

# LOST INBETWEEN

## THE CHALLENGE; HOUSING MARKET 2022

STARTING STATEMENT:  
IT IS HARD FINDING A HOME WITH THE CURRENT STRESS ON THE HOUSING MARKET, MOSTLY WITHIN THE URBAN ENVIRONMENT. CURRENT APPROACHES OF HOUSING FALLS SHORT AS ECONOMIC HOMELESSNESS IS ON THE RISE, ESPECIALLY AMONG LESS FORTUNATE TARGET GROUPS. IT IS IMPORTANT TO SEARCH FOR ALTERNATIVE WAYS OF APPROACHING THE DESIGN OF THE LIVING ENVIRONMENT. TO CREATE A MORE INCLUSIVE AND SOCIAL/ECONOMIC ACCESSIBLE LIVING ENVIRONMENT WITHIN AN URBAN CONTEXT.

yr. 1835

The rise of industrialization produces factory workers

We are drawn towards the city, all at once.

Maasricht first area in the Netherlands to industrialize (glass, crystal and pottery manufacturing)

Where we lived in poor conditions. (Basements and hovels)

The municipality build houses for us workers. (arbeidswoningen)

As the new inhabitants can't take care of themselves anymore (all land is claimed, creating new jobs is hard). The government had to do something. Especially when there seem to be people profiting of this constructing situation (investors & homeowners)

If this trend continues, and more people will keep on being excluded from society (economic homeless, fugitives, international students) will the world start to look like Caracas?

They still do! Apparently it isn't enough. Otherwise I wouldn't be living on the streets of the Netherlands in my early 20s.

Tawan 2021

Nowadays people can and will take matters into their own hands.

But the rules work against us!

Amersfoort - Peter Hermans

Caracas 2021

### THE HOUSING REGULATIONS, WHY?

CONSTITUTION 1798

PROTECT

To protect from the power of the king. Giving the people rights and a voice. One of the rights is mentioned in article 22: the right for a place to live.

HOUSING LAW 1901

PROTECT

To protect people from poor living conditions that homeowners or landlords create. The municipality is responsible for providing those 'healthy' living spaces.

FIRST BUILDING DEGREE (BOUWBESLUIT) 1992

EQUALIZE

So the level by which we define 'healthy' homes and the requirements for the building is arranged on a national level. A healthy living space is the same for all dutch inhabitants.

ENVIRONMENTAL PERMIT 2010

SIMPLIFY

To make it easier to apply for different kind of building permits. The different permit applications are compressed into the environmental permit.

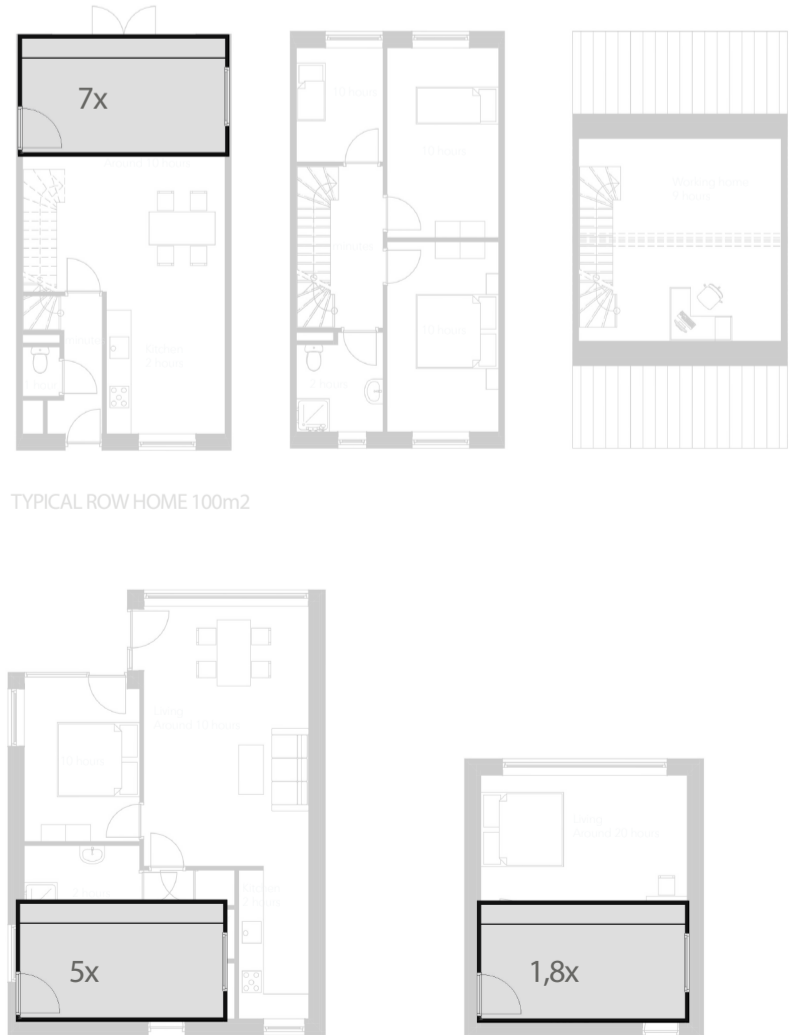
ENVIRONMENTAL LAW 2022

EQUALIZE

The environmental law will arrange the durability on national and eventually worldwide level. To ensure everyone is handling our situation of running out of raw materials and energy in the same degree.

### VACANT AND OVERSIZED BUILDINGS

URBAN WANDERERS HAVE NO PLACE TO GO DUE TO THE TIGHT HOUSINGMARKET. WHILE AT THE SAME TIME THERE ARE A LOT OF VACANT AND OVERSIZED BUILDINGS. SO WHY NOT PARTIALLY USE THEM AND OPTIMIZE TO PROVIDE SMALLER HOUSES. 14M2 IS THE MINIMAL SIZE THAT COULD HOUSE EVERY LIVING FUNCTION PRIVATELY.



# URBAN WANDERERS

There are almost no fit housing typologies for me as a single starter. Non that are affordable and fit my needs.

OLIVER - SINGLE STARTER

Min income: 1.725,-  
Min mortgage: 86.162,-  
Private living area: 14m2-30m2

We are both freelancers and found it hard to finance a property. The subscription (rent-buy is a good alternative).

BEN, ERICA, MILLIE AND WILLOW - FAMILY

Min income: 2x1.725,- = 3.450,-/6.000,-  
Min mortgage: 172.324,-/260.000,-  
Private living area: 75m2+

When I lost my wife I found it hard to find a family home for me and my three children by myself.

RICK, NINA, JULES AND MARK - SINGLE PARENT WITH 3 CHILDREN

Min income: 1.725,-/4.000,-  
Min mortgage: 86.162,-/200.000,-  
Private living area: 60m2+

We lived in a temporary renting home. It was hard finding a new home with the current housing stress.

FENNE AND LISA - SINGLE PARENT WITH CHILD

Min income: 1.725,-/4.000,-  
Min mortgage: 86.162,-/200.000,-  
Private living area: 60m2+

We are both ready to start a life together. We've been searching for a place for us two for already 3 years.

ELLIE AND JEAN - COUPLE STARTERS

Min income: 2x1.725,- = 3.450,-  
Min mortgage: 172.324,-  
Private living area: 26m2+

Money is no issue but finding a home for my big family is.

JOHN - EXPAT (WITH BIG FAMILY)

Min income: +/-6.000,-  
Min mortgage: 260.000,-  
Private living area: 50m2-200m2

We live in an oversized home. We don't want to give up all of our luxunes.

Affordable beautiful homes are sold within minutes. We are always to late to do an offer. Or our offer is to low.

STEPHEN AND JESSIE - ELDERLY COUPLE

Min income: 3.450,-  
Min mortgage: 172.324,-  
Private living area: 60m2+ (single floor)

I don't need a lot of space on my own. I like sharing facilities and I'm always outside anyways.

EMMA - SINGLE ADULT

Min income: 1.725,-/4.000,- Min mortgage: 86.000,-/240.000,-  
Private living area: 14m2/60m2

I want to see the world. I just need a space to sleep and store my stuff, thats it.

JULY - EXPLORER

Min income: 1.725,- (flexible)  
Min mortgage: 0,-/86.000,-  
Private living area: 2m2+

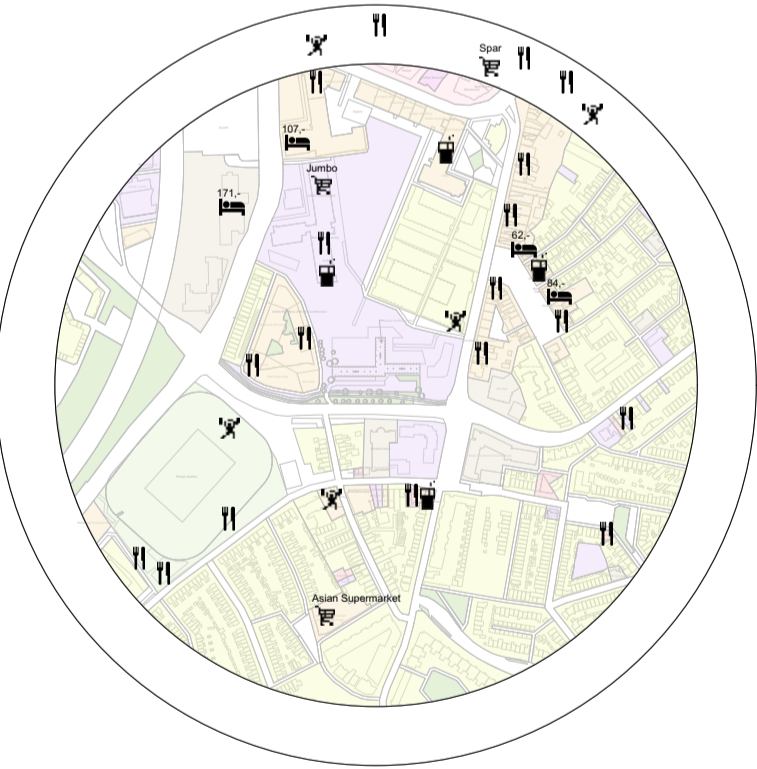
# HOMETOWN

## KARKAS, EINDHOVEN, THE NETHERLANDS



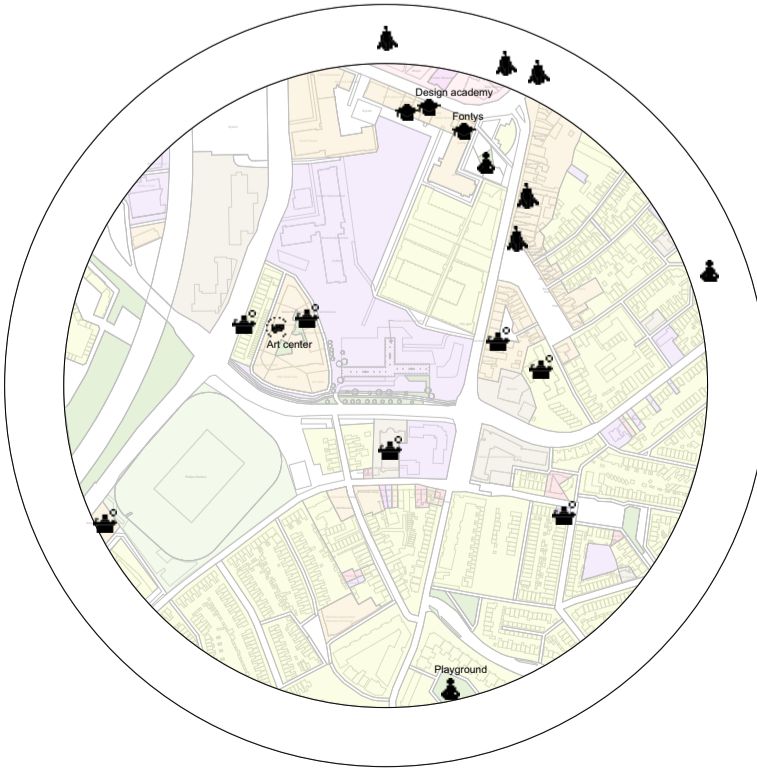
The city is a big urban landscape full of experience in terms of social, and professional aspects. Within a 10 minute walking range you will find a lot of existing functions that you can take advantage off. I know a person that for example only showers after going to the gym. He says that he rarely ever uses his shower at home so why have one completely for yourself. You can share facilities or use the spaces within the city that are already there.

### EXISTING BASE FUNCTIONS



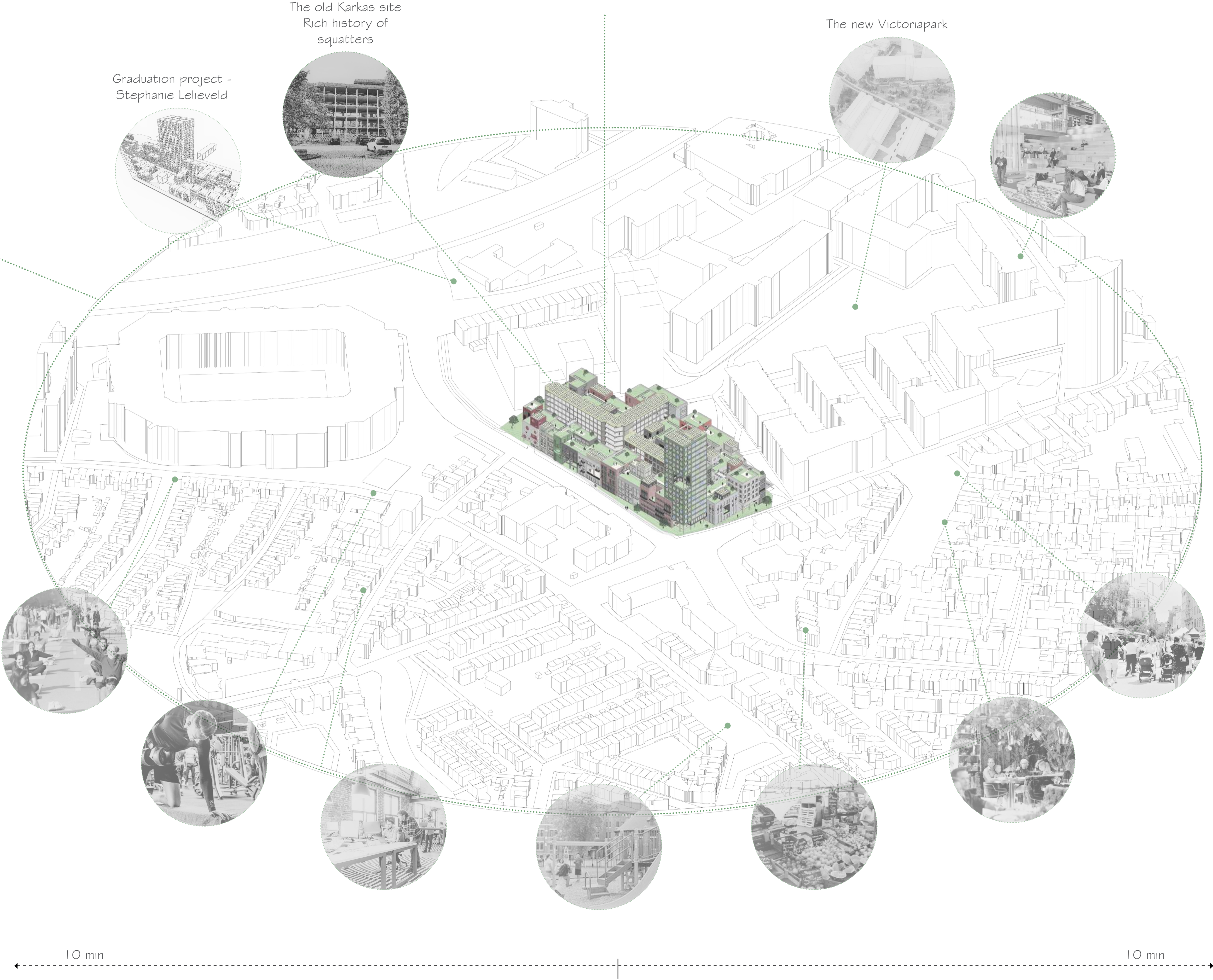
- Supermarkets
- Restaurants
- Bar
- Hotel
- Gym
- Outdoor
- Sport
- Housing
- Business
- Shops
- Mixed functions
- Societal
- Cultural
- City center

### EXISTING SECONDARY FUNCTIONS



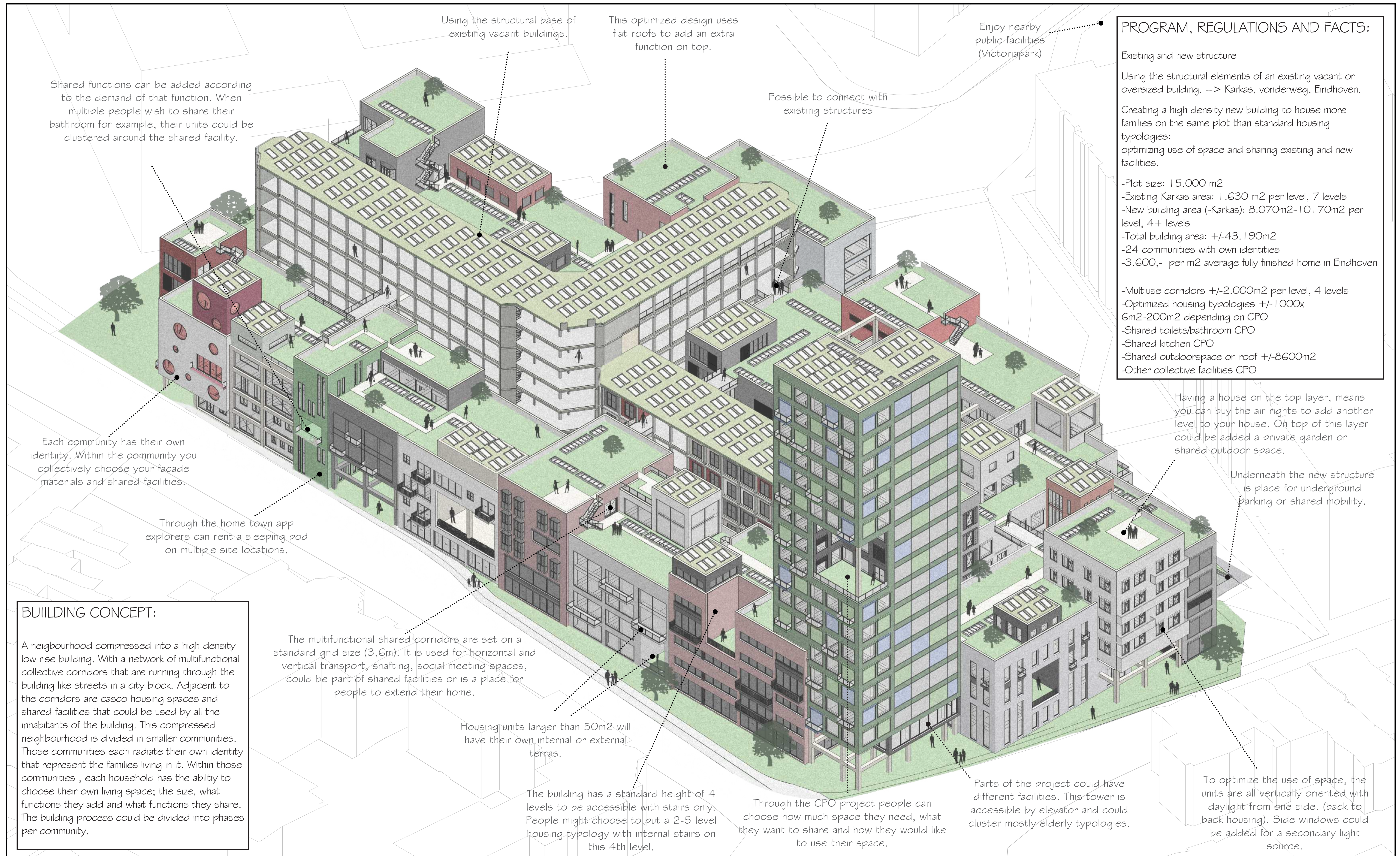
- Leisure shops
- Schools
- Offices
- Leisure
- Mindfulness

Functions that are missing or supply to little for the demand, within the 10 min walking range could be added to the new building. But that also depends on what is asked for during the CPO procedure.



# A NEW KARKAS

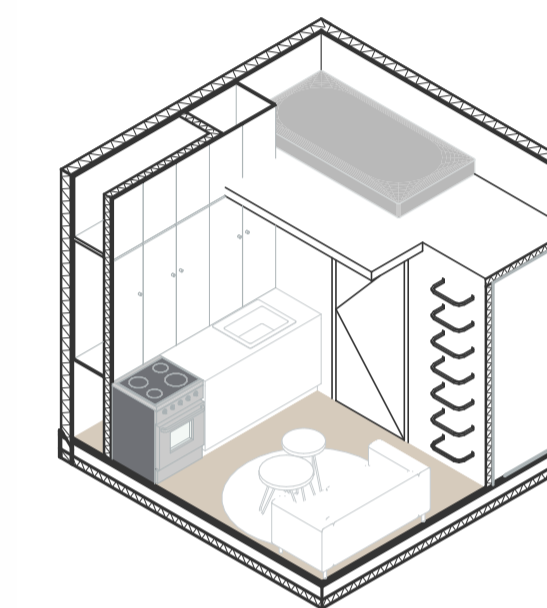
## NEW APPROACH OF HOME FOR THE URBAN ENVIRONMENT



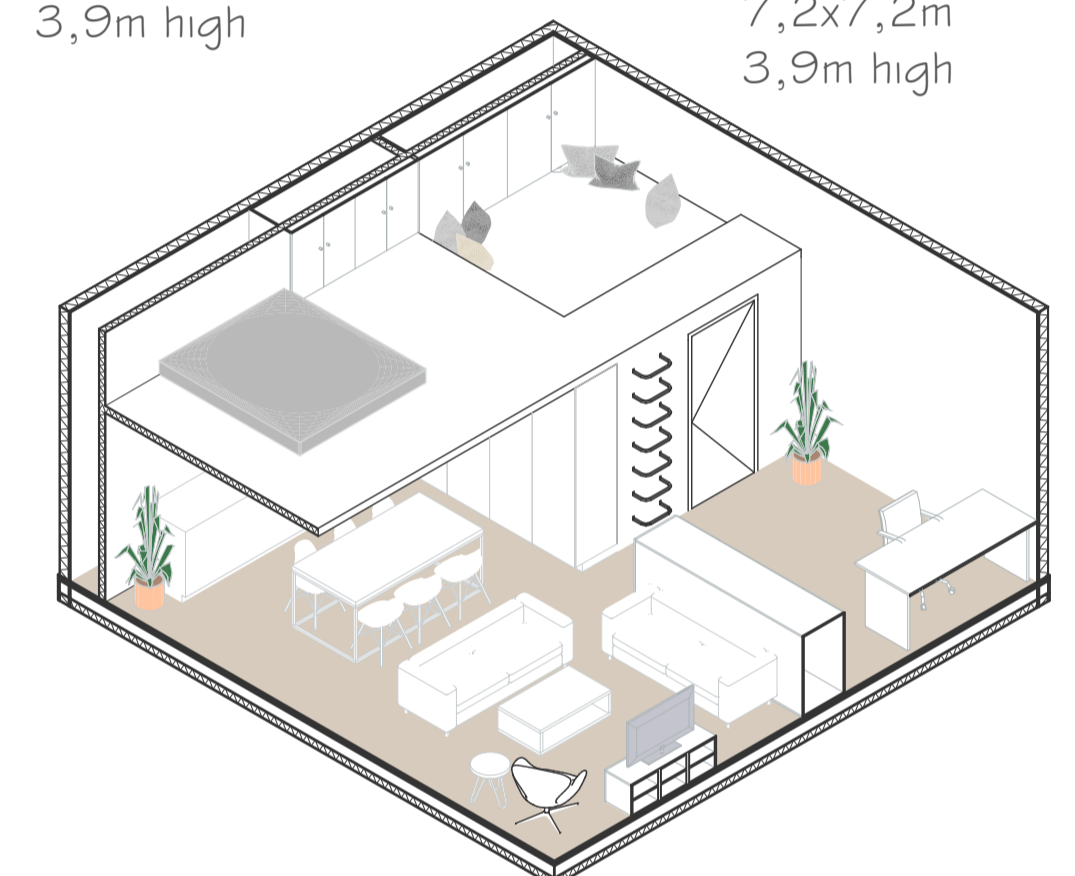


## OPTIMIZED SPACE

Optimizing the use of space ensures a more densified urban area, and thus creates more space for people to live. There are some urban and architectural principles that could be applied to generate an optimal mass and use of space while still maintaining a spacial quality. Providing the user of the space with a choice on how to shape this environment is a very important principle on optimizing and creating willingness.

