



POLITECNICO DI TORINO

PRODUCTIVE **A**RCHITECTURE

Alternative forms of architecture for urban agriculture and community building

A problem - solving architectural exercise on the site of OSI-GHIA, Turin

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G R A T I T U D E

To Professor Roberta Ingaramo, for her guidance that accompanied me not only for this particular thesis, but also in the previous semester, her particular focus into the topic of adaptive to resist + mitigate as a tool to rethink urban linear metabolism regard to the sustainability of the built environment, the food, the health and economy.

To the architect and phd researcher Maicol Negrello, for his valuable collaboration and significant knowledge and career dedicated to facing the different forms of integrations of nature in the city and to his implication into the topic of urban agriculture production integrated within the architecture as responds to the needs of future urban growth and the reality of climate change.

D E D I C A T I O N

To my parents and to my parents in law and their support.
Last but not least, to my lovely wife Maria - Delia and to our newborn baby girl Rebecca - Francesca.

R E S E A R C H M E T H O D O L O G Y

A combination of direct and indirect sources has been used as research methodology, according to and varying on the specific case and situation of the phases of this thesis project.

A first theoretical phase in which the city of Turin is described based on its historical aspects related to the meaning and development of urban agriculture and based on its morphological and social aspects was studied with sources from library, books and online documents. The theory related to the aspects of sustainable approaches within sustainable architecture, has been supported by the sources, documents laws and directives of the European Union linked to the topic of New Green Deal, climate change and transition to green.

Another stage of analysis, such as statistics related to sociological aspects was supported by the documentation directly linked to the archive of Turin Municipality.

Due to this thesis as a problem solving exercise with a design orientation, the elements of different investigations that drove me towards the proposed architectural solution are linked to different reference projects. Also, due to the fact the architectural solution has its roots into the scandinavian approach towards sustainable architecture, a specific investigation has been carried out under the form of discussions to two danish specialists in the building industry in order to enrich the work with valuable insights.

The research development process and analysis were observed from its initial stage by the teacher who acted as the tutor of this thesis work.

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personal narrative

I have lived my very early teenage during the economic growth around 2005 -2008 in a country (Romania) that was still struggling at 15 years from the Revolution to find a new identity, to find a democratic path and to give a direction and order to the national- administrative systems. I could define those years as a chaotical period when everybody was doing things and taking decisions and acting just for the personal welfare in a frenzied rhythm and agitation without thinking to the common good or society benefits; a period when everybody wanted to get rich overnight. In short words, a country as a very active beehive in a chaotical way, missing the well-structured and organized work-systems.

This thirst for money invaded the agriculture sector as well and it can be translated in decisions that do not take into account the health of people; decisions as for example use of chemicals, pesticides, herbicides with high dosage having the only purpose: to grow faster doubling or tripling the harvest. This "trend" that encompassed the big farms, begun to strongly overshadow the small farmers, so in order to survive somehow, they were obliged to begin using those treatments for their cultures.

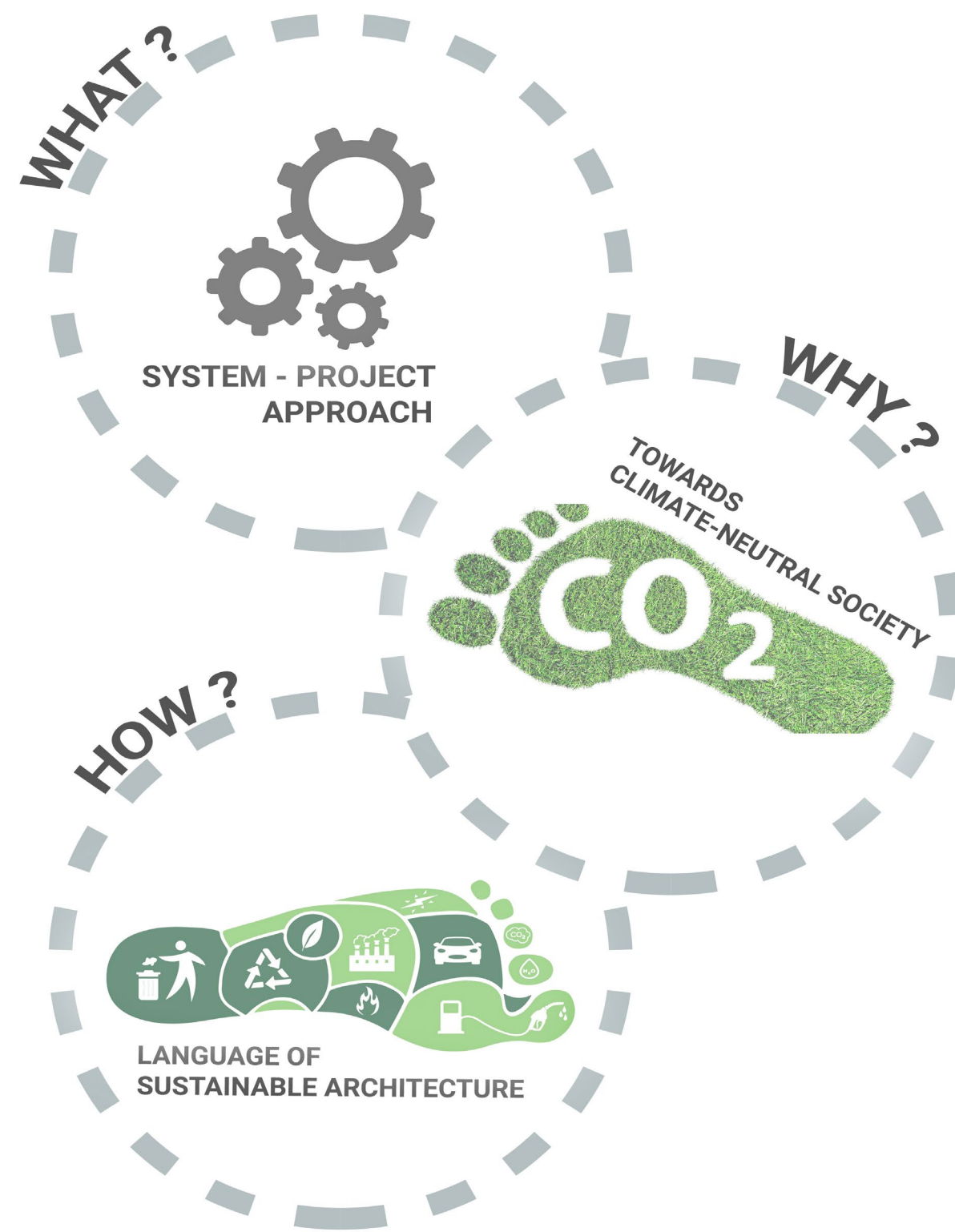
Of course, I have not been the central figure of those times and events, but I have been there, involved at a very small scale as part of this ugly machinery with bad consequences for the environment and people's health.

Apart from his job, my father loved to work the land during afternoons, weekends and holidays, so we had a small cereal farm that we worked on every year using agricultural machineries. Growing in this spirit, my childhood and teenage could be defined as days on the land driving those agricultural machineries. I can remember the way we were struggling on the market when as a small farmer competed against bigger farmers and your cereals didn't have the best look (but they were healthier) comparing with the perfect grains from your competitors cereal pumped with chemicals. So, it began difficult to sale your products even at a lower price and I couldn't understand very well at that time why is so hard to make profit in the agricultural field based on your honest work.

I was, during those years a witness of a gradually degradation and in the same time I would say denigration of peasant-farmer and his clean work.

I can say that, my first personal sense and perception of the way food is produced and manipulated is strongly connected to my family small farm, and to my parents work which still cultivate vegetables every year and have livestock for the family's consumption. The research work of this specific topic "New Green Deal" that in my case proposes an architectural problem-solving exercise, grows from my commitment to social justice in terms of balance between society/big companies and individuals when it comes to distribution of wealth and access to wealth in the meaning of healthy food and living. While I am undubitable about this positioning of my thesis, I am also alert to the EU policies that shape a clear framework and offer guideline towards a health prosperity of communities. Both, my story and my duty as an architect for communities well-being and mentality changes in society are subtexts in this research.

the language of architecture



WHAT

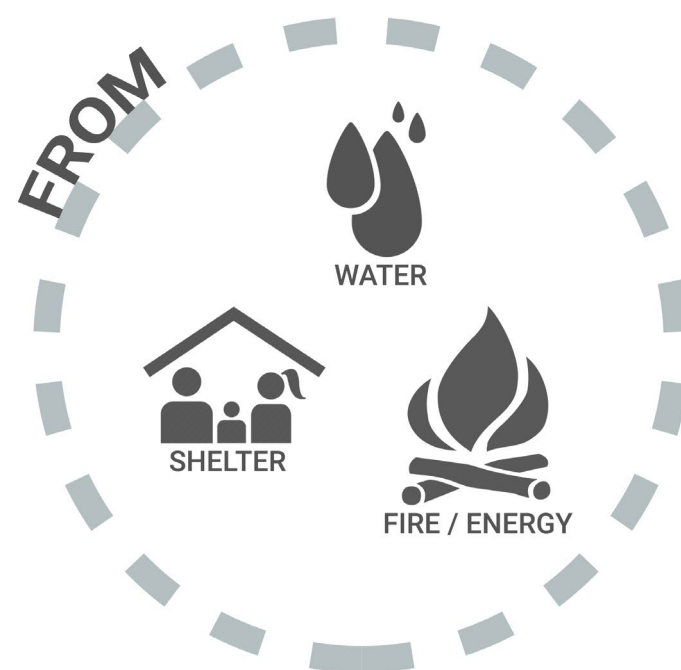
A system-project approach focused on one of the basic needs for survival: food resource that would be linked with some architectural programmes in order to generate social change and well-being in the form of eco-system living. A set of tools and knowledge will be used in order to propose provide new alternative - continuous food producing strategies and food stocks in order to sustain urban life in Turin.

WHY

We, as human species are dreaming towards climate-neutral society and through the voice of today's politicians we set up this goal in the fight of humanity with climate change. On the other hand, we live in an era of technology, information, mobility and globalization and all these factors act with high pressure on the existing cities, on the environment and on the limited resources of the Earth forcing the urban areas to expand in order to allow space for more individuals.

HOW

The project will be developed based on the language of sustainable architecture, architecture of performance through the combination and harmonization of agriculture and architectural design. Moreover, the project investigates whether "an architecture of agriculture" can facilitate a mixture of another architectural programmes and it tries to challenge the current paradigm of urban agriculture as just simple spaces/gardens for cultivating vegetables.



ARCHITECTURE



We don't need playful design proposal, we need high-impact built system-projects - prototypes for resilient future we've been promised

Billy Fleming, Director of the School's McHarg Center

ABSTRACT

Architecture comprises 3 out of 4 basic needs for survival: shelter, water and fire (in terms of energy). The fourth remaining necessity, FOOD is usually left outside the architectural sphere. In the context of nowadays humanity is struggling to feed and to host current population and according to the statistics by 2050 Earth population will reach up to 9 billion and as a first consequence, the urban areas will increase in number and density. Referring to European sphere according to European Commission there is also an increasing trend in numbers of citizens and density in the cities among Europe by 2050.¹ New solutions of how we produce food and how we live are necessary. All over the world agriculture has been in the last decades and it still is strongly dominated by industrial methods. The biggest concerns regarding agro-industry are related to its unsustainable farming practices (use of chemicals, pesticides etc) which can create a false sense of food security or healthy food among communities and it implies a high level of environment pollution. **This thesis places and recognize the food as the fourth element under the architectural sphere's umbrella next to the other 3 above mentioned and it proposes that agriculture should harmonize with architecture through technologies and design in order to provide new and in the same time alternative-continuous food producing spaces, strategies /** food stocks to be able to sustain urban life, claiming that in fact "we don't need playful design proposals, we need high-impact built system-projects – prototypes for resilient futures we've been promised"².

¹ European Commission data, accessed on 09.04.2021 <https://urban.jrc.ec.europa.eu/thefutureofcities/urbanisation#the-chapter>

² Billy Flemming, *Design and the green new deal*. Accessed March 03.2021 2021 https://placesjournal.org/article/design-and-the-green-new-deal/#footnote_30

1. introduction

The true measure of any society can be found in how it treats its most vulnerable members.

Mahatma Gandhi

1.1 General perspective

Can architecture/landscape architecture be an activist force in the fights against climate change and for social justice?

Contemporary architecture and landscape architecture has been focused and is still focusing mostly on sites, rather than on systems; on elite desires rather than on public interests or community's needs and problems. In short words the work of the architect or landscape architect is limited in scale and subordinate to client requirements.

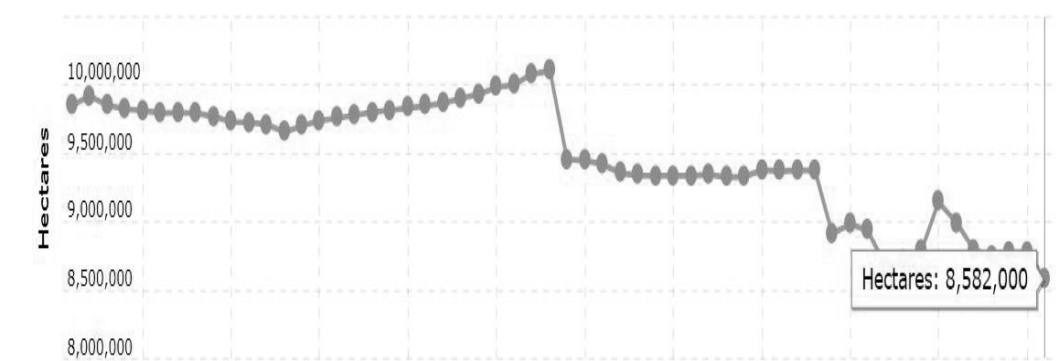
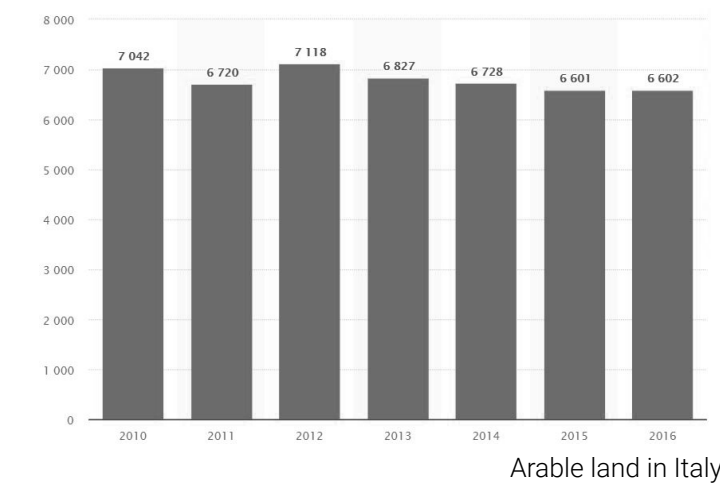
Having as two important pillars the EU 2050 strategy commitment towards the urgent global climate action (Paris agreement) and the EU policies in terms of urban agriculture for food security approach, this thesis will try to position itself as an opportunity to create alternative model of practice, **as an architectural exercise in problem-solving where the "right" answer is waiting to be uncovered**³ by rationalizing the design process for a high-impact of the proposal in order to give it a "passport to relevance and productive social utility"⁴ in the transition towards a climate-neutral society.

1.2 Defining the problem

There are few decisive elements that I will interconnect them in defining the problem: **population growth in urban areas, ageing people in Europe, limited agricultural lands.**

According to UN statistics, 68 % of the world's population will live in the cities by 2050. As first consequence the already existing crowded urban areas will become even more crowded and automatically it will increase the demand for sustainable and local food products. These demands result from issues related to dependency on outside, powerful and probably unsustainable business – sources that deliver the products from industrial farms towards the markets and limited agricultural lands. In order to highlight this last aspect and to visualize the importance of proposing and researching for alternative solution to produce food within the cities, a comparison is taken between 2 countries similar as dimensions: Italy (301.304 km²) and Romania (248.397km²). While Romania is feeding about 19 million people with an arable land of 8.5 million hectares, Italy is obliged to feed 60 million of people having at its disposal 6.6 million hectares of arable land.

Arable land = land worked (ploughed or tilled) regularly generally under a system of crop rotation



On the other hand, the statistics show us that Europe is the continent with the highest share of population around and older than 65years and the population of Italy is becoming the oldest population in the world. Going further, the zone of Piedmonte is in "top 3" oldest zones in Italy together with Tuscany where the average age of population is 47.3.

In short words, in the following years we will see a significant increase in number of population in the urban areas meaning also that the arable land around these urban areas will probably decrease living the place for new districts of new industrial zones and in the same time and somehow in contradiction with this aspect the population of Europe is aging drastically and this category of people (around and + 65) can't be neglected when we as architects "preach through our work the gospel" of social benefits, the welfare of sustainable communities or urban areas.



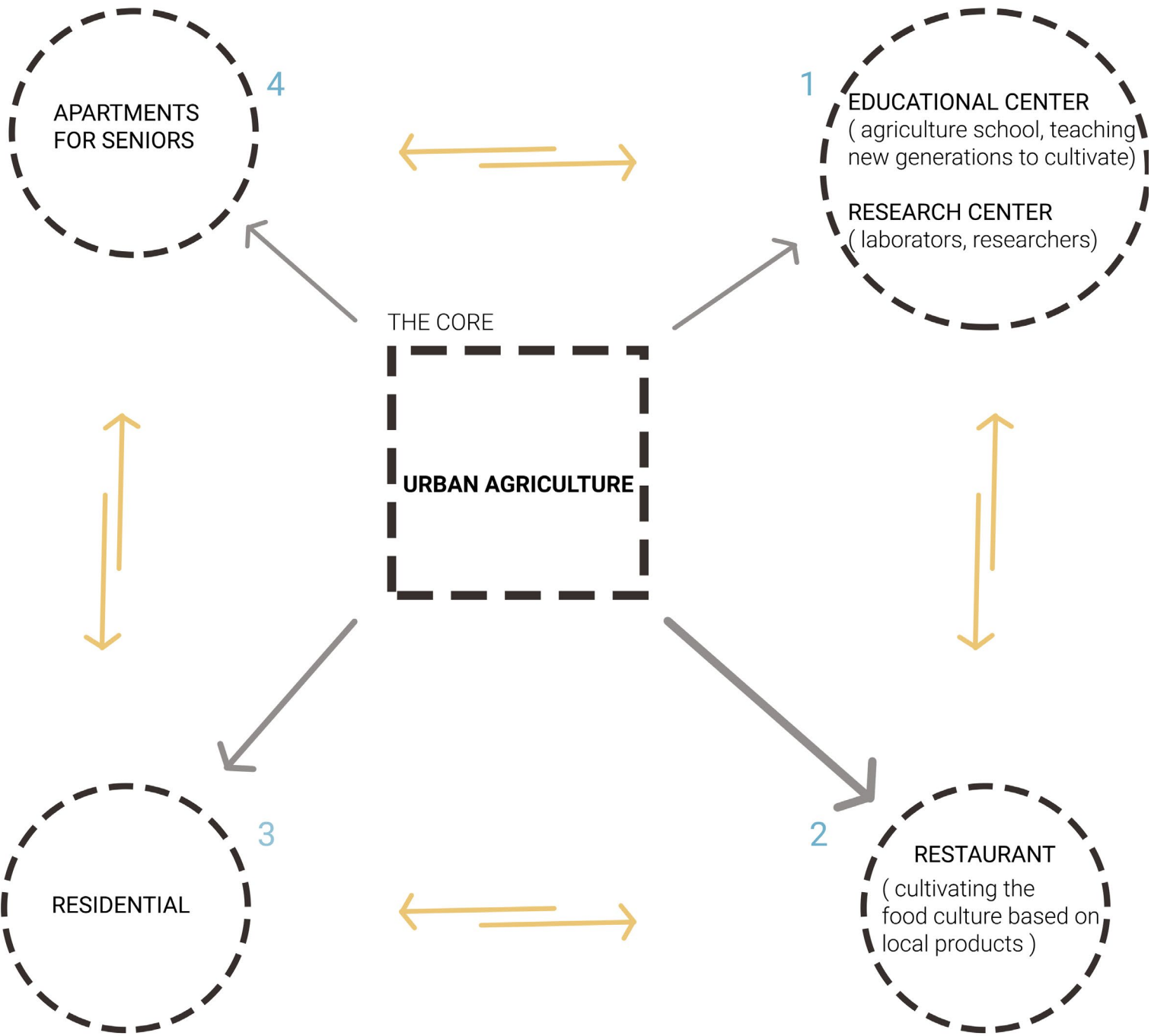
³ Susan Herrington, *The nature of Ian McHarg's Science*, Accessed on March 10.2021 https://www.researchgate.net/publication/250231936_The_Nature_of_Ian_McHarg's_Science

⁴ Ian McHarg, *An Ecological Method for Landscape Architecture*, Accessed on March 10.2021 <https://placesjournal.org/article/design-and-the-green-new-deal/>

1.3 Project description

The thesis proposes an architectural exercise in problem-solving based on combination of architecture and urban agriculture with the scope of promoting, mitigating for the importance of creating a system-based project (eco-system) including all 4 basic needs for survival: shelter, food, water, fire (energy).**The core of the project is urban farming as an alternative solution for food security, food consciousness supported and strongly linked to the other 3 needs of survival that will be represented as architectural programmes (functions under 4 segments).** In short words urban agriculture used as architectural agent for social change and urban metabolism in order to educate humans, to encourage them to involve and understand that tomorrow begins today. The unique and fresh-new angle this thesis will offer is represented by the integration of the segment Apartments for seniors (**architecture for dignity**) reasoning that a project-system which aims to change mentalities and to have impact in society can't ignore this specific cathegory of people.

Based on the reality of the statistics we can understand the importance and I would say the urgency of trying to create system-projects in which " to implicate " targeted categories of people together with the scope of equalizing the existing inequalities in the society.



GOALS

- visibility - impact
- educate
- social change
- social sustainability
- architecture for dignity
- system based project
- social justice
- ecological sustainability
- social equity

Before we ask the world to view design as an urgent necessity, we must look at those sites, tools, and structures and remake our disciplines to be more useful, in the moment, for the movements and ideals we aspire to serve.

Billy Fleming, Director of the School's McHarg Center



1.4 Justification for the chosen city
Turin - territory of contradictions and transformations

Turin is the capital of Piedmont region and appart from that it is one of Italy's most important city from economical point of view and it comprises few important aspects and in the same time needs/problems that “promote” it as suitable for this problem-solving architectural exercise. There is big percentage of people around and over the age of 65 making up to 22% of the total number of population while only around 18% of the population is under the age of 20 and over 13% is represented by foreigners.⁵ However, according to OECD (Organisation of Economic Cooperation and Development) the Turin metropolitan area is estimated to reach to 2.2 milion in following decade and based on the most recent review its continuous growth rate trend is visible in the last decade⁶

Somehow in contradiction whith the ageing statistics, according to a reportage from France24English Tv, Italy became the country with the higher number of youth working in agriculture field in Europe⁷.

Turin is the city with more than 2.000.000 square meters of vegetable gardens and agricultural areas in the urban zone, many of them positioned in peripheral areas where lands abandoned constitute the transition between rural and urban (buffer zone).⁸ Another strong reason would be the number of about 1000 creative companies involving 47000 employees and contributing with an anual revenue of 13 milion euro to the local creative economy.

Shortly, Turin has the power to generate new programmes, has the desire to re-invent itself, it's open minded oriented towards “new trends” and consists in a mixture of transformations vs contradictions that promote it as a provocative location for this kind of problem-solving architectural proposal.

22% around and over 65year

18% under age of 20

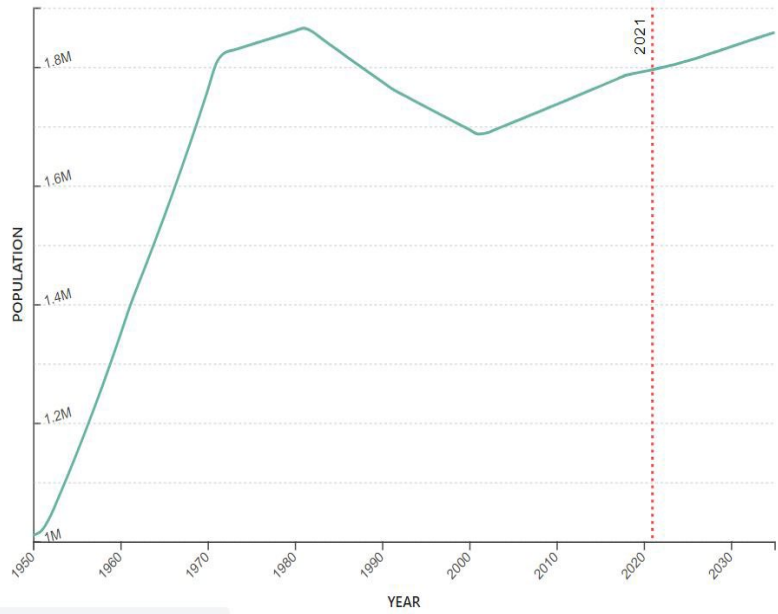
13% foreigners

2 mil. square vegetable gardens

1000 creative companies

5 World population review, Accessed 12.03.2021
<https://worldpopulationreview.com/world-cities/turin-population>
6 World population review, Accessed 12.03.2021
<https://worldpopulationreview.com/world-cities/turin-population>
7 France24EnglishTv, Accessed 04.03.2021
<https://www.youtube.com/watch?v=B29EuKANqmE>
8 Citta di Torino, Accessed 08.03.2021
<http://www.comune.torino.it/torinogiovani/vivere-a-torino/orti-urbani>
16

Number of population
Turin Metropolitan area



Turin -Negative growth rate
1980 - 2000

2001	1,686,649	-0.45%	-7,549
2000	1,694,198	-0.45%	-7,604
1999	1,701,802	-0.45%	-7,627
1998	1,709,429	-0.45%	-7,662
1997	1,717,091	-0.45%	-7,685
1996	1,724,776	-0.45%	-7,741
1995	1,732,517	-0.45%	-7,765
1994	1,740,282	-0.45%	-7,800
1993	1,748,082	-0.45%	-7,824
1992	1,755,906	-0.49%	-8,598
1991	1,764,504	-0.58%	-10,280
1990	1,774,784	-0.58%	-10,340
1989	1,785,124	-0.58%	-10,385
1988	1,795,509	-0.58%	-10,475
1987	1,805,984	-0.58%	-10,521
1986	1,816,505	-0.58%	-10,583
1985	1,827,088	-0.58%	-10,630
1984	1,837,718	-0.58%	-10,721
1983	1,848,439	-0.58%	-10,769
1982	1,859,208	-0.32%	-5,910

Turin -Positive growth rate
2000 - 2020

2021	1,795,235	0.17%	3,072
2020	1,792,163	0.17%	3,048
2019	1,789,115	0.17%	3,056
2018	1,786,059	0.35%	6,268
2017	1,779,791	0.35%	6,246
2016	1,773,545	0.35%	6,224
2015	1,767,321	0.35%	6,202
2014	1,761,119	0.35%	6,180
2013	1,754,939	0.35%	6,159
2012	1,748,780	0.35%	6,137
2011	1,742,643	0.35%	6,107
2010	1,736,536	0.35%	6,087
2009	1,730,449	0.35%	6,056
2008	1,724,393	0.35%	6,052
2007	1,718,341	0.35%	6,022
2006	1,712,319	0.35%	6,001
2005	1,706,318	0.35%	5,972
2004	1,700,346	0.35%	5,968
2003	1,694,378	0.35%	5,938
2002	1,688,440	0.11%	1,791

2.urban agriculture

Definition and evolution

Urban agriculture, urban farming or urban gardening is defining as the practice of cultivating, processing and distribution of food in or around urban areas. It also includes animal husbandry, aquaculture, urban beekeeping, horticulture. In many cities the plots of urban gardens are owned by the municipal administrations and they are rented out to associations, groups or individuals for cultivation.

https://en.wikipedia.org/wiki/Urban_agriculture

Urban agriculture as a tool in the search of new dimensions to meet the needs of the citizens towards a green-society becomes the meta-subject for this thesis and is put in the context of Turin. As general overview it discusses 3 main temporal pictures: of yesterday's, today's methods with the architectural investigation and problem-solving proposal of tomorrow's practices.

orti di guerra

The memory of Turin regarding urban agriculture is strongly linked to the stringent and acute need for food during the hard time of second world war. The war begun for Turin in the night between 12 and 13 of June 1940 and in the days after the bombing the so called "war gardens" were born. These gardens represented the great idea of exploiting the major parks and gardens of the city for cultivation of vegetables and potatoes; the famine and the difficulties were fought by a profound sense of responsibility, generosity and implication of the local community. The Turinese remained in the city and fought their war, armed with common sense and fortitude: for example the Valentino park was used for cultivation of potatoes, the Piazza d'Armi for cabbages and the plots adjacent to industrial plants as Mirafiori were used for cultivation of cereals.⁹

After the war reconstruction begun, the number of jobs grew, industry grew and within the sizes of the city, the prices of the land rises and the phenomenon of urban gardens decreases significantly. An important mention is that, the gardens didn't disappear completely, they migrated from city center to suburbs, occupying often the spots illegally, datable period between 50's and 60's. Generally after those years, the movement of urban gardens resumed itself to the peri-urban areas, those areas of "transition" between city and countryside which in those days intended to accommodate activities such as industries, warehouses, gas or water plant and which in the following years were incorporated into the growing city.¹⁰



Turin. October 1941 (Fiat Historical Archive, Fiat Dopolavoro)



⁹ Michele Albero, *Orti di guerra*, Moliventiquattro24, Accessed on 13.03.2021, <https://mole24.it/2012/10/31/orti-di-guerra-quando-torino-coltivo-il-meglio-di-se/>

¹⁰ Antonio De Pasquale, *nITro*, On/Off Magazine, Accessed on 13.03.2021 <https://onoffmagazine.com/2013/11/12/co-gardens-lagricoltura-urbana-come-veicolo-di-condivisione-e-socializzazione/>

OGGI

2.2 Oggi

Whitin the last decade, Italy through its politicians and administrative board worked in order to highlight the potential and importance of this “underrated treasure” of what orti urbani can mean in terms of alimentari, sociali, didattici or economici aspects for the citizen of urban areas.

A national programme saw the daylight, “Orti Urbani una realta nazionale” with the purpose of supporting and guiding private and public bodies owning green areas to allocate them to the “art of cultivating” respecting “rules ethics” established by Italia Nostra in agreement with ANCI (Association of Municipalities of Italy).¹¹ The programme reasons through a large pallette of aspects such as historical, religious, cultural, health, food, urban, social, educational, economic. Defending the high value of these aspects and in the same time highlighting the link between them, Evaristo Petrocchi one of the important promoters of “Orti Urbani” programme says:

“Aspetti sociali – storico – religiosi:

L’orto testimonia in primo luogo il legame dell’Uomo con la Terra, che oggi si va perdendo dinanzi al dilagare della cultura della “mera apparenza”. Chi apprezza l’orto vuol dire che continua a riconoscere l’importanza della sostanza delle cose rispetto alla mera “virtualità”. Un pomodoro dell’Orto è “sostanza” al contrario di un ortaggio o di un legume conservato in buste di plastica tanto da apparire simile ad un prodotto artificiale. Oggi con l’applicazione del famoso ed antichissimo detto “ora et labora” benedettino possiamo contribuire a realizzare quella corsa alla green economy di cui abbiamo tanto bisogno. Ma ciò deve avvenire con una presa di coscienza: ed infatti con quel detto si voleva proprio affermare che c’è un tempo per le cose pratiche, il lavoro ed uno per la preghiera, la riflessione, lo studio (...)

Aspetti urbanistici, paesaggistici, architettonici:

L’orto urbano è stato molto spesso considerato nel passato a livello sociale alla stregua di un luogo destinato esclusivamente ai poveri e quindi non oggetto di particolare attenzione da parte degli urbanisti che si sono occupati delle grandi città. Oggi questa tendenza sembra invertirsi e sembra coincidere anche con un certa moda secondo cui un orto in città fa “snob”, specie dopo che anche la regina Elisabetta ha impiantato zucchine ed insalata nelle aiuole di Buckingham Palace e dopo che Michelle Obama ne ha aperto uno alla Casa Bianca riprendendo una tradizione americana che risale a John Adams (primo presidente coltivatore di orti), fino a Eleanor Roosvelt, nella prima guerra mondiale con i “Victory Gardens” nati per allievare le ristrettezze economiche dei cittadini durante il conflitto e che producevano fino al 40% degli ortaggi (...)

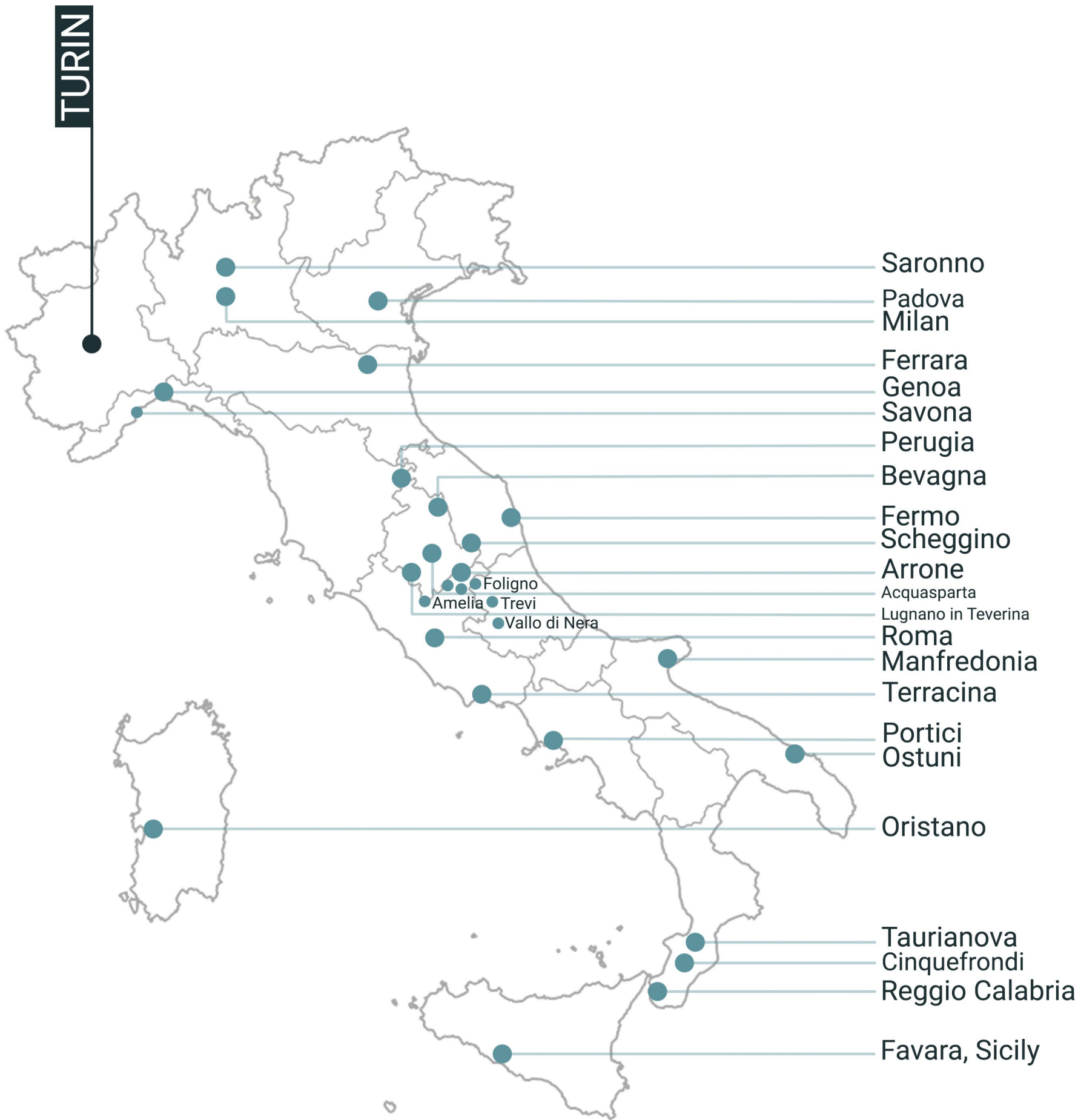
Aspetti botanici, sanitari, alimentari, didattici:

I prodotti dell’Orto fanno bene alla salute, e sono anche molto più gustosi rispetto a quelli che normalmente si comprano al supermarket.

Questa che sembra una opinione comune non è tuttavia ancora così ben conosciuta come si dovrebbe, perché non se ne ha piena coscienza e non se ne conoscono i presupposti culturali: quanti conoscono infatti la differenza tra un pomodoro dell’orto e quello di serra? quanti sanno che differenza esiste in termini di qualità e di conseguenze sulla salute tra l’olio di oliva prodotto industrialmente e quello artigianale che è l’unico veramente di qualità? Quanti sanno che la storia e la memoria storica del paesaggio olivicolo italiano si fonda sullo stratificarsi nei secoli di culture e usi locali nelle varie lavorazioni artigianali la cui permanenza è la sola garanzia che un prodotto rimanga per quello che è sempre stato e cioè un prodotto “vero” della terra? Altri aspetti connessi allo stare bene riguardano il fatto che coltivando si soggiorna all’aria aperta, si favorisce il relax. E’ sempre più diffusa l’“ortoterapia” come pratica che migliora lo stato di salute sia dal punto di vista organico che psicologico. Stress, depressione, ansia, ma anche la degenza negli ospedali o lo stato di detenzione o la semplice vecchiaia o ancora i problemi della socializzazione collegati all’autismo, a stati paranoici, handicap fisici ecc. possono essere curate creando opportunità di vivere e soggiornare in parchi, a contatto con le piante e con la natura (...)

Aspetti economici e legali:

*Le coltivazioni di orti presentano innegabili benefici economici. Il consumo in loco di ortaggi ed altri prodotti simili riduce il trasporto su gomma richiesto in genere dalla grande distribuzione e quindi favoriscono il risparmio energetico e limitano l’inquinamento. Inoltre sono suscettibili di indurre ad un uso più etico delle risorse idriche e determinare alfine un risparmio sui prezzi rispetto a quelli correnti (...)*¹²



The national programme “ Orti Urbani” is widespread throughout Italy, in small and large municipalities. The mapping of these municipalities is made based on the official information from Italia Nostra webpage.¹³

¹¹ Italia Nostra (Associazione Nazionale per la Tutela del patrimonio storico, artistico e naturale della nazione), *Orti Urbani*, Accessed on 15.03.2021 <https://www.italianostra.org/le-nostre-campagne/campagne-e-progetti-ed-passate/altre-campagne/>

¹² Evaristo Petrocchi, *Orti Urbani: una realta nazionale*. Accessed on 15.03.2021 file:///D:/Year%202/Second%20semester/Thesis/Materials/relazione-Petrocchi%20-%20NATIONAL%20PROJECT%20ORTI%20URBANI.pdf

¹³ Italia Nostra, *Orti Urbani*, Accessed on 15.03.2021, <https://www.italianostra.org/le-nostre-campagne/campagne-e-progetti-ed-passate/altre-campagne/>

2.2.1 Turin, transition to a new personality

If in the past, during the world war II and during the hard and challenging years after the war in the time of so called “reconstruction years”, torinesi have been driven by great sense of survival, today the citizens of Turin understand “the danger” and the negative effect of climate change, pollution and the challengings a crowded urban/ metropolitan area can face.

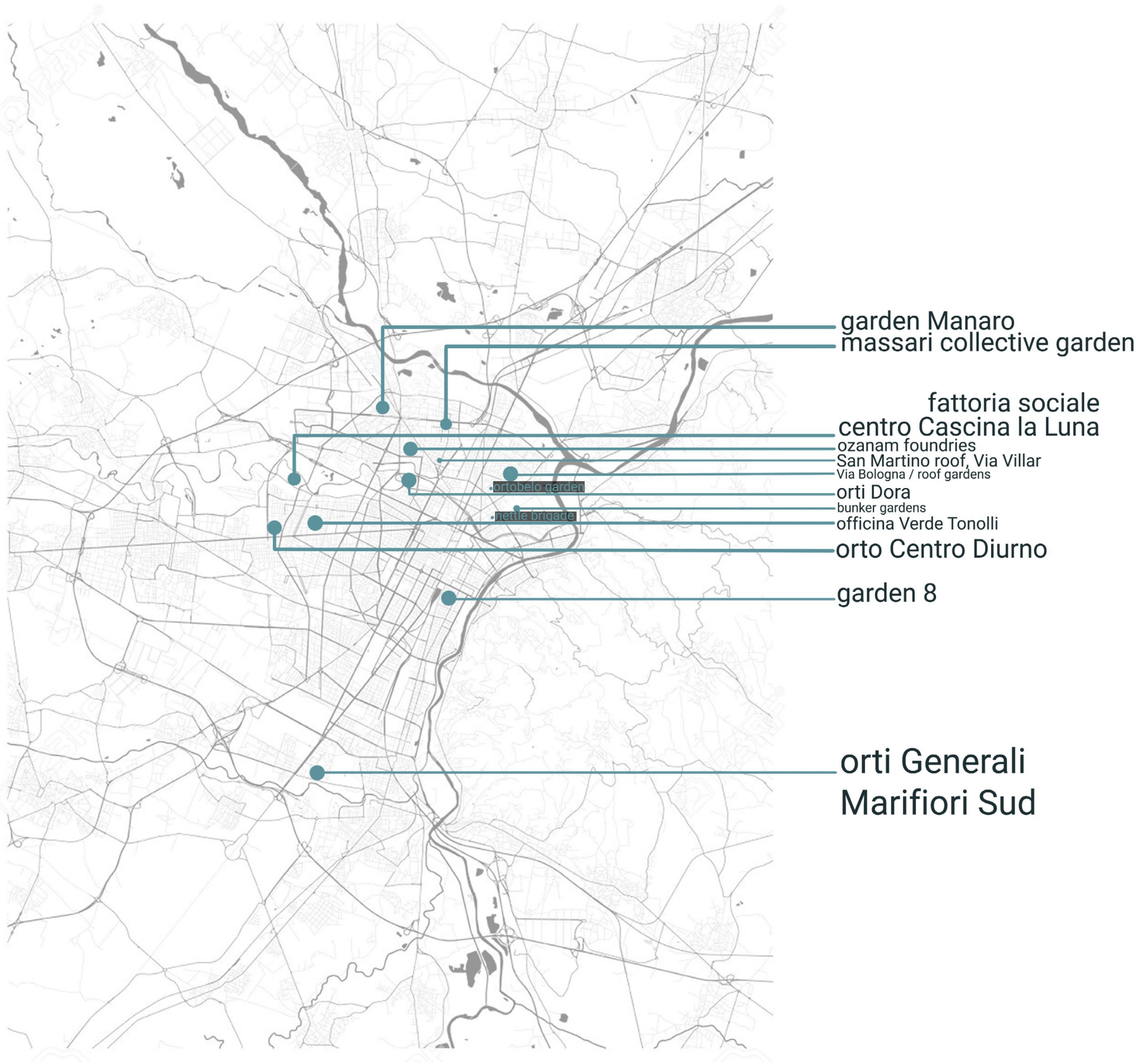
Agriculture can plan a key role in managing the urban and peri-urban landscapes of the city, influencing their social, aesthetic and environmental functions; farming multifunctionality is the integration of different functions and activities that produce beneficial effects on local economy, environment and society.¹⁴

Today, the urban gardens movement is represented mostly through a network of gardens, farmhouses, third sector associations, co-operatives or citizens that support urban agriculture in Turin. The movement includes education, social inclusion, work integration and urban regeneration and a very important aspect is represented by the mixtures of “social biodiversity” implicating such as: educators, architects, doctors, volunteers, retirees, disabled, immigrants, students and children.¹⁵

We can clearly understand that urban agriculture or urban garden- ingn practices are no longer a “residual activity” dedicated to the poor people located in poor urban or peri-urban, marginal areas of metropolitan sphere, a temporary or just an informal phenomenon, but rather a mix of new functions, expression of a new “cultural trend” towards a “green-society” which reflects a spatial complexity in the constant search for new dimensions to meet the needs of the city and citizens.

I would say that citizen begins (or they should begin) to understand and in the same time to use the urban agriculture as a powerful tool to protect and sustain in the same time biodiversity, to improve the quality of agricultural products and to reduce the pollution.

Il Piano Strategico punta su una delle vocazioni più forti del territorio: il “cibo”. Il cibo è uno straordinario campo di innovazione e sviluppo. È un settore economico locale e internazionale, un fattore di qualità della vita quotidiana, identità territoriale, inclusione sociale e sostenibilità. Torino metropolitana, alleata al Piemonte, può diventare il punto di riferimento in Italia e nel mondo di una cultura del cibo sano, di qualità, diffuso e accessibile a tutti, cittadini e visitatori.¹⁶



Mapping of urban gardens, Turin. The mapping is realized based on the information provided by Or.Me.Turin website.¹⁷

L’Ortoalto di Casa Ozanam, Turin

Orti Dora, Turin



14 Paola Gullino, *Linking Multifunctionality and Sustainability for Valuing Peri-Urban Farming: A Case Study in the Turin Metropolitan Area*, published 18 May 2018, Accessed 15.03.2021 file:///C:/Users/Bruger/Downloads/sustainability-10-01625.pdf

15 Or.Me.Turin, Accessed 15.03.2021,https://ormetorinesi.net/

16 Anna Prat, *Torino Metropoli 2025, Il terzo Piano Strategico dell'area metropolitana di Torino*, p173, Accessed 15.03.2021 http://www.torinostrategica.it/wp-content/uploads/2015/04/Torino_Metropoli_2025_web2.pdf

17 Or.Me.Torinesi, *Orti metropolitani torinesi*, Accessed 15.03.2021, https://ormetorinesi.net/circoscrizione-5/

3.the right to food

as human right
and theoretical support of thesis

It is clear as day light and non debatable that food is essential for human existence on Earth and it represents a fundamental human need to keep the body alive. Apart from being an elementary need for survival, food is seen also as an important pillar of culture and civilization, as Massimo Montari¹⁸ mentioned in his book *"Food is culture"* (2006) saying *"the food is a type of a cultural system and its production, preparation and consumption represent a cultural act."*

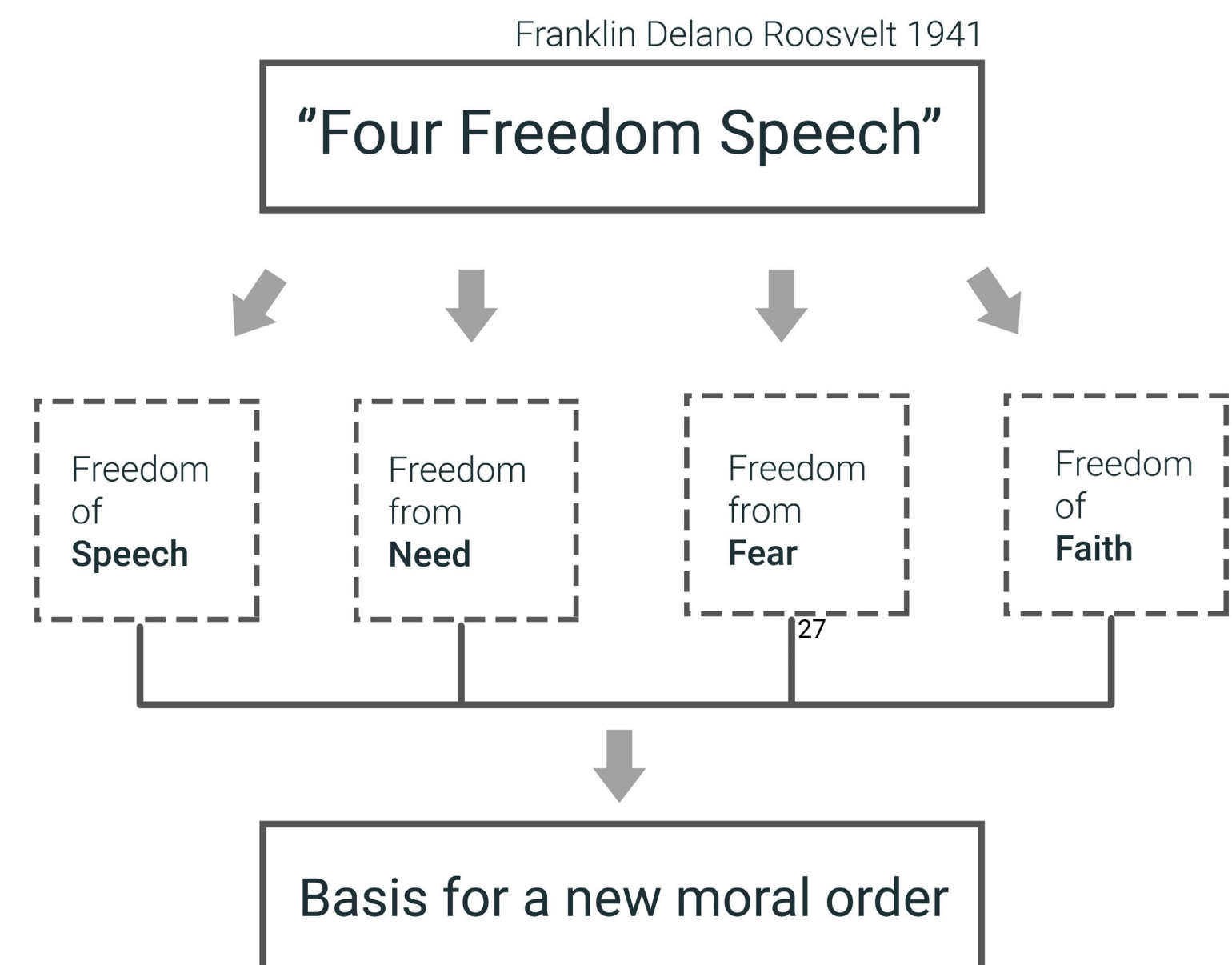
After the World War II *"Four Freedoms"* declaration had a key role in the proclamation of UDHR (Universal Declaration of Human Rights) in 1948 and for the first time the right to food has been formally recognized as part of UDHR and included in Article 25.1:

"Everyone has the right to a standard of living adequate for health and well-being of himself and his family, including food, clothing, housing (...)" (UN General Assembly 1948).

