BRNO UNIVERSITY OF TECHNOLOGY

VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

FACULTY OF ARCHITECTURE

FAKULTA ARCHITEKTURY

DEPARTMENT OF THEORY

ÚSTAV TEORIE ARCHITEKTURY

THE CARE COMMUNITY

THE CARE COMMUNITY

MASTER'S THESIS

DIPLOMOVÁ PRÁCE

AUTHOR   BSc Yasaman Nasrollahzadeh Saravi

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SUPERVISOR   mgr inź. arch Romea Muryn

VEDOUCÍ PRÁCE

BRNO 2022

Assignment Master's Thesis

Project no.:	FA-DIP0066/2021
Department:	Department of Theory
Student:	**BSc Yasaman Nasrollahzadeh Saravi**
Study programme:	Architecture and Urbanism
Study field:	Architecture
Supervisor:	**mgr inź. arch Romea Muryn**
Academic year:	2021/22

Title of Master's Thesis:

The Care Community

Master's Thesis:

Aim:
The aim is to design an urban district proposal which corresponds to the actual legislative requirements by redefining spatial solutions for the needs and demands of the aging population of the society and their interaction and inclusion among their families, friends and other citizens.
Contents:
I. Basic and introductory data
– Theoretical research and its summary
– Anthropological Analysis of users' profil (demographic analysis, survey of the existing and future residents, portrait of a resident and user)
– Case Studies;
– Site and context description;
– Urban Analysis;
– Site Analysis (basic analysis and data characterizing the place);
– Key Site Problems, Key Site opportunities & risks (justification of design goals);
– Vision (Design Idea);
– Key Design Objectives;
– Description of the project;
II. Drawing documentation
– Urban concept diagrams of a wider area in the scale 1:1000 / 1:2000;
– Site plan 1:500 supported with program zoning, public realm design;
– Floor plans of all floors 1:100/1:200 documenting the spatial layout solution with the designation of individual spaces and rooms;
– Sections describing the nature of the proposed building 1:100 / 1:200;
– Axonometric Drawing / View of the urban district;
– Collages or visualizations – exterior and interior – representing key design parts from the human perspective;
III. Physical models
– Model of the proposal in scale 1:50/1:100/1:200
– Urban layout model 1: 500/1:1000
IV. Printed booklet and presentation posters – min. one B1–size poster and design booklet

Graphics scope :

As the global population ages, living in cities changes demands and faces new problems. The elderly demographic struggles with challenges such as disability and diseases for example ranging from arthritis to the ever–increasing Alzheimer's disease. The Czech Republic similar to other European countries, is also dealing with the rise in senior citizens. Addressing this increasing demographic through urban design and architecture is not only about creating nursing homes or senior centres. Now, the architecture of care, is moving towards the transition from institutional to community care.
The diploma project will focus on designing a city block based on finding the balance and connection between the elderly, vulnerable social groups and other demographics, with the aim to understand and provide their needs and demands in an urban living space.

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Date of project specification Master's Thesis: 14.2.2022

the deadline for submission for the Master's Thesis: 22.5.2022

Master's Thesis is submitted in the scope determined by the project supervisor; in addition, one B1 exhibition panel and Master's Thesis in electronic form are submitted.

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BSc Yasaman NasrollahzadehSaravi   mgr inź. arch Romea Muryn   prof. Ing. arch. Vladimír Šlapeta,DrSc.
student   project supervisor   head of the institute

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In Brno dated 14.2.2022   Ing.arch. MArch Jan Kristek, Ph.D.
Dean

I hereby declare, that I am the sole author and composer of my thesis and that no other sources or learning aids, other than those listed, have been used. Furthermore, I declare that I have acknowledged the work of others by providing detailed references of said work. I also hereby declare that my thesis has not been prepared for another examination or assignment, either in its entirety or excerpts thereof.