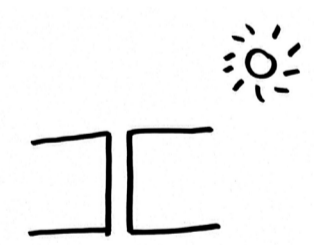


Single starter  
tiny home  
14m2  
3,6x3,6m  
3,9m high



Couple starters  
52m2  
7,2x7,2m  
3,9m high

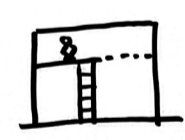
### ARCHITECTURAL OPTIMIZATION PRINCIPLES



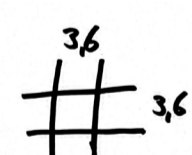
Back to back  
housing



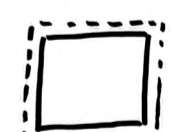
Flat roofs with  
functions on  
top or buy air  
rights



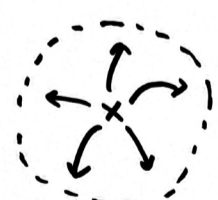
Heightened  
ceilings to add  
loft space



Standard grid to  
give built-ins a  
uniform fit



Optimize the  
mass on the plot



Use of existing  
urban functions  
and sharing  
facilities

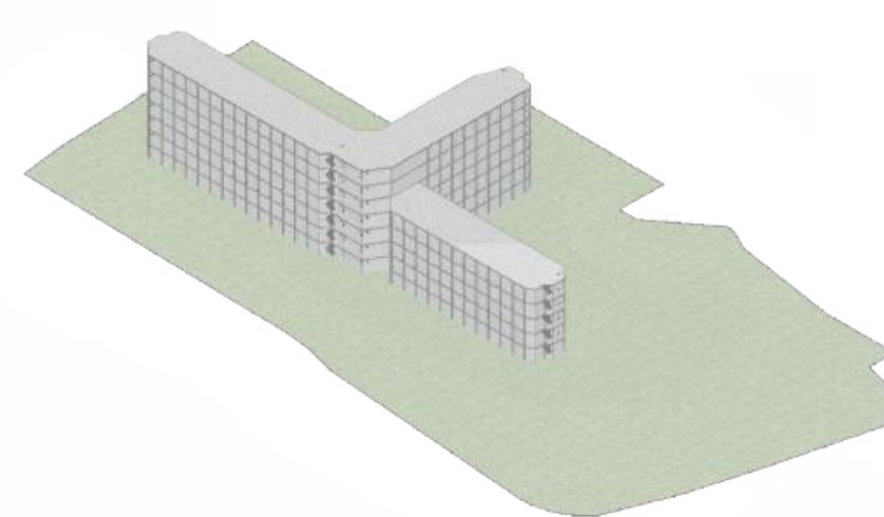


Flexible finish building systems like  
computer flooring, lowered ceilings,  
thin partition walls etc. as most  
oftenly seen within office buildings.

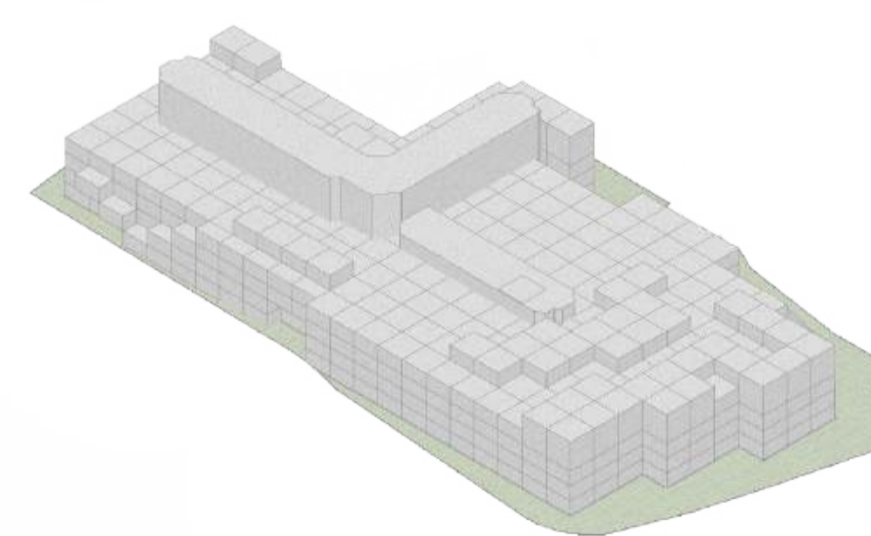


Giving people  
the choice on  
how to use their  
living space

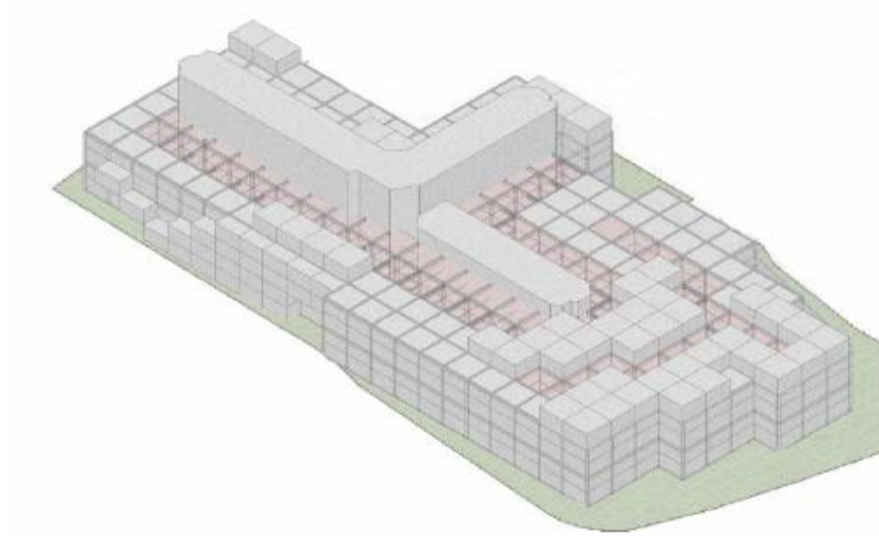
### URBAN OPTIMIZATION PRINCIPLES AND DESIGN STEPS FOR OPTIMIZING MASS ON PLOT



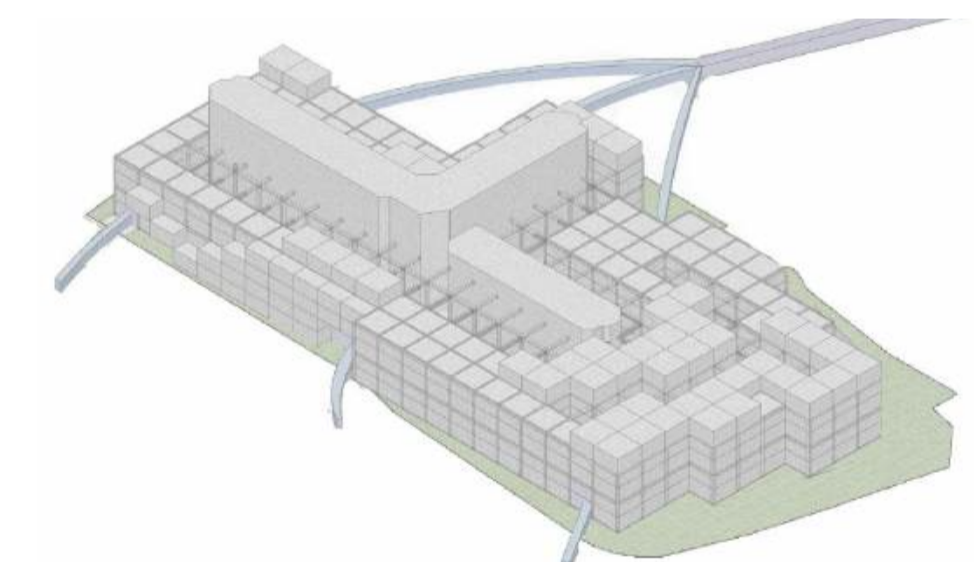
1. You start off with a new or an existing plot which might or might not house a vacant building. Strip that building down to the structural base.



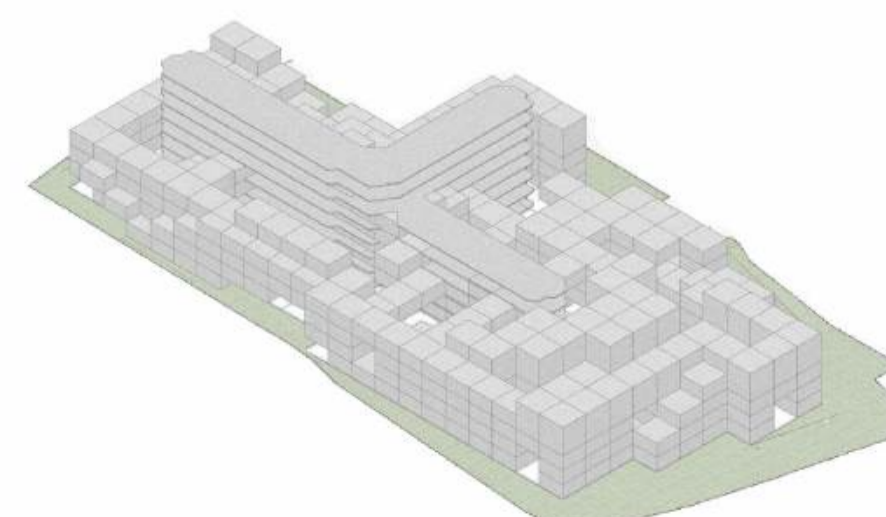
2. Lay a standard grid on top of the plot. Fill the plot fully with mass. In this study the max height for the highest front door is 4 layers (12,5m)



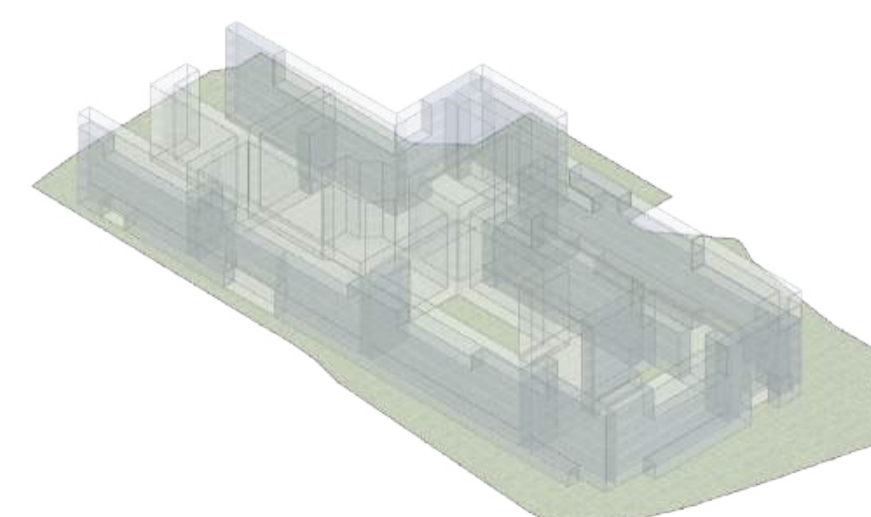
3. Extrude the masses that block daylight. After the extrusion all the left over masses should get enough daylight. (back to back housing dept till +/- 7m.



4. Extrude the masses that block the main walking routes, sightlines and possible walking routes to the roofscape etc.



5. Connect the mass to the existing building.



6. Create an internal network of corridors with horizontal and vertical walking routes, and social meeting spaces.

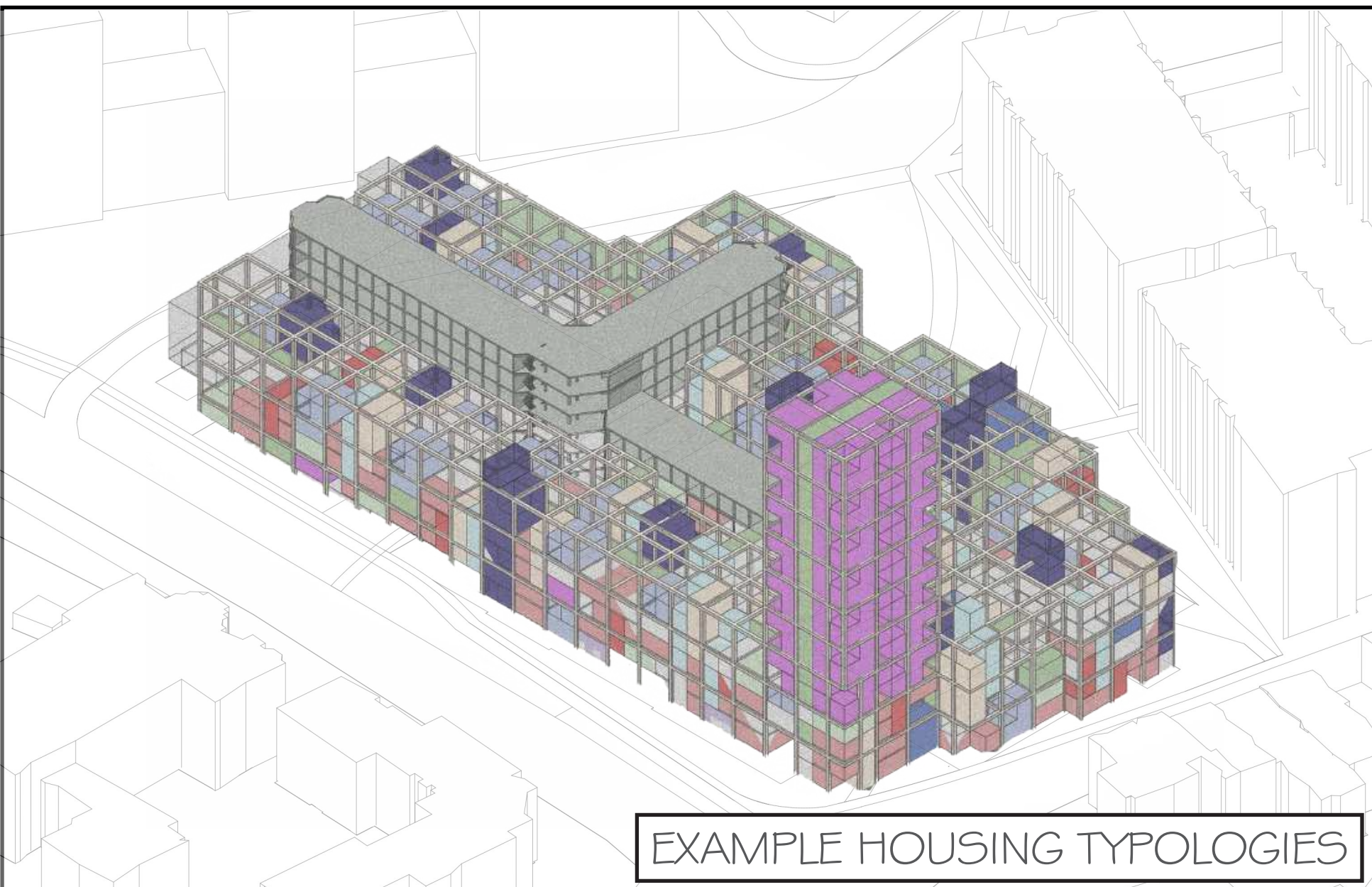
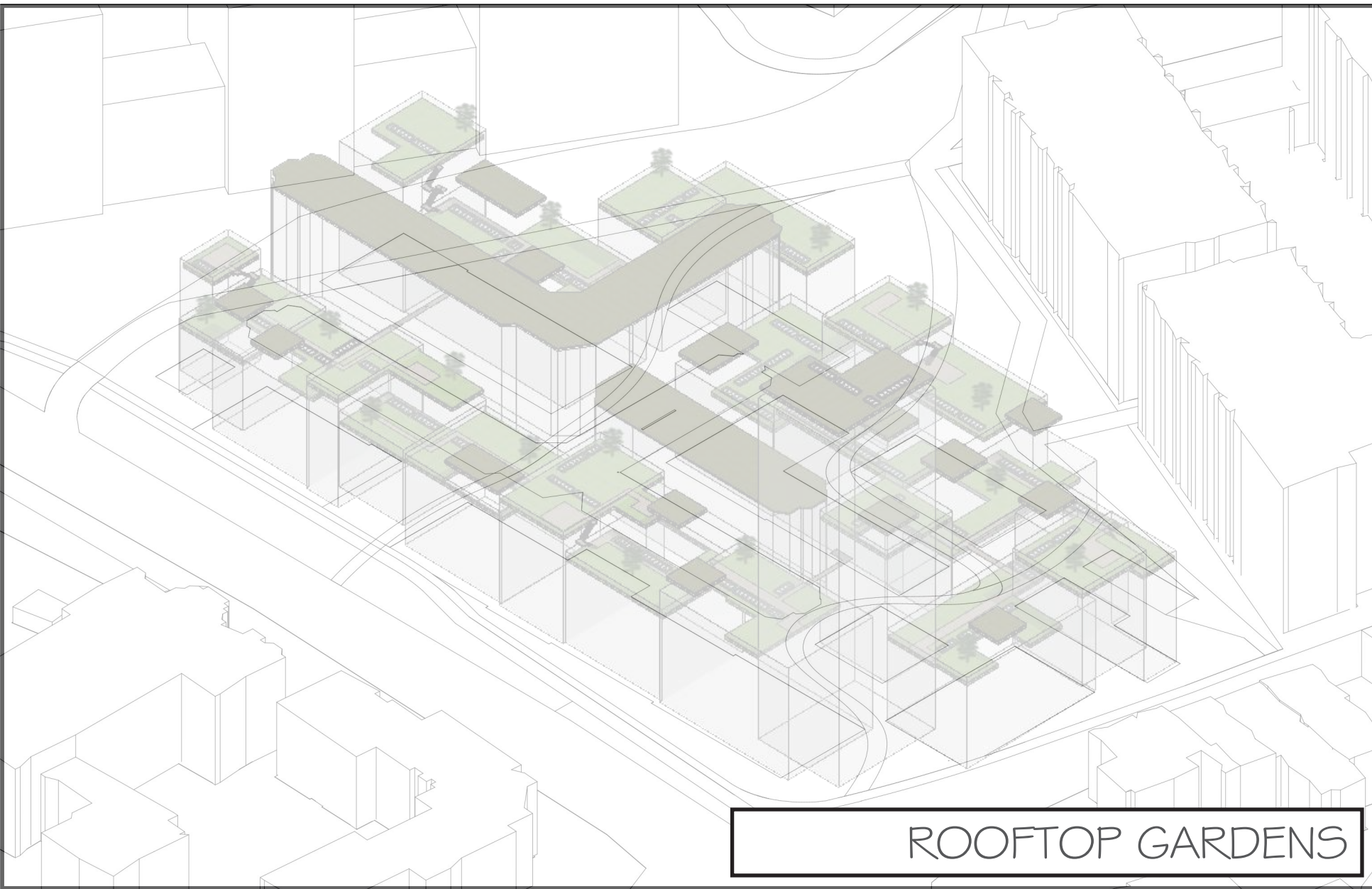
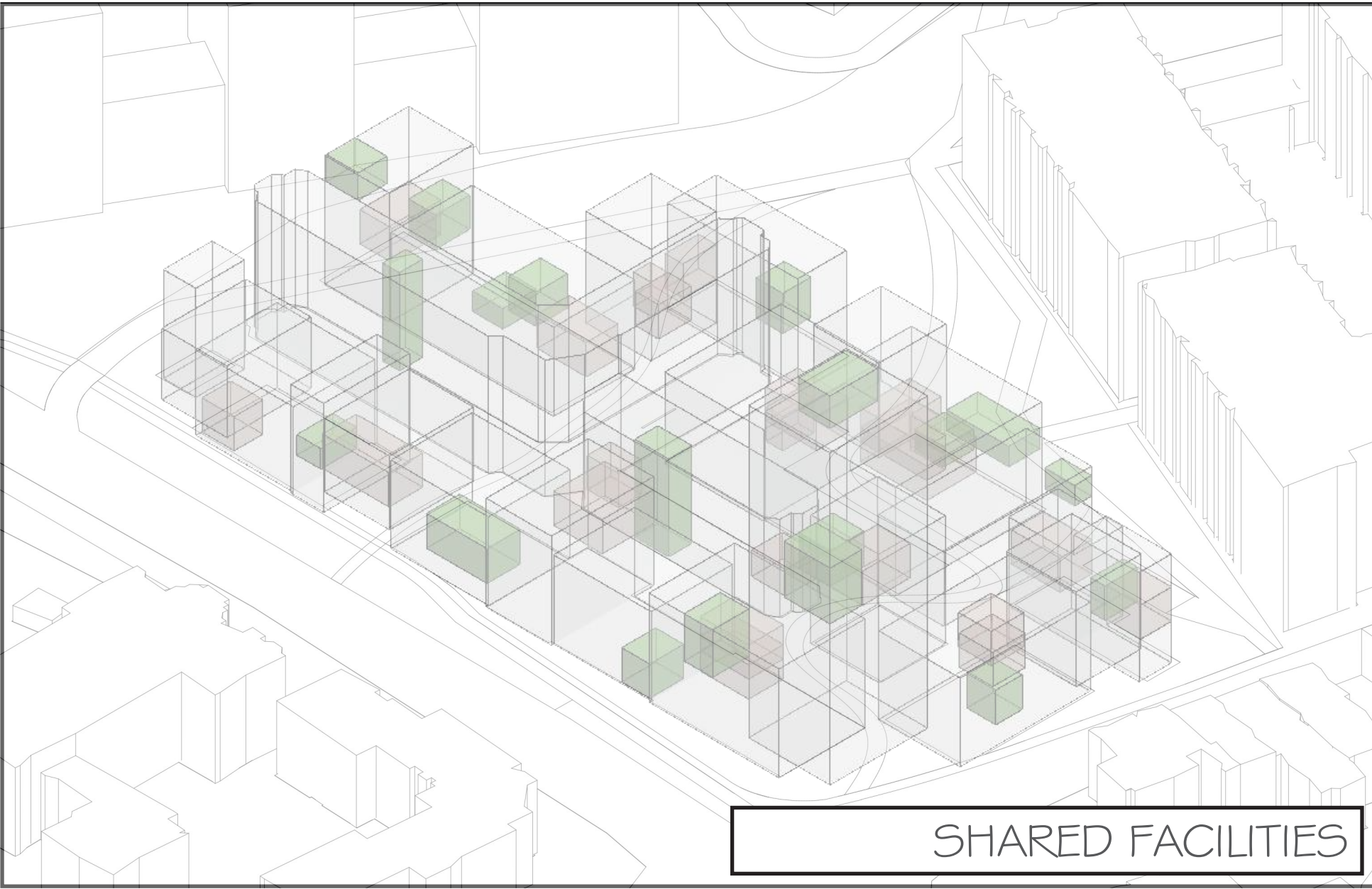
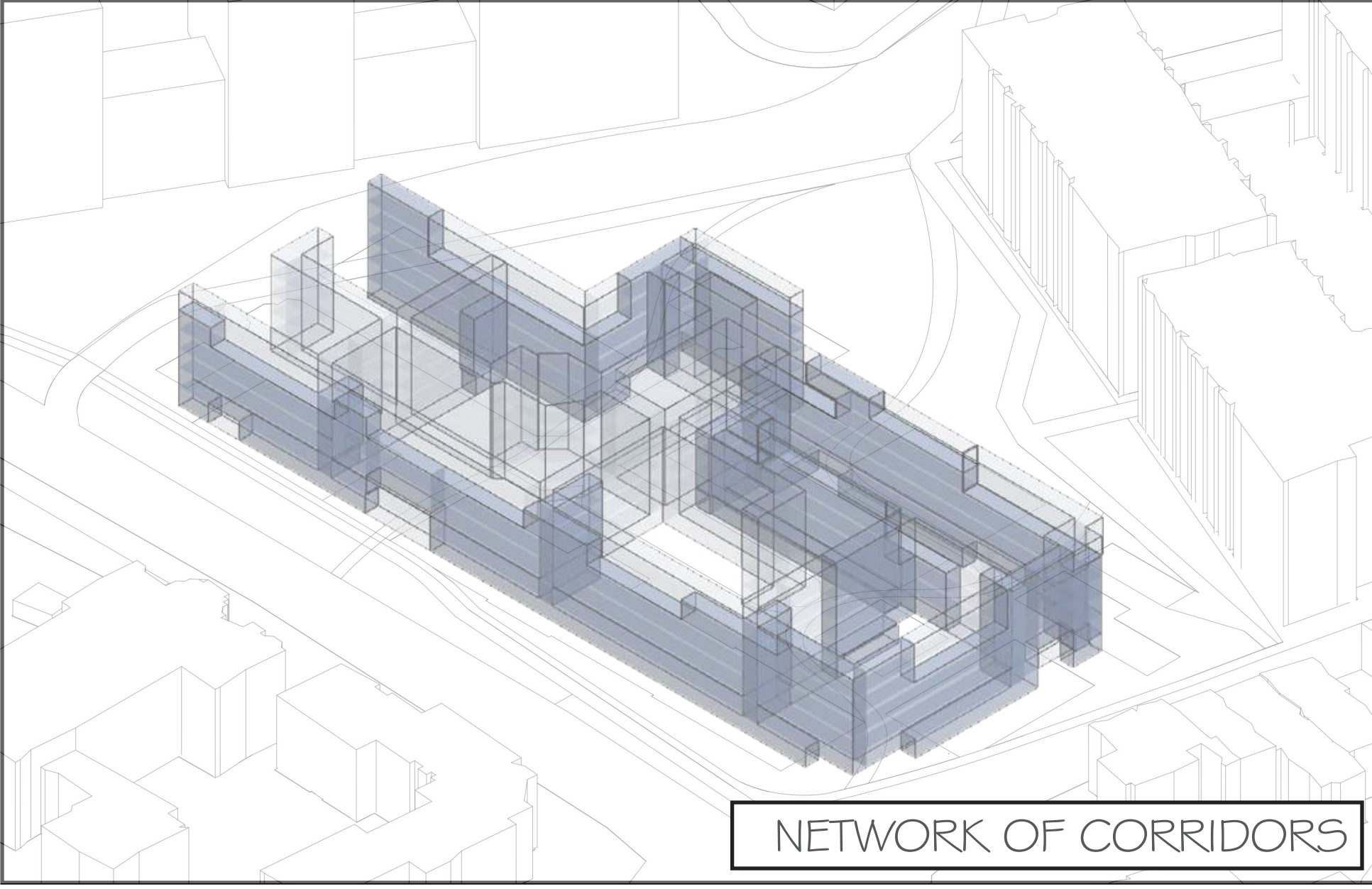
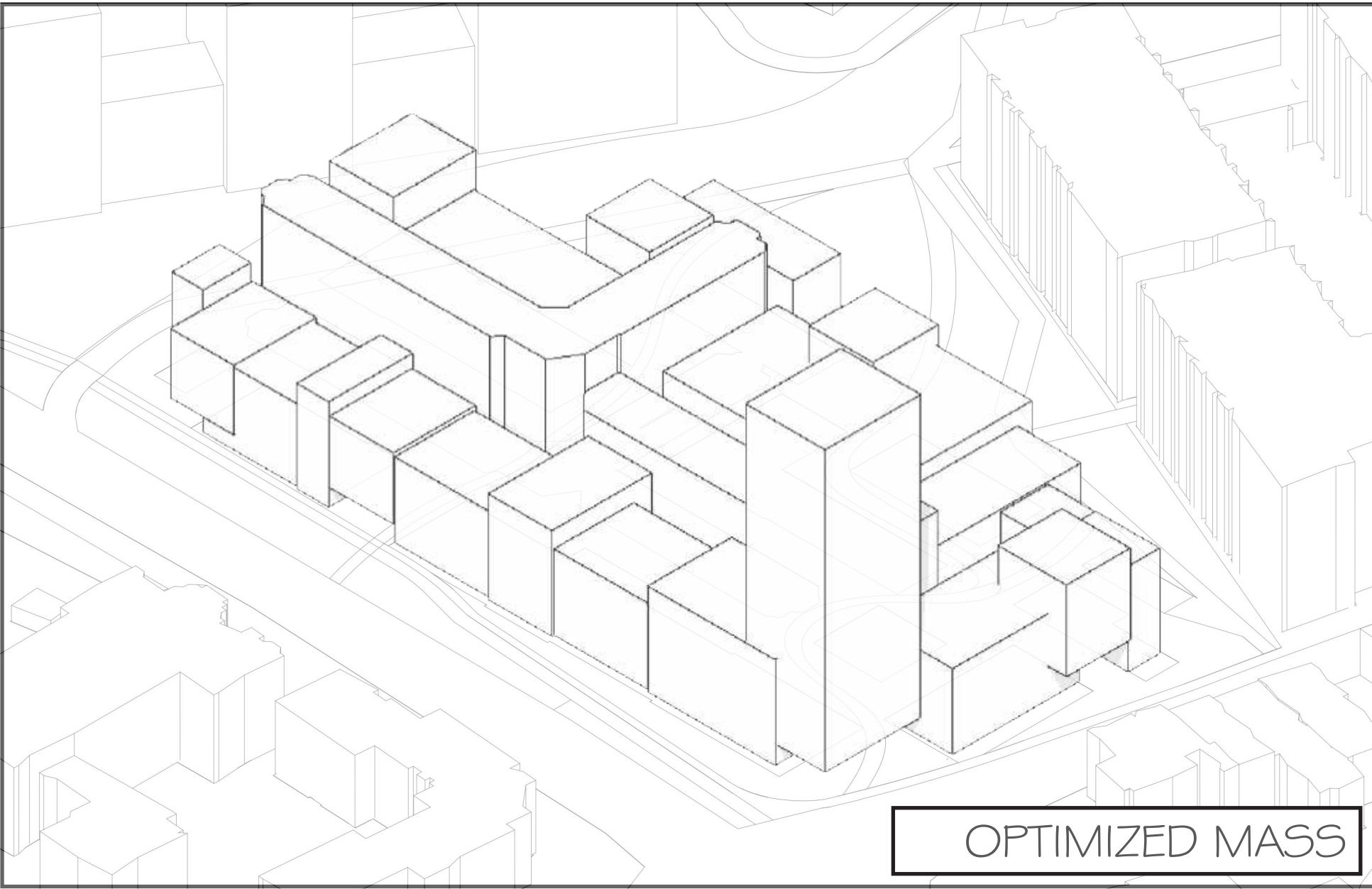
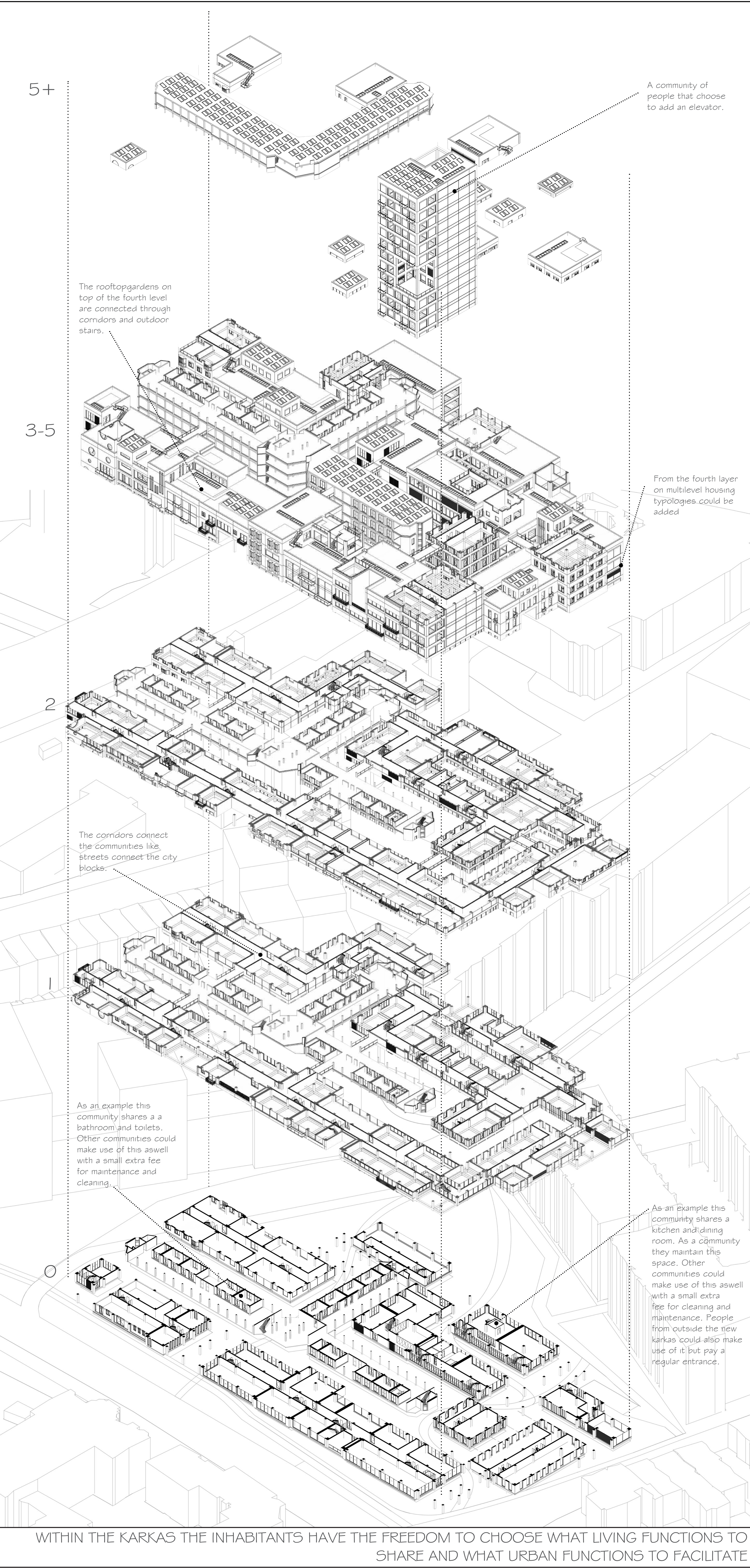