3.1 The right "to food" as human right

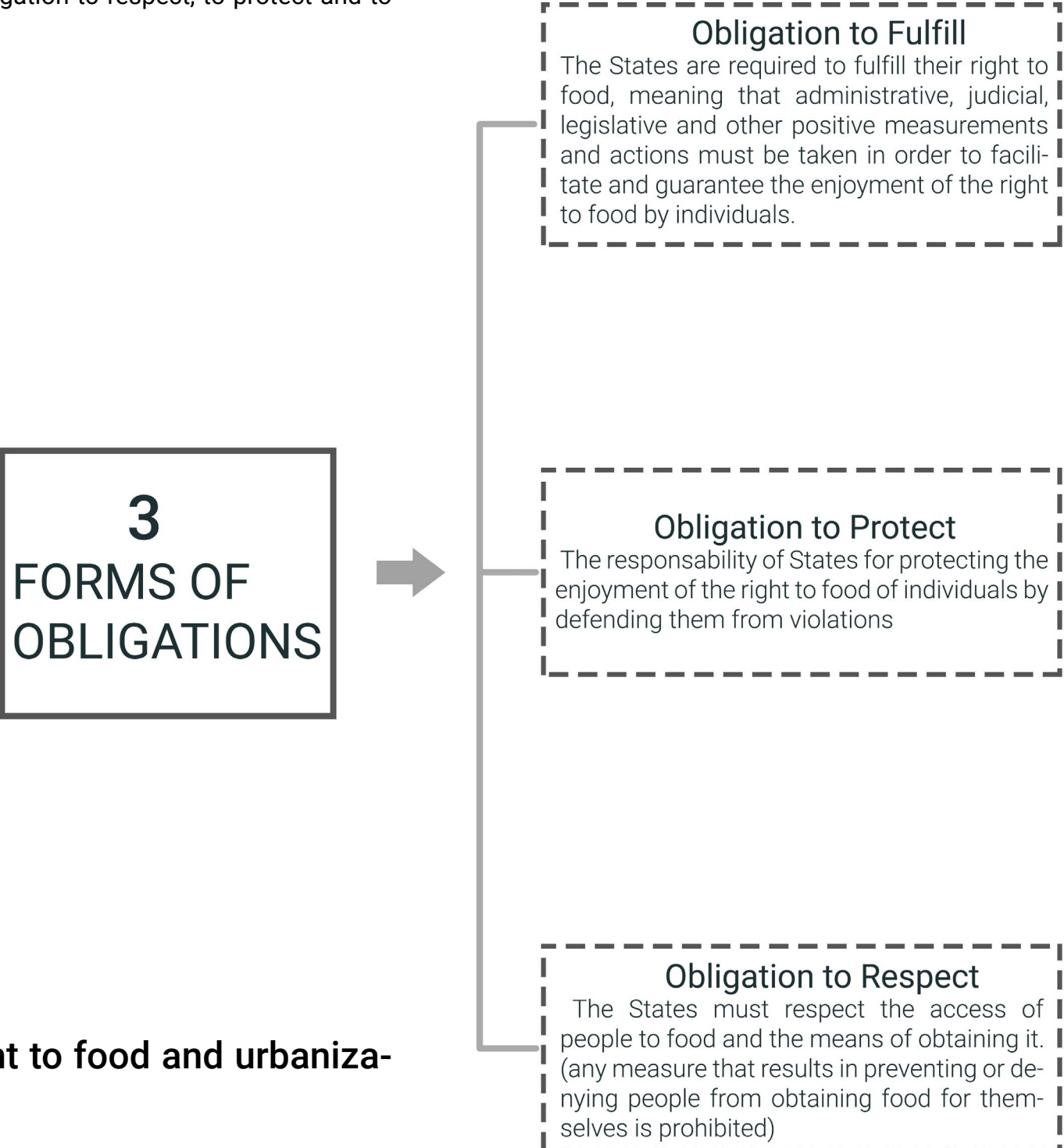
Briefly, human rights are fundamental and inalienable claims or entitlements essential for life as human being. They are the result of individuals or groups which during the history fought against exploitation, oppression, discrimination and abuse by State or non-State actors. The milestone point regarding the human rights was the so-called *"Four Freedom Speech"* hold by Franklin Delano Roosevelt, the President of USA at that time in 1941 and according to him there are 4 essential human freedoms: **freedom to speech, freedom to faith, freedom from need, freedom from fear**. Roosevelt declared that these freedoms must triumph everywhere in the world and act as a basis for new moral order (Roosevelt F.D.,1941).

This first step towards the evolution of the right to food was followed by a second one meant to act at the international level and it was the International Covenant on Economic, Social and Cultural Rights (ICESCR) adopted in 1966. The goal of Article 11 of this statement refers to an adequate standard of living, including the right to food and recognizes the fundamental right to be free from hunger. According to Asbjørn Eide in his book *"Economic, Social and Cultural Rights as Human Rights"*, during the transformation of the provisions of the Declaration into legally binding obligations, the UN General Assembly adopted in 1966 two separate International Covenants that together constitute the foundation of the international normative regime for human rights.



¹⁸ Massimo Montanari, currently professor of Medieval History at Bologna University, scholar of Food Studies. He has been one of the founders and editor of the international review *Food & History*, published by the Institut Europeen d'Histoire et des Cultures de l'Alimentation, https://en.wikipedia.org/wiki/Massimo_Montanari

So, the article 11 highlights and in the same time recognize the “*fundamental right of all to be free from hunger*”¹⁹ and because of that the States should adopt programs and act in order to reach specific goals. In order to implement the right to food ICESCR document must be read in the light of General Comment No.12 of UN Committee on Economic, Social and Cultural Rights from 1999 where it is stated that the right to food as any other human right implies 3 types of obligations by State: **the obligation to respect, to protect and to fulfil**.



3.2Link between right to food and urbaniza-tion

As previously mentioned there is a massive trend of people to move into urban areas, so we could say the process of urbanization is one of the most important engine and “social trend” of change in today’s world.

Figure elaborated by Author based on the information from “States Parties, three forms of obligations” <https://www.un.org/unispal/document/auto-insert-187548>

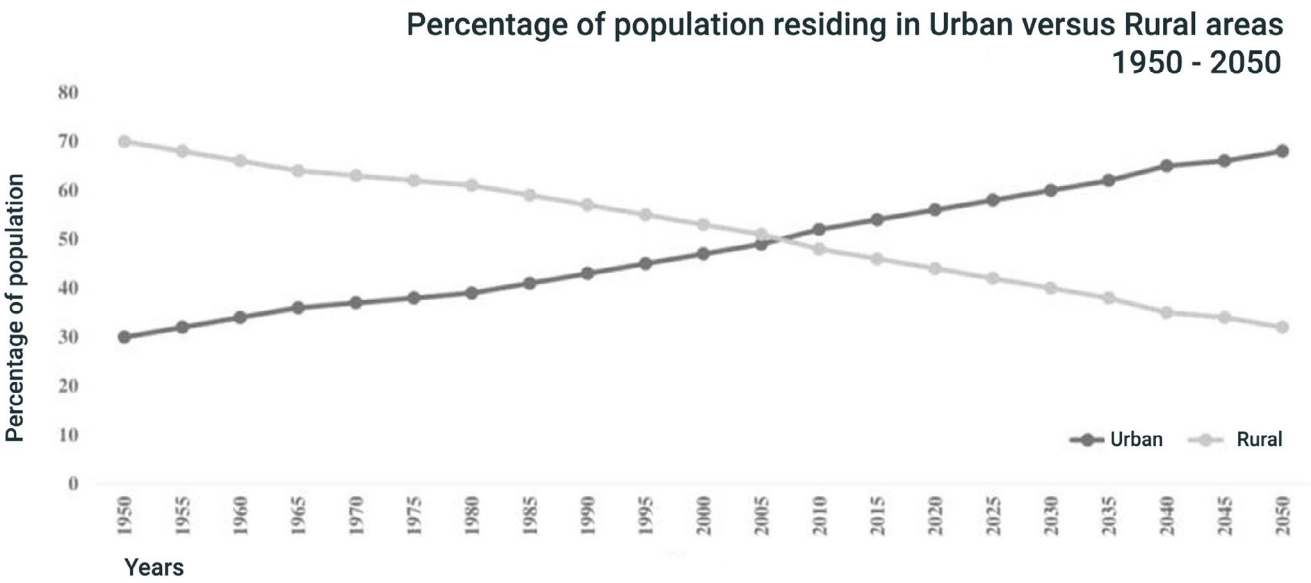


Figure elaborated by Author based on the information from <https://population.un.org/wup/Download/>

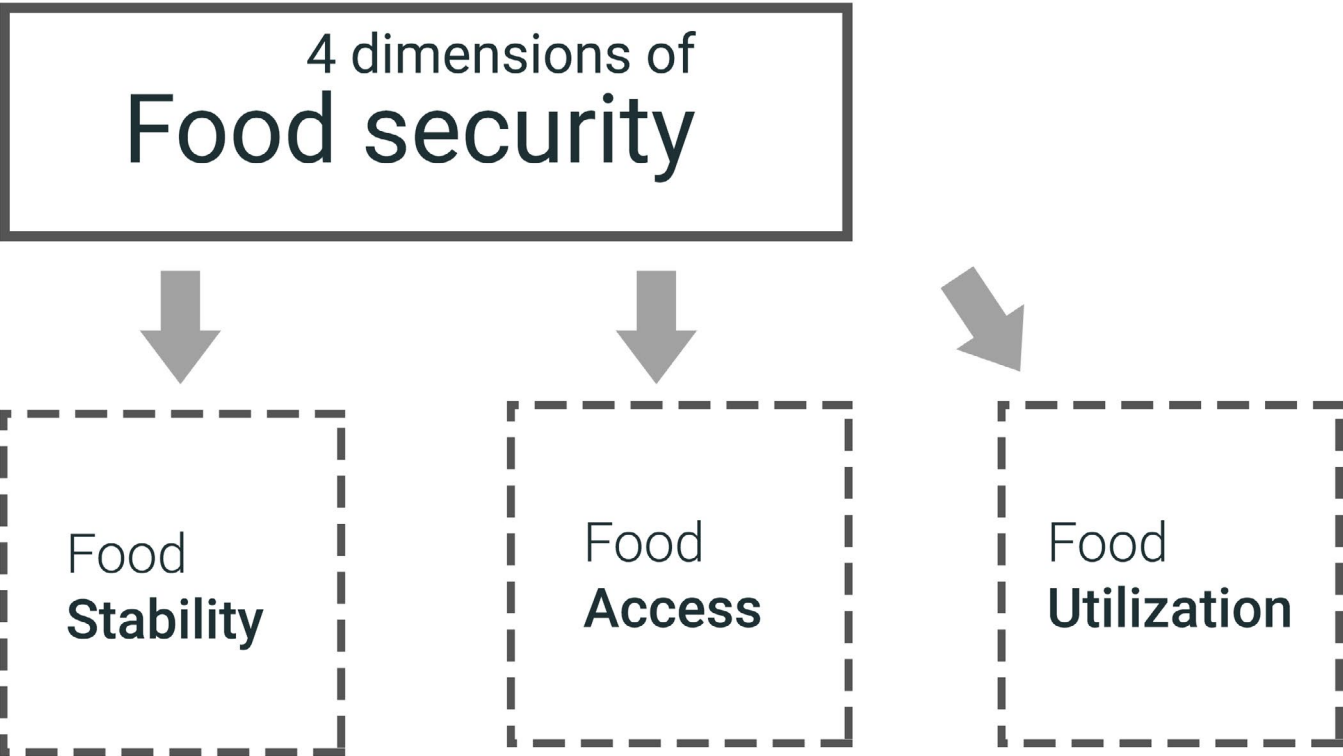


Figure elaborated by Author based on information from source: <http://www.fao.org/3/a-al936e.pdf>

FAO (Food and Agricultural Organization)in 1996 during the World Food Summit which was organized due to a continued existence of worldwide undernutrition and in the same time there was a big concern regarding the capacity of agriculture to meet food needs within the future.²⁰ There have been indentified 4 key pillars linked to the food security of people (on this occasion of the Summit from 1996 was actually given the definition of food security most widely used today).

We can mention that, the urbanization process needs to be managed and organized, otherwise problems can occur to each dimensions of food security described in above figure because in the city the big percent of inhabitants are so called “ food buyers” spending a large amount of money on it from their income. The crises from 2008 is an example which pointed out the vulnerability of the urban poor and in the same time the bound between food and national security. Based on this reality of last few years, it is important to mention about the necessity of cities to adapt to the new reality of expected population and urbanization growth.

Food availability refers to capability of agriculture to meet the needs and demands of an urbanised-growing population because the purpose of many agricultural lands switch from its initial use into housing complexes and industrial areas. We can also add the sufficient quantities of food respecting a specific quality.

Food stability is directly linked on one hand to the physical increase of urbanized areas which includes the need of transport and delivering the food in these urban areas. On the other hand includes the importance to minimize external risks as climate change, natural disaster, conflicts, epidemics. Another element would be represented by the possibility of having access to adequate food at all times.

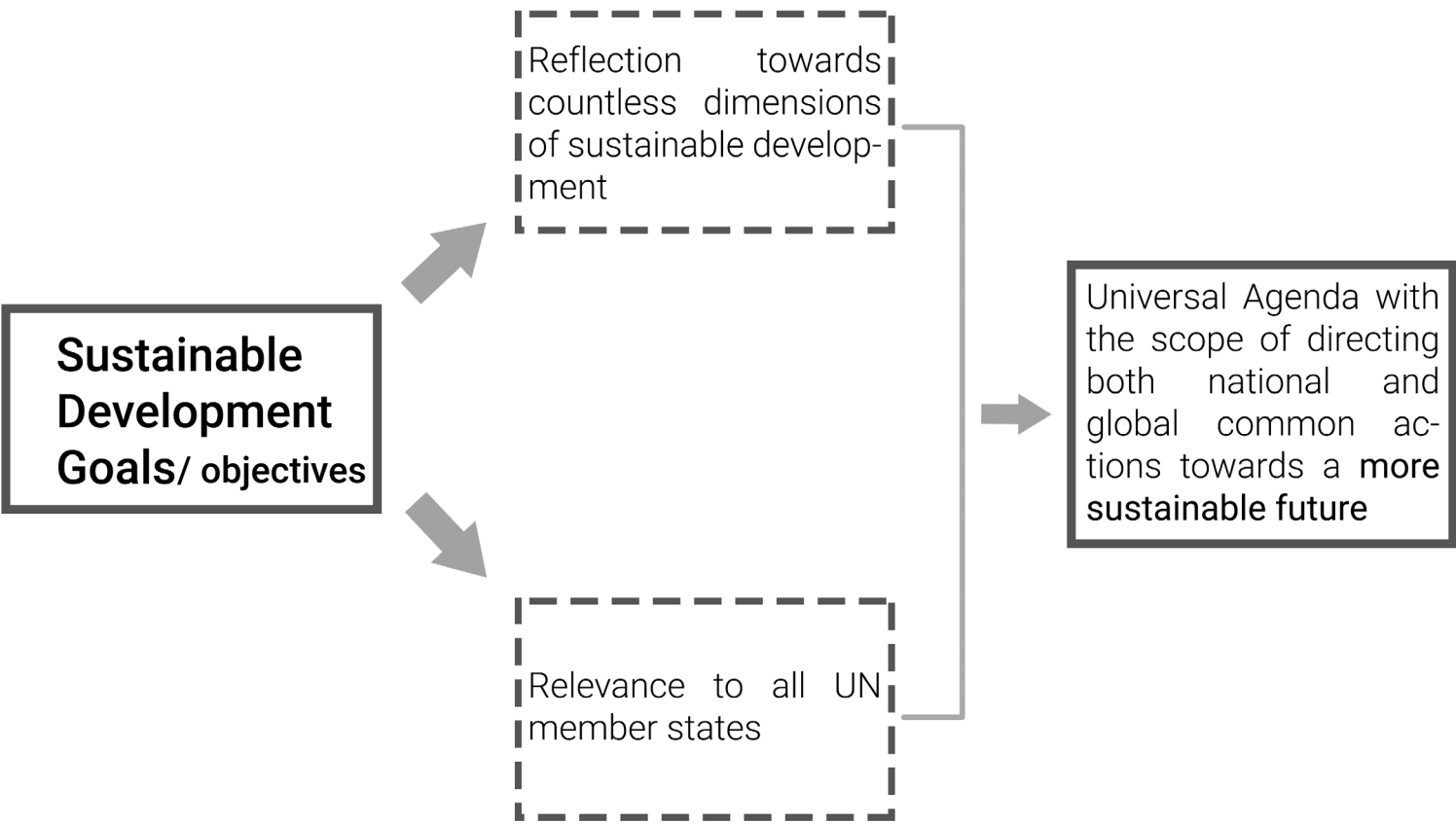
Food access Possibility of people to healthy resources in order to acquire appropriate foods for a healthy and nutritious diet. (should be mentioned that unhealthy urban-diets are connected by prices, cash income of the citizen and stable employment.) People living in the cities are more oriented and influenced to buy the food instead of growing it.

Food utilisation is seen as educational and health services referring not so much in terms of quantity of food but rather on the state of health of people mentioning about the unhealthy dietary within the cities due to highly processed foods reached in sugar, saturated fats and salts which combined with a sedentary lifestyle and environmental pollution increase the number of obese people and risk for chronic diseases. In another way, to use food through an adequate diet, health care and clean water in order to get a good nutritional well-being.

3.3 Food security as changing concept under the umbrella of New Green Deal

"Agenda 2030 for Sustainable Development" - drafted by General Assembly of United Nations during the meeting from 2015. There have been identified and defined 17 objectives in order to protect the environment, to promote prosperity and achieve equality. These 17 objectives are clearly drafted through 5 different dimensions: People, Planet, Prosperity, Peace and Partnerships, known also as the 5P's of SDG's (Sustainable Development Goals).

Principles of Sustainable Development Goals as basis for the Agenda 2030
Figure elaborated by Author based on information from <https://sdgs.un.org/>



I consider Agenda 2030 a useful tool in order to inspire and support new ways of thinking architecture towards creatively approaches by identifying innovative methods and critically thinking the way we, as architects propose sustainable development.

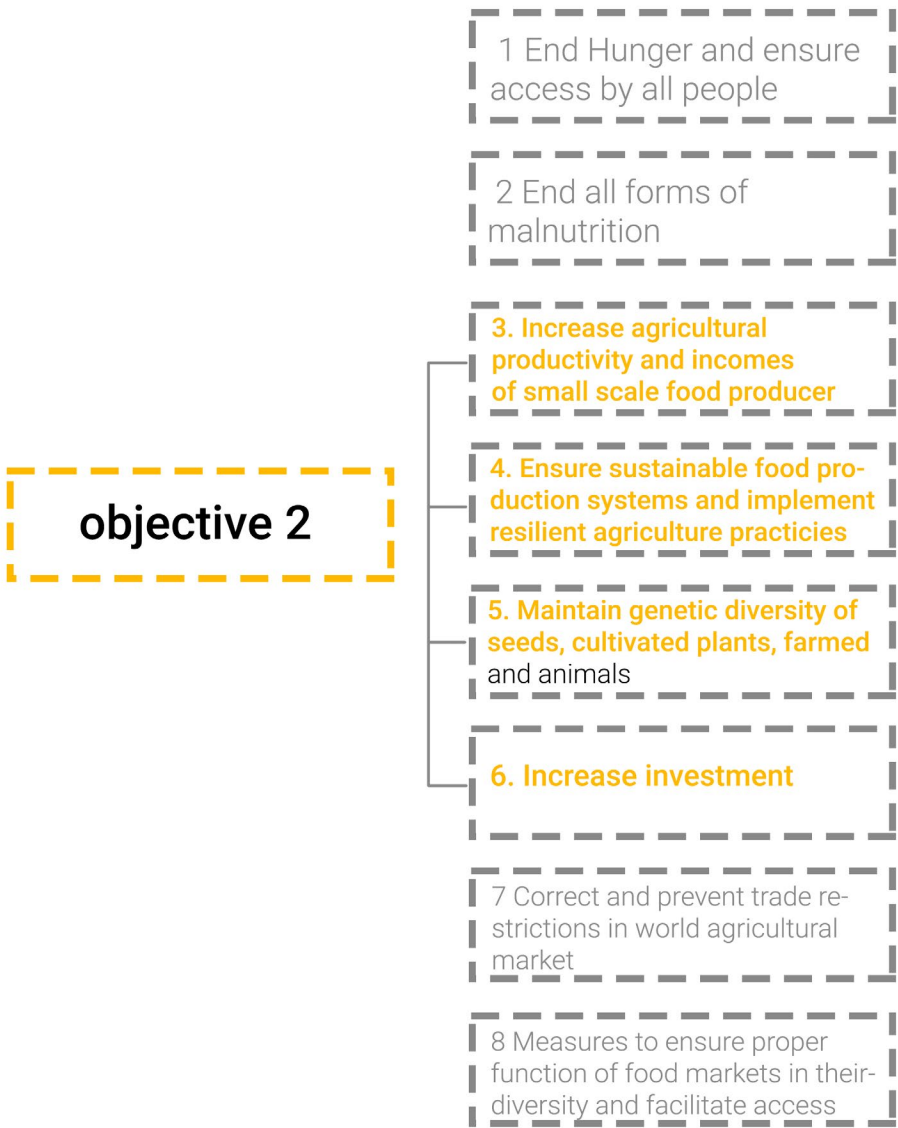
The problem-solving research-exercise of this thesis expressed through an architectural proposal is directly substracted, it directly relies and refers to the clear objectives nr. 2, 3, 4, 9, 11, 12 and 13 of the Agenda 2030. In the context of sustainable architecture approach, in the context of existing reality related to climate change, food challenges and in the context of today's policies already drafted by United Nations and European Union regarding sustainable development of countries, I believe that the architectural proposal of this thesis should position itself as a binder-solution between the above enumerated objectives.

In the following lines I will focus my attention specifically on objective nr 2 of the Agenda 2030 because it will represent the core of the project:

"End hunger, achieve food security and improve nutrition and promote sustainable agriculture"

According to Agenda 2030, objective nr.2 consists of 8 clear targets as shown in the Figure nr xx. My work will include goals nr 3,4,5 and 6 because in my opinion these ones are directly linked to food security and agricultural sustainability.

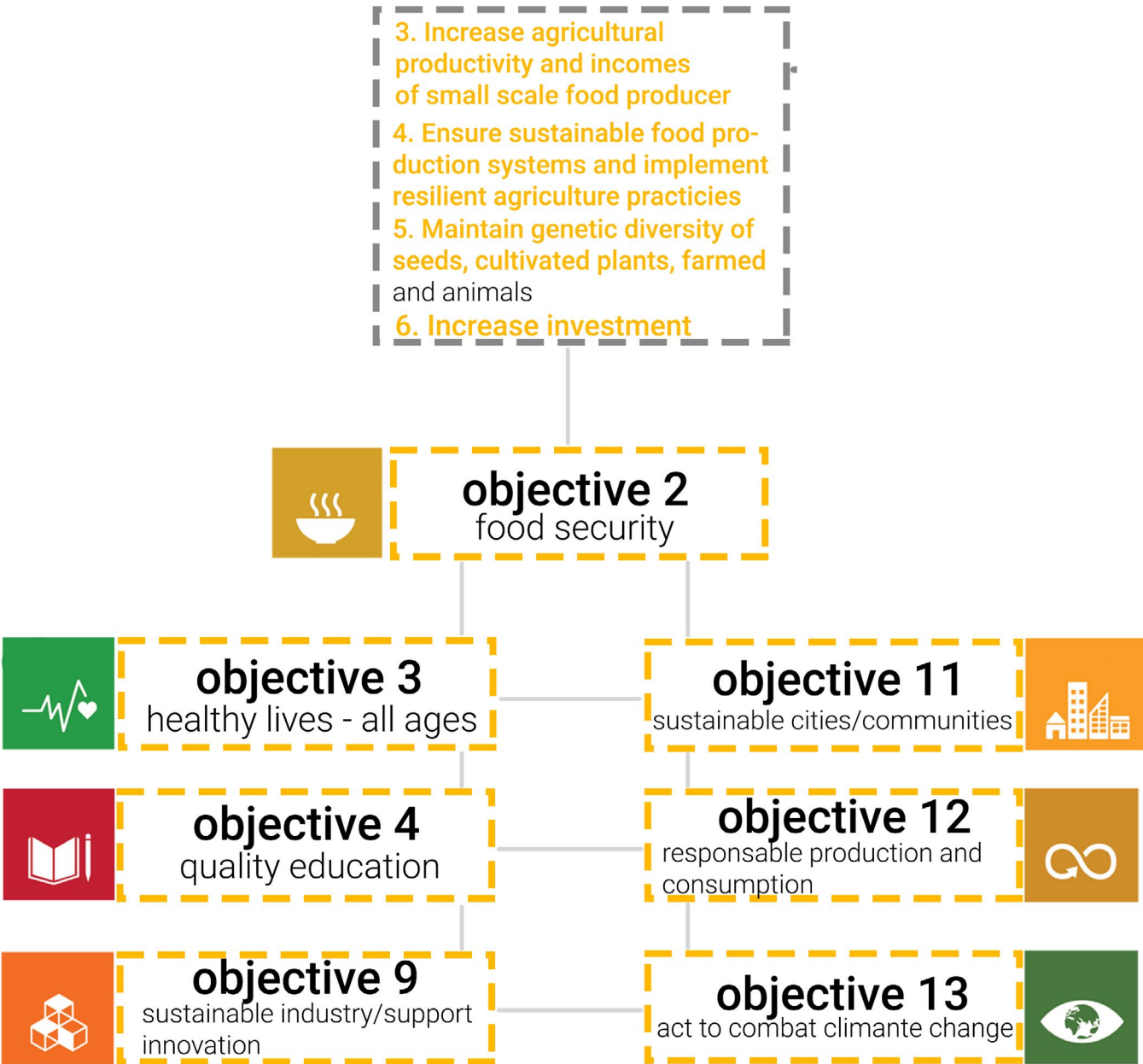
Summarizing, the objectives nr 2, 3,4,9,11,12,13 and specifically nr 2 with its detailed goals nr 3,4,5,6 will be the theoretical basis of the architectural eco-system proposal reflected through architectural programmes of the project. Shortly, translated into grapich language it will be expressed as in the below image (figure xx)



8 Targets / Goals of Objective nr 2 from Agenda 2030.
Figure nr xx elaborated by Author based on information from Figure nr xx and from <https://www.un.org/sustainabledevelopment/hunger/>



3.4 Theoretical objectives as basis of the architectural programmes of the proposed eco-system



Objectives of Agenda 2030 in terms of sustainable development goals. There are high-
ligthed in yellow the specific objectives that will serve as basis of my architectural proposal.

Table elaborated by Author based on information from
<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

4.analysis

This chapter is dedicated to concrete design of architectural proposal. It includes different macro and micro analysis of the city of Turin and of the proposed site Osi Ghia in order to comprehend important decisional factors of the concept with the goal to create so called “eco-system” for living.

Urban sociology and the information substracted based on specific analysis will be used in understanding the city's dynamics in the last decade. The first part offers a view through the eyes of urban sociology collecting data from analysis such as population, active industrial areas, abandoned industrial areas, education or environment. Also, the specific analysis of Osi Ghia site in raport to Lynch's elements is included in order to offer another dimension and angle and to offer a complete and complex information.

The concept, architectural design and functional programmes will be analysed and developed in detail.

4.1 Important indications related to the city's

dynamics:

population, active industrial areas, abandoned industrial areas, education

The urban area of city of Turin is divided into 8 circoscrizioni. The site location is situated in ciroscrizione 1. The site location has been chosen based on the fact that this thesis analize and propose an urban farming positioned as central as possible within the city, rather than focusing on peri-urban area or the buffer zone between urban area and metropolitan area.

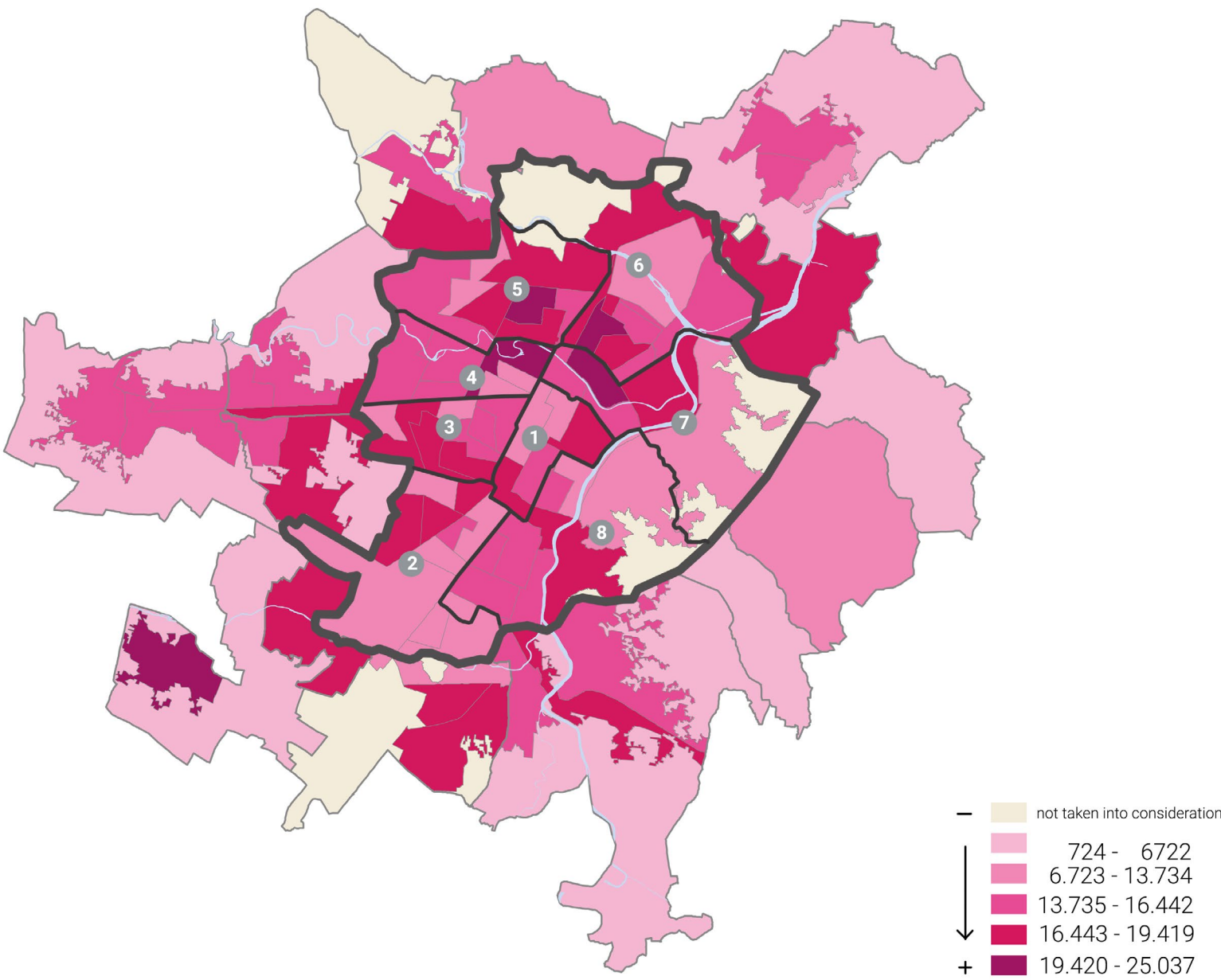


Map designed by Author based on information from
https://it.wikipedia.org/wiki/Circoscrizioni_di_Torino#/media/File:Circoscrizioni_torino_2016.png

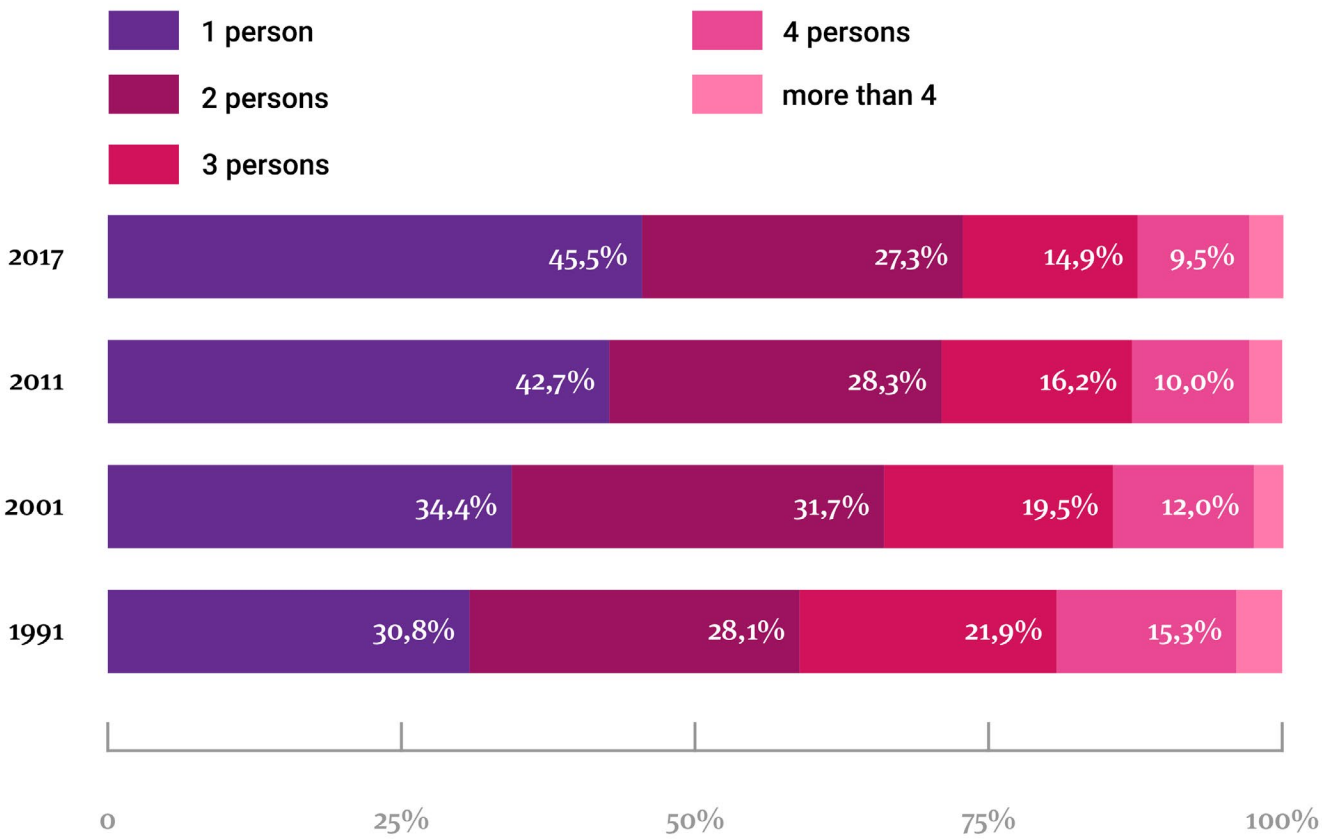
population



POPULATION / DENSITY DYNAMICS PER CIRCOSCRIZIONE



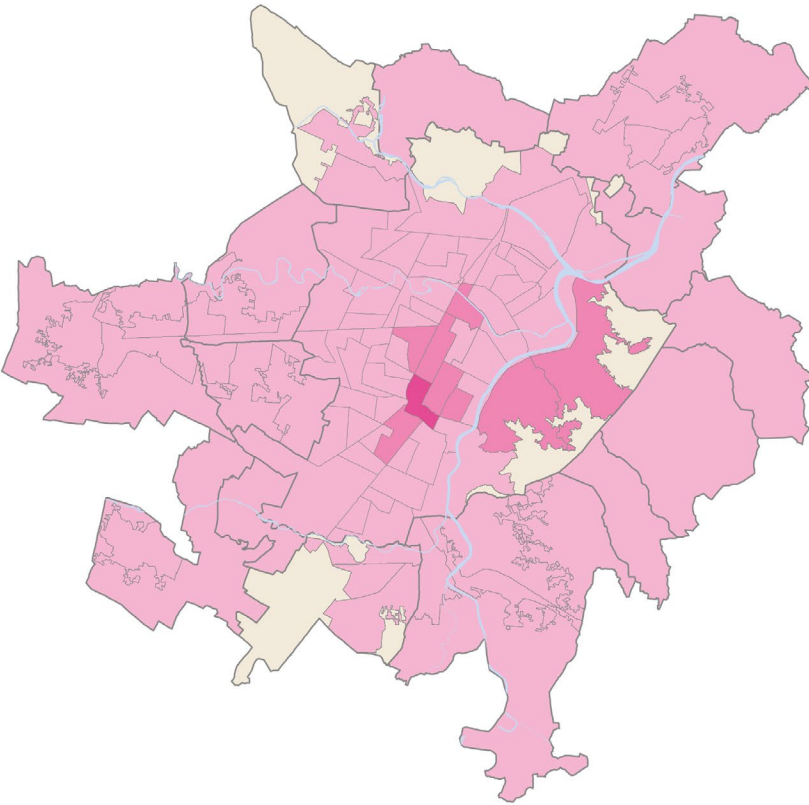
EVOLUTION OF FAMILY STRUCTURE FROM 1991 TO 2017



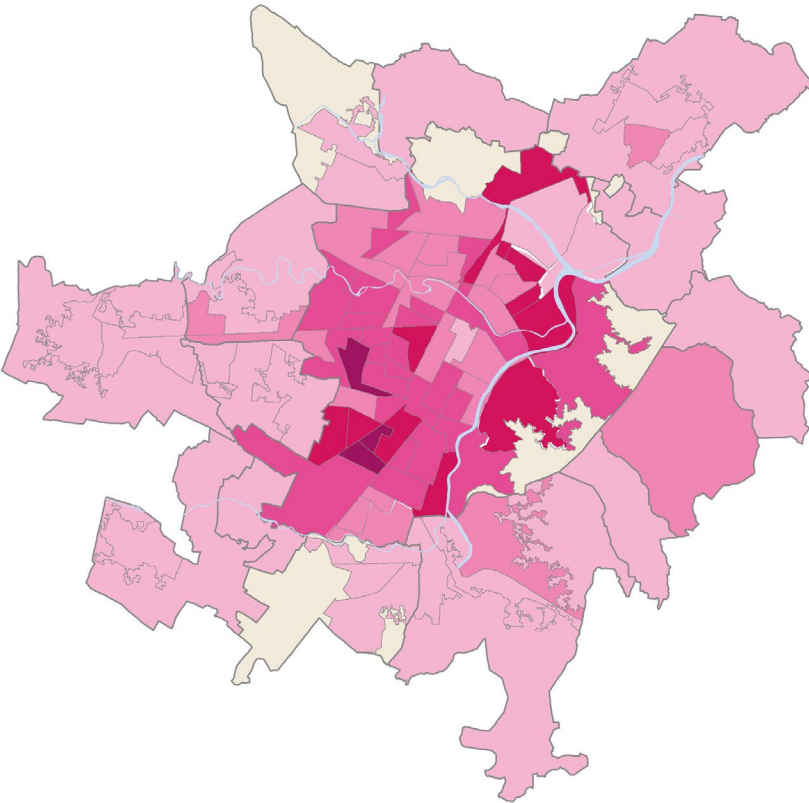
Map and statistics from
file:///D:/Year%202/Second%20semester/Thesis/Materials/Turin%20statistics%20urbanlabtorino.it/TorinoAtlas_02_persone.pdf

3 MAPS HIGHLIGHTING THE OLD AGE INDEX AND ITS DYNAMICS
FROM 1991 TO 2011.

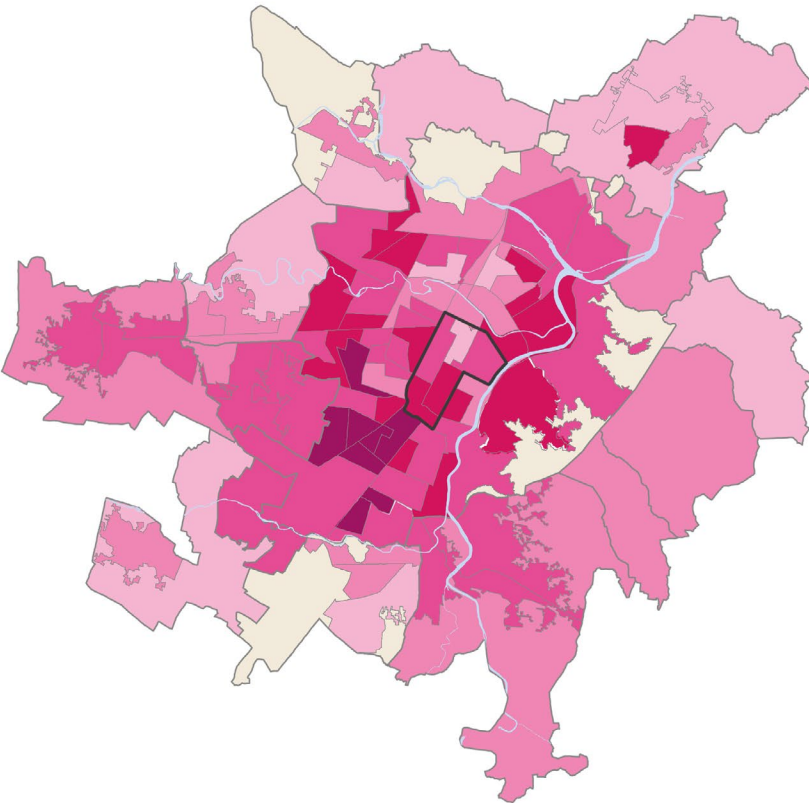
Ratio of elderly people > 64 / young people < 15 per 100 is taken
into consideration



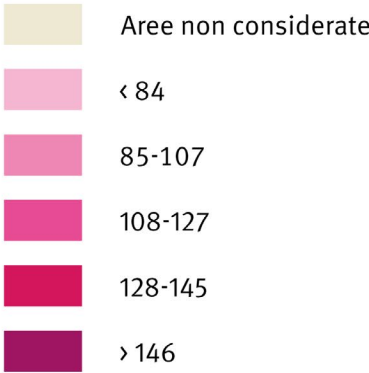
1991



2001



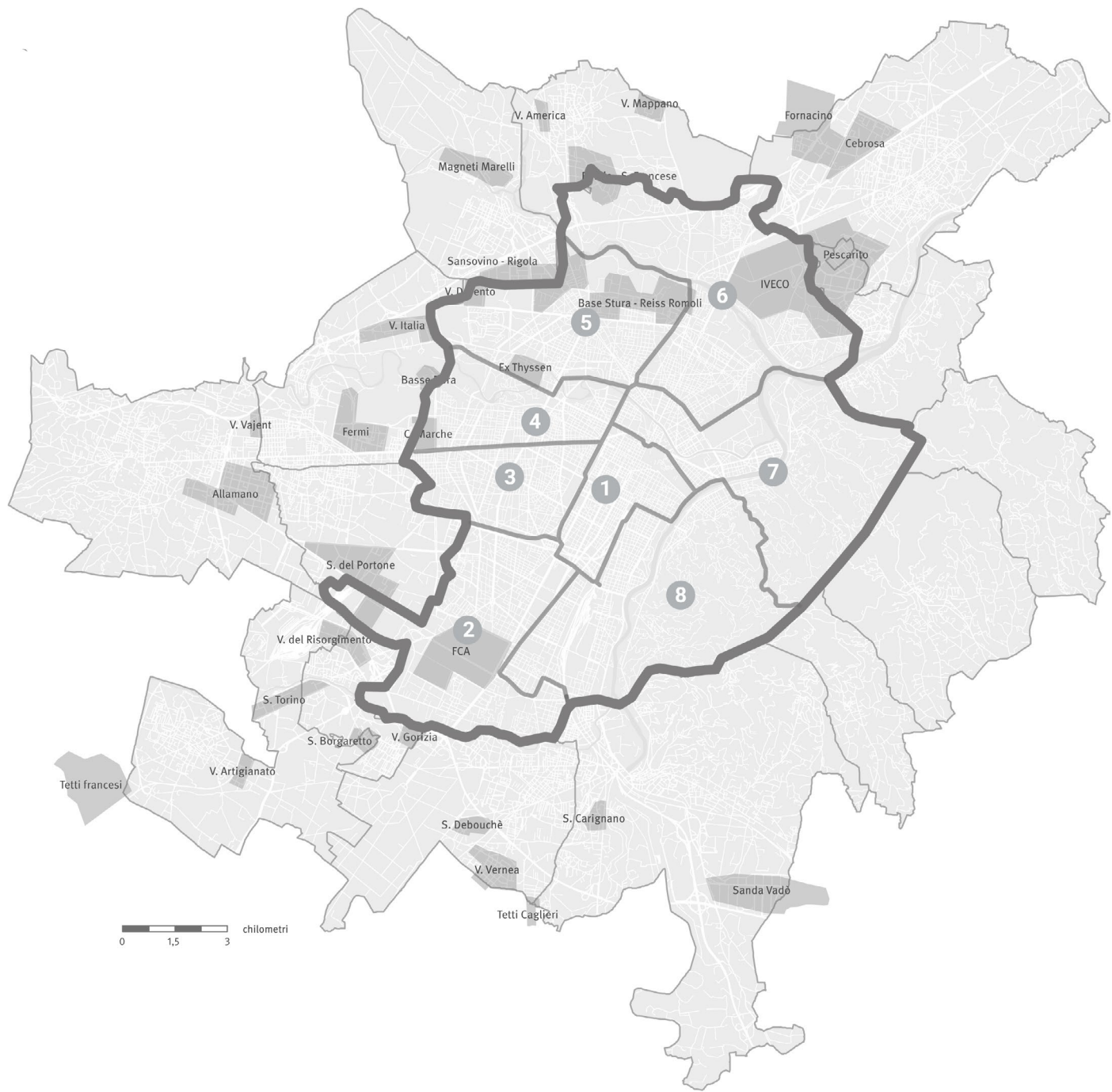
2011



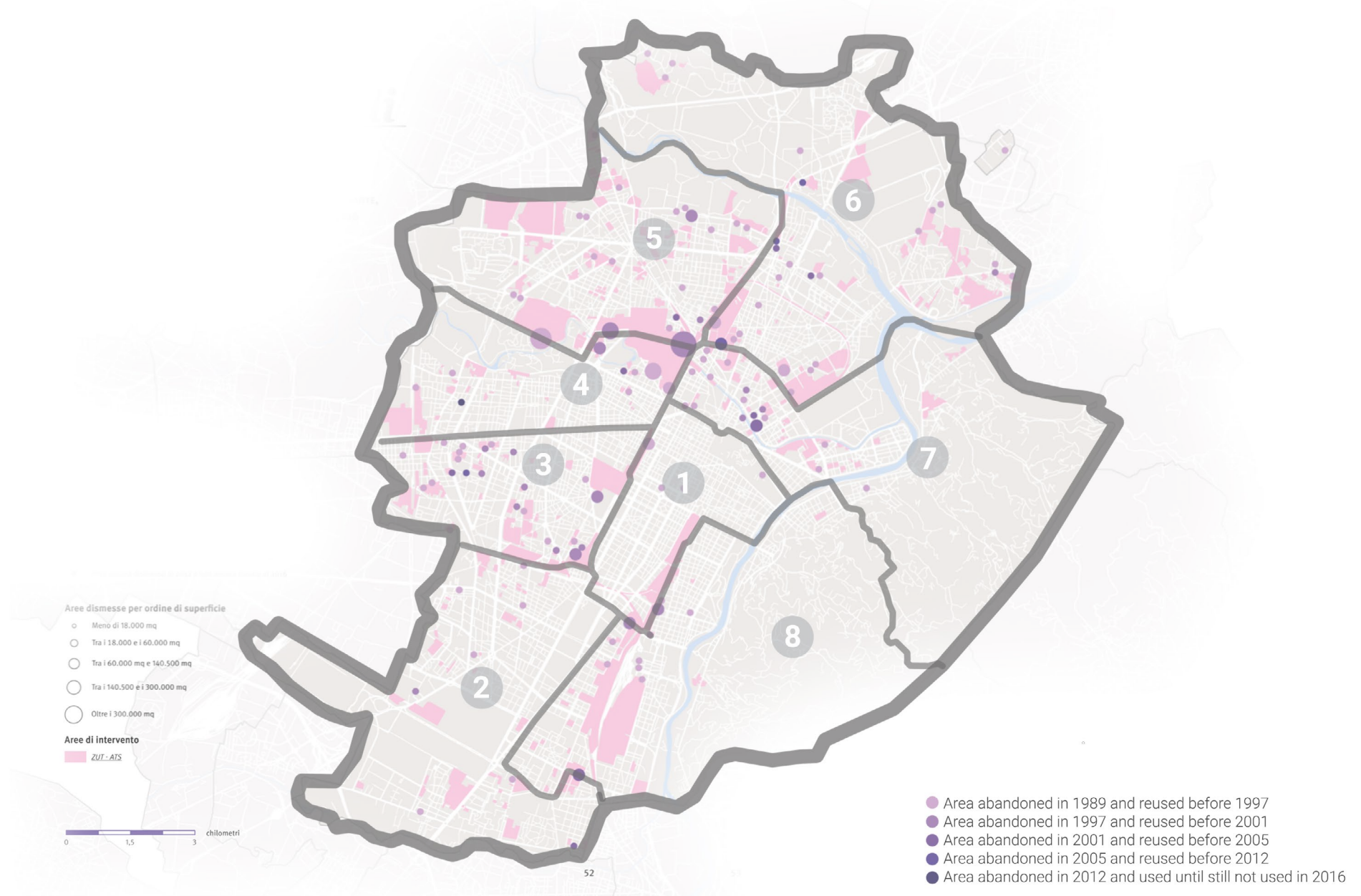
Map and statistics from
file:///D:/Year%202/Second%20semester/Thesis/Materials/Turin%20statistics%20
urbanlabtorino.it/TorinoAtlas_02_persone.pdf

industry

THE MOST IMPORTANT INDUSTRIAL AREAS AROUND TURIN



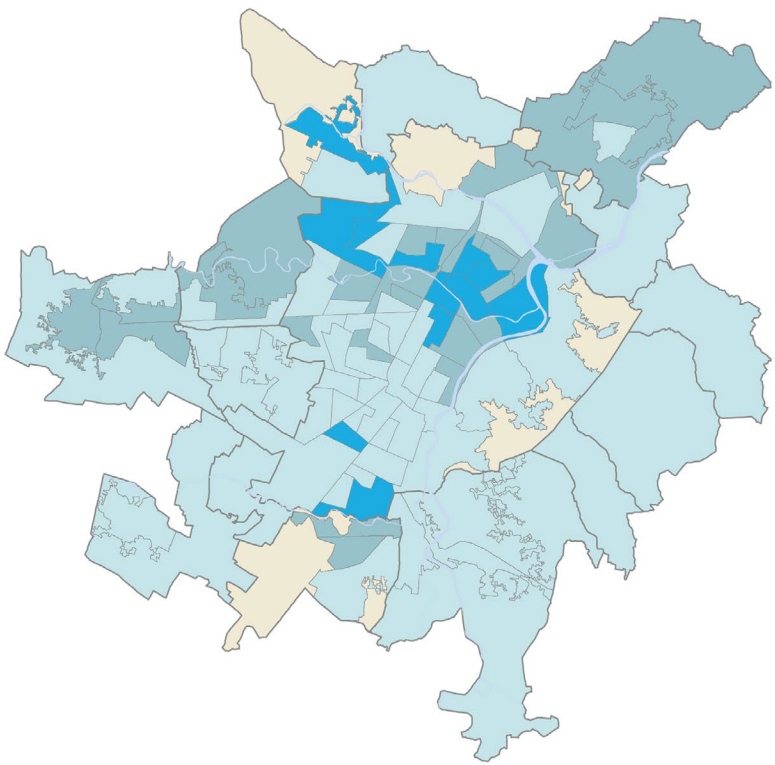
ABANDONED INDUSTRIAL AREAS WITHIN TURIN's URBAN AREA
abandoned areas



