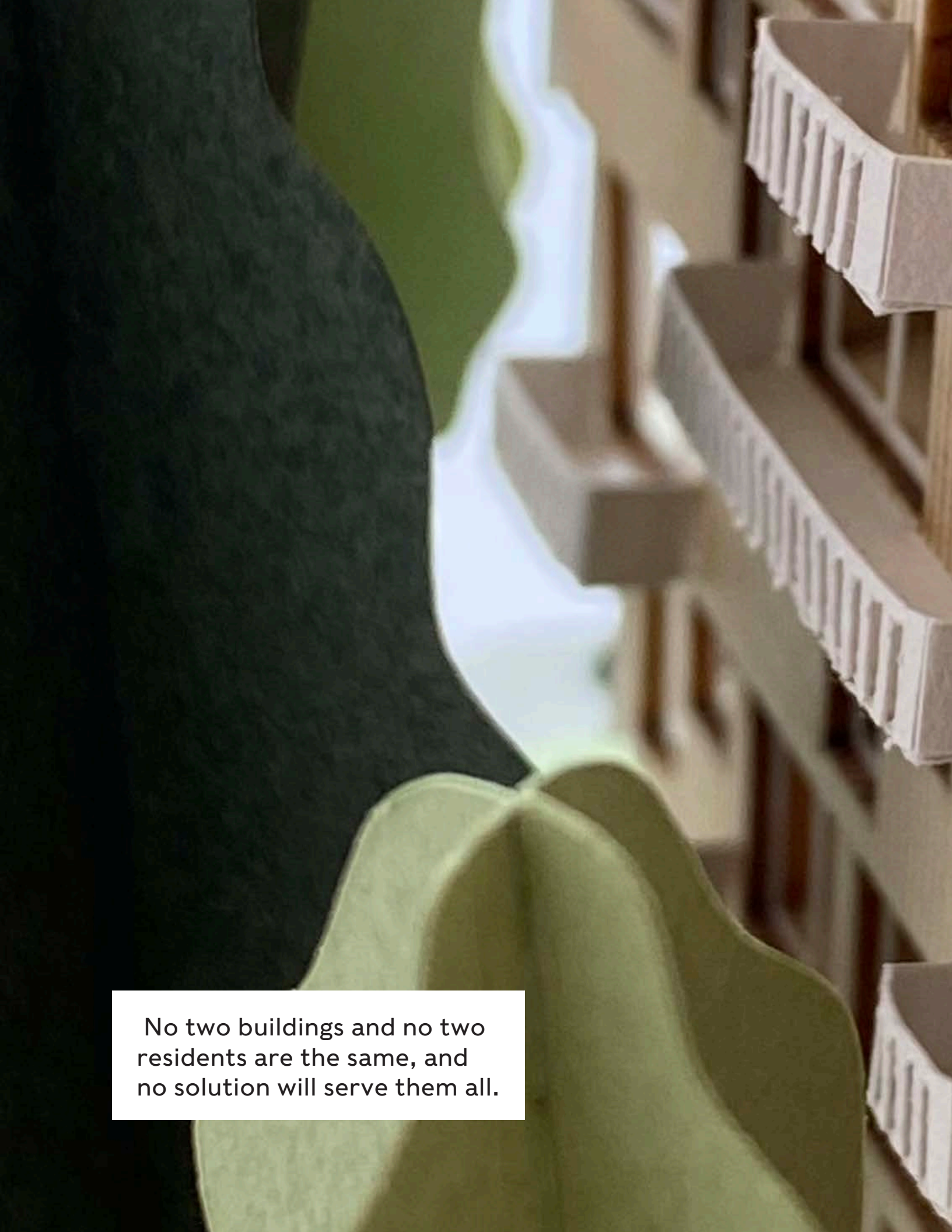


Your buildings, however, have too often been dismissed, despite their presence and significance. This is why they've been the focus of our work.

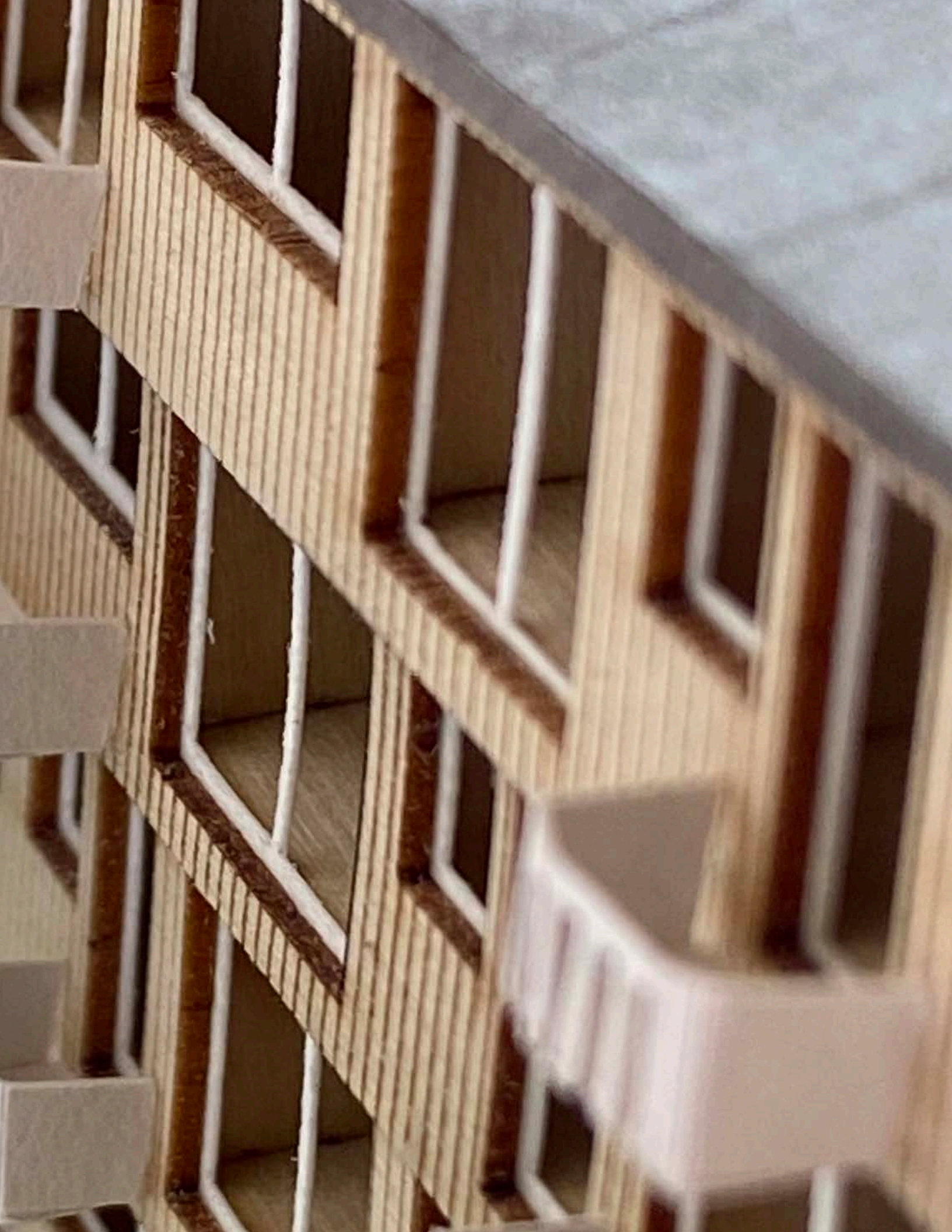


We think that the Soviet housing that still stands is an indication of common conditions across wildly different contexts.

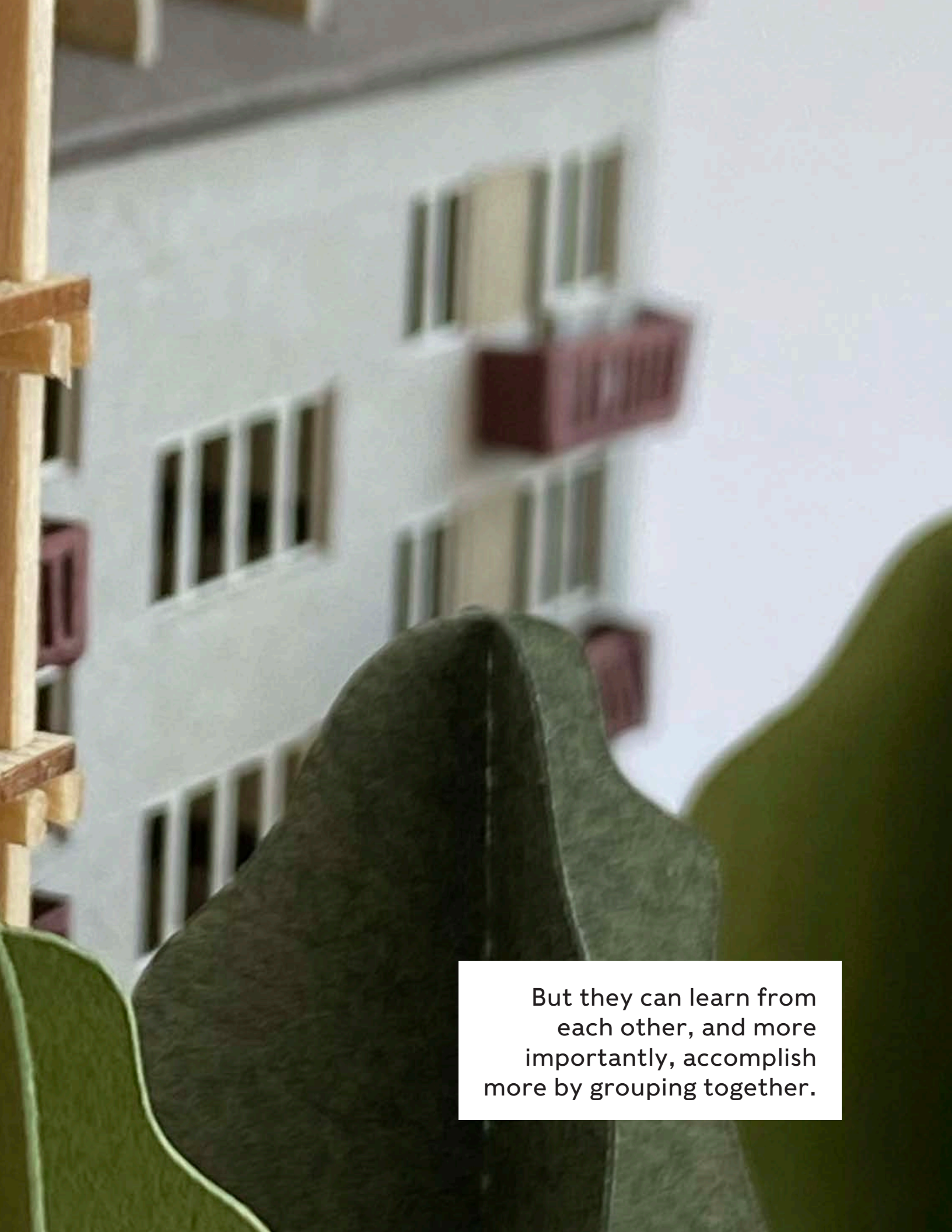




No two buildings and no two residents are the same, and no solution will serve them all.







But they can learn from each other, and more importantly, accomplish more by grouping together.

Soviet housing was a  
godsend for many families  
when it was first built.









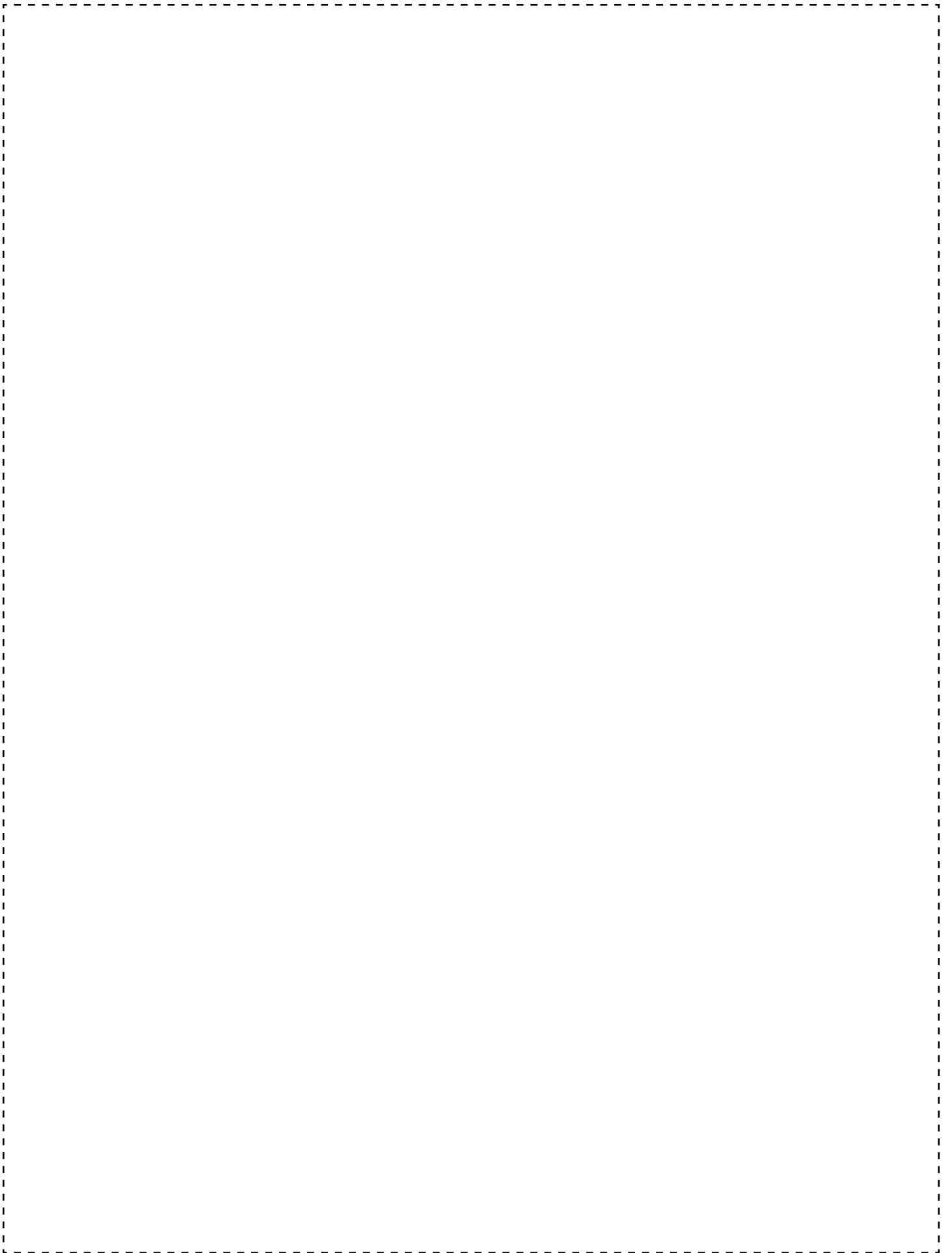
Today, living standards have gone up, while the quality of the housing has deteriorated. But these changing needs are an opportunity to rebuild and renovate, rather than a call to start anew.







The walls can move out, the roof can go up, residents can reconfigure. Life in the buildings can carry them forward.



STILL STANDING

THREE OF SEVEN

# BACKGROUND

EYTAN LEVI

BEN HOYLE

1. Bater, James H. The Soviet City: Ideal and Reality. Explorations in Urban Analysis. London: E. Arnold, 1980. 102.

2. Varga-Harris, Christine. Stories of House and Home: Soviet Apartment Life during the Khrushchev Years. Ithaca ; London: Cornell University Press, 2015. 219.

*Of all the construction programs carried out globally during the 20th century, the Soviet drive to address its domestic housing shortage through prefabricated construction and separate dwelling units is by far the most ambitious in terms of output: between 1960 and 1975, 1.55 billion square meters of new housing were erected, and 2 out of every 3 inhabitants in the USSR were rehoused.<sup>1</sup> Despite its scope, the buildings were often low quality, and the program did not manage to rehouse the entire population.<sup>2</sup> In the time since the dissolution of the USSR, the Soviet approach to mass housing construction has been perpetuated and adapted. To this day, mass housing is still troubled by issues of material decay, financing and governance. New civic initiatives are required to improve the lives of the countless post-Soviet citizens who live in these structures.*



The 1917 Bolshevik revolution triggered a rural exodus across the Russian Soviet Republic, which eventually spread to the entire USSR. All private housing was taken over by municipal Soviets in August 1918, and the Russian government subdivided these spaces for use by multiple families, which would each be given a room.<sup>3</sup> A 1922 decree stated that each person in the USSR should have nine square meters of living space, though this was not widely maintained.<sup>4</sup> Constructivist architects also led experiments in collective living through the 1920s. The 1933 approval of Boris Iofan's Palace of the Soviets marked the rise of Socialist Classicism under Stalin. The Soviet economy at the time was focused on industrialization, but several monumental projects - from the Seven Sisters high-rise towers in Moscow to ornate 9-story residential buildings - were also erected across Soviet cities. Although the state built 350 million square meters of housing between 1918 and 1950,<sup>5</sup> by mid-century the average amount of living space per inhabitant was below four square meters, not even half of the 1922 sanitary minimum.<sup>6</sup> By the time Stalin died in 1953, the state of housing across the country was appalling.

Though marginalized by state-sponsored Classicism, architects like Konstantin Melnikov had conducted experiments in prefabrication and construction optimization in the USSR since the 1917 revolutions.<sup>7</sup> But this mentality, albeit divorced from its early proponents, took center stage during the 1954 All-Union Conference of Builders. Nikita Khrushchev, Stalin's successor and a former metal worker, lamented the superfluous architectural detailing favored during the previous decades, and pushed instead for the industrialization of housing construction. In order

**3.** Bater, James H. The Soviet City: Ideal and Reality. Explorations in Urban Analysis. London: E. Arnold, 1980. 98

**4.** Jacobs, E. M. Urban Housing in the Soviet Union. Economic aspects of life in the USSR. Brussels: NATO, 1975. 67.

**5.** Narodnoye khozyaystovo SSSR v 1977 g. 1978. Moscow: Statistika, 1977. 492.

**6.** Sosnovy, Timothy. The Housing Problem in the Soviet Union. New York: Research Program on the U.S.S.R., 1954. 269

**7.** Davies, Robert William, R. W. Davies, Mark Harrison, and S. G. Wheatcroft. The Economic Transformation of the Soviet Union, 1913-1945. Cambridge University Press, 1994. 48-56.

8. Huntington, Sheldon D. CIA Internal Report on Khrushchev's speech at Soviet construction conference. Washington, D.C.: Central Intelligence Agency, 1954. 3.
9. Varga-Harris, Christine. Stories of House and Home: Soviet Apartment Life during the Khrushchev Years. Ithaca ; London: Cornell University Press, 2015. 25-26.
10. Cooke, Catherine. "Beauty as a Route to 'the Radiant Future': Responses of Soviet Architecture." Journal of Design History 10, no. 2, 1997. 137-160.
11. Hanson, P. The Rise and Fall of the Soviet Economy: An Economic History of the USSR 1945-1991. London; New York: Routledge, 2014. 9.
12. Malaia, Kateryna. "A Unit of Homemaking: The Prefabricated Panel and Domestic Architecture in the Late Soviet Union." Architectural Histories 8, no. 12, 2020. 7.

to minimize the use of timber and steel, which were in short supply, he outlined a program that would rely heavily on reinforced concrete. Buildings, along with the districts they constituted and the systems that produced them, were to be optimized for efficiency and cost, which would effectively eliminate the possibility of aesthetic expression in their architecture. By making these changes, Khrushchev claimed he could provide each Soviet family with their own, separate apartment. He set off the program by launching the construction of 402 new factories and 200 open-air yards across Soviet republics, which would be devoted to pre-cast concrete panel manufacturing.<sup>8</sup>

In the wake of this speech, the Academy of Architecture became the Academy of Construction and Architecture, signifying how the profession became purely technical.<sup>9</sup> The construction industry was reorganized to conform to norms of the manufacturing sector. It was directed and financed by the Communist leadership, with design as a small aspect managed by the Academy of Construction and Architecture.<sup>10</sup>

## CONSTRUCTION

### The Soviet Mass Housing Project

Khrushchev's call for standardized processes in housing construction needs to be seen in the broader context of the centrally planned Soviet economy. Outputs were decided by the state and executed by its subsidiaries, rather than determined by demand and profitability.<sup>11</sup> Every actor in the construction industry was given specific instructions about what production process to use and how much to build. The system "derived production rates from available resources rather than from demand, and often resulted in consumer shortages."<sup>12</sup> In addition to its ideological

underpinning, the planned economy was based on the Soviet interest in maximizing how it used its resources. A privately-owned company would have little reason to operate a dam in remote Siberia, but such operations could be easily justified in the context of a planned economy that was designed to make as much use of a vast territory as possible.

The colonization of the Russian Far East and Central Asia started during the Imperial Era and became most widespread with Stalin's gulag. The majority of Siberian cities and factory towns were created as labor colonies and gulag camps where millions of deported Soviet citizens were forced to work.<sup>13</sup> When Khrushchev dismantled the gulag system, he replaced forced laborers by attracting workers with social and financial perks, known as the Northern Benefits, which are still in place today.<sup>14</sup>

As in the rest of the planned economy, Soviet mass housing production gave every actor in its supply chain a clearly defined role.<sup>15</sup> Gosstroï, the federal State Committee for Construction located in Moscow and founded in 1950, was charged with managing the strategy for mass housing production and issued guidelines. Regional design institutes (ZNIIEEPs) could make small changes to federal directives to suit their context. They often did this with minor modifications to the design of balconies, circulation and ornament. Building factories then manufactured each standardized design as a kit of parts. They were called Domostroitel'nyi kombinat (DSKs) in urban areas and Sel'skiy stroitel'nyi kombinat (SSKs) in rural settings. The role of architects as designers continued to decline, and in 1964 the Academy of Construction and Architecture was dissolved, and replaced by a department of the Academy of Sciences of the USSR. We can attribute this shift in part to the technology used for prefabrication. The Gosstroï

**13.** Getty, J. Arch, Gábor T. Rittersporn, and Viktor N. Zemskov. "Victims of the Soviet Penal System in the Pre-War Years: A First Approach on the Basis of Archival Evidence." *The American Historical Review* 98, no. 4, 1993. 1017.

**14.** Heleniak, T. "Out-Migration and Depopulation of the Russian North during the 1990s." *Post-Soviet Geography and Economics* 40, no. 3, 1999. 155.

**15.** Meuser, Philipp; Zadorin, Dimitrij; Sheina Katia; Knowles, Clarice. *Towards a Typology of Soviet Mass Housing*. Berlin: DOM publishers, 2016. 16.

- 16.** Meuser, Philipp; Zadorin, Dimitrij; Sheina Katia; Knowles, Clarice. Towards a Typology of Soviet Mass Housing. Berlin: DOM publishers, 2016. 41.
- 17.** Forty, Adrian. Concrete and Culture: A Material History. London: Reaktion Books, 2012. 117.
- 18.** Meuser, Philipp. Die Ästhetik der Platte: Wohnungsbau in der Sowjetunion zwischen Stalin und Glasnost. Berlin: DOM Publishers, 2015. 8.
- 19.** Meuser, Philipp; Zadorin, Dimitrij; Sheina Katia; Knowles, Clarice. Towards a Typology of Soviet Mass Housing. Berlin: DOM publishers, 2016. 441.
- 20.** Orttung, Robert W., ed. Sustaining Russia's Arctic Cities: Resource Politics, Migration, and Climate Change. Studies in the Circumpolar North, volume 2. New York: Berghahn Books, 2017. 207-212.
- 21.** Bater, James H. The Soviet City: Ideal and Reality. Explorations in Urban Analysis. London: E. Arnold, 1980. 108.

purchased a license for the French Camus system for prefabricated panel housing, which served as the basis for its subsequent mass housing designs.<sup>16</sup> In France, where the Camus system was originally used, "...house building [...] became a market dominated by very large firms, whose rationale for entering the market lay in their ability to capitalize the prefabrication plants, and whose continued presence in the sector relied upon an endless succession of new sites and housing schemes to receive the products of their factories."<sup>17</sup> Evidently, these changes were transposed to the Soviet context when they imported the technology from France.<sup>18</sup>

Soviet mass housing can be broken down into three generations of housing series. The first was developed under Khrushchev between 1958 and 1963. The second one spanned from 1963 to 1971, and the third one from 1971 to 1985. The design of a fourth generation was started in 1985, but it was not implemented until after the collapse of the USSR.<sup>19</sup> It is challenging to summarize the trends that dominated each generation of Soviet mass housing, but in general terms the earlier designs embraced the industrial aspect of precast concrete in a very literal sense, using straight-forward rectangular building footprints and minimal complexity for building details. Later series developed more intricate apartment layouts, improved joints between precast elements, and some attempts to add ornamentation to the facades. Housing series from the first generation, such as the 1958 I-464, which became the most widespread of all series, typically had five stories, 80 households, and 185 residents.<sup>20</sup> They were informally referred to as khrushcheby in Russian, a porte-manteau for Khrushchev and slum. The average new building in 1963 was 5.1 stories tall, and by 1971 it grew to 7.8 stories.<sup>21</sup> The diversity of climate and terrain across the USSR called

for local adaptations to centrally designed housing series. These were carried out by five regional design institutes: TbilZNIIEP was in charge of the Caucasus, KievZNIIEP of southern Europe, LenZNIIEP of northern Europe, SibZNIIEP of Siberia, and TashZNIIEP of Central Asia.<sup>22</sup> The I-464 series was seen as widely versatile, and in addition to being adapted for Soviet climates, it was exported to socialist nations outside of the USSR, such as Cuba and Chile.<sup>23</sup> Variations to the standard designs were typically limited to the facade, which was modified for increased ventilation or insulation, depending on local climate.<sup>24</sup> In the extreme northern climates of cities like Norilsk or Yakutsk, standardized buildings were elevated on posts a half-story tall. This was necessary to prevent heat from the ground floor apartment from melting the frozen ground, which held the building foundations in place by friction alone.<sup>25</sup> Seismic risk was another big factor in mass housing design, especially after the 1966 Tashkent earthquake that destroyed 3 million square meters of the city's traditional brick and clay residential buildings, but left most its khrushchovki untouched.<sup>26</sup> Following the disaster, Tashkent was rebuilt in line with the principles of Soviet urbanism. In the process, TashZNIIEP became the USSR's leading facility for research into earthquake-resistant buildings. To garner local support and appear more inclusive, regional specialists designed buildings outside of the European parts of the USSR with mosaics inspired by traditional Islamic motifs.<sup>27</sup>

While originally implemented to address material shortages of the 1950s, the use of precast concrete in housing construction persisted, with minor changes, through the collapse of the USSR in the 1990s.