7. Create a network of external walking routes mirroring the corridors so every roofspace could be reached and used optimally.



8. Finally use a parametric program that places the wished housing units and shared space within the new and existing grid.

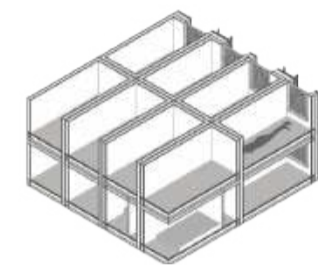
# A NEIGHBOURHOOD COMPRESSED INTO A HIGH DENSITY LOW RISE BUILDING



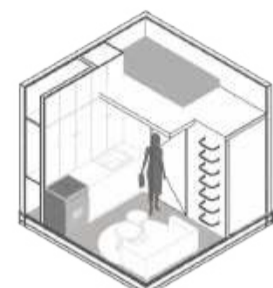
# HAVING THE FREEDOM TO DECIDE HOW TO USE YOUR SPACE AND WHAT TO SHARE

## A LIBRARY OF EXAMPLE HOUSING TYPOLOGIES

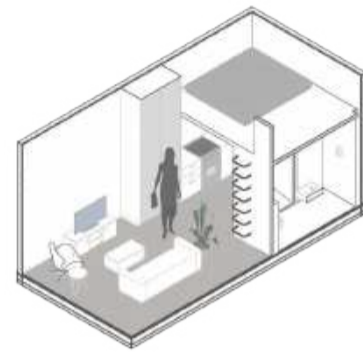
3.600,- average per m2 fully finished home in of Eindhoven.  
Casco around 3.000,-



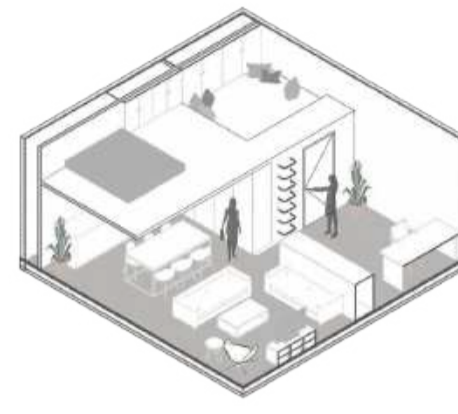
Explorer  
Sleeping pod  
6m2  
Renting 15,- a night



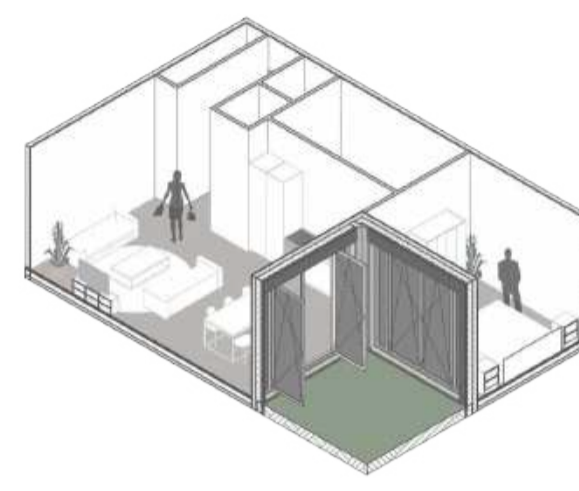
Single starter  
Tiny house  
14m2 (7m2 corridor)  
60.000,-



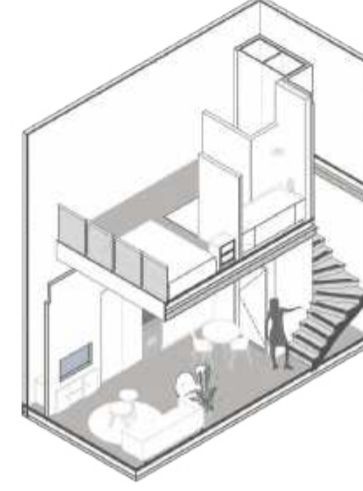
Single starter  
Studio  
28m2 (7c)  
103.000,-



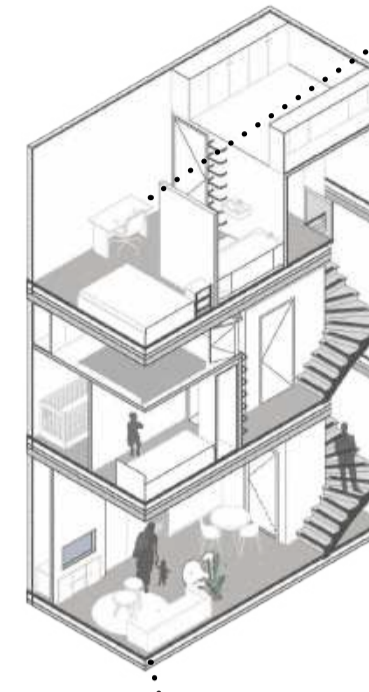
Couple starters  
Tiny apartment  
56m2 (13c)  
207.000,-



Elderly couple  
Apartment  
78m2 (20c)  
294.000,-



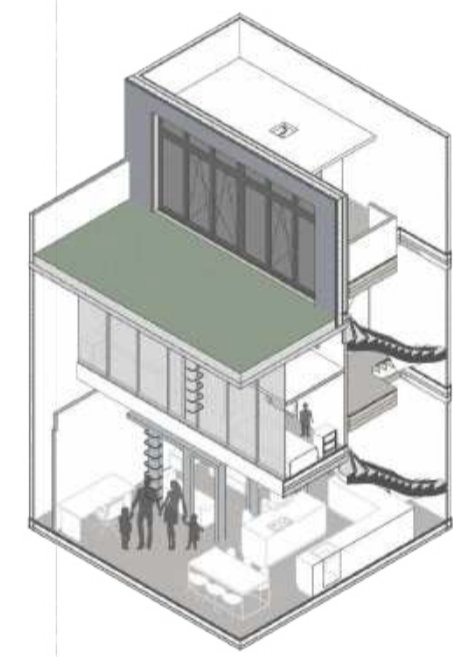
Single adult  
Loft house  
56m2 (13c)  
207.000,-



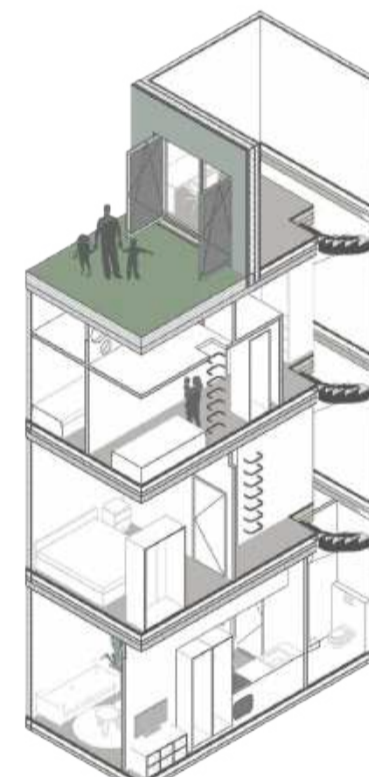
Family 1-2 children  
3 story house  
78m2 (20c)  
294.000,-



Family 1-2 child(ren)  
2 story house  
112m2 (26c)  
414.000,-



Family 2-3 children  
big 3 story house  
169m2 (39c)  
624.000,-



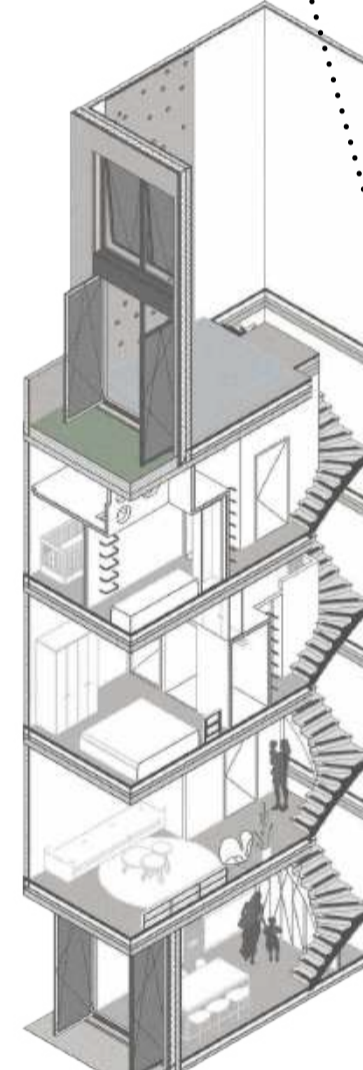
Family 2-3 children  
4 story house  
112m2 (26c)  
414.000,-



Family 2-4 children  
5-6 story house  
140m2 (32c)  
516.000,-



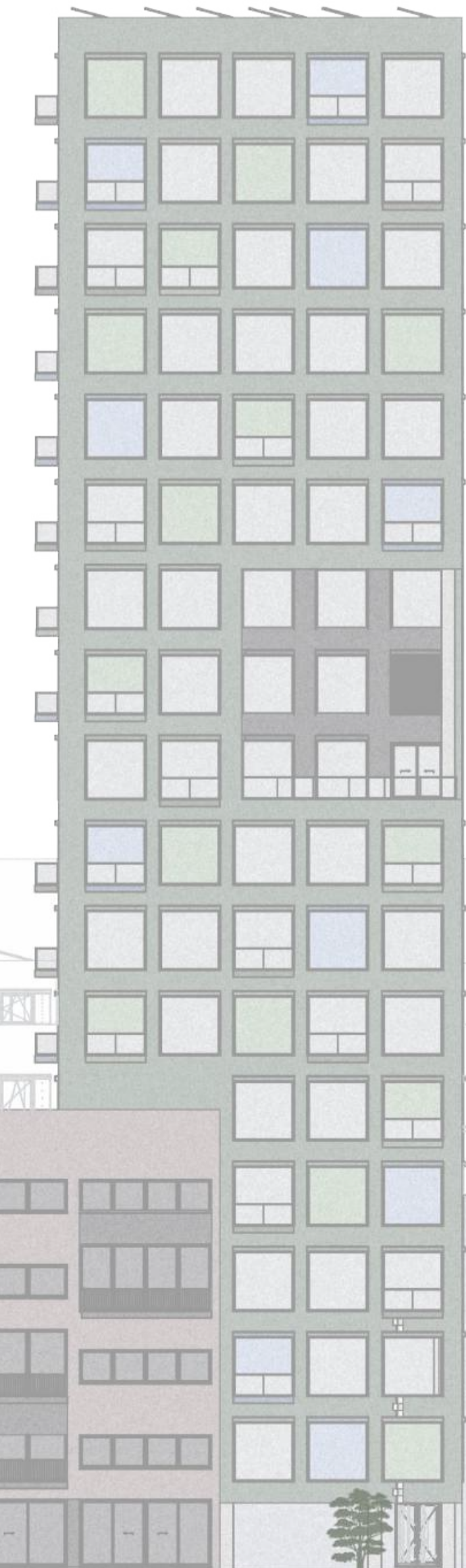
Family 3-4 children  
6 story house  
168m2 (39c)  
621.000,-



Family 2 children  
The hobby house  
168m2 (39c)  
621.000,-



The new Karkas is divided into 24 communities that each have their own collective identity. Each community follows their own CPO trajectory, where they decide their collective identity, what living functions they wish to share, what urban functions they would like to add and how much space each family requires. Then the building process of that community starts. The housing units are delivered casco. The families finish their house individually. Within every community multiple target groups and housing typologies could be found. There are some example housing typologies to let the resident choose from but they can also design their own space from scratch.



# FLEXIBILITY IS KEY

To achieve a flexible design it is important to use flexible building principles. Office buildings use flexible building principles as they get new tenants with a new use of space frequently. The detailing of the project will be the next step but some base principles can already be seen in the section.



A wooden beam structure that provides the flexible (soft) built-ins with stability. It is also a good structure to add extensions to the structures later on and still be strong enough. The structure also provides for internal shared gardens and other voids within the total structure.



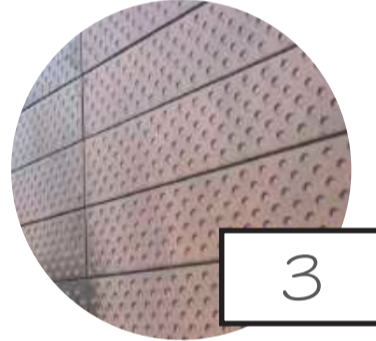
Urban green which is placeable on roofs and existing buildings from the urban jungle project from Grasveld architecten



The highest level can either be bought (as air right) by the underlying house owner to expand their home. Or it could be used as a private or shared roof garden. Which implies isolation and possibly a vegetation layer or a standard roof with the use of the urban jungle project.



The internal terraces are finished with isolation and terras wood flooring. The base flooring is just like the lower floors CLT.



Flexible facade materials: cassettes on a steel frame or other materials on a wood frame.



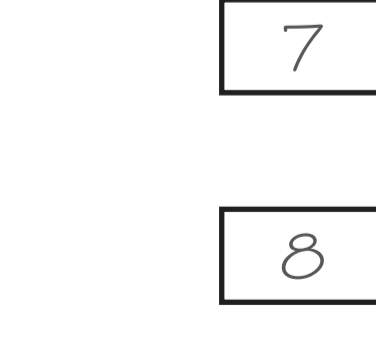
The hallways have flexible panels which could either be replaced by doors, windows or extension builds.



Computer flooring: Horizontal piping and electricity can be easily reached. There are more asthetic durable alternatives like bamboo.



CLT base flooring which is a wooden structural flooring option



The interior walls are a light partition wall. It could be either wood, metal frame or a build in scaffolding, that is up to the inhabitants.