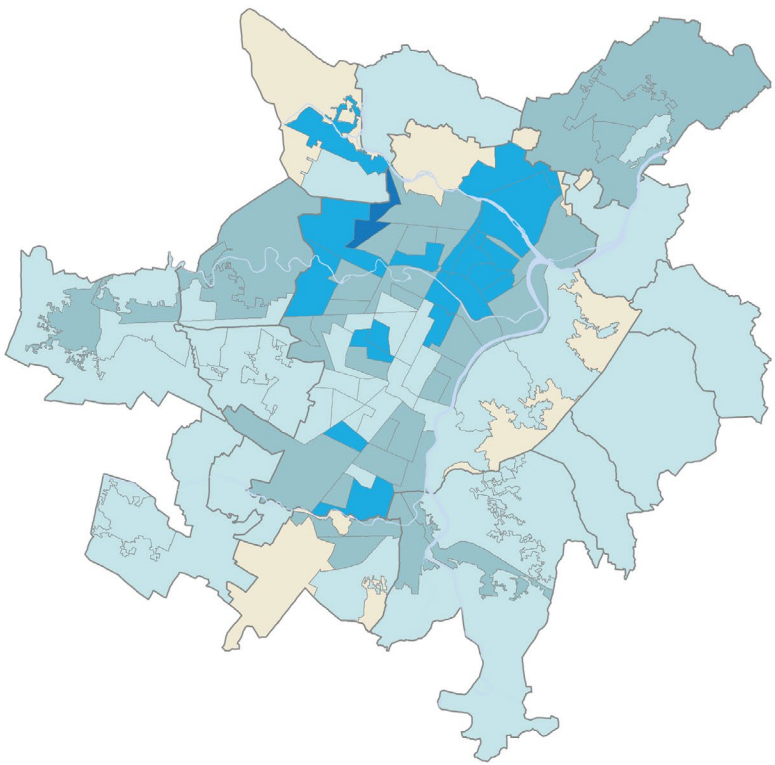
Maps and statistics from
file:///D:/Year%202/Second%20semester/Thesis/Materials/Turin%20statistics%20urbanlabtorino.it/TorinoAtlas_04_costruito.pdf
Edited by Author in order to highlight the circoscrizioni of the city

unemployment rate

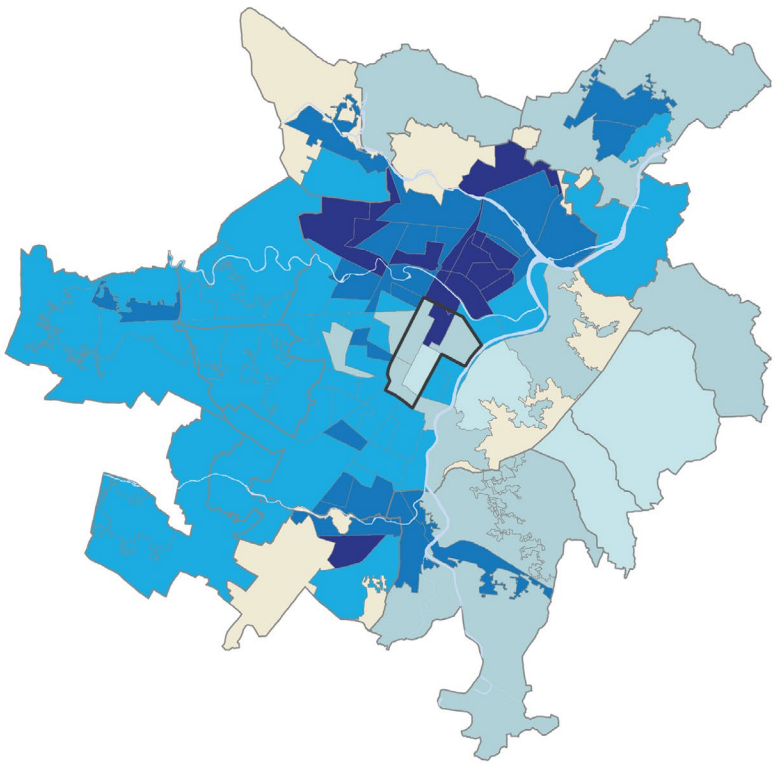
Unemployment rate
Highlight on young people 15 - 25 years



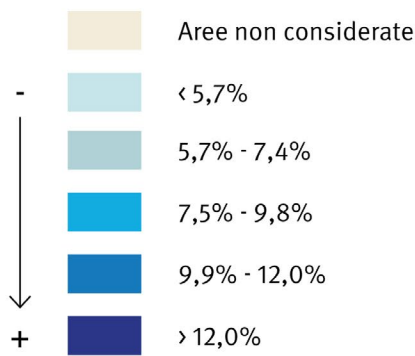
1991



2001



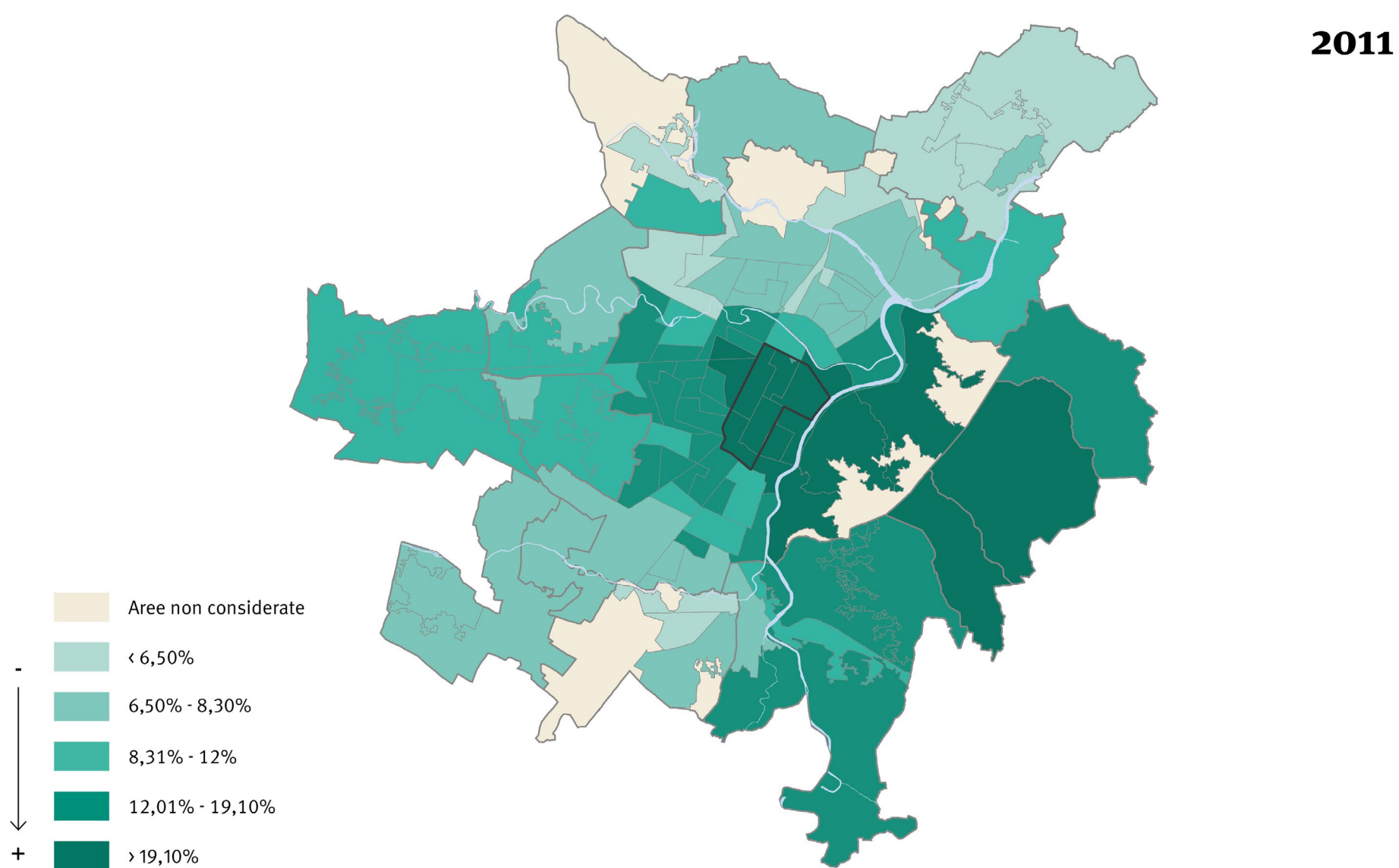
2011



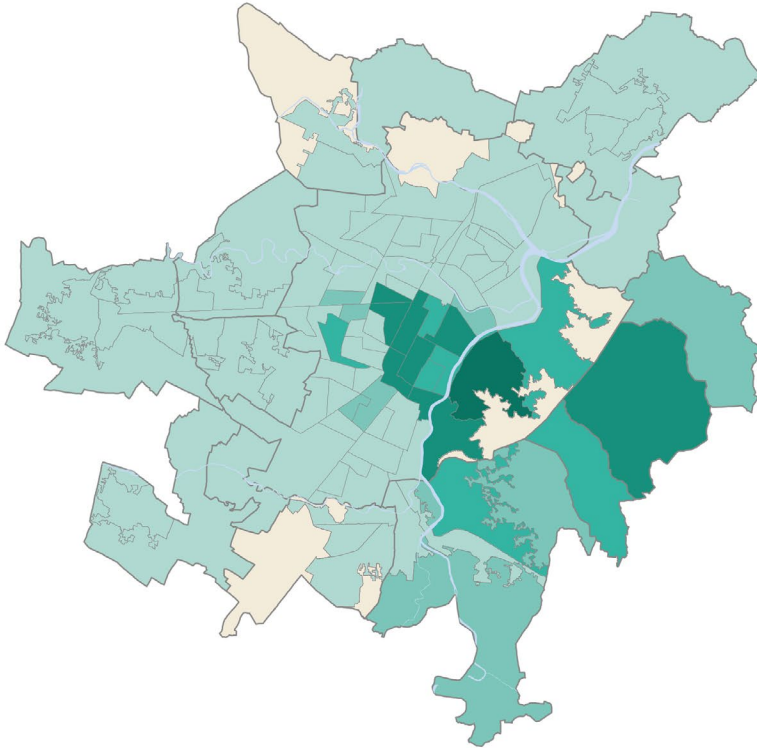
Maps and statistics from
file:///D:/Year%202/Second%20semester/Thesis/Materials/Turin%20statistics%20urbanlabt-orino.it/TorinoAtlas_05_lavoro.pdf

education

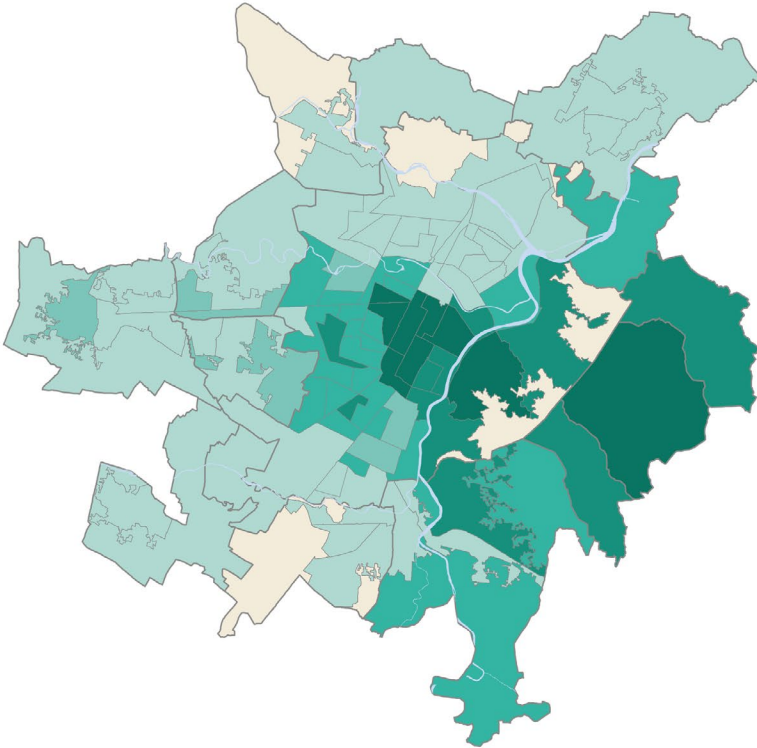
Percentage of graduates out of the total population



1991

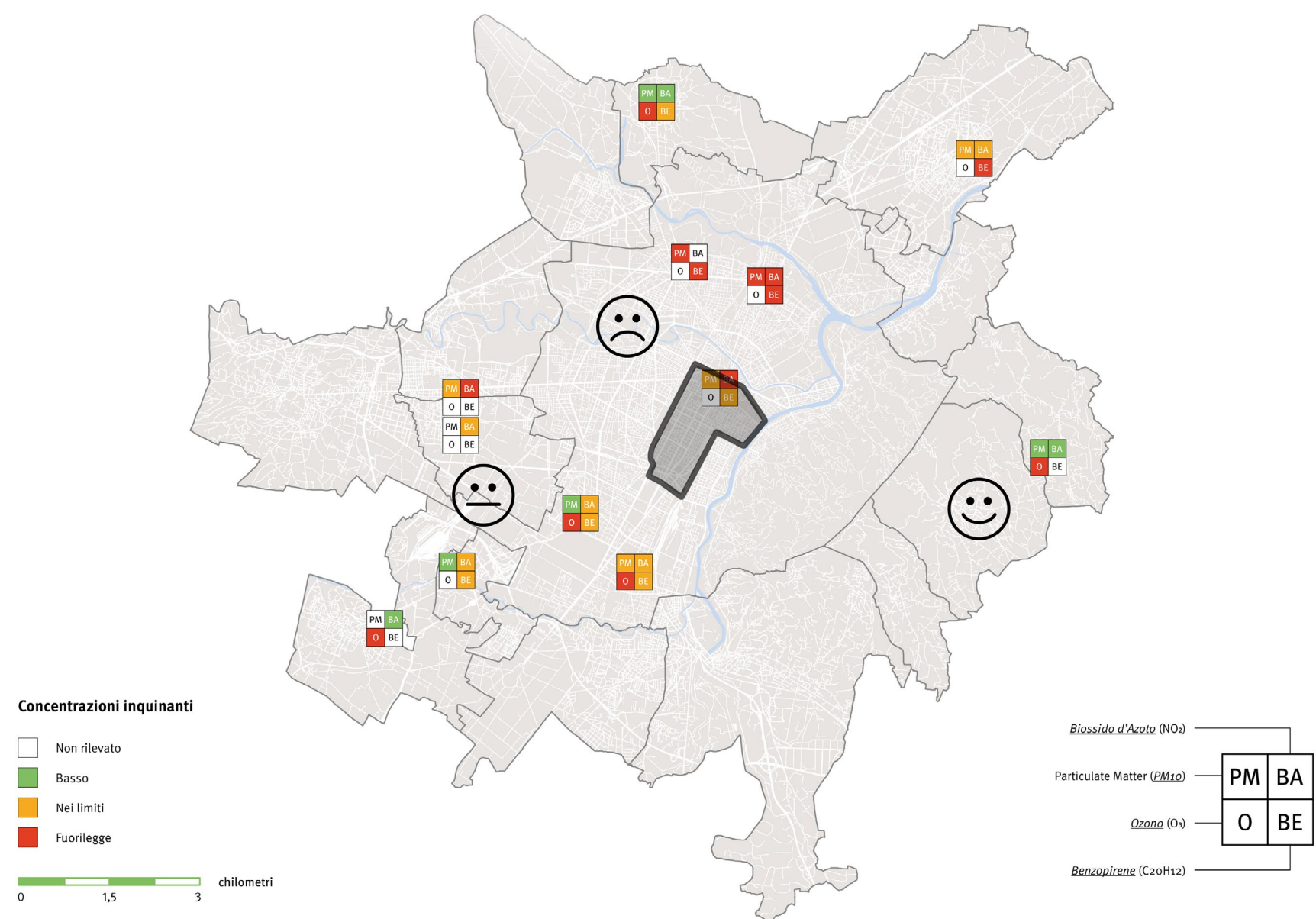
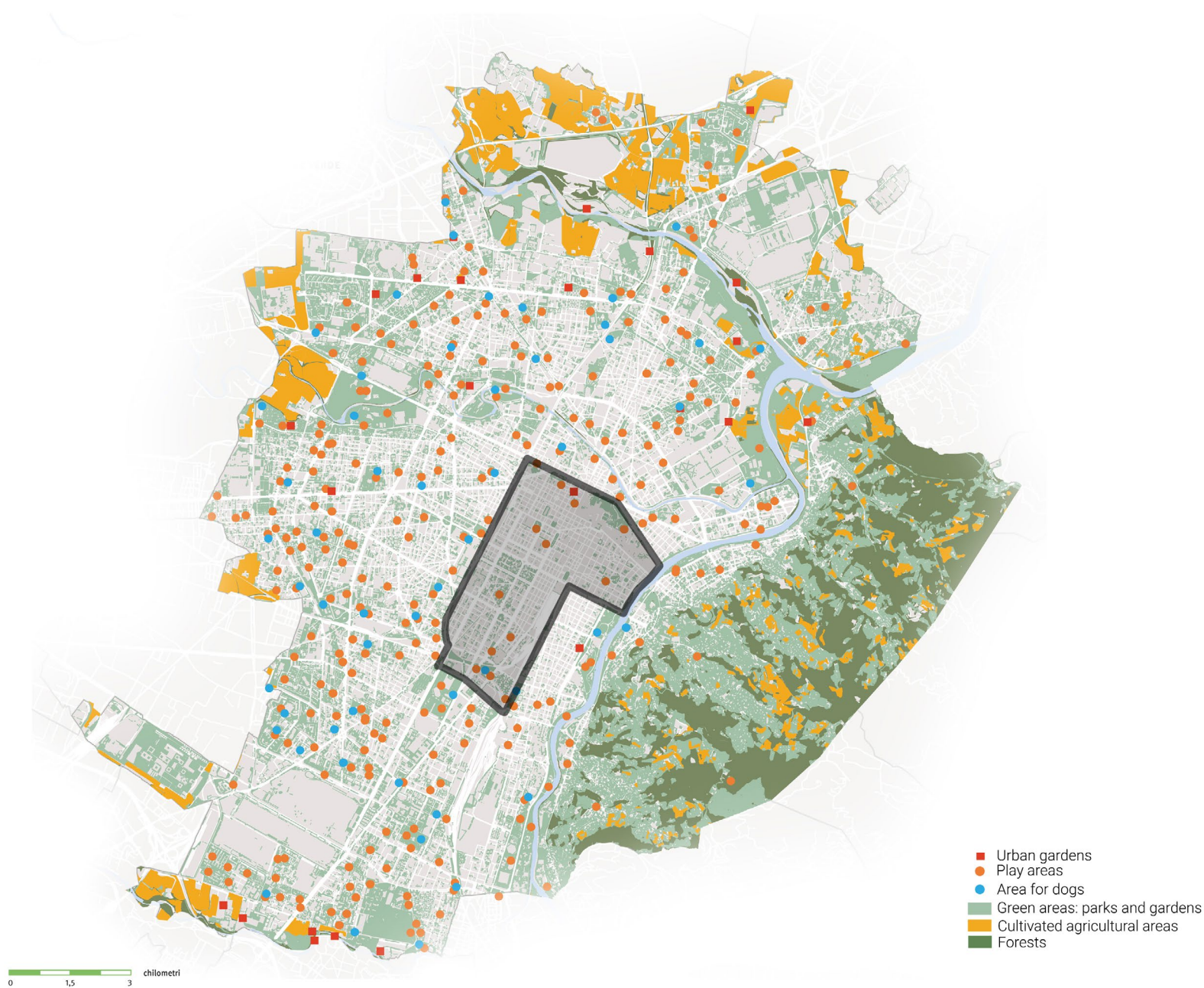


2001

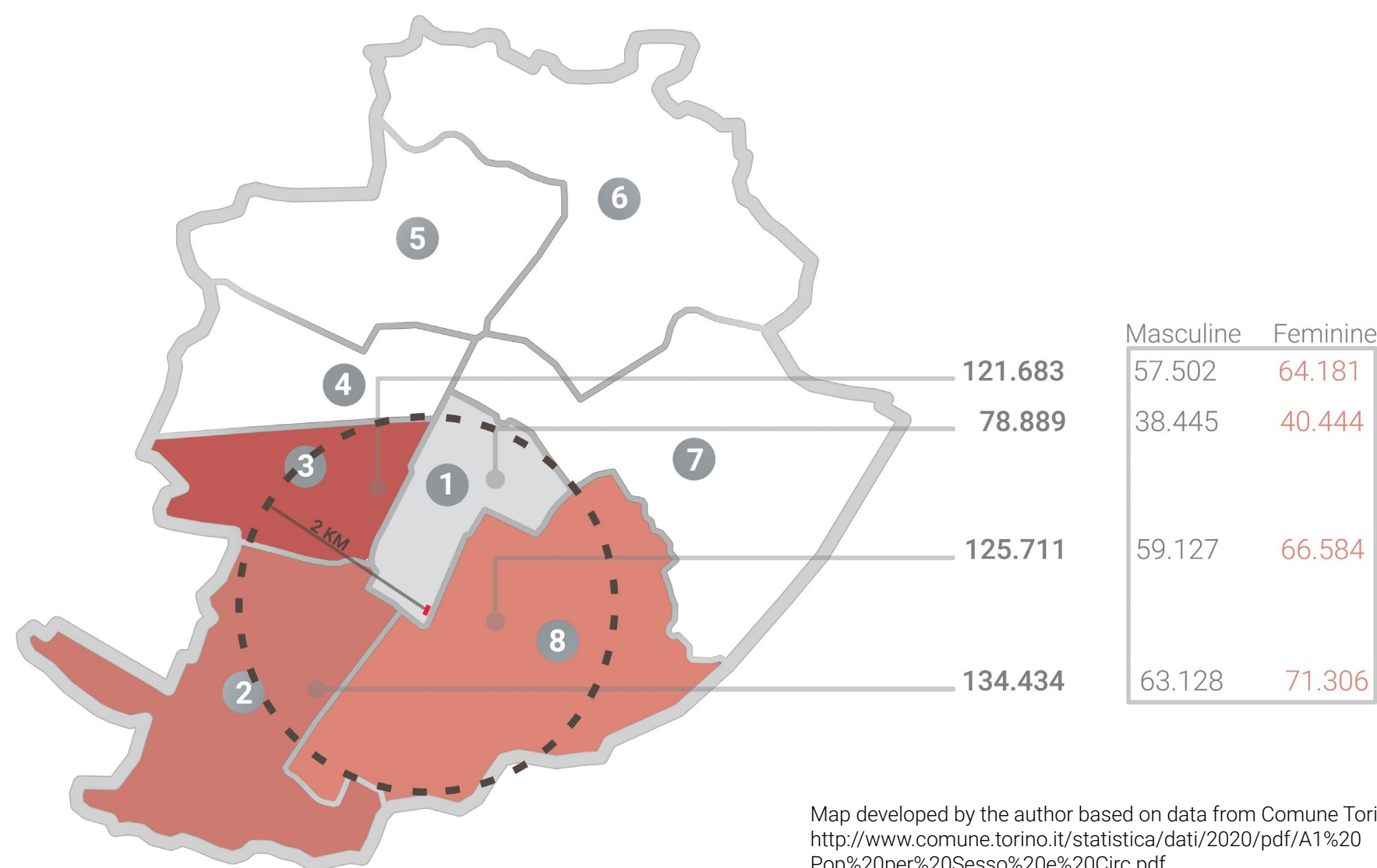


Source of information:
https://urbanlaborino.it/wp-content/uploads/2020/06/TorinoAtlas_08_istruzione.pdf

environment



Source of information:
file:///D:/Year%202/Second%20semester/Thesis/Materials/Turin%20statistics%20urbanlaborino.it/TorinoAtlas_09_ambiente.pdf



The following overlaps of the dynamics from different aspects in the last decade linked to circoscrizione 1 offers a radiography-analysis which can be translated in words as follows:

The Osi Ghia site is located in South-East part of circoscrizione 1 which has the smallest number of inhabitants compared to the circoscrizioni very next to site location and as a common fact with these neighbourhoods, it should be mention that circoscrizioni nr 1,2,3 and 8 have lower masculine inhabitants than feminine.

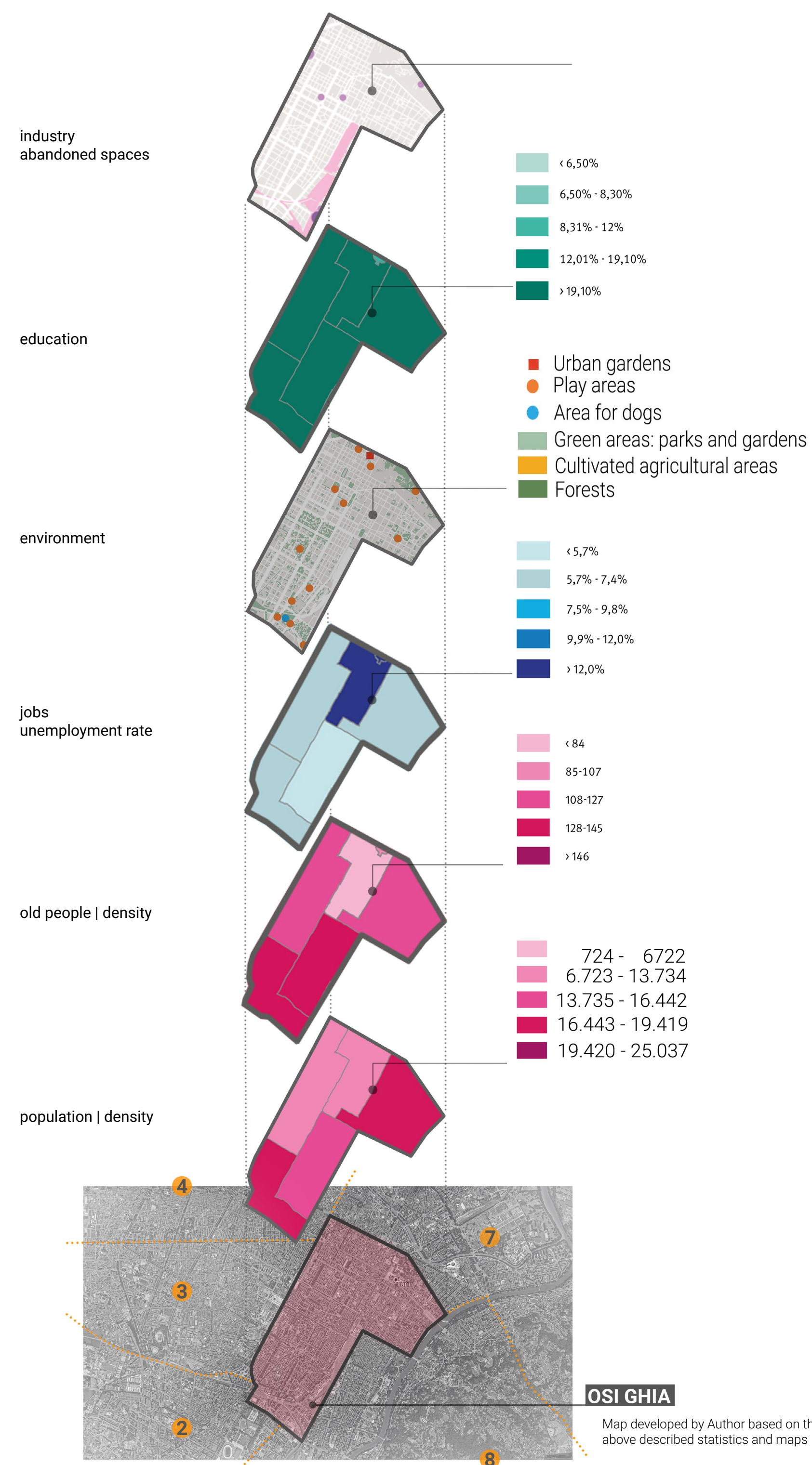
In terms of population density and ageing we can observe a brutal dynamics including areas with low numbers but also areas with very high numbers.

Unemployment rate has a kind of equal rate/level on the most areas of this circoscrizione, but with a drastic negative increase in a specific zone including rates from 5.7% up to more than 12%. This situation comes in contradiction with the education aspect; the specific analysis on education shows us this circoscrizione offers one of the highest concentration rate of educated people with a value of more than 19.10%.

Also, we can find an impressive areas with abandoned or semi-abandoned industrial zones which at this point offer more dust and pollution to the city than eco friendly solutions. We can say this aspect goes hand in hand and influences the environment analysis which highlights to us the presence of pollutants at the very limit of law or even overlaw. (see the map on environment statistics).

In short words the conclusion would be:

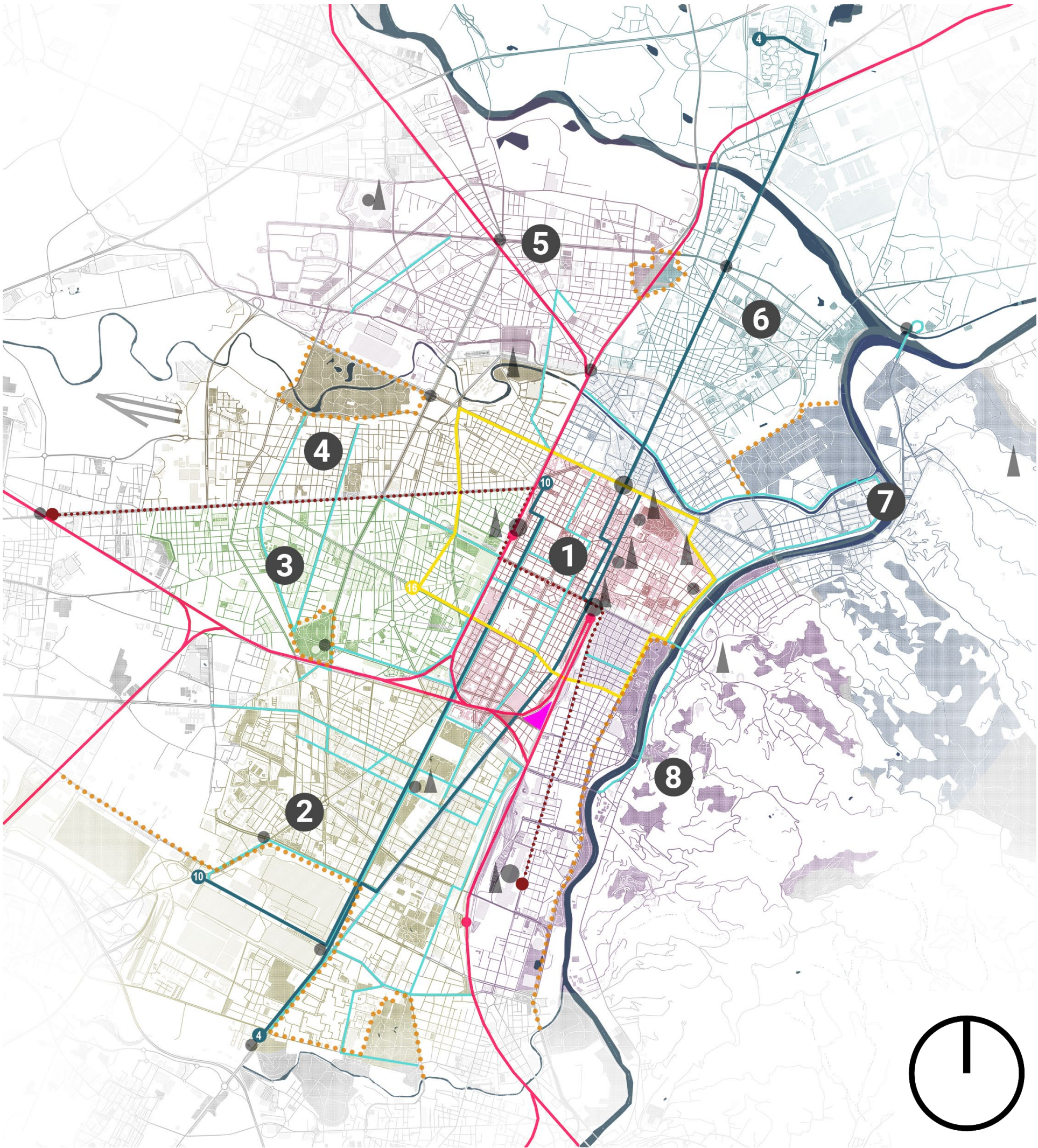
Circoscrizione 1 - a district in the middle of the city, very next to the historic and beauty core of Turin which struggles in its own contradictions such as lowest number of inhabitants compared to the neighbourhood circoscrizioni, a strong dynamics in terms of ageing people versus young people, but in the same time offering the highest rate of educated inhabitants living around the disillusion of Osi Ghia site breathing in a polluted environment. An area of discrepancies, challenges and opportunities mostly because of abandoned industrial areas and of high educated people which can comprehend the need to act for a social change, for social benefits, climate change and new ways of living.



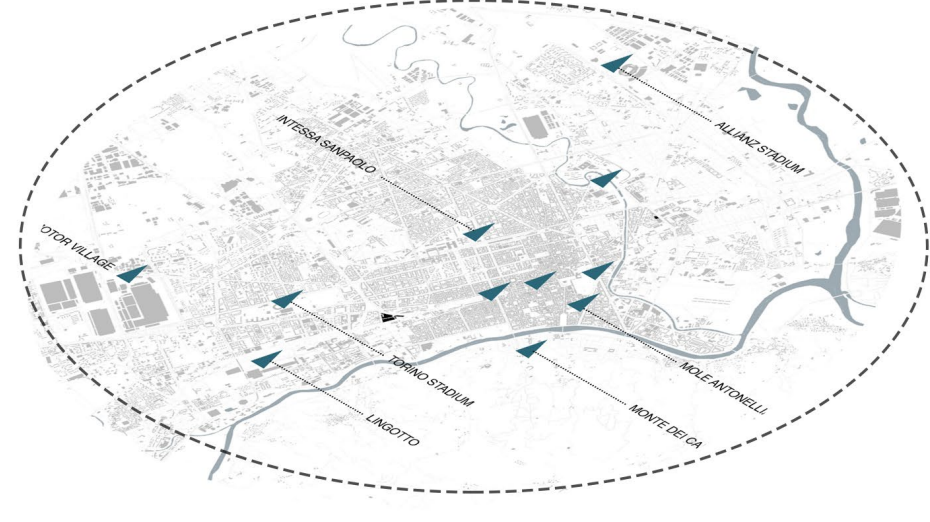
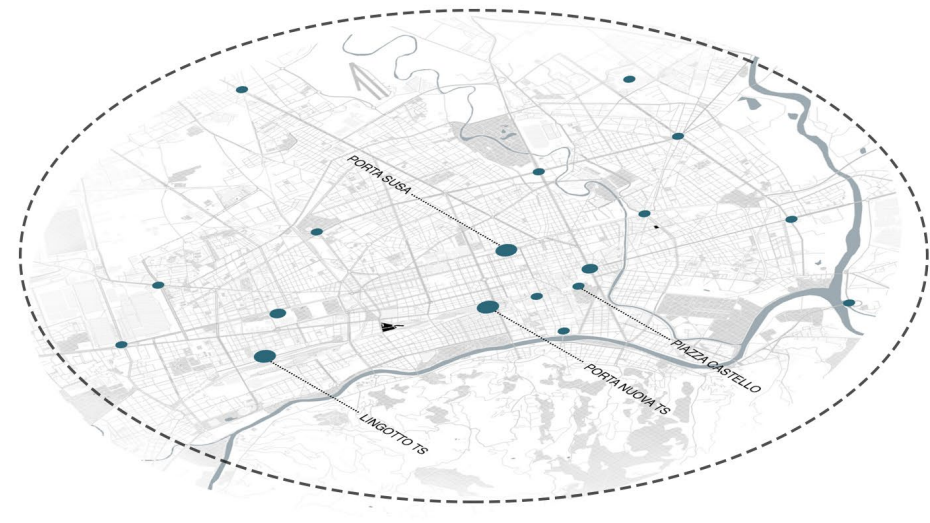
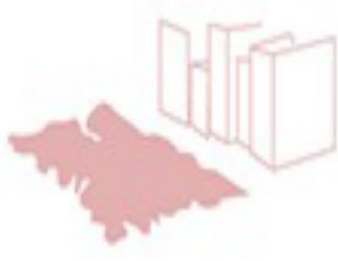
4.2 RADIOGRAPHY CIRCOSCRIZIONE 1





4.3
Osi ghia
macro analysis in raport to Lynch's elements

- TRAIN LINES
- AREA OSI GHIA
- BICYCLE PATHS
- TRAM LINES
- TRAM LINES
- METRO
- EDGES
- NODES
- LANDMARK




Map developed by Author based on the
idenfication of Lynch elements among
the city of Turin




-  Roads
-  Metro Line
-  Tram Lines
-  Tram Lines
-  Cycle Paths

-  Nodes

-  Landmarks

-  Edges that are separating residential Areas with natural landscapes and Industrial areas.

-  The river acts as a visible boundary Between the city part and the Natural side.

-  Centro
-  Borgo Vittoria
-  Parella
-  Pozzo Strada
-  Saint Rita
-  San Salvario & Pian Dei Lot
-  Mongreno
-  Milan Barrier

4.4 Osi ghia
micro analysis

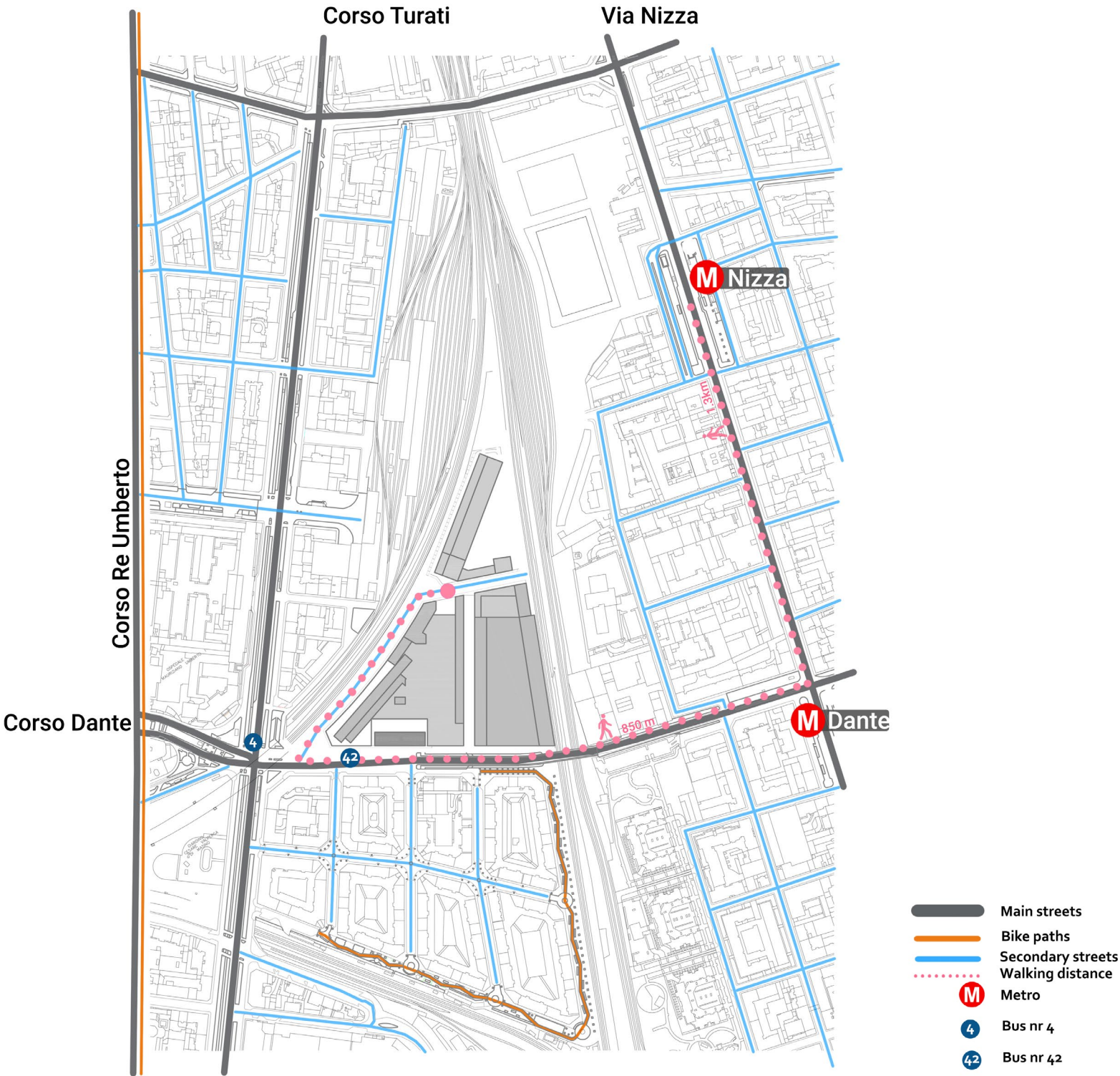
The investigation highlights the built density and the fluidity of circulations.



THE STREET NETWORK AROUND
SITE

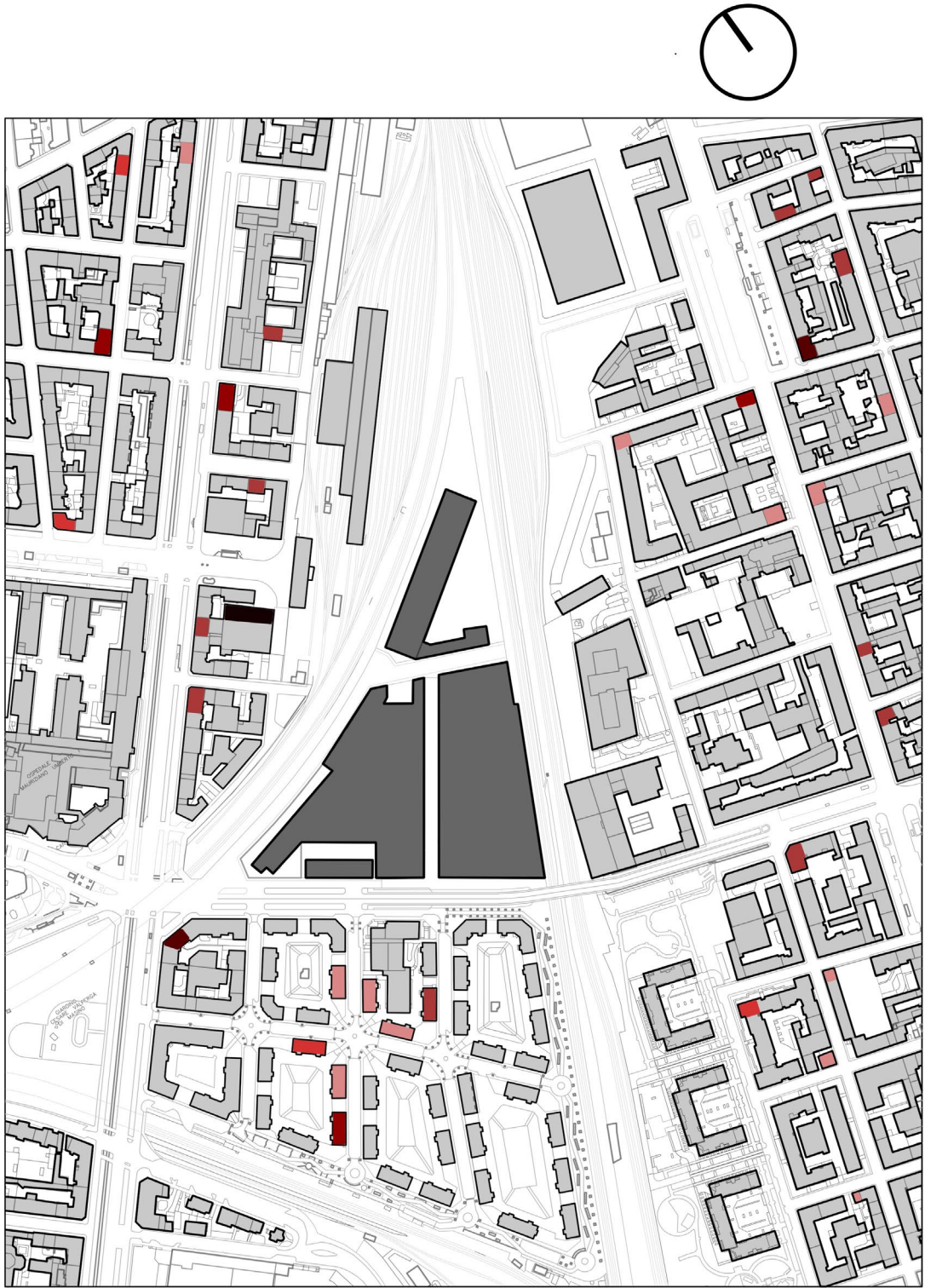
By their position, Corso Dante and
Corso Turati are identified as the most
significant streets offering access
towards site from 4 different sides.
In the same time they offer the most
appropriate bus stations in terms of
public transportation system.

OBSERVATION: Lack of bike paths



The heights of the buildings

The dynamics of the surroundings let us identify 10 different types of heights. The average height of the buildings in the area would be around 7 floors.



10 rooms 500m ² 1.250.000 euro
6 rooms 198 m ² - 360.000 euro 210 m ² - 520.000 euro
5 rooms 130 m ² - 140m ² 219.000 - 395.000 euro
4 rooms 100m ² -110m ² 239.000 - 290.000 euro
3 rooms 70m ² - 80m ² 99.000 - 159.000 euro
2 rooms 45 m ² - 80m ² 90.000 - 157.000euro

Housing | market value

The scope of this analysis is to give an overview about:
1. The different type of apartments on market sale today around the site
2. Price overview based on room numbers of the apartments.