Yasman Nasrollahzadeh Saravi

Abstract

The aging population along with the growing demographic of urban settlements is one of the main challenges cities face, all over the world. As the elderly population is expected to increase significantly in the years to come, cities, which for most parts are designed and structured with the younger and working-age groups in mind, will have to address and adapt to challenges that follow this transition. Care for the elderly is divided into medical and social care domains. While now, most facilities aimed at this age group focus on the medical point of view, the social needs of this demographic are prominently not taken into account. As a result, senior citizens today, struggle with social exclusion and isolation which have been proven to cause serious health impairments. In addition, separating and relocating the elderly to senior facilities is usually not preferred among this age group and their families. Through understanding and analyzing this demographic, its demands, and challenges, this project aimed towards developing an urban strategy by creating different "care typologies" throughout the city of Brno, so that, by implementing these suggested typologies, the city as a whole will provide care for the elderly as a community rather than dis-placing this rising and fragile age-group to institutional care. These typologies were first determined by dividing the city of Brno into three main parts by considering certain parameters as influencing factors. Then, the different space programs were derived and structured through research and in-person interviews with two of the senior facilities in Brno. As a result, three main care typologies were introduced, namely, the care housing, the day care center, and the care community center. Lastly, locations were analyzed and selected for each typology as examples in the typologies' individual urban regions. The care housing and the day care center typologies were then developed further into detailed architectural design.

Keywords: Ageing, Social exclusion, Community care, Elderly care, Senior citizens, Care typologies, Brno
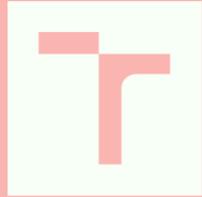
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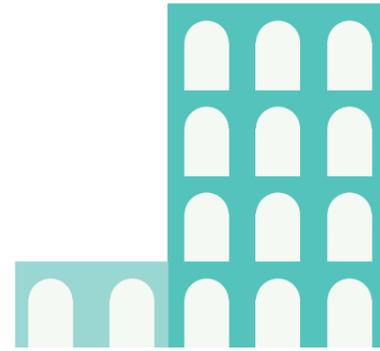
The Care Community

By Yasaman Nasrollahzadeh Saravi

Supervisor: Ing.arch. Romea Muryn
Faculty of Architecture/Brno University of Technology
May 2022

Contents

"A society will ultimately be judged by how it treats its elders"

Albert Einstein

Chapter 1. Research and Background

Introduction

When discussing elderly care, the term "ageing" cannot be ignored. There is a direct connection between these two phenomena and so this significant change in population cannot be unnoticed.
Ageing refers to a general term that is used world-wide. Medical studies focus on physical and mental aspects of ageing while economic fields study retirement and saving money for pensions. Through a social perspective, things are different again since it concentrates on demographic transitions with respect to social changes which are followed by new challenges.
Consequently, how do architecture and urban design define this phenomenon and address the significant changes and transitions that follow?

All around the globe, rates of ageing and urbanizing populations are increasing rapidly together. Studies indicate that two-thirds of the world's population will be living in cities by the year 2030. By then, in many of these cities a quarter of the population will be aged over 60 to say the least.
It is clear that demographic patterns are different and particular to every city however, it is also obvious that whatever the conditions of cities are, now or in the near future, the elderly are and will remain a marginalized age group across urban environments. Cities are prominently structured and developed with considering younger and working age groups. Seniors are mostly not incorporated into the mainstream of urban planning and development. So, while urban environments might in broad global terms project an 'alarming' graph line of ageing populations, in practice older people are still all too often, in the public imagination at least, marginal to urban life – conceptually and often quite literally less visible.
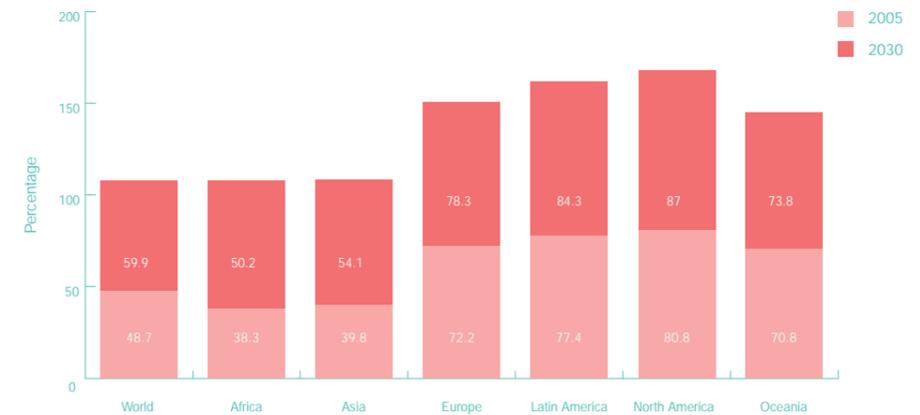

Graph 1- Percentage of Urban Populations in Major Areas (Global Age-friendly Cities guide 2007)

Compared to international statistics, where the senior is defined by age (persons 65+), this definition is broader in the Czech Republic for it refers to persons who receive a retirement pension (or a widow's / widower's pension at the same time). In 2016, in the Czech Republic, men retired on average at the age of 63 and women at the age of 62.