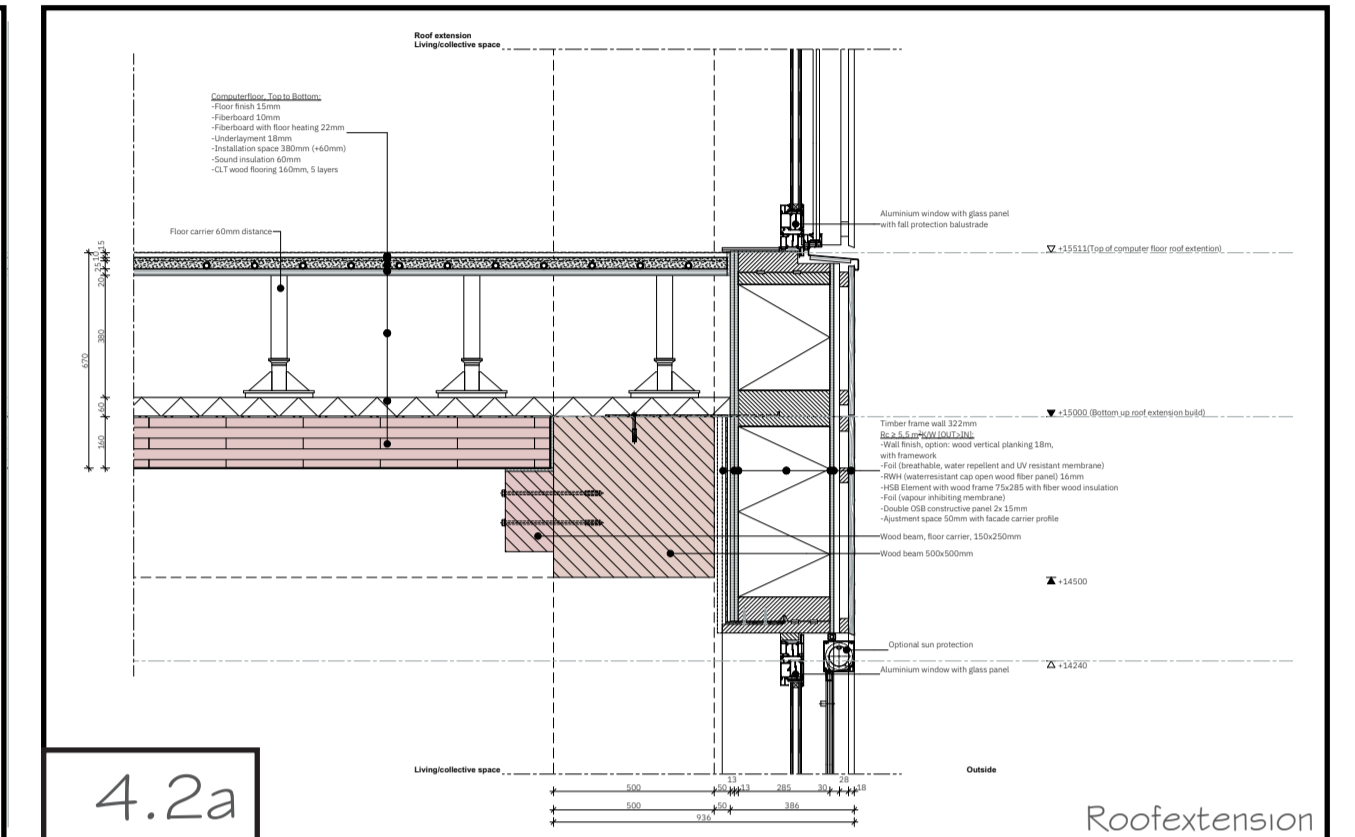
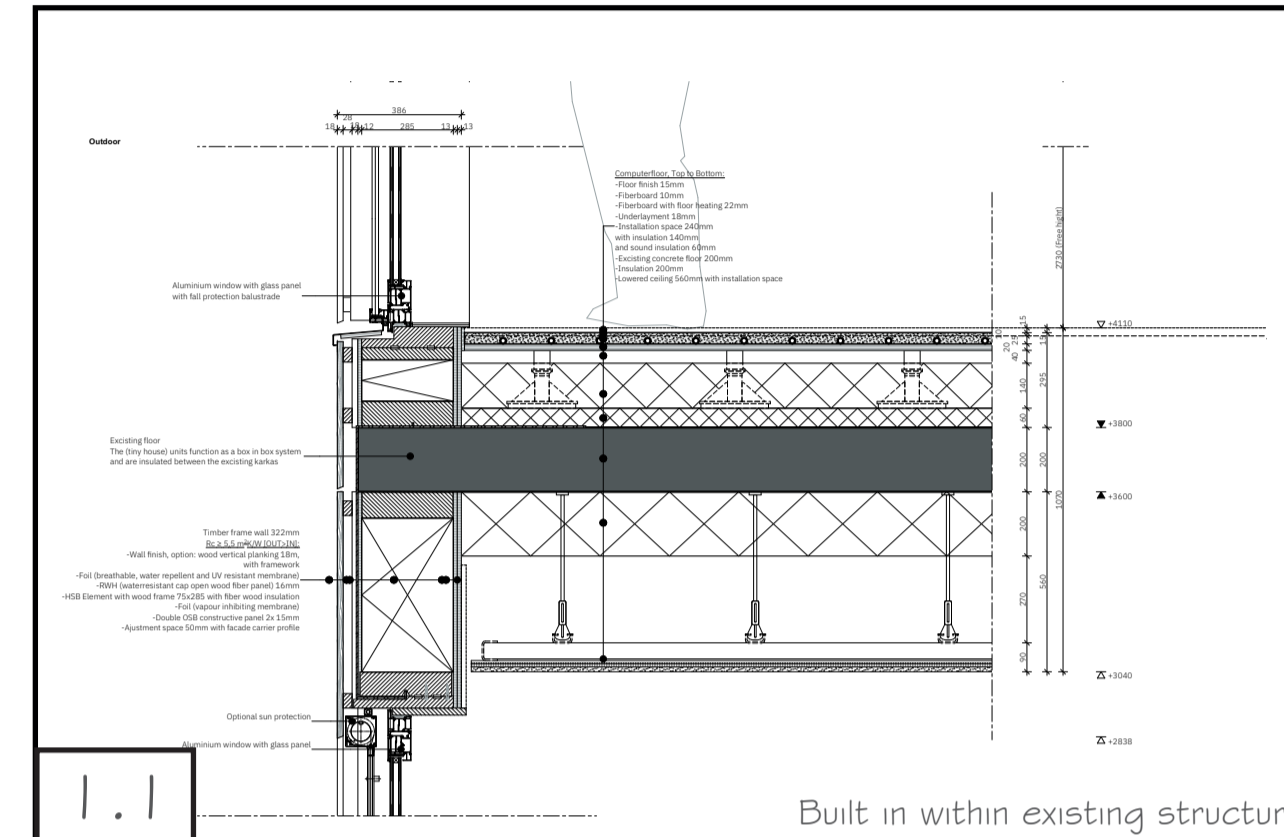
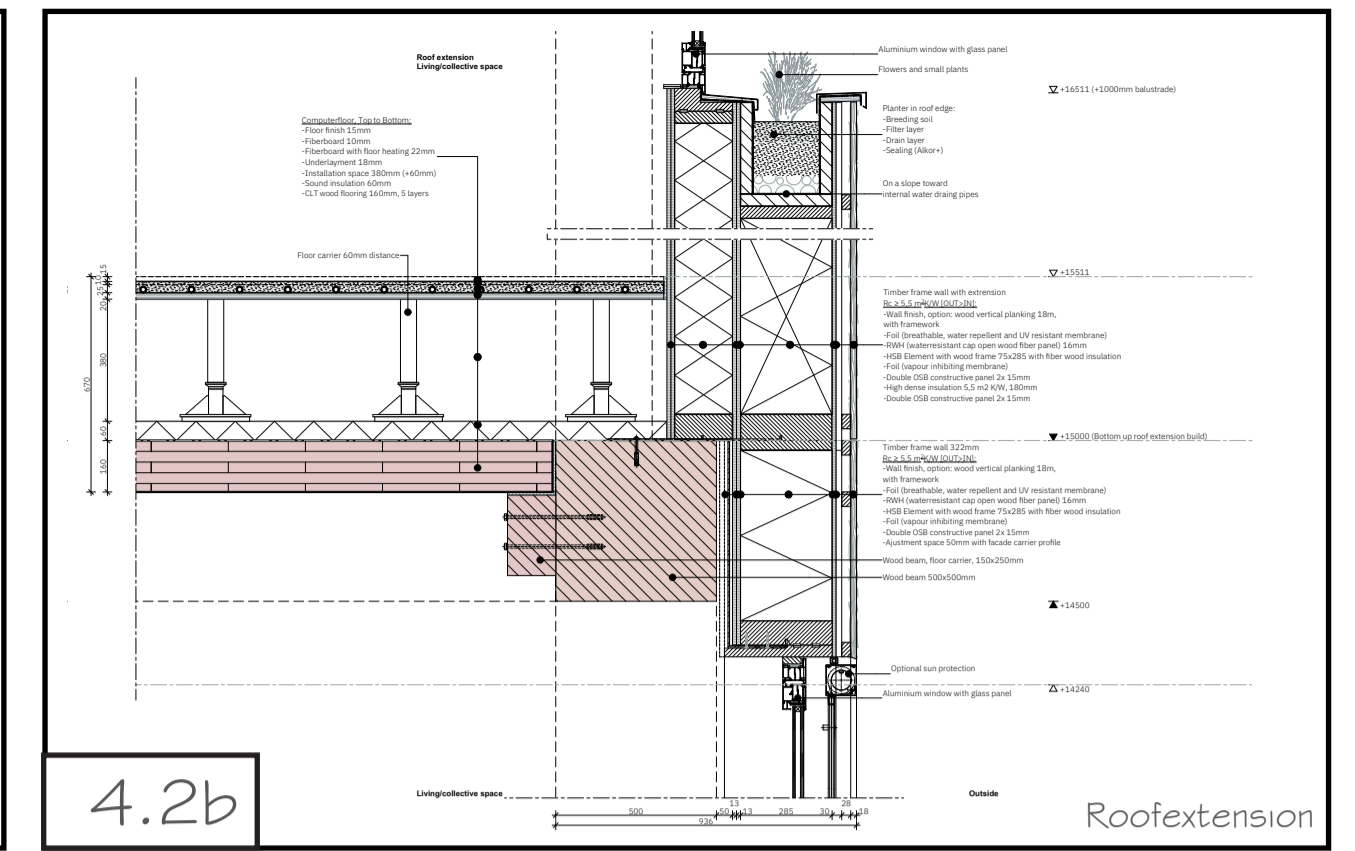
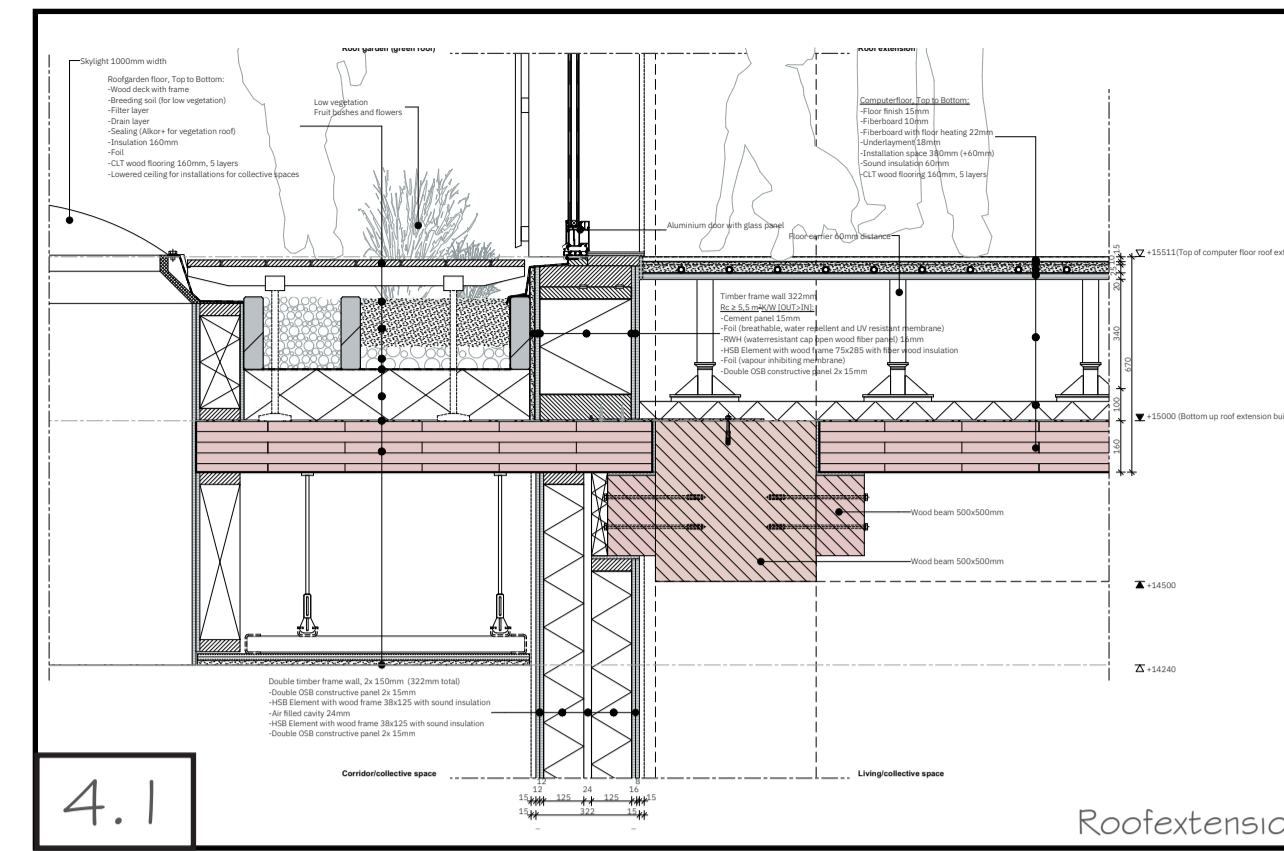
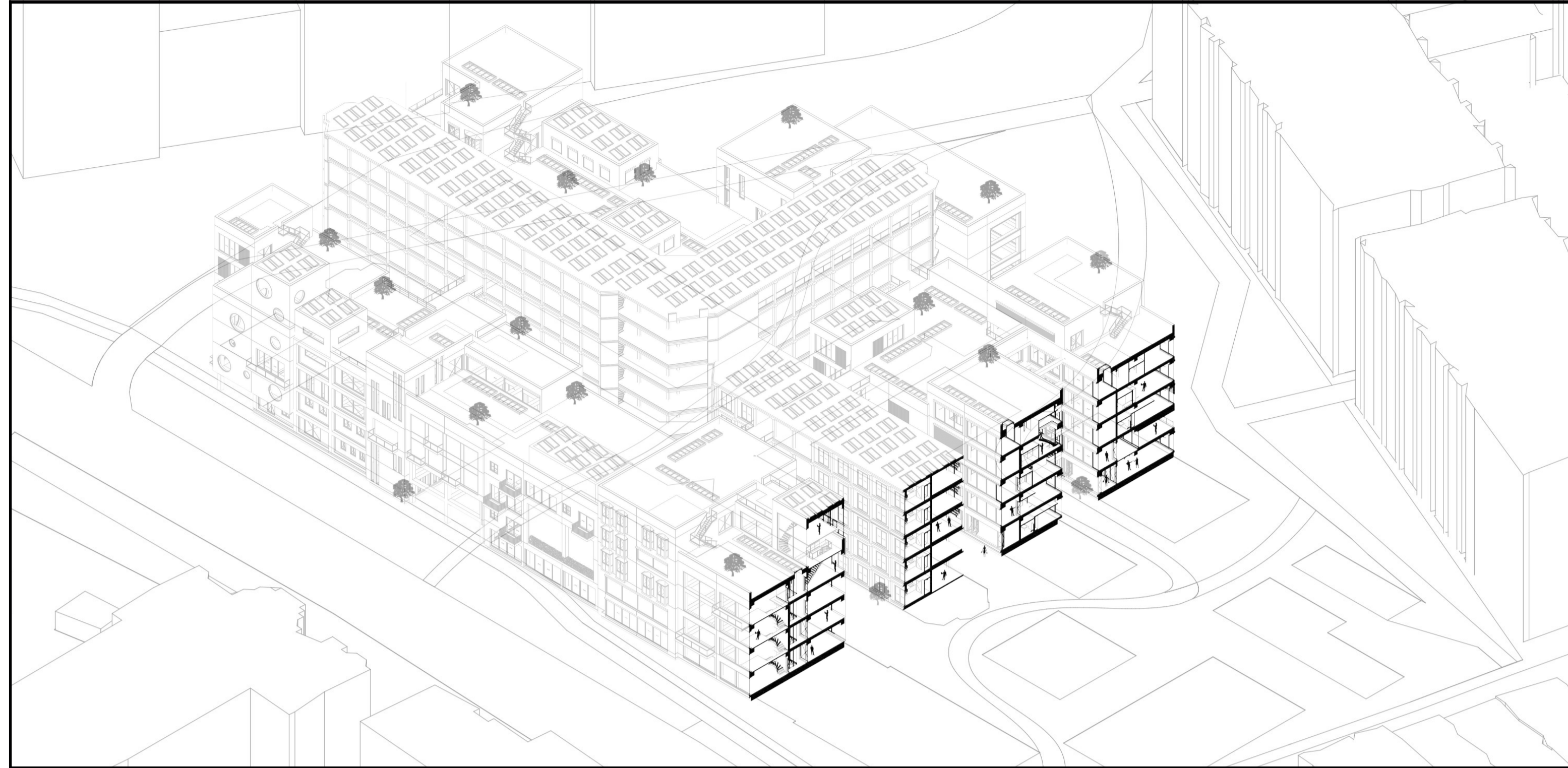
Vertical piping and shafts will be arranged vertically within the CPO trajectory.



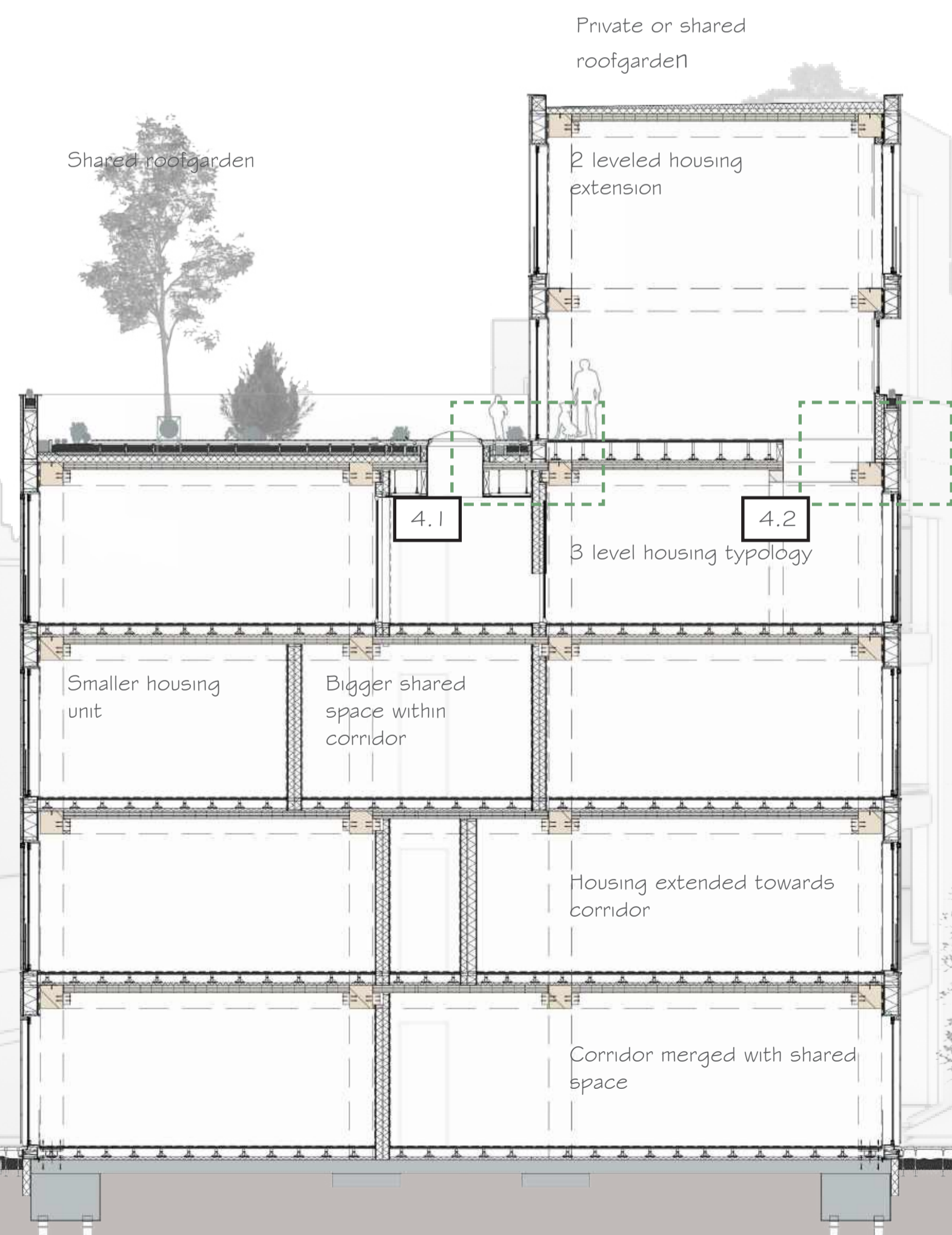
The base for the ground floor on the lowest level is a concrete structural floor.