**22.** Meuser, Philipp; Zadorin, Dimitrij; Sheina Katia; Knowles, Clarice. Towards a Typology of Soviet Mass Housing. Berlin: DOM publishers, 2016. 16.

**23.** Alonso, Pedro Ignacio, and Hugo Palmarola Sagredo. "A Panel's Tale: The Soviet I-464 System and the Politics of Assemblage." In Latin American Modern Architectures, 167–183. Routledge, 2013.

**24.** Meuser, Philipp; Zadorin, Dimitrij; Sheina Katia; Knowles, Clarice. Towards a Typology of Soviet Mass Housing. Berlin: DOM publishers, 2016. 36.

**25.** Shur, Yuri; Goering, Douglas J. "Climate Change and Foundations of Buildings in Permafrost Regions." In Permafrost Soils, edited by Rosa Margesin, 251–60. Soil Biology. Berlin; Heidelberg: Springer, 2009.

**26.** Meuser, Philipp; Zadorin, Dimitrij; Sheina Katia; Knowles, Clarice. Towards a Typology of Soviet Mass Housing. Berlin: DOM publishers, 2016. 39.

**27.** *Ibid.*, 73.

The dissolution of the USSR took place at different speeds across the Soviet Republics. Remote parts of the immense Soviet territory became all the more isolated as new states with market economies took over, which lacked the means and interest to provide the guaranteed resources available under the USSR.<sup>28</sup> Housing in the Soviet Union had always been considered a social good that, in theory, was made available to all citizens.<sup>29</sup> Article 44 of the 1977 Constitution affirmed it as a right “[...] ensured by the development and upkeep of the state and socially owned housing; and by assistance for cooperative and individual house building; by fair distribution, under public control, of the housing that becomes available through fulfillment of the program of building well-appointed dwellings, and by low rents and low charges for utility services.” In 1984, 75% of all urban housing units in Russia was owned by the state.<sup>30</sup> Back then, urban housing was primarily financed by the government, and Soviet families did not have to make any upfront payments for their homes. Rent was minimal, with the average Moscow family only spending 3% of its monthly budget on housing.<sup>31</sup>

Like most economic sectors of the Soviet Union, housing was subject to the massive wave of privatization that swept the nation after the 1990.<sup>32</sup> Newly created states could no longer afford to maintain their affordable housing stock, and selling them deferred responsibility to individuals or private companies. Residents were often able to buy the apartments they had been allocated during the Soviet era for a minimal amount of money. This took place after failed attempts in the 1980s to sell apartments to residents at their assessed value, which was far beyond anyone’s budget.<sup>33</sup>

**28.** Hill, Fiona, and Clifford G. Gaddy. The Siberian Curse: How Communist Planners Left Russia out in the Cold. Washington, D.C: Brookings Institution Press, 2003.

**29.** Morton, Henry W. “Housing in the Soviet Union.” Proceedings of the Academy of Political Science 35, no. 3, 1984. 69.

**30.** *Ibid.*, 74.

**31.** *Ibid.*, 70.

**32.** Struyk, Raymond J. “Homeownership and Housing Finance Policy in the Former Soviet Bloc - Costly Populism,” n.d., 2000. 236.

**33.** Kosareva, Nadezhda, and Raymond Struyk. “Housing Privatization in the Russian Federation.” Housing Policy Debate 4, no. 1, 1993. 83.

The USSR never succeeded in its goal to provide each family with its own apartment. In the late 1980s, 20% of people in cities still lived in communal housing. This was often due to a shortage of prefabricated housing. Although more than 2 million apartments were built each year since the mid-1960s, this was never enough to meet the demand for housing.<sup>34</sup> In some cases, people voluntarily stayed in their communal apartments, having established strong connections to their community of flatmates and their location.<sup>35</sup> As the state sold off its housing stock, eventually leading to 86% of Russian housing being privately owned in 2020,<sup>36</sup> it also privatized the construction industry. The industrial production of affordable housing – which had always been significantly state-financed – gave way to for-profit residential real estate development. This new model became solely focused on building housing in areas that promised the highest economic returns.<sup>37</sup>

The widespread use of prefabricated panel construction has largely been replaced by cast-in-place monolithic structures. Developers now favor architecture that is unique and has visual appeal so as to that maximize the financial value of each development. Rather than minimizing the need for costly skilled labor through kit-of-parts construction, they support the use of sturdier structures that they build on site across Russia, depending in large part on low-wage Central Asian workers. Nonetheless, they still manage to profit from Soviet-era concrete panel facilities, by using precast elements – albeit with more variation – for the facades of their cast-in-place buildings.<sup>38</sup> The current state of formal residential development across former Soviet republics is relatively aligned with other countries in Asia and Africa that build with concrete today. While the structure and mechanical equipments of new apartments have been improved over the 30 years since the fall of the USSR, the

**34.** Morton, Henry W. "Housing in the Soviet Union." Proceedings of the Academy of Political Science 35, no. 3, 1984. 70-75.

**35.** Gerasimova, Katerina. "The Soviet Communal Apartment," in Beyond the Limits: The Concept of Space in Russian History and Culture. Smith, Jeremy, ed. Helsinki: SHS, 1999. 129.

**36.** Federal State Statistics Service. Russia Home Ownership Rate. Accessed 12/14/2020. <https://tradingeconomics.com/russia/home-ownership-rate>

**37.** Evgenia Ivanova, "End in Sight for 'Khrushchyovki' Houses," in St. Petersburg Times, 24 February 2007, <https://www.yumpu.com/en/document/read/26541941/pdf-version-the-st-petersburg-times>

**38.** Moscow Architecture Council, interview with Philipp Meuser, June 19, 2016.

**39.** Morton, Henry W. "Housing in the Soviet Union." Proceedings of the Academy of Political Science 35, no. 3, 1984. 73.

**40.** Ibid.

**41.** Turner, Bengt, József Hegedüs, and Iván Tosics, eds. The Reform of Housing in Eastern Europe and the Soviet Union. London; New York: Routledge, 1992. 246.

**42.** Kalamees, Targo, Karl Öiger, Teet-Andrus Kõiv, Roode Liias, Urve Kallavus, Lauri Mikli, Andres Lehtla, Georg Kodi, and Endrik Arumägi. "Technical Condition of Prefabricated Concrete Large Panel Apartment Buildings in Estonia," 2011. 6.

**43.** Berend, Ivan T. From the Soviet Bloc to the European Union: The Economic and Social Transformation of Central and Eastern Europe since 1973. Cambridge: Cambridge University Press, 2009. 7-37.

**44.** Harris, Steven. Communism on Tomorrow Street: Mass Housing and Everyday Life after Stalin. Washington, D.C.: Baltimore: Woodrow Wilson Center Press; The Johns Hopkins University Press, 2013. 267.

**45.** Turner, Bengt, József Hegedüs, and Iván Tosics, eds. The Reform of Housing in Eastern Europe and the Soviet Union. London; New York: Routledge, 1992. 239.

design of urban spaces and social amenities, which had been foregrounded under the Soviet Union, is often neglected, and existing infrastructure is strained.

## CHALLENGES

### Problems with Standardization in the USSR

Despite their deficiencies, the succession of Soviet administrations in charge of construction were aware of the problems with their prefabricated mass housing programs. "Soviet architects, government officials, and citizens are the harshest critics of Soviet housing construction."<sup>39</sup> A local official in Bratsk, Siberia lamented that "The city was built up in a monotonous, architecturally inexpressive way."<sup>40</sup> In addition to their bland appearance, standardized designs failed to account for the requirements of elderly or disabled Soviet citizens.<sup>41</sup> Sound carried across the buildings, and they had persistent problems with insulation and waterproofing. Addressing these problems would have required additional steps in the construction process, as well a significant increase in quality control, both of which were too costly.<sup>42</sup> In general, the lack of investment in research and technology during the late Soviet-period precluded high-quality precast the development of concrete elements and construction optimization.<sup>43</sup> There was no need to innovate, since there was a constant demand for housing, and residents had no power to contest what they were offered.<sup>44</sup> Instead, residents made informal modifications to their units, by enclosing their balconies and conducting interior renovations. These were not discouraged by the government, and there was a tacit understanding that Soviet inhabitants were responsible for furnishing their own apartments with whatever they could find.<sup>45</sup>

Soviet citizens did not have to spend a lot of their



income on housing - as it was highly subsidized by the state from construction to maintenance - but they had to pay marginally higher prices for other consumer goods – such as clothing or food – than they would have in countries with a free market.<sup>46</sup> As outlined by Henry Morton, while housing is controlled by price in countries with private homeownership, capital was not the metric governing housing distribution in socialist countries like the USSR. Instead, bureaucrat-run allocations dictated who got to live where, and regular citizens had little to say in the process. In both the US and Russia, waiting lists for state housing existed, and families often had to wait years before they could get their own separate apartment.<sup>47</sup> In both systems, there were (and still are) strategies to increase chances to receive a new dwelling, through bribes, but also through exchanges of similar housing units between two families.<sup>48</sup> In the USSR, housing allocations were also greatly affected by the type of employer a family member was working for. For instance, as ministries directly controlled prefabricated housing production and had a larger share of their budget devoted to housing employees than municipalities, workers in heavy industry plants owned by a powerful ministry had 20 times higher chances of receiving new housing than workers in light industries or in local municipalities who relied on meagre city resources.<sup>49</sup> The propiska, a residency permit inherited from Imperial Russia, formed one last facet to take into account in the deficient administration of Soviet housing allocation. Rural populations were prevented from moving into urban areas, thus ensuring a relative control of the demand of state-built housing in the most saturated areas.<sup>50</sup> The rigidity of Soviet mass housing engendered a wide array of problems, which for the most part have persisted and been amplified through the current period.

**46.** Morton, Henry W. "Housing in the Soviet Union." Proceedings of the Academy of Political Science 35, no. 3, 1984. 79.

**47.** Ibid.

**48.** Ibid.

**49.** Sotsiologicheskie issledovaniia, 1 (January-March 1982); CD, 34, 10 (April 7, 1982), 7.

**50.** Morton, Henry W. "Housing in the Soviet Union." Proceedings of the Academy of Political Science 35, no. 3, 1984. 76.

The first generations of khrushchovki were conceived as a temporary fix to the post-Stalin housing shortage. They were not intended to last more than 25 years, but many are still standing today, in varying levels of disrepair. They are often studied at an urban level, since Soviet standardized design encompassed a spectrum of scales that ranged from the mikrorayon – “the basic building block in Soviet town planning in the post-war period”<sup>51</sup> to pieces of furniture.<sup>52</sup> Mikrorayons housed around 10,000 people and were designed to accommodate their basic needs in a radius of 300-400 meters.<sup>53</sup> When mikrorayons were first under construction, residents would often move into their buildings before landscaping around buildings had been completed.<sup>54</sup> In the time since, much of that green spaces has become overgrown, making for some remarkably lush spaces amid the modernist blocks. As in most contemporary developments, today’s residential blocks do not feature many new amenities beyond the buildings themselves. Across the suburbs of Russian cities, unfinished sidewalks and temporary electric poles highlight the lack of cooperation between the private and public sectors in infrastructural development. Now that post-Soviet governments are diverting resources away from maintaining the built environment, residents have become dependent on the capacity of private developers to coordinate with the public sector for improvements. This takes place in an environment with fewer constraints and guidelines than were in place in the Soviet Union.<sup>55</sup>

The constitution of the Russian Federation recognizes housing as a right and goes as far as stating that low-income citizens should not have to pay for a home.<sup>56</sup> However, unlike the Soviet state, which was directly involved in the

**51.** Bater, James H. *The Soviet City: Ideal and Reality. Explorations in Urban Analysis.* London: E. Arnold, 1980. 102.

**52.** Varga-Harris, Christine. *Stories of House and Home: Soviet Apartment Life during the Khrushchev Years.* Ithaca ; London: Cornell University Press, 2015. 36-52.

**53.** Gradov, Georgei. “Osnovnye napravleniya perspektivnogo razvitiya sistemy i tipov zdany kul’turno-bytogo obsluzhivaniya.” In *Perspektivy razvitiya sovetского gradostroitel’stva.* Moscow: Stroyizdat, 1973. 343.

**54.** Janušauskaitė, Viltė. “Living in a Large Housing Estate: Insider Perspectives from Lithuania.” In *Housing Estates in the Baltic Countries: The Legacy of Central Planning in Estonia, Latvia and Lithuania*, edited by Daniel Baldwin Hess and Tiit Tammaru. The Urban Book Series. Cham: Springer International Publishing, 2019. 186-187.

provision of housing, today's Russian government has neither the infrastructure nor the resources to direct residential construction. Instead, private real estate developers are responsible for the majority of new housing. They make use of Soviet era factories to bolster their production with minimal investment. PIK Group, which is currently the largest residential real estate developer in Russia, took over the DSK-2 and DSK-3 plants near Moscow in the early 2000s. It uses these in the production of 1 million square meters of concrete panel housing per year.<sup>57</sup>

Shared-equity construction development raises another issue surrounding the housing industry in post-Soviet countries. As real estate developers generally cannot rely on government funding for their projects and need to operate with limited borrowed funds, some seek payment from individual homeowners before construction starts. This is common all over the world, but a lacking regulatory environment in Russia prior to 2019 made it all the more widespread. In the years before, the bankruptcy of several major developers, such as SU-155 and Urban Group, defrauded thousands of homebuyers annually.<sup>58</sup> More recent regulations require that buyers use escrow accounts to ensure the safety of transactions. While this might improve the financial security of real estate development, the President of the Russian Institute for Urban Economics has noted that Russian banks will not have enough cash to support developers before buildings are completed.<sup>59</sup> Even though the use of precast concrete panels is more limited than it was in the USSR, problems endemic to industries that require large capital investments, such as precast concrete construction, have been transposed from the Soviet era to our days.

**55.** Hegedüs, József, Vera Horváth, Eszter Somogyi, Veronika Reháková, and Richard Sendi. "Affordable Housing in Central and Eastern Europe: Identifying and Overcoming Constrains in New Member States." in Research for the European Housing Partnership. Metropolitan Research Institute: 2017. 31.

**56.** Constitution of the Russian Federation. Adopted December 12, 1993. Article 40. <http://www.constitution.ru/en/10003000-03.htm>

**57.** PIK Group of Companies. Consolidated Financial Statements for 2019. 2020.

**58.** Uskov, Vladislav, and Emma Shariapova. "Issues of Shared-Equity Construction Development in the Russian Federation." E3S Web of Conferences 135, 2019. 2.

**59.** Manyakhin, Pyotr. "'We've Lost All Hope': The Investment Scandal Wrecking Russian Lives." *The Guardian*, May 30, 2018.

## AFTERMATH

### The Unequal Value of Location

This paper will now explore the state of existing mass housing in post-Soviet countries, outline the challenges raised by their preservation, and formulate strategies to increase the resilience of Soviet-era residential buildings. Since the fall of communism, different urban renewal programs have taken place in Moscow. In 1999, the Moscow City Government launched a program called “Comprehensive reconstruction of the areas of five-storied apartment buildings built during the first period of industrial housing construction.”<sup>60</sup> This was the first attempt to demolish deteriorating Soviet prefabricated apartment buildings and replace them with new structures. Out of the 20 million square meters of housing that had been identified for demolition, 12 million square meters were eventually demolished under the program.<sup>61</sup> A second wave of demolition started in 2017 when Sergey Sobyenin, the Mayor of Moscow, pushed to demolish five-story khrushchovki and relocate their inhabitants into new buildings. This initiative was to be the most ambitious urban renewal project in Europe, targeting 1.6 million people in 8,000 buildings.<sup>62</sup> The criteria that qualified a building for demolition included a pre-1968 construction date, the use of prefabricated standardized elements, and a maximum of 5 stories. Between May and June of 2017, apartment owners and tenants could vote for their building’s inclusion in the demolition program, and only the buildings that garnered over two thirds of votes in favor of demolition were considered by the city.<sup>63</sup> By August 2017, over 5,000 buildings opted in, according to the Moscow City Government. While the plan to provide Moscow citizens with new housing could offer improvements to their quality of life, several voices have

**60.** Moscow City Government. Resolution, 1999. <http://docs.cntd.ru/document/901738444>

**61.** Pertsova, Varvara. “Sobyenin and Luzhkov: how different are the programs for the renovation of two Moscow mayors.” *Forbes*, 2017.

**62.** Bekbulatova T, Voronov A, Ivanov M. “Renovation on the march.” *Kommersant*, 2017

**63.** Gunko, Maria, Polina Bogacheva, Andrey Medvedev, and Ilya Kashnitsky. “Path-Dependent Development of Mass Housing in Moscow, Russia.” In *Urban Book Series*, 2018. 306.

denounced the demolition and rebuilding of Moscow as a way to fuel the Russian construction industry, which would in turn support Mayor Sobyanin and his close ally President Putin.<sup>64</sup> Other concerns have emerged regarding the enormous cost of the urban renewal operation – estimates range from \$70 to \$100 billion – which critics have called too steep for the city of Moscow, or even for the Kremlin. In parallel, other countries have sought to demolish swaths of their housing stock. Germany for instance destroyed several thousand plattenbauten in the early 2000s.<sup>65</sup>

Nonetheless, demolition and reconstruction are not the only way to deal with damaged buildings. Francis Rambert frames the problem around what buildings still contain, arguing that “rchitectural layers are memory strata. [...] To transform buildings is to refuse the erasure of the memories they hold.”<sup>66</sup> Most cities in post-Soviet countries don’t have the financial means to renovate their aging building stock, let alone rebuild it. Should the transformation of urban fabric be successfully implemented in Moscow through demolition and reconstruction, it would still be out of reach for any other city in the post-Soviet sphere, where mikrorayons constitute 80% of urban areas.<sup>67</sup>

Single-industry cities known as monogorody, were common in Soviet planning, especially as a tool to extract resources in remote locations. Between 1989 and 1997, Russia’s Far North lost 10% of its population as monogorody struggled to adapt without a planned economy.<sup>68</sup> The combined effects of population decline and global warming have led to the acute deterioration of housing stock in shrinking northern cities built over permafrost. The stability of structures built on permafrost is put at serious risk with the warming climate, and the load bearing capacity of the ground in Norilsk, a Russian city in the Arctic Circle, is predicted to decline by 40% before 2060, which would

**64.** Trudolyubov, Maxim. “Moscow’s New Housing Megaproject Confronts Soviet History.” *The Moscow Times*, March 2, 2017.

**65.** Staff writer. “Turning Germany’s Tower Blocks into Family Homes.” *The Guardian*, November 14, 2005, sec. Art and design.

**66.** Rambert, Francis. Un bâtiment, combien de vies ? La transformation comme acte de création. Cinisello Balsamo: Silvana Editoriale, 2014. 7.

**67.** Trudolyubov, Maxim. “Moscow’s New Housing Megaproject Confronts Soviet History.” *The Moscow Times*, March 2, 2017.

**68.** Heleniak, T. “Out-Migration and Depopulation of the Russian North during the 1990s.” Post-Soviet Geography and Economics 40, no. 3, 1999. 171.

have disastrous consequences.<sup>69</sup> Similar situations could soon emerge in other locations around the former USSR.

As we have seen, most places that need to renovate their Soviet housing stock lack the financing to do so, but continued neglect will only create more dire circumstances. This is a serious problem, and in the words of Jean-Pierre Dupuy, a first step might be to acknowledge the scale of the catastrophe before it strikes.<sup>70</sup>

### The Role of Designers

Despite the grim state of Soviet mass housing, there is still one question that has not yet been raised in this paper. Since the very beginning of standardized housing construction in the USSR, architects have been highly restricted in how they can innovate with design.<sup>71</sup> Today, architects of new residential developments – in Moscow and throughout post-Soviet states – still work in a framework with little room for creativity, as they continue to employ standardized building elements and copy building sections across projects. What could be another role for designers in this setting?

In an era of urban renewal and real estate speculation, the question becomes: is there a role for architects as mass housing designers? The problem is not new. Post-war Western European architects faced a similar challenge, finding theirs to be “a profession compromised by the cynicism with which it had endorsed the policy of grands ensembles and of private real estate development...”<sup>72</sup>

Of course, architects can drive the renovation of mass housing, as they would in any renovation project. Such projects can be found across the globe. But the discipline, which has been complicit in many of the failures of mass housing, can also learn from how people currently use these buildings, and begin to do more.

**69.** Orttung, Robert W., ed. Sustaining Russia's Arctic Cities: Resource Politics, Migration, and Climate Change. Studies in the Circumpolar North, volume 2. New York: Berghahn Books, 2017. 20.

**70.** Dupuy, Jean-Pierre. Pour un catastrophisme éclairé: Quand l'impossible est certain. Paris: Seuil, 2004.

**71.** Zarecor, Kimberly Elman. Manufacturing a Socialist Modernity: Housing in Czechoslovakia, 1945-1960. Pitt Series in Russian and East European Studies. Pittsburgh: University of Pittsburgh Press, 2011. 15.

**72.** Cohen, Jean-Louis. Architecture, Modernité, Modernisation. Leçons Inaugurales du Collège de France, no 265. Paris : Collège de France : Fayard, 2017. 35.

Lessons from the past can also help upend our understanding of the status quo. During the peak of standardized construction in the Soviet Union, there were cooperative groups that built their own housing, given the endless waiting lists for units from the state. In 1962 – the same year as the Cuban Missile Crisis – cooperative homeownership became legal in the USSR and state loans could cover up to 40% of construction costs. Housing cooperatives accounted for up to 11% of the new units built in 1973 in Moscow, where they could each have up to 60 members and were known to build at a higher quality than government-managed projects.<sup>73</sup> The topic of Soviet housing cooperatives in the era of standardized construction deserves its own paper. Nonetheless, it offers a powerful indication that within standardized systems, there is room for architectural alternatives that are neither conventional nor exceptional.

## CONCLUSION

The Soviet mass housing project is remarkable in how it gave a substantial portion of the population access to housing. Since the 1990s, the techniques and infrastructure developed under the USSR have been perpetuated by contemporary actors who profit off of them. To this day, issues of decay, financing and governance continue to plague mass housing and can only be remedied with coordinated efforts. Jean-Louis Cohen writes that “along with the representation of powers – political or economic – architecture shapes the daily framework of social policies. Giving it a spatial and aesthetic quality is not contradictory with the qualities of use that it must have, and it is precisely in the poetic transposition of uses that it gives the best of itself today, fully participating in politics.”<sup>74</sup> As designers,

**73.** Bater, James H. The Soviet City: Ideal and Reality. Explorations in Urban Analysis. London: E. Arnold, 1980. 104.