Sources: idealista.it, Agenzia Gabetti, Agenzia Remax, Nuova Immobiliare

Horizontal permeability towards site

The key word would be **lack of accessibility** towards Osi Ghia, few facts:

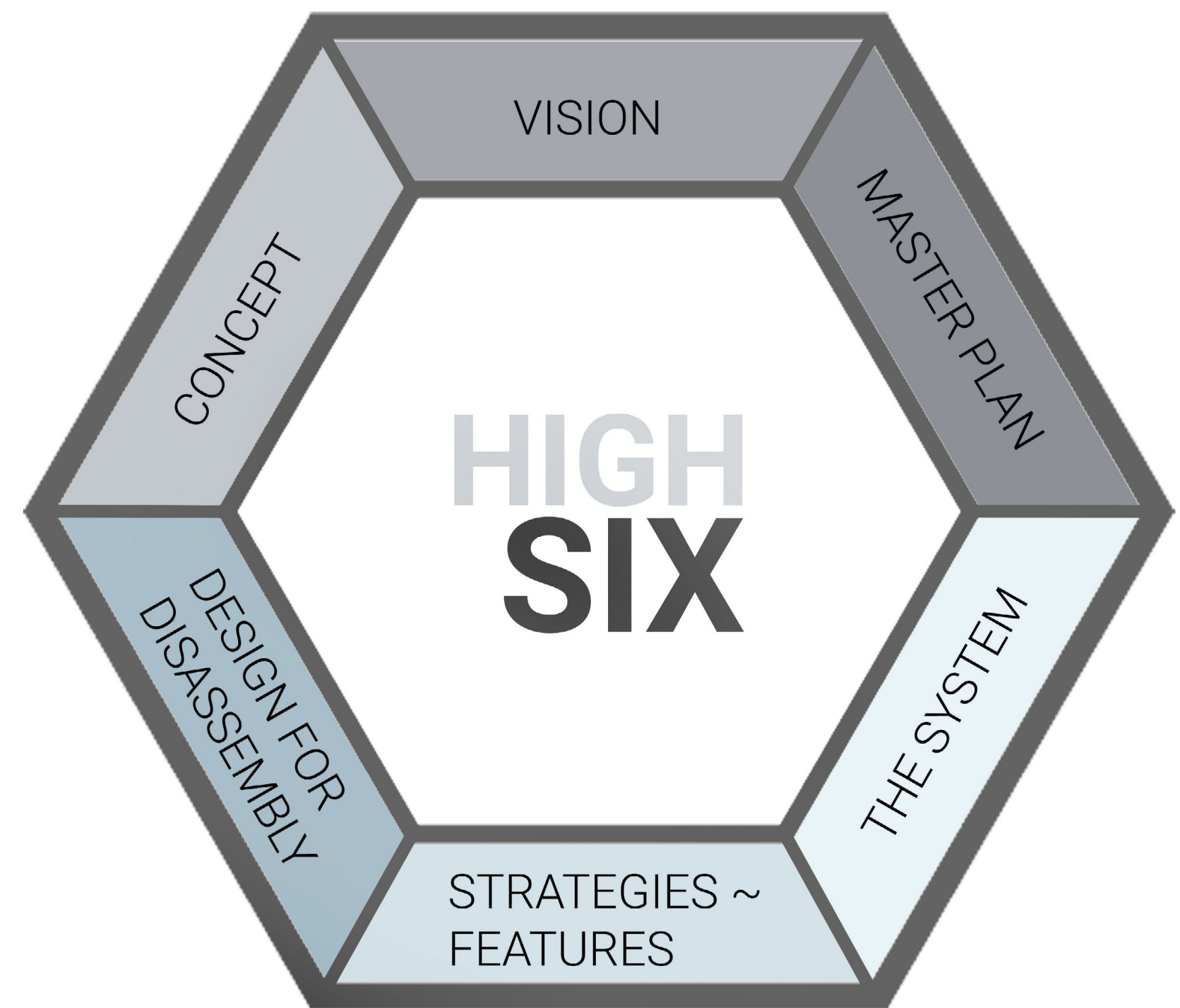
1. The borders created by infrastructure composed by 2 railways drastically limits the access
2. Closed streets on the site and closed underbridge passage on Dante boulevard.
3. The gates and barriers inside Osi Ghia



5. the architectural exercise

KEY WORDS

architecture for food & design for disassembly

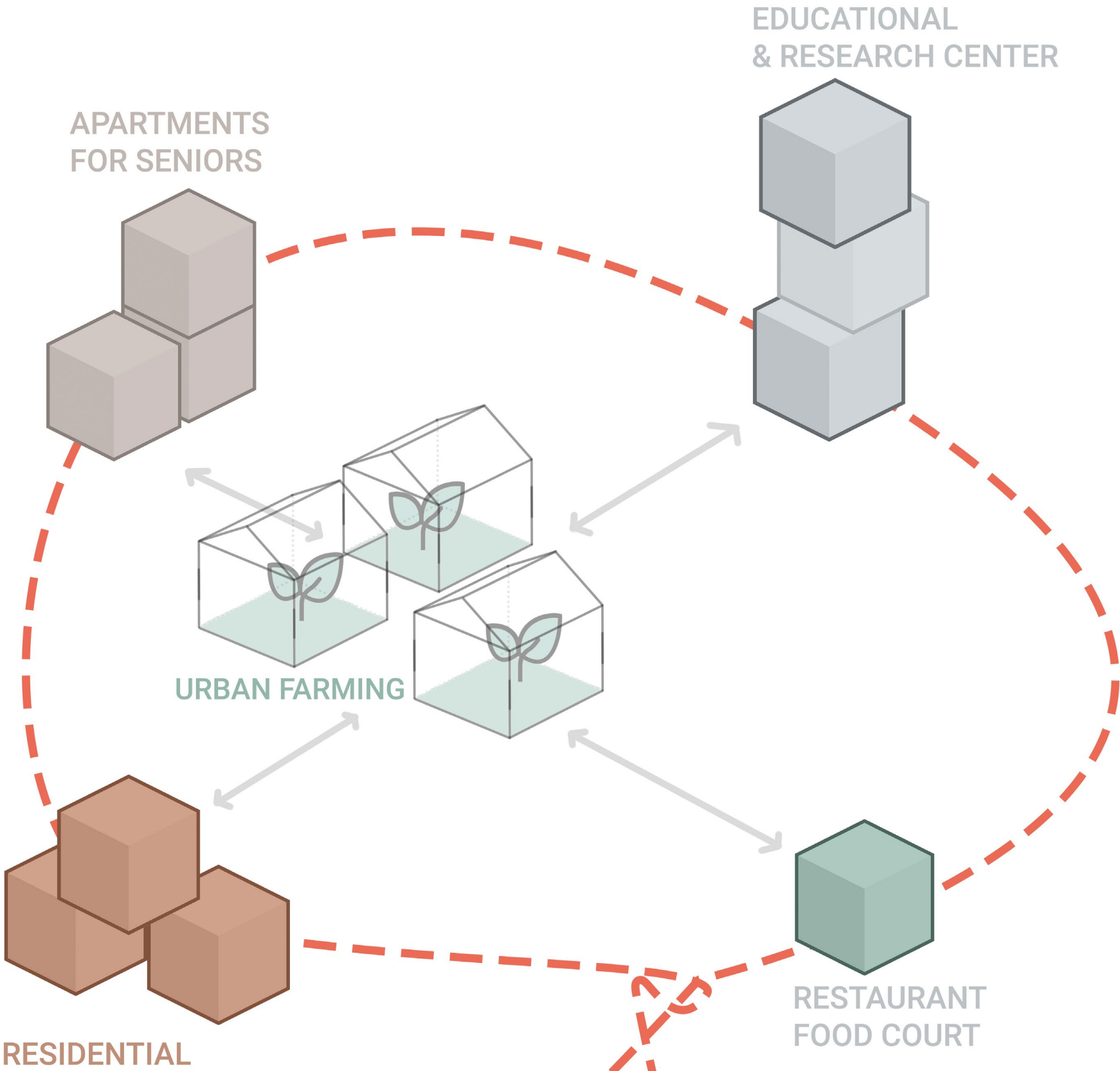


5.1 HIGH SIX as holistic working method, the basis for development of this problem-solving architectural exercise.

ARCHITECTURE



FUNCTIONAL PROGRAMME



TRANSLATED IN



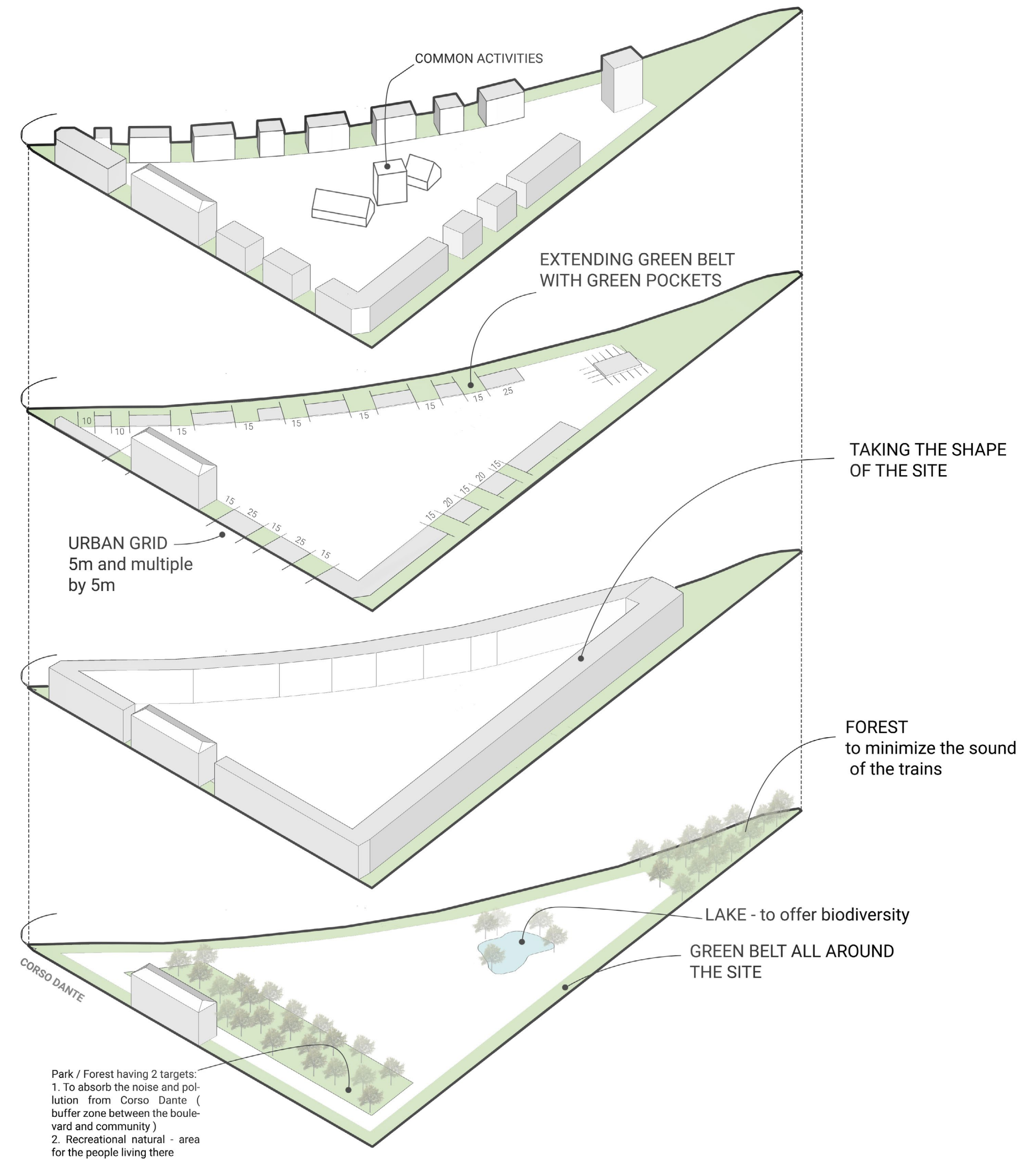
5.2 Concept Isola Verde

KEY WORDS
architecture for food

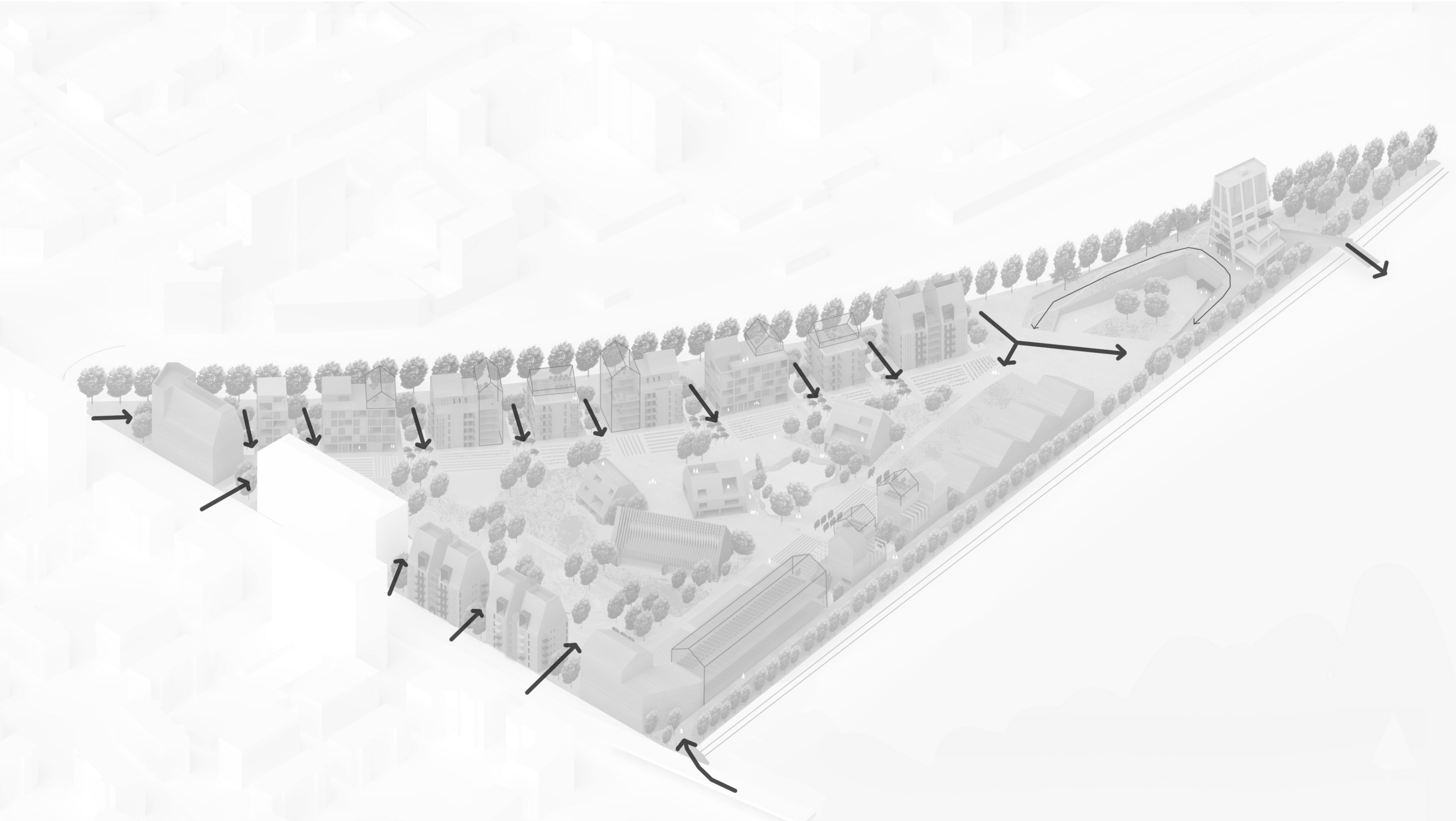
4 important criterias and I would say mandatory in the same time that are driving me through design process towards an eco-system:

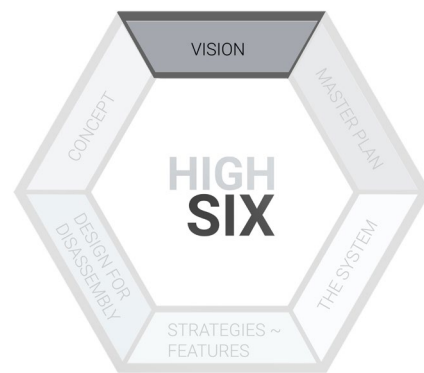
1. Green belt all around the site
2. Increasing drastically the horizontal permeability towards the site and in the same time the circulations inside the site.
3. No fuel cars inside the site
4. Timber structure for all the proposed buildings as part of life cycle building process and circular economy; in short words: design for disassembly

Isola Verde is a model that helps creating, reinventing communities based on farming and in the same time by proposing an eco-system. It aims to secure food supply and sustainability on site.



MAXIMIZING THE HORIZONTAL PERMEABILITY





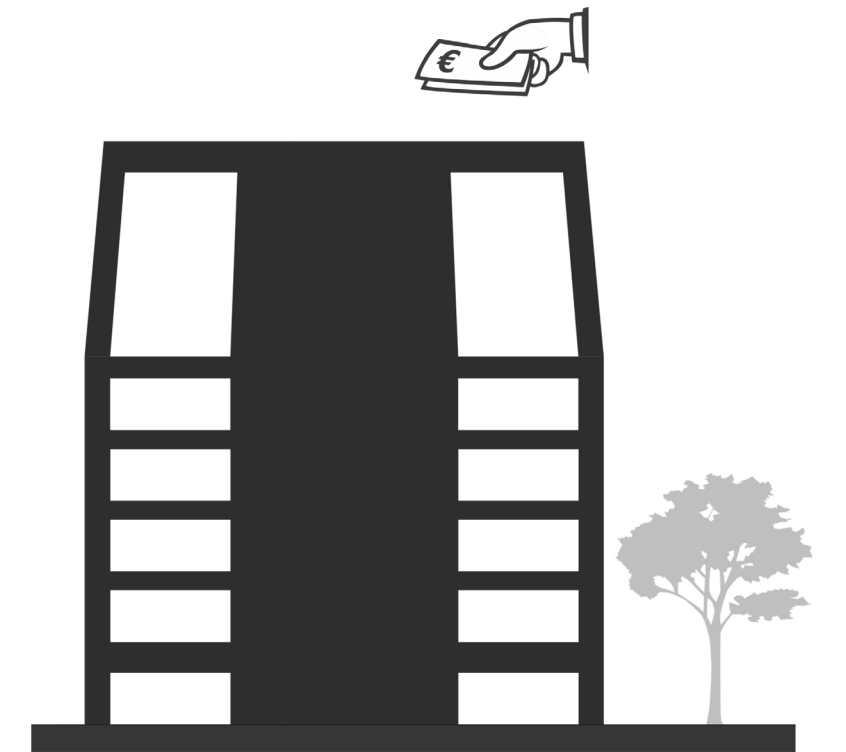
5.3 VISION

that would include 3 important elements:

1. Reversing the principle
2. Permaculture and biodiversity
3. From EGO towards ECO

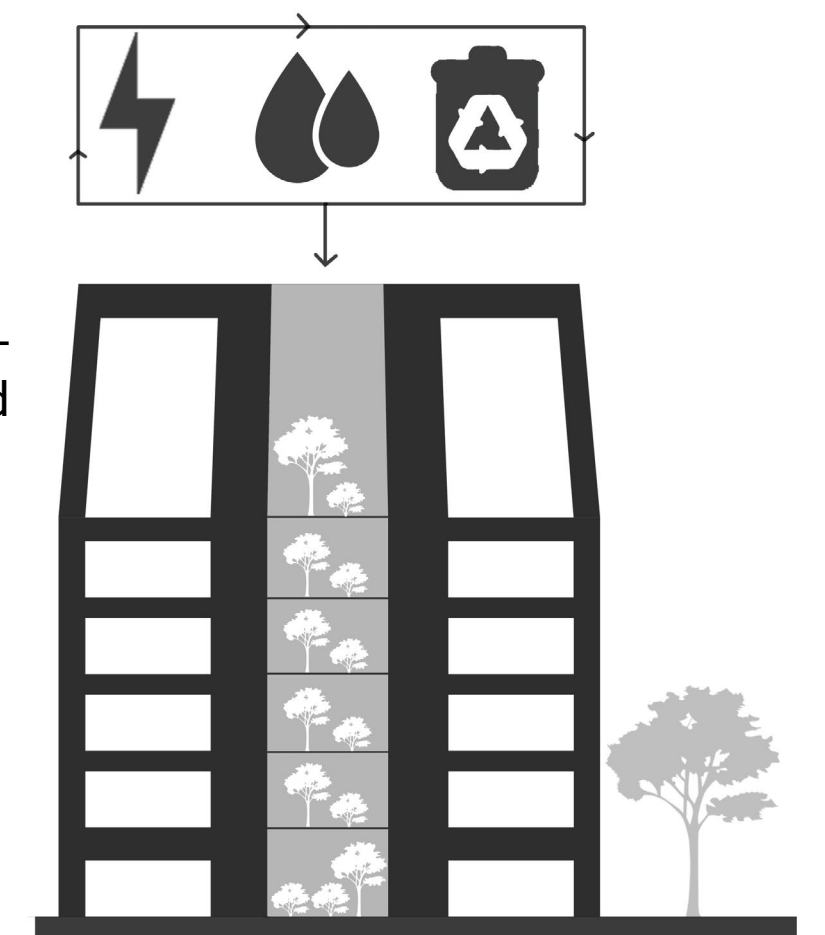
1.

REVERSING THE PRINCIPLE
from working and investing money in
your own house



TOWARDS

a home that works for you by producing
fresh and healthy food, energy and
water.



2 PERMACULTURE AND BIODEVERSITY in order to design a community / site / eco-system that helps restoring the environment, NOT CONSUMING IT.

FARM TO TABLE approach is included due to eliminating transportation.

What is PERMACULTURE?

In a general way, permaculture is a solution-oriented action, learning from natural ecosystems. The mechanism of permaculture is built on design that creates a well-functioning system and in the same time minimizes the amount of work in time. For a well and corect functioning of the system, the placement of the various elements such as house, buildings, people, animals, orchard, gardens etc in direct relation to each other is essential. A fundamental aspect of permaculture is that the elements of the system must be linked in a useful way, so an output of one element is used by another element. The elements must have different functions in a way to cover all the needs because in this way a closed system is obtained in which pollution and waste are not created and this type of approach head for a sustainable society.¹

3 from EGO to ECO as engine to change mentalities

EGO - means to rule over

ECO - means to be equal and respect

¹ <https://permakultur-danmark.dk/en/what-is-permaculture/>, Accessed on 18.05.2021



5.4 MASTER PLAN



MASTER PLAN

[illegible]

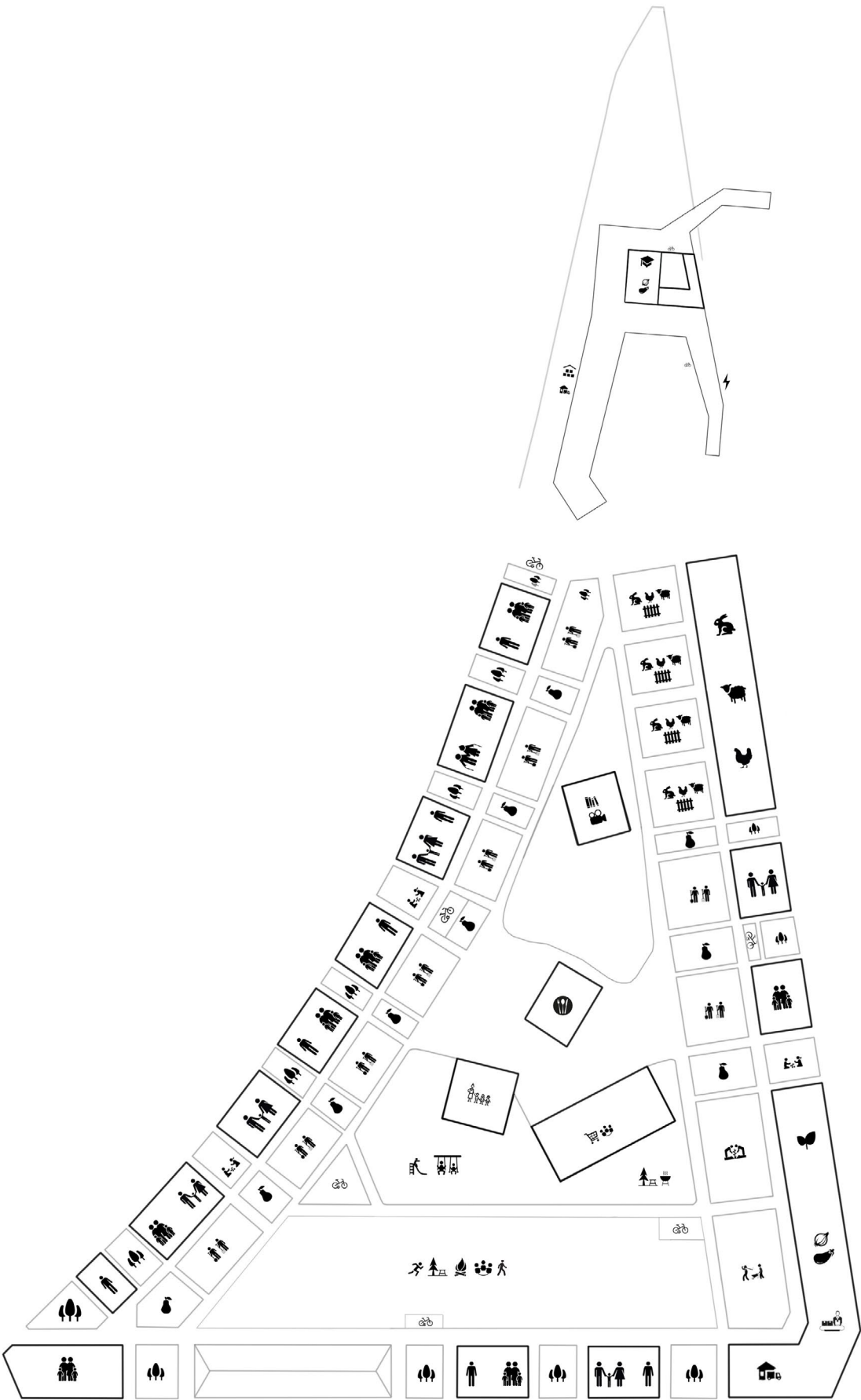
SECTION AA



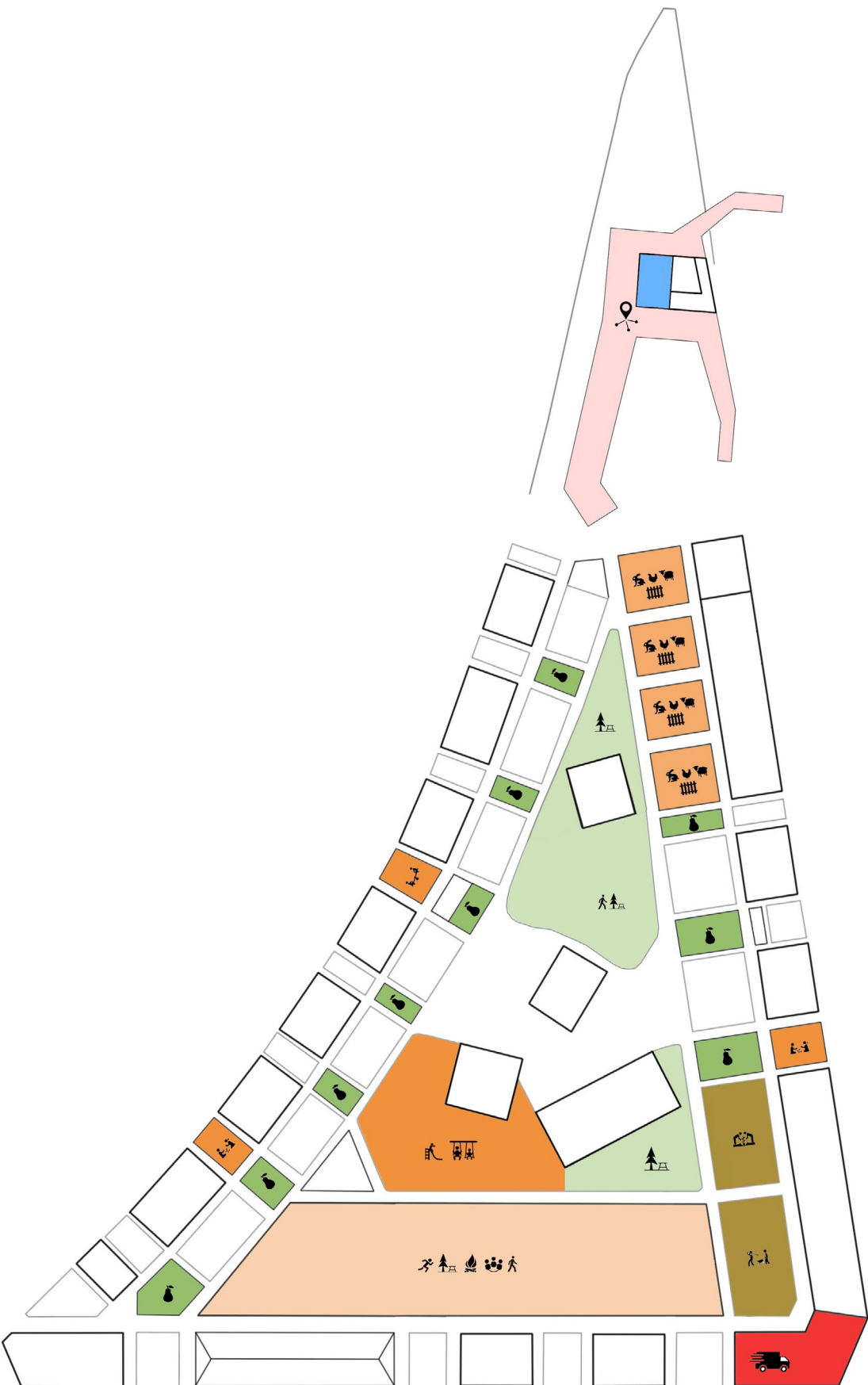
SECTION BB



5.5 PROGRAM LAYOUT

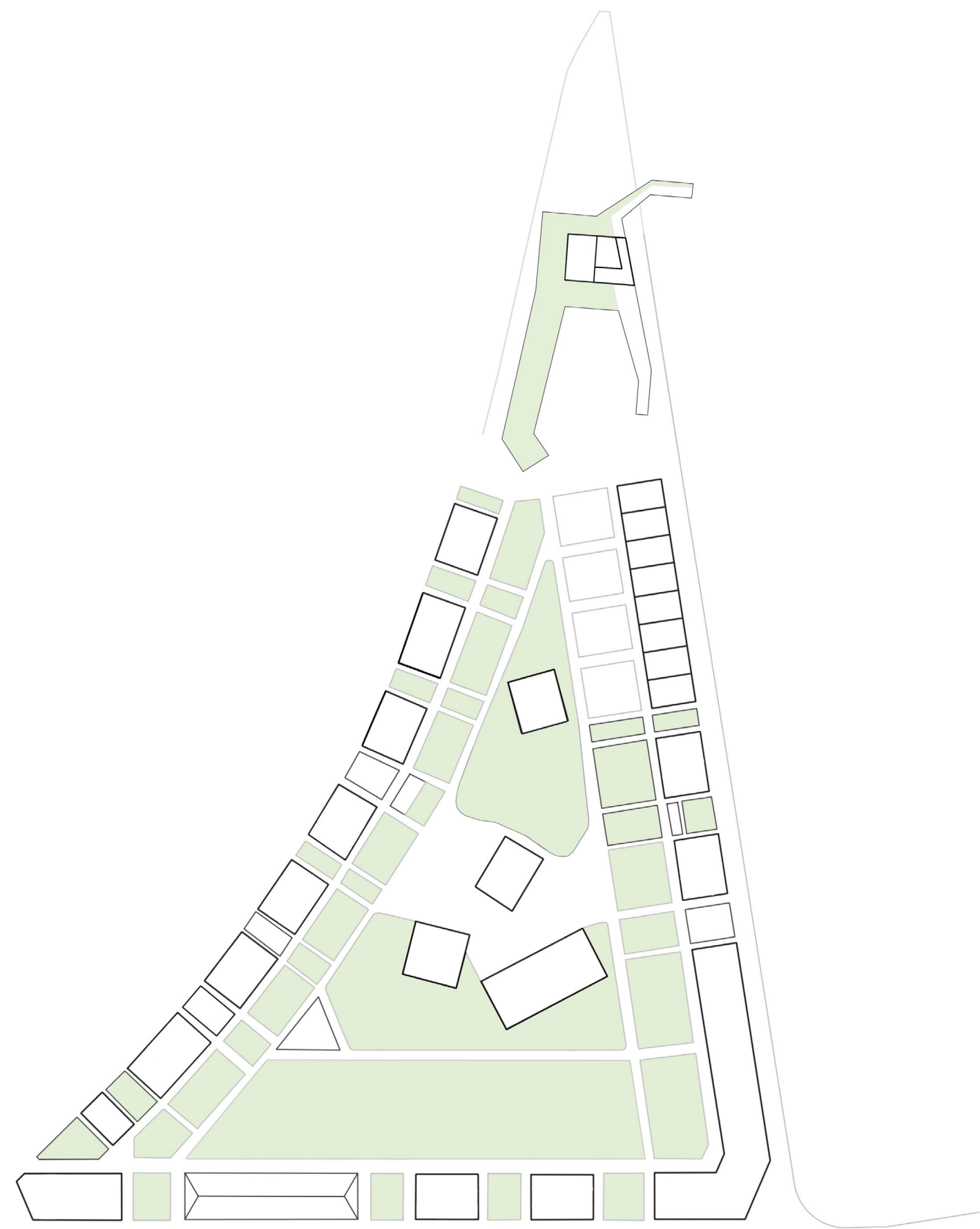


SOCIAL SPACES



- Playground
- Animal folds
- Sport activities
- Community learning
- Fruit trees
- Recreational and social dining
- Education
- Delivering spots
- Platform - Bridge as a HUB

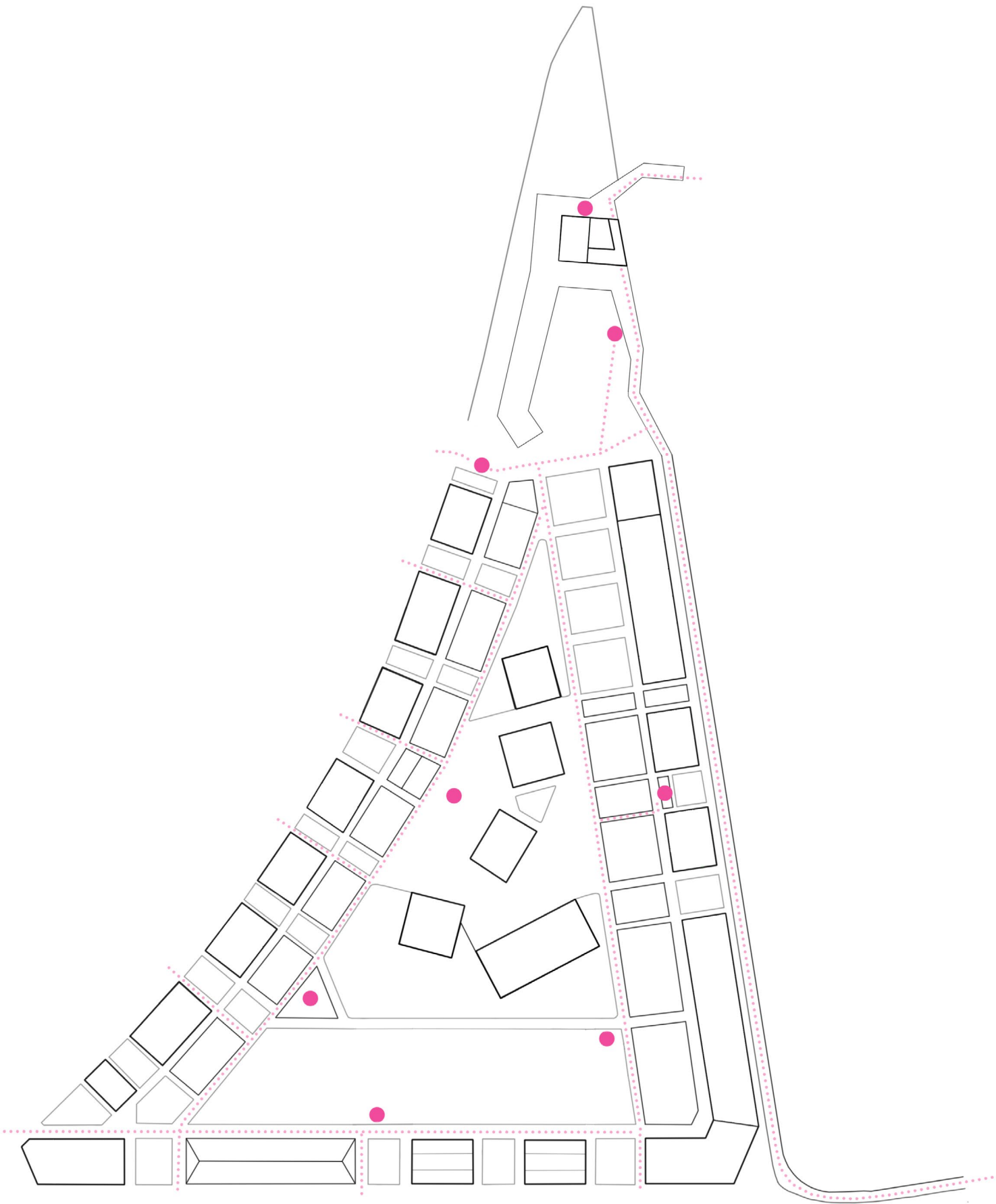
GREEN SPACES



FOOD PRODUCTION

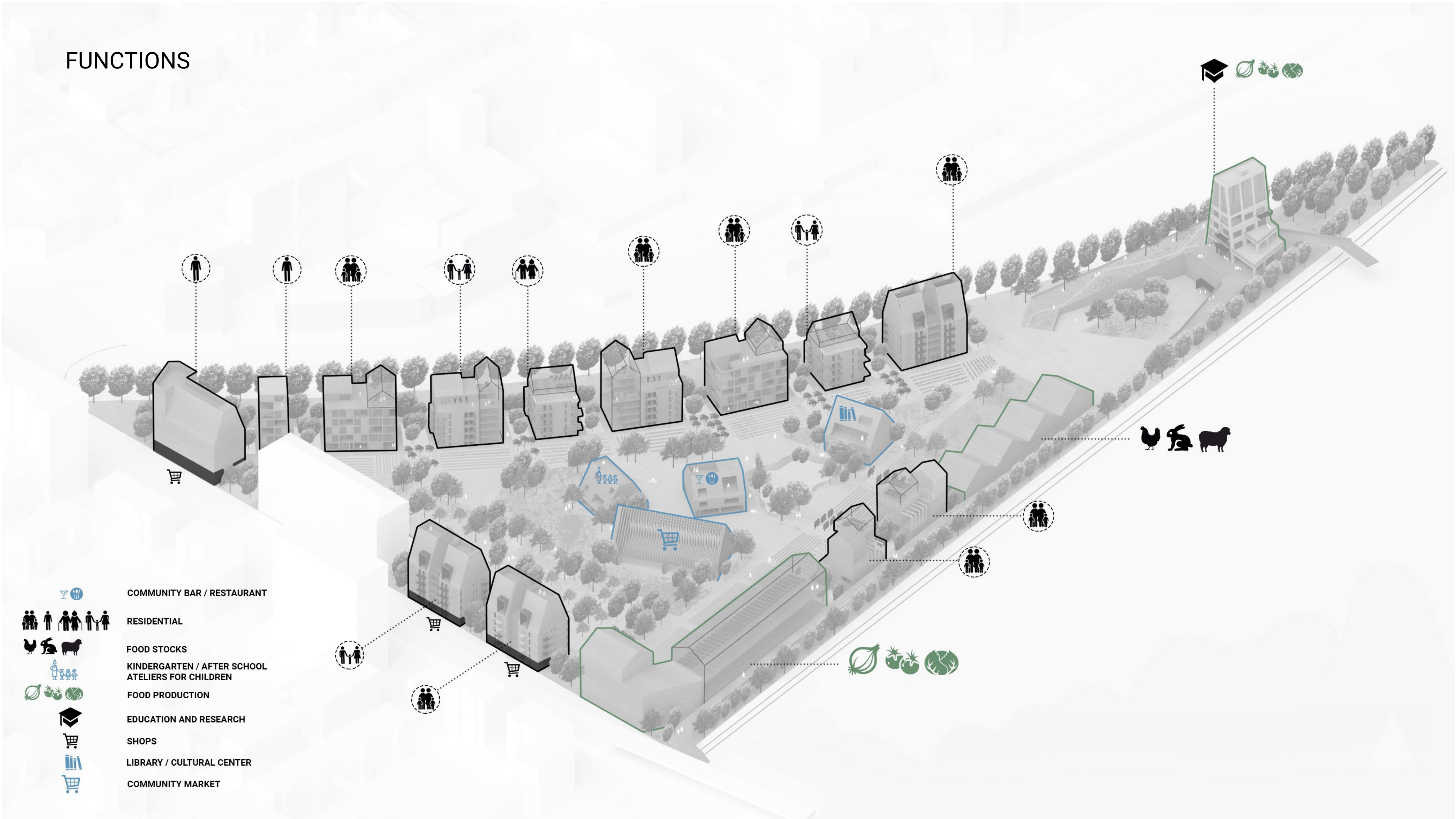


INFRASTRUCTURE



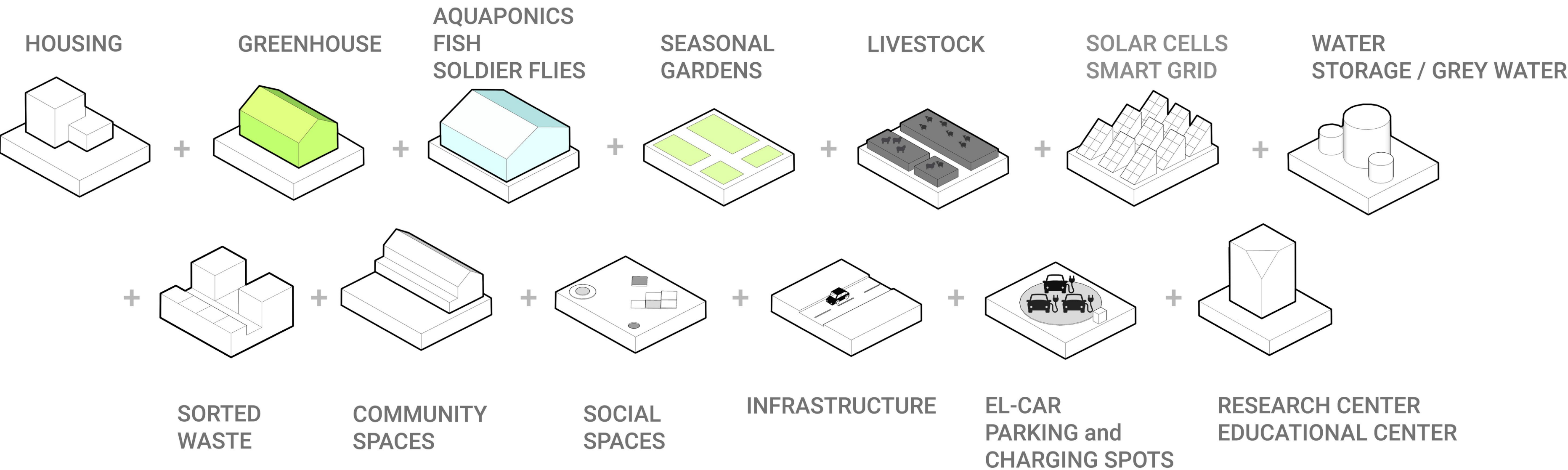
● EV-parking / charging spots

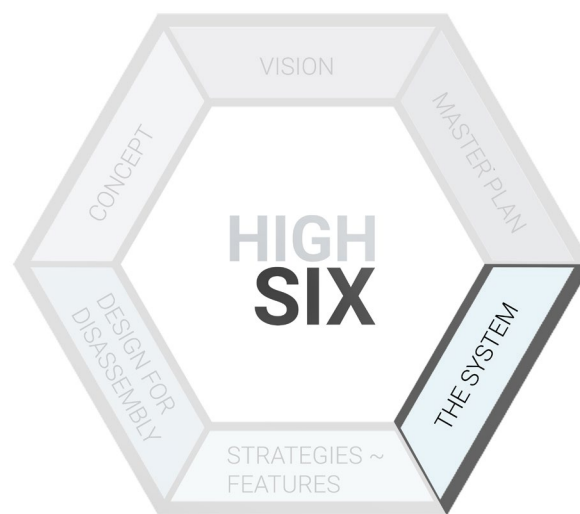
FUNCTIONS



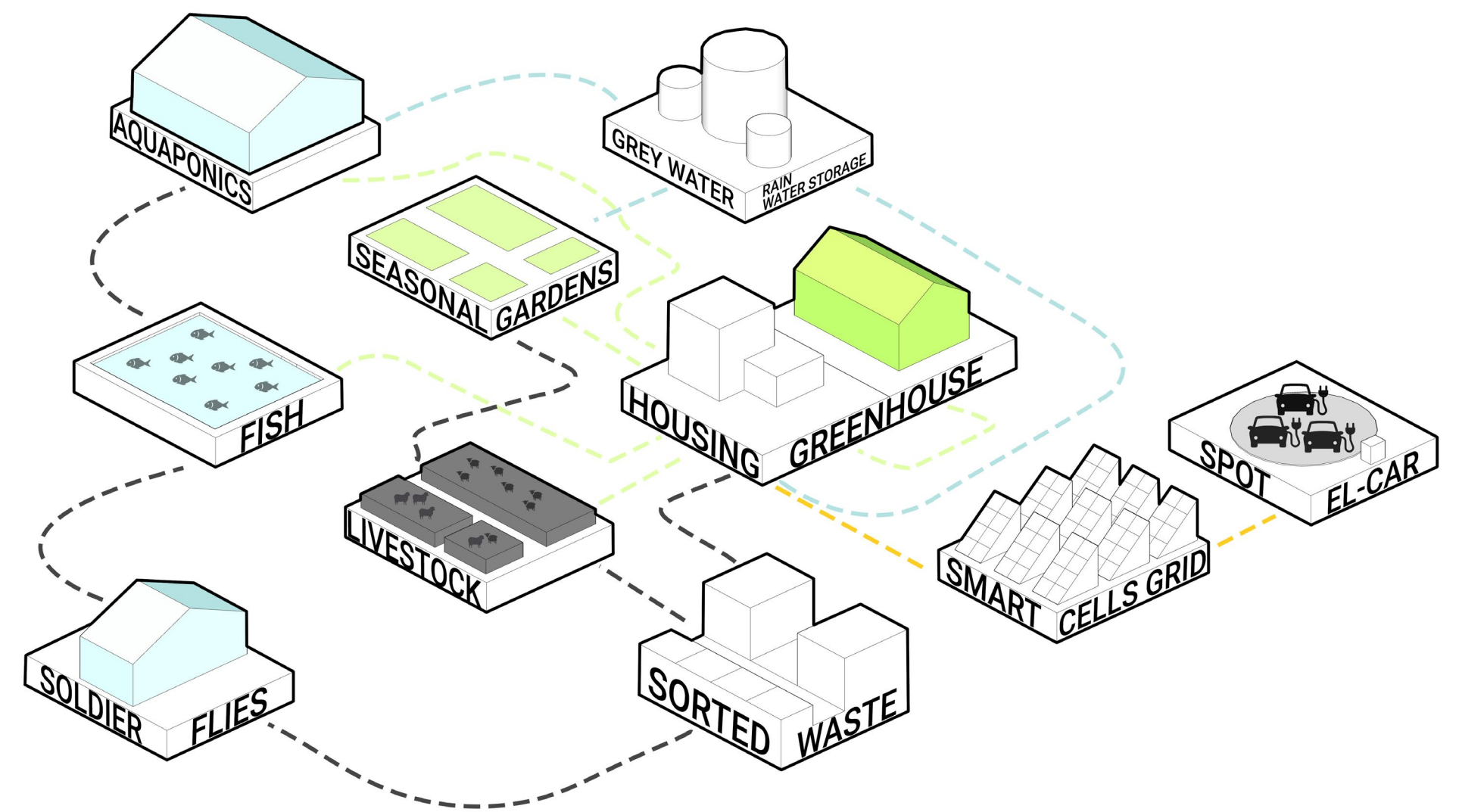
OVERVIEW PROGRAM LAYOUT

The program of Isola Verde stands as solution-exercise of the vision above mentioned and includes the following elements:





5.6 THE SYSTEM behind the program



How the system can work?

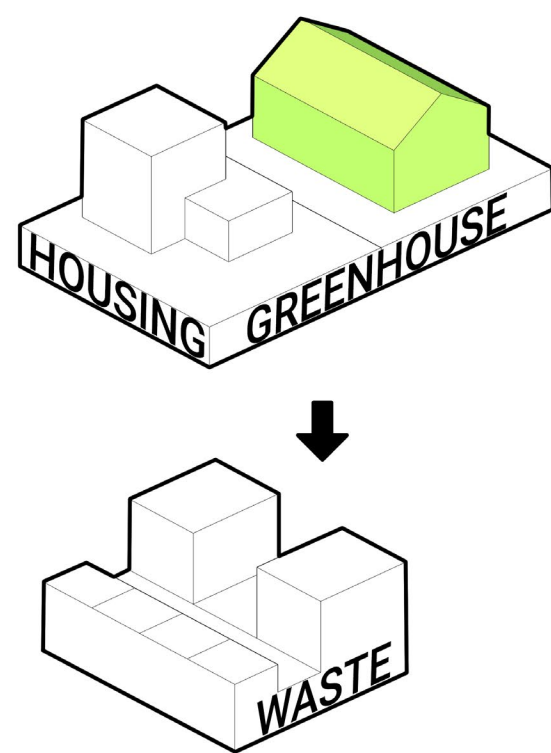
In order to comprehend all the necessary elements for the good function of a closed eco - system, there are 4 different categories of elements that are linked together and I have named them "roads". They are:

1. Waste road
2. Food road
3. Water road
4. Energy road

1. WASTE ROAD

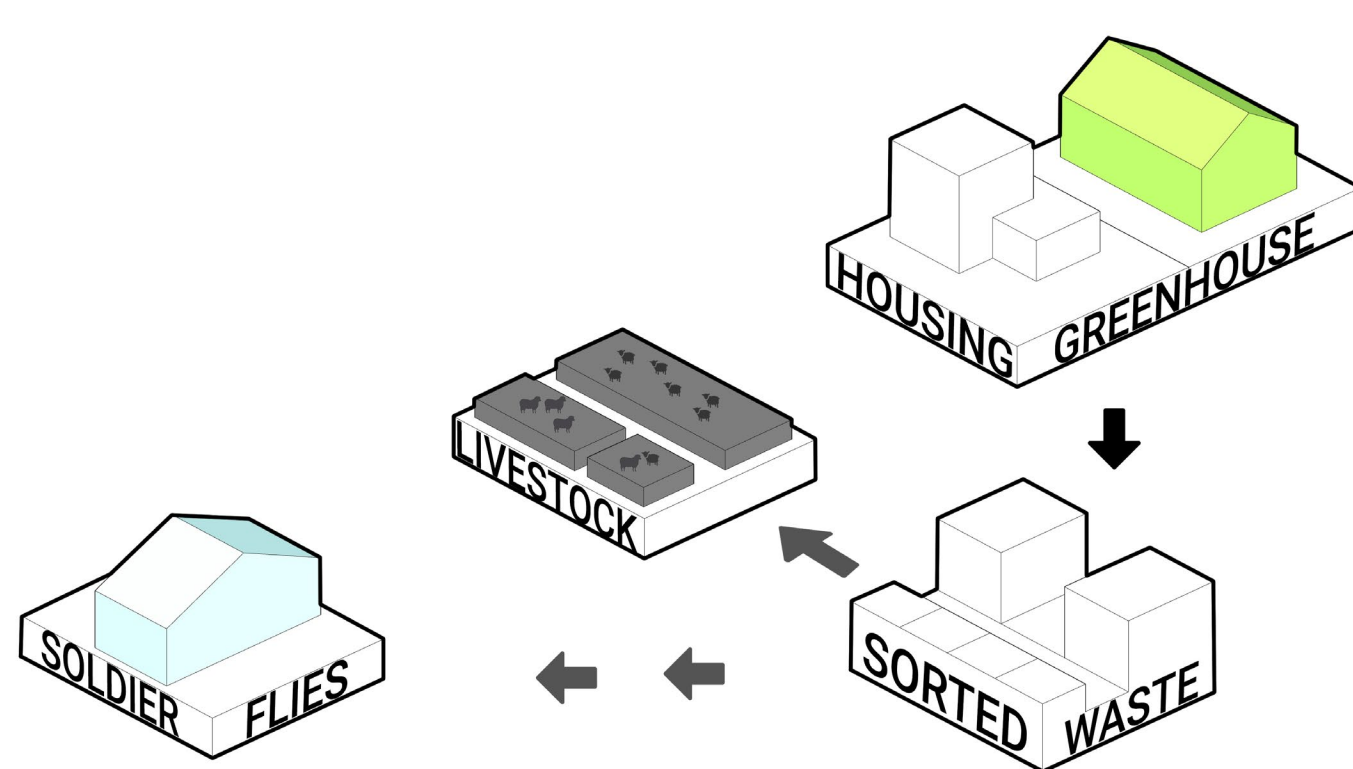
STEP 1

Household and greenhouse waste are sorted in order to be used for multiple purposes.



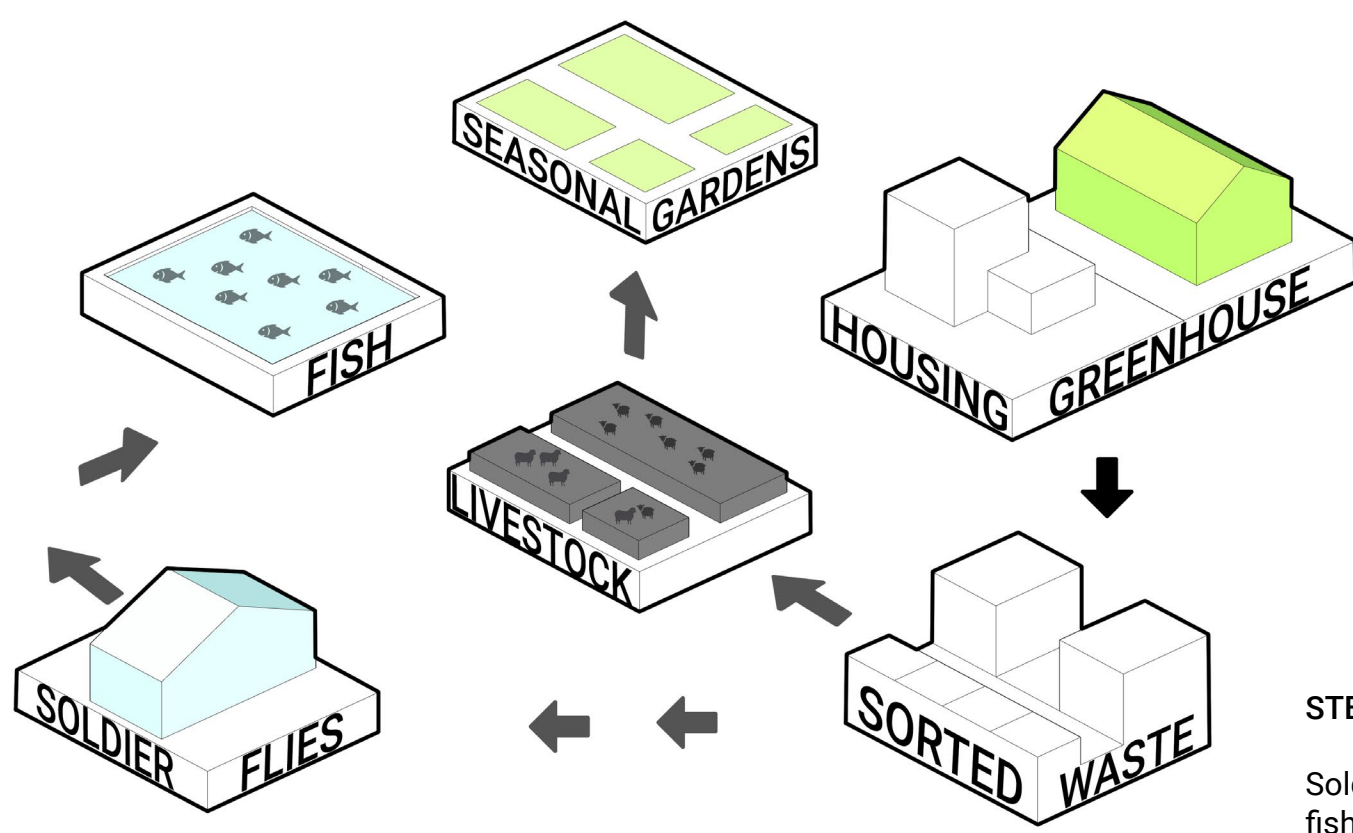
STEP 2

Compost - food for livestock and for soldier flies.