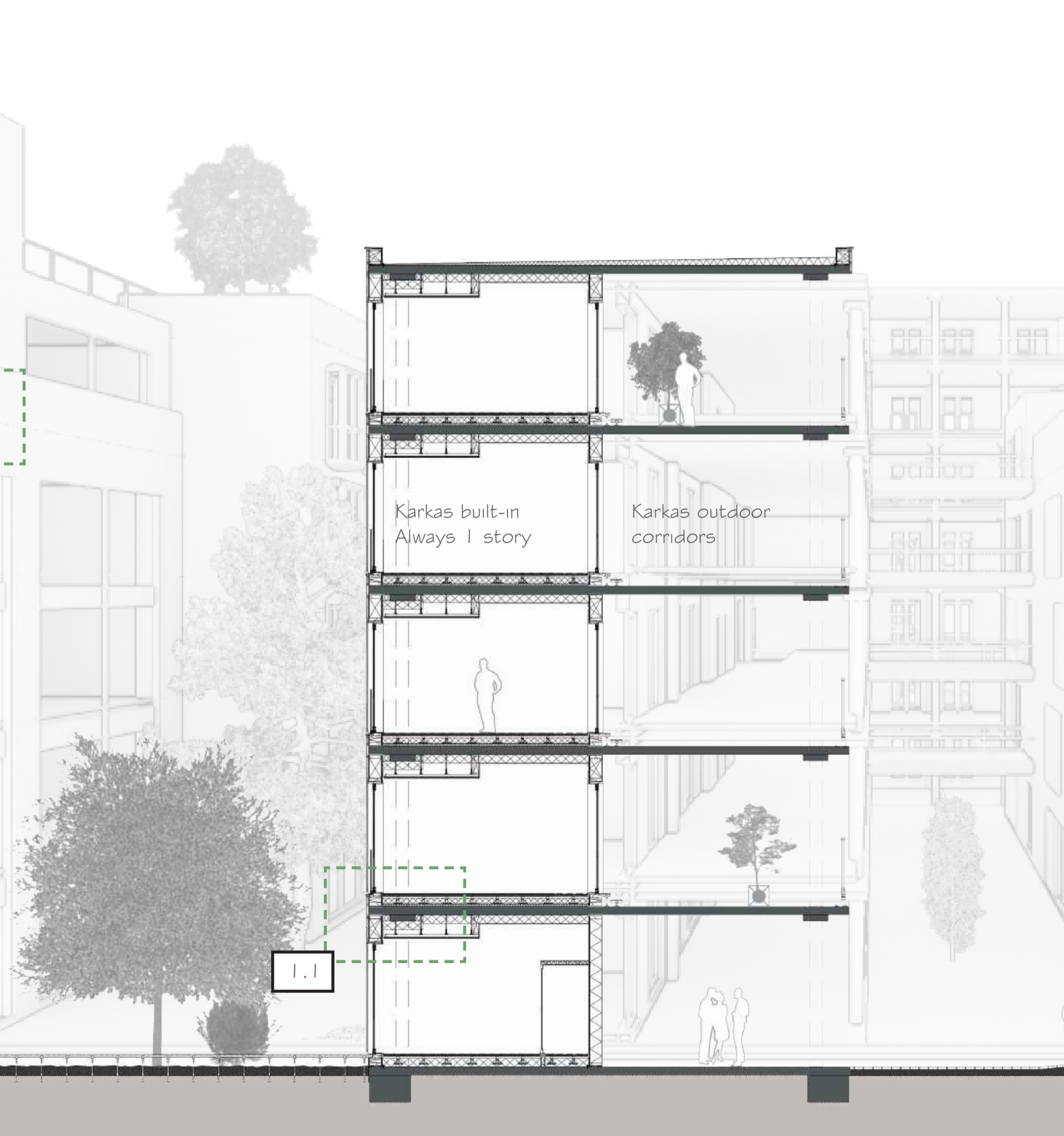
# PROJECT IN DETAIL



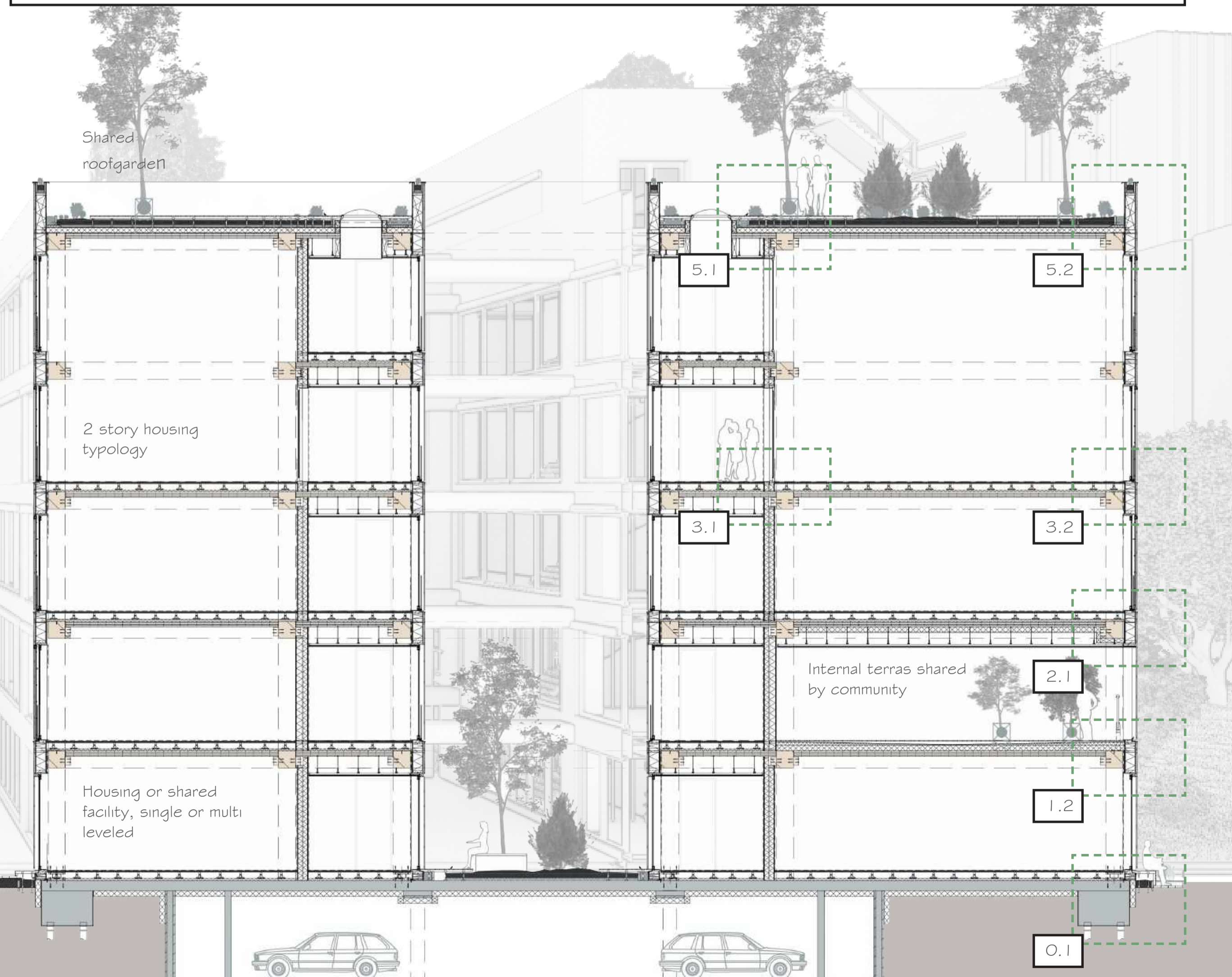
## COMMUNITY WITH INTERNAL CORRIDORS



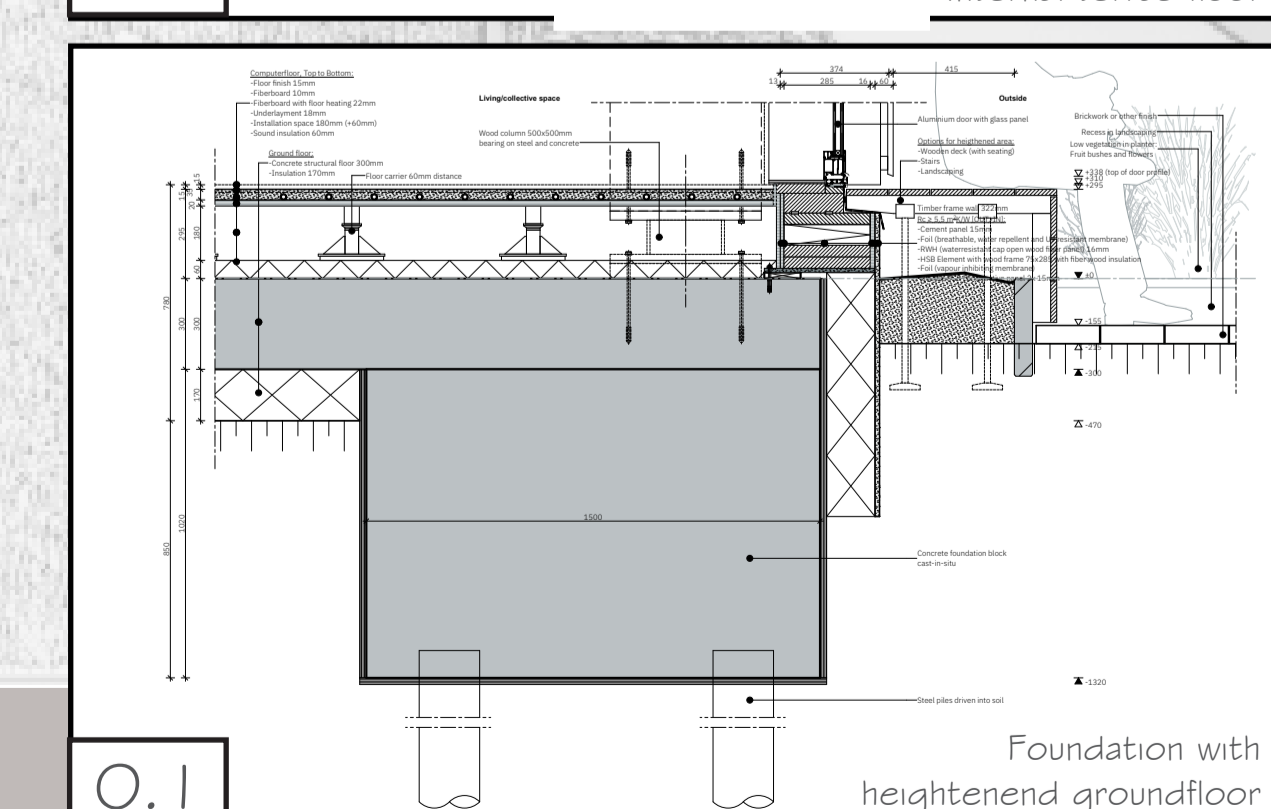
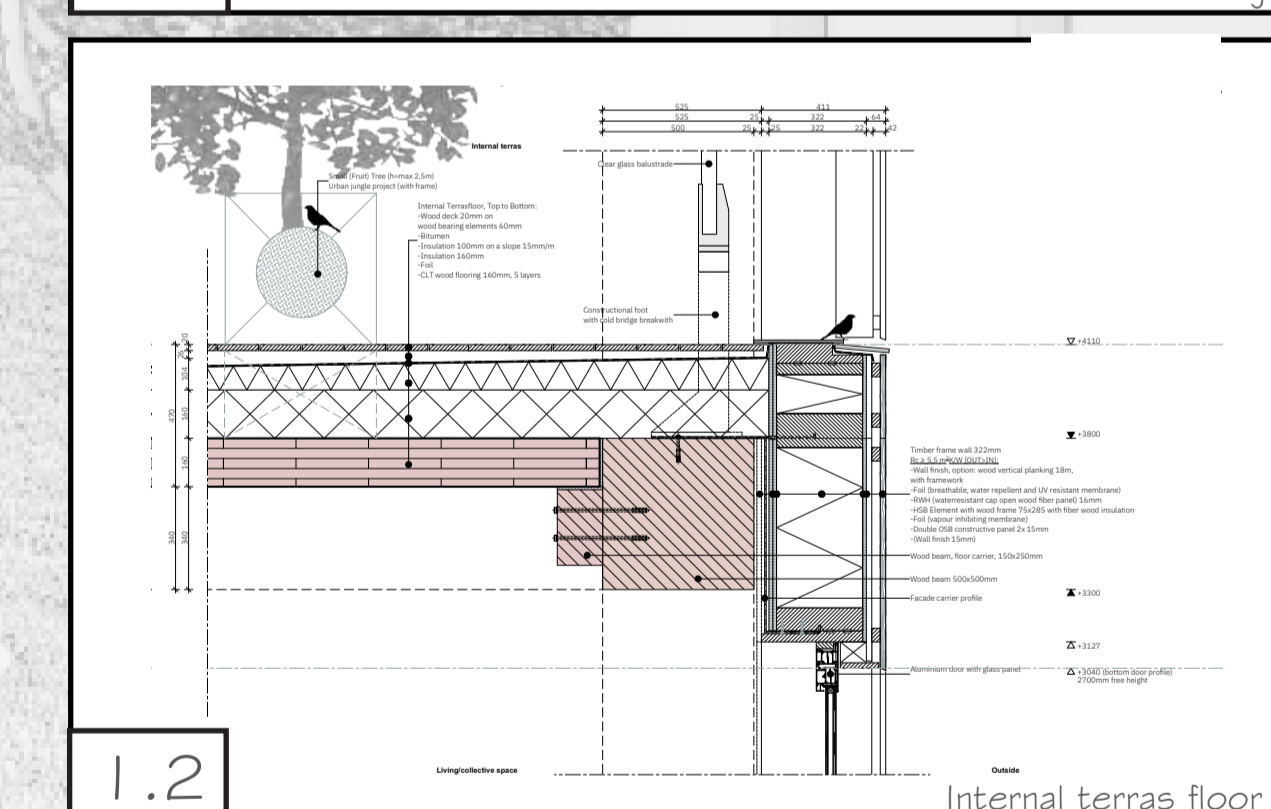
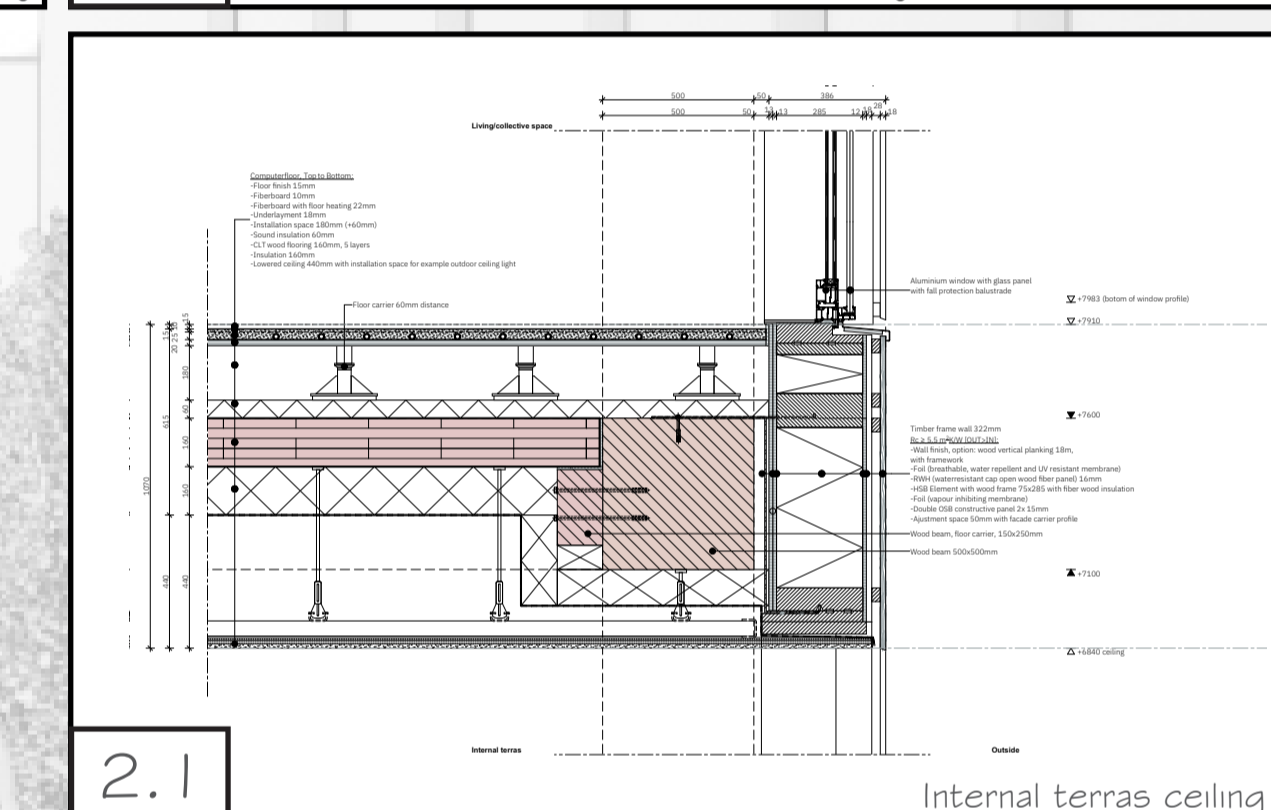
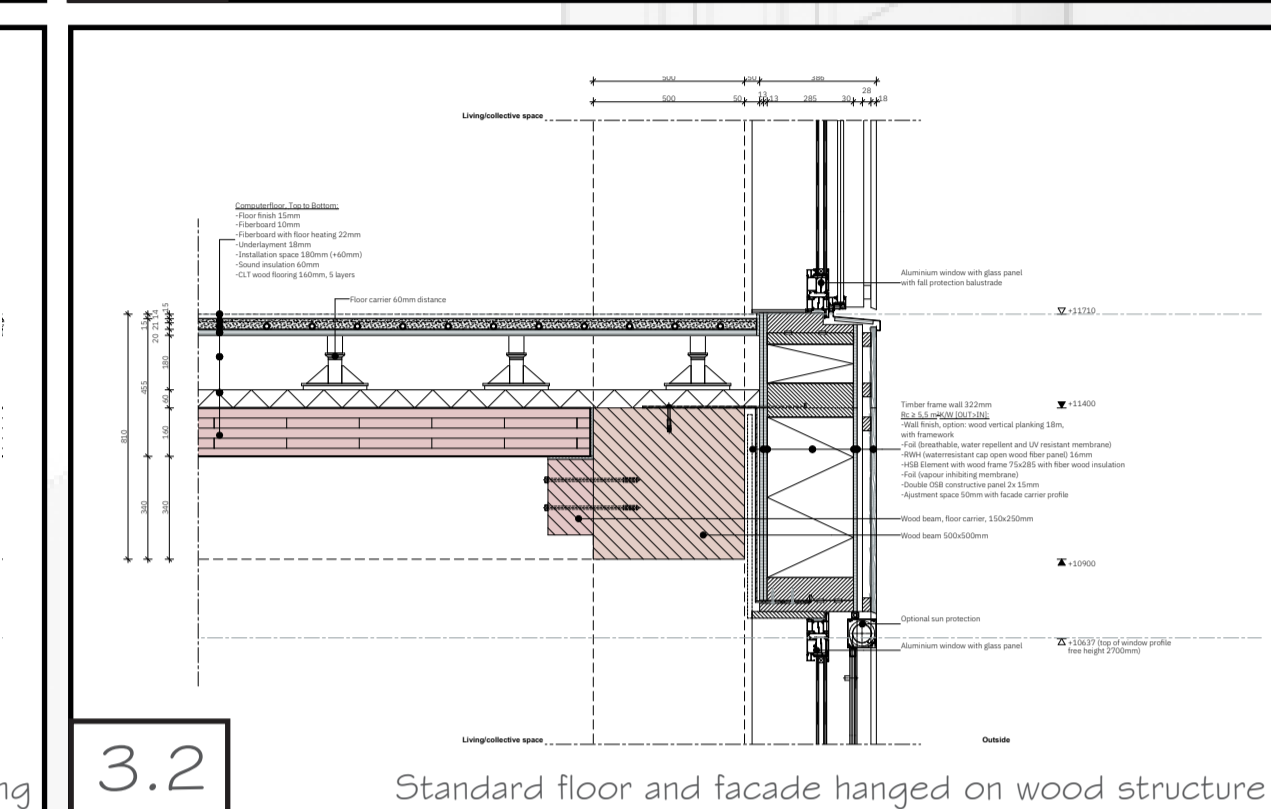
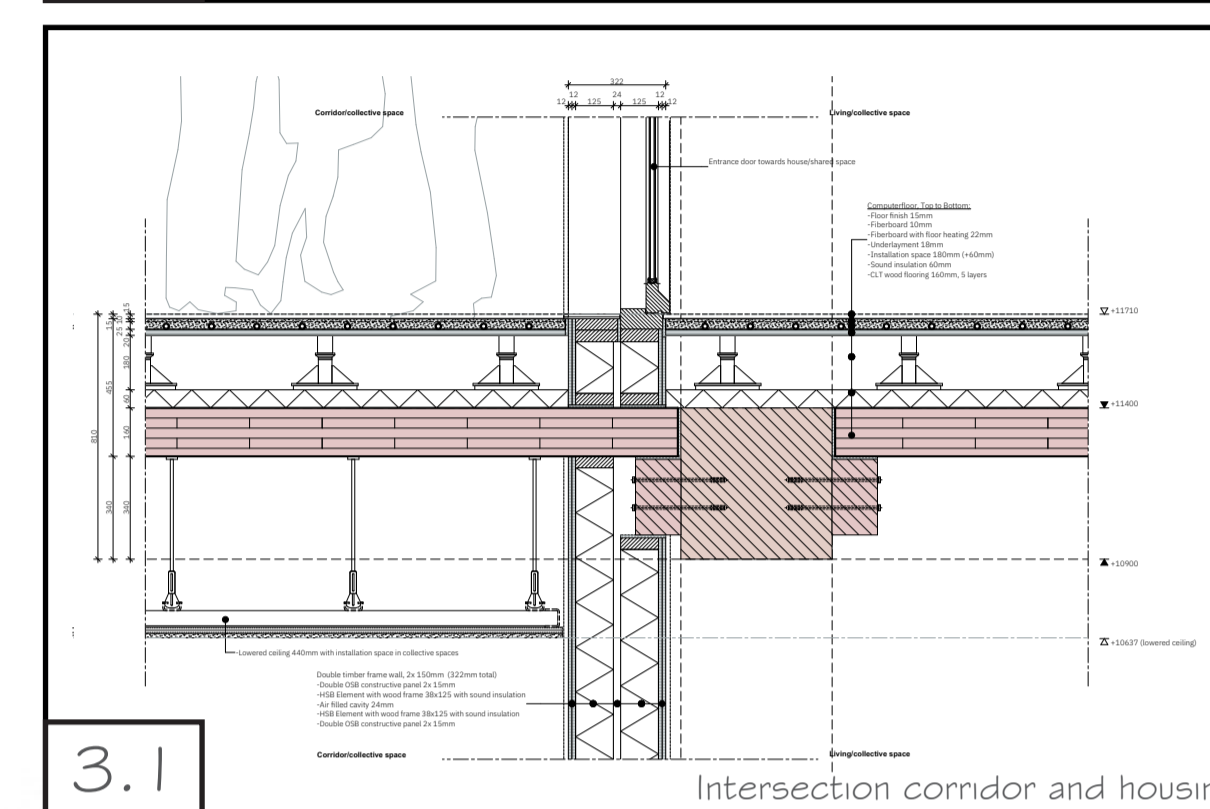
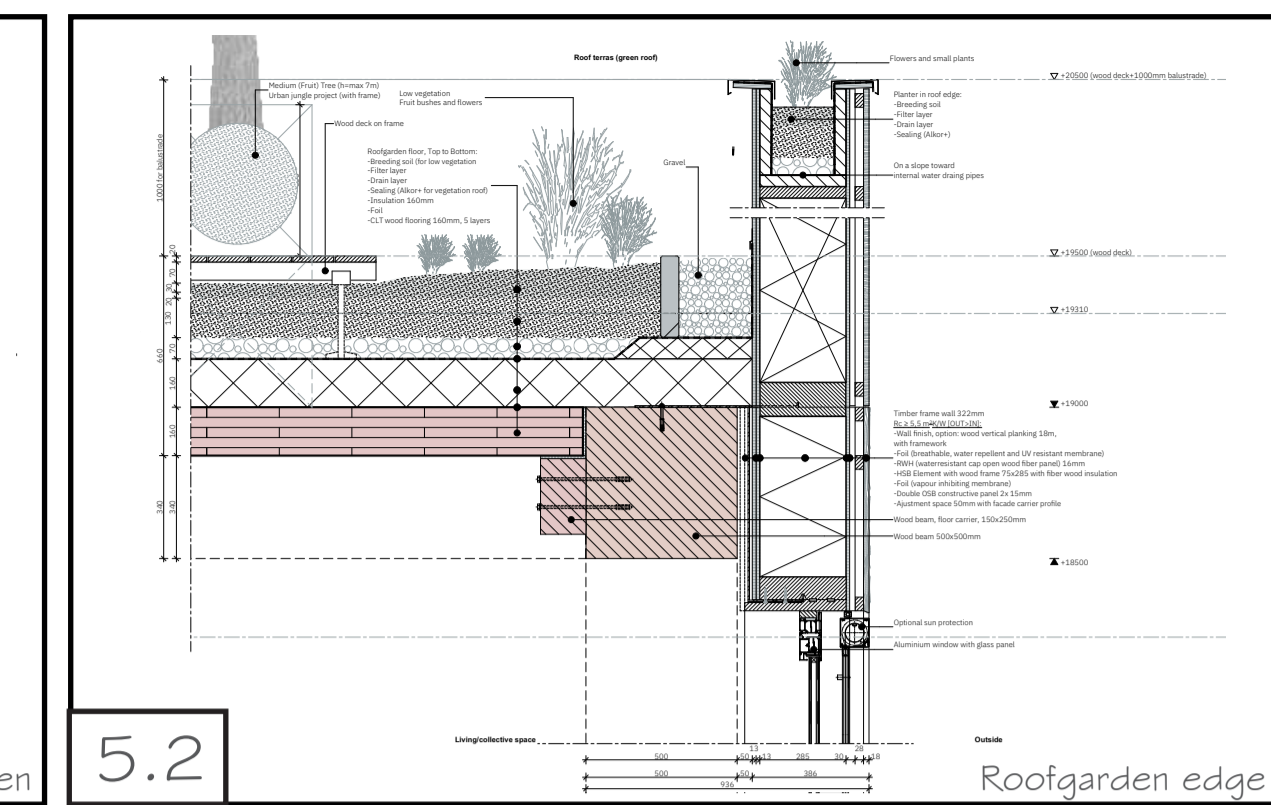
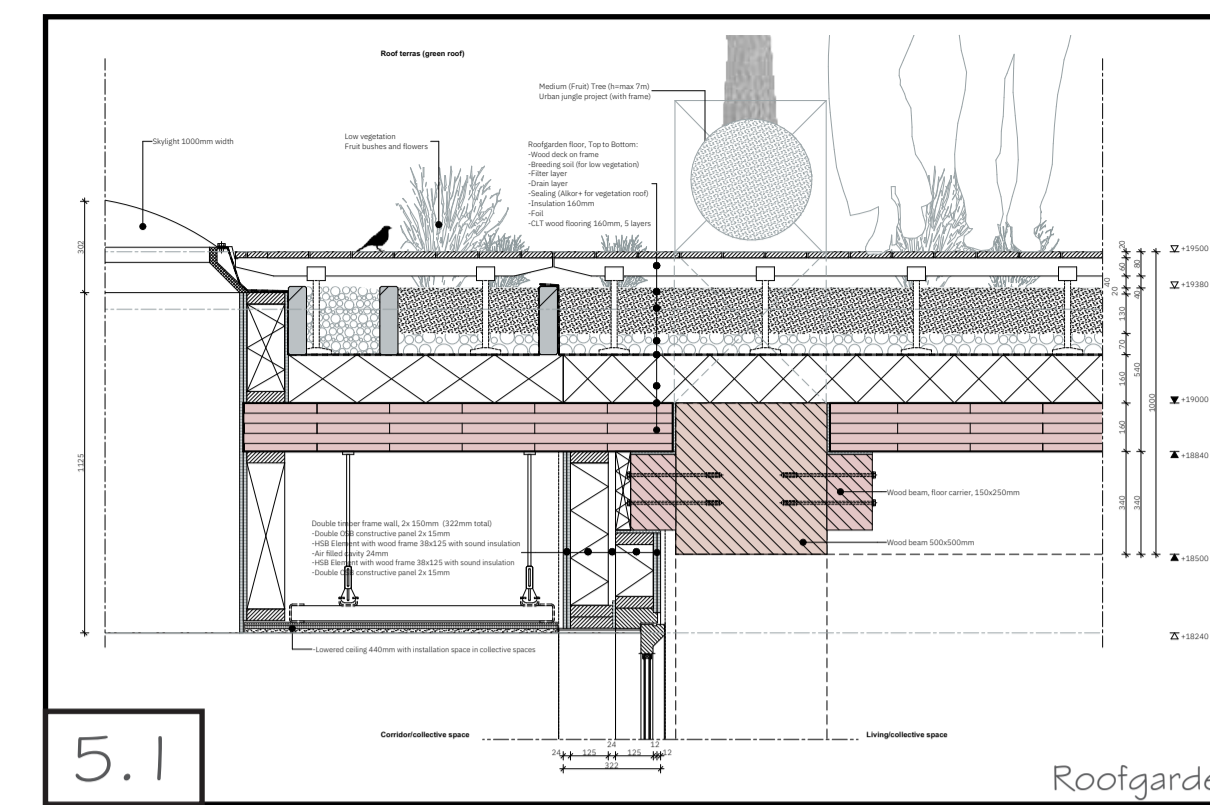
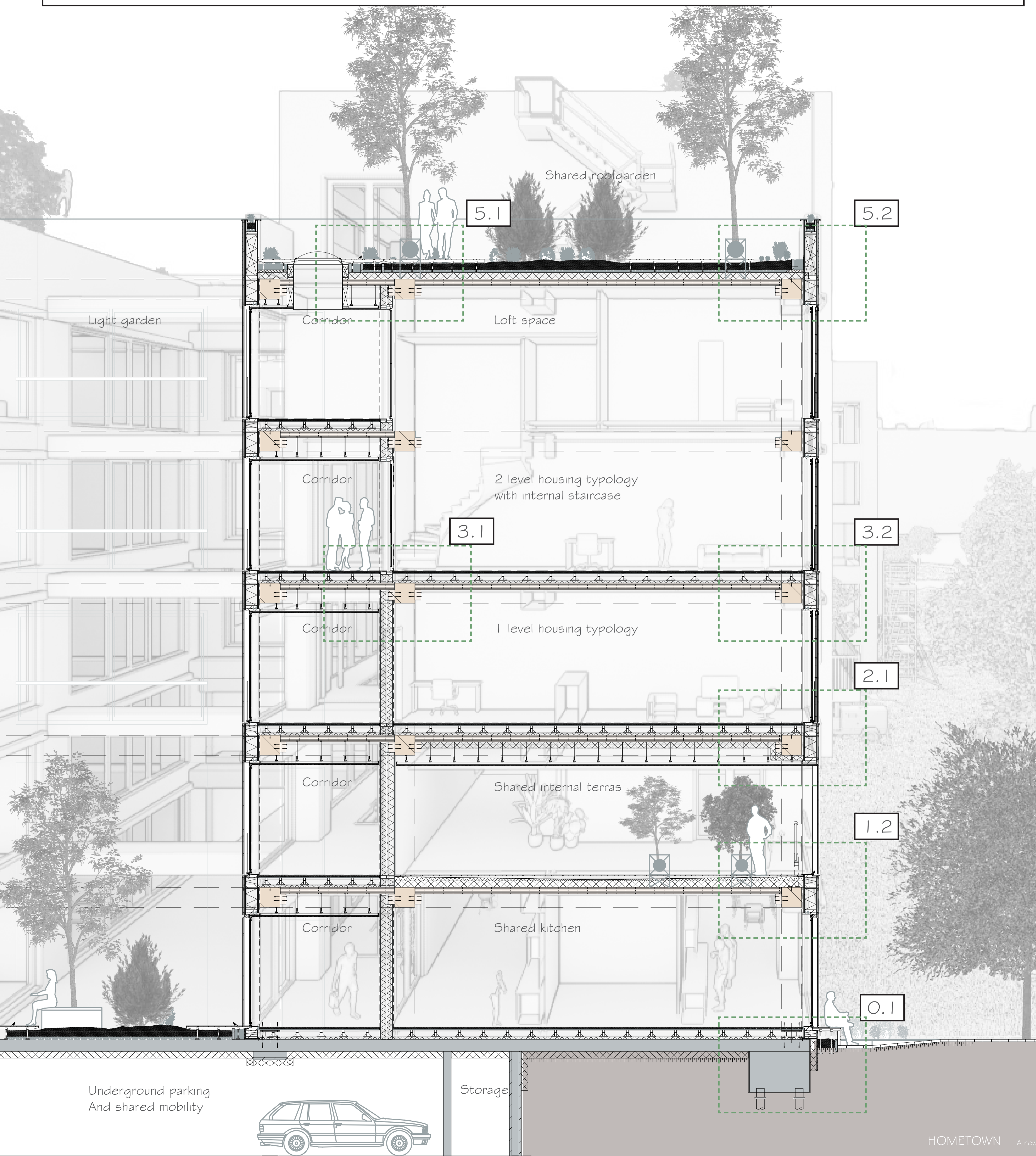
## HOUSING IN EXISTING KARKAS