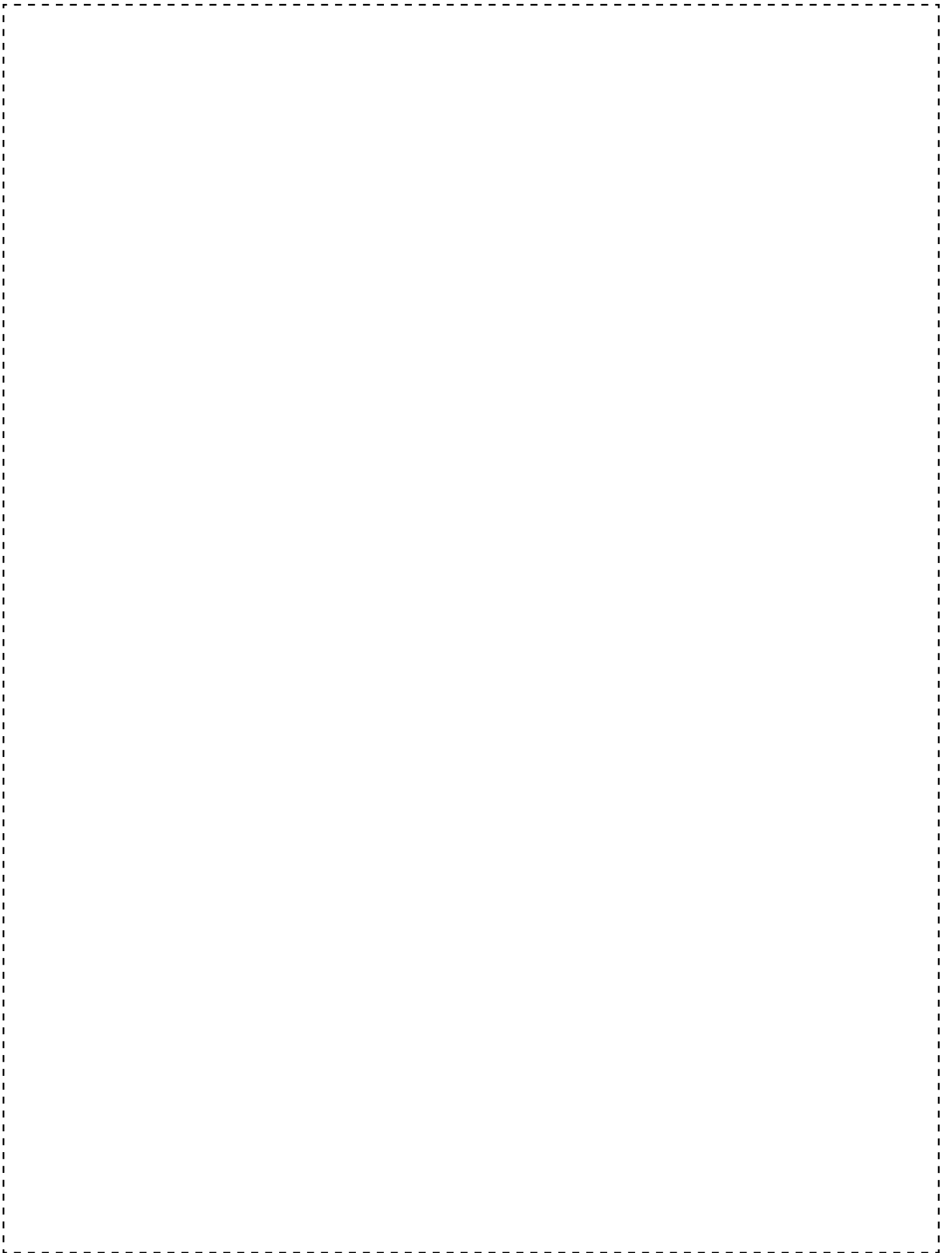
**74.** Cohen, Jean-Louis. Architecture, Modernité, Modernisation. Leçons Inaugurales du Collège de France, no 265. Paris : Collège de France : Fayard, 2017. 84.

where do we start such a new project for architecture, and with what material? Recent studies of Soviet mass housing have tended to focus on urbanism, but investigations into the lived experiences that depend on the buildings that still stand call for more attention. Additionally, while there is abundant literature on periods before and after the collapse of the USSR, the continuity between them enabled by buildings, architecture and infrastructure is not sufficiently understood. As observed by Tom Avermaete: “If, in the pre-war period, the studio had been the point of departure for the ‘master-architect,’ in the post-war period the everyday reality of the terrain became the starting point for the ‘architect-ethnologist.’”<sup>75</sup> It is now time for designers to shape the built environment by way of new social and civic systems, working as organizers as much as architects to advance new ideas of how to bring what we have forward.

**75.** Nägeli, Walter, Niloufar Tajeri, and James Roderick O’Donovan. Small Interventions: New Ways of Living in Post-War Modernism. Basel, Switzerland: Birkhäuser, 2016. 30.







STILL STANDING

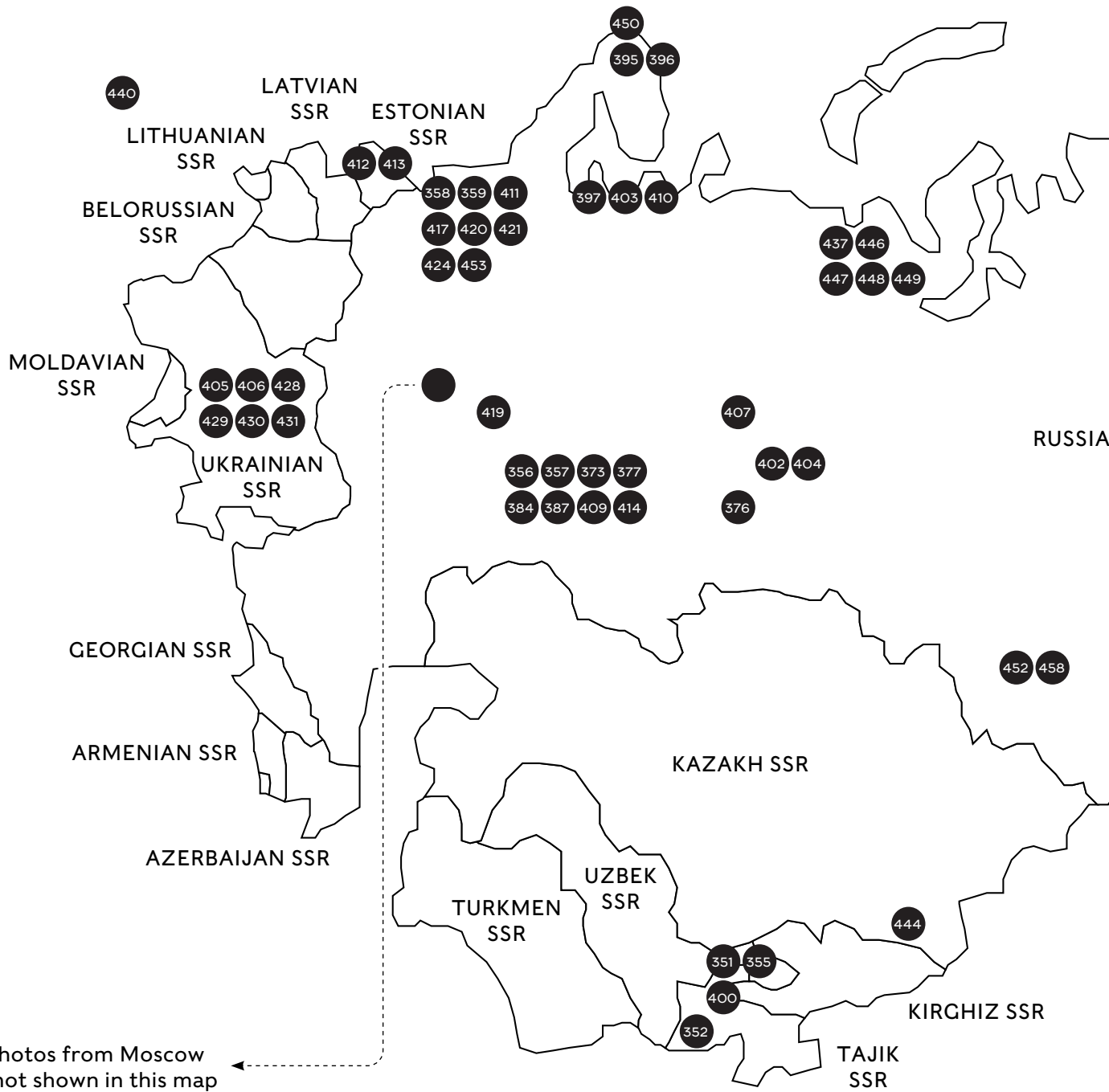
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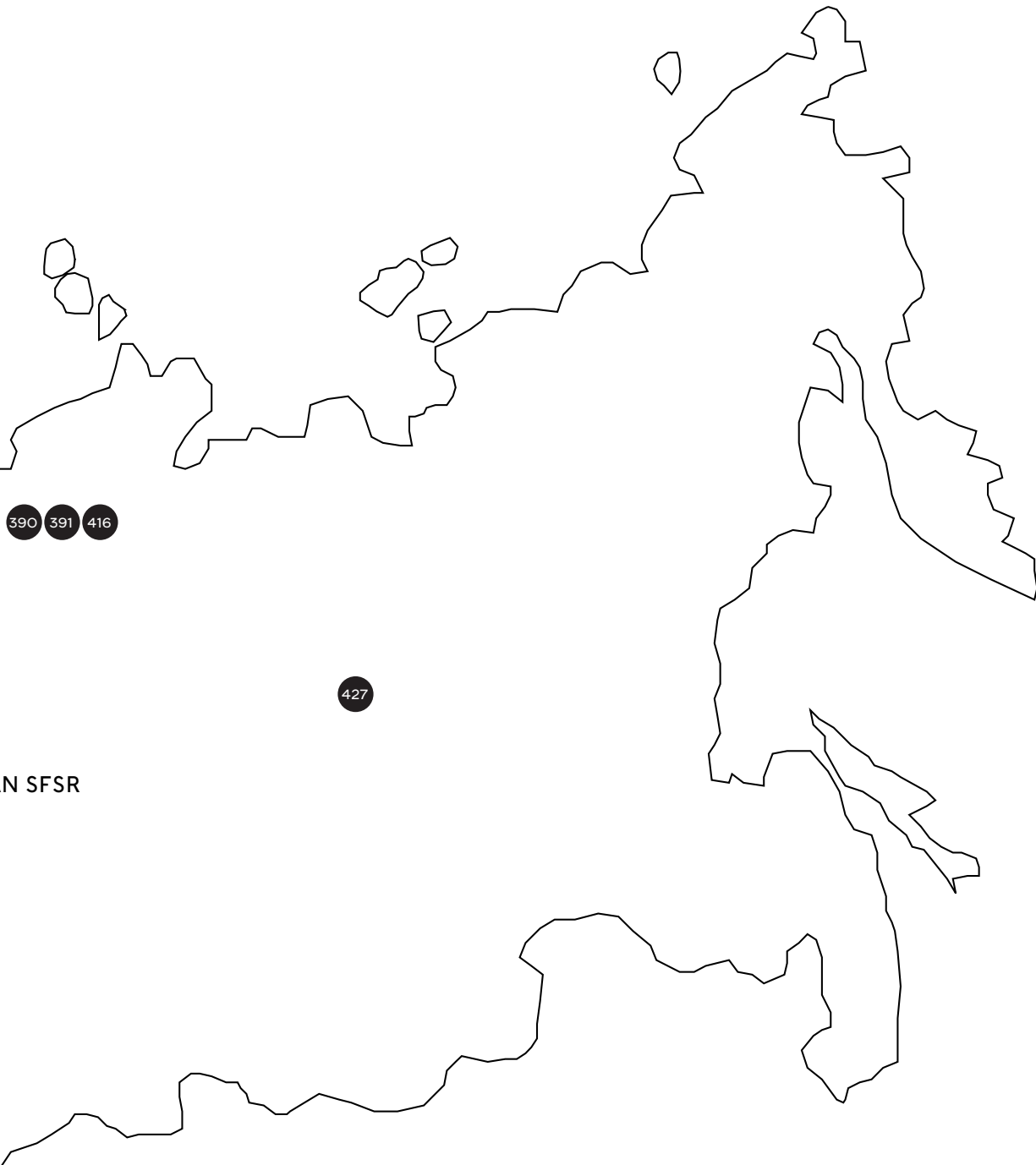
# PHOTO ARCHIVE

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STILL STANDING

CONSTRUCTION

PHOTO ARCHIVE



Crane assembly of a khrushchovka. Source: Photo Archives, Shchusev State Museum of Architecture. Moscow, 2019





Khrushchev giving a speech.  
Moscow, 1953. Source: unknown



**Microrayon construction.** Source: Photo Archives, Shchusev State Museum of Architecture. Moscow, 2019



Interior finishes. Source: Photo Archives,  
Shchusev State Museum of Architecture. Moscow, 2019



Panel assembly. Source: Photo Archives,  
Shchusev State Museum of Architecture. Moscow, 2019







Space travel mural on  
a 1984 Khrushchovka.  
Tashkent, Uzbekistan.  
Source: Philipp Meuser



1988 Avicenna mosaic  
by Rakhnayev, Ilyayev,  
and Grigorov. Dushanbe,  
Tajikistan. Source:  
Roberto Conte









Inhabited khrushchovka.  
Tashkent, Uzbekistan.  
Source: Nathan Lopez



Buildings inhabited by workers from a tractor factory  
under construction. Kamaz, Tatarstan, Russia.  
Source: Henri Cartier-Bresson, 1973



Playground and construction site. Kamaz, Tatarstan, Russia.  
Source: Henri Cartier-Bresson, 1973



Construction site on Vassilievsky Island. Leningrad, Russia.  
Source: Henri Cartier-Bresson, 1973

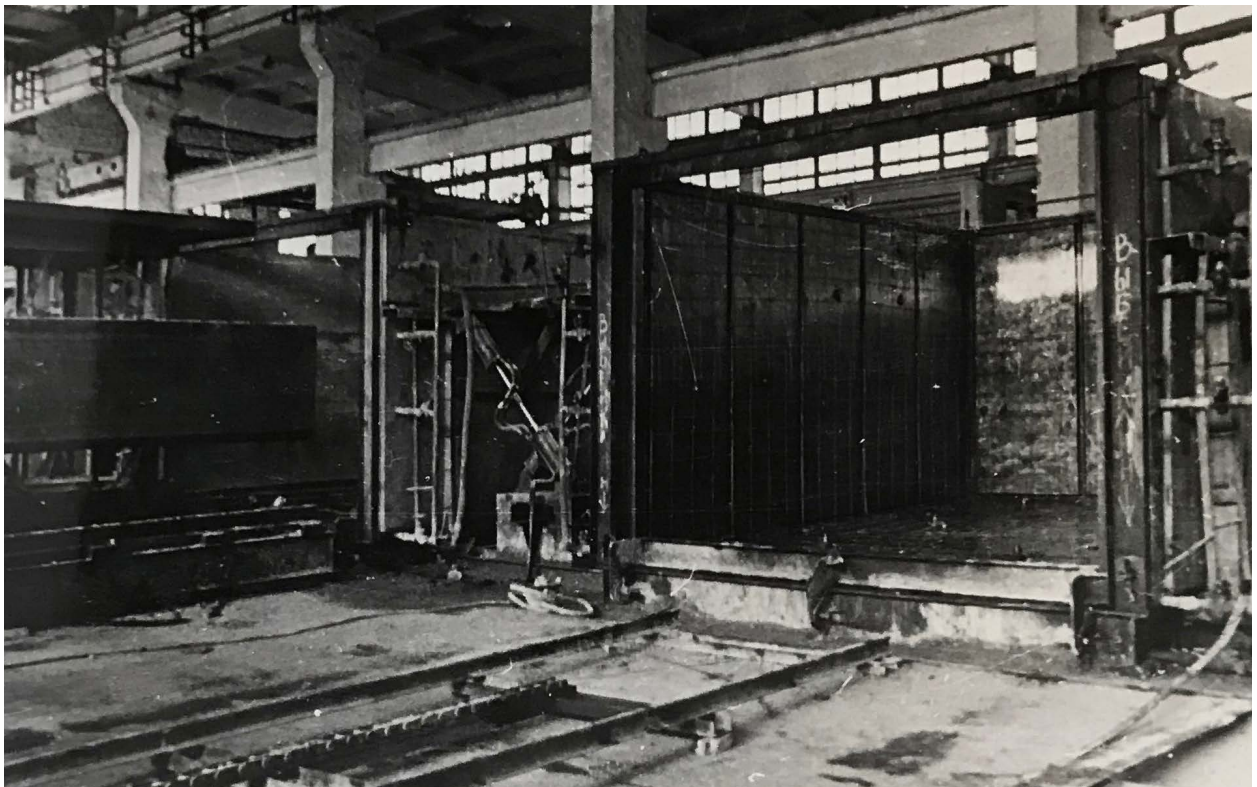


Junkyard and buildings. Leningrad, Russia.  
Source: Henri Cartier-Bresson, 1973



**Panel assembly.** Source: Photo Archives,  
Shchusev State Museum of Architecture. Moscow, 2019





Prefabricated concrete factory. Source: Photo Archives, Shchusev State Museum of Architecture. Moscow, 2019



DSK-2 factory. Moscow, Russia. Source: Eytan Levi, 2019



DSK-2 factory. Moscow, Russia. Source: Eytan Levi, 2019



DSK-2 factory.  
Moscow, Russia.  
Source: Eytan Levi, 2019





Residential buildings. Location unknown.  
Source: Marco Citron, 2007



Residential buildings. Location unknown.  
Source: Marco Citron, 2007







Newly-built microrayon.  
Source: Photo Archives,  
Shchusev State Museum  
of Architecture.  
Moscow, 2019



STILL STANDING

INHABITATION

PHOTO ARCHIVE



Inhabited microrayon. Source: Photo Archives,  
Shchusev State Museum of Architecture. Moscow, 2019



Officer's wedding. Naberezhnye Chelny, Tatarstan, Russia.  
Source: Henri Cartier-Bresson, 1973



Tushino area. Moscow, Russia.  
Source: Henri Cartier-Bresson, 1972



Tushino area. Moscow, Russia.  
Source: Henri Cartier-Bresson, 1972



Worker's town. Yekaterinburg, Russia. Source: Photo Archives, Shchusev State Museum of Architecture. Moscow, 2019

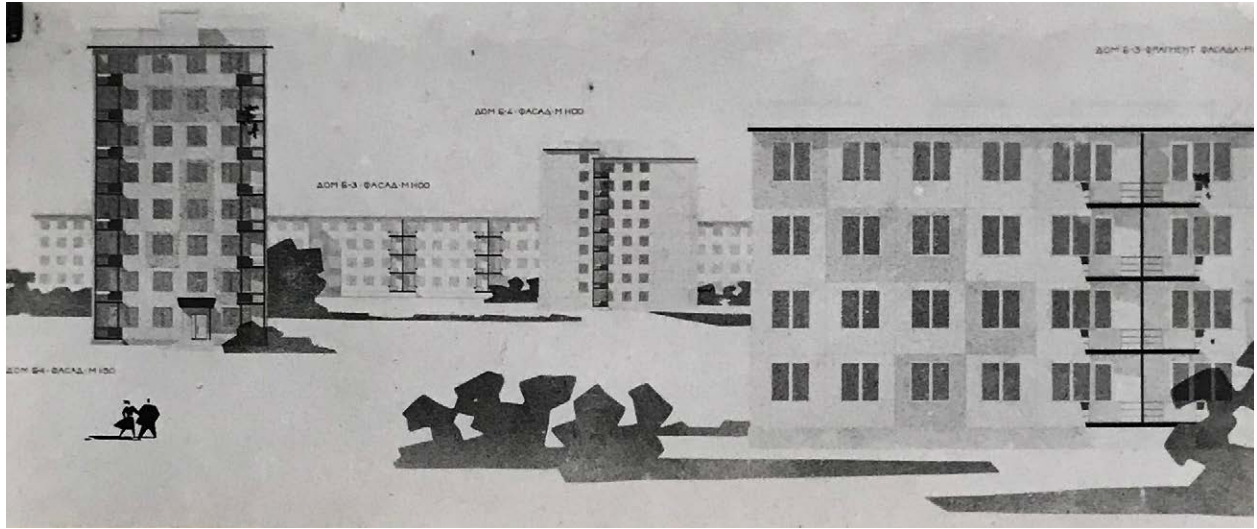




Newly-built 3-story residential buildings. Samara, Russia.  
Source: Lena Tsibizova, 2018



Moscow family in a prefabricated apartment, 1991.  
Source: Dyranda Prevost



Elevations at several scales. Source: Photo Archives, Shchusev State Museum of Architecture. Moscow, 2019



Interior of a Moscow apartment in 1991.  
Source: Dyranda Prevost



Kitchen in a prefabricated apartment, 1991.  
Source: Dyranda Prevost





Apartment in  
Moscow, 1991  
Source: Dyranda Prevost



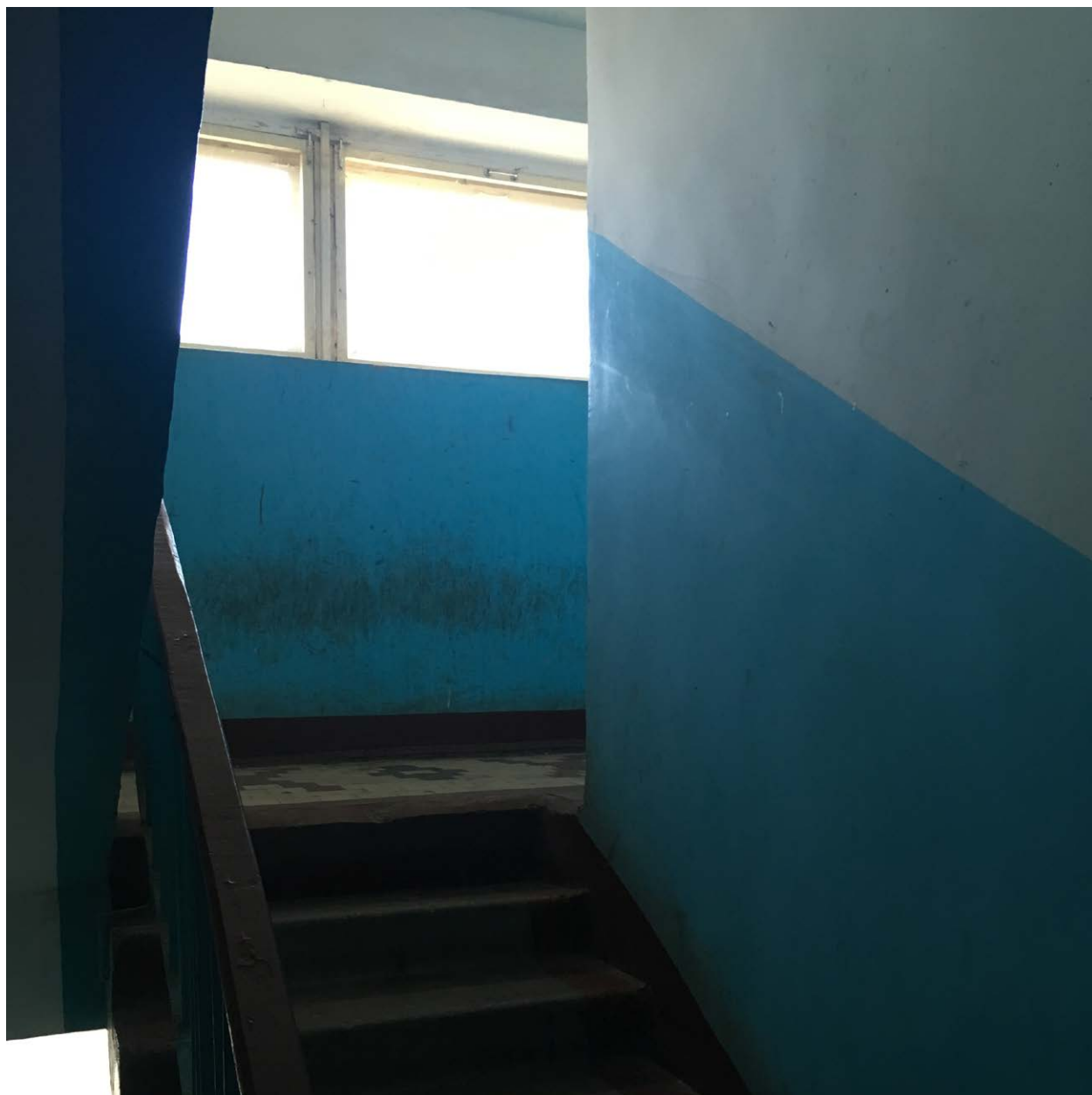
Courtyard in  
Aviastroitel'nyy Rayon.  
Kazan, Russia.  
Source: Ben Hoyle, 2019







Balcony enclosure. Moscow, Russia.  
Source: Ben Hoyle, 2019



Staircase in Aviastroitel'nyy Rayon. Kazan, Russia  
Source: Ben Hoyle, 2019





Children walking  
in the snow among  
prefabricated  
residential buildings.  
Exact location unknown,  
Siberia, Russia.  
Photo: Vil Ravirov



**Block 17. Norilsk, Russia.**  
Source: Christophe Jacrot, 2018



Elevated housing block to avoid permafrost melting.  
Norilsk, Russia. Source: Christophe Jacrot, 2018

Abandoned and  
occupied residential  
buildings. Kiro, Russia.  
Source: Mikhail  
Lebedev, 2019











School in a residential district. Murmansk, Russia. Source: Mikhail Lebedev, 2019



Suburbs at night. Murmansk, Russia.  
Source: Mikhail Lebedev, 2019



People ice-skating at night. Arkhangelsk, Russia.  
Source: Egor Rogalev





Ramenki district at night. Moscow, Russia.  
Source: Teo Konukhov

400



1970s residential building. Chkalovsk, Tajikistan. Source: Stefano Perego







Festival on the main square. Krasnouralsk, Russia.  
Source: Christine Armbruster, 2016



Wooden and concrete residential buildings.  
Arkhangelsk, Russia. Source: Egor Rogalev



Metallurgist Day. Krasnouralsk, Russia  
Source: Christine Armbruster, 2016



Playground in an atomic city. Zaporizhia, Ukraine.  
Source: Giulia Mangione, 2012



Residential buildings in an atomic city. Zaporizhia, Ukraine.  
Source: Giulia Mangione, 2012



Women scrubbing a carpet in the sun. Kizel, Russia.  
Source: Christine Armbruster, 2016