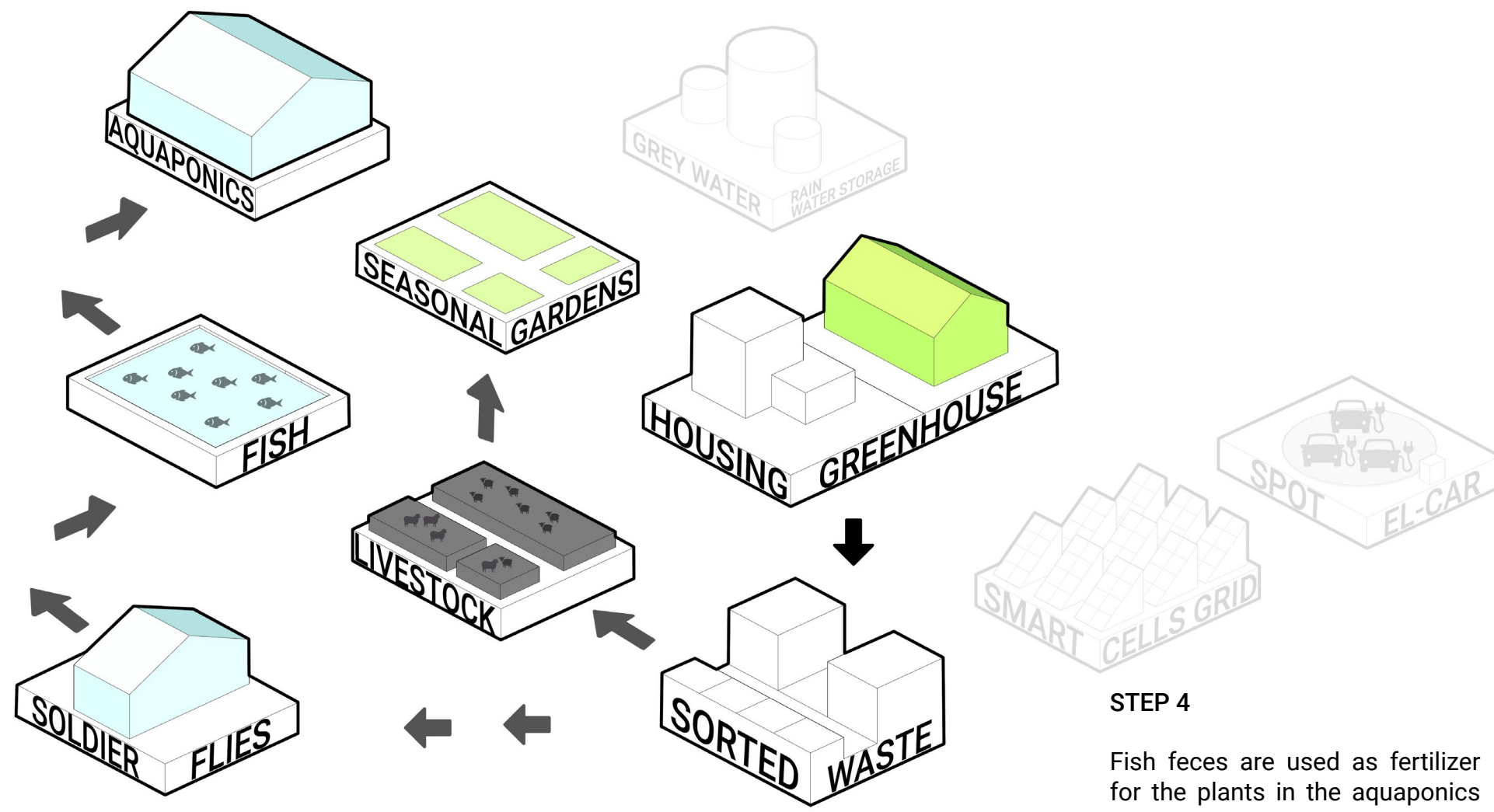
STEP 3

Soldier flies become food for the fish and manure from livestock is used to fertilize the seasonal gardens (outdoor gardens).



STEP 4

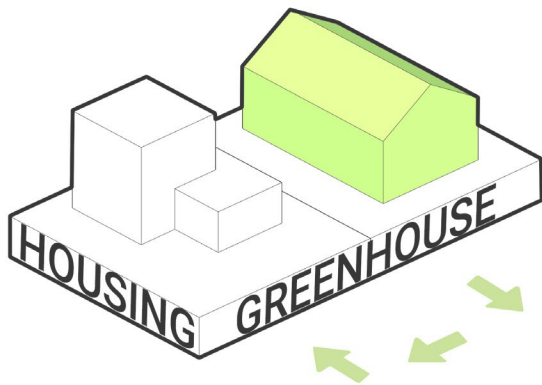
Fish feces are used as fertilizer for the plants in the aquaponics system



2. FOOD ROAD

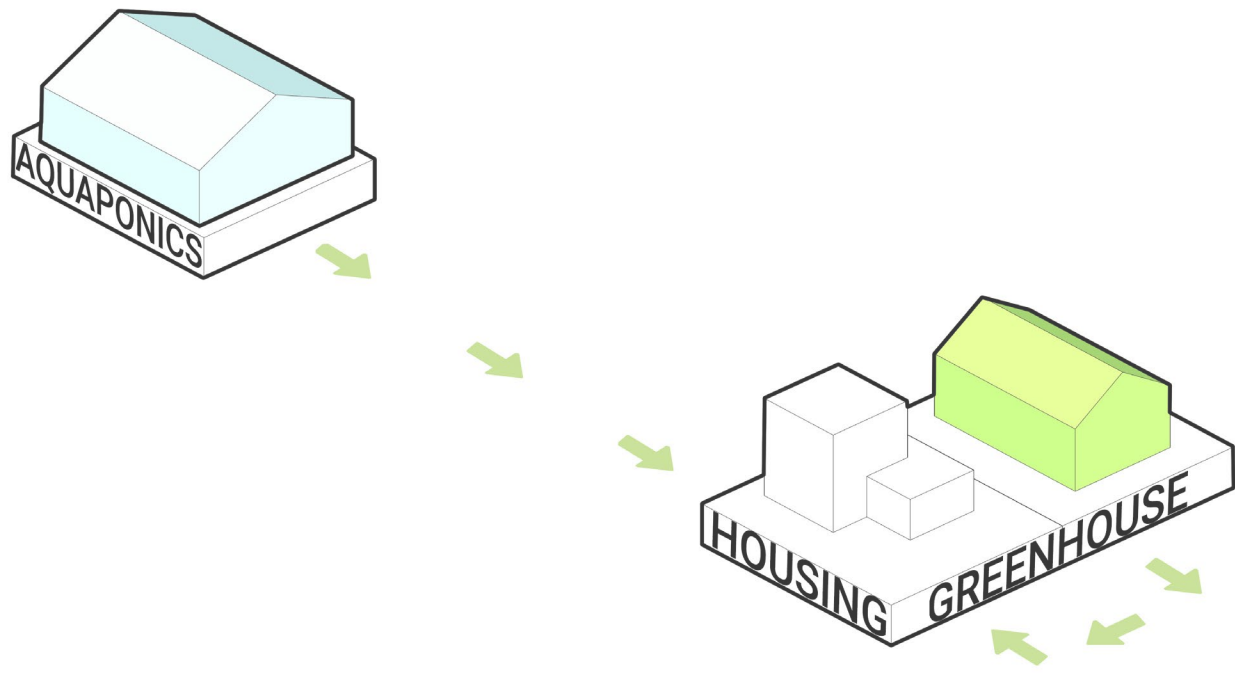
STEP 1

Greenhouses as the closest source of fresh vegetables.



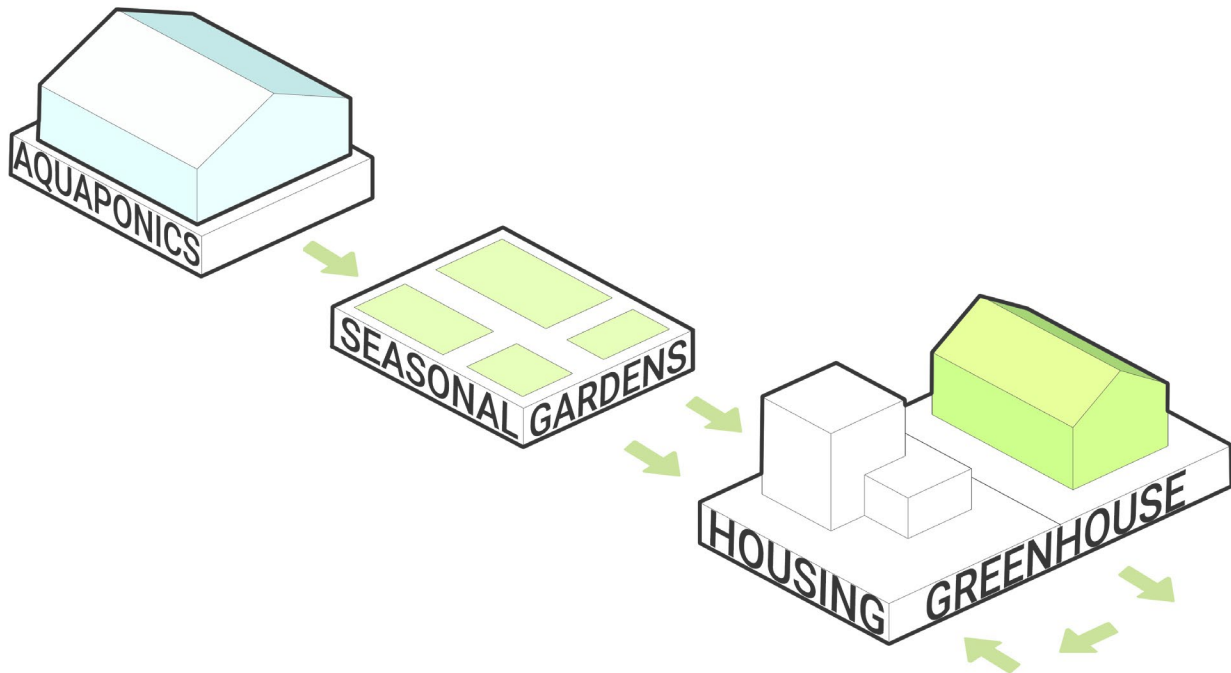
STEP 2

Aquaponics using high performance technology produces fruits and vegetables.



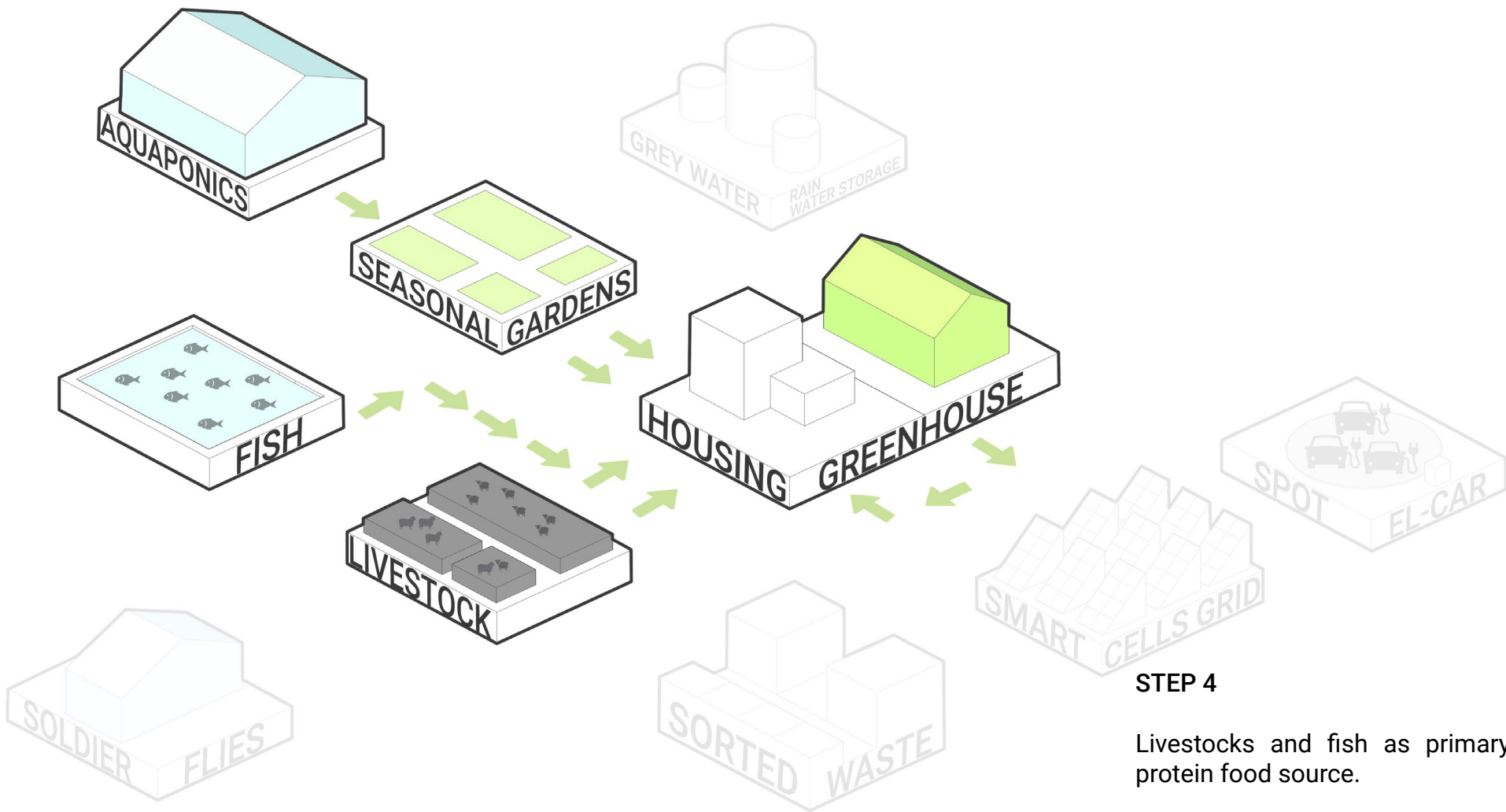
STEP 3

In terms of variety, seasonal gardens offers produces for home consumption.



STEP 4

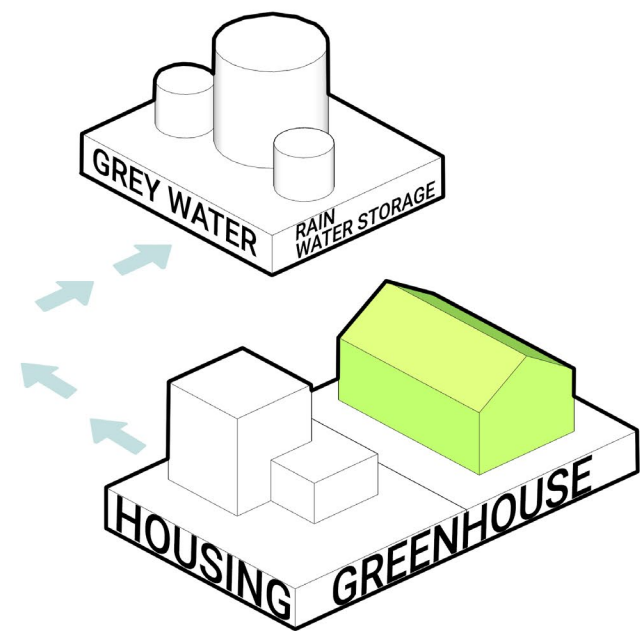
Livestocks and fish as primary protein food source.



3. WATER ROAD

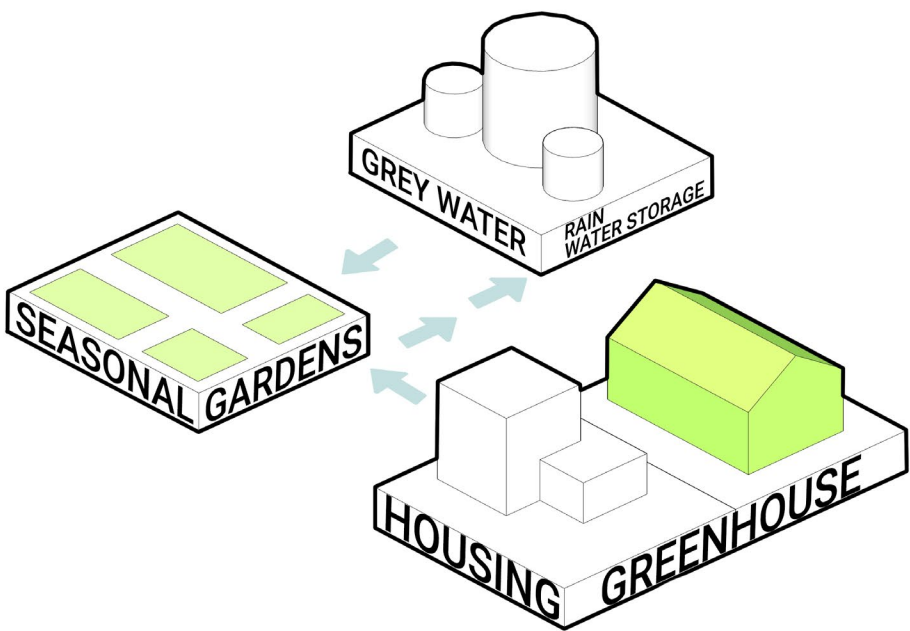
STEP 1

The buildings collect the rainwater and store it. This process includes all the separation of water in clean water and grey water.



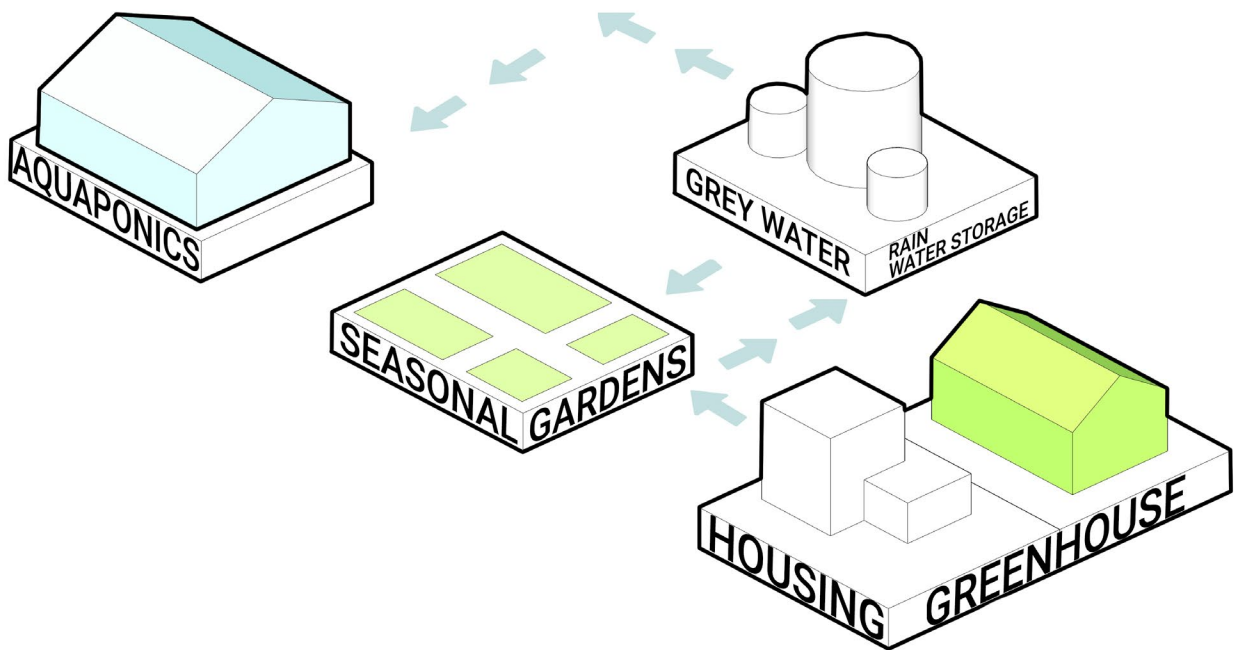
STEP 2

The grey water is used to irrigate the outdoor seasonal gardens.



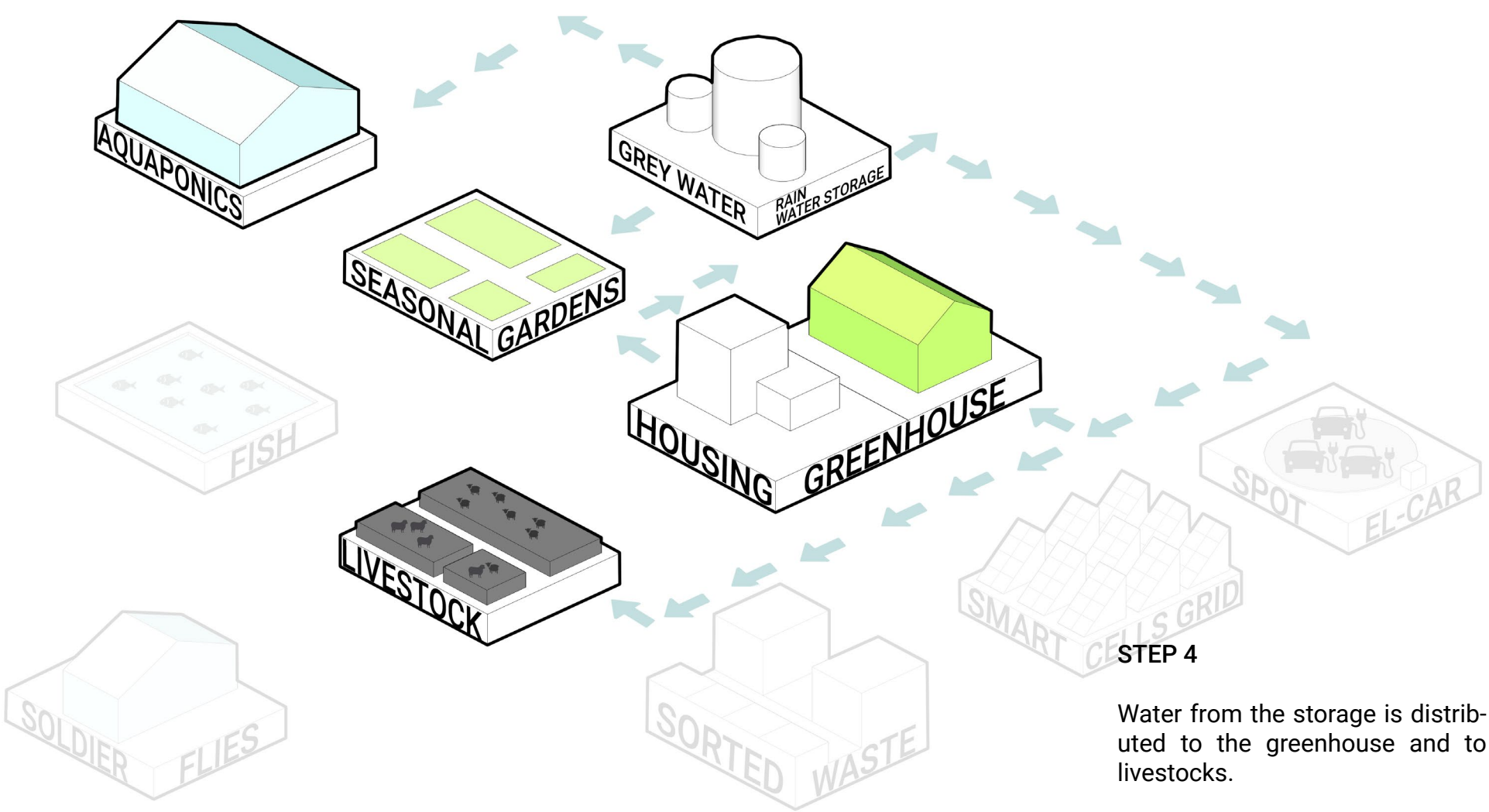
STEP 3

Clean water from the rain water storage is delivered to aquaponics.



STEP 4

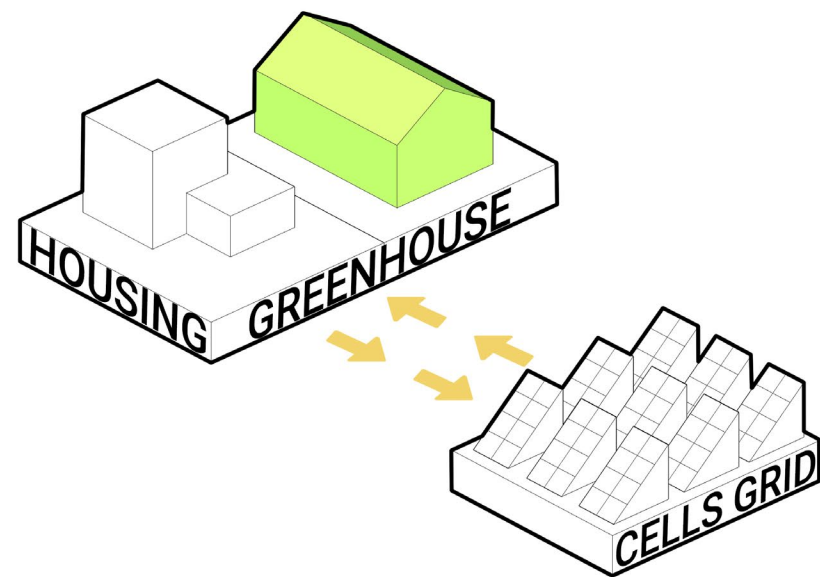
Water from the storage is distributed to the greenhouse and to livestock.



4. ENERGY ROAD

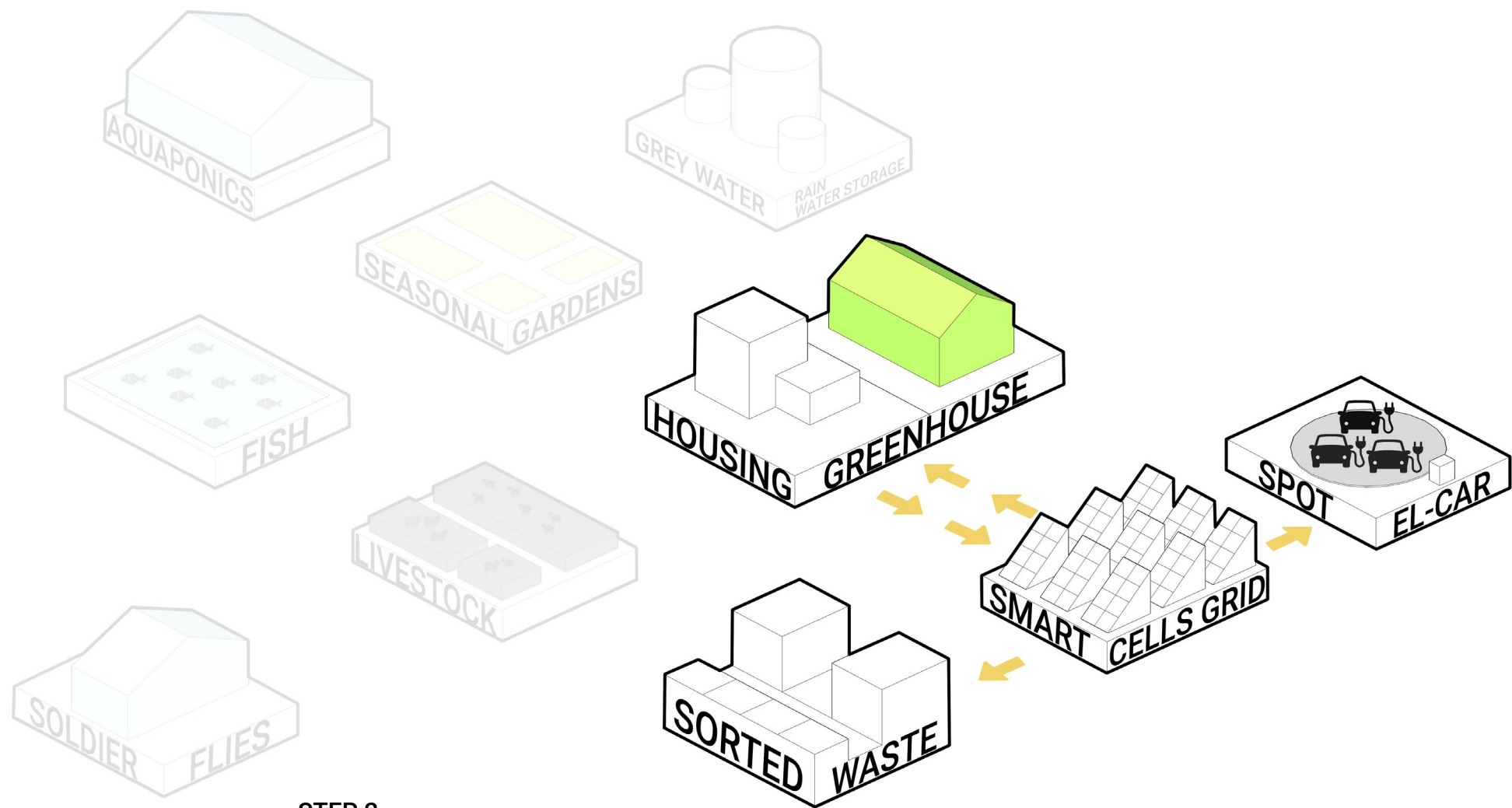
STEP 1

The solar cells produce energy for residential and deliver the surplus to the smart grid.



STEP 2

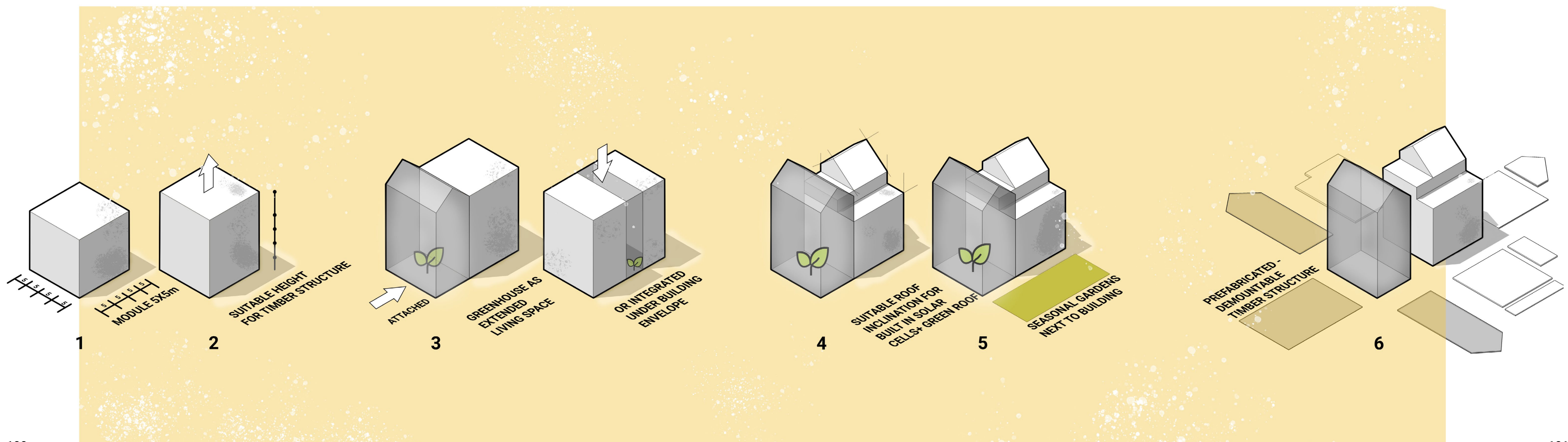
The smart grid deliver energy to residential (when there is a need)and to the charging spots.



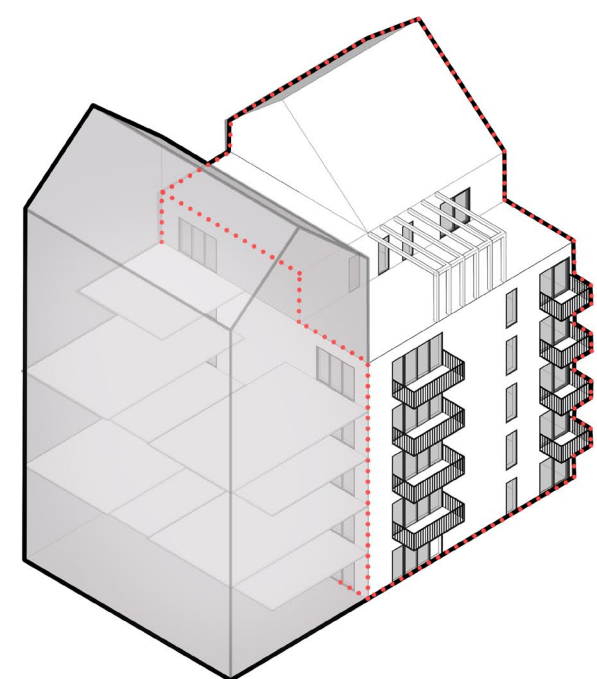


5.7 COMMON DESIGN PRINCIPLES

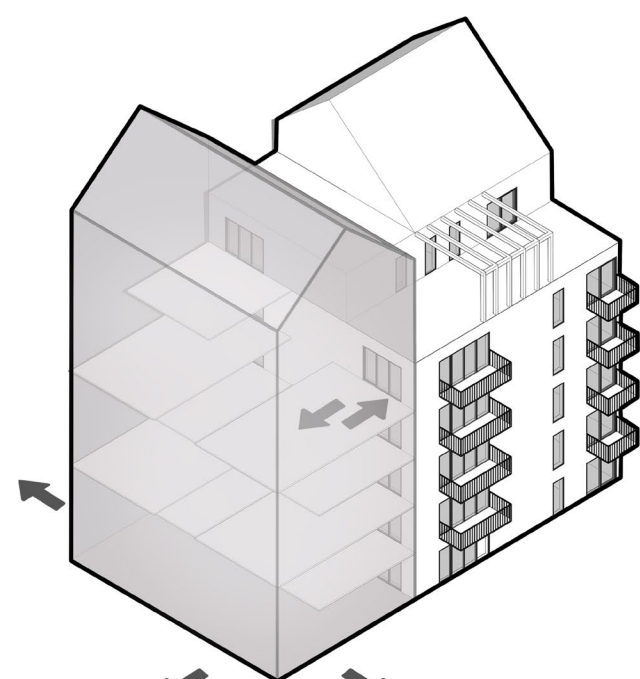
As already presented and described, there is a clear system that works behind the programme; a system that has a very significant importance in terms of **transition towards green**, a system that has its basis and principles directly linked to EU policies related to New Green Deal aspect, but it wouldn't be completed and it would not be credible enough if the architectural approach would be neglected. So, in order to make it works, clear and functional oriented design principles for all the building typologies are proposed in order to help above mentioned transition towards green following the path of sustainable architecture.



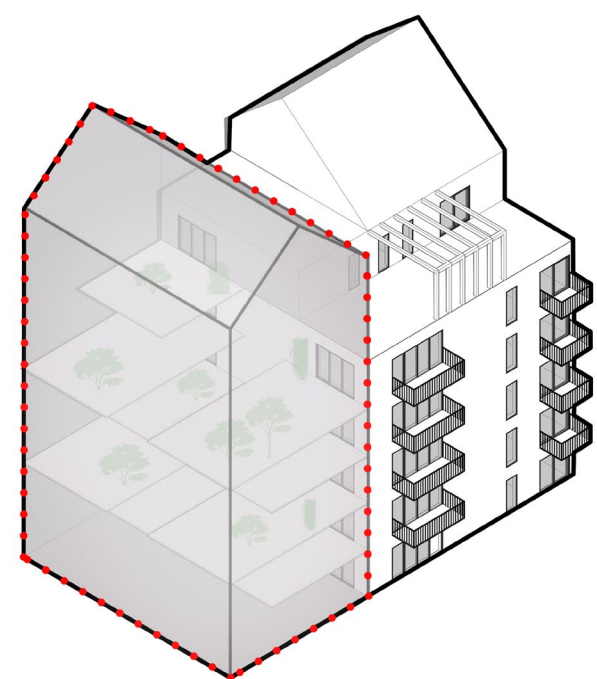
COMMON FEATURES AND STRATEGIES FOR ALL BUILDING TYPOLOGIES



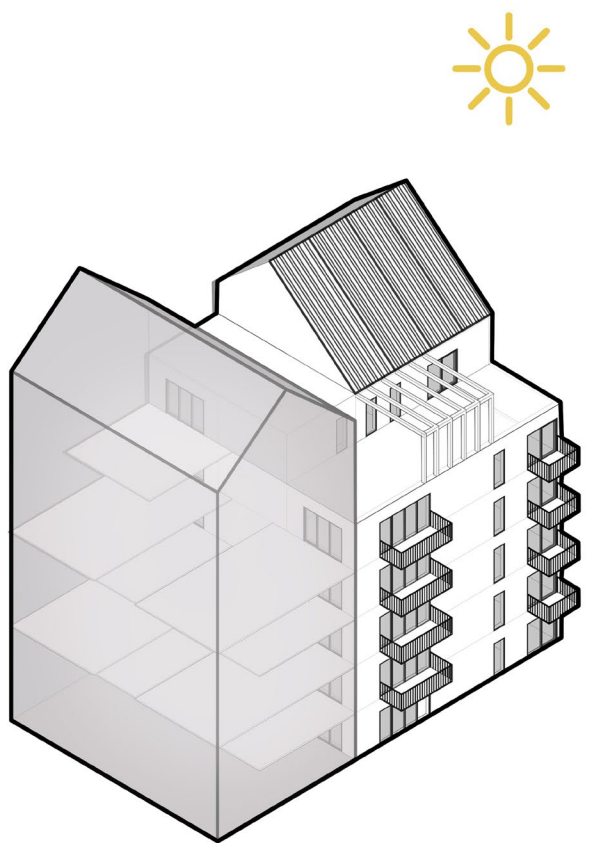
PREFABRICATED - DEMOUNTABLE
TIMBER BUILDINGS AS PART OF LIFE
CYCLE APPROACH



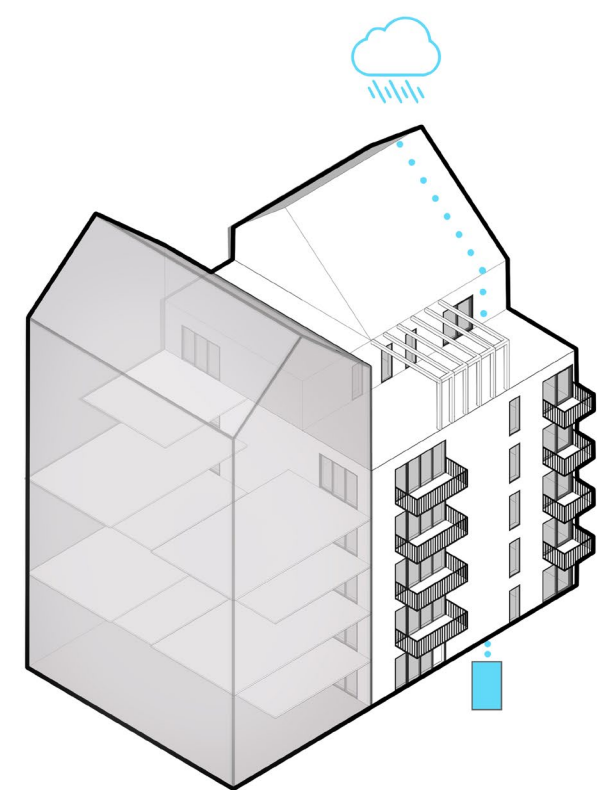
OPENABLE



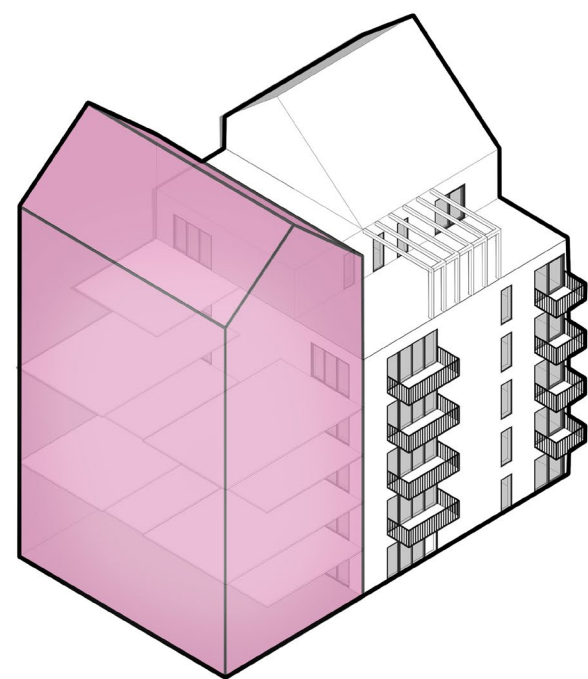
GREENHOUSE AS EXTENDED
LIVING SPACE



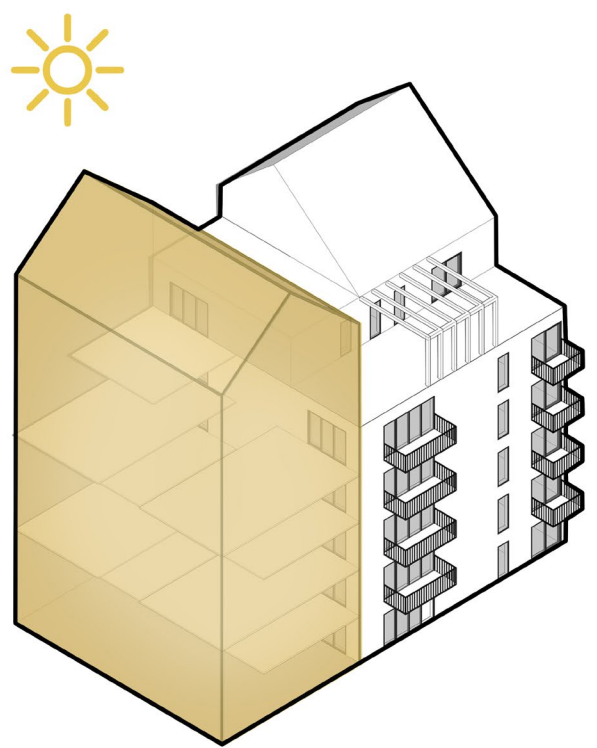
SOLAR PANELS - BUILT IN



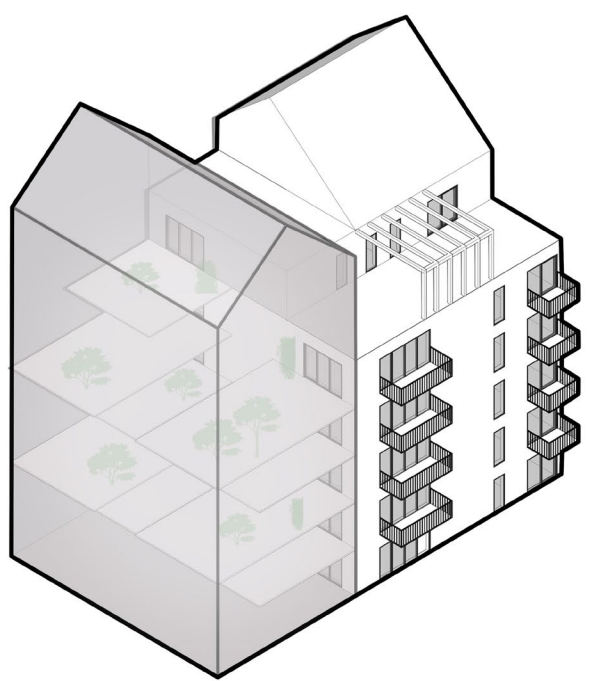
WATER COLLECTION - BUILT IN



PREHEATED AIR IN WINTER



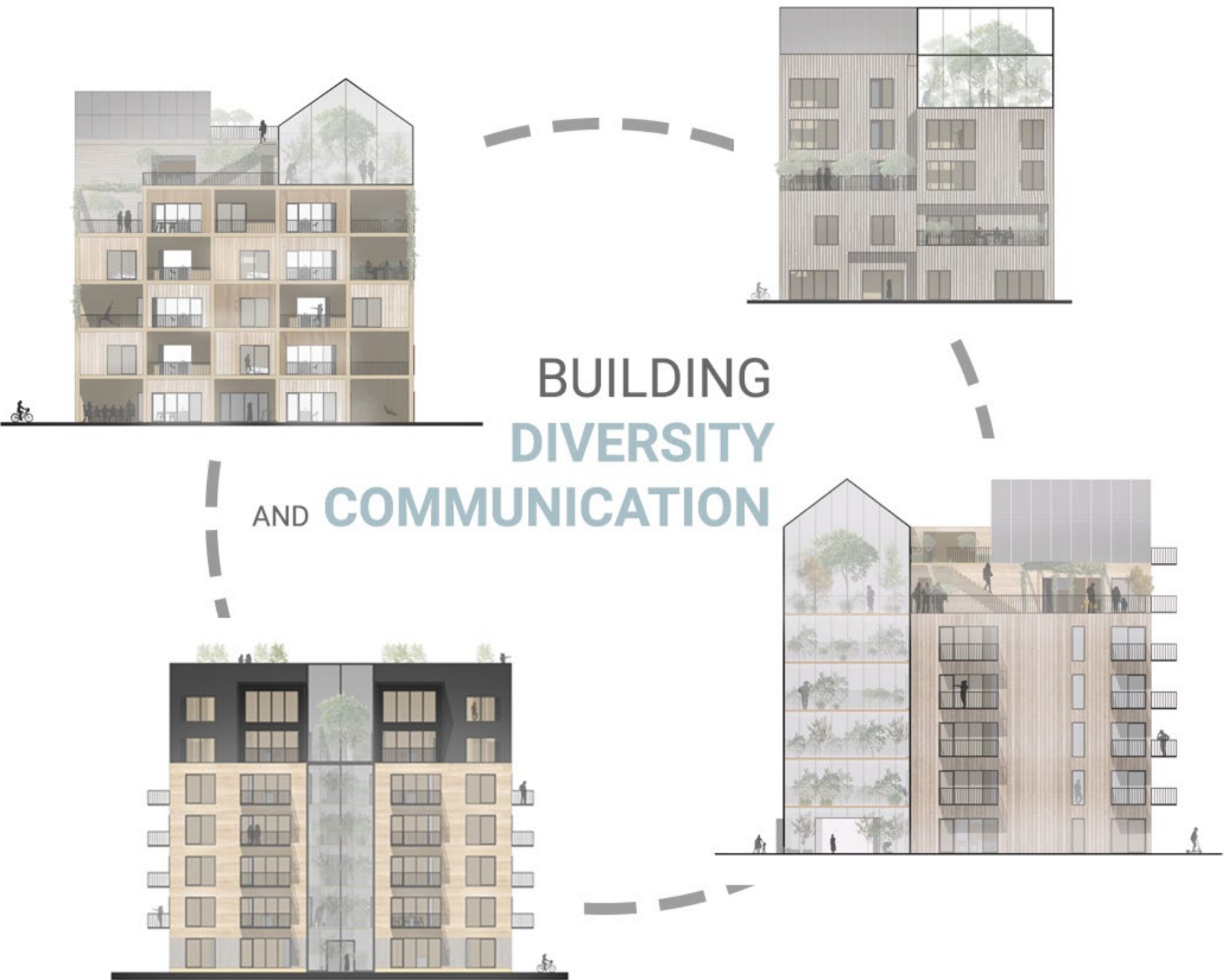
EXTENDING SUMMER SEASON



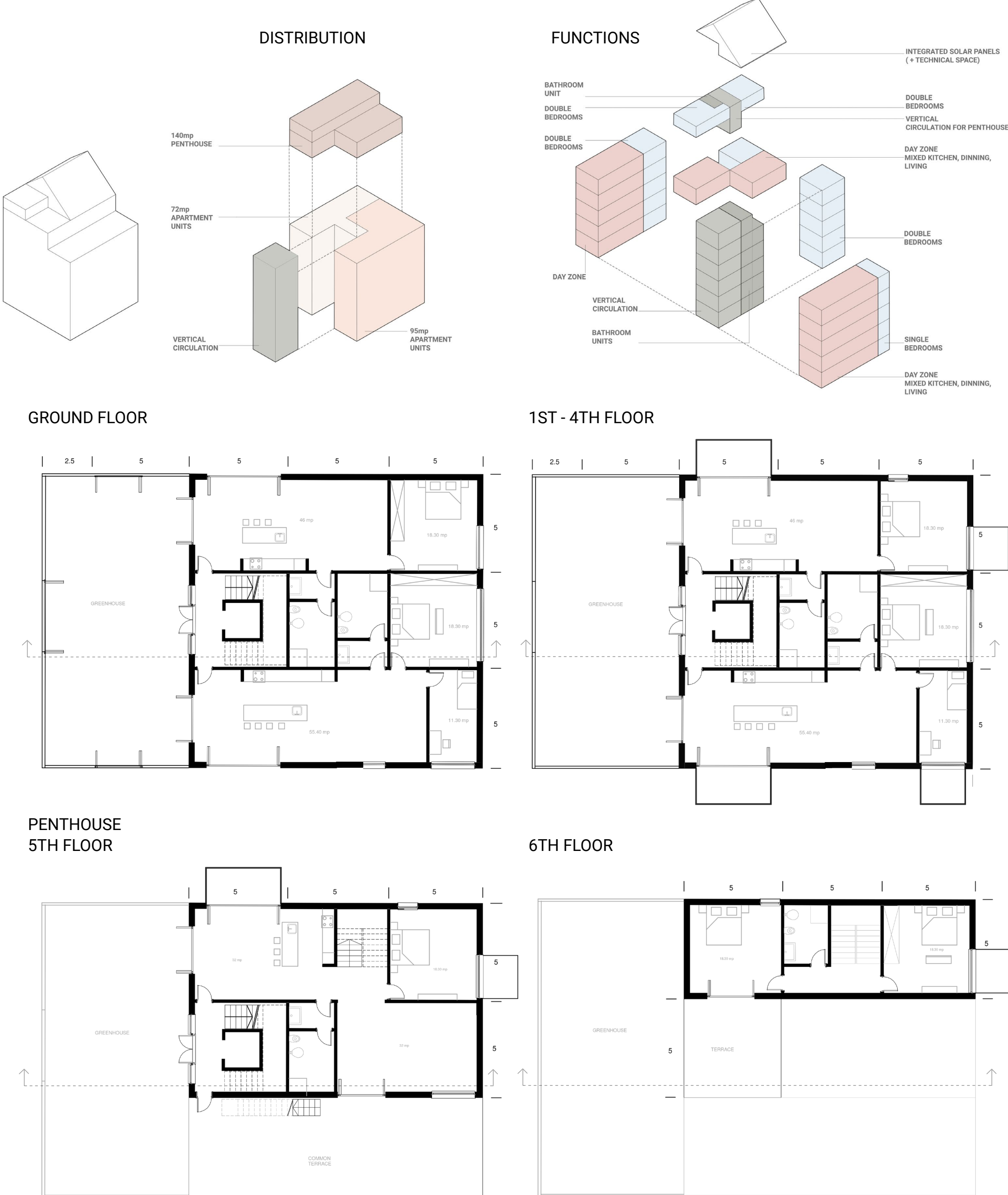
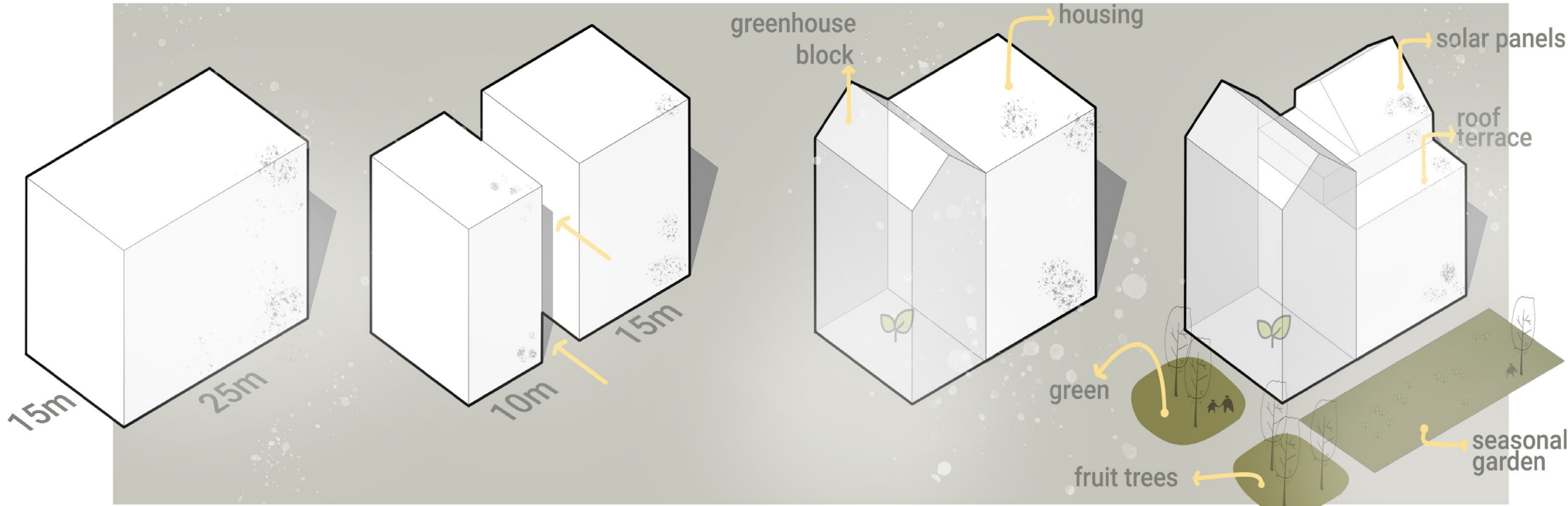
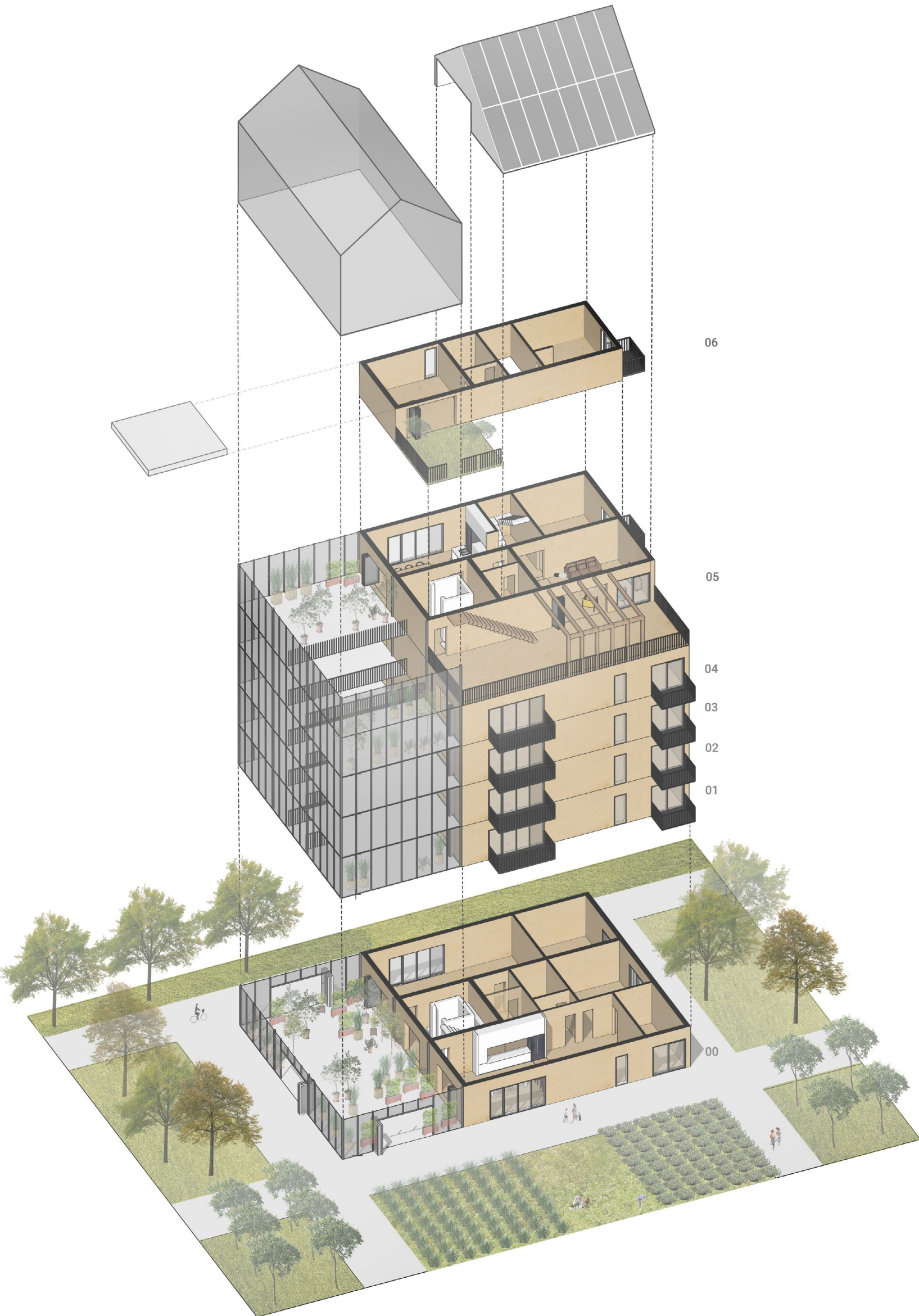
GREENHOUSE AS FARM TO
FORK STRATEGY