## COMMUNITY WITH LIGHTGARDEN

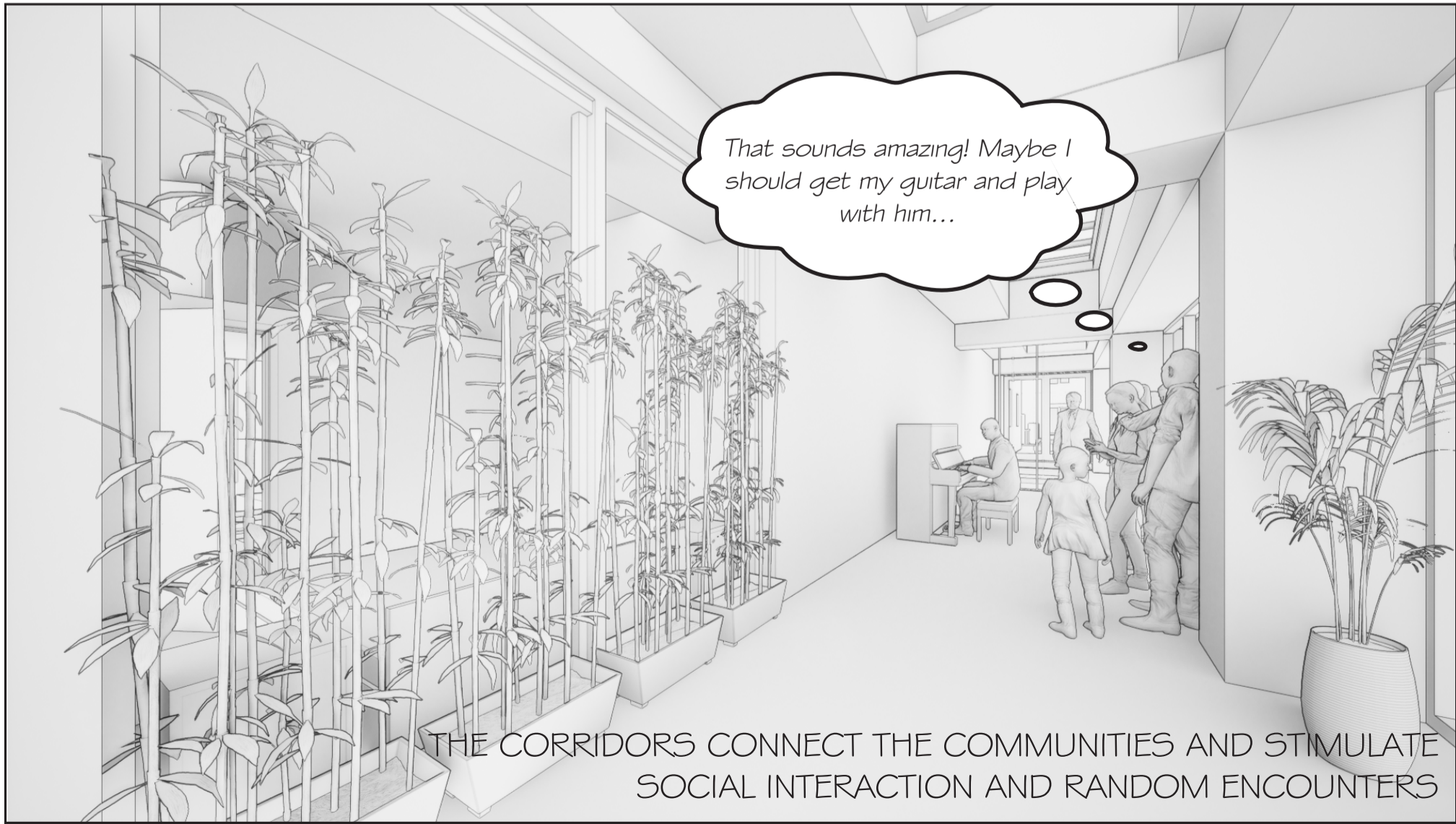
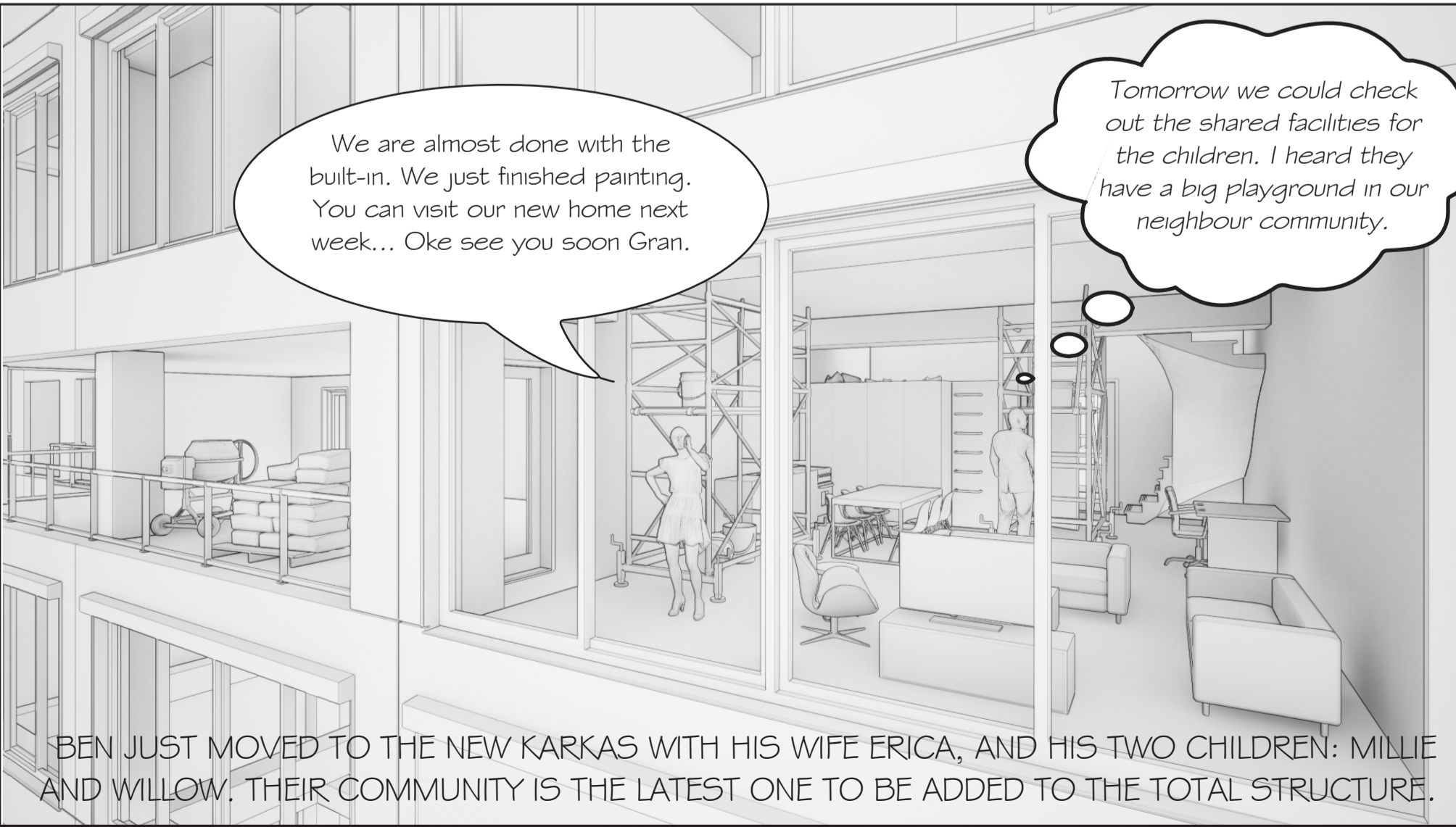
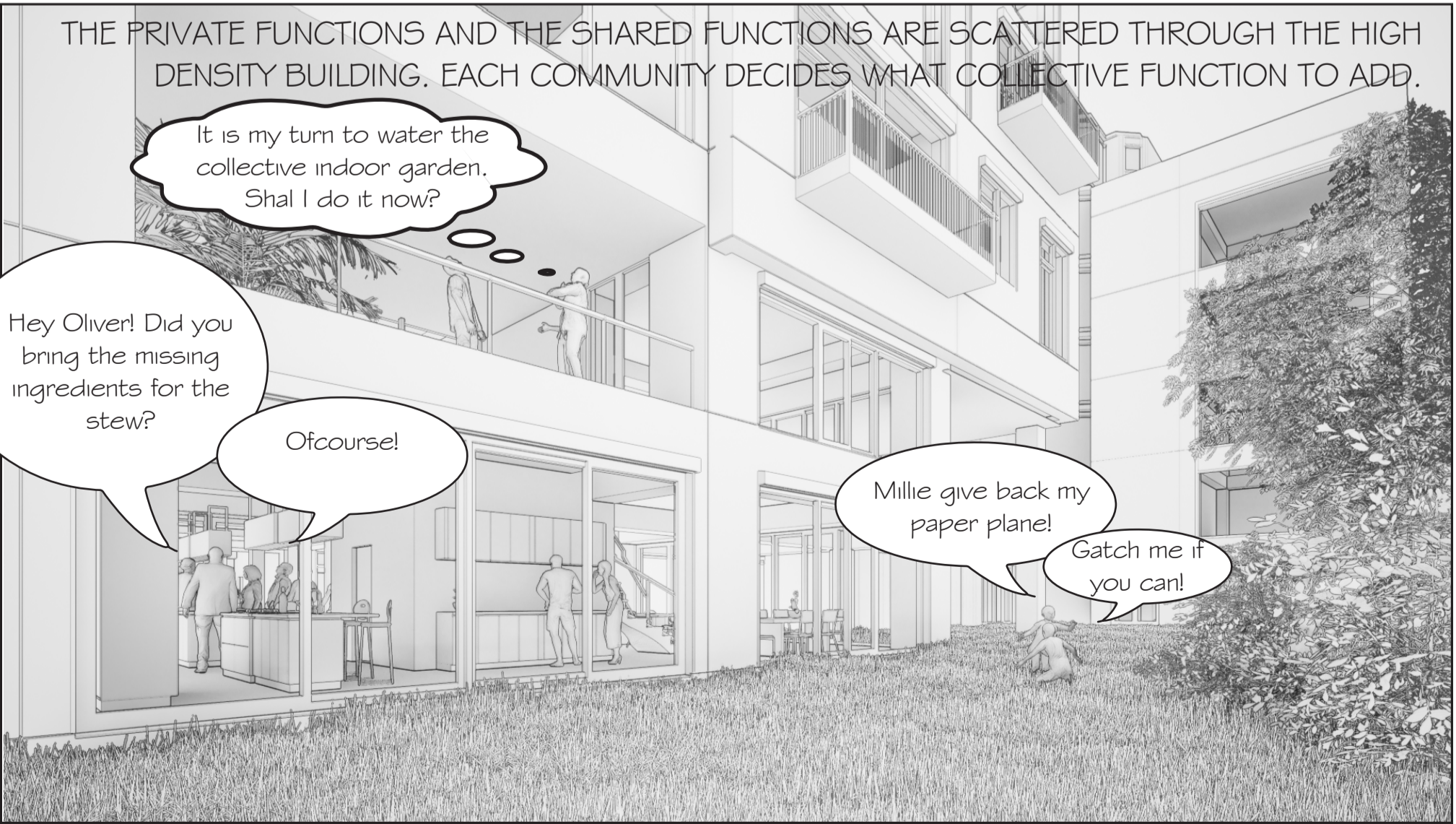
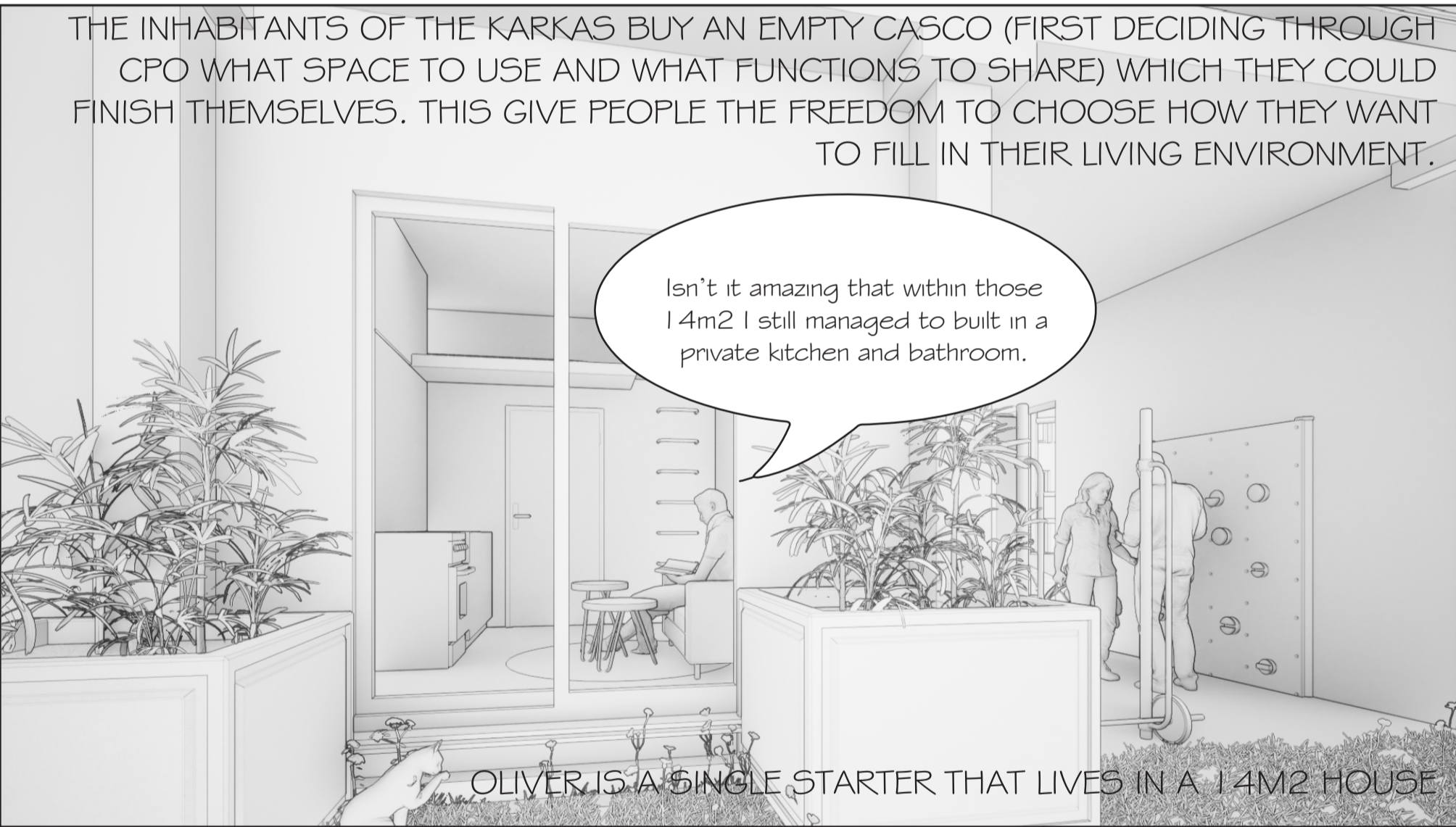
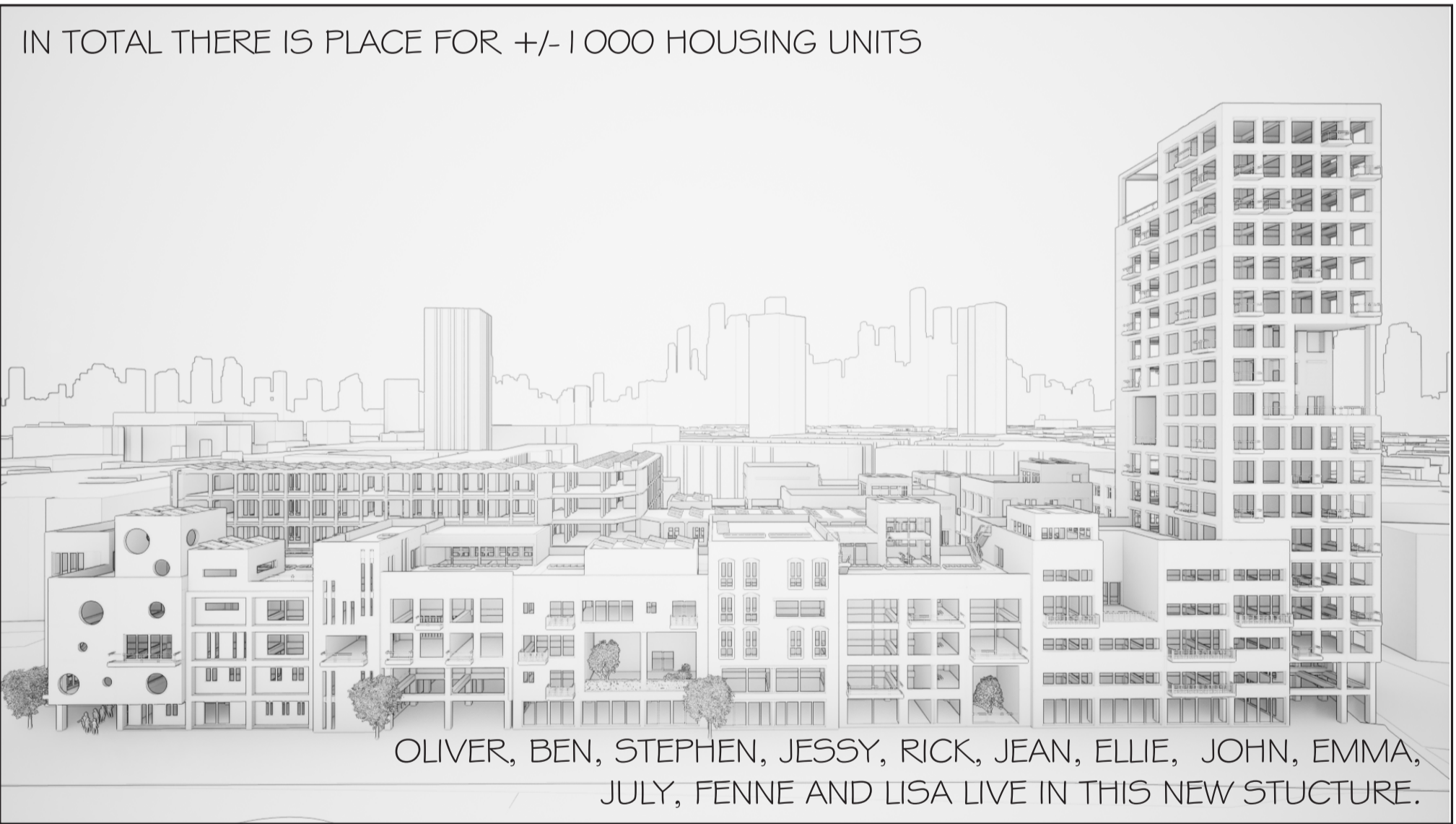
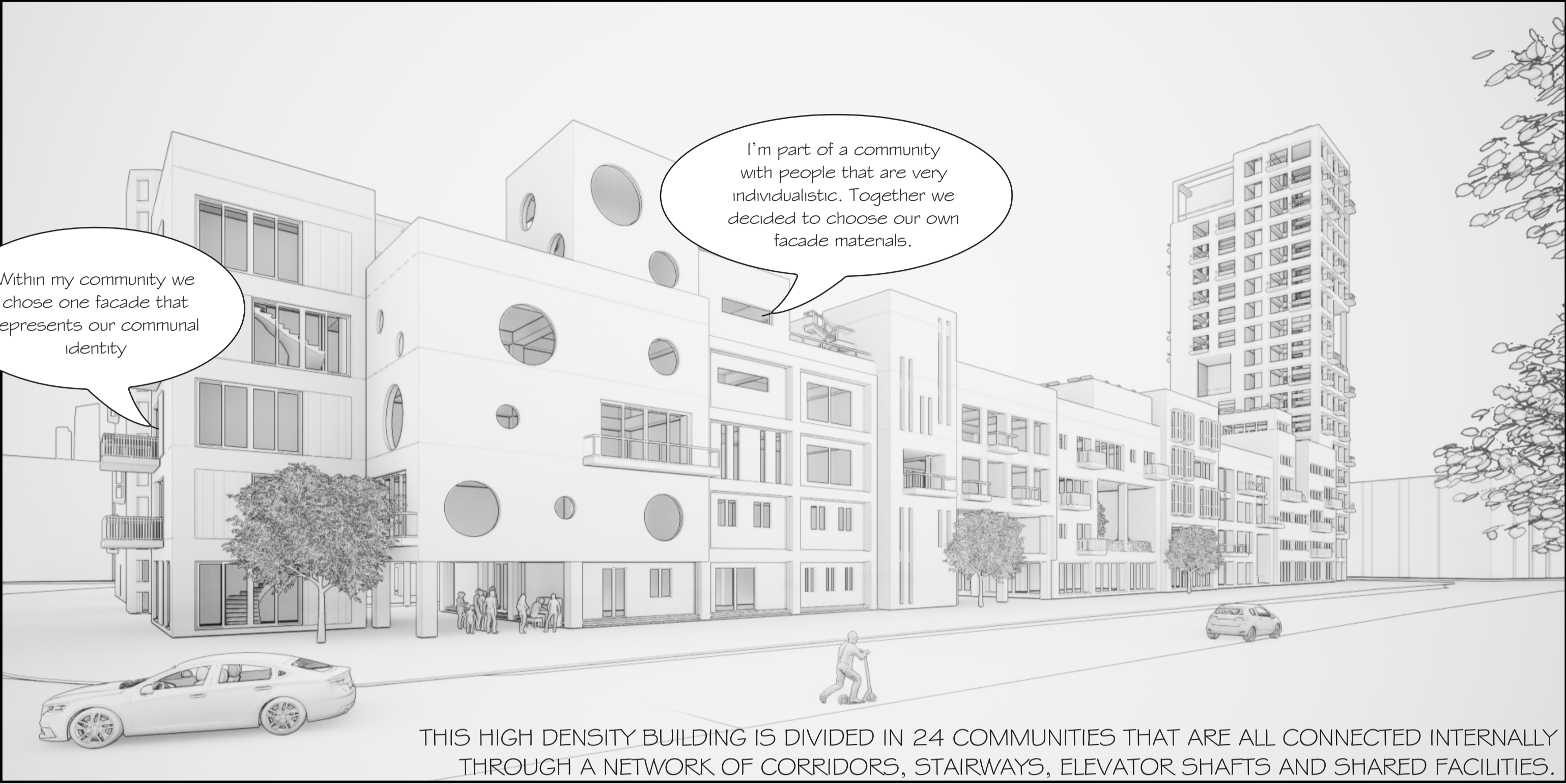
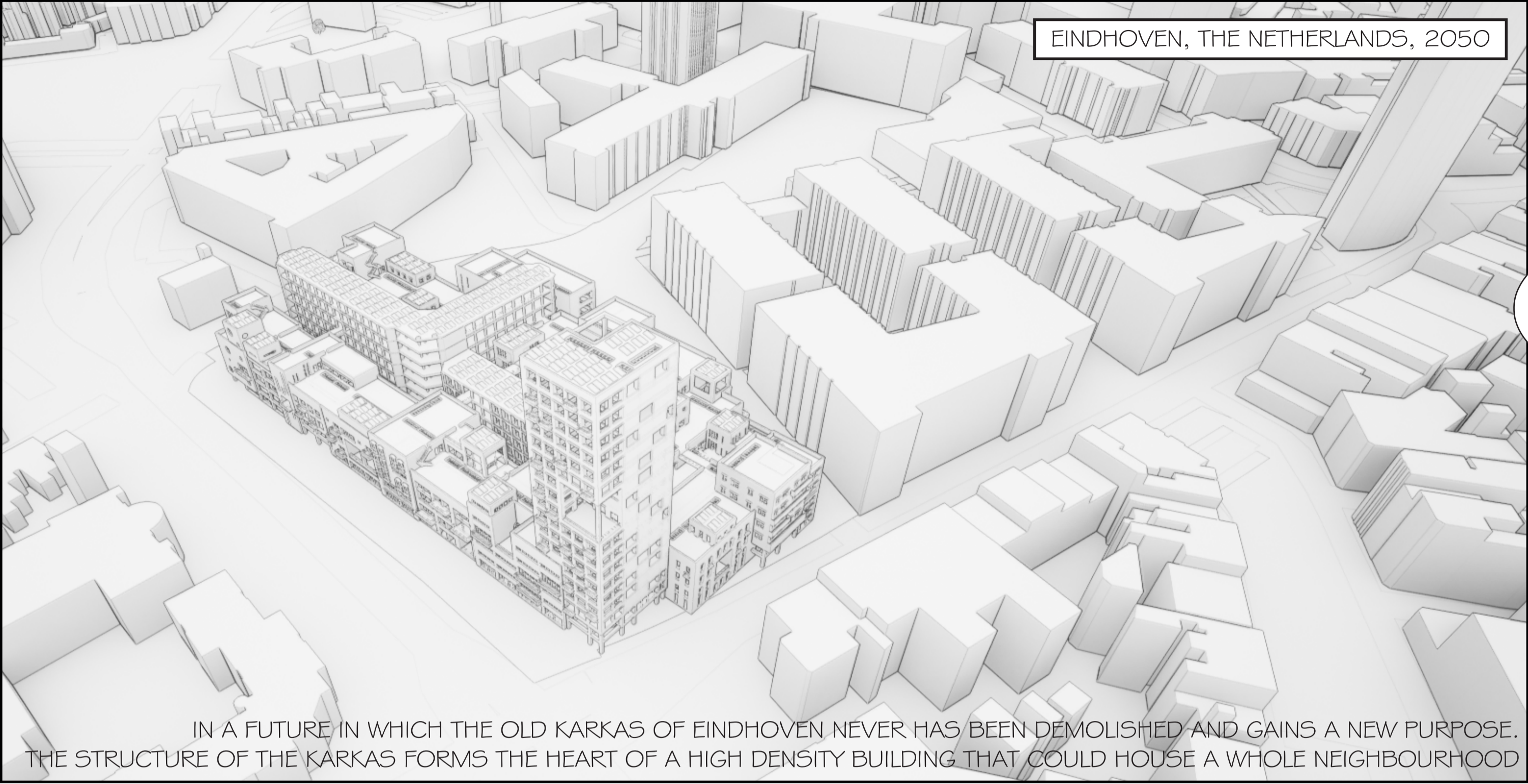