A khrushchovka at dusk. Unknown location. Source: Unknown





Corn building. Samara, Russia. Source: Arseniy Kotov, 2018



The infinite landscape right next to the city.  
Arkhangelsk, Russia. Source: Egor Rogalev



Man running in the snow in Kupchino.  
St Petersburg, Russia. Source: Alexander Bondar, 2014



Teenagers playing among residential buildings.  
Narva, Estonia. Source: Kirill Iserlis, 1990s



Teenagers posing in front of residential buildings.  
Narva, Estonia. Source: Kirill Iserlis, 1990s



Reactors and residential buildings. Samara, Russia. Source: Arseniy Kotov, 2018





During the winter up in the Russian Arctic, there are only a few hours of sunlight everyday. Norilsk, Russia. Source: Christophe Jacrot, 2018





Overview of the Primorky residential district.  
St Petersburg, Russia. Source: Egor Rogalev, 2014





11th microdistrict.  
Dzerzhinsk, Russia.  
Source: Arseniy  
Kotov, 2018



Track class among new residential developments in Primorky. St Petersburg, Russia. Source: Egor Rogalev, 2014



Dirt mound in Primorsky. St Petersburg, Russia.  
Source: Egor Rogalev, 2014





Living in the wilderness.  
Moscow, Russia.  
Source: Dmitry  
Lookianov, O13-2015



Snowfall in Primorksy.  
St Petersburg, Russia.  
Source: Egor  
Rogalev, 2014









Different housing types  
near the mine pit.  
Mirny, Russia.  
Source: Anton Klimov



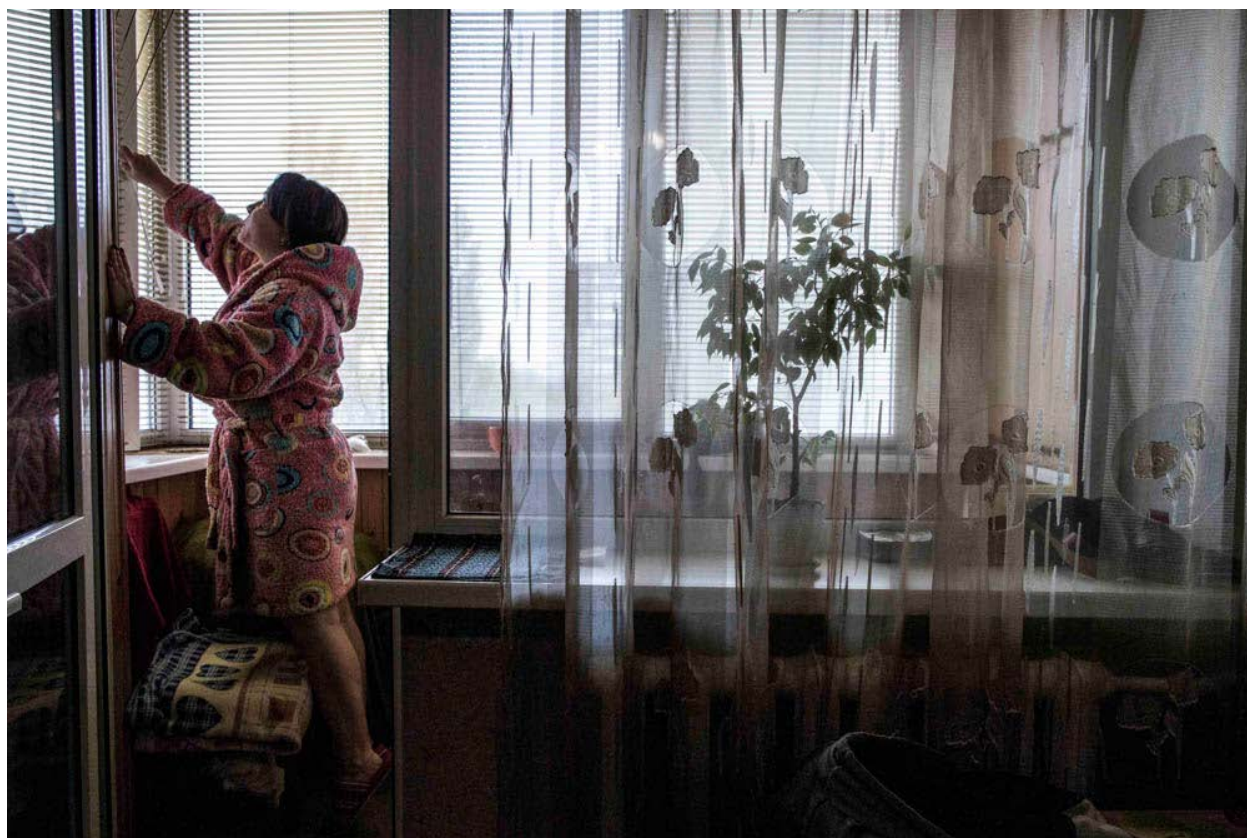
Khrushchev-era building. Kiev, Ukraine.  
Source: Erik Messori, 2019



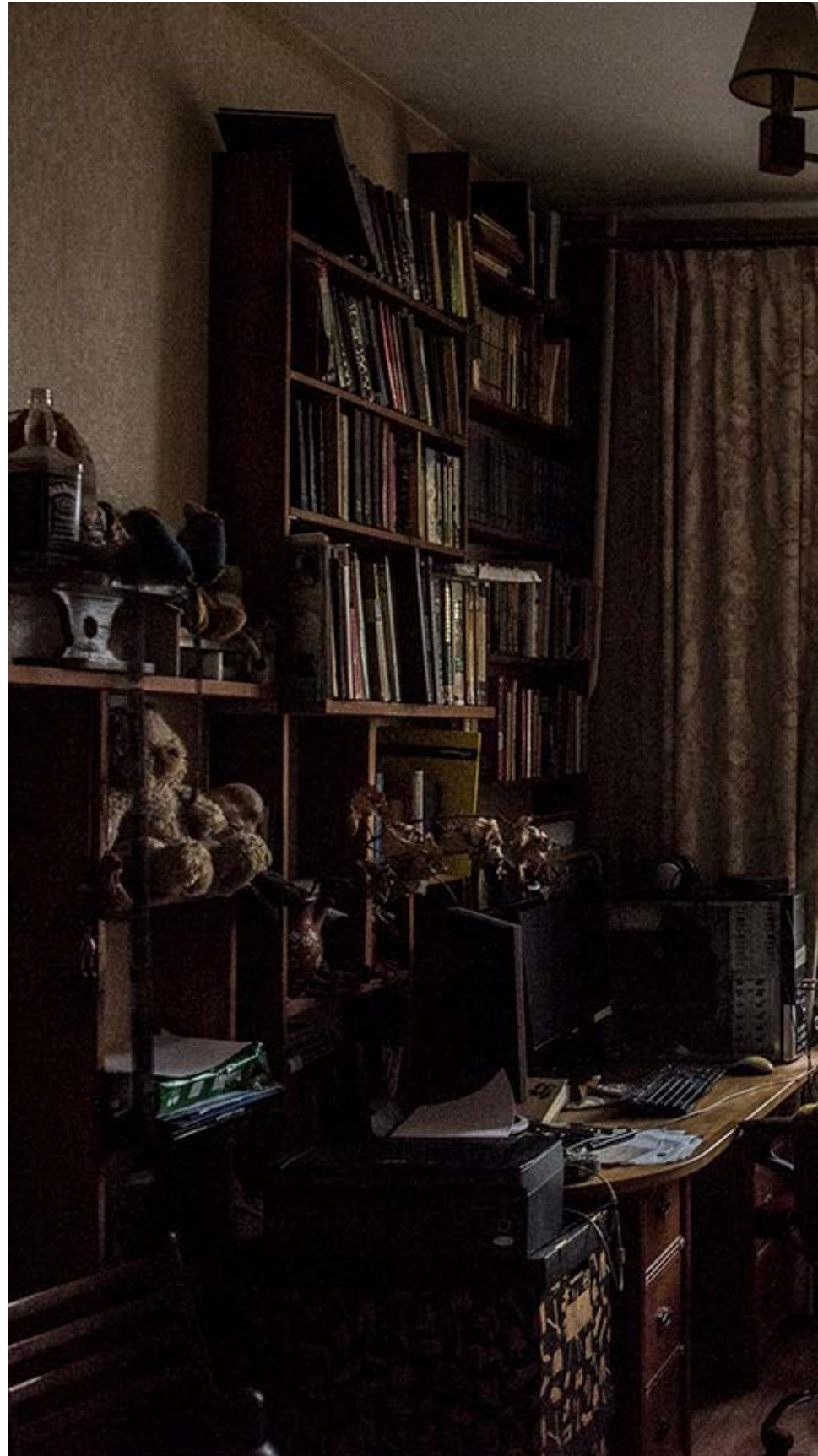
Khrushchev-era building. Kiev, Ukraine.  
Source: Erik Messori, 2019



Khrushchev-era building. Kiev, Ukraine.  
Source: Erik Messori, 2019



Khrushchev-era building. Kiev, Ukraine.  
Source: Erik Messori, 2019



Renovated interior.  
Moscow, Russia. Source:  
Alexey Nikolayev, 2017







STILL STANDING

ADAPTATION

PHOTO ARCHIVE



Non-maintained lands. Vorkuta, Russia.  
Source: Alisa Oleva, 2016



Joints of a prefabricated building. Vorkuta, Russia.  
Source: Alisa Oleva, 2016





Demolished  
khrushchovka in 2017.  
Moscow, Russia. Source:  
Andrei Makhonin, TASS



Hervé Biele, house made out of reclaimed panels.  
Berlin, Germany. Source: Hervé Biele, 2002





Lacaton & Vassal, Grand Parc renovation.  
Bordeaux, France. Source: Philippe Ruault, 2016





Khrushchev-era  
building. Moscow,  
Russia. Source: Ben  
Hoyle, 2019



The 1986 Aul housing complex by B. Voronin, L. Andreyeva,  
Y. Ratushny, V. Lepeshov, and V. Vi. Almaty, Kazakhstan.  
Source: Roberto Conte



Khrushchev-era building. Moscow, Russia.  
Source: Eytan Levi, 2019



Residential buildings. Vorkuta, Russia.  
Source: Alisa Oleva, 2016



Residential buildings. Vorkuta, Russia.  
Source: Alisa Oleva, 2016



Residential buildings. Vorkuta, Russia.  
Source: Alisa Oleva, 2016





Unfinished residential buildings. Vorkuta, Russia.  
Source: Alisa Oleva, 2016



Landscape of residential buildings. Nikel, Russia.  
Source: Mikhail Lebedev, 2019



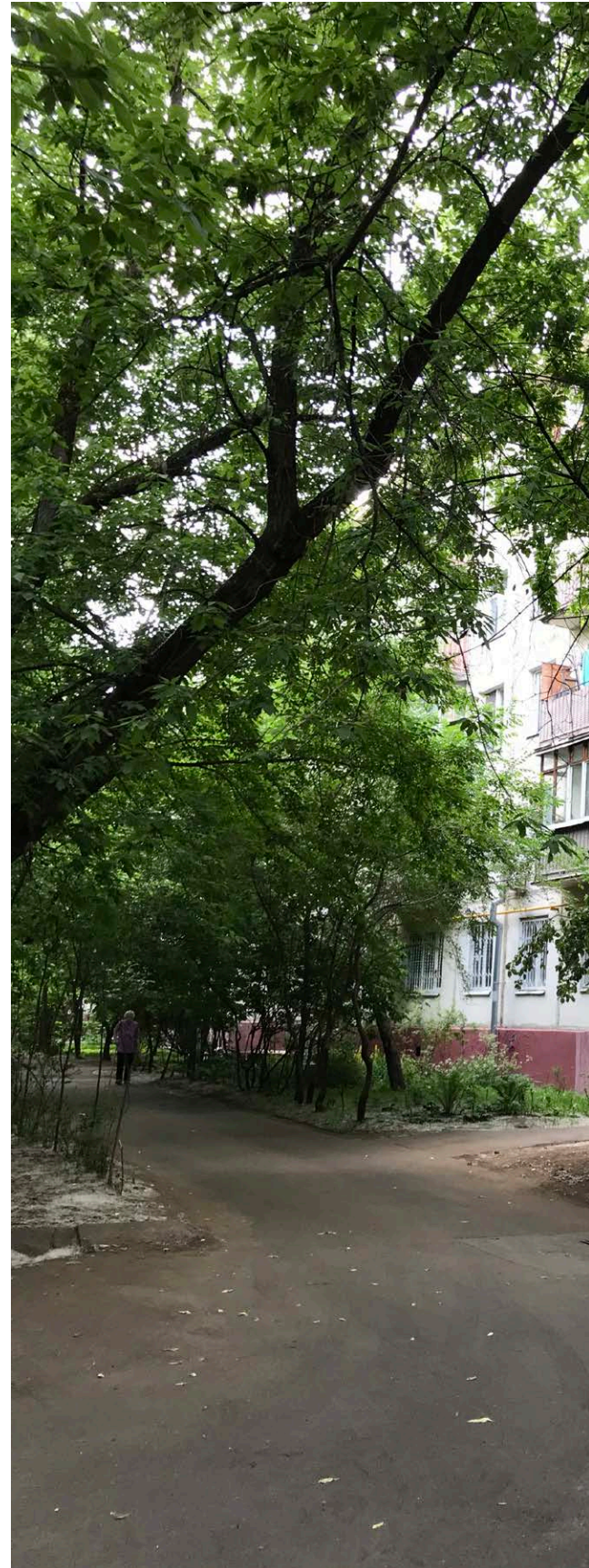


Khrushchovki. Novosibirsk, Russia. Source: Ed Park, 2013



Facade maintenance in Kupchino. St Petersburg, Russia.  
Source: Alexander Bondar, 2013

Khrushchev-era  
building. Moscow,  
Russia. Source: Eytan  
Levi, 2019











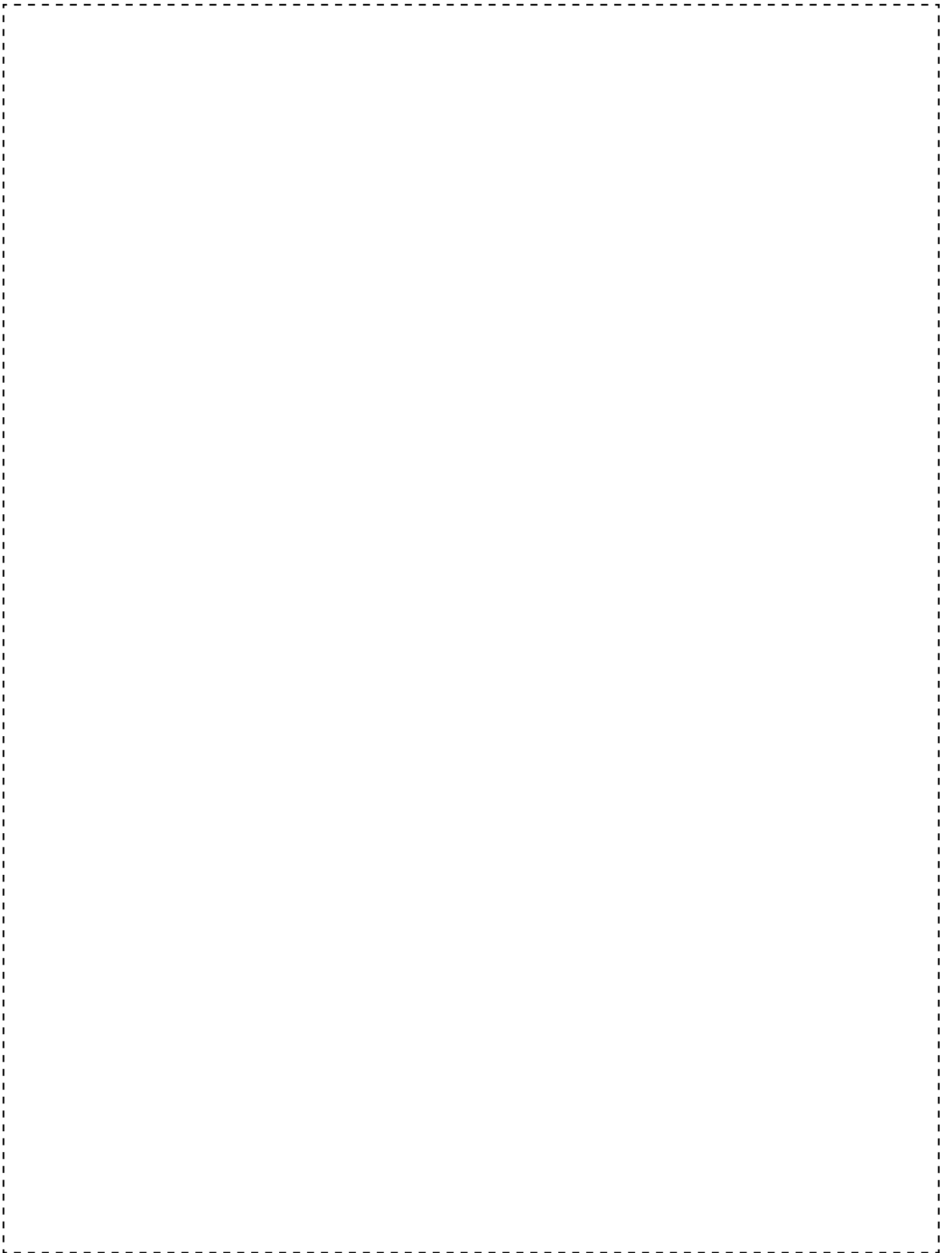
Demolished  
Khrushchevka in  
Belyayevo. Moscow,  
Russia. Source: Max  
Avdeev, 2017



Prefabricated panels on a residential building.  
Novosibirsk, Russia. Source: Ed Park, 2013



A khrushchovka undergoing demolition in 2008.  
Moscow, Russia. Source: Sidik iz PTU



STILL STANDING

FIVE OF SEVEN

# STORIES

EYTAN LEVI

BEN HOYLE

## INTRODUCTION

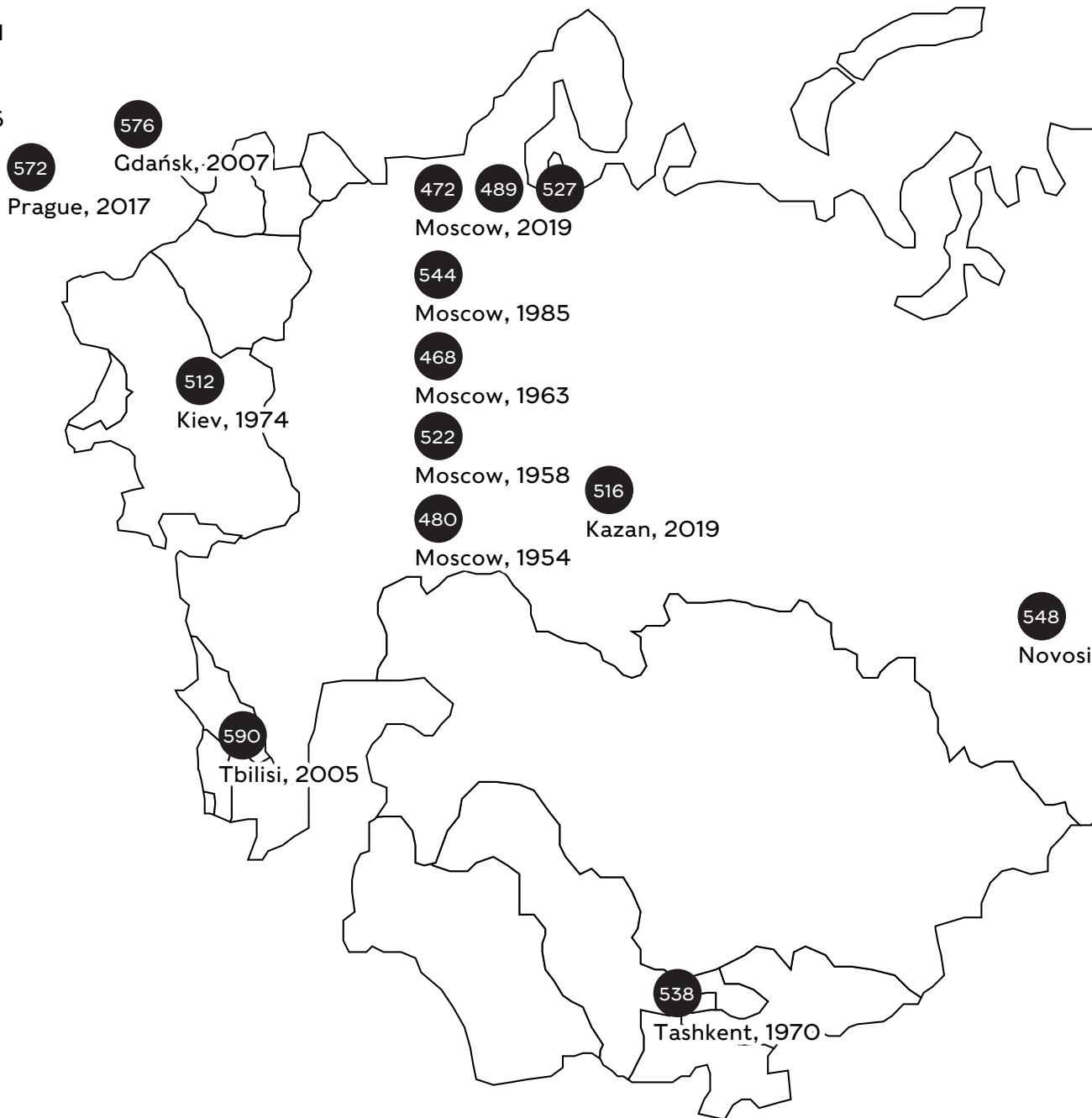
What follows is a play we wrote after the first year we spent studying Soviet mass housing. The project started in May of 2019, when Ben flew to Irkutsk, and alongside friends and colleagues began a trip towards Moscow on the Transsiberian railway. Eytan joined soon afterwards, when the group had reached Kazan, and he and Ben spent the subsequent two and a half months in Russia, the Caucasus, and the Baltics.

We wrote this play in order to revisit what we learned in the wake of that trip, and in an attempt to put the many voices, perspectives and places we encountered into conversation

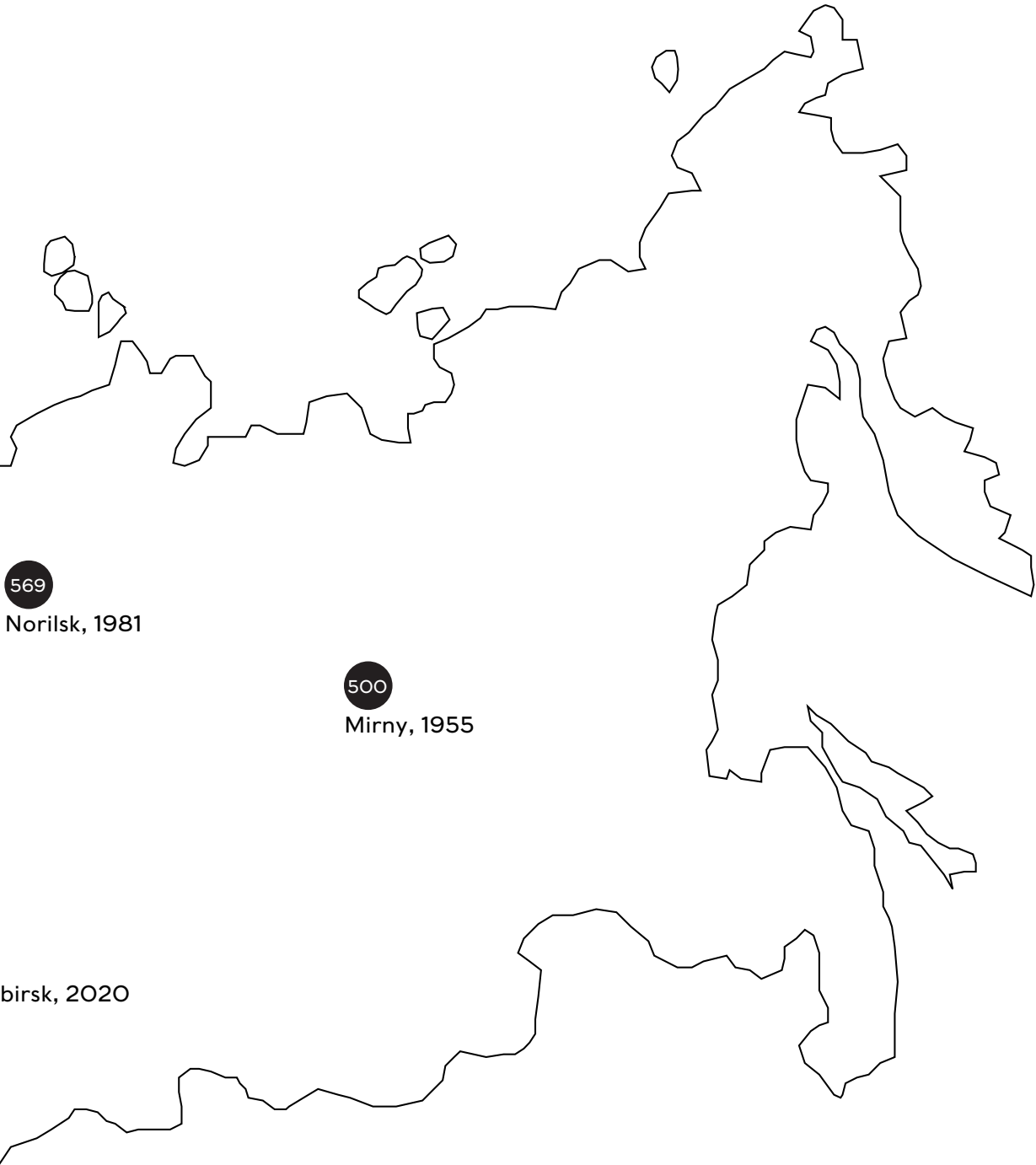
with one another. The form of a play allows us to present a significant amount of information, but does not require a neutral academic tone. We found that in conceiving of characters and situating them on stage sets, we were able to present voices that were not our own while taking some responsibility for them. In doing so, we sought to position our design work in relationship with its different contexts.