KEY WORDS : DIVERSITY AND COMMUNICATION

Houses of generations in order to build diversity and communication.
Straight lines, circular vision.
Buildings surrounding and merged by greenery



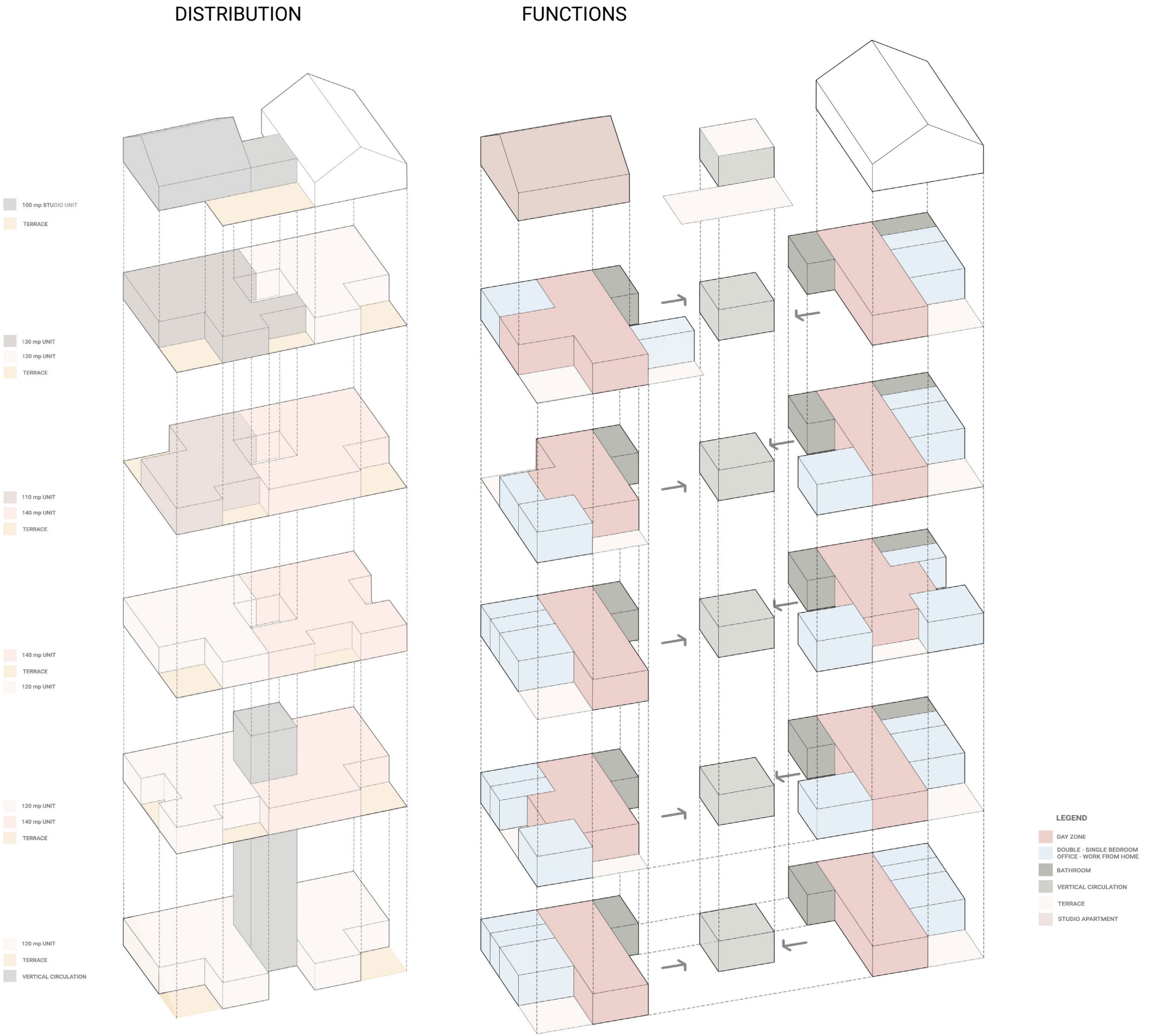
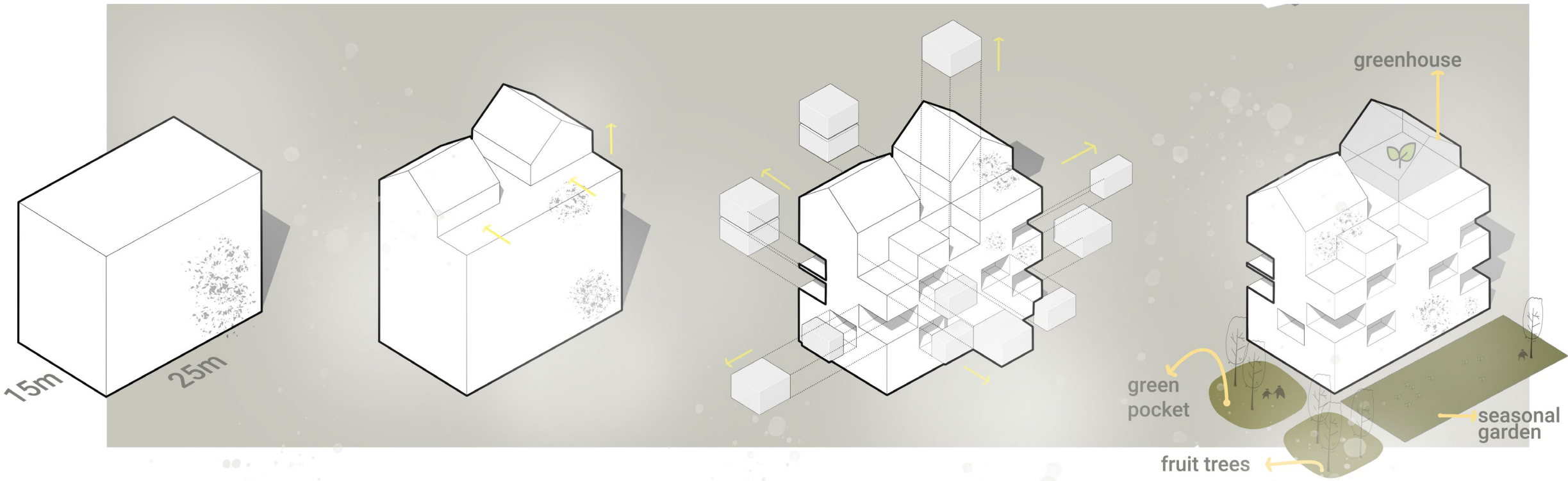
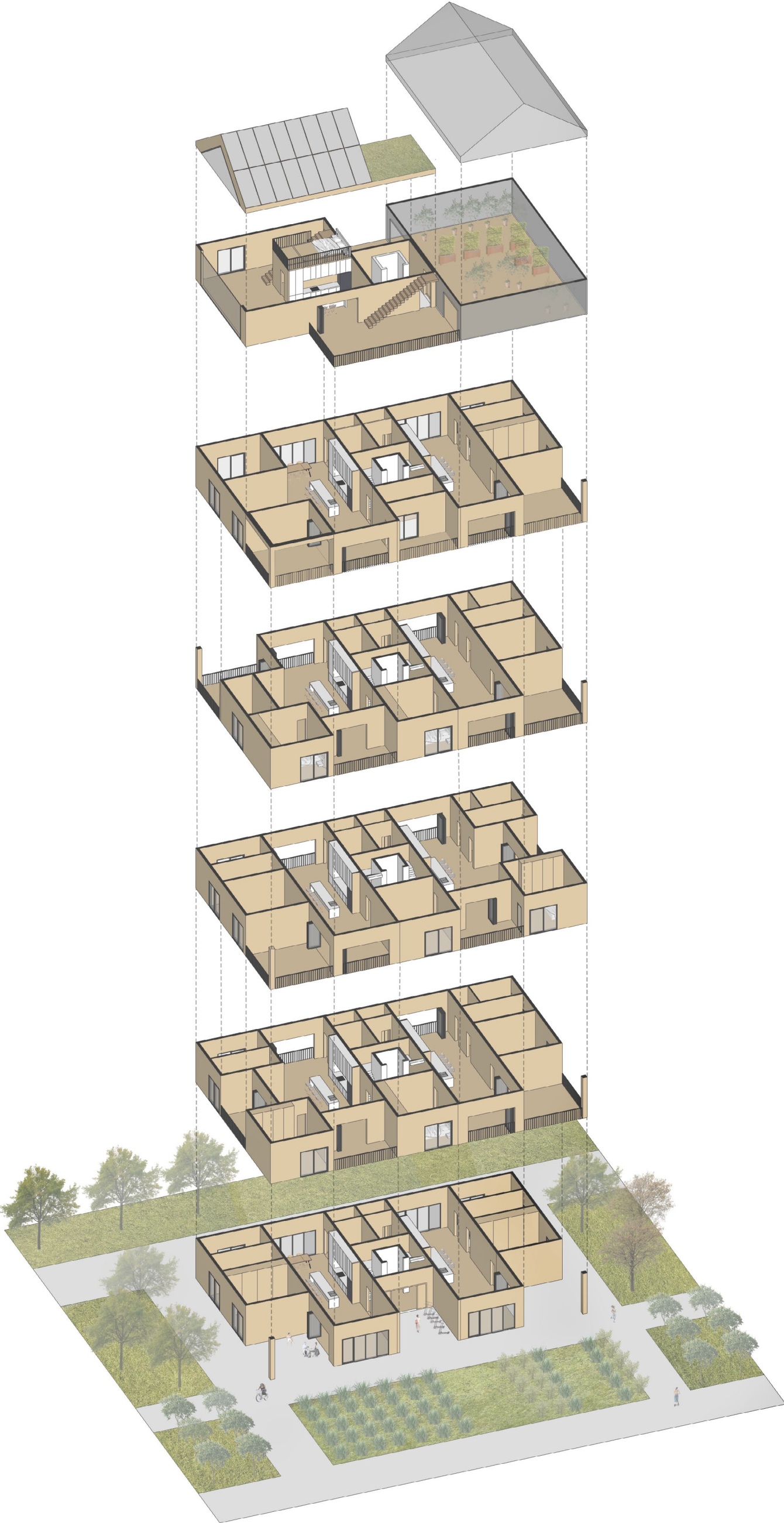
BUILDING TYPOLOGY 1

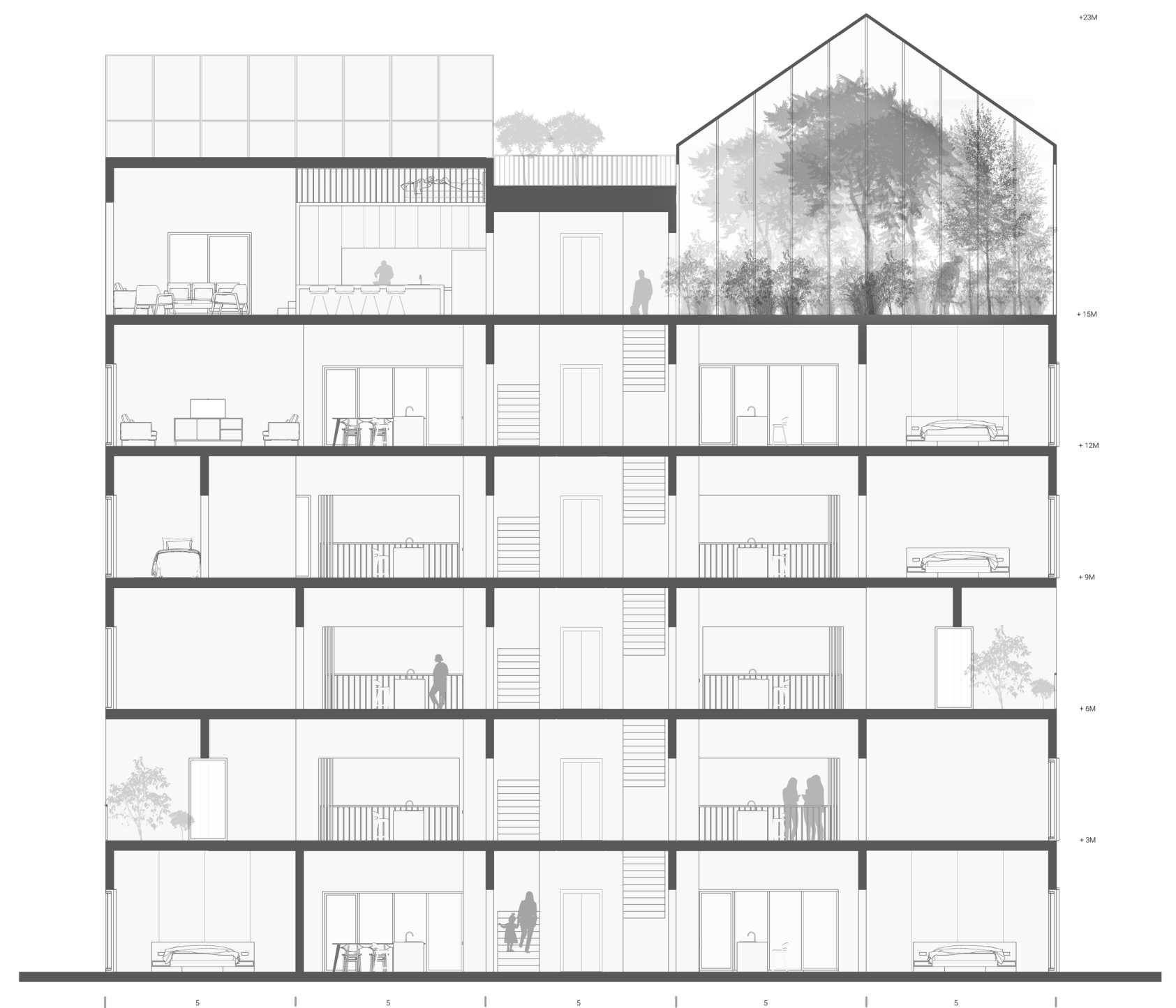


Extending the living space

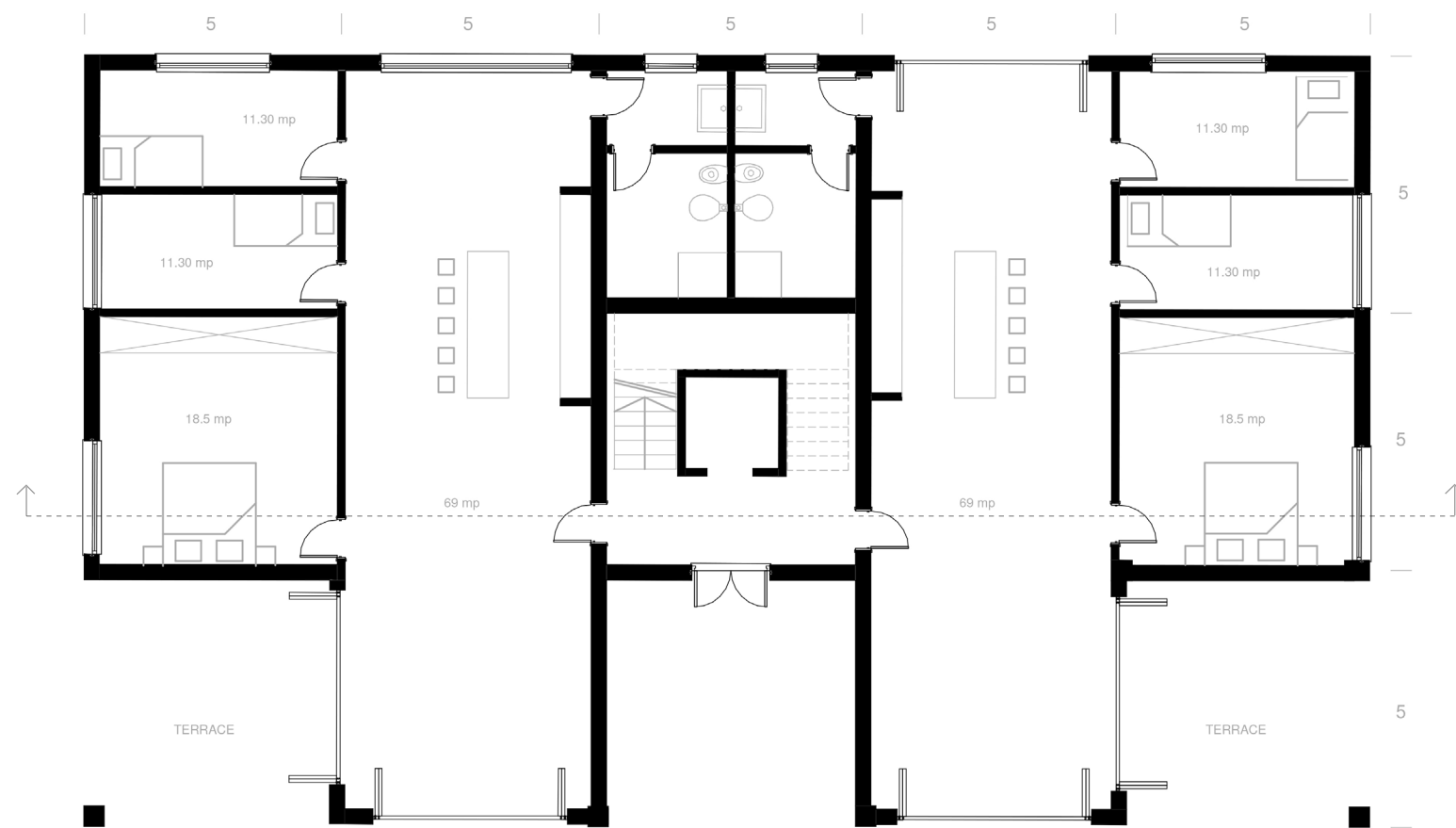


BUILDING TYPOLOGY 2





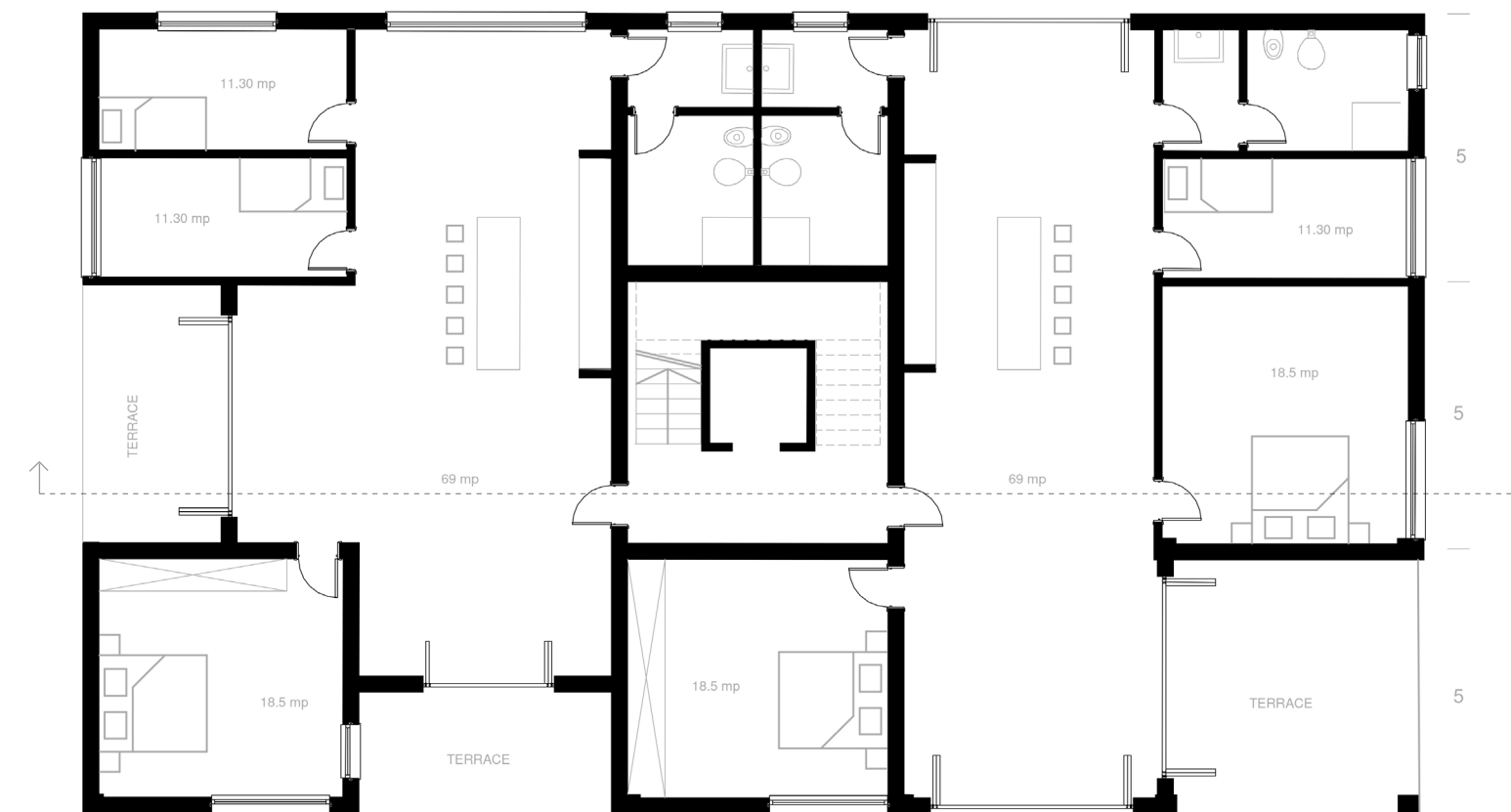
GROUND FLOOR



3D FLOOR



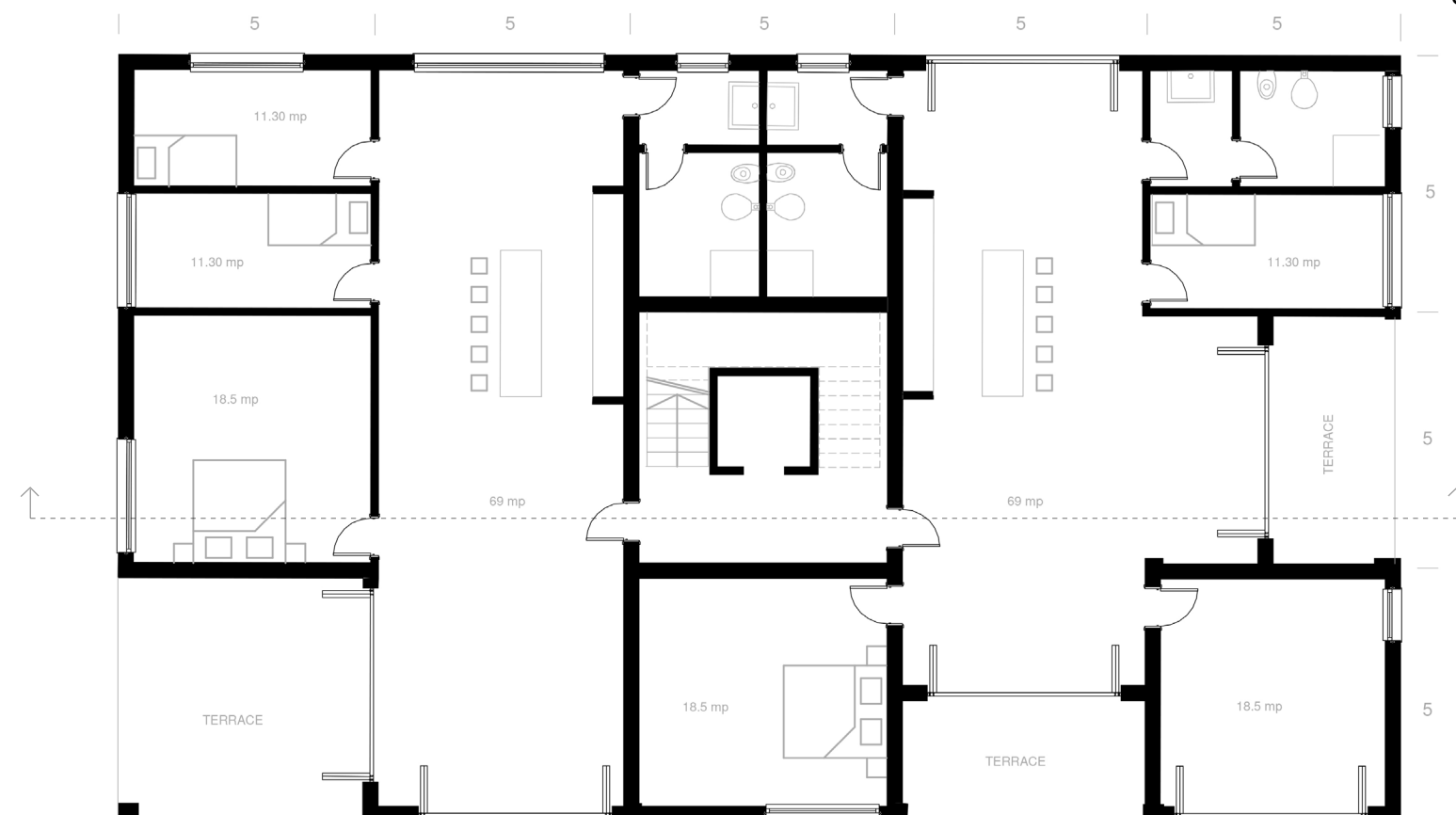
FIRST FLOOR



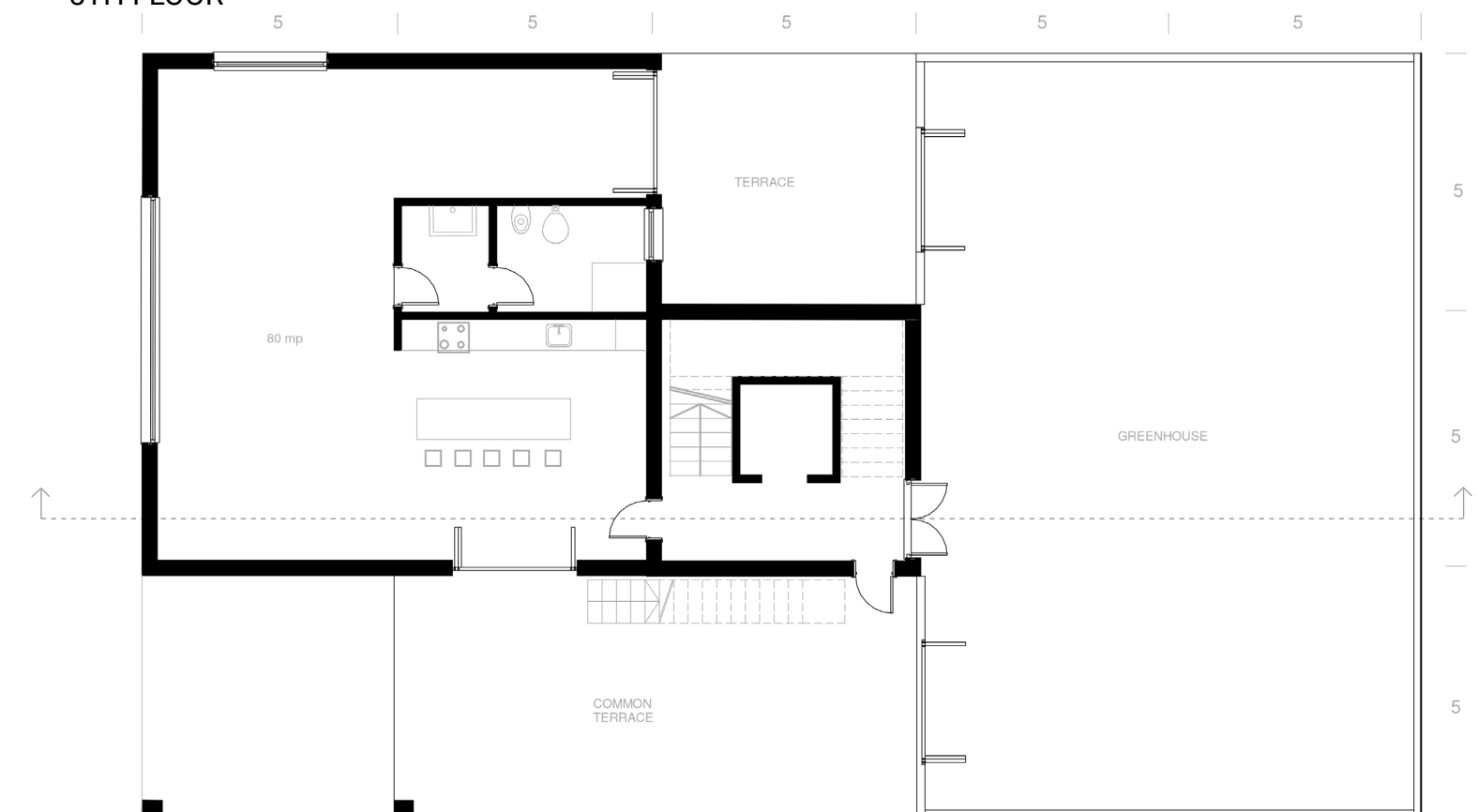
4TH FLOOR



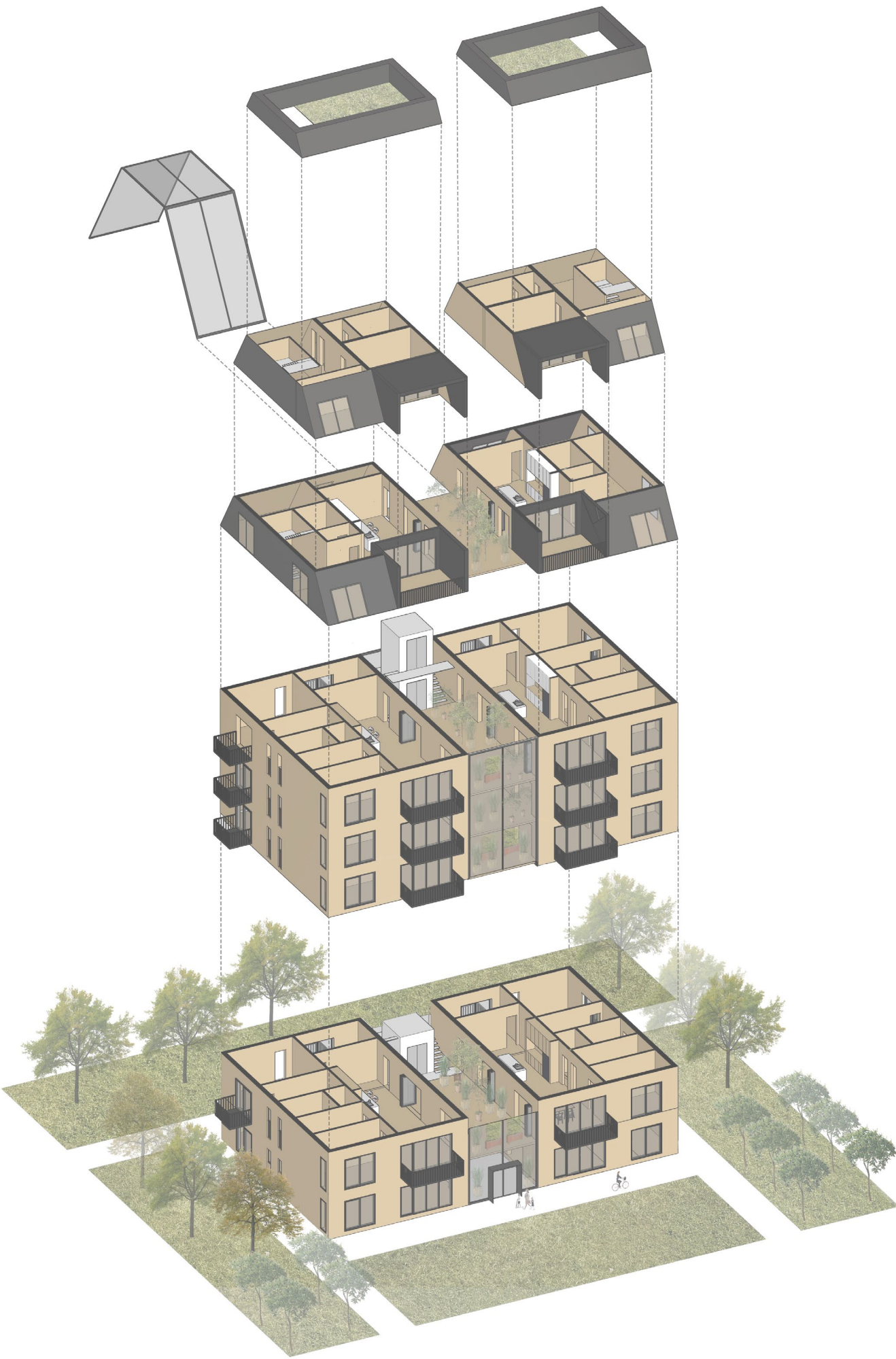
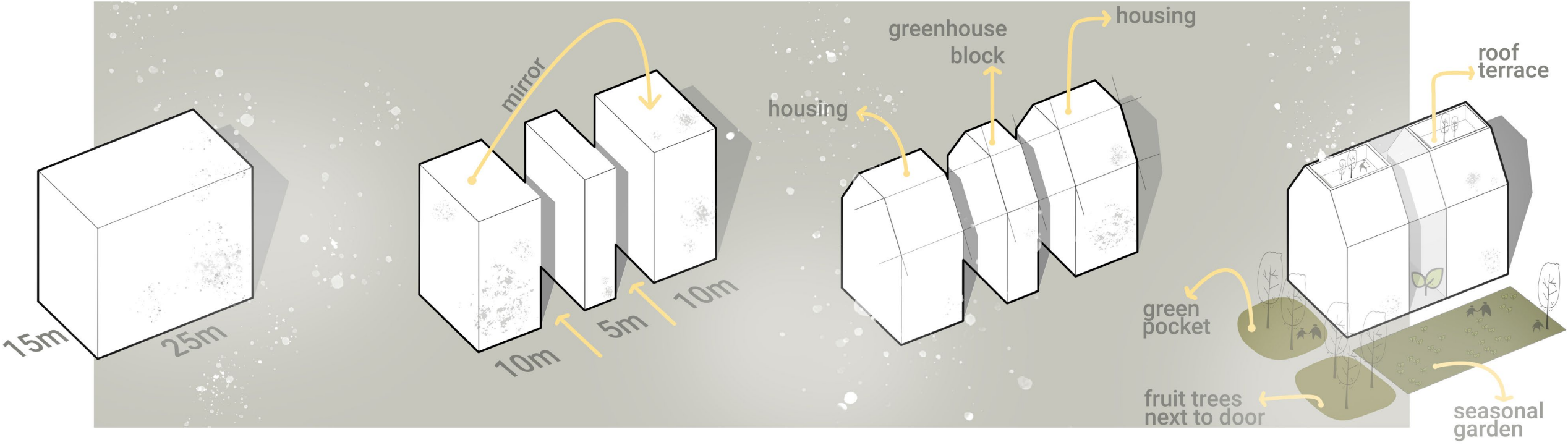
SECOND FLOOR