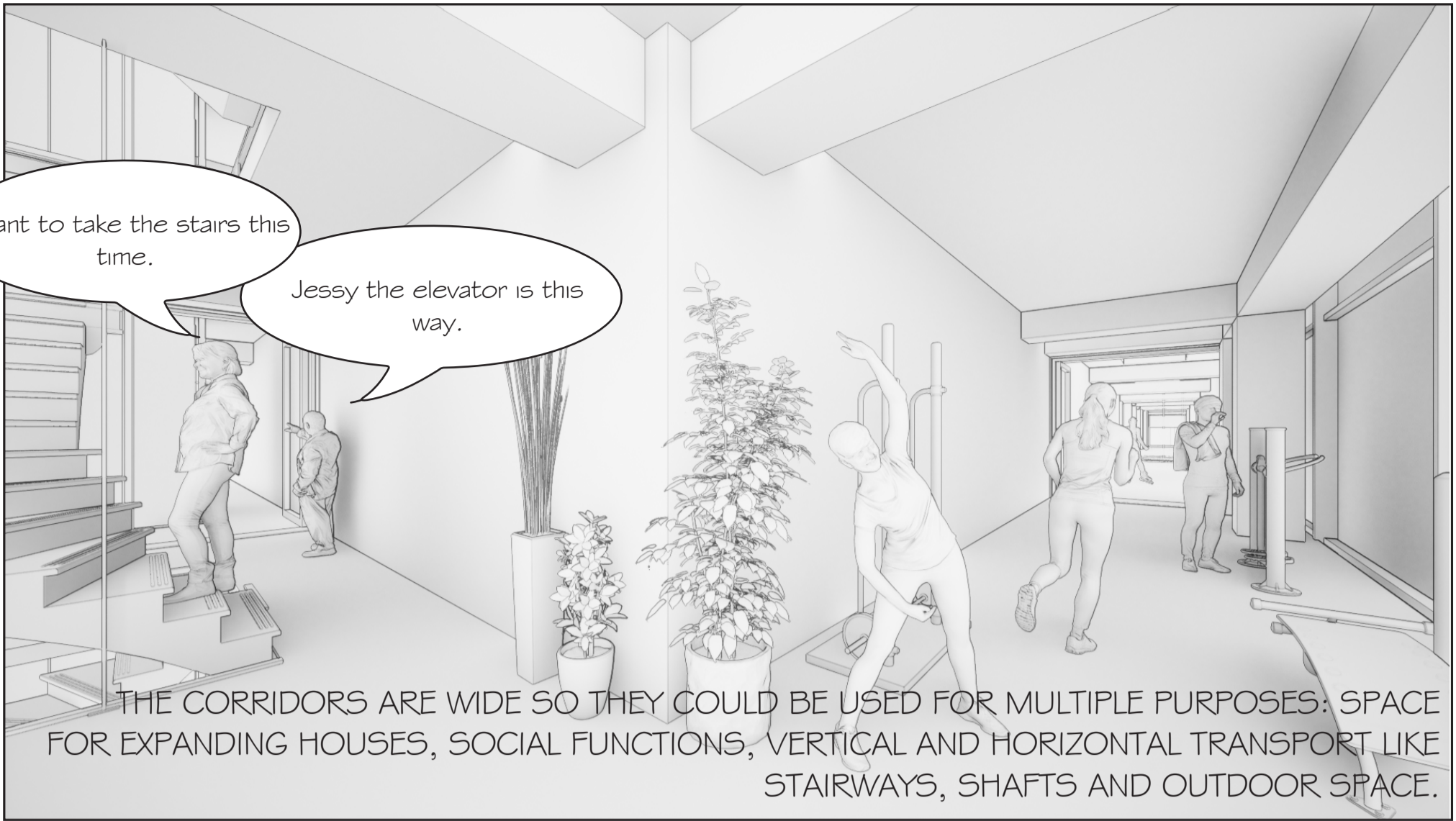
# PROJECT IN DETAIL - COMMUNITY WITH LIGHTGARDEN



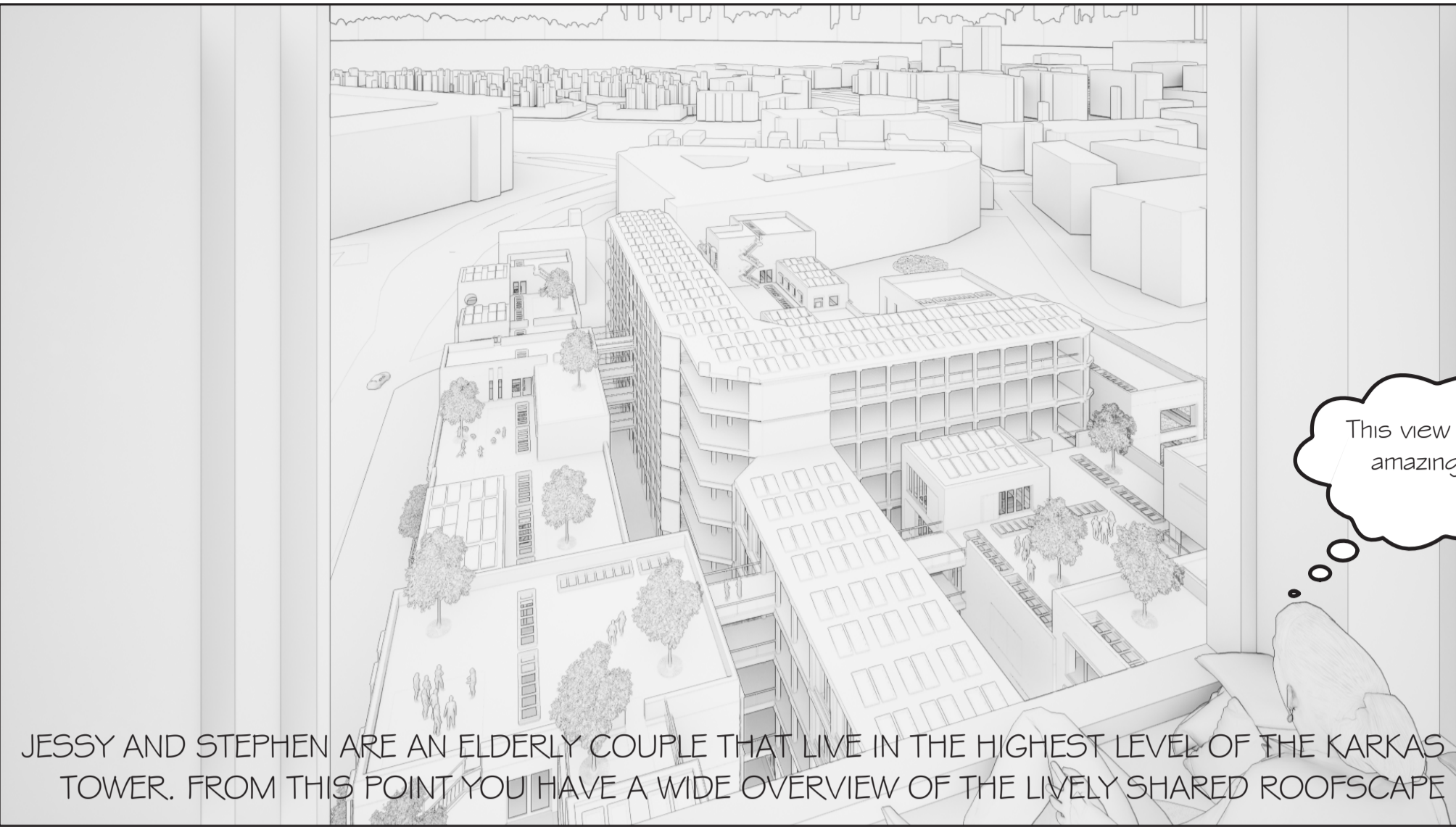
# LIVING IN A NEW KARKAS

## THE STORY: A DAY IN THE LIFE OF ...

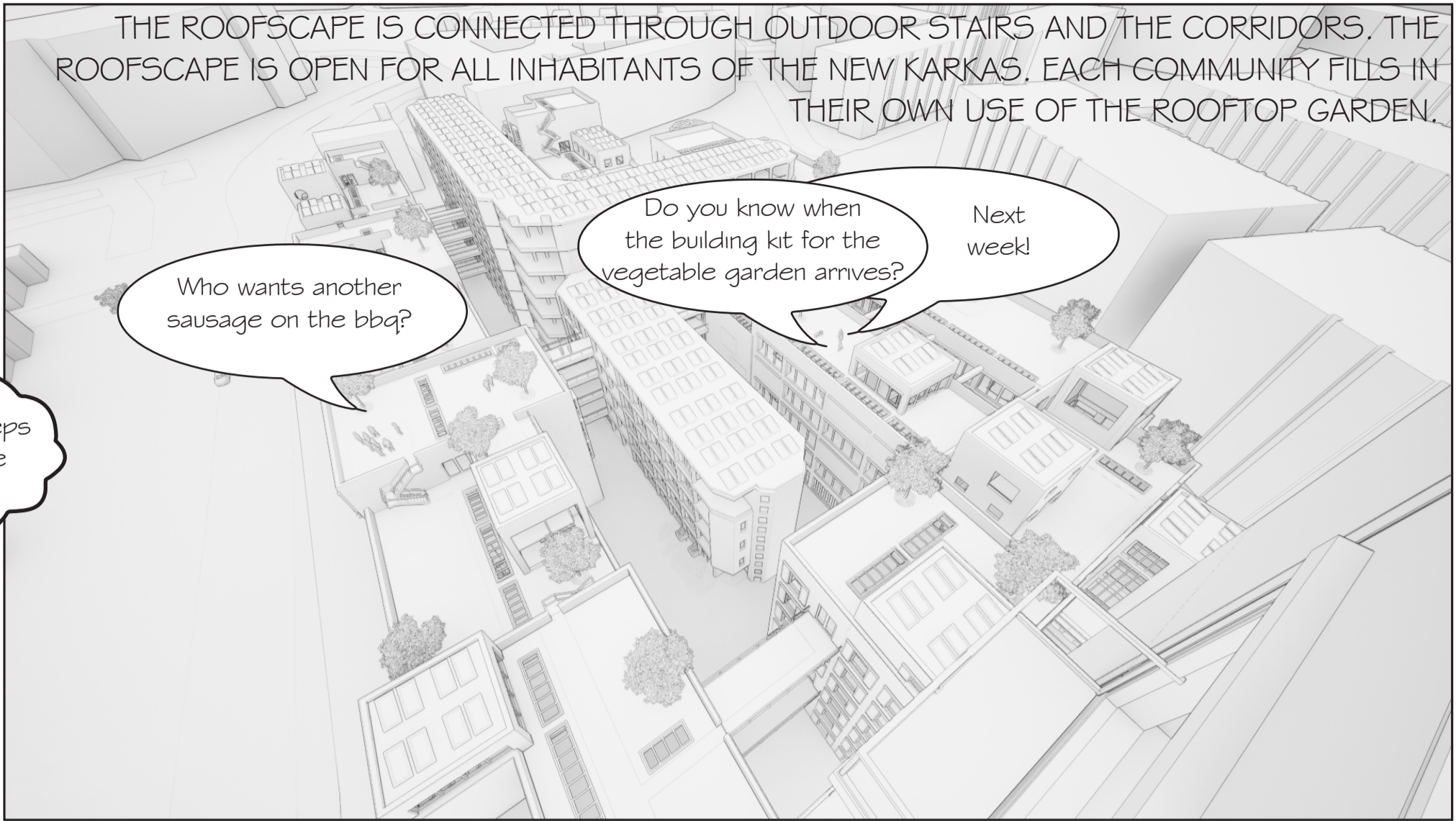




THE CORRIDORS ARE WIDE SO THEY COULD BE USED FOR MULTIPLE PURPOSES: SPACE FOR EXPANDING HOUSES, SOCIAL FUNCTIONS, VERTICAL AND HORIZONTAL TRANSPORT LIKE STAIRWAYS, SHAFTS AND OUTDOOR SPACE.



JESSY AND STEPHEN ARE AN ELDERLY COUPLE THAT LIVE IN THE HIGHEST LEVEL OF THE KARKAS TOWER. FROM THIS POINT YOU HAVE A WIDE OVERVIEW OF THE LIVELY SHARED ROOFSCAPE



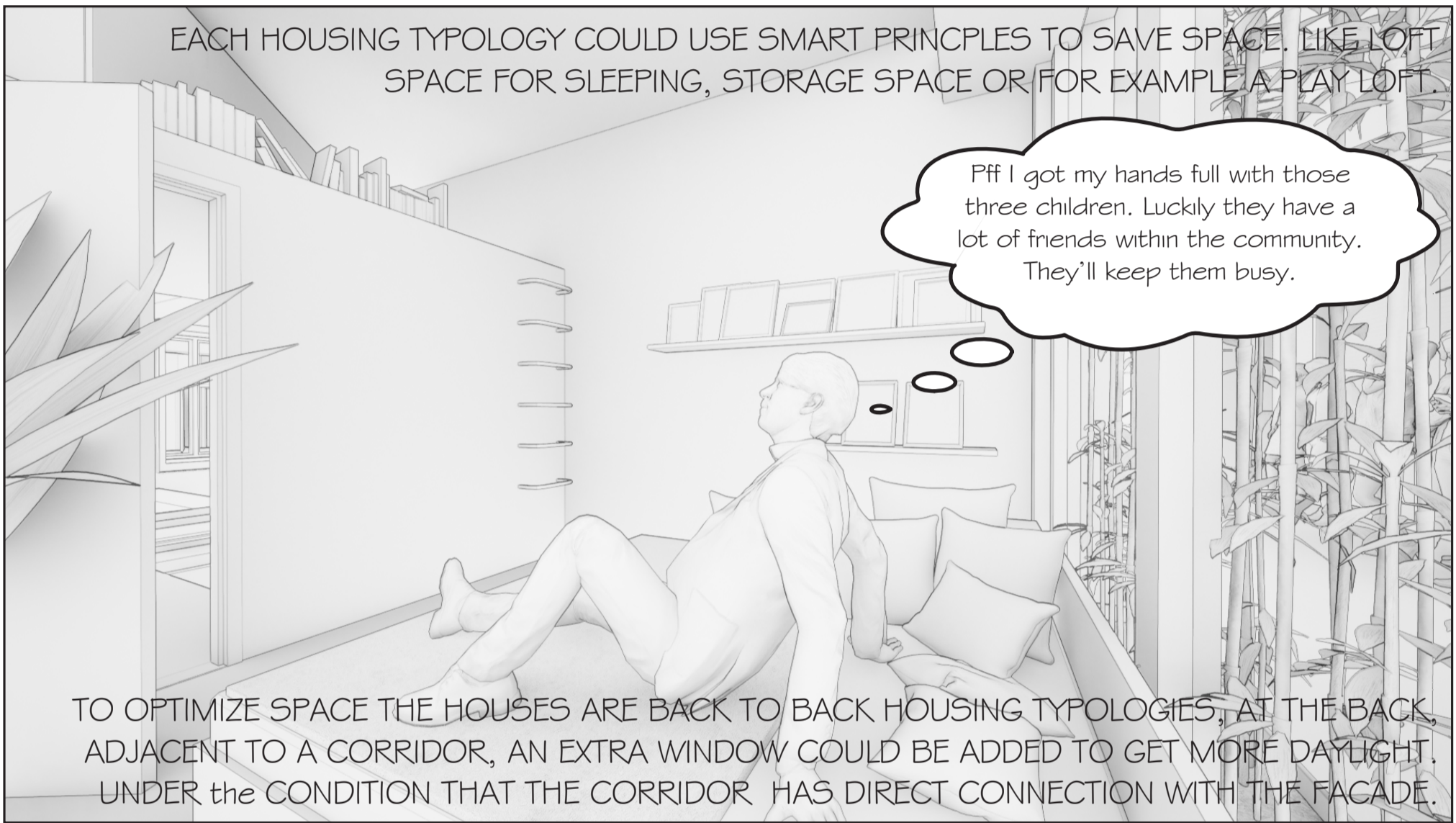
THE ROOFSCAPE IS CONNECTED THROUGH OUTDOOR STAIRS AND THE CORRIDORS. THE ROOFSCAPE IS OPEN FOR ALL INHABITANTS OF THE NEW KARKAS. EACH COMMUNITY FILLS IN THEIR OWN USE OF THE ROOFTOP GARDEN.