552 596  
Somerville, 2020

582  
Paris, 2021  
506  
Paris, 2015







MAP OF SCENES



STILL STANDING

ACT 1

STORIES

## SCENE 1

*Moscow, USSR. 1963. The grounds of DSK-2, an industrial center built in the early 1960s to design and manufacture prefabricated apartments. Outside the window is a junkyard, surrounded by metal-clad factory buildings. Along the fence sit dozens of prefabricated panels, waiting to be shipped to construction sites within the allowable radius of the factory. Four draftsmen hunch over tables in a well-lit office. Alexander finishes looking at someone's drawing, and comes behind Pavel.*

ALEXANDER, *loudly*.

Mr. Volkov! I was unaware that we were designing railings for an altarpiece!

*Pavel, who did not see him appear, freezes. He digs his pencil into the corner of the sheet and nervously turns around.*

PAVEL

Mr. Kozlov. I was just —

ALEXANDER, *abruptly*.

You were just not doing what you were supposed to do, Mr. Volkov! Distracted from the expectations of the task you have been assigned. This would not be the first time.

PAVEL

It's just that ... it's hard for me to imagine any of these details, *(he points at a pile of red-marked drawings on the table)* getting built anywhere. They're so stark that I —

ALEXANDER

Stark? Stark! *(To the audience.)* He finds Khrushchovki details stark! Absurd, absolutely

absurd. (*Sternly.*) Pavel, you have been charged by the State with a mission. To contribute to the housing of millions of our fellow citizens. Today many still live in slums, and the USSR has mobilized its resources, its manpower and some of its greatest minds to give them a decent place to live. There is absolutely no time for delay, and I have no tolerance for ego.

## PAVEL

Yes, I understand. But since my years as a student I have aspired to continue in the great Stalinist style. I was a student of Gelfreykh, and awarded highest marks in my class at university. But after being assigned this position, I find that I no longer know what architecture is. We design these buildings as machines, but leave no room in them for expression or identity. How can the State present itself on blank, functional surfaces? We hardly distinguish structures built in Baku from those in Murmansk, and these buildings do little to represent the great Soviet ideal.

ALEXANDER, *furious*.

Useless! I should report your behavior to my supervisor. There is no time for such grandiosity in the modern age. It is precisely thanks to what you call “stark” design that we are able to extract nickel in Norilsk and produce cotton in the Kirghiz SSR. Without industrialized housing production, we could never inhabit the treacherous climates and open expanses that make up the Soviet Union. As architects, it is our role to create livable spaces that can be deployed across our territory, so that what needs to happen somewhere can happen there. (*Composing himself.*) Get back to your drawing board. I want the new set of balcony details by the end of the week. Whether you like it or not, these buildings will be built, and this office will ensure that they are designed to be as efficient as possible.

*Pavel stares at his desk, and Alexander moves to the next draftsman. Everyone is silent.*

## SCENE 2

*A park in a peripheral housing district of Moscow. June, 2019. Irina is in her early 50s and is a historic preservation specialist at the large Moscow architecture firm where Ben and Eytan are interns. She does not speak English but wants to teach them about mass housing in Moscow. This weekend she has invited Eytan and Ben on a walking tour of several microrayons, bringing Polina, her teenage daughter, as a translator.*

IRINA

...



POLINA

She says this type of residential building is called a malsimeka. They were built in conjunction with factories in the 1950s to house workers and their families. Each apartment has a single bedroom, a bathroom and a kitchen. From here, people would take the metro one stop to get to nearby lumber and car factories. Malsimeki are rare in Moscow these days, because most have been destroyed.

IRINA

...

POLINA

She says this building is slated for demolition in the next few weeks. The buildings they'll construct in its place will be taller, with less urban space. This gives developers the added incentive to invest in the area, because they will be able to sell more apartments.

IRINA

...

POLINA

She says the people in this building will move directly into a new tower nearby, which likely replaced some other Khrushchovki. So there is no need for temporary housing. People are simply moved, their building destroyed, and new, more lucrative apartments put in their place.

IRINA

...

POLINA

She says that while the apartments in the new buildings will be more spacious, they will be disconnected from their urban context, as is the case with most of the recent housing around the city.

*Irina, satisfied, begins to walk, as Ben and Eytan scribble notes and scurry to keep up.*

BEN

The trees are much denser than I'd expected. This is a nice park. Will they keep any of it?

POLINA

...

IRINA

...

POLINA

She says no, that the new buildings will come with new landscaping and room for cars. But that the trees you see here actually predate the buildings. Before, this was all forest.

*They walk for a few more minutes and get to a car, where Ben, Eytan and Polina squeeze in the back, and Irina's husband drives them to another district. Ben and Eytan are disoriented, unsure of what has been planned for them.*

*IRINA, pointing from the front seat.*

...

POLINA

She says these towers, west of the city, are desirable, because there are trees and it's clean.

IRINA

...

POLINA

And those towers there are new and vacant, only finished a few weeks ago. They're "comfort class," which you can tell by the way the air conditioners are clumped together in that grated balcony. In higher-end "business class" developments the air conditioners are more concealed. Soon, people from a nearby Khrushchovka will be moving in.

*They are quiet for the rest of the drive, each looking at the sky out of the window. They get out in a half-empty parking lot, surrounded by grass and tall, colorful buildings. They start walking along a tiled pathway.*

IRINA

...

POLINA

She says this is one of the more successful

new developments. Projects of the past few years have often taken up all available urban space with parking, but here the parking is at a slight remove. The pond over there is all artificial.

*Eytan, his face covered, lags behind the group.*

BEN, *to Eytan.*

Are you ok?

*Eytan, removing his hands from his face, reveals a torrential nosebleed. A flurried exchange of tissues and water bottles ensues, as Irina, not noticing the commotion, starts to describe the next building.*

IRINA

...

POLINA

This tower has 162 new flats, which is enough room to house people from two nearby Khrushchovki.

IRINA

...

POLINA

She said that's all for today.

IRINA

Would you like to join us for tea?

EYTAN, *discreetly adjusting tissues in his nose.*

Yes! We would be delighted.

POLINA

Good. We will stop at the grocery store first to buy food. A local specialty, you will see. Called a Moskva Hotel cake.

*At Irina and Polina's apartment. One of the balconies has been enclosed with a wood structure and narrow windows. This creates a nook where the family stores their shoes and grows herbs. Eytan and Ben sit with the family and drink tea in the living room, which Irina and her husband convert into their bedroom every night. The building is a Khrushchovka, and the family lives on the top*

*floor. The neighboring Khrushchovki can be seen in the evening light out of the window, but the ground is obscured by a canopy of trees.*

*Polina shows Eytan and Ben some drawings, which she has been making to prepare for her architecture school entrance examinations. Most are studies of the plaster busts that are tucked in various corners of the room.*

EYTAN, *holding a drawing of Socrates.*

Polina, this is very impressive!

KATYA

Thank you. As I tell my mother, I am preparing to become the next Zaha Hadid.

## SCENE 3

*Moscow. December 7, 1954. A conference hall, filled with hundreds of attendees. In the distance stands Nikita Khrushchev, who is about to address the All-Union Conference of Builders, Architects, and Building Industry Workers. In the foreground are three architects, Konstantin the nostalgic Constructivist, Stepan the defiant Stalinist, and Kirill the enthusiastic Khrushchevist.*

*Stepan sees what the construction methods proposed by Khrushchev will mean. He knows that great buildings of the Stalinist period were made of stone, took the labor of thousands, and each contributed to the grandeur of the state. He knows*



*that this is not possible with prefabrication. That what he has seen of concrete panel structures from the French Camus system is too new, too experimental, and will certainly not convey Soviet ideals.*

*Kirill lives well and has a good job with the state. He is intimately familiar with the details of the housing crisis. He has seen collective slums, and is aware of how untenable living conditions are for millions of people across the republics. He knows that beacons of Soviet architecture produced since the 1920s are not providing nearly enough housing, and that the radical shift of priorities that Khrushchev is articulating are essential for the future of communism.*

*Konstantin is older, quieter. He endured the Stalinist period, making sacrifices along the way. He harkens back to earlier days of the USSR, to the experiments of collectivism in the 1920s, and wonders what those might mean in the context of this new generation of buildings.*

KHRUSCHEV

...Our builders know that until recently there was debate over which of two paths we should take in construction – the use of prefabricated structures or monolithic concrete. We shall not name names or reproach those workers who tried to direct our construction industry towards use of monolithic concrete. I believe these comrades now realize for themselves that the position they adopted was wrong. Now, though, it's clear to everyone, it seems, that we must proceed along the more progressive path – the path of using prefabricated reinforced-concrete structures and parts.

*Applause*

KIRILL, *to his peers.*

This technology has existed for years. But finally, with the might of the USSR behind it, we will be able to upend the industry and move towards a brighter communist future.

KHRUSCHEV

What are the consequences of using cast-in-place concrete in construction? Dirtier building sites. The use of wasteful formwork. The unnecessary expenditure of iron. The loss of concrete. And what are the effects of using prefabricated parts? It will allow us to construct buildings using factory construction methods.

*Applause.*

KONSTANTIN

He proposes structures of cardboard. They will not be buildings at all, just shells, skeletons. Imagine the immense capabilities of the men in this room, and how they are to be squandered by Khrushchev's misguided vision. Architecture is a craft, an art, and he proposes we reduce it to a stop on an assembly line.

KHRUSCHEV

Certain architects have a passion for adding spires to the tops of buildings, which gives this architecture an ecclesiastical appearance.

Do you like the silhouette of churches? I don't want to argue about tastes, but for residential buildings such an appearance is unnecessary. It's wrong to use architectural decoration to turn a modern residential building into something resembling a church or museum. This produces no extra convenience for residents and merely makes exploitation of the building more expensive ... what people need is apartments. They don't have time to gaze admiringly at silhouettes; they need houses to live in!

*Shouts, applause*

KHRUSCHEV

In his designs for houses on Lyusinovskaya ulitsa, Architect Zakharov decided to put sculptures at the corners of his buildings, from the 8th floor upwards. On the top floor he sliced off the corners to make room for windows, outside which, on the windowsills, sculptures were supposed to stand. A five-wall room with an angled window is inconvenient for living in, not to mention the fact that the residents of

this room must spend their entire lives staring at the back of a sculpture. Of course, it's not particularly pleasant to live in a room like this. It's good, then, that these houses were never built and that comrade Zakharov was restrained from his art.

STEPAN

This is insultingly reductive. He speaks as though he knows of architecture, when nothing could be farther from the truth.

KIRILL

Get out of your little world, Stepan. We have housing crisis, with lives on the line, and the monumentality of Stalinist buildings only exacerbated the problem.

KONSTANTIN, *mumbling*.

We've had this problem since well before Stalin.

KIRILL

This time it's different. Listen to the man.

## KHRUSCHEV

A common feature of construction in this country is wastage of resources, and for this a large part of the blame rests with the many architects who use superfluous architectural details to decorate buildings built to one-off designs. Such architects are a stumbling block in the way of industrializing construction. In order to build quickly and successfully, we must use standard designs in our building, but this is evidently not to the taste of certain architects ... If an architect wants to be in step with life, he must know and be able to employ not only architectural forms, ornaments, and various decorative elements, but also new progressive materials, reinforced-concrete structures and parts, and, above all, must be an expert in cost-saving in construction.

## STEPAN

I fear for the future of architecture of this nation.

KONSTANTIN

We've tried these ideas before; they did not work.

KHRUSCHEV

Comrades, I shall bring my speech to a close by expressing my confidence that builders, architects, engineers, workers in the construction-materials industry and in manufacture of machinery for construction and roads, and employees of design and research organisations will carry out with honor the tasks laid upon them by the Party and the Government; will improve still further the level, pace, and quality of construction in our country; will accelerate the bringing in of factories, mines, power stations, and manufactures; and will build residences, schools, and hospitals better and more beautifully. Goodbye until we meet again at the next conference of builders. I wish you continued success, comrades!

*Applause and a standing ovation.*

KIRILL, *to his peers, over the noise.*

Like it or not, this is the future of architecture. And to my mind it is the only just way to move forward.



## SCENE 4

*Moscow. July, 2019. A conference room on the third floor of an office building from the 1990s. Karol, Yulia, Nikolai, Pavel and Leonid are five of the 30 people who work there. Irina, Sofya, Eytan and Ben are visiting. Karol is at the head of the table with a screen projected behind him and a laptop in front of him. Ben and Eytan sit in front of paper cups of water and booklets of the report produced by the agency.*

KAROL, *to Ben and Eytan.*

Gentlemen, thank you for joining us here today. Irina and I used to work together for

many years, and she told me of two students from MIT working on a project about housing in our city. We are glad to have you here and will tell you about some of the work we've been doing.

*Karol turns to Irina*

KAROL, *to Irina.*

...

IRINA

...

KAROL

Very good. You've met my colleagues here, and I invite them to add anything to the presentation

*Pavel and Leonid nod, Nikolai looks at his screen*

KAROL

To begin with, as you are aware, we are a consulting agency that has been hired by the city

of Moscow to plan the city's housing renewal program. We are not charged with implementation, but instead are helping to coordinate how everything will happen. The specific problem in Moscow is the large number of buildings from the 1950s and 60s which don't have the necessary infrastructure to function today. Mayor Sobyenin launched the housing relocation program to address the situation in 2017, and one million residents from all districts of Moscow have signed up. His plan will be carried out over the coming 15 years. The process is as follows: first, we determine the buildings to be demolished based on the proportion of residents who have signed up for the program. Next, we determine how many people the district will ultimately house, and based on that we plan for its future. In some cases, all existing buildings will be demolished and the district will be rebuilt from scratch. In others, new buildings will be spread throughout the area, so that there is no need for demolition. Finally, we gather this information into a series of reports,

which we present to residents. We survey their opinions and adapt the proposals accordingly, so as to maintain as democratic a process possible.

YULIA

All of this takes a lot of paperwork. We've created 40 new laws since it began, and are in direct contact with the highest levels of government.

KAROL

That's right. And the program is already well underway. 78 buildings have been completed, 43 are fully inhabited, and almost 300 more are under construction. In one district, we demolished 69 buildings and fit their residents into 38 new buildings. The residents are given free moving services, and have the opportunity to upgrade the size of their apartment in the transition process. They get 30% more than the value of their original flat, plus 10% due to better location and services.

YULIA

We carefully regulate the process of moving residents from one location to another. (*Yulia searches on her computer for a webpage, and pulls it onto the projector screen.*) This is a schematic drawing of current resident approval. The green squares indicate buildings where people have already moved out, and the red squares are for buildings where there are residents who don't want to leave. In the latter case, a resident believes that the apartment they're being offered is not commensurate to the one being destroyed. In these cases the court must weigh in, and the building can't be demolished until the case is resolved. A court case doesn't mean that the apartment will be kept. If the resident wins, it just means they will have to wait until they are offered a more suitable flat. That said, the vast majority of residents willingly leave.

*Yulia flips through several other charts and dia-*

*grams, citing numbers that Ben and Eytan do not manage to note down and do not understand.*

BEN

Could you tell us more about how you decide whether or not a given building will be destroyed?

KAROL

We do not demolish a building if it is too recent, or if fewer than 70% of residents opt to move. There's nothing we can do if fewer than 70% of people are on board.

*A woman hesitantly approaches with a tray of tea. Ben and Eytan, surprised, shift their notebooks and papers aside to make way for her to place the cups in front of them, and nod effusively as she walks away.*

EYTAN

Could you tell us more about how the program is financed?

KAROL

Yes, of course. We do not rely on investments from developers, which can be somewhat unreliable. Instead we have a budget from the government. This requires us to have an extremely clear understanding of how old buildings will be demolished, how new ones will be built, how to negotiate with residents, and swaths of other considerations. Our office made these calculations in order to prepare a budget for the President, which he approved. In this regard, what we're doing here is actually very new. We were unable to get advice from the outside world, because in other places people tend to depend on investor money for this kind of project, rather than an allotted budget.

EYTAN

If the state budget covers most of the cost, what money do investors put forward, and what risk do they incur?

KAROL

There's no risk for them at all: they're just

making buildings. There's actually a new state developer that will manage all of the funds. If we had worked with commercial developers all over the city there would've been way too many people to oversee. This is a social project for the most part. And the city gave an enormous loan which it is determined to get back.

EYTAN

Do you see this as a single wave of renovations, or is it one of many to come?

YULIA

This process will almost certainly last longer than 15 years — more like 25. It will depend in large part on budgetary and legal changes. What we're working on now is actually the second wave of housing redevelopment — the first was 20 years ago and also demolished many five-story buildings.

KAROL

This program is quite innovative in how extensively we are using data — if it is successful,



and we receive sufficient funding, our intention will be to implement similar programs in other parts of the country.

YULIA

In Europe there are precedents for this kind of process, but there it takes much longer. There are up to 10 years of negotiations with residents before buildings can be demolished.

BEN

What construction technology are you using for the new buildings you propose?

KAROL

The developer and architect have the final say about which construction system they will use, but we offer a recommendation, and in the majority of cases we suggest using a monolithic structure. That is, a structure cast in place and filled with a facade and flooring. The alternative is panel buildings, where prefabricated panels serve as the structure as well as the facade, but these have several problems. They are restricted

in how far they can span, they require a much larger construction zone, and their structures are inflexible. For our own part we strive to make data-driven decisions, but developers will often have other considerations in mind when choosing how to build.

YULIA

There's also a lot of planning for things that won't immediately be built. For hospitals and schools that will eventually come. And with every building we are extremely careful about sunlight access. If new structures block too much of the sun going into an adjacent apartment, then we need to offer the people in that apartment new housing too.

IRINA

...

SOFYA

She says we've taken enough of their time.

BEN

Yes, thank you for all the information. This has been incredibly useful.

KAROL

Yes, of course. Keep those books we gave you. At some point you let us know and we can come give a presentation at MIT!

## SCENE 5

*Yakut Autonomous Soviet Socialist Republic. August, 1954. Three Soviet geologists, Ekaterina, Viktor and Yuri came here on a state-funded expedition, and against all odds they have found what they were looking for. A rhythm of heavy machinery is audible in the background, punctuated by blasts.*

*Ekaterina sits in the camp. She reading out loud as she writes.*

EKATERINA

... kimberlite comes in what is known as a pipe. Large, underground formations that re-

sult from magma bursting up through 450 kilometers of the earth's crust. It is precisely because kimberlite formed so far below ground that it is likely to contain diamonds. And here, in Mir, we have found a significant amount of kimberlite.

*Yuri enters*

YURI

The dynamite is being prepared for tomorrow morning. With a few more blasts we should be able to survey the extents of the repository. There is no doubt that we have found something, Katya. The question is whether or not there is enough of it to justify an investment in heavier equipment.

EKATERINA

So it is. At this point we must trust our intuition. And Viktor's analysis certainly gives us reason to be hopeful.

YURI

It does. I can't imagine this not being a success, not when we feel this close, and have traveled so far.

EKATERINA

I've been writing, trying to communicate the gravity of our finding to my son. But this morning as I looked over the site, away from the workers and machinery, I had the most uncanny feeling that over the course of this entire expedition we have in fact never moved. That we are where we began as soon as we lost sight of the last building, the last road. We have been thinking about the ground, Yuri, to the point where I can no longer see anything else. Soon the snow will return, and the temperature will drop, and everything will turn to ice. The ground and the sky will close in on each other, leaving nothing at the surface. In such conditions I can hardly imagine there being room for people here.

YURI

But if there is really kimberlite beneath us, there will be many people who will come to mine it. A city will rise from this ground, Katya. And the ground will give way. It will take jet engines to melt the ice, and structures piled above the ground to resist it. But we have these tools, and there will be a city here.

EKATERINA

With the temperatures in winter, even the steel of jet engines might freeze and shatter. The oil of cars will harden and crack. There is no place here for anything human or man-made.

YURI

There will always be more people, Katya. If there are diamonds, they will come in the hundreds of thousands. Every person will be replaceable, and no matter how hard the ground and how oppressive the weather, they will push through. The landscape will be transformed, and it will be a place where people come to work and spend their lives.





STILL STANDING

ACT 2

STORIES

## SCENE 1

*A suburb of Paris. December 8, 2015. In the men's bathroom of a conference center where the United Nations Climate Change Conference (COP21) is underway. Sergei and Olof catch sight of each other in the mirror as they wash their hands. Sergei lunges over, grinning wildly, and slaps Olof on the back with a soaking wet hand.*

SERGEI

Olof! You old fart. I've been wondering where you've been through all of this.

OLOF

Hiding from the Russians, of course.

SERGEI

Ha! Very good. Nothing's changed then. We taught you well! You know I was just on the phone with Professor Sokolov, from the Politekhnikheskiy, you remember? Can you believe it, still alive! And still at work, no less! I'm sure you knew him. You weren't in Petersburg long but any student who passed through was sure to hear of Professor Sokolov.

OLOF

Of course! Still alive, eh? I remember him. A final essay I had written, despite all my efforts to learn Russian, all those hours with that damned dictionary... well, I'll just say he was dissatisfied, and was eager to let me know it.

SERGEI

Yes, exactly right, that's him. I called for his technical opinion, on a matter of administration — nothing to do with myself. And when I

hung up I felt like I was 21 and had just failed an assignment.

OLOF

Ha! Yes. But enough about Sokolov. Tell me Sergei, great Russian delegate, what—

*A small line has formed form behind the bathroom sinks. A bearded man clears his throat.*

OLOF

Oh. Excuse us. Not the grandest of locations for such a reunion, is it! Let's take a walk.

*Olof opens the bathroom door with his elbow and holds it for Sergei. He shakes out his hands and the two start walking down the hallway into a large space, where they stand among a chattering crowd of politicians and administrators.*

OLOF

Anyway. I'm eager to hear. I haven't seen you since you started this position, and Russians

have a certain reputation at these COP conferences.

SERGEI

Indeed we do! New Delhi in 2002, when we said we needed more time to think over our decision! Needless to say, I've been advised to avoid such a position this year. But we have a big responsibility, as you well know. And it's ultimately our decision about what this whole climate story means for Russia. (*Lowering his voice.*) But let me tell you, just between us, that I hear something is in the works.

OLOF

Oh?

SERGEI

Well, perhaps it's on my mind because I've only just learned about it. But in the next few years, by 2017 at the latest, Moscow will be changing... You know our housing, our Khrushchovki?

OLOF

Certainly. We had an equivalent project in Sweden through the 60s and 70s, the Million Program. The Social Democratic Party built over one millions new apartments. It was the most ambitious building program in the world per—

SERGEI

Well, as you might know then, our Khrushchovki, they have some problems. A little leaky, for one. Well, you know! The reason we took you on in Petersburg after all was that a Swede knows something about the cold! Ha! Anyway. It turns out that our power plants burn through a lot of gas making heat that gets pumped straight through the windows of those damned cardboard boxes (*Sergei sticks his arm towards the window and makes a whooshing sound to demonstrate heat leaving the buildings.*) Well. That's about to change. Word has it that we're about to see the largest transformation of housing since the junk was thrown together in

the first place. They're going to tear it all down! And in its place, just you imagine, the most modern, comfortable towers. Some of them of the highest quality! But it's also for the people, you see. Lots of good, cheap housing! And the best part is that the developers can't get enough — they're eager to get these contracts as soon as they come out. A win-win, without a doubt! And in the process, energy savings you wouldn't believe! Certainly good for my agenda. So, it's not my place to mention it here and now, but during the discussions you might notice a smile on my face, and this will be the reason.

## SCENE 2

*Rusanivka, Ukraine. 1974. A residential district built in the 1960s on a man-made island east of the Dniepr River in Kiev. Igor, Viktor, Pavel, Illya are gardeners. They stand in the grass to the side of Rusaniv's'kyi Boulevard, the island's green artery, during a crisp fall morning in 1972. Igor and Viktor rake the brown leaves while the others pile them into wheelbarrows.*

IGOR

This winter will be cold.

VIKTOR

What makes you say so?



IGOR

It's only September, and even with the sun out it's still freezing.

*They keep raking, slowly revealing grass beneath the leaves. Igor pauses his work and looks out through the trees.*

IGOR

Do you know why there are so few cars on Rusanivka?

*The others are silent.*

IGOR

When they built it, the island, they thought they'd replace cars with buses and water transportation, connecting the island directly with Kiev.

*More silence. Igor resumes his work. The buildings around them grow brighter as the morning goes on. The different balcony enclosures that have appeared over the past ten years inflect the ho-*

*mogeneous concrete facades. Two families appear along a nearby path, with children squealing in delight as they jump into the leaves.*

## IGOR

Where I grew up we had nothing but trees and leaves. Far larger than those around here, and spreading into thick stretches of forest. But I never enjoyed that landscape in the way that that people here seem to enjoy these parks. Maybe it's the concrete towers that make the trees such a novelty, something to be cherished. Or maybe it's that only a few years ago there was a river gushing by right where we stand.