According to the latest available statistics, more than 2 million people aged 65+ lived in the Czech Republic at the end of 2018 – this demographic accounted for 19.7% of the Czech population (Czech Statistical Office, 2018). The Czech Republic population will increase to 10.8 million in 2030 from 10.6 million in 2018 but it is expected to decrease to 10.7 million by 2050. In 2018, the population aged 65 and above were 2 million which it is estimated to rise to 2.4 million in 2030 and increase again to 3 million by 2050. In relative terms, these numbers indicate that while in 2018 every fifth person was in the age category of 65+, in 2030 it will be every forth and in 2050 out of every 3 people, one person will be 65+ years old.

The Old-age dependency ratio is the share of people over 65 in people aged 15-64. During the period between 2005 to 2015, EU countries have seen an increase in the Old-age dependency ratio with the average of more than 4 percentage points, from 25% in 2005 to 29% in 2015 (Euro-stat, 2017). In the Czech Republic, this indicator increased by 6.7 p.p. It is one of the three countries with the highest increase in the EU, after Malta with an increase of 8.3 pp and Finland with an increase of 7.4 pp.
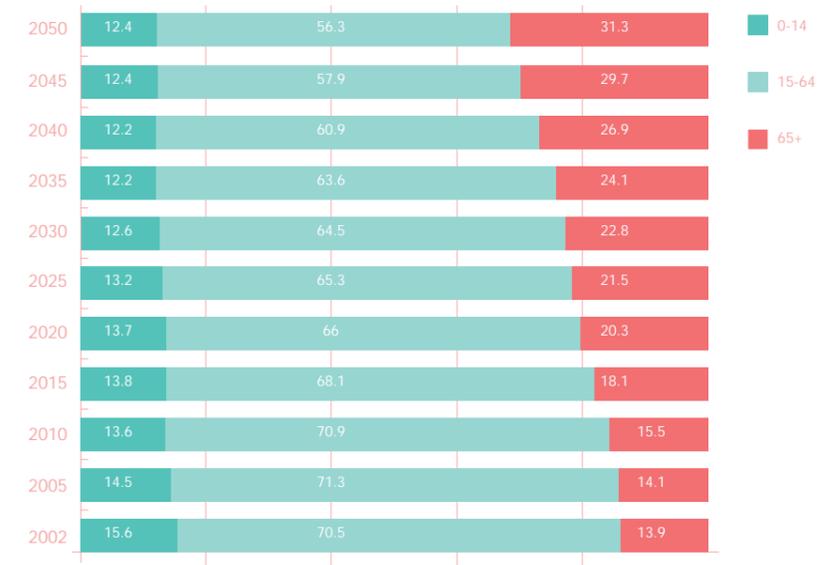

Graph 2- Prospect of the age composition of the population in the Czech Republic until 2050 in percentage (Serak 2013)
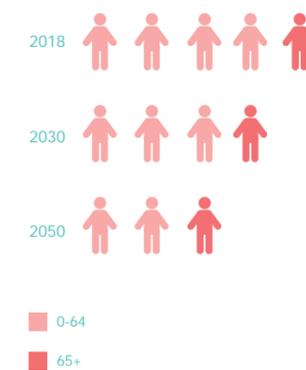
Graph 3- Prospect of the age composition of the population in the Czech Republic in 2018, 2030 and 2050

As mentioned before, the distribution of the senior population is not uniform. In the Czech Republic, as the following graph 4 shows, the highest number of seniors are in the regions of Prague, Moravia-Silesia, Central Bohemia and South Moravia. If we relate the number of seniors to the number of persons in a given region, the differences between the regions the differences between the regions are in the range of 3 p.p (values vary from 21.5% to 24.3%).

There is also a significant difference in the distribution of the senior demographic according to the size of settlements (Table 1), where 22% of senior households live in large cities. Meanwhile, almost half of senior households live in municipalities with less than 10,000 inhabitants.