RICK IS A SINGLE PARENT WITH THREE CHILDREN. HE HAS A GREAT PASSION FOR COOKING AND BUILT AN OUTDOOR KITCHEN TOGETHER WITH HIS COMMUNITY.

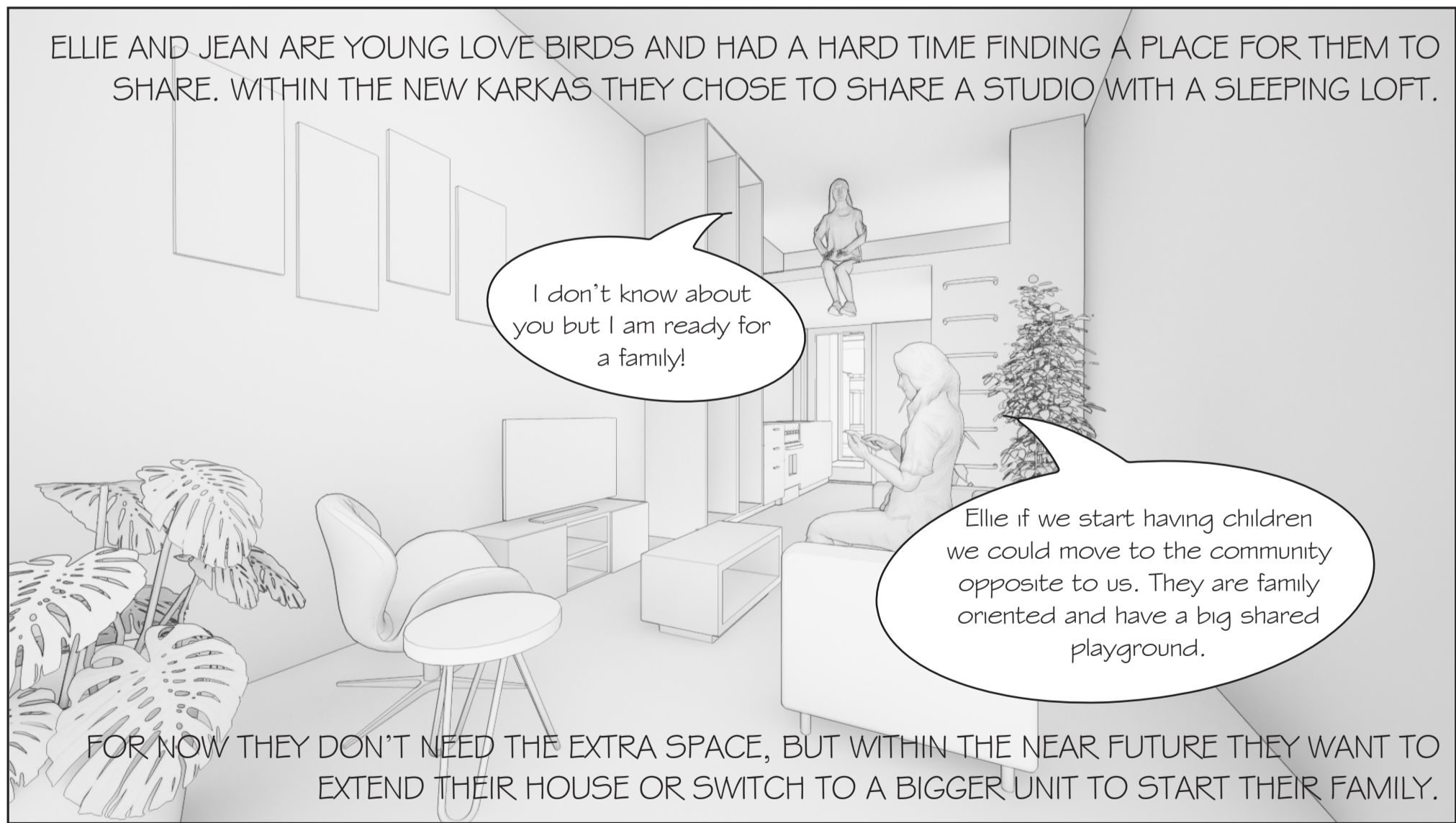


THEY LIVE AT THE THIRD FLOOR AND HAVE A TWO STORY HOUSE. ON TOP OF HIS HOUSE HE SHARES THE OUTDOOR KITCHEN.

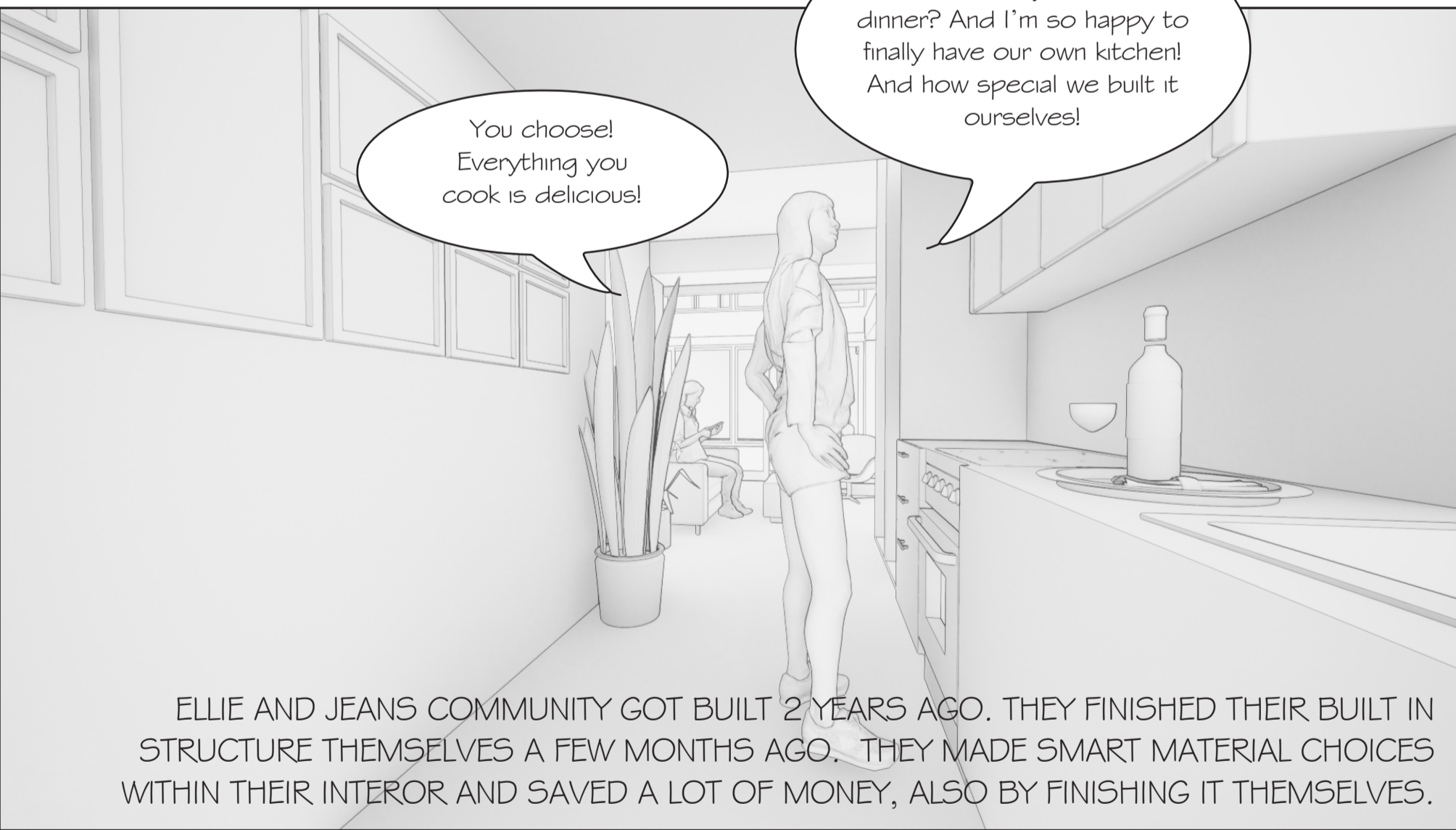


EACH HOUSING TYPOLOGY COULD USE SMART PRINCIPLES TO SAVE SPACE, LIKE LOFT SPACE FOR SLEEPING, STORAGE SPACE OR FOR EXAMPLE A PLAY LOFT.

TO OPTIMIZE SPACE THE HOUSES ARE BACK TO BACK HOUSING TYPOLOGIES. AT THE BACK, ADJACENT TO A CORRIDOR, AN EXTRA WINDOW COULD BE ADDED TO GET MORE DAYLIGHT. UNDER THE CONDITION THAT THE CORRIDOR HAS DIRECT CONNECTION WITH THE FACADE.



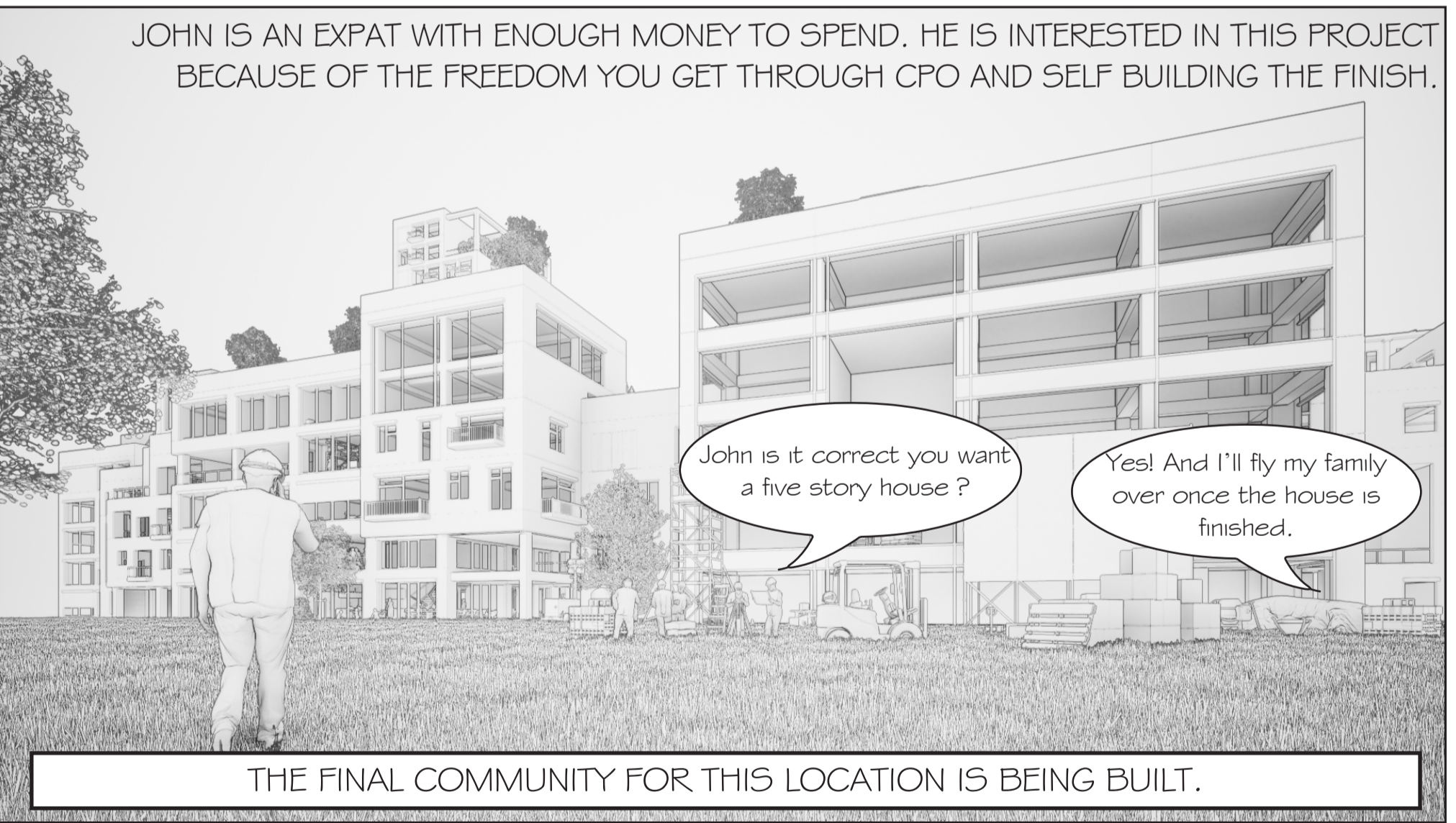
ELLIE AND JEAN ARE YOUNG LOVE BIRDS AND HAD A HARD TIME FINDING A PLACE FOR THEM TO SHARE. WITHIN THE NEW KARKAS THEY CHOSE TO SHARE A STUDIO WITH A SLEEPING LOFT.



You choose! Everything you cook is delicious!

Jean what do you want for dinner? And I'm so happy to finally have our own kitchen! And how special we built it ourselves!

ELLIE AND JEANS COMMUNITY GOT BUILT 2 YEARS AGO. THEY FINISHED THEIR BUILT IN STRUCTURE THEMSELVES A FEW MONTHS AGO. THEY MADE SMART MATERIAL CHOICES WITHIN THEIR INTERIOR AND SAVED A LOT OF MONEY, ALSO BY FINISHING IT THEMSELVES.



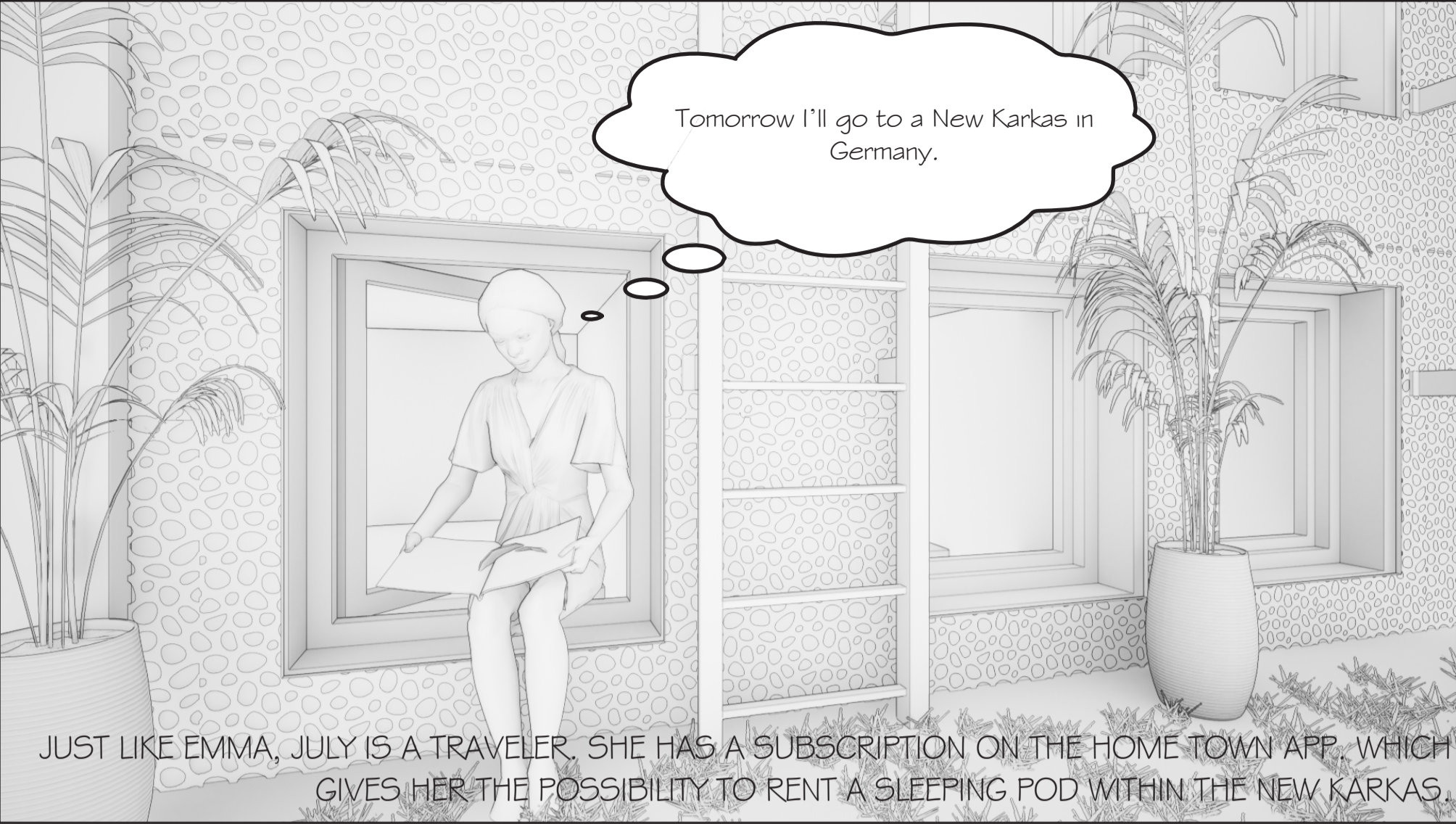
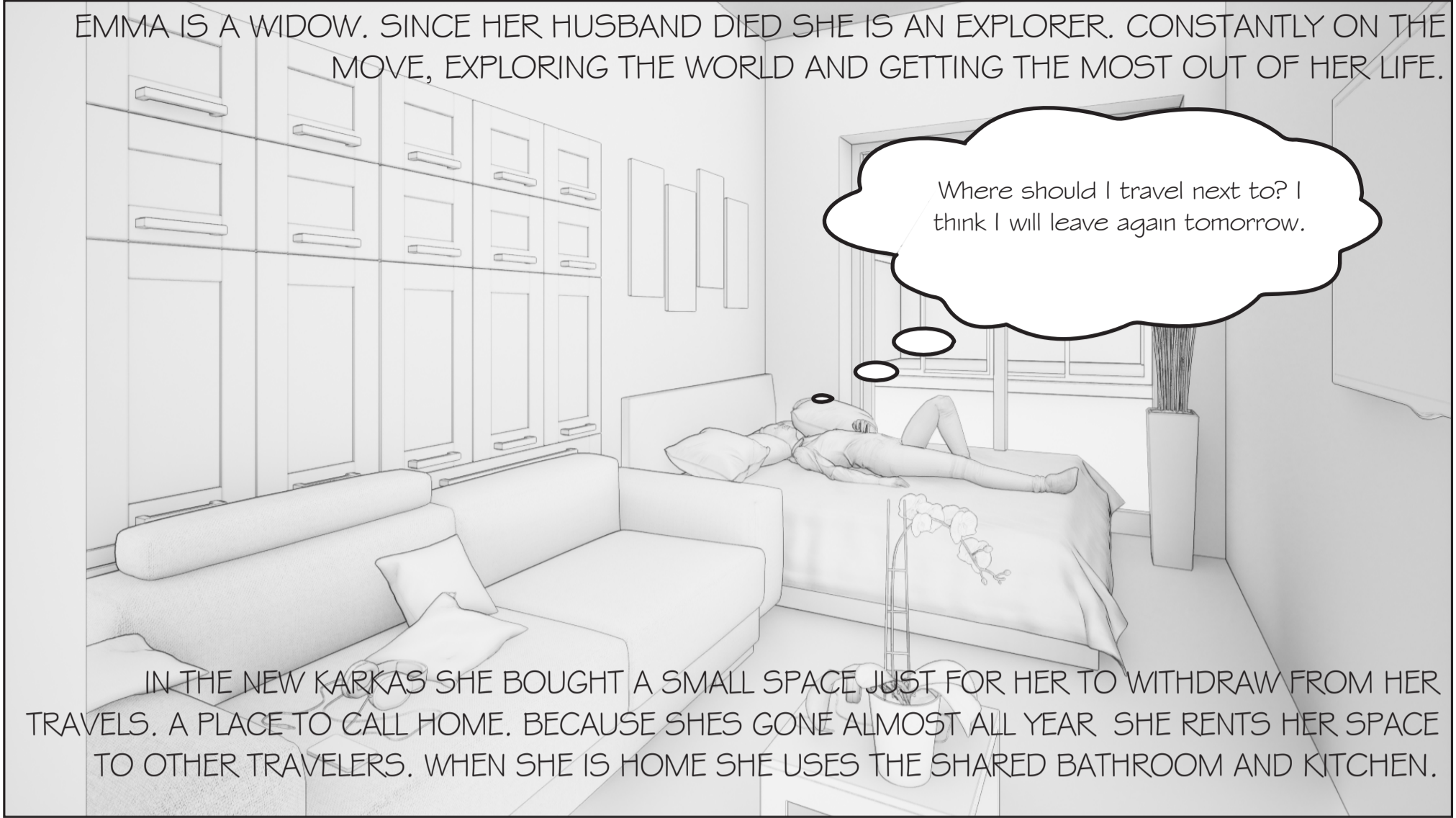
JOHN IS AN EXPAT WITH ENOUGH MONEY TO SPEND. HE IS INTERESTED IN THIS PROJECT BECAUSE OF THE FREEDOM YOU GET THROUGH CPO AND SELF BUILDING THE FINISH.

John is it correct you want a five story house?

Yes! And I'll fly my family over once the house is finished.

THE FINAL COMMUNITY FOR THIS LOCATION IS BEING BUILT.

THE NEW KARKAS WHICH CONSTIST OUT OF 24 COMMUNITIES CAN BE SEEN AS ONE NEIGHBOURHOOD WITH DIFFERENT STREETS. EACH COMMUNITY HAS A SIZE OF AROUND 8-30 HOUSING UNITS (A SIMILAR SIZE TO REGULAR STREETS). EACH COMMUNITY COULD BE BUILT IN A DIFFERNT TIME SPAN. TRANSFORMING THE OLD VACANT BUILDING FROM AN OLD KARKAS INTO A NEW KARKAS HAPPENS IN PHASES. THE FIRST PHASE IS OFCOURS FINDING THE COMMUNITY (A GROUP OF PEOPLE WITH SIMILAR VALUES AND WHISHES, WHO CAN FORM ONE IDENTITY), THEN STRIPPING THE EXISTING BUILDING TO ITS KARKAS, FILLING THIS EXISTING STRUCTURE WITH BUILT IN TINY HOUSES, OPTIMIZING THE PLOT WITH THE MAX AMOUNT OF MASSES POSSIBLE, CREATING A BLUEPRINT FOR THE COLLECTIVE STRUCTURE OF CORRIDORS AND OUTDOORSACE AND THEN STARTING BY BUILDING ONE COMMUNITY. THEN THE NEXT, AND SO ON.



HOME TOWN IS THE CONCEPT OF CONNECTING COMMUNAL NEW KARKAS NETWORKS. IT HAS OPTIONS FOR LOCAL SHARING (WITHIN A NEW KARKAS). OR GLOBAL SHARING (WITHIN MULTIPLE NEW KARKASSES GLOBALLY DISTRIBUTED). IT ALSO PROVIDES INS AND OUTS FOR NEARBY URBAN FUNCTIONS WITHIN A 10 MIN WALKING DISTANCE.