*Viktor looks up at the children playing.*

## VIKTOR

With my wife I live in a building by the bridge. You've seen the one, down over there. It is a small space; and if this winter is cold, my flat will be too. But we did everything we could to get housing here. We kept in top standing at our previous jobs, and used any connections we

could. My wife, she didn't care about the apartment, she cared where it was. These parks, these trees, they mean something for her. I guess this is why we stay together. What makes her happy also keeps me employed.

## SCENE 3

*Aviastroitel'nyy Rayon, Kazan, Republic of Tatarstan. May 2019. Ramil, Lada, Eytan and Ben stand in a stairwell. Ramil knows the people who live in the apartment building where he grew up, and so they buzzed him in when he said he wanted to show some people around. The walls, painted blue on the bottom and white on top, are covered in black marks. There is a view to smaller houses and smoke stacks out of a hazy window.*

RAMIL

It's been good to be back honestly. I'd missed Kazan.

LADA

Thanks for showing us around. I wasn't sure we'd be able to get inside and I know it means a lot to the students to see what it's like here.

RAMIL

Yeah well it's good that you're all interested. People don't know what's going on here but it's important, and is still changing, even since I've been away.

EYTAN

Is the building very different from when you grew up here?

RAMIL

It looks worse now but it wasn't much better back then. I always remember there being graffiti on the walls out here, dirt on the floors, parts of the railing being bent. The place has always been falling apart in some way or another. I guess there are things that seem new to me, maybe something about how small it is, some-

thing like that. But I tell you the smell is the same as it's always been. A little damp, smoky.

BEN

I was noticing that too. It's hard to imagine how sunny and warm it is outside with the air in here.

RAMIL

I remember once, when I was still pretty young, I went to one of the other stairwells in the building. Same building, same exact concrete stairs, but it felt like a different universe. Less graffiti on the walls but more scratches, different color paint, everyone had mats outside their doors. A few days later I made my way into another stairwell and again — same parts but completely different. It was hard to imagine. These buildings I'd been around my whole life. I knew people who lived in different parts of them, but we didn't go to other people's apartments much, and I assumed that they all looked and felt the same on the inside. Maybe that's why I was so surprised. But ever

since then I can't see it any other way. That even though these buildings look the same they have lots of different things going on inside of them. I mean you've all seen the balconies people add on. The one over there, it's made with some plastic shit, but just above it they've got some windows with wood or something. People do that everywhere, but what you don't know from the outside is that those balconies are just the tip of the iceberg. You go inside and it's a different world. Same buildings, different worlds!

LADA

In St. Petersburg there's a tradition of stairwells at the entry too. It comes from before the revolution, and we call them paradnaya.

RAMIL

Right! Only in St. Petersburg. They hold onto that word. It's because the paradnaya was the front entrance, different from the one out back where servants came in. In the rest of Russia this is called a pod-yezd, the entrance to an apartment block.

BEN

What are these tubes here in the corner?

RAMIL

Those? For trash. You take your trash out and put it in there. Or you're supposed to, I don't think they work anymore.

BEN

And what's this we can see out back? These smaller houses?

RAMIL

Yeah, other people live there, they're just houses. That was a big factory but it's been closed for many years. We can walk over there later if you like. But before we leave the block I was going to mention that I've been planning a kind of event here since I got back. A festival for this part of the district. I'm thinking of hosting it right in the courtyard. I've been talking to musicians and vendors. People are very interested.



EYTAN

Has there ever been something like that here before?

RAMIL

No, not in the way I'm picturing. But it will be useful, for visibility. We need to think of better ways to use all this space.

## SCENE 4

*Moscow. 1958. Fifty meters above ground in the cabin of a crane, overlooking the construction site of the city's first microrayon. Yevgeni, the crane operator, faces away from the audience, and the view through his window is projected onto a screen upstage. To Yevgeni's right is a little samovar used to make tea, and to his left are several magazines piled on top of each other. A photo sits on the dashboard.*

YEVGENI

Just a little more, yes. Right over there. No!

Shit. No. Not quite. Ok. Yes, yes, you've got it.  
Ok, yes, ok. Ok. Very good.

*Distant shouts, barely audible.*

YEVGENI

What are they on about? Oh I see. Oh. Let's just... yes. Alright. That should do it.

*Yevgeni pulls two levers, jogging the cabin backwards as he hoists something upwards. This was the last panel of the second floor. He waits. It will be another 40 minutes or so before they're ready to begin the next level, but he is not inclined to climb back down. He has a small towel draped over his chair, which he takes off and puts on his sweaty forehead.*

YEVGENI

Hmm... hmm... hmm... We're a slow today. Too slow. Again! Is it my fault? No, certainly not. No, it's the flooring team. The joints on the floor panels never seem to quite fit, and I always have to wait longer than I should need

to before bringing them the next panel. Clearly, it is not my fault.

*Distant shouts, barely audible.*

YEVGENI

But we're not far now. It's only two weeks from now, in two weeks there will be the ceremony. People will come with their belongings packed up. And many others will be here to watch. We are pioneers! We have done something remarkable. From this very spot I have helped build three buildings. Just one crane, in one spot, for three great buildings! Symbols of the future!

*A gust of wind jostles the cabin.*

YEVGENI

I can imagine future crane operators. There will be many. But to think, I was among the first! I have lifted Soviet panels, and I have moved them into a building. This building may be temporary, and even more advanced structures will someday take its place. But I know

that it will last. I know that it will be kept, as a testament to our success, as a memory of where this great new era of the USSR first lifted off the ground ... But what if it never gets off the ground? What if we don't finish construction on time? We are behind. The plans said that we would be able to complete the third floor by this afternoon, but that wasn't the case in the previous buildings, and it would take a miracle to get there today. Shit! I might be held responsible.

*He looks nervously at the half completed structure below him.*

YEVGENI

The others, down there, will be talking about it now. "Yevgeni," they will say, "in his crane he thinks he can control everything. But it is his fault that we are delayed!" When the inspector comes, they will defend themselves, and they will point their accusing fingers at me. I will see their damned little fingers pointing at me and I will say no! It was the floor joints! And I

will tear off their stubby little fingers with one swoop of the hook!

*Shouts, a radio buzz.*

YEVGENI

Ah! Off again. Off again. Ok.

*He turns a wheel and pulls a lever, the crane squealing beneath him.*

## SCENE 5

*Moscow. A summer morning in June, 2019. At the DSK-2 panel factory, set in a lush forest to the southwest of the city center. A group of employees from a prominent local architecture firm is given a tour of the facility. They all wear hard hats, and their sleek outfits contrast with the dusty t-shirts of the workers around them. They stand in a massive industrial hall where concrete panels are cast. Loud noises surround them, and light from the windows cuts through thick clouds of dust.*

FACTORY MANAGER

...

DARIA

He says that this factory was built in the 1950s, and served as a design, testing and production center for the early Khrushovki models.

FACTORY MANAGER

...

DARIA

The first step is to make those silicone sheets, and they do that using this mold over here. They heap them together in that pile for use at the next station.

*The group shuffles forward*

FACTORY MANAGER, *pointing*.

...

DARIA

Here they lay the silicone sheets into the formwork for the panel. Workers then cover



the silicone sheets with tiles, using these ridges as guides to keep everything aligned.

*The worker who has been pointed at glances up, but doesn't seem to notice the group of outsiders and continues to lay tiles.*

DARIA

Next they lay rebar across the formwork. The small circular elements suspend the steel from the tiles, and the workers use a combination of different rod thicknesses to ensure tensile strength.

*The manager continues to speak, but Daria has stopped translating. Workers start to place chunks of foam on the assembly, then add more rebar on top of it.*

FACTORY MANAGER

...

*The group moves farther into the hall, and a gantry train operated by a woman in a bright pink t-shirt swings an enormous beam startlingly close*

*overhead. Ben coughs, but is unsure if he had to, or if it just seemed like he should given the cloud of dust that surrounds him.*

FACTORY MANAGER

...

DARIA

Next they use this machine to pour the concrete.

*A large tub rolls on a track over the rebar-filled formwork. A worker climbs up and hits a button. A flap opens and wet concrete splashes out. He moves the tub back and forth over the formwork, dribbling concrete out at different points.*

FACTORY MANAGER

...

DARIA

After that, to accelerate the casting process, they put the formwork into a sort of oven, which is up ahead. They are left there for 24 hours, then removed and another formwork

goes in. They keep the assembly line operational as continuously as possible, with workers taking shifts at all hours.

FACTORY MANAGER

...?

DARIA

He is asking if you have any questions.

BEN

Well, please thank him for the tour. It seems, based on our research, that the prefabrication panel process hasn't changed much since the Soviet era. Is that the case?

DARIA, *she turns to the factory manager and translates.*

...

FACTORY MANAGER

...

DARIA, *embarrassed.*

He says that it was a very bad system under

the Soviet era. The manufacturing standards of the factory have greatly increased since PIK, the developer, purchased it and updated the infrastructure.

BEN, *sheepishly*.

Yes, of course.

EYTAN

Could you ask him a little more about the relationship they have with PIK?

DARIA, *to the factory manager*.

...

FACTORY MANAGER, *shortly*.

...

DARIA

He says that PIK has acquired the factory, that there is nothing else to know, and that we should keep moving.

*The factory manager nods and start walking*

*away. The rest of the group follows him. Daria joins them, as Ben and Eytan remain behind.*

EYTAN

Ben. What?

BEN, *knowingly*

When the USSR collapsed, the prefabricated concrete panel factories went on the market. Some people bought them up for nothing, and are now among the largest developers in Russia. It's clearly what PIK did. And even though people at the office have explained all the limitations of prefab panels, they still spec them, and this factory is still churning them out. PIK has the infrastructure, meaning it costs them very little to produce more panels, as long as they don't need to upgrade their factories. (*Increasingly caught up in his insight.*) But just when the demand for panels starts to wane, this massive redevelopment scheme pops out of some government agency, and all of a sudden the Khrushchovki are coming down, and shiny,

panel-built towers spring from the rubble —  
the factory churns on!

EYTAN

Sure, all of this is happening because it's extremely profitable to some handful of oligarchs. But I think there's probably a bit more to it than you think.

*Ben coughs, turns around, and starts walking to catch up with the group.*







STILL STANDING

ACT 3

STORIES

## SCENE 1

*Yunusabad district, Tashkent, Uzbek Soviet Socialist Republic. 1970. The city is still reeling from the devastation wrought by the 1966 earthquake, which destroyed much of the urban fabric and prompted extensive reconstruction in the Soviet style.*

*The living room of a new Khrushchovka, where a family is still unpacking. The room opens onto a small balcony, protected from the harsh sun. Four family members: two young parents, a 12 year-old girl, and a 9 year-old boy. Their packed belongings are still scattered across the small apartment's floor. The walls are empty. On the couch is*

*a picture frame, turned away from the audience. The mother is in the living room and the father emerges from the dark hallway. The children are offstage.*

MOTHER, *holding the frame and placing it on the wall.*

Sevgilim, what do you think of having this one like this over the couch?

FATHER

Yes, that's fine.

*She turns around, opens a trunk, and takes out nails and a small hammer.*

MOTHER, *holding the hammer and the nails.*  
I will hang it.

FATHER

Please do.

*She holds the nail on the wall and starts hammering, causing some gypsum to crumble off.*

MOTHER, *looking at the small pile of dust she's created on the floor.*

I guess that's how it is with these buildings.  
Easy come, easy go.

*She puts down the hammer and places the frame over the nail. The audience sees a picture of old relatives posing in traditional garments, probably taken before the Soviet era.*

MOTHER

There we have it! And the walls are still standing.

FATHER

Well done sevgilim! Your grandparents would be proud to know that they occupy such a prominent place in our house.

*They smile, trying to get closer to each other but finding nowhere to put their feet between all the things strewn on the floor. The boy and the girl*

*march into the living room, nimbly crossing the mess below them.*

GIRL, *seeing the frame on the wall.*

Mom! (*She points.*) You can't put that there!

MOTHER

Why not?

GIRL

It's anti-communist!

MOTHER

What are you on about?

GIRL AND BOY, *at the same time, loudly.*

"Pioneer, to fight for the cause of the Communist Party of the Soviet Union, be prepared!"

MOTHER, TO HER HUSBAND.

I think we've lost them. Children, you are speaking nonsense.

GIRL

We cannot put a picture like that in the middle of the house! That's from wretched times

before communism! Look around you (*She gestures around the room.*) We did not move to this modern building to remain stuck in our previous ways.

FATHER

We did not move here by choice sevgilim, we were given the flat because our old house was destroyed 4 years ago in the earthquake.

MOTHER

Don't you remember the courtyard we had in the middle of our old house? Don't you remember the four elm trees, and the cool breeze over the pond where you and your brother would spend your days? All of it was lost. But in this family we will remember that house, and we will cherish the time we spent there.

*The girl mumbles*

MOTHER

We are here because we have no other options available to us. This apartment is a box,

and life here will be more difficult, though we are already doing our best to make it a home.

FATHER

And we'll see what you have to say once you feel the summer heat in a 'modern' room like this. This was a building designed for Moscow, for Siberia! It has no place here, and yet it is what we have.

## SCENE 2

*A shared apartment in Moscow, 1985. Tatyana sits in her armchair. Albina, her daughter, is on a stool next to her. Vera, an Australian photographer, has just taken several images of her at a table next to photos of her family, and now walks around the apartment taking shots of the different rooms. Vera sits across from Tatyana with a pad of paper.*

VERA

You said that your daughter cares for you, but she doesn't live in this building, does she?



TATYANA

No. I have a room here to myself, and share the flat with Maxim and Galina, and the little one. They have two rooms, and I have one.

VERA

So where does your daughter live?

ALBINA

I'm on the other side of the city with my husband, in a microrayon. I come here after I finish my work to cook.

VERA

Tatyana, Could you tell me about how you ended up living here?

TATYANA

I haven't been here long, only a few years. When I was young I lived in another city. We had lots of space — two apartments combined together. We would often travel to Paris, and even went skiing in Finland. In 1917 we tried

to leave Russia. We had no other choice. But my father died along the way, so we ended up staying in Russia. Our belongings were confiscated and our family made do as best as we could living in one of our dachas.

VERA

And how did you come to Moscow?

TATYANA

I came here to work at the Academy of Science after studying in Batoumi, and in 1929 married my husband. Our daughter was born in 1930, then in 1937 her father was deemed an enemy of the people and shot. I was imprisoned for being his wife, then sent to the gulag, where I was kept for 10 years. I made my own clothing, slept in a barracks, and subsisted on thin soup with grain and potatoes. Every three months my mother and my daughter were allowed to send a package of food, no more than 8kg.

*Long silence*

VERA

And you decided to come back to Moscow after being released from the gulag?

TATYANA

Yes. I had to be with my mother and my daughter. Because my mother and I were widows, it was complicated for us to get our own apartment. But in 1960, Albina got married, and we lived with her and her husband. They had been allocated a very small one-bedroom apartment in a microrayon. When my mother passed away, in 1965, I moved back to the city, as Albina and Igor needed space for their first child. I've been living in communal apartments since then. I prefer to live in a communal apartment, a large one like this, in a central Moscow district. In the microrayon where we were, everyone was left more on their own. Here, it works better for me.

## SCENE 3

*A former monogorod in Southern Siberia, about 500 kilometers away from the closest train station in Novosibirsk. Late summer, 2020. A Khrushchovka stands at the edge of the wilderness. A few windows light up as the sun sets. On the third floor, a window is open. Inside, a kitchen, and a couple sitting at the dinner table.*

*Grigori and Yevgeniya. Grigori works at the local metal processing factory. He is in his late 20s. Yevgeniya is the same age. They have known each other since they were in school, although their families did not like each other and never approved of their marriage.*

*Soup plates remain on the table with a sprig of dill between them. A small lamp to the side illuminates the two characters, but the rest of the small kitchen is dark. We hear trees rustling in the wind.*

YEVGENIYA, *languidly*.

Lyubimyy, would you like some more of this soup? The beetroots are from the neighbor's garden.

GRIGORI

No, thank you milaya.

YEVGENIYA

You don't seem very happy tonight my Grisha.

GRIGORI, *after a pause*.

No... Zhenya. They're going to close the mill.

YEVGENIYA, *taken aback*.

Who told you?

GRIGORI

They haven't announced it officially, but Anton came to see me at the end of my shift and explained what has happened. The company determined that it costs them more to transport the goods between here and Novosibirsk than it is able to earn in sales.

YEVGENIYA

I can't believe it. And what will happen to us? And to this?

*At her gesture, the apartment becomes more lit. We see how decorations have been used to cover cracks in the wall. Plastic sheets cover a back window, and rags are wrapped around the kitchen faucet.*

GRIGORI, *mumbling.*

I don't know milaya ... I don't know.

YEVGENIYA, *straightening her back and staring at Gregori.*

Gregori, we should never have stayed. (*She*

*points at the ceiling.*) You say you like the quiet we've had since the neighbors left. That their footsteps kept you up at night, and their dirty boots ruined the stair well. But they didn't leave to make you happy, Gregori. They got out while they could and went to the city. They saved their money rather than spending it on pots and curtains and a new television, so that they could leave when they had the chance.

GRIGORI

You think I wanted curtains? Those curtains were for you! And the—

YEVGENIYA

You said this was stable. You said that here we were comfortable. But look at all this mess! I'm suffocating in here Gregori. I'd prefer to live in a hostel in Yekaterinburg, or even back with my parents. But now they won't take me in, and there will be nobody to buy this apartment. Without that money, we can't even afford a hostel, let alone the tickets out of here.

## SCENE 4

*The stage is split in half. At stage right is Ben's bedroom: located on the ground floor of a blue triple-decker, it has a double bed, a wooden desk, an IKEA book shelf, and a dark cupboard. The balconies of other triple-deckers can be seen through the window. At stage left is Eytan's bedroom: located on the third floor of a red triple-decker, it has two windows that look over trees, with cream-colored walls, a black desk, a single bed, and several plants. Eytan is seated, facing a laptop.*

*At two minutes to the hour, They join the call. They is an amalgamation of experts and research-*



*ers that Ben and Eytan have been talking to since their research started a year previously.*

*They are in a long room, with windows to the left above a low bookshelf. They wear large black headphones. They are in a swiveling desk chair, with their camera placed slightly above them. They are at their kitchen table, backlit, with a few cupboards visible behind them. They are in a clean, white room, which seems to be an office, but is likely a bedroom where the bed is out of view. They have a virtual background, an image of a bookshelf, which is surprisingly convincing, except around their hair, where what is actually behind them can be seen in small clumps.*

EYTAN

Hello!

THEM

Hey Eytan.

EYTAN

Thanks for taking the time to talk with us.  
We've been meaning to reach out.

THEM

Yes, sure, happy to talk.

EYTAN

Well we explained briefly in in our email,  
but —

*At two minutes past the hour, Ben enters his bedroom, turns on the light, sits at his desk, opens his laptop, and joins the call. The camera is still moving as he picks up, and once settled it is oriented towards the ceiling, with his face visible in the bottom of the frame.*

BEN

Hello!

EYTAN

Hi Ben.

THEM

Hello, nice to meet you. So I have a few thoughts on your project, following up on what you said in your email. They're mostly regarding how you might start to think about agency at a different architectural scale. How geography and significant climate data might start to inflect the designs of the buildings today, to a more significant degree than was possible even a few decades ago.

BEN

Right — we're interested in this idea of how the same building was constructed in so many different places, and what that represents today.

THEM

You know, the Soviet Union was divided into climactic zones, there were 7 of them or something, and the buildings were designed according to those blocks. It's kind of like today in China, where mass housing is actually spaced according to its latitude. And whether or not a

building gets heating is determined by whether it's above or below the Yangtze.

*The video flickers.*

THEM

Ok — how about you catalog all of the materials on the site — not just the panels themselves, but everything that's there. How do you talk about what is still in use, versus what is toxic?

*A child appears in the frame, and They leave briefly, saying something about a playground.*

THEM

Sorry about that. So. There's this idea that as architects we should make all materials work together. We have an affinity for a top-down approach that puts everything under our control. But at scale of the city, we're much more comfortable with misalignment and tectonic diversity. I'd argue that that's an arbitrary distinction. An important thing with cities is

shaping and structuring diversity, just as there's a lot of room at the scale of buildings to understand how things change and are adapted over time. All this to say that there are very interesting material consequences to the thinking you guys are doing socially and politically. I'd push you towards using them as design outcomes, to see the overlap between that social and material agency.

EYTAN

Great, yeah. Do you have any other precedents we can look to, when thinking about these questions of scale, materials...

THEM

Have you heard of Operation Breakthrough?

EYTAN

No, what is it?

THEM

It was a pilot program in the US, from the Department of Housing and Urban Development. It took place around the same time.

The thing to “break through” was the challenge of mass housing in the US. The way it ended up happening is that all these aerospace companies came up with mass housing systems. It was really unsuccessful, but all the documentation remains. And everything was designed in anticipation of mass production, so they were thinking in terms of automation and computation, even though they didn’t have the tools we associate with that kind of process today. But conceptually it had a lot in common with the way we think of parametric design now.

*The video on screen freezes for a few seconds. Eytan stretches and Ben hastily puts on socks. The video comes back on.*

#### THEM

I think you should talk about how different political economies came to bear on buildings in each of these contexts. Which is to say, how cultures and nations promote ideas about ownership, and how that affects their housing strategy. In the UK and US, political economy has

always been about ownership, as is the case in Russia today. But in Russia it's the result of a transition from a completely different mentality, and you should see how that shift shaped renovations in the past and today.

BEN

Ok, yeah. But where do we fit architecture, at the scale of a building, into that kind of discussion?

THEM

You need to think about more than just the buildings and how you can renovate them — architecture itself can't speak as you need it to.

EYTAN

What do you mean?

THEM

Housing was a major component of a neo-liberal transition that people in these countries have embraced. You need to think at that scale and on those terms.

*Another connection issue. Ben sighs dramatically and sends Eytan a text message. Eytan pours himself more tea and looks out of the window. The video comes back on.*

THEM

I think it's important to go forward from a strong assertion that architecture matters. Maybe a smart developer will decide to take your proposal on. And at that point wealth and politics are shaped by the architecture.

EYTAN

That'd be something.

THEM

If your ultimate goal is to work on the problem at an architectural scale, then you really need a lot of plans as a springboard for your proposal. With your hands on those then you're working through the language of architecture, and it doesn't matter as much that you don't speak Russian.



EYTAN

We're thinking of reaching out to a lot of our contacts in Russia, as well as architecture students in places we didn't visit. We thought we might be able to ask for their help in collecting documentation, and getting first hand accounts. So that we can really start digging into the details. And on the —

*Eytan keeps speaking, but is inaudible. Ben wave his hands at the camera to explain, and Eytan scrambles to plug in his headphones.*

EYTAN

Sorry! Sorry about that. I think my headphones ran out of battery. I was just about to say that —

THEM

Look. You're not going to deconstruct a Khrushchovka and realize that there's some new way to attach cool things onto it. Fundamentally it will still just be a panelized facade, and there's not much more to it.

BEN

Huh, ok. We have been concerned about getting too specific with the Khrushchovka, since we want to get into issues that have broader relevance.

THEM

Sometimes I feel like there are only so many architectural questions, and if you pose them simply enough you can move your idea from a single site outwards.

BEN

Yeah, ok. I like that.

THEM

In the case of Soviet housing, maybe it's not the individual building that's beautiful, but the idea of it. The network it is part of. It's knowing that nobody needs to walk farther than X minutes to get to the nearest store, or tram stop. Everything is scaled and networked so that you always understand that you're in a node of a larger system. It's not that you can't work at the

scale of a single building, but to make this a thesis project you need to develop an analytical language that works when very zoomed out. You need to telescope across scales in order to make a compelling project.

*A glitch, and the video freezes again.*

THEM

Relax a little bit, and don't let the normative nature of our profession stifle you.

*Lights off.*

## SCENE 5

*Norilsk, north of the Arctic circle. 2pm on a winter day in 1981. It is pitch black outside. Vladimir and Alexsei are two workers at the local nickel mine. Vladimir is a veteran technician in his late 50s, and Alexsei is a miner in his mid-20s. They just finished their shift and are on the bus that takes them back from the mine to the city. It is so cold outside that the condensation on the windows has frozen into sheets of ice, obscuring the exterior. The bus is part of a convoy of a dozen others. If one breaks down, passengers can quickly enter another, because without heat from the engine, death would be certain.*

*Alexsei hits at the sheet of ice on the window. His knuckles burn from contact with the extreme cold.*

VLADIMIR

Stop with your pounding. There's nothing to see out there anyway.

*Alexsei stops and holds his knuckles in his right hand. He glances at Vladimir dispassionately. But then looks back at him.*

ALEXSEI

I've seen you before. Not many people your age around here. How long have you lived here?

VLADIMIR

Ha! I'm not so old as you might think. We were sent here with my wife in 1950, when it was still the gulag. So it's been 33 years, maybe 34.

ALEXSEI, *visibly disturbed.*

Why would you stay here for so long?

VLADIMIR

We lost everything we had back in Ukraine. And out here it's not that bad. The pay is good. *(He coughs.)* You get used to the weather after a few years. Most people keep their distance from this kind of place, and I like it that way.