Population size	Senior households in number	Senior households in percentage	Total number of households
Up to 10 000	800 137	45%	1 926 206
10 000 - 50 000	387 204	22%	941 354
50 000 - 99 000	187 617	11%	458 175
Over 100 000	384 498	22%	998 915
Total	1 759 456	100%	4 324 650

Graph 4- Distribution of seniors in the Czech Republic according to region(EU-SILC 2015)

Table 1- Distribution of senior households in the Czech Republic according to the size of settlements(EU-SILC 2015)

The number of years a person can expect to live is referred to as "life expectancy." Life expectancy is defined as an estimate of the average age at which members of a specific population group will die. All over the world, life expectancy has more than doubled.

According to the World Health Organization, increasing life expectancy is the result of a significant improvement in health care, rising living standards and one of the most significant achievements of the recent decades. In addition to the increase in life expectancy, decreasing death and birth rates, have resulted in rapid growth in human aging, universally. As indicated previously, such growth is also shown in the senior population prospects of the Czech Statistical Office by 2050. It is worth mentioning that great changes in the age structure will also be reflected in the average age, "which could be between 48 and 50 by 2050, which is 10 years more than 2004."(Statistická rocenka Ceské republiky - 2004)

To obtain a clear vision of the future development of the number of seniors, it is necessary to define the life expectancy trend in more detail. For this purpose, a statistical demographic indicator of life expectancy was created which demonstrates the absolute number of seniors compared with their state of health.
The graph 5 shows that life expectancy in the Czech Republic has increased meaning people are living longer. However, this prolongation is mainly in the duration of the not-healthy state. If this trend is maintained, it will be a significant burden on the management of the public health system in the future, which is evidently followed by considerable changes in demands and challenges related to the urban environment and the urban living experience of the senior citizens.


Graph 5- Life expectancy in 1962 and 2010 in the Czech Republic by sex (European core health indicators- European commission 2016)

Ageing and the need for care

One of the outcomes of the increase in the share of the seniors within the overall population is the rising need for elderly care. However, what appears to be hidden is the presumption that such a state will grow gradually. When discussing demographic scenarios of Europe studies predict that by 2030 the number of people aged over 60 is roughly 40% higher than the year 2000. In addition, as mentioned before, decreasing death and birth rates together with

Increasing life expectancy mean "our society might face a significant dispro-portion between potential care-providers and care-Recipients. Based on de-mographic trends we can suppose that the number of persons dependent on care will keep rising while number of those who could possibly provide care will decrease." (Dudová 2015) That being said, the aging of the population raises one major concern: Who will provide care?

Diagram 1- Timeline of elderly care in the Czech Republic

Shift towards Informal Models of care

De-institutialization of elderly care and de-institutionalization of dying

1950   1960   1970   1980   1990   2000   2010   2020

De-familization and Institutialization

Realization of the dysfunctionality of social forms of elderly care
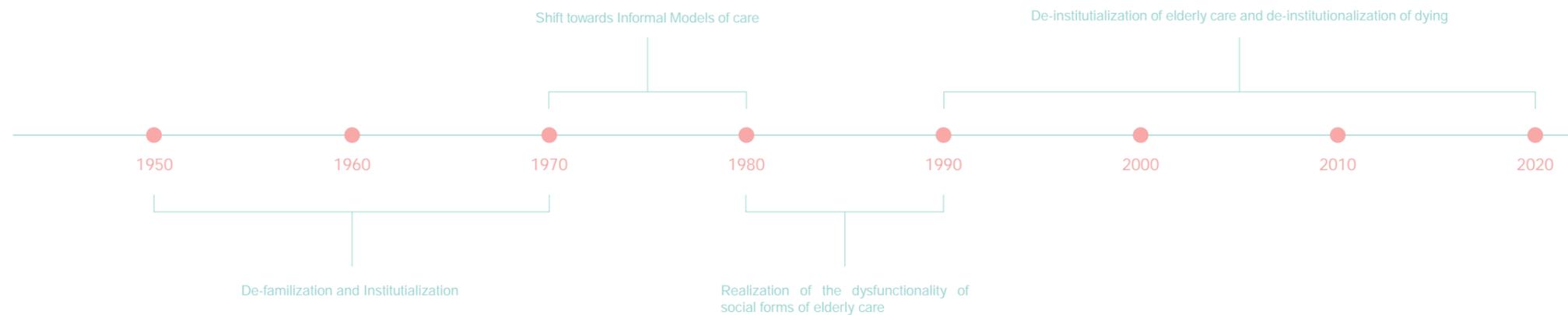
During the 1950s and 1960s, the Czech society was experiencing a time of de-familization and institutionalization because it was assumed that the family was not capable of fulfilling the role of caregiver.