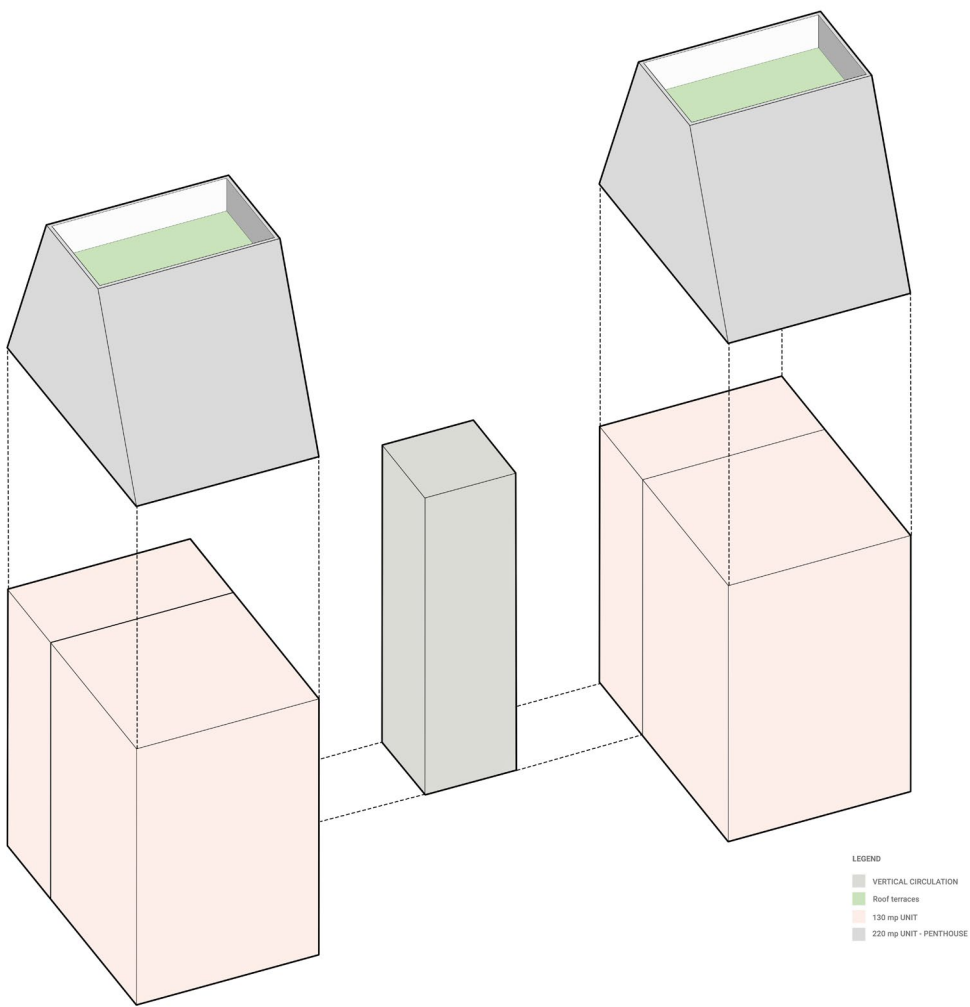
5TH FLOOR



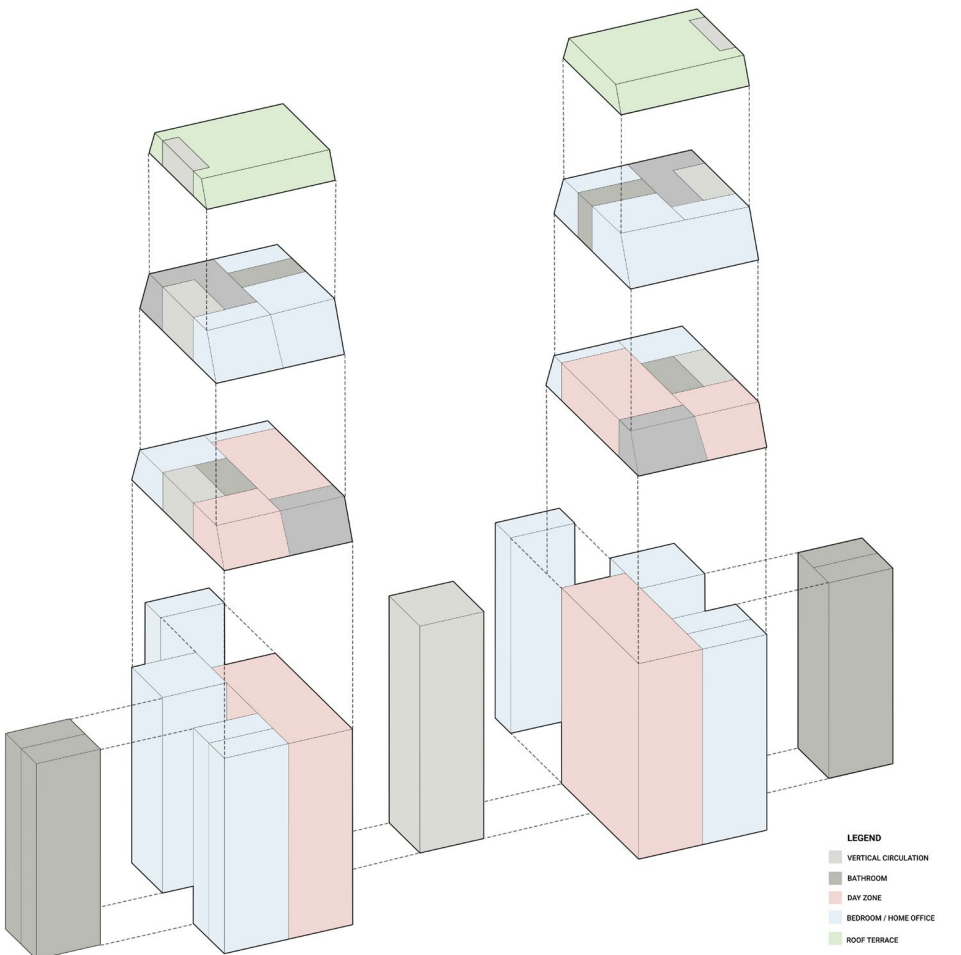
BUILDING TYPOLOGY 3

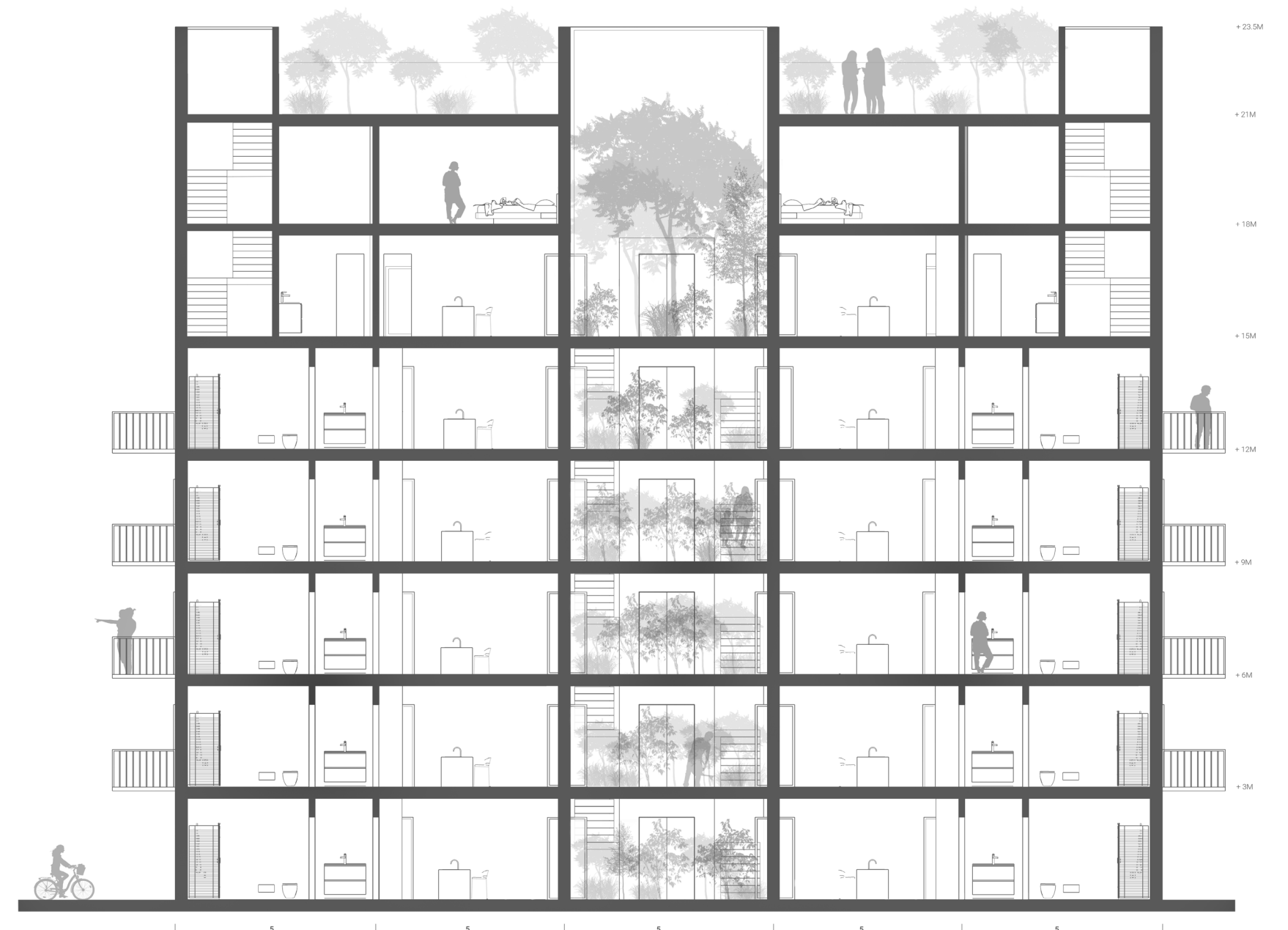


DISTRIBUTION

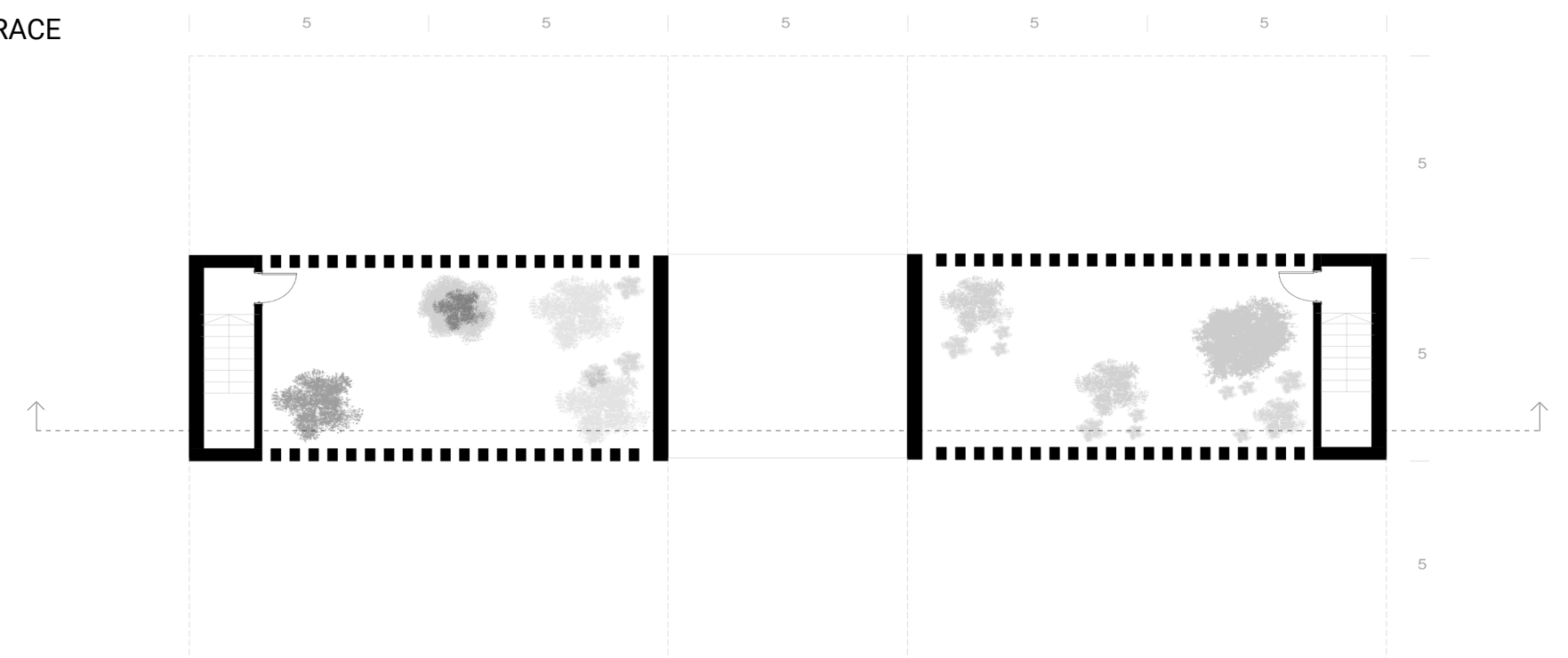


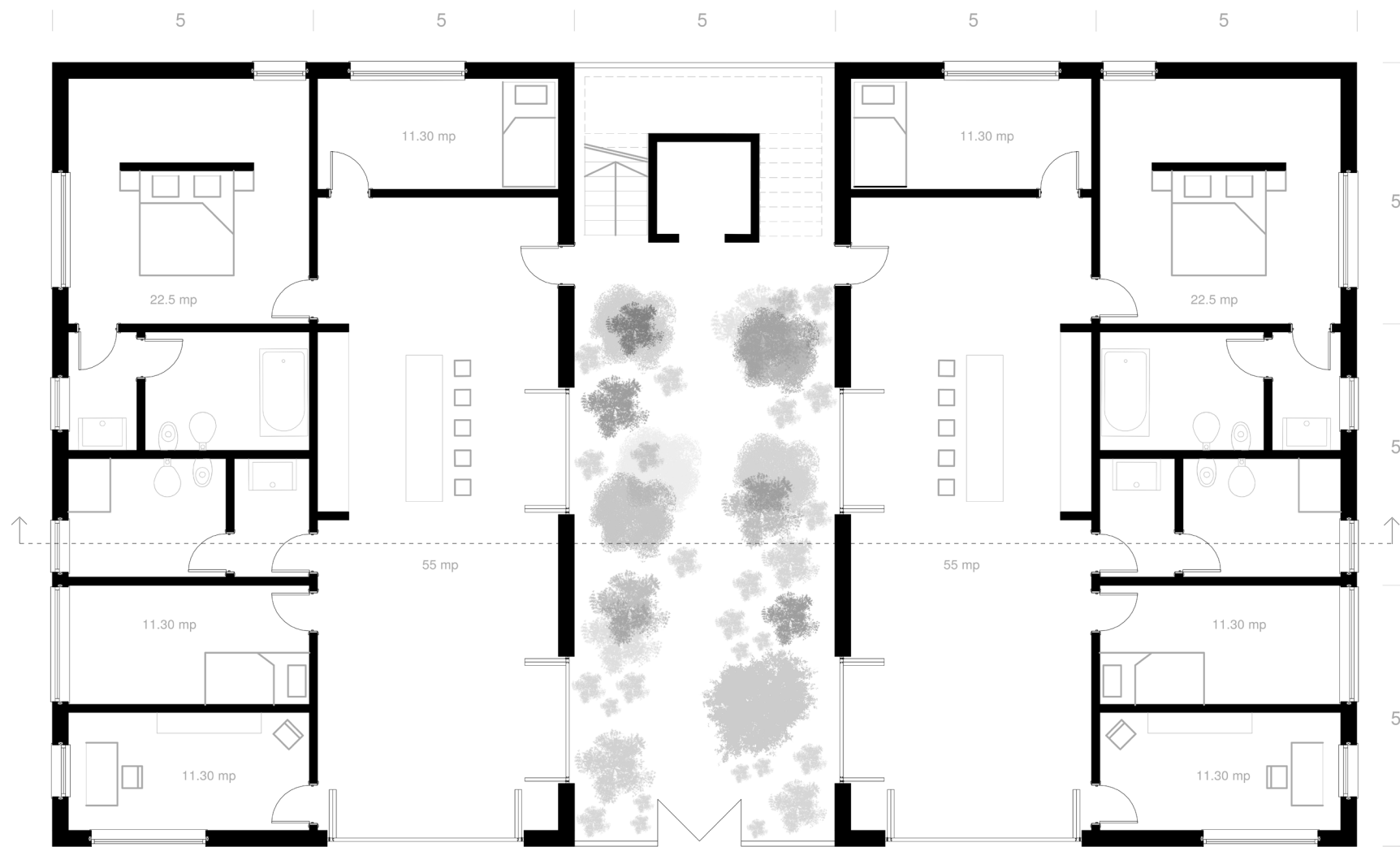
FUNCTIONS



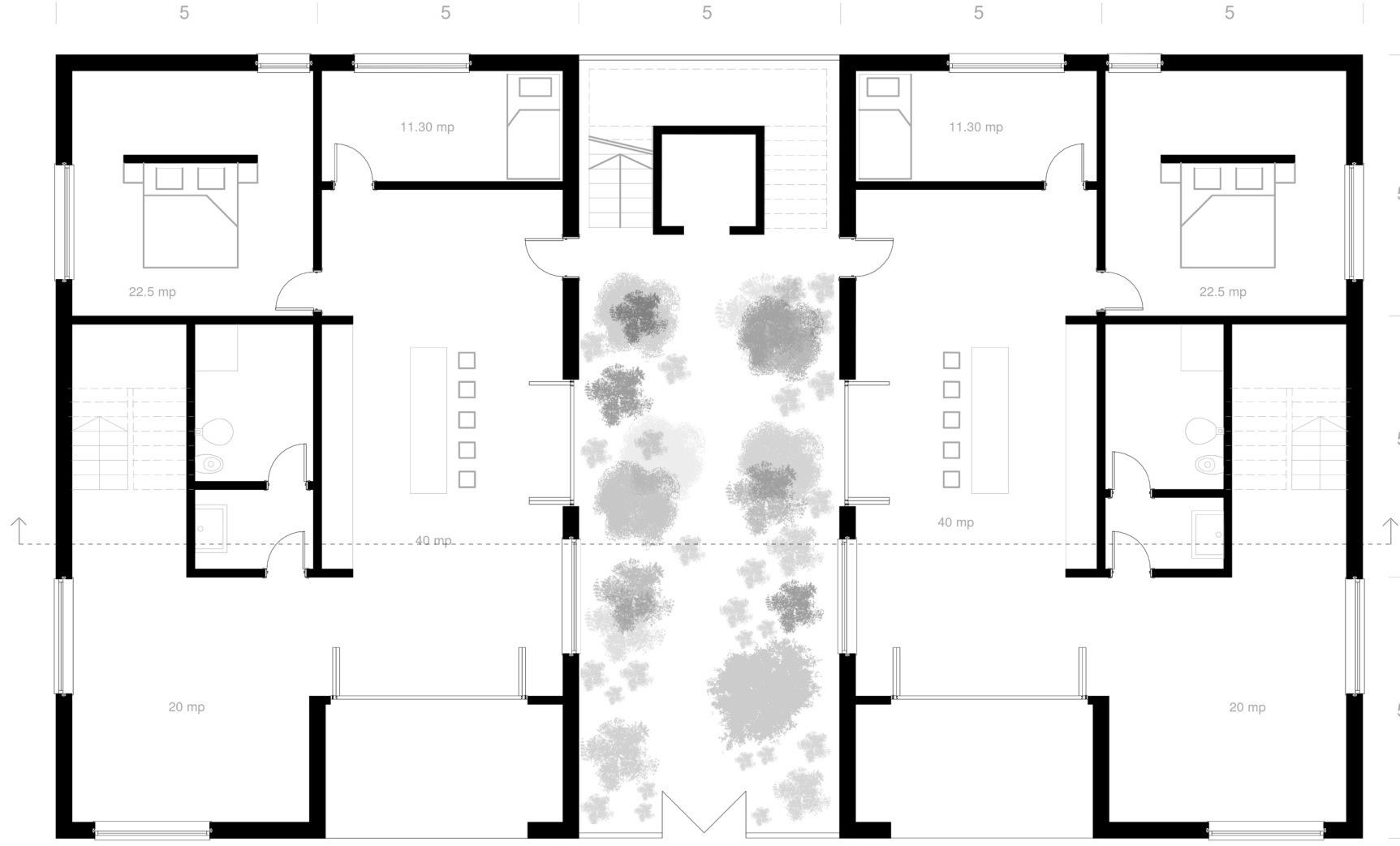


ROOF TERRACE

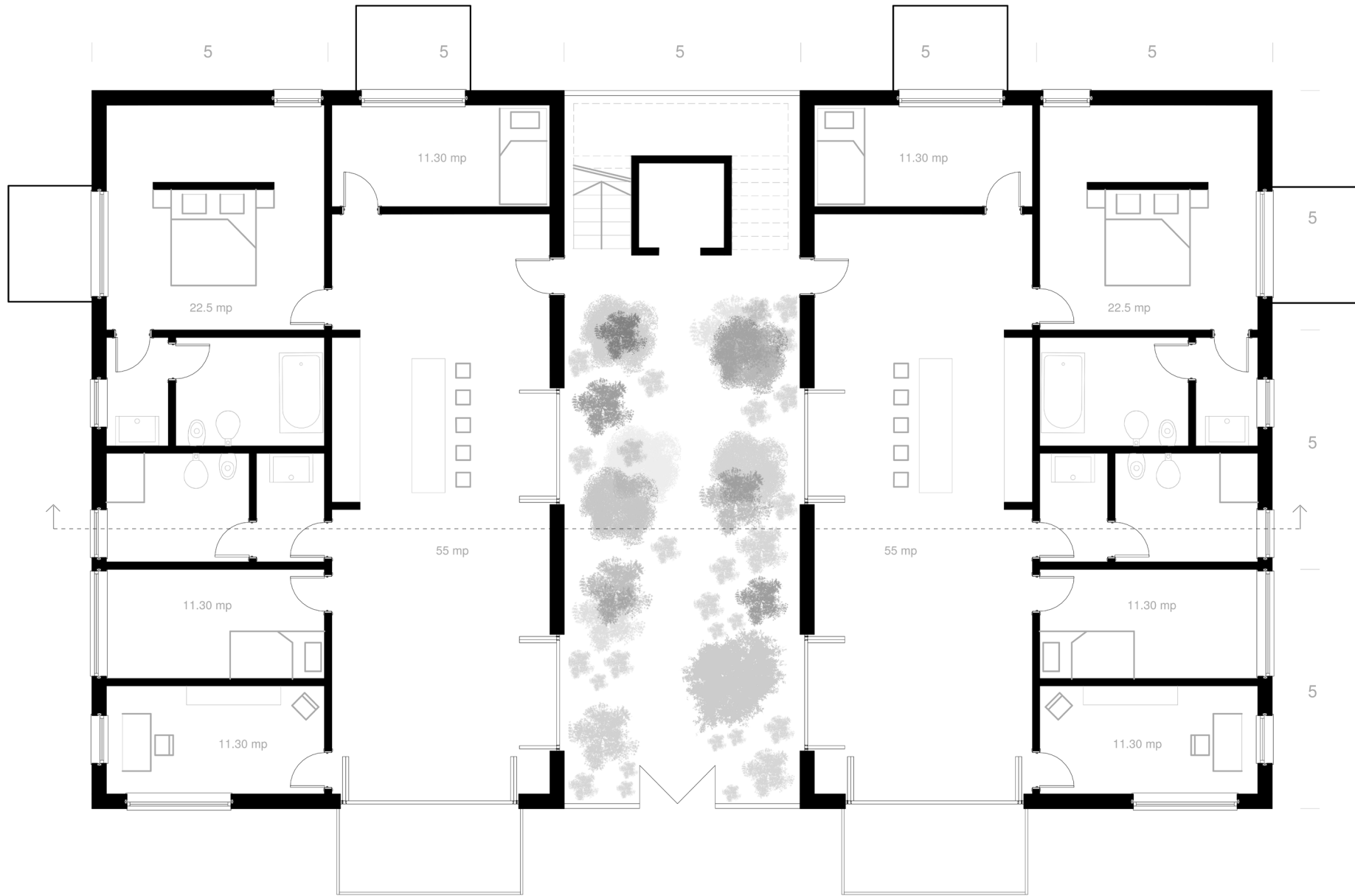




GROUND FLOOR



PENTHOUSE -FIRST FLOOR

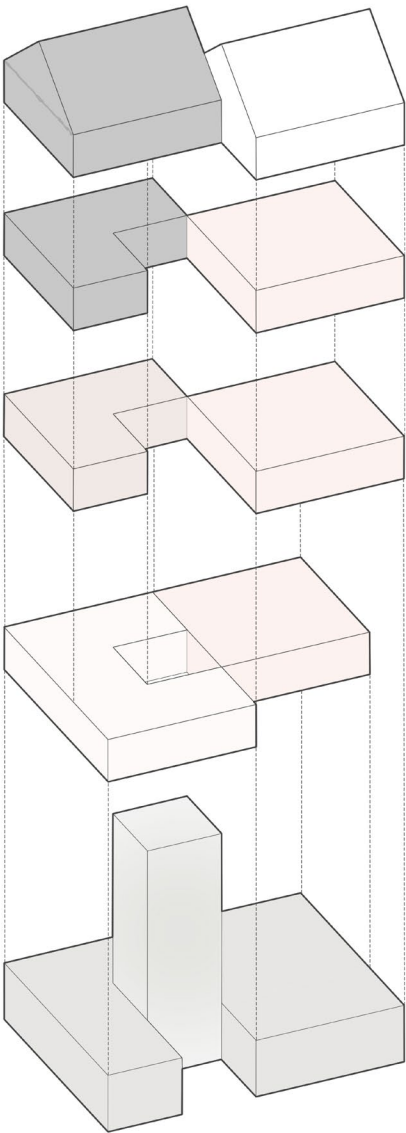
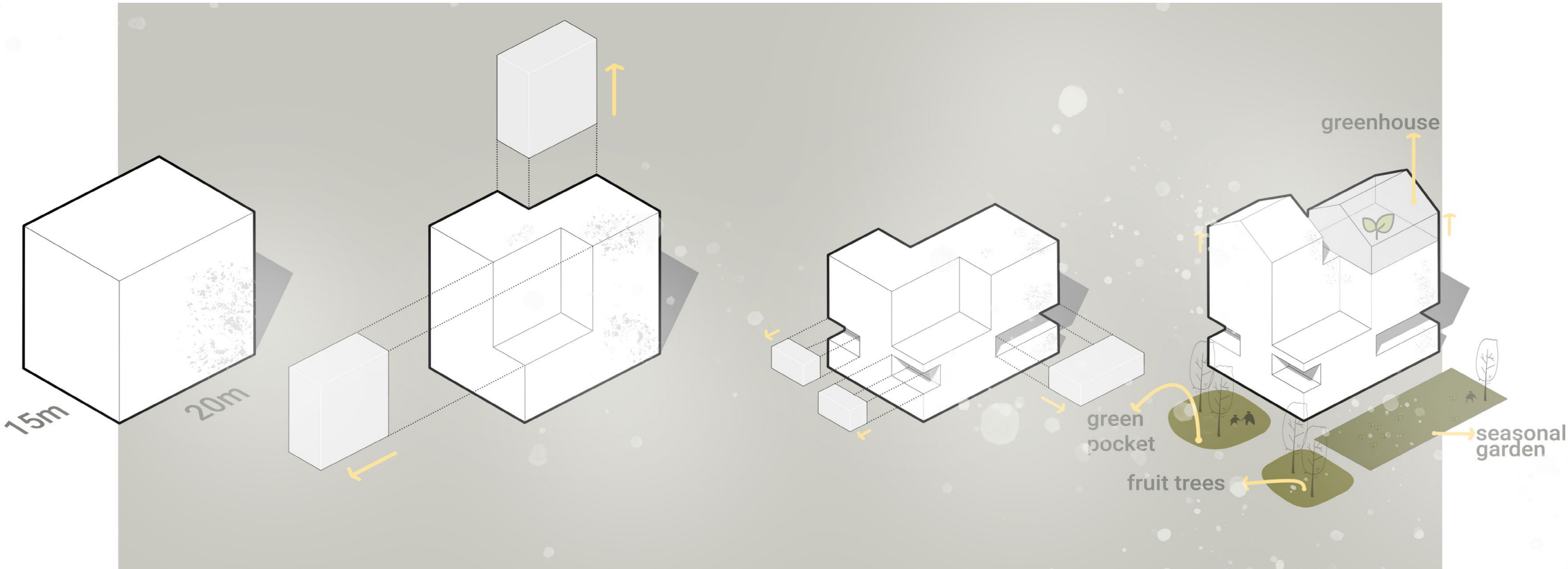
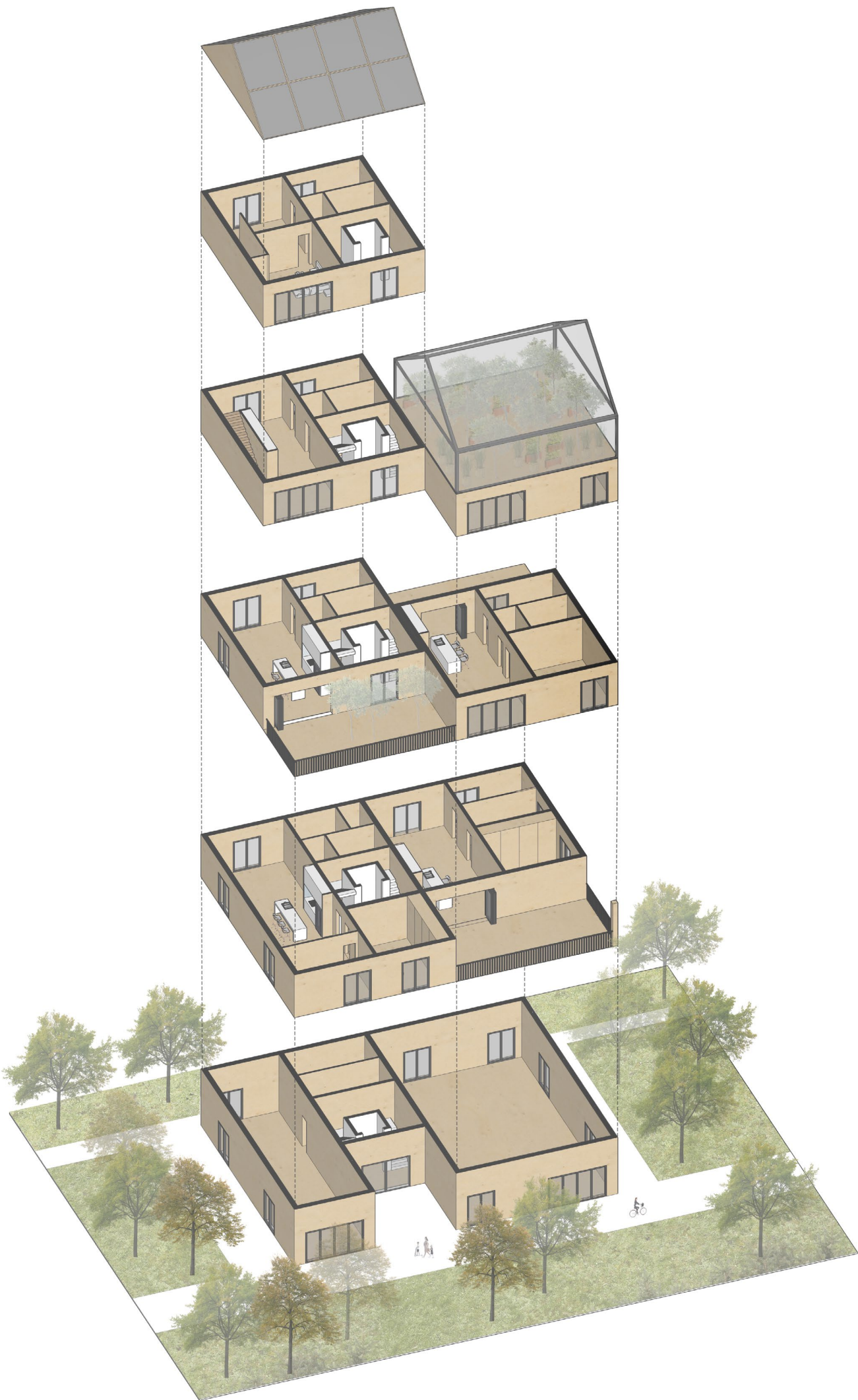


1ST - 4TH FLOOR



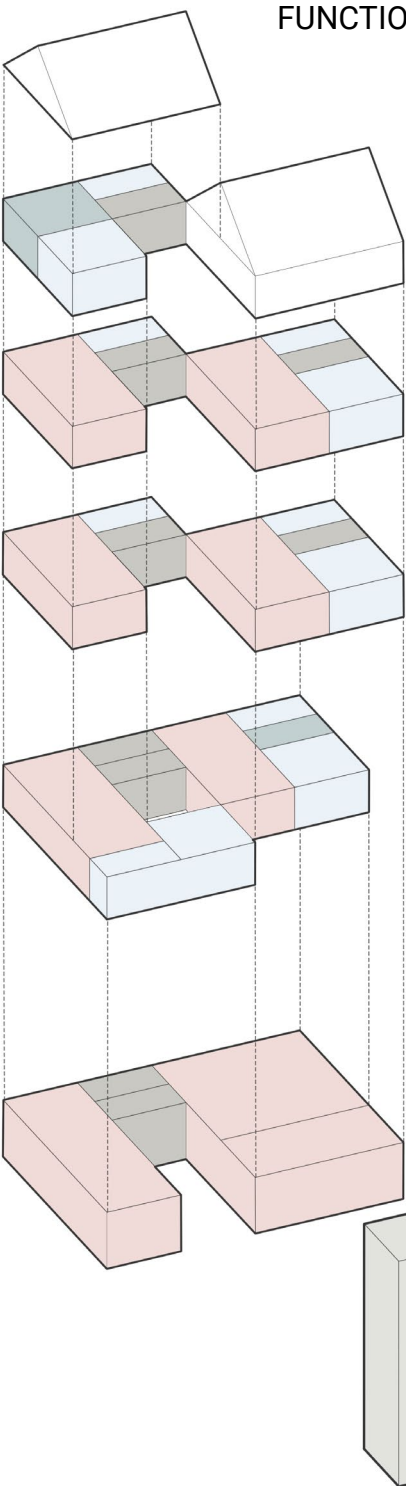
PENTHOUSE - 2ND FLOOR

BUILDING TYPOLOGY 4



DISTRIBUTION

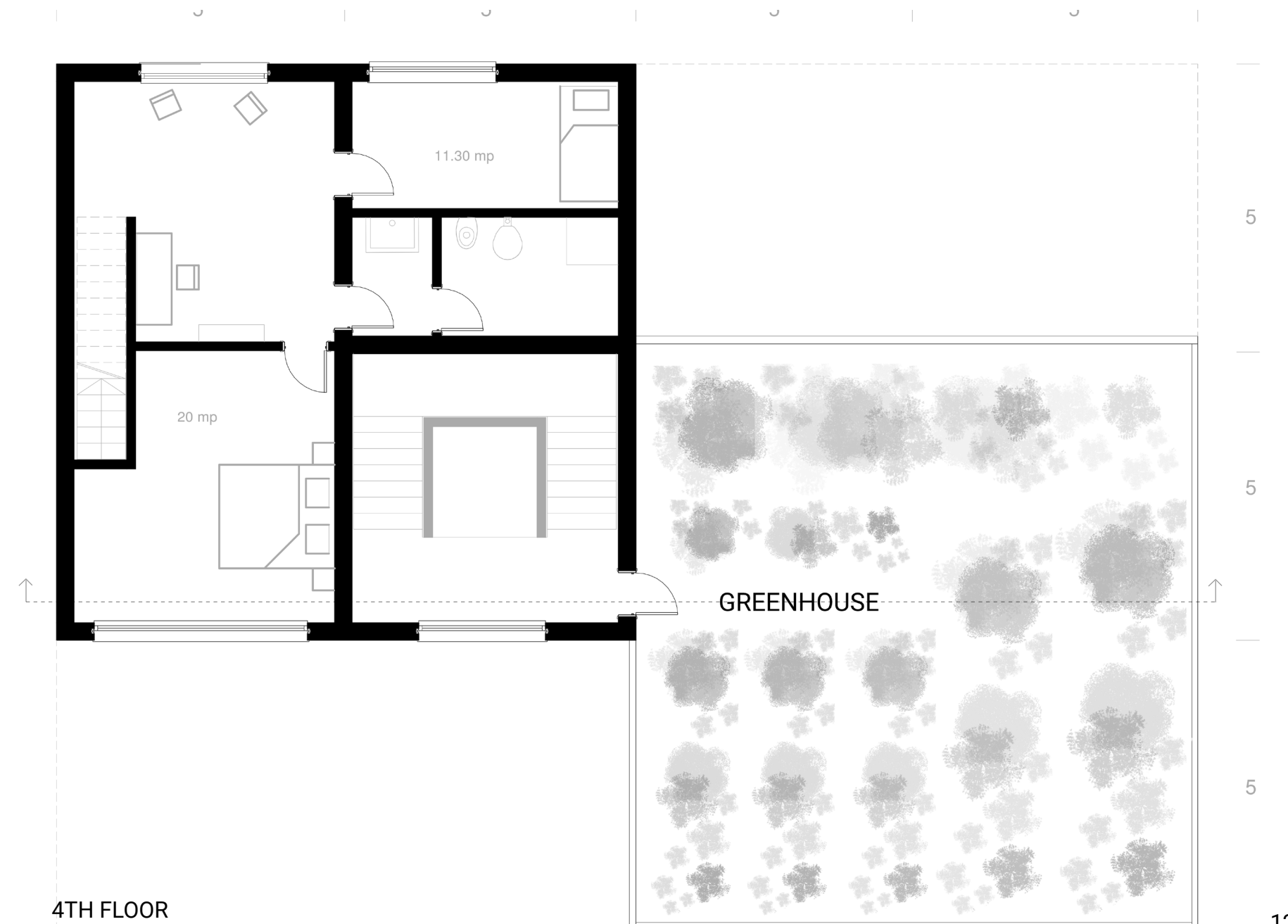
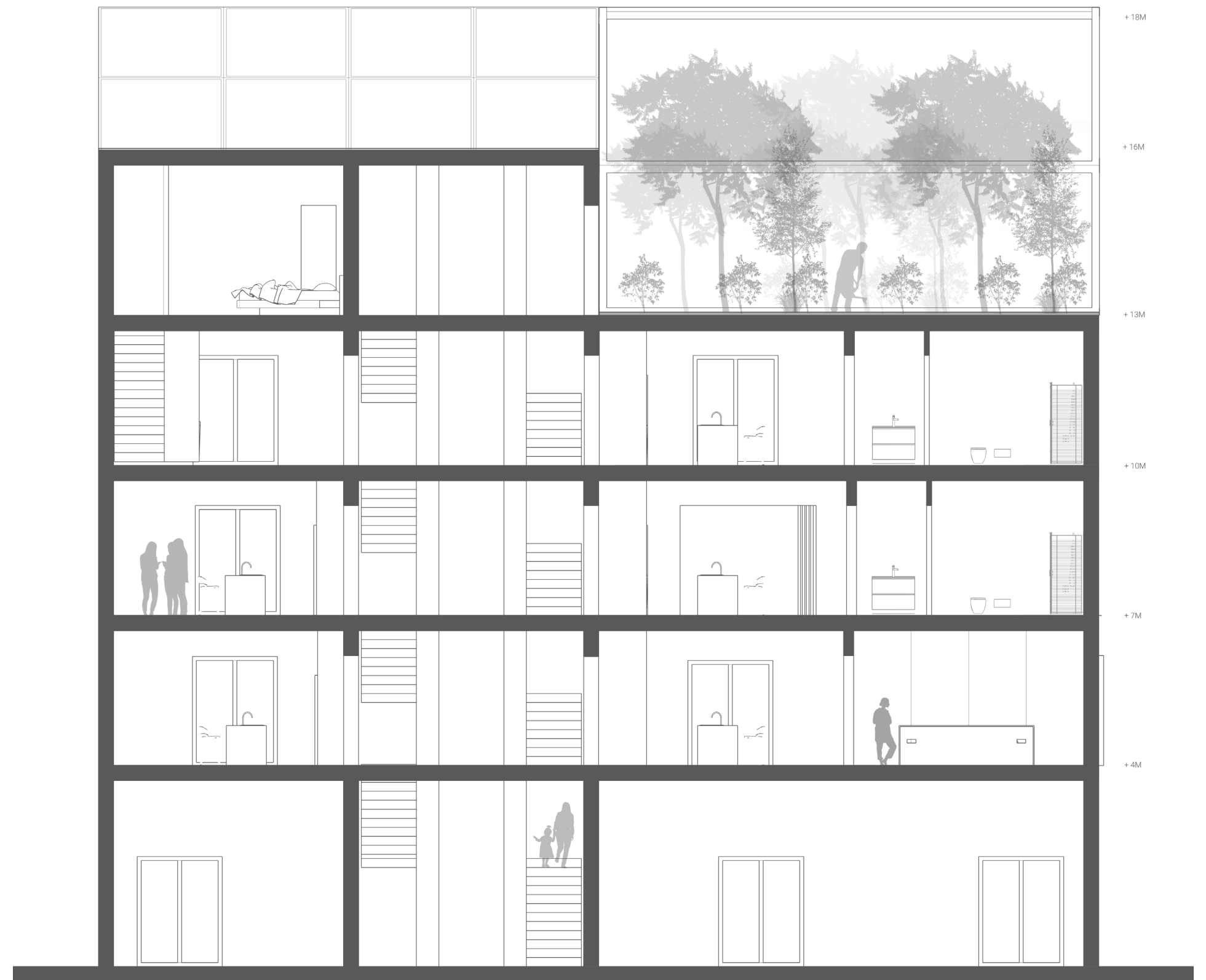
- 140 mp PENTHOUSE UNIT
- 50 mp UNIT
- 90 mp UNIT
- 110 mp UNIT
- VERTICAL CIRCULATION
- 200 mp COMMERCIAL SPACES

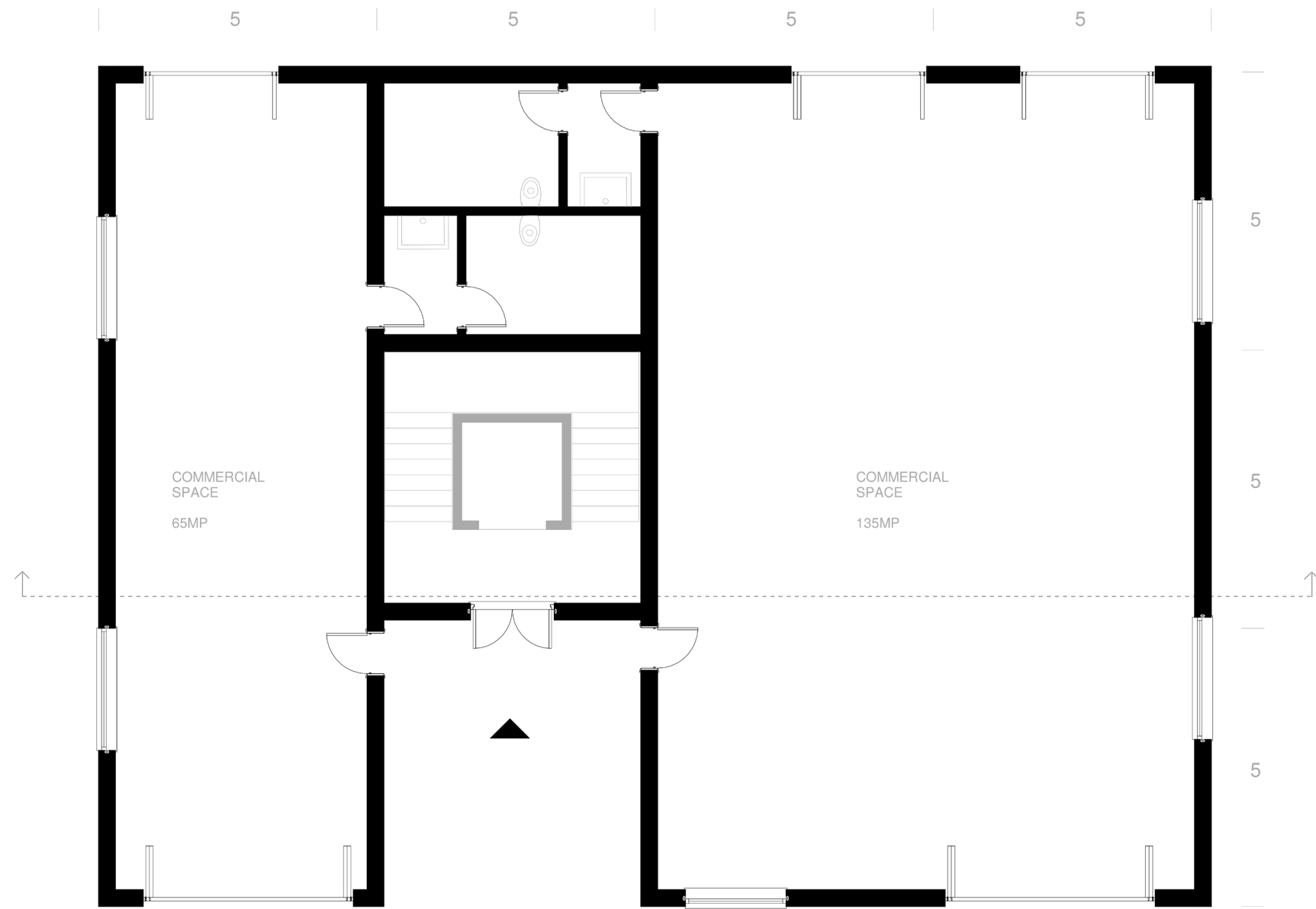


FUNCTIONS

GREENHOUSE

- OFFICE
- NIGHT ZONE
- DAY ZONE
- BATHROOMS
- VERTICAL CIRCULATION

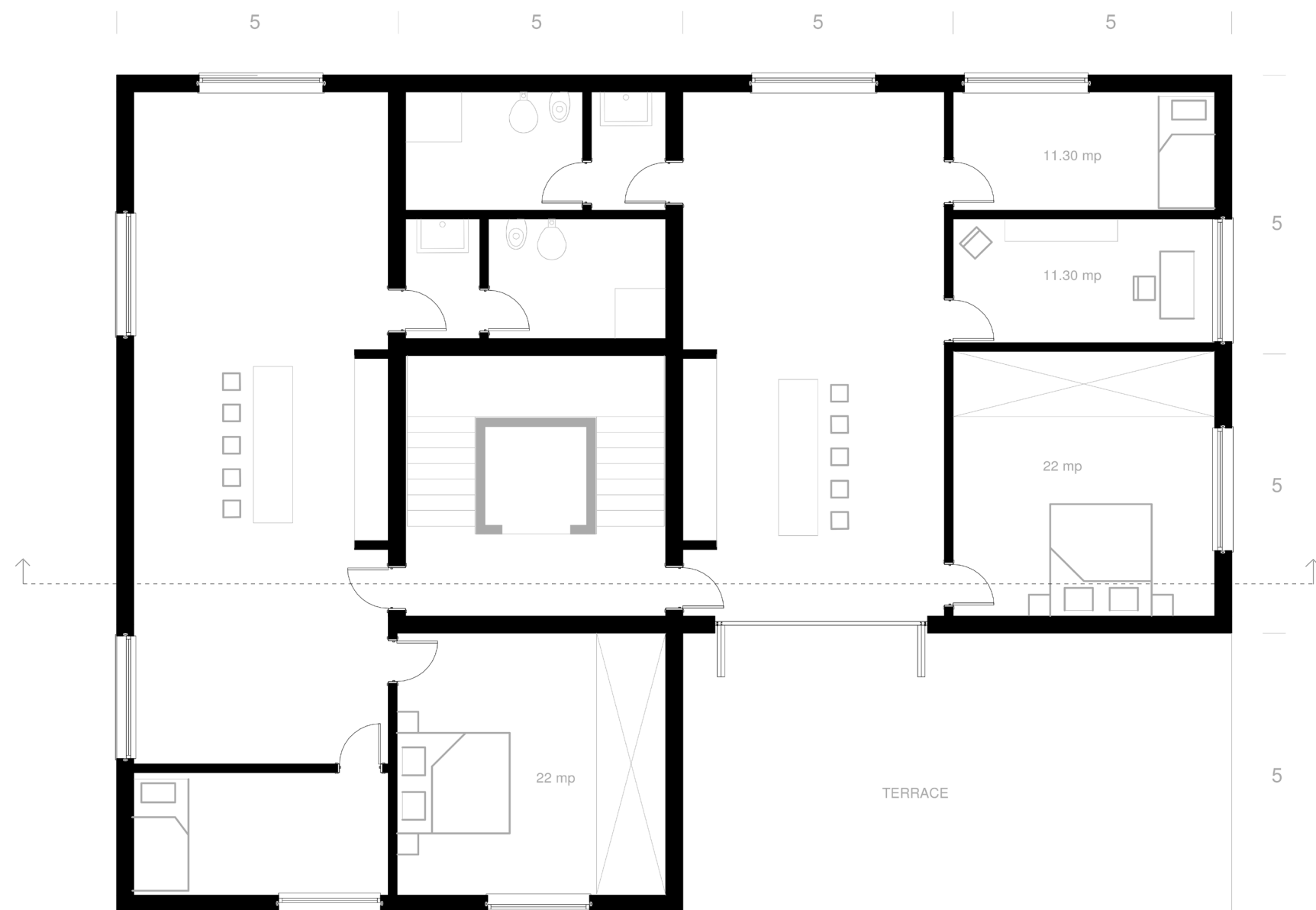




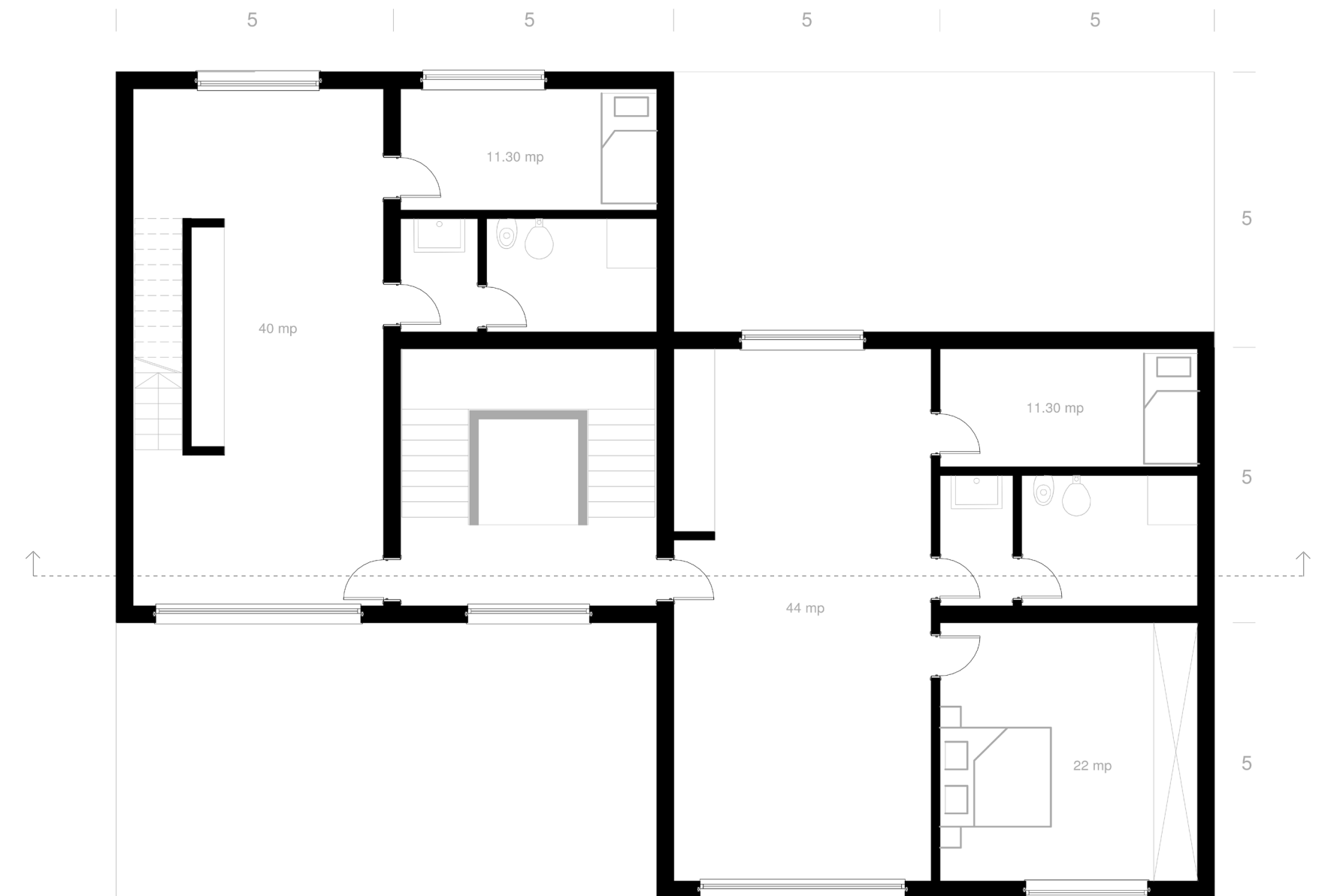
GROUND FLOOR



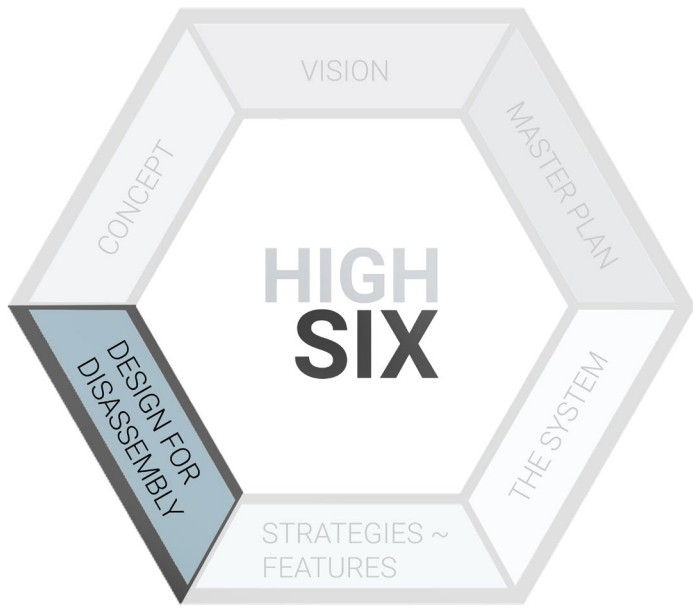
SECOND FLOOR



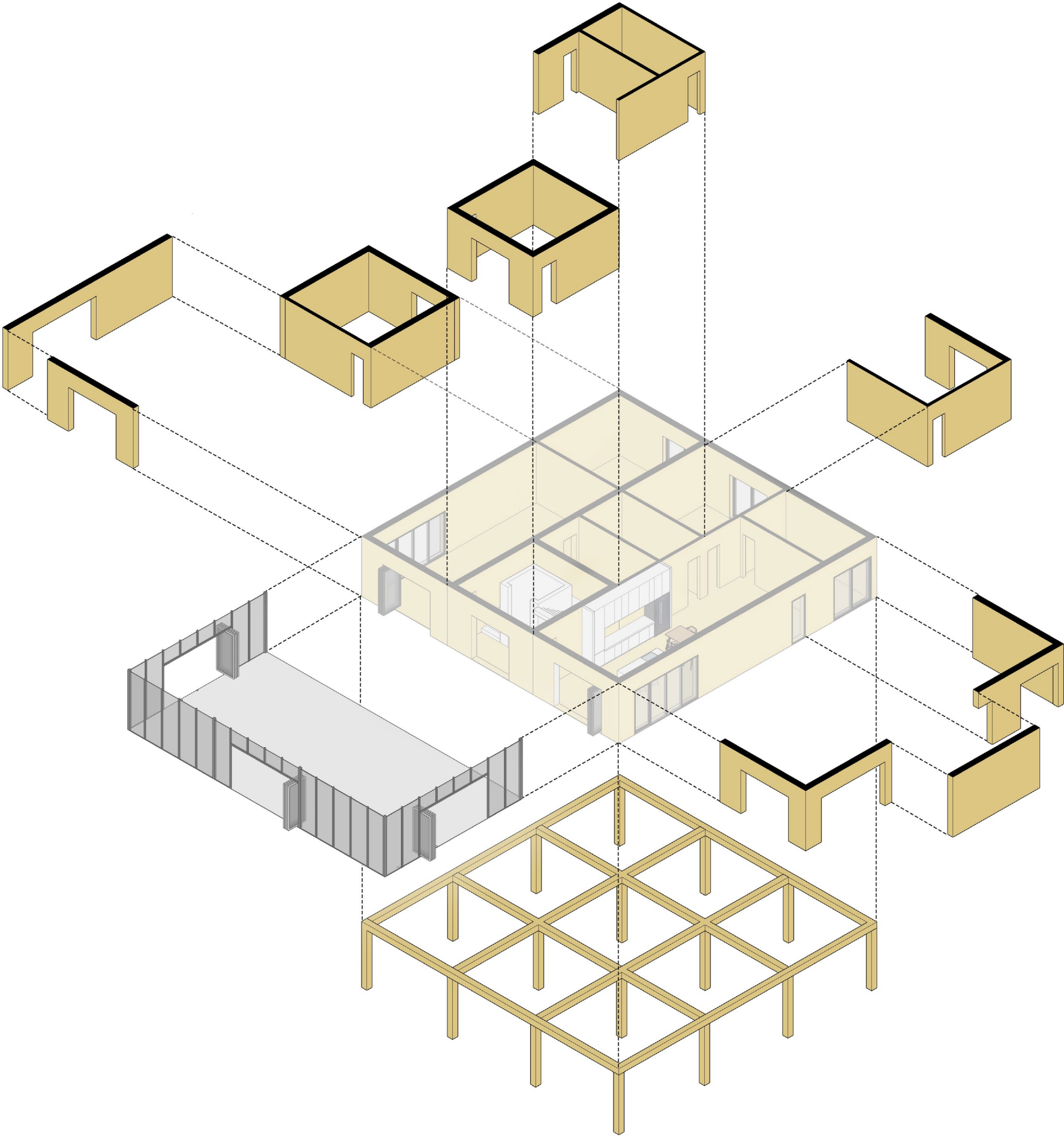
FIRST FLOOR



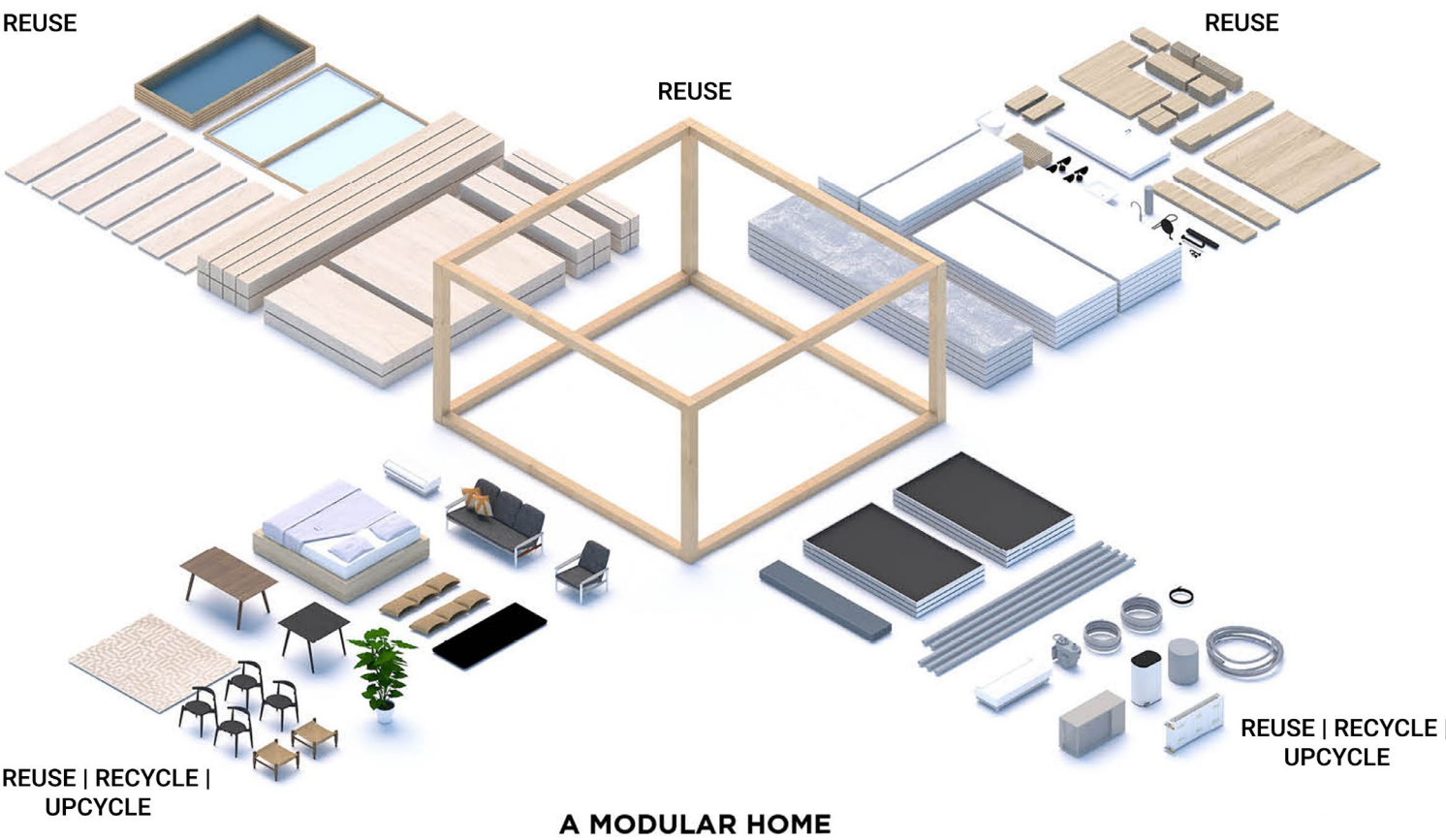
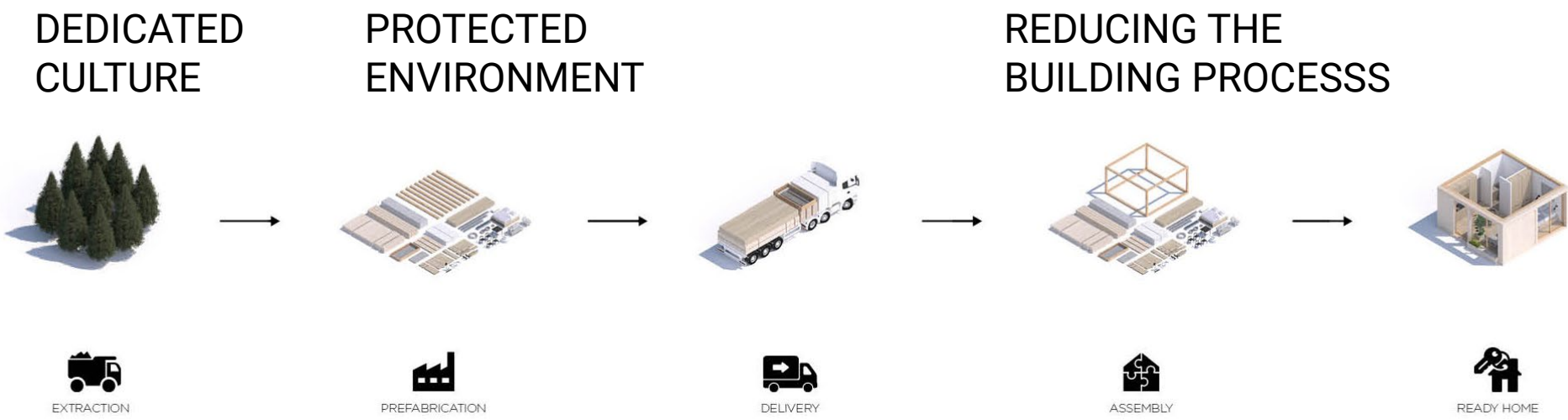
3D FLOOR