ALEXSEI

I can't believe anyone would decide to stay that long of their own free will.

*Vladimir sighs.*

VLADIMIR

You talk too much. The new ones always talk too much.

*Alexsei goes on, speaking while looking at his knees.*

ALEXSEI

I moved here in the summer. I had been working at the Volzhsky Avtomobilny Zavod in Togliatti. After the strike last May, I decided

to leave. I had heard about the higher wages here in Norilsk, and so I came.

VLADIMIR, *surprised.*

They accepted a car worker in Norilsk?

*A man behind them chuckles*

VLADIMIR

You people from the continent, you always think this is just another mine. The same job as any other. And then you come, and you realize that this place is hell. Do you know why all the buildings in Norilsk are raised from the ground?

ALEXSEI

No.

VLADIMIR

It's because in hell you can't live on the ground. This city is built on permafrost. For every new building they had to dig deep below the ice to pour concrete piles. Otherwise even the sturdiest building would crumble into the

ice. There's also an air gap below all the buildings, so that heat from the inside doesn't melt the ice. Because if the ice melted?

ALEXSEI

The city would collapse.

VLADIMIR

It would collapse, that's right. You're starting to get the idea.







STILL STANDING

ACT 4

STORIES

## SCENE 1

*Jižní Město, Czech Republic. Summer, 2017. This is the largest housing estate in the country, built in the 1970s to accommodate 80,000 people. It is lush and open, especially compared with the center of Prague. A young couple is looking to move into the area to with their newborn, and they are touring several apartments together with a real estate agent. They just got off the elevator and have entered a two-bedroom apartment in a panelized building.*

*The sun shines directly into the room, leaving a bright square on the floor. The real estate agent walks to the middle of the living room. The wife*

*is walking around. The husband is facing the real estate agent.*

AGENT

A fantastic space. Two bedrooms, abundant light, and a view stright onto Jižní Město's central park in the South. You might also—

WIFE, *abruptly.*

Excuse me, but you've told us exactly the same thing in the past four apartments.

AGENT

Well, they all look the same. Equally wonderful options!

HUSBAND

Don't you have anything more distinct? Something with a little character?

AGENT

You're the ones who said you wanted to move to Jižní Město. What else did you expect to find here?

WIFE

We want to be here for the nature, so our kids can play in the park. But none of the apartments you've shown us are as open as we'd imagined. Our flat in Prague is tiny, not much more than a student dormitory, but it still feels more bucolic than what you've shown us today.

*The real estate agent sighs.*

AGENT

Look, nobody's forcing you to move here. And I know it's hard to for some people appreciate this kind of architecture when you're more familiar with traditional buildings. But let me make the case for the area one more time, because I know there's something more than the park that prompted you to call my office in the first place. As you know, the district used to be very isolated from the city center, operating as a sort of enclave and with a reputation for being somewhat dangerous. But things have changed, and many young families just like

you have been attracted to the area by the open space, the outdoor amenities, and the atmosphere. Restaurants have been opening all over, and there's even a microbrewery, Jihomestsky pivovar, which opened last year in the plinth of one of these buildings.

HUSBAND

That's all well and good, but we'd still be spending most of our time in this apartment.

AGENT

And it's a perfectly pleasant apartment. It doesn't need to be unique for you to make a life in it. Besides, all signs show that the area will only improve in the coming years. It had seemed impossible 10 years ago when I was selling flats closer to the center, but I've staked my career on the future of this area, and I've only gotten more confident in that decision.

## SCENE 2

*Gdańsk, Poland. April 2007. A drab room with no furniture and a small window that looks over a park. Two men in suits enter with hardhats under their arms. Jean, the first, is a tall European Union representative, with slumped posture that indicates his sense of being too large for the space. Aleksander, the second, is a local architect, and seems not to notice the space, fascinated as he is by various corners and details.*

ALEKSANDER

And over here you'll see what I mentioned earlier, regarding the window joint. The original



windows—impossible. Of course single-paned, connected to the panels in the factory, and with these early series that meant lots of room for error. Might as well have built it in your back yard. Very little consistency.

JEAN

Mhmm, sure.

ALEKSANDER

And the thermal imagery of the facade — it's in the report — completely predictable on the one hand: gaping red lines across each panel. Goodbye heat! No need for you in here! But some unexpected results too. In some places, the grout used to fill the space between panels actually wrapped around the foam insulation joint, such that right there, where there was supposed to be some modicum of thermal resistance, you actually had the biggest leak! Predictable, I suppose. But fascinating to see all the details clearly.

JEAN

Predictable, yes.

ALEKSANDER

But you'd hardly believe it now, eh? What this all used to be? The new insulation is quite simple in principle, just a new jacket for the building. But there's a reason our technicians spent all those months preparing before construction began! Every possible thermal bridge checked, tested and accounted for. In a renovation no less, where you never quite know what you'll be getting.

JEAN

Yes we saw the report. It seems you were quite thorough. And we'll look forward to the post-occupancy results. But this room, it's a little conservative on space, wouldn't you say? I had seen the floor plans, but being here one has the impression that some extra square meters got lost in the construction process.

ALEKSANDER

Well. As you know, this program is a facade retrofit and a refurbishment of interior finishes. These panels are all structural, and it would have been expensive to move any interior walls.

JEAN

Yes, yes, of course. But numbers aside this does not seem to evoke the significant EU resources that it has consumed.

ALEKSANDER

Our task was not one of representation, Mr. Folon. It was one of building performance and inhabitability.

JEAN

Naturally, yes.

ALEKSANDER

And I might add a note from personal experience. I was raised in a building quite like this one, only a few blocks away. We moved there when I was young, and by comparison to my parent's previous housing it was a drastic im-

provement. Solid walls, no breeze, and a place to themselves.

JEAN

But expectations today are higher. The modern family requires more space to be comfortable, and despite its affordability and functionality I have to admit my disappointment that this is the best we have to offer.

ALEKSANDER

Let me continue. For my parents, space was also insufficient. We were four children and I can't picture a moment in that apartment where I couldn't hear or see someone else in the family. On top of each other! We lived on top of each other. And yet we felt some pride about our apartment. As you have noticed, this area has lovely parks. We would walk around them with my father and he would point at the buildings, telling us that just a few years ago, nothing was there. This was just trees and grass. And then, all at once: buildings! Our apartment, and that

of our neighbors. A decent place to live. There were problems, but he would remind us of the significance of what this housing represented. Today, many of us still remember this. And I think that what we have done here, which was the minimum necessary to plant these buildings back on the ground, is a tribute of sorts to that legacy. We needn't build new structures, or to drastically change everything, because we are aware of what these buildings come from, what they represent.

JEAN

Curious perspective, Mr. Wójcik. I suppose I see what you mean, with this nostalgia. I just hope that others share in your... memory. Because for the outsider there is something left to be desired here. And I'm not sure thoughts of some early technological innovation would be enough to convince me otherwise.

### SCENE 3

*Paris, France. Spring 2021. Lacaton Vassal's office near the Canal Saint-Martin in Paris. The practice is located on the ground floor of a lush courtyard, behind a stone wall covered with ivy. The room is bright and filled with plants. A table is covered with sheets of tracing paper and a booklet of paint samples. Architectural models cover the walls. A half-dozen young architects are working on their computers, and two others speak on the phone. In the back, a couple sits across from each other.*

*Anne Lacaton has short, grey hair. Jean-Philippe Vassal is a year older, and taller than her,*

*with short dark hair. Each reads through a copy of a report, as Anne taps her fingers on the table. A phone rings and Anne picks it up.*

ANNE

Allo?

SERGEI

Hello, I'm looking to speak with Mrs. Vassal?

ANNE

Oh, euh. This is Anne Lacaton.

SERGEI

Yes, excuse me. Good day Mrs. Lacaton. Pleased to meet you. My name is Sergei Kuznetsov and I'm calling from the Urban Planning department of the city of Yekaterinburg in Russia.

ANNE

Oh, hello. I had been told of your previous call. How can I help you?

SERGEI

Yes, precisely. I have been eager to speak with you. As I'm sure you are aware, you have quite a reputation, and even here in Siberia, where students and architects are brimming with excitement about your work!

ANNE

Oh. That's nice to hear.

SERGEI

Yes, well. I am getting in touch with you regarding my city. Are you familiar with Yekaterinburg? Did you know it is the fourth largest city in all of Russia? Well, I suspect you have heard from many people in other great cities...

ANNE

Our work is mostly in France.

SERGEI

Yes, of course. I am calling in regards to the housing stock that we have here in Yekaterinbourg. Like elsewhere in Russia, and many other places too, many of our residents live in prefab-



ricated concrete structures from the 1950s and 60s, known of here as Khrushchovki. Perhaps you have heard of this kind of architecture?

ANNE

Yes, of course.

SERGEI

Of course! Well, then perhaps you see where I am going! The residents of ours currently living in these structures find them to be substandard, in many ways. In the winter retain very little heat, which is unpleasant for residents and costs the city a fortune. People have adapted the buildings for their needs over the years, but there is only so much they can do without professional services. And you may have heard that in Moscow, which I might add sucks significant funding from cities like mine, well, in Moscow there is currently a large plan to demolish and replace these structures. As I'm sure you are aware, this is a costly undertaking. And in smaller cities like my own, significant as they may be, we do not have the financial resources

to make such significant changes. And it is just for this reason that we have been so taken with your work! We are aware of a project of yours in particular, a tower, the Bois-le-Prêtre.

ANNE

Yes, Bois-le-Prêtre. People always seem to refer to this project, though we have made many other buildings since.

SERGEI

Yes, well, we think that such an approach would be a fantastic way to address the housing problem in our city. We know that there was a possibility of the building you renovated in Paris, this Bois-le-Prêtre, of it being torn down, and that you were able to save it, and make excellent apartments for residents, at a fraction of the cost of a new structure. Furthermore, I noted that in the images of the project — I might add, as an architect by training myself, I find these wonderful! — well in the images, you see that people kept their apartments just as they were! Same wallpaper, same couch,

even! All the same, just extra space, and what beautiful extra space. Several meters, if I'm not mistaken, added to each apartment, by extending straight out. A brilliant idea. And with such simple materials! Nothing too fancy! Incredible work. Needless to say, since learning of your project, and working on the problem of housing in this city, I have been wanting to ask for your services. A consultation to begin with, but we might eventually be interested in hiring you as architects for the project.

ANNE

Yes, I see. Since it's completion we have received other such requests. You may know of our work on a similar project in Bordeaux. But in response to these requests I prefer to begin with some further context, information which has not been fully conveyed in the images circulated of Bois-le-Prêtre.

*Jean-Phillippe nods slowly, though he has not taken his eyes from the report.*

ANNE

The core belief behind that building was that residents have the capacity to participate in the construction of their space, and to be part of the process.

SERGEI

Yes, a wonderful idea

ANNE

It is. But putting it into action requires a clear channel of communication with residents. Here in France, we put tremendous effort into the administrative side of the project, and had many conversations with people in the building. Ultimately, much of the invention and design happened through paperwork and in discussions. To be honest with you, working with residents to the extent that we did could be arduous. I certainly do not mean to disparage the project, but I hope to contextualize some of its acclaim, and remind those interested in replicating it that it was not a purely technical solution, and that it involved a process that is be-

yond the scope of what is typically considered in our fields. When approaching this problem in the Soviet Union, there is an inclination to seek solutions that might be applicable to large swaths of buildings. To those of an entire city, for instance. And what I hope to convey is that our project's success, while ostensibly grounded in its simple materials and the generic nature of the structure it updated, was in fact based in residents, and on what they were able to bring to the renovation. This was not just a matter of holding a few interviews, but was an inversion of many aspects of the traditional design process. And so as you consider what this project might look like in your city, I encourage you to do so via those who live there now.

## SCENE 4

*Tbilisi, Georgia. Summer of 2005. The Gldani III Micro-District is a cluster of concrete buildings, which are completely unlike the traditional structures of the old city. We see a market stall at the ground floor of a Khrushchevka, where a vendor sells vegetables and flowers. It's hot, and the sight of a blond head in this residential district is unusual.*

*Katie, a PhD student at MIT, is conducting research for her work on housing in Eastern Europe countries. Today, she is meeting with Tamara Rusudani, a local activist specialized in the preservation of Georgia's Soviet architectural heritage.*

*Katie is visibly lost. She walks across stage, then retraces her steps and stands uncertainly in front of the seller.*

KATIE, *to the street seller, in hesitant Georgian.*

Gamarjoba ... is ...?

SELLER, *abruptly.*

What?

KATIE, IN HESITANT GEORGIAN.

Is... this... \*shit\* ... Gldani... (*She raises three fingers.*) ... microrayon?

SELLER

Da!

*After a pause he smiles, amused by the unusual presence she brings to the district. He gestures to the vegetables in his stand but Katie shakes her hand as she glances nervously around her.*

*Tamara enters, and quickly walks to Katie, whose back is turned and does not see her*

TAMARA

Katie!

KATIE, TURNING AROUND.

Tamara! You're here! I thought I'd gotten lost.

TAMARA.

No, this is it. I'm so glad to finally meet you in person. After all those emails and calls.

SELLER, *to Tamara.*

Who is she?

TAMARA, *rudely.*

A researcher!

SELLER

Ah!

KATIE

What did he ask?

TAMARA

He asked who you are.



KATIE

Tamara, I've mentioned my plans to interview locals, and—

TAMARA

Absolutely, we're on our way to meet some in this building!

KATIE

Well, I would actually love to interview him. Would you be able to ask him?

TAMARA, *puzzled*.

Him?

KATIE

Yeah.

TAMARA, *to the seller*.

Batono, the researcher would like to talk to you.

SELLER

Me? Why? She said she doesn't want vegetables

KATIE, *to Tamara.*

Can you tell him that I study the preservation of Soviet buildings.

TAMARA, *to the seller.*

She's from America. She studies the Khrushovki. She wants to talk to you about them.

SELLER

The microrayon? She must be lost! The architecture of this city is in the center. Show her the churches, show her the old houses.

TAMARA

No, no. She has seen those and she wants to know about these. She sees that they are in disrepair and wants to learn about how to improve them, and keep their integrity.

SELLER

I see. Hm. (*He looks at Katie, who smiles and nods at him.*) Just imagine someone gives you a cardboard box and says, here, live in this. What do you do? At first you look for something else. But when there is nothing else, and nowhere

else to go, you start to adapt. You put out your market stall, you save money. You find a builder who will hang an extra room from the wall of your living room so that it can give you children a place to sleep. But there's no integrity to the cardboard box. Nothing to keep.

*A man in another stall shouts something at the Seller, which he dismisses with a wave of his hand.*

## SELLER

These days they talk of the problems of the Khrushchovki. Say say that they must be torn down and replaced. They say the new buildings will be modern. And with that they expect we will be satisfied with a new version of the very same cardboard box we started with all those years ago. Complete injustice! I have made my life with what was given to me, and I don't need architects to tell me what I need or Americans to tell me what I had.

*Tamara looks at the vegetables as Katie waits for her translation.*

## SCENE 5

*Somerville, USA. Spring 2020. The same two-roomed stage set as in Act 3 Scene 4.*

*Ben is seated upright as Eytan shuffles around on his swivel chair, trying to steady it from rolling down the sloped floor.*

BEN

Ok so what is this part supposed to be about?

EYTAN

There's still a lot missing... This part's on how we've been collaborating, the collaboration devices...

BEN

Right, but we wanted there to be some bigger articulation of where we stand, right?

EYTAN

Yes. So we talk about why we chose the topic, and where we're coming from.

BEN

Ok. Eytan, why did you choose this topic and where are you coming from?

EYTAN

Ah. Ha. *(In higher-pitched voice, with eyebrows raised.)* It all started in spring 2019 in a design studio where we studied Yugoslavian housing in Belgrade. We worked as part of a larger collective, and got to know each other better...

BEN, *continuing.*

We then had the opportunity through MISTI to spend two and a half months of the following summer in and around Russia. While there, we were taken on as researchers within a

large Moscow architecture firm with 600 employees. We were two of the three foreigners at the office, and the rest were Russian.

EYTAN

Ben, are we missing the point?

BEN

Yes. What is the point of this?

EYTAN

Stance, tone, why we're bothering.

BEN

Right. Honesty. Let's speak honestly.

EYTAN

Ok. For me it's about the material. That this housing program mobilized concrete and supplies in a way that was completely unprecedented, and today, these buildings sit on the landscape. Forgotten, neglected. There's something for me in the fact of all that stuff! That we can't just think of them as a mixup that can be swept away. That there is still a pressing need for hous-

ing and this is what is there today, so we have to do something with it. And that as designers, we need to articulate a position about how to take on the problem.

BEN

I've never really understood what you mean by the position part.

EYTAN

It's that we need to articulate what scope of the problem we're taking on. We could do a whole project on the gardeners who care for these buildings, or the best way to reuse concrete rubble from demolished buildings. What components of the problem are we choosing to take on, why only those pieces, and how do we respond to them? That's what I mean by position. And our ambition is to have a position that is relevant to the discipline but can stand outside of it.

BEN

Right.

EYTAN

With the Khrushchovki in particular, there's this indelible mark across every city, which is the result of a political idea, and to which contemporary politics must now respond. The Khrushchovki are a kind of mediator, between the historic and the contemporary, and the political and the physical. All interventions on these buildings fit within that dynamic.

BEN

Unhuh.

EYTAN

So what's our role in it? We don't speak the language, we only heard about these buildings for the first time a year ago, and there are many other architecture students who have intimate familiarity with the context and are better positioned to actually turn this kind of work into a practical reality.

BEN

Right. That's the big question. There was that



phase where we thought about switching the topic to France. We know the context so much better and would have had access to more people and information since we speak French. But in considering that switch, and through our arguments about it with each other, we settled back on Soviet context. For one, we actually have accumulated a lot of valuable knowledge about it since last spring.

EYTAN

It's also that in France there was never the egalitarian ideal of the Soviet project, or if there was it didn't last long. Whereas in the USSR the housing was aligned, despite its perverse implementation, with an extremely idealistic set of ambitions. I think that's what makes it interesting. The social aspect of the project and its radical technological and infrastructural side. And seeing how a single idea played out across the vast territory of the USSR. None of this is true of France, where the scale is much smaller, and each project was significantly more individuated from the outset.

BEN

Right. Now on the joint thesis part. Why are we not doing this alone?

EYTAN

Because in what world do architects work in total autonomy?

BEN

Agreed. I guess it's basically that. And that we have fun working as a team. We want to enjoy our work, and don't think it's quality or depth is compromised as a result of our collaboration. And we have faith in our ability to produce something as a team that neither of us would be able to do alone.

EYTAN

The collaboration has also been a place to experiment with ways of working together. Like that's become part of the subject of the thesis. And I've really enjoyed figuring out how to write together, making up games to generate ideas, figuring out how to organize everything.

BEN

And for now at least we have a good balance of time spent arguing and frustrated with each other and time spent doing things and having fun. The former will always be there in a collaboration and I think we manage it well.

EYTAN

Sure Ben, good for you.

*Ben laughs, or winces.*

EYTAN

Ok. Interview questions. Ben, where do you see yourself after this thesis?

BEN

The best I can come up with for now: Option one — I get hired by a large corporate structure, a machine that operates smoothly, that does something that seems important but which is not strictly part of my world. I'd be a fly on the wall, like when we were at APEX in Moscow, and would learn from people there,

try to figure out how they operate and to what end. My skill set would offer something different to the company. They'd let me function as a kind of black box, an alien in their midst that would sporadically produce things that were somehow useful, such that they didn't feel the need to interfere. So that's option one. A temporary setup that might give me some insight into a different world. I could also picture myself finding an architect who does work I like, who has a direction I can buy onto, and who I would happily work under and learn from. The thought of going off on my own and designing some relative's house from scratch, on the other hand, really doesn't appeal to me. Ok. your turn.

EYTAN

What's the question?

BEN

What do you want to do after MIT? I know you have the catchphrase version, so let's start with that.

EYTAN

What's the catchphrase version?

BEN

"I want to work with friends"

EYTAN

I do say that a lot. It's been an easy fallback answer for years, but now I need to actually start thinking about how it could happen. That's why I'm doing this DesignX thing. So there will be the infrastructure in place to actually work with friends after I graduate. But just like you I'm also interested in what you can learn from big corporations. So I might go back to them. Not necessarily the kind of large architecture firm I worked at before MIT, but maybe some company that is not design-driven, and developing some expertise there.

BEN

Mmmh.

EYTAN

Do you think you'll end up working in academia?

BEN

No.

EYTAN

Why not?

BEN

I mean, not for now. I still don't know where I stand in this discipline, like what my motives and passions are. And I couldn't teach effectively or earnestly without that, without my feet on some more stable ground. What about you?

EYTAN

I like teaching. But I think I would feel more comfortable learning more things to teach before coming back to teach them. The other issue with teaching is that it feels very hard to dissociate it, at least in the US, from research. And I don't think I like research, at least not in a formalized academic sense. Where you need

to write lots of papers and such. That's not what thrills me in life.

BEN

What do you want to get out of this thesis project?

EYTAN

What's important to me is that we not design a building that could have been done in any studio, but at the same time not make this thesis totally detached, only about a grid or design guidelines that are too abstract to engage with real buildings or real people. So far I think we've managed to fit between them.

I think I also want to do something relevant with this thesis. I don't feel like we should be completely free from reality. I want to take the buildings we're talking about seriously. They're decaying, being torn down. All this is happening, and is affecting millions of people. And yet so many contemporary designers are working with new materials, from scratch. I really be-

lieve that at some point in our lives we're going to need to face up to all this existing matter, that has already been used in buildings. To work with it, and think through all of its complexities. Maybe that's how we should be designing. Working with the existing, rather than designing radical ideas that feel more and more disconnected from the world we live in. Much as I'd have loved to, doing something more free feels kind of irresponsible, and I think we should have a sense of responsibility in this profession. A lot is at stake with the Khurshchevki. There's such a long history of catastrophic disconnects between a political ambitions and material problems. So our responsibility is to make sure the failure isn't as drastic this time, when the structure gets renovated.

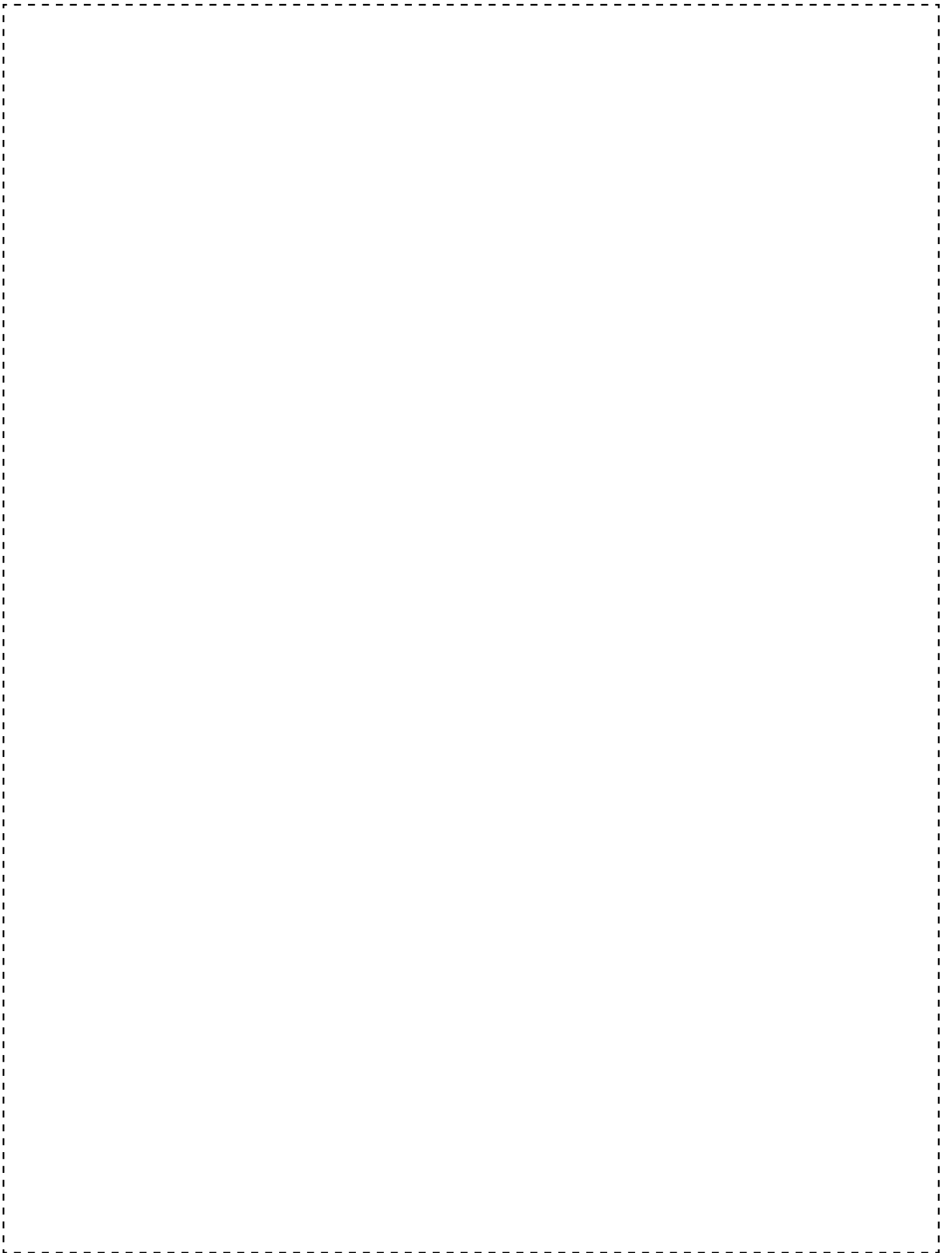
BEN

That's our thesis!