5.8DESIGN FOR DISASSEMBLY



CIRCULAR ECONOMY





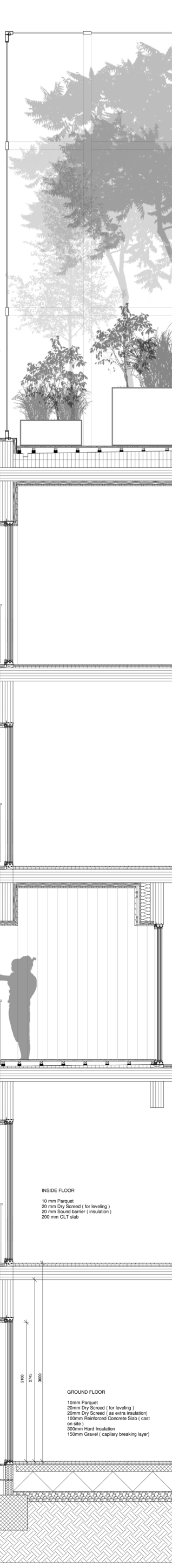
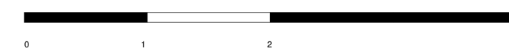
GREENHOUSE FLOOR
Composite flooring boards
20 mm Understructure composite flooring boards
40 mm Composite battens
Leaving gaps
2 layers of water proof membrane
200 mm Heat insulation
DPM damp proof membrane
200 mm CLT Slab
50 mm Rockwool insulation in the inside part
22mm Wooden board

EXTERNAL WALL
22mm Wooden cladding
25 x45 wooden battens as understructure for the cladding
25 x45 vertical studs (to create the ventilation gap)
12 mm Plywood as wind barrier
150 mm Rockwool (wall insulation)
200 mm CLT wall element

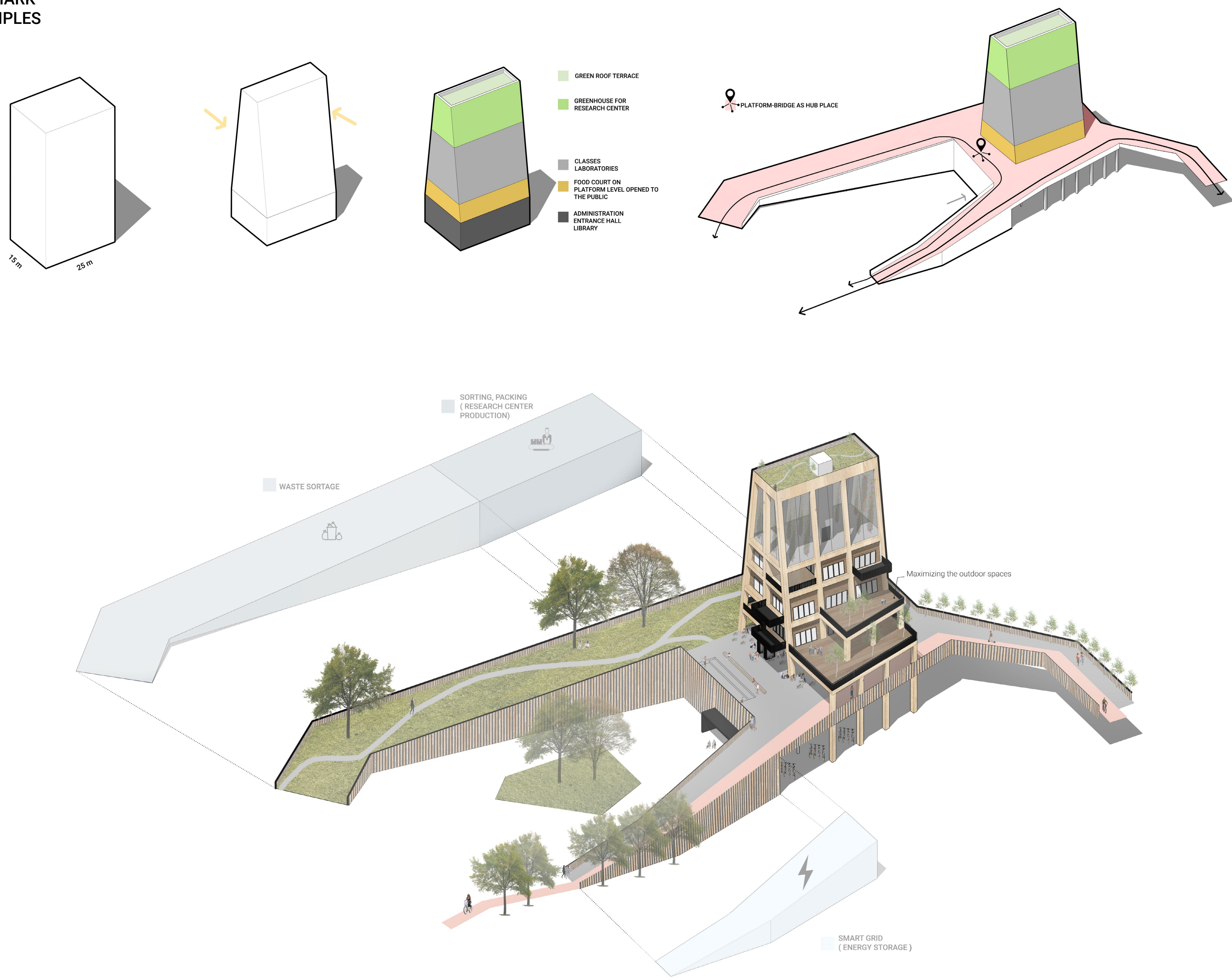
TERRACE FLOOR
Composite flooring boards
20 mm Understructure composite flooring boards
40 mm Composite battens
Leaving gaps
2 layers of water proof membrane
200 mm Heat insulation
DPM damp proof membrane
200 mm CLT Slab

INSIDE FLOOR
10 mm Parquet
20 mm Dry Screed (for leveling)
20 mm Dry Screed (as anti insulation)
20 mm Sound barrier (insulation)
200 mm CLT slab

GROUND FLOOR
10mm Parquet
20mm Dry Screed (for leveling)
20mm Dry Screed (as anti insulation)
100mm Reinforced Concrete Slab (cast in situ)
300mm Heat insulation
100mm Gravel (capillary breaking layer)



5.9THE LANDMARK
DESIGN PRINCIPLES



REFERENCE FOR THE LANDMARK

I imagined a landmark building with a hill-platform form as:

1. FUNCTIONAL HUB in terms of meeting point, socializing, strategic spot for the infrastructure (giving options and coherence in terms of mobility, opening the existing territorial borders given by the site limits and railroad)

2. INTEGRATED TO GREEN APPROACH

COPENHILL, Copenhagen, Denmark
BIG Architects

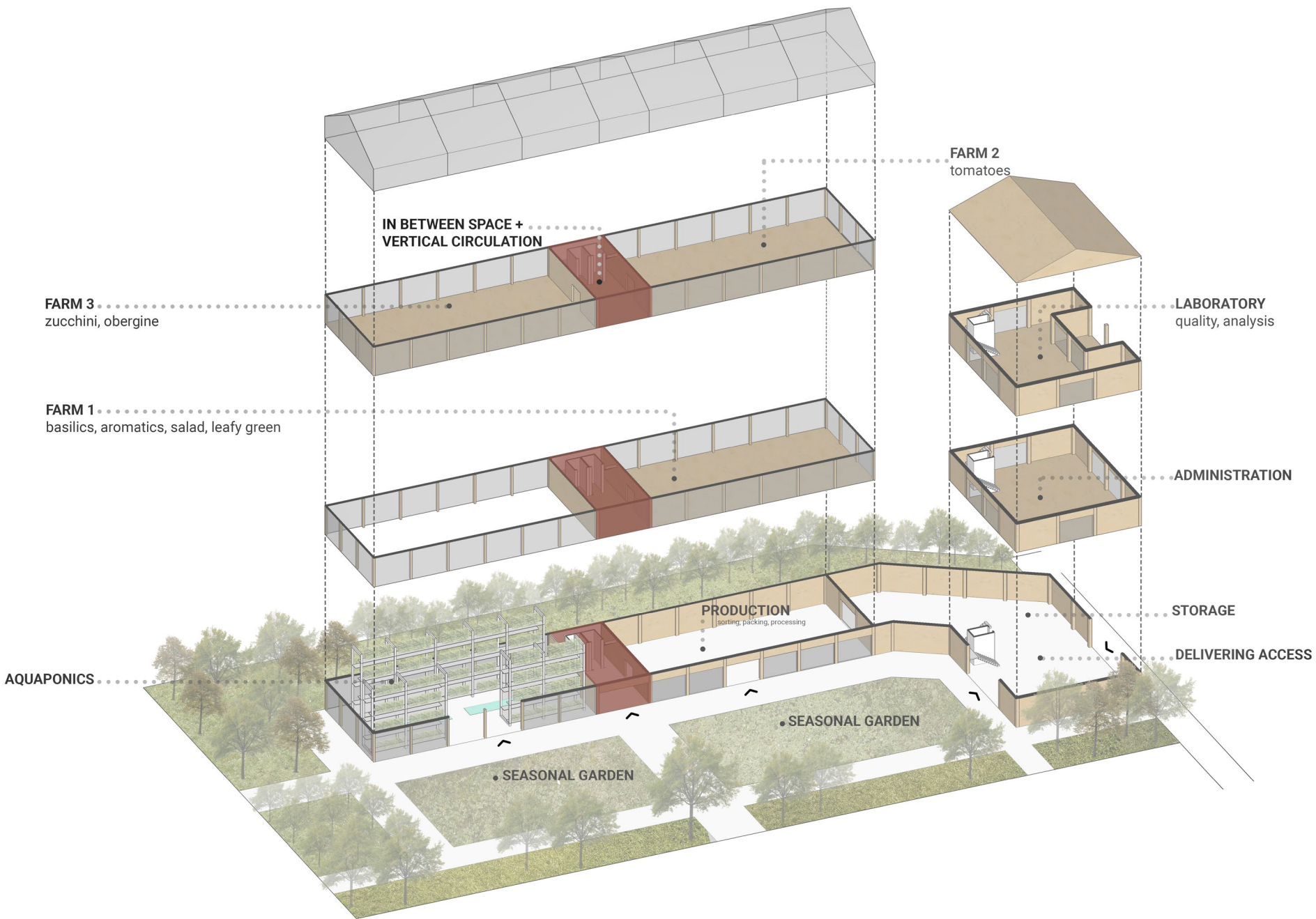
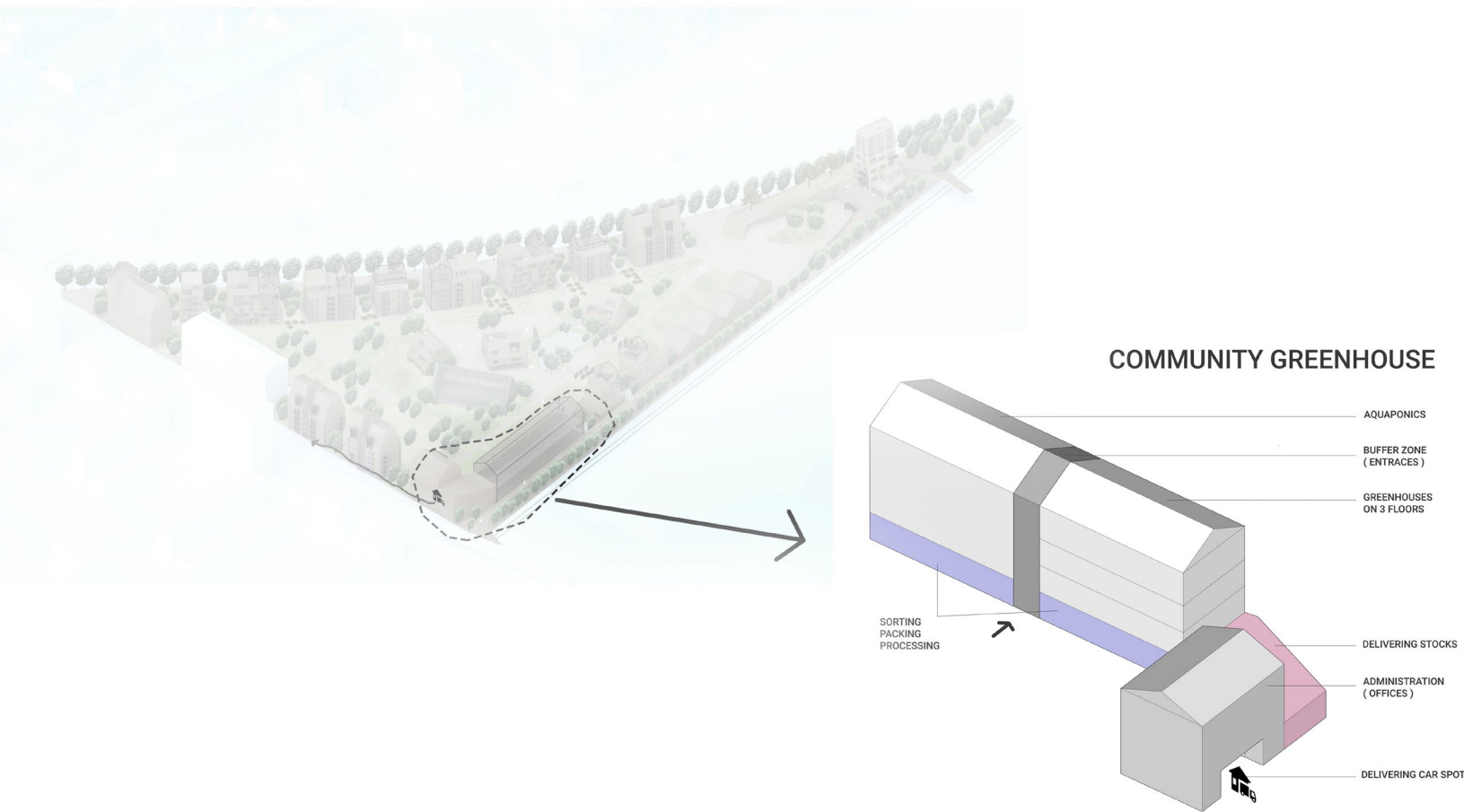
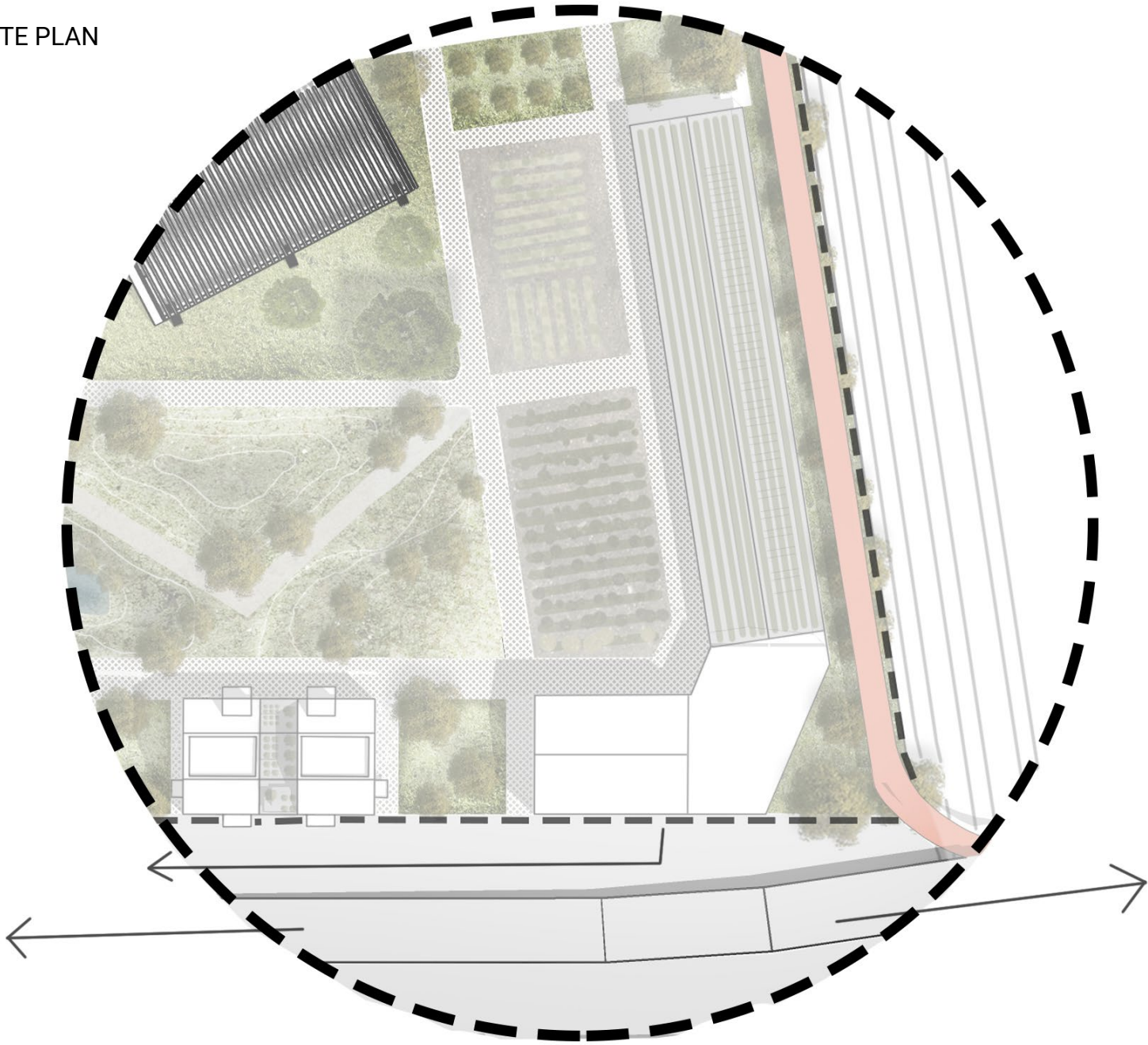


6.0 COMMUNITY'S GREENHOUSE DESIGN PRINCIPLES

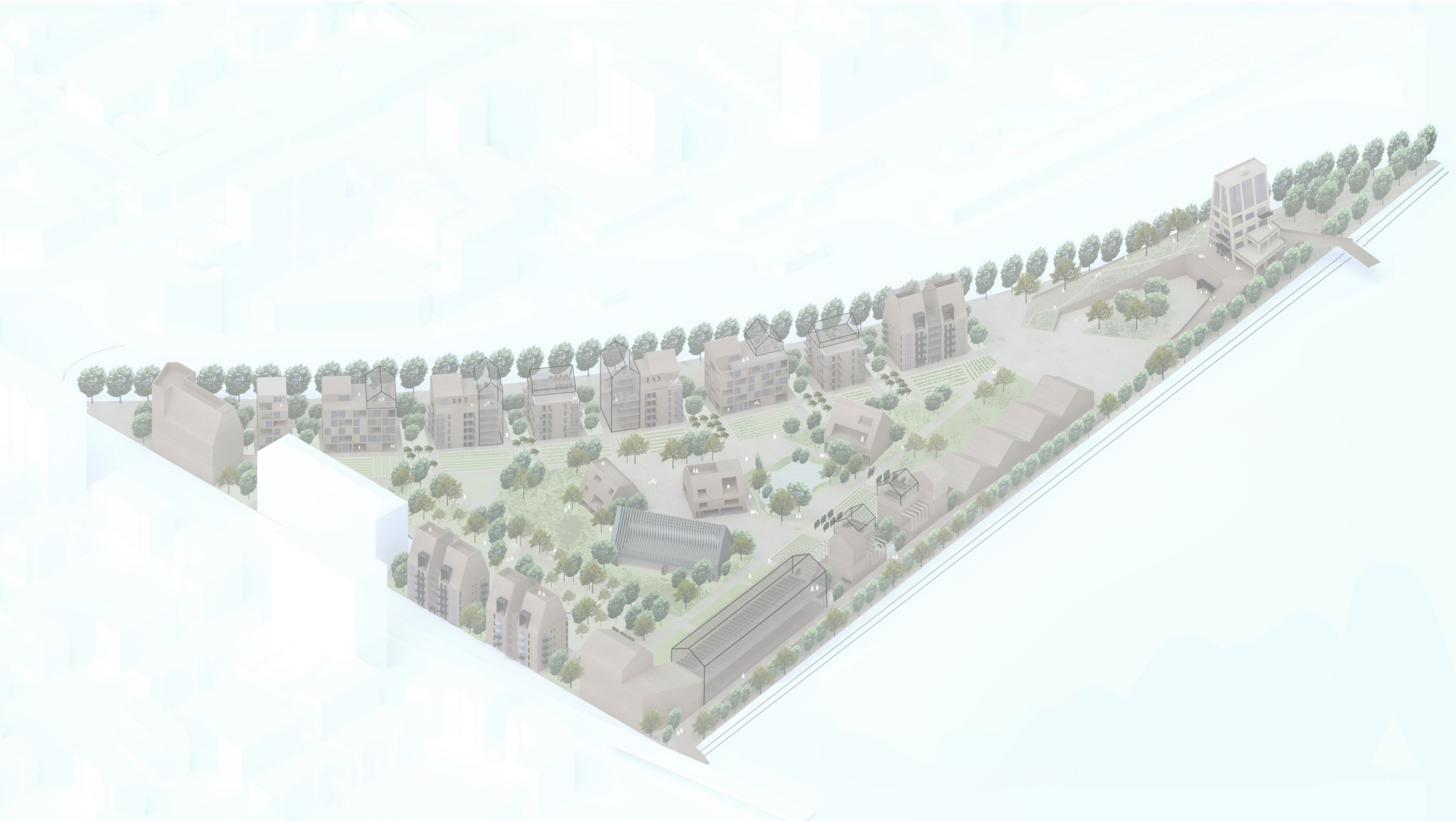
A location that, due to the height and existence of the bridge would be unsuitable for residential buildings, but it would be a strategic location for the greenhouse.

The main characteristics of this location are:
-maximizing at the maximum the site
-strategic location in terms of infrastructure by avoiding the delivering cars to enter to the site.

ZOOM IN | SITE PLAN



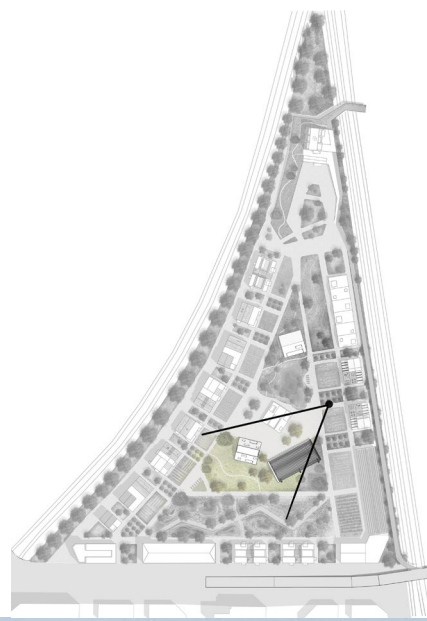
AXONOM. VIEW



VISUALIZATIONS

THE LANDMARK





COMMON ACTIVITIES SCENE:
MARKET, RESTAURANT, BAR





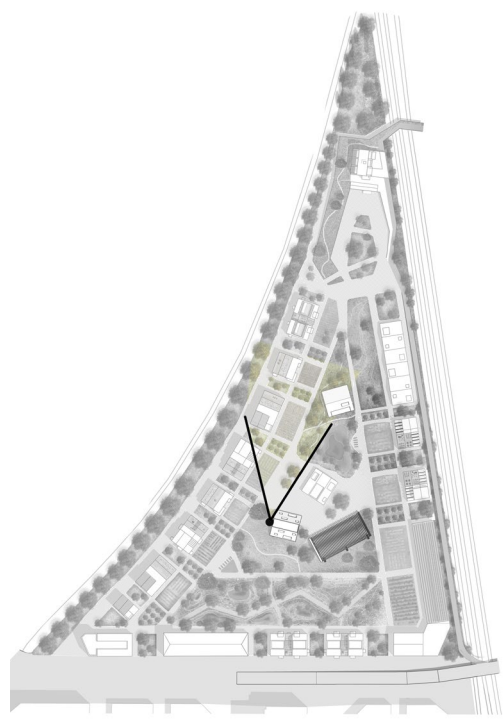
DAILY LIFE





PARK IN THE FOREST



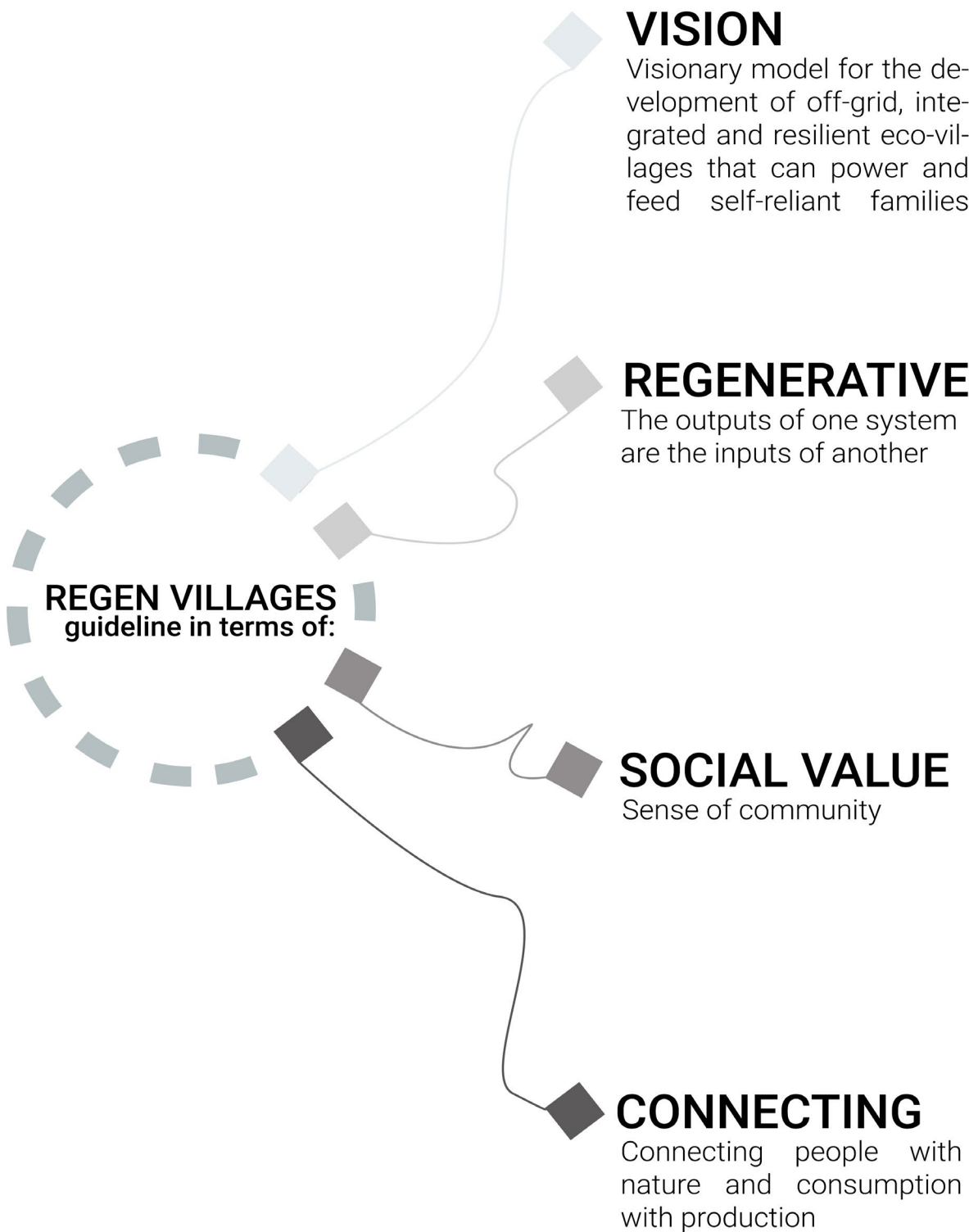


DAILY LIFE



2 CASE STUDIES | REFERENCES

Mainly, there are 2 projects as references of my work



REGEN VILLAGES | EFFEKT, Copenhagen
2016, On going project

ReGen Villages is a new visionary model for the development of off-grid, integrated and resilient eco-villages that can power and feed self-reliant families around the world.



Typology 1



Typology 2



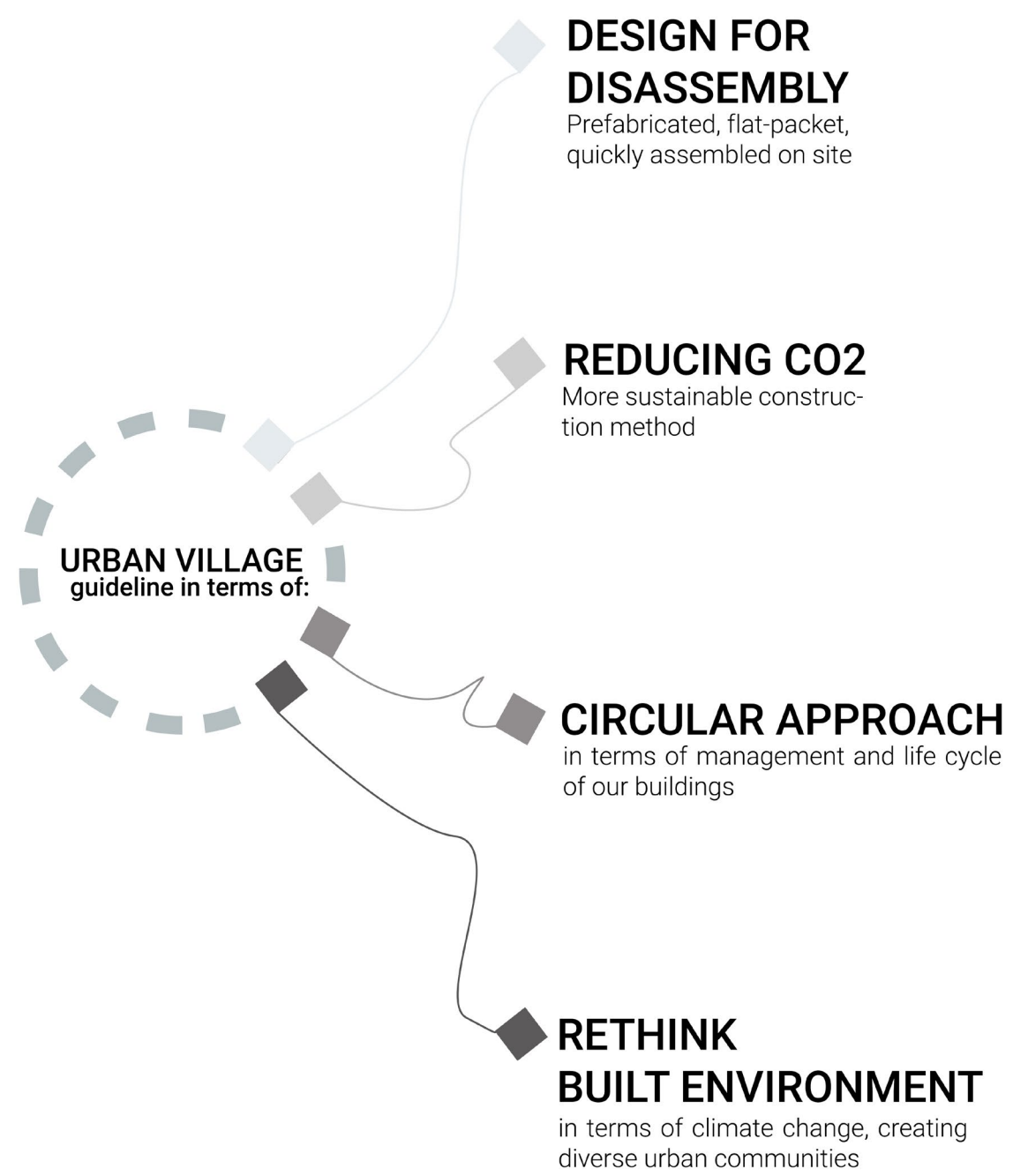
Typology 3



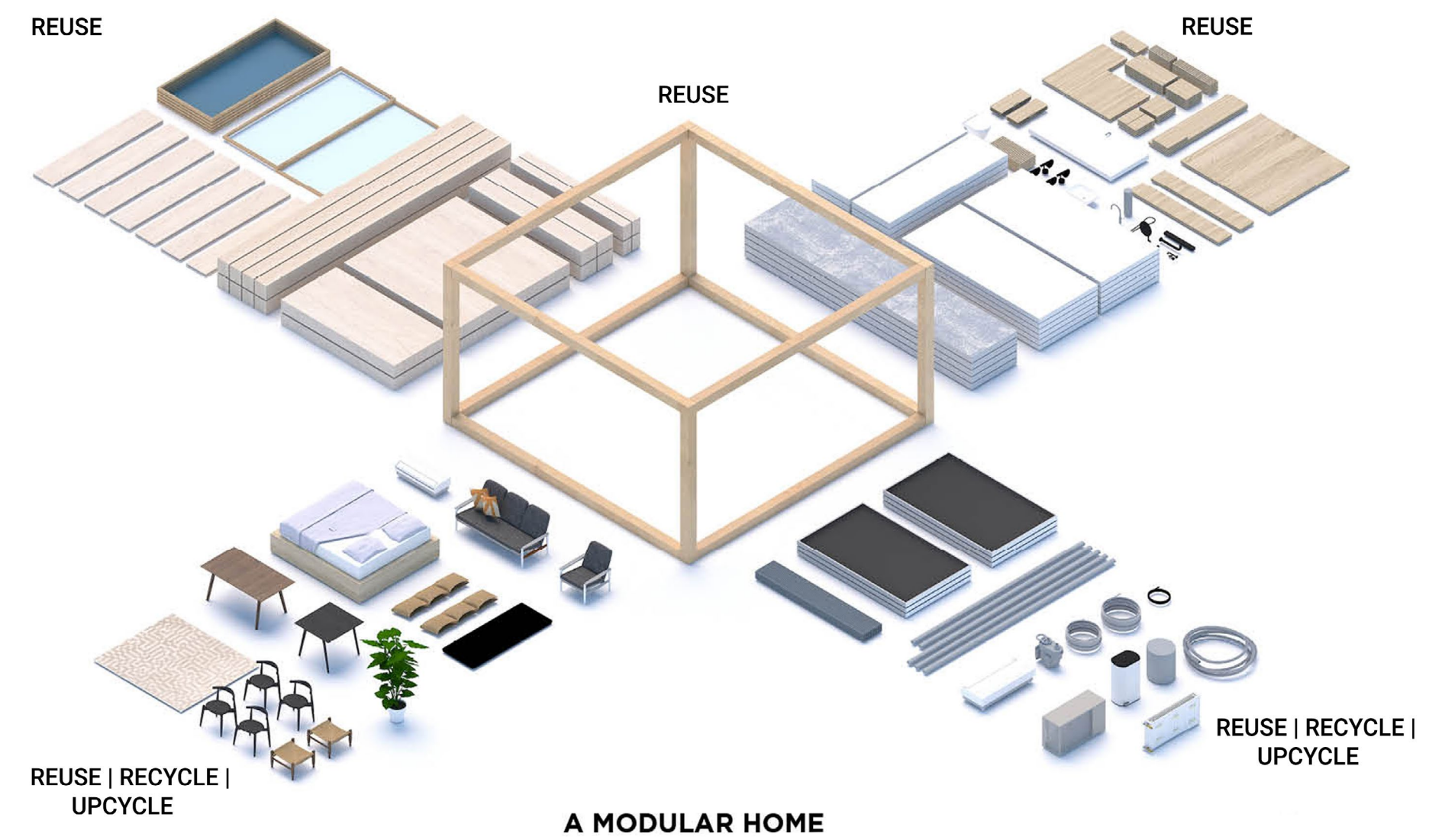
Typology 4

INTEGRATING:
housing, food production, terrace, greenhouse

EXTENDING
living space



URBAN VILLAGE PROJECT | EFFEKT, Copenhagen
2018, On going project



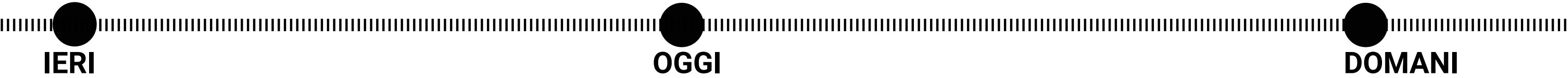
CONCLUSIONS

An urban development following EU’s objectives of conversion towards green seeks the creation of new relationship between building, its users and landscape.
This project aims to encourage, support and educate towards an alternative way of living and producing food. A visionary model for the development of off-grid, integrated and resilient eco-communities that can empower and feed self-reliant families around the world.

Isola Verde stands for regenerative, where the outputs of one system are the inputs of another. The concept has a holistic approach and combines a variety of innovative technologies, such as energy positive homes, renewable energy, energy storage, door-step organic food production, vertical farming aquaponics, water management and waste-to-resource systems.

In terms of long term goals, the project values the integration of technology with the design providing clean energy, water and food next to doorstep. **Isola Verde proposal seeks to add social value by creating a framework for empowering families and developing a sense of community where people become part of the shared local eco-system.** The location of the project next to the city center aims for a high visibility impact within the city, its citizens and tourists in order to highlight the power and importance of regenerative communities in the way to provide food as an element part of the circular economy approach. In terms of vision, the project challenges itself to offer a response to the question: can we create well-being for the people and for the planet through building design?
On the other hand, the proposal works as the third piece of an imaginary puzzle in terms of temporal line of how Turin developed and re-invented itself related to the use, meaning and integration of urban farming as part of the local community.(see the image IERI, OGGI, DOMANI).

TEMPORAL LINE



GREAT SENSE OF SURVIVAL AND AMBITION TO BE RENAISSSED AS COMMUNITY, AS SOCIETY.

The image shows how the sheaves collected in the municipal fields are transported to Piazza Castello Torino for threshing.



I covoni raccolti nei campi municipali sono trasportati in piazza Castello per la trebbiatura, Torino, 25 giugno 1942. (ASCT, *Archivio Gazzetta del Popolo*, Sez. I, busta 1317)

OGGI

The danger and risk of not having food - starvation is replaced with a sense of responsibility towards greenery integrating it on roof terraces or next to restaurants, a way to maximize the abandoned spaces or to give value to some unused spaces.



BeeOzanam Hub, Torino. Accessed at 08.04.2021
<https://medium.com/@cocitytorino/un-hub-di-sostenibilit%C3%A0-di-quartiere-beeozanam-coni-uga-rigenerazione-urbana-e-partecipazione-84f4b225071b>

DOMANI

BUILDING NEW COMMUNITIES WITH THE SCOPE TO EDUCATE TOWARDS ALTERNATIVE AND SUSTAINABLE WAYS OF PRODUCING FOOD.

BUILDING DIVERSITY AND CONNECTION.



Visualization from the project
Made by the Author

Also, the proposal incorporates 2 important aspects related to dynamics evolution of Osi Ghia. The first one refers to the percentage of existing green areas versus proposed green areas where it can be seen how the proposal sustains an ample forestation combined with large and varied green areas in order to allow nature to come back in the city. The second one refers to the dynamics related to how the proposed architectural exercise drastically improves the percentage in terms of activity as production versus the existing situation.

EXISTING GREEN AREAS WITHIN OSI GHIA

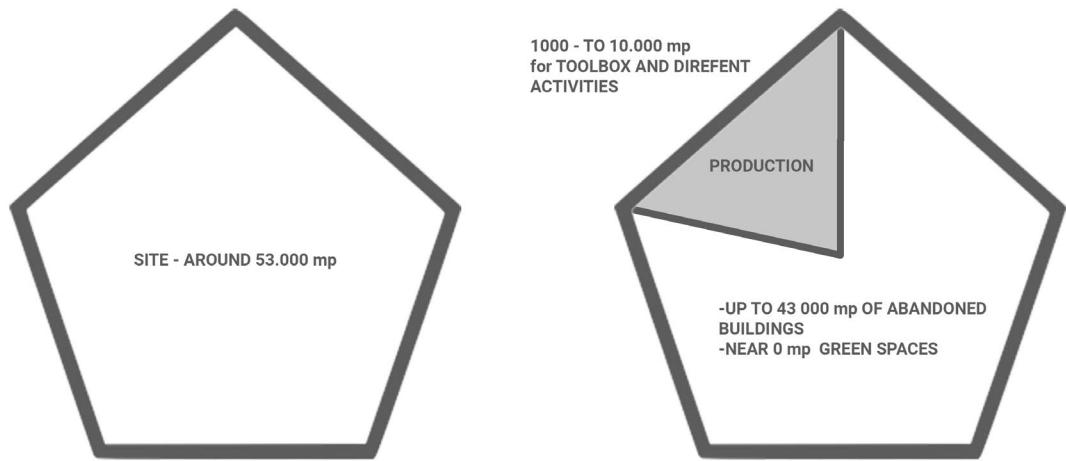


PROPOSED GREEN AREAS AND FORESTATION WITHIN OSI GHIA

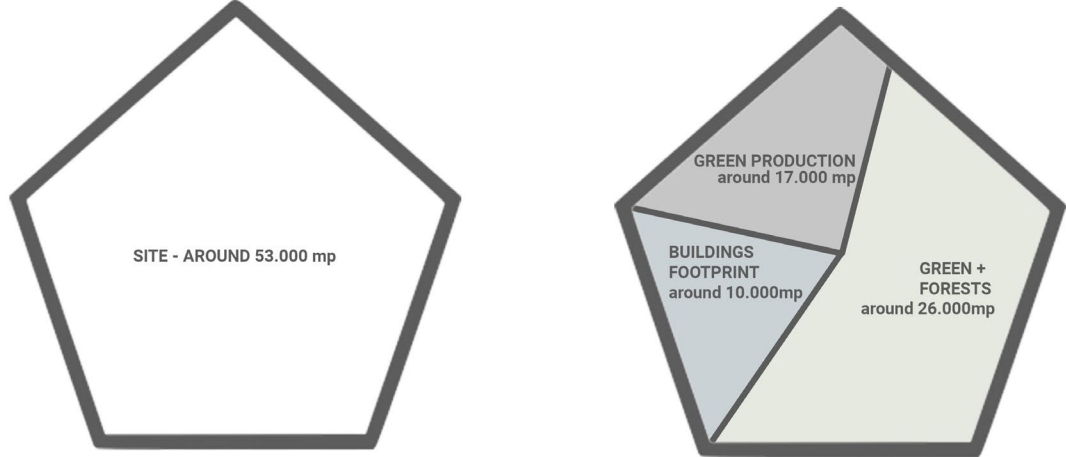


STATISTICS:

EXISTING SITUATION

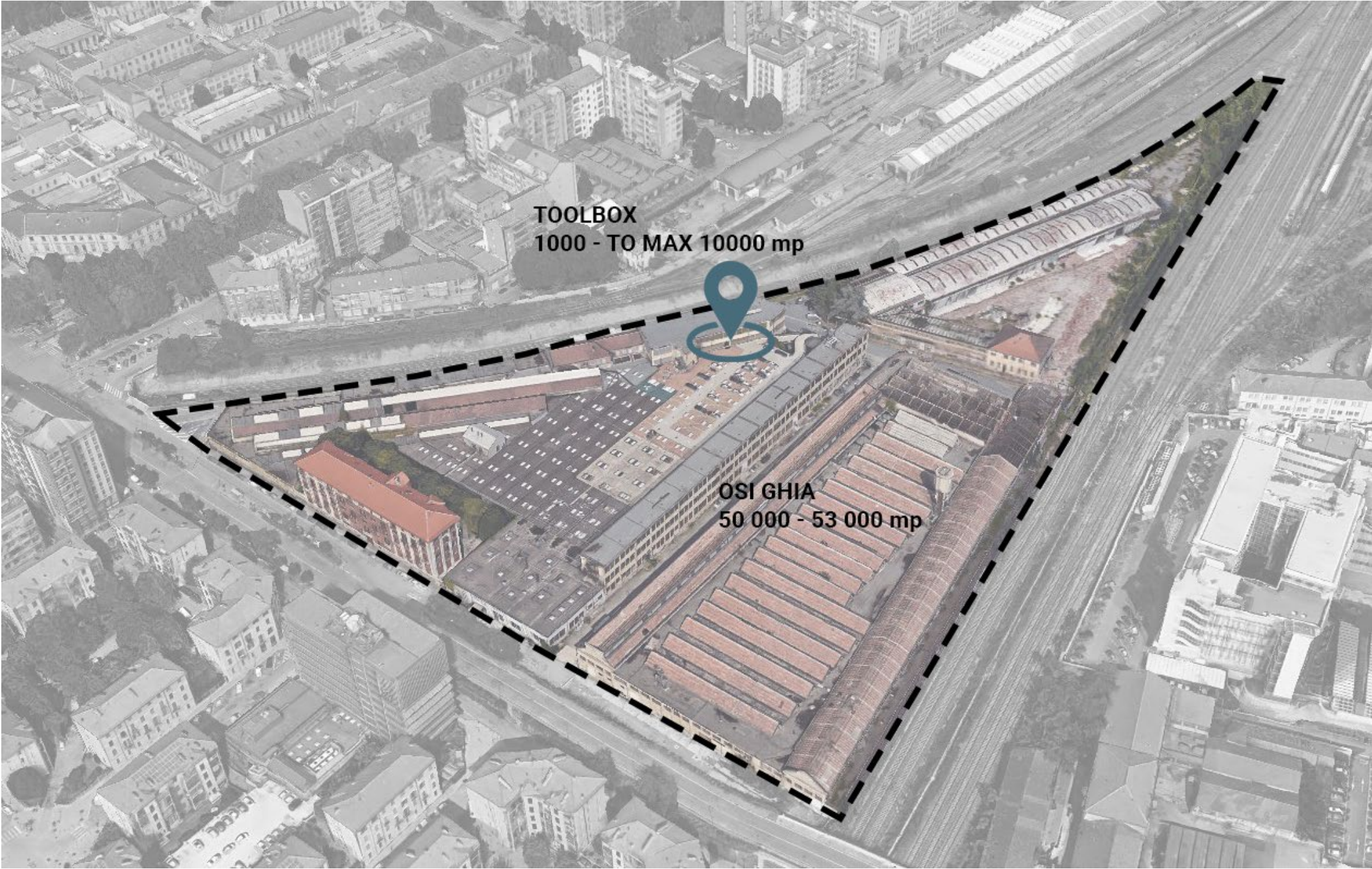


PROPOSED SOLUTION

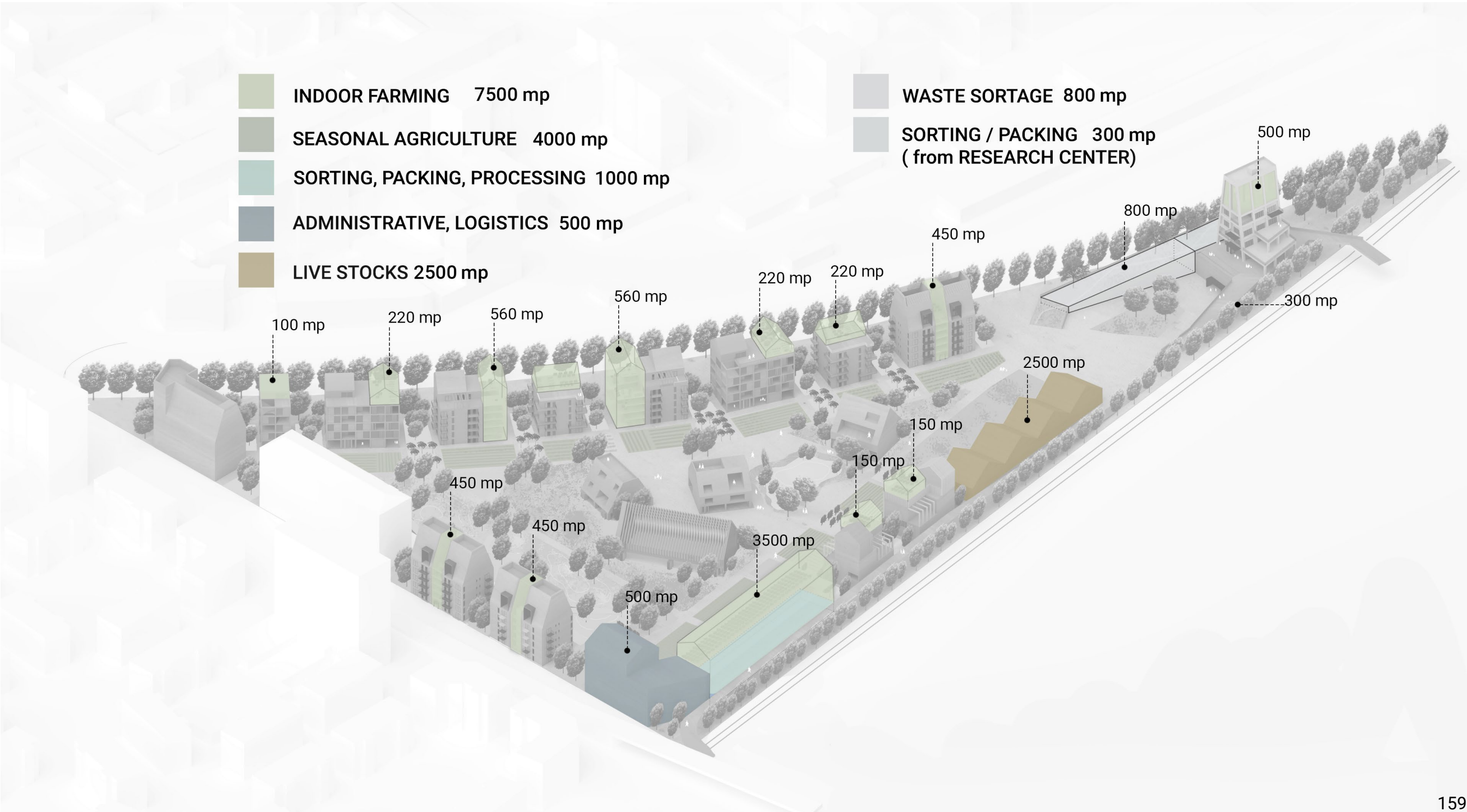


Referring to productivity, the proposal is looking to offer a great diversity by size, type and location on the site.

EXISTING ACTIVITY PERCENTAGE WITHIN OSI GHIA



PROPOSED ACTIVITY PERCENTAGE WITHIN OSI GHIA



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