*Eytan and Ben exit.*







STILL STANDING

SIX OF SEVEN

# REFLECTIONS

EYTAN LEVI

BEN HOYLE

## **On Reality**

Throughout our thesis process, we would sometimes be told that our work was too rational and not sufficiently speculative or imaginative. In response, we would like to restate our position.

We are very conscious of the limitations architecture students face once they graduate. Throughout our collaboration on this thesis, we have been deliberate in orienting our project so as to prepare ourselves to work with those limitations once we leave the academic bubble. As a result, it was never of interest for us to design a speculative thesis project that would be out of touch with any reality in which we might someday operate.

Our choice to work on Soviet mass housing is a function of this mentality. They are deteriorating buildings sited in places with few financial resources, so a design with any claim to reality would require close attention the reality of the problem.

Finally, our thesis benefited from the added dimension of real estate development. Having to understand the chain of stakeholders we would need to engage with and assessing how many residential units would need to be added to pay for our renovations was a useful constraint. It allowed us to make informed decisions about how to size our proposals, thereby freeing us up to invest in other dimensions of the project.

## On Scale

At the beginning of our thesis, we spoke with many experts on the topic of Soviet housing. A significant number think about mass housing as integrated urban design projects: systems more than things; districts more than buildings; political economy more than architecture. They would encourage us to think about the buildings similarly.

While we understand the context and goals of this approach, our intentions are to improve the lives of residents in mass housing. Doing so requires a different perspective, which foregrounds the building, its materiality, and its specific qualities.

We recognize that infrastructural, district-level changes are crucial for any improvement in a mass housing district, but we are convinced that these alone are not sufficient. Work at the level of each building is also necessary, with close attention to how they are owned and managed and the resources they have available. These attributes are tactical. They can be leveraged and reconfigured to produce highly specific outcomes for a given building.

Over the course of our work, we also considered how people group together, interact and organize. We designed projects based on what would be possible if differently sized collectives, in concert with different configurations of stakeholders, took action.

## **On Keeping the Buildings**

Since the beginning of our project we have asked, and been asked, why we would want to preserve deteriorating, 1960s-era buildings. Why not demolish them and building something nicer? The concrete they are made of is crumbling, and many residents would be happy to see their property destroyed if they could get a similar apartment in a newly-built structure.

We are very much aware of the cultural baggage of Soviet-era architecture in today's post-Soviet societies, as well as the urgency of giving their residents better living spaces. However, the way we see the buildings, their history, and how they figure relative to contemporary issues, calls for a more nuanced approach than demolishing them to fabricate a *tabula rasa*.

For one, today's Soviet mass housing has attributes that we think are worth keeping. Microrayons were conceived as the communist answer to the modernist tower in the park concept, and included the careful design of green space. Over the decades, these green spaces have continued to grow, and many buildings are now surrounded by lush trees that distract from their deteriorating concrete facades. This is especially true in districts built with the early generations of Soviet housing, which were never taller than 5 stories.

Second, there are clear ecological reasons to keep the buildings. We believe that new construction

will only become more difficult to justify as the climate crisis continues to expand into all domains of life. The current discipline of architecture will struggle with this, and we think it needs to be reoriented in such a way that it can reconcile the process of acting with the process of preserving. Today, these two notions are too much at odds.

Lastly, there is pragmatism in our call for the preservation and tactical upgrading of the buildings. Although some of them, like the one we worked on in Zelenograd, might be razed in a bout of urban renewal, these are wholly exceptional in having land values and political circumstances that would motivate such a process. The reality is that most places in the post-Soviet world lack resources to upgrade, let alone fully rebuild, their residential building stock.

Assuming then that the buildings will persist, we argue that residents have nothing to lose and a lot to gain by embracing the apartments they have. The Soviet provision of housing for all residents was a drastic and unprecedented undertaking, motivated by the ideals of a socialist system. We believe that the relationship between a resident and their apartment can be leveraged, expanded, and foregrounded in such a way that can serve their long-term interests.

## On Care

We have been hearing a lot about care in architecture lately. In student projects, faculty research, symposium titles, and podcast episodes. We appreciate how it foregrounds previously unrecognized labor in the discipline. But through its widespread usage, we have started to lose sight of what it means for us, and therefore feel compelled to define how we envision care in our thesis and future work.

We spent a large part of our thesis learning about existing buildings in locations scattered across Eastern Europe and Siberia. We visited some of these places in person, and saw many more through flyovers in Google Maps. We read papers about the buildings and made friends with people who live in them.

This process was easy, driven as it was by our own curiosity. The challenge was in figuring out how to convey our findings in such a way that would be relatable to those who grew up in these buildings and accessible to those who have never heard of them.

What did we want to communicate, and how?

For us, the work of understanding and representing the current context is as important, if not more so, than the act of envisioning an alternative future. We chose representational mediums – paper models and line drawings – with which we felt we could convey details of



the buildings as well as what they feel like. The models are based on original drawings, photos and careful research, and they represent the buildings in a way that we have not previously seen. Making them helped us picture alternative futures for the buildings. We hope that they might inspire similar responses from people who see our work. This is what we consider to be care for the architecture: attention to its detail, grounded in a will to learn from it.

As we are about to graduate, we hold this technique closely. Our work as designers should involve helping people see what they already know, so that they can imagine other things it might become. We can lay the groundwork for creative thinking. At the very least, this can let others see how we came up with our ideas. Beyond that, it might help them develop new ideas of their own.

## **On Design**

As students, we both wondered what kind of design was worth spending time on. We recognize that architecture alone cannot solve many global issues. Nonetheless, we believe that design, coupled with other disciplines, can produce ideas that permeate the cultural and political perception of a problem, and eventually shape its solution. In this, it can create access to alternatives that might not otherwise occur to people. It can undo expectations.

The challenge is that such an inclination can tend towards work in the purely imaginary. For us, design is most compelling when paired with other ways of thinking that are more grounded in reality – such as real estate development, as in the case of this thesis.

In thinking through bottom-up renovations led by housing cooperatives for this thesis, we tried to demonstrate a framework for design that is both specific and participatory, while also expansive and imaginative. In our future work we hope to continue finding space for new ideas within the intricacies of real-world problems.

## On What's Next

*The question that we were asked most frequently as we wrapped up the project is what we'll do with it next. We respond with a few other questions and musings, addressed to our future selves rereading this in the months and years to come:*

### **Eytan to Ben:**

We've thought of so many thesis topics and directions while working together, and we've somehow agreed that the renovation of Soviet mass housing was the most important idea for us to explore during our MArch. Given the spread of the housing stock we studied, we know that very little will change for its residents in the years to come. So what are the next steps for us, if you still believe - like me - that this is a project worth pursuing? Who do we talk to and what do we need to produce to contribute to the improvement of Soviet mass housing? I am convinced that the design and development ideas we've had in this thesis should not vanish into thin air as we graduate from MIT, and I look forward to turning these conversations and documents into what we think should happen in the architecture field over the upcoming decades.

### **Ben to Eytan:**

You've always been drawn to working on disheveled modernist housing. We found some reasons to do so in this thesis, but I wonder if there are others, beyond the claims and theories

that we came to. What is it that draws you to this problem? I think that if you keep digging into your inclination in the years to come, you might find different answers than those we came up with for this project. I trust your instinct, and I think it has even more to offer than we've already found.

But we did find a position through this work, and I want to reiterate some version of the questions that we did manage to come to: Can we use buildings as an excuse, a starting point: weighty objects that people can rally around and accomplish things through? How do we make sure that our designs are always expanding on what exists rather than trying to rewrite it? How can you work on a specific building, with attention to its unique circumstances, in a way that has ramifications for many others?

## Notes to Each Other

### Eytan to Ben:

Do you remember that evening three years ago at the Media Lab when you convinced me to come to MIT for graduate school? You were nearing the end of your first year of architecture school, and I had just gotten accepted into the MArch program. Who would have known that we would end up working together on our thesis?

As I look back on our collaboration, I would like to formalize in one place all the things we have done together before and during our joint thesis. During my first semester at MIT, we escaped studio for one afternoon and took a boat to the ICA Watershed in East Boston, and we learned how to fly a drone in Baja California, Mexico. A few months later, we overlapped at a lecture in Shanghai, China, and grabbed dinner together. We then took Ana Miljački's studio in Belgrade, Serbia, in which we worked together on reshuffling the layout of the space we were working it, and where we also researched the political and financial implications of Belgrade's old station demolition. We also became co-presidents of the MIT Architecture Student Council, where we learned to plan and execute real projects with each other. At the end of that semester, you flew to Irkutsk, Siberia, and I intercepted you in Kazan, Tatarstan, where you had arrived with the Transsiberian train thanks to a workshop co-organized by Maya Shopova

for which we ended up building a floppy table out of reclaimed steel grids at Nikola Lenivets near the Belorussian border. We spent the next two months in Moscow, where we researched on the demolition of prefabricated Soviet mass housing at APEX Project Bureau. At the end of our summer in the East, we flew to the Caucasus and spent a few unforgettable days in Georgia. You then took a gap semester in Paris while I returned to Boston, and we met again in Cartagena, Colombia, where we worked on a school project for a few week, and most notably decided to work on our thesis jointly. We would wake up at 6am every morning to discuss ideas for a few hours, and when we returned to Boston the following semester we knew we would pursue our work in the former Soviet Union through our thesis. The covid-19 pandemic happened, we launched a radio station for the MIT Architecture community, you moved to Kenya, and I traveled back and forth between Boston and Paris, where you joined me for two weeks at the beginning of our thesis semester. Eventually, we were able to spend the final weeks of our work on Still Standing together in New England, first on campus in Boston, and then in Phippsburg, ME, where we are wrapping up this thesis from.

I could not have dreamed of a better collaborator for this joint thesis. The rigor you instilled in all our processes, from the use of paragraph styles in InDesign to the discovery of DropBox Paper as a

way to work together, has triggered fundamental changes in the way I operate on a computer screen. More importantly, I cannot thank you enough for your open-mindedness to unforeseen changes and experimental ideas, every second of all our in-person and virtual encounters. We're finished, and the real work starts now. Below, you'll find a few open-ended points that I'd like both of us to keep in mind in the years to come.

The two side projects we've launched over the past year, in Paris and Nairobi respectively, make me hopeful that we can bring the notions we came to in our thesis to the real world.

I'm curious to see how and if we manage, as architects, to have a voice in decision-making processes, and if we actually end up working with users, residents, and public administrations. We might eventually do something else, but I would have many regrets if we were not exploring an alternative to traditional career pathways in the architecture industry, after all this work.

I'm not the type of person that forgets the people they once were close with. I will definitely keep you posted with what goes on in my life, and I hope that you will do the same. We've developed countless common workflows over the past three years, and it would be a pity not to reactivate them someday to work on something together.

There are obviously a few elements of our thesis that we've overlooked, either because of time,

because we were working remotely, or because we did not know how to solve them. Beyond our claims that we will keep exploring them, I hope that we will actually do the work we call for.

Cheers,  
Eytan

### **Ben to Eytan:**

I think the first thing we built together was a curtain. It had nice red stitching and we hung it in a squigly line, but in the end it was something of a pretext for working together.

I think that all of our subsequent projects followed from a similar mindset: we enjoy collaborating, and we find reasons to do so. This often seems to happen on its own, with things we'd like to work on just appearing before us.

But I'm aware that it's not so simple, and that the sense of ease, freedom, and intermingling creativity that I cherish in our collaborations is in large part thanks to you.

For one you have a remarkable ability to find pleasure and interest in basically anything you spend time on. Such an approach to work had barely even occurred to me before getting to know you (you're all too familiar with the perverse pleasure I take in languishing through challenges). On top of that, you're very generous

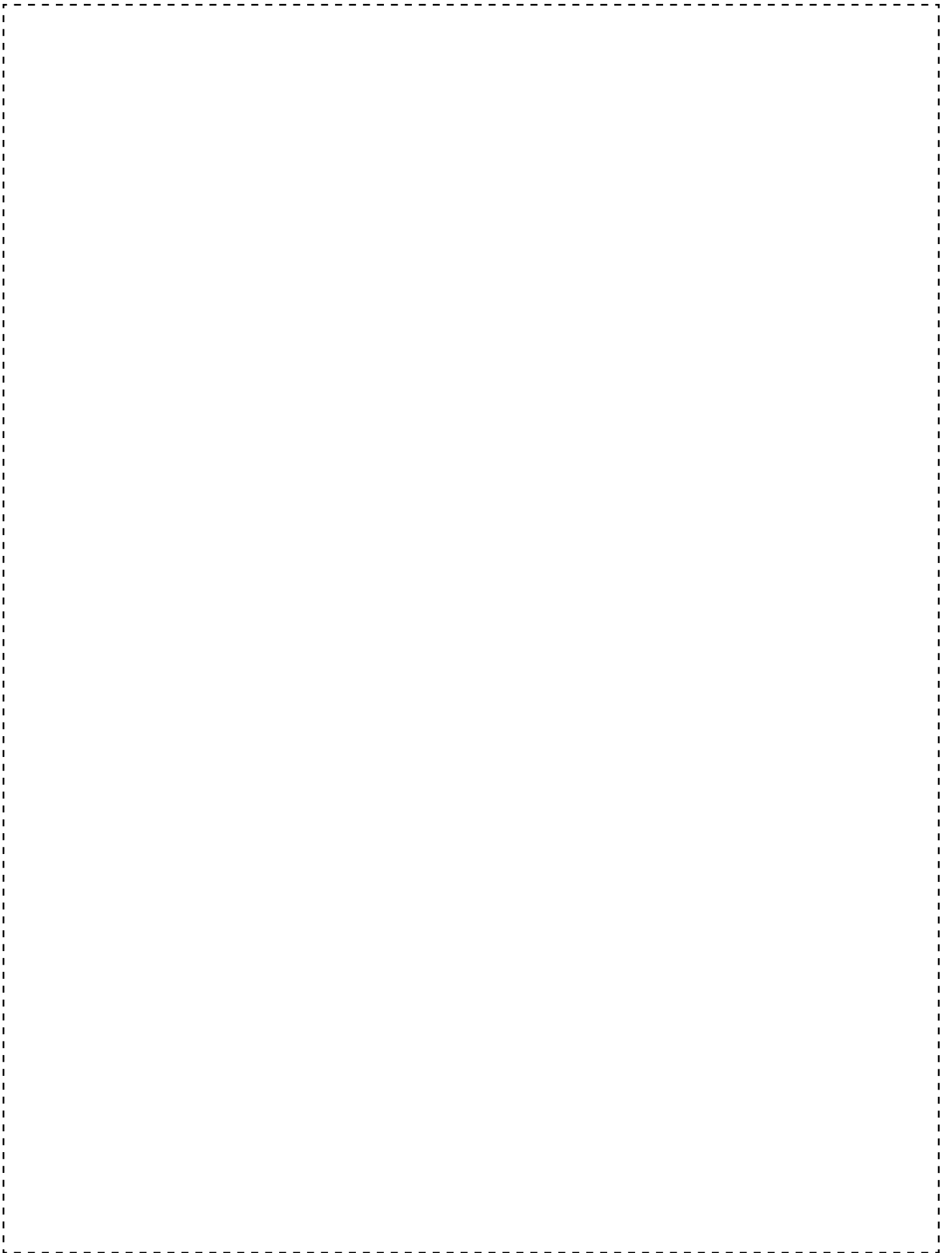


with people you care about: you will never shy away from helping, consulting, sharing and supporting. The combination of these traits makes for the kind of openness that I greatly admire in you. It's as though you can open up your brain to the world and let the people and places around you permeate and inspire your thinking, without ever losing sight of yourself, your interests, and how you relate to others. From my perspective, this is a very courageous way of being, and it's been a thrill to get swept up in it over the course of this project.

Now, at this brief pause in our ongoing string of collaborations, I have a distinct feeling that I can see myself differently through our friendship and work together. Our differences have fused into a unique dynamic, and through all of our giggling, bickering, exploring and brainstorming you've come to shape how I think, how I see things, and how I look forward.

Thank you for taking me along, and always pushing for the extra mile no matter how stubbornly I argued for the easier solution. Thanks for the hundreds of emails you sent for both of us, the details you poured time into, and the patience you consistently managed to conjure up. You're a remarkable friend and I'm lucky to have gone through this process with you.

A big hug and kiss,  
Ben



STILL STANDING

SEVEN OF SEVEN

# REFERENCES

EYTAN LEVI

BEN HOYLE



STILL STANDING

**FINANCIAL  
CALCULATIONS**

REFERENCES

## **Research Questions**

Throughout this thesis, we became interested by the two following financial questions.

1. How much would the renovations we propose cost, and how could they be cost-neutral for the current residents?
2. How much profit would developers lose should a building be improved as opposed to demolished and rebuilt?

## **Methodology**

Through Russian and Latvian websites that listed apartments around our three sites, we were able to understand the real estate value of the 1-467 buildings we were looking at for our thesis.

We also found data about the cost of construction and demolition in each of our three sites, which allowed us to assess the cost of our renovations.

Using the aforementioned information, we determined how many new residential units would need to be added to achieve cost-neutral renovations for current residents.

The second research question we had identified eventually came across as less relevant for the part of the research we wanted to cover with our thesis, but we are convinced that it would have to be investigated further should the proposals be implemented somewhere.

## Prices of Soviet-era apartments

631

### Riga

Average price/m<sup>2</sup> = 856 €

	Price in euro	Area in m2	Rooms	Floor #	Bdg floor count	Series	Year built	Material	Heating	Price/m2 (euro)
<b>Riga Average</b>	40111	48	2	5	7					856
<b>Apartment A</b>	36000	49	2	4	9	1-467		Panel	Central	735
<b>Apartment B</b>	40000	60	3	4	5	Lithuanian	1985	Panel	Central	667
<b>Apartment C</b>	30000	48.8	2	5	5	Khrushchev	1964	Panel	Central	615
<b>Apartment D</b>	40500	39	2	4	5	Lithuanian		Brick + Panel	Central	1038
<b>Apartment E</b>	37000	37	1	8	12	Special	1983	Brick	Central	1000
<b>Apartment F</b>	36000	30	1	5	5	Lithuanian		Panel	Central	1200
<b>Apartment G</b>	38000	50	2	4	9	1-467		Panel	Central	760
<b>Apartment H</b>	48500	60	3	5	6	Lithuanian		Panel	Central	808
<b>Apartment I</b>	55000	62.4	3	2	5	Lithuanian		Panel	Central	881

### Zelenograd

Average price/m<sup>2</sup> = 1 757 €

	Price in rub	Area in m2	Rooms	Floor #	Bdg floor count	Series	Year built	Material	Heating	Price/sqm (rub)
<b>Zelenograd Aver:</b>	7326250	48.3875	2.125	4.375	7.625					157745
<b>Apartment A</b>	8150000	48	2	5	5		1978	Brick	Central	169792
<b>Apartment B</b>	860000	61	3	5	5		1974	Monolithic	Central	14098
<b>Apartment C</b>	9550000	55	2	14	22					173636
<b>Apartment D</b>	7500000	43.7	2	1	5		1973	Concrete	Central	171625
<b>Apartment E</b>	10800000	59	3	3	5		1973	Concrete	Central	183051
<b>Apartment F</b>	6250000	30.2	1	3	4		1962	Brick	Central	206954
<b>Apartment G</b>	8600000	46.6	2	2	10		2010???	Monolithic	Central	184549
<b>Apartment H</b>	6900000	43.6	2	2	5	1-447	1970	Brick		158257

### Surgut

Average price/m<sup>2</sup> = 1 070 €

	Price in rub	Area in m2	Rooms	Floor #	Bdg floor count	Series	Year built	Material	Heating	Price/sqm (rub)
<b>Surgut Average</b>	4645000	51.025	2.25	3.5	5					96089
<b>Apartment A</b>	3700000	28.8	1	5	5		1979	Panel	Central	128472
<b>Apartment B</b>	2860000	30	1	5	5		1977	Panel	Central	95333
<b>Apartment C</b>	3800000	40.8	2	4	5		1977	Panel	Central	93137
<b>Apartment D</b>	3800000	41	2	4	5		1977	Panel	Central	92683
<b>Apartment E</b>	4000000	40.8	2	4	5		1977	Panel	Central	98039
<b>Apartment F</b>	6700000	86	4	2	5		1978	Panel	Central	77907
<b>Apartment G</b>	6700000	88.8	4	2	5		1978	Panel	Central	75450
<b>Apartment H</b>	5600000	52	2	2	5		1981	Panel	Central	107692

Sources: cian.ru and mm.lv

## Prices of newly-built apartments

### Riga

Average price/m<sup>2</sup> = 1 437 €

	Price in euro	Area in m2	Rooms	Floor #	Bdg floor count	Series	Year built	Finish	Heating	Price/sqm (euro)
Riga Average	109480	75	3	3	5					1437
Apartment A	168000	92	2	3	3	New				1834
Apartment B	169500	126	4	1	6	New	2008			1344
Apartment C	62350	47	2	4	5	New				1327
Apartment D	85000	68	3	2	3	New				1250
Apartment E	62550	44	2	4	6	New				1428

### Zelenograd

Average price/m<sup>2</sup> = 1 152 €

	Price in rub	Area in m2	Rooms	Floor #	Bdg floor count	Series	Year built	Finish	Heating	Price/sqm (rub)
Zelenograd Average	6748049	66	2	5	13					103432
Apartment A	7160000	71	2	5	17	New	2021			101359
Apartment B	10748434	62	2	4	14	New	2021			172444
Apartment C	4231810	58	2	8	8	New	2021			73000
Apartment D	5300000	60	2	3	8	New	2020			87894
Apartment E	6300000	76	2	4	17	New	2021			82461

### Surgut

Average price/m<sup>2</sup> = 1 043 €

	Price in rub	Area in m2	Rooms	Floor #	Bdg floor count	Series	Year built	Finish	Heating	Price/sqm (rub)
Surgut Average	5693299	62	2	4	14					93644
Apartment A	4569090	51	2	1	18	New	2022	Unfinished		89240
Apartment B	6834000	79	3	6	18	New	2022	Unfinished		86506
Apartment C	8090000	90	3	3	16	New	2023	Chistovaya		89819
Apartment D	5830000	47	2	4	18	New	2023	Pre-cleaning		122944
Apartment E	4940000	62	2	5	6	New	2021			79154
Apartment F	5500000	61	2	7	9	New	2020	Rough finish		90461
Apartment G	4090000	42	2	5	16	New	2021			97381



## Construction and demolition cost assumptions

### Cross Laminated Timber

Construction price/m<sup>2</sup> = 350-390 €

### Concrete panel facade

Demolition price/m<sup>2</sup> = 10-11 €

	Riga	Zelenograd	Surgut
<b>Construction (price/m2)</b>			
Monolith Brick		750	433
Brick		428	419
Panel		718	407
Monolith	750	718	389
Block		662	384
CLT	350	389	389
<b>Demolition (price/m2)</b>			
Brick	7	8	8
Concrete non-structural	10	11	11
Concrete structural		44	44
Roof coating		1	1
<b>Manual dismantling (price/m2)</b>			
Steel (price/ton)		22	22
Brick		11	11
Concrete		56	56

Sources: Latio 2019 Commercial Property Report; Triumph SK Demolition estimates; Alexander Pavlyukovskiy, 2012, Using of Cross Laminated Timber in Russia; Statista, Average housing construction cost in the Siberian federal district of Russia in 2018; Swedbank calculator of building costs.

## New apartments to balance renovation costs

### Riga

0 new apartment: EU subsidies + resident contributions

### Zelenograd

4 new apartments: cost-free renovation

### Surgut

22 new apartment: cost-free renovation

### Required number of new apartments =

(overall facade demolition cost \* % of facade to demolish)  
 + number of apartments to renovate \* (cost of renovation /  
 m<sup>2</sup> \* average area of existing apartment + average additional  
 depth \* average length of extended facade \* miscellaneous  
 construction costs)) \* (1 + investor profit) / (average area  
 of new apartment \* (resale value of new apartment - CLT  
 construction cost / m<sup>2</sup> \* (1 + miscellaneous construction  
 costs) \* (1 + investor profit)))

	Riga	Moscow	Surgut
CLT construction cost/m2	350 €	390 €	390 €
Miscellaneous construction cost (% of total)	20,00%	20,00%	20,00%
Renovation cost of existing/m2	250 €	240 €	223 €
Overall 1-467 facade demolition cost	21,000 €	21,499 €	20,000 €
% of facade to demolish	100,00%	14,00%	5,00%
Average additional depth to existing (m)	1	1	0,5
Average length of extended facade (m)	9,9	9,9	1,5
Price/m2 of new apartment	1,437 €	1,151 €	1,042 €
Average area of new apartment (m2)	N/A	90	60
Average area of existing apartment (m2)	45	45	45
Number of existing apartments to renovate	120	15	60
Investor profit	10,00%	10,00%	10,00%
Cost of new construction	568,482 €	270,075 €	653,722 €
Cost of renovation	675,000 €	214,512 €	782,791 €
Overall Project Cost	1,243,482 €	484,587 €	1,436,513 €
Subsidies	600,000 €	0 €	0 €
Number of new apartments	N/A	4	22





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