In the 1970s there was a transition towards informal models of care which increased significantly in 1976 by implementing a financial benefit for people who provided care for a family relative.

The Czech Republic is a post-communist country therefore, the processes of de-institutionalization and marketization of elderly care occurred slowly, but in the 1980s regarding the demographical changes, the existing social forms of elderly care were no longer practical.

In the last decades, the media has tended to emphasize the positive aspects of home care for the elderly. They induced the de-institutionalization of elderly care by praising the home environment and criticizing formal residential models of elderly care. From the public point of view, the dependability of families in caring for their elderly relatives has grown significantly, not only due to the assumed higher quality of home elderly care, but also due to economic factors. Home care is significantly less expensive than institutional care. In addition, the wish of elderly people to stay in their home and a familiar environment for as long as possible, ideally until the end of their life, is very prevalent. This is where another important fact arises, namely the "deinstitutionalization of dying" based on the wishes of the Czech population.

However, due to shifting demographic patterns and extending job responsibilities, it appears that family members will be unable to perform the function of caregivers on a regular basis. The aging of the population, changes in family structure, and the rising number of women entering the labor force all have an impact on a family's capacity to deal with the aging of a relative for a variety of reasons. To mention a few, there are massive expectations for working-age individuals to be employed and maintain their occupations. Second, the enormous responsibility of parenting children must be considered. Third, more often and simpler mobility alternatives may contribute to a shortfall of family caregivers. Improving living conditions and migration opportunities make caring for one's family more difficult. More frequent migrations of family members disrupt physical connection and challenge routine every-day or even every-week visits, whether it is international or domestic migration.

Image 1- Kociánka Home for seniors- BRNO- Czech Republic (Google Image)

Image 2- Nopova Home for the elderly- BRNO- Czech Republic (Google Image)

When considering the extent of elderly care, there are two main areas. Older people need medical care, as their state often requires expert help, and they need social care, as they tend to live alone.

The care facilities for the elderly can be generally classified into the following types:
First of all, there are **charities and volunteer organizations**. These usually center on group activities that take place in social halls or organizations. These institutions' activities frequently focus on the social integration of the elderly. Their major purpose is to provide social interaction; nevertheless, their programs lack medical assistance. Furthermore, they are unable to provide regular domiciliary care in the homes of the elderly, and as a result, their services are limited to the active elderly who can attend such organizations and are self-Sufficient.
Second, there are **medical organizations**, both public and private, whose focus is clear: they provide basic medical care in their clients' homes. Their benefit is the expertise of the services they give, which is important because they work with people who frequently suffer from some form of geriatric sickness. What they frequently lack, on the other hand, is more friendly social contact with their clientele.
Thirdly, there are also **retirement homes**. These organizations profit from both medical assistance and maintaining social interaction for their clients. Their main disadvantage is the non-home (and expensive) atmosphere, which appears to be a critical factor for older individuals who dislike change and additional costs. Most older people prefer to get care at home rather than in a nursing home, and some believe that care at home may be less expensive than nursing home care. The institutionalization of senior care is simply no longer preferred due to the frequently uncomfortable surrounding environments and increased expenditures.
Lastly, are the **private agencies**. They normally combine all criteria - they visit customers in their homes, provide social interaction, and frequently engage medical professionals to aid with geriatric medical care (the majority of agencies have nurses or medical assistants at their disposal). They may appear to have it all, but their services are most likely far more expensive than what most individuals can afford.

Elderly care in the Czech Republic

Elderly care in the Czech Republic is provided either formally (in the form of inpatient, outpatient or field services) or informally (within the family or community).In the Czech Republic, a common formal, inpatient elderly care is a typical residential facility namely a senior home. Here, the focus is on people with decreased self-sufficiency because of their age who require regular assistance and are provided with help. Another common facility for seniors is a special regime home. These homes are specifically for people who suffer from a chronic mental illness or are addicted to substances. This facility is also aimed for patients with different types of dementia .
A more detailed classification of formal care facilities for the elderly in the Czech Republic are demonstrated below:

1. Homes for the Elderly

2. Special Regime Homes

3. Day care centers

4. Home care services for the elderly (includes day service centers weekly care centers, respite services, personal assistance, domiciliary service,emergency care)

5. Social Services for the elderly (includes basic social counseling, professional social counseling, guiding and reading services

The following map illustrates the placement of the mentioned types in the city of BRNO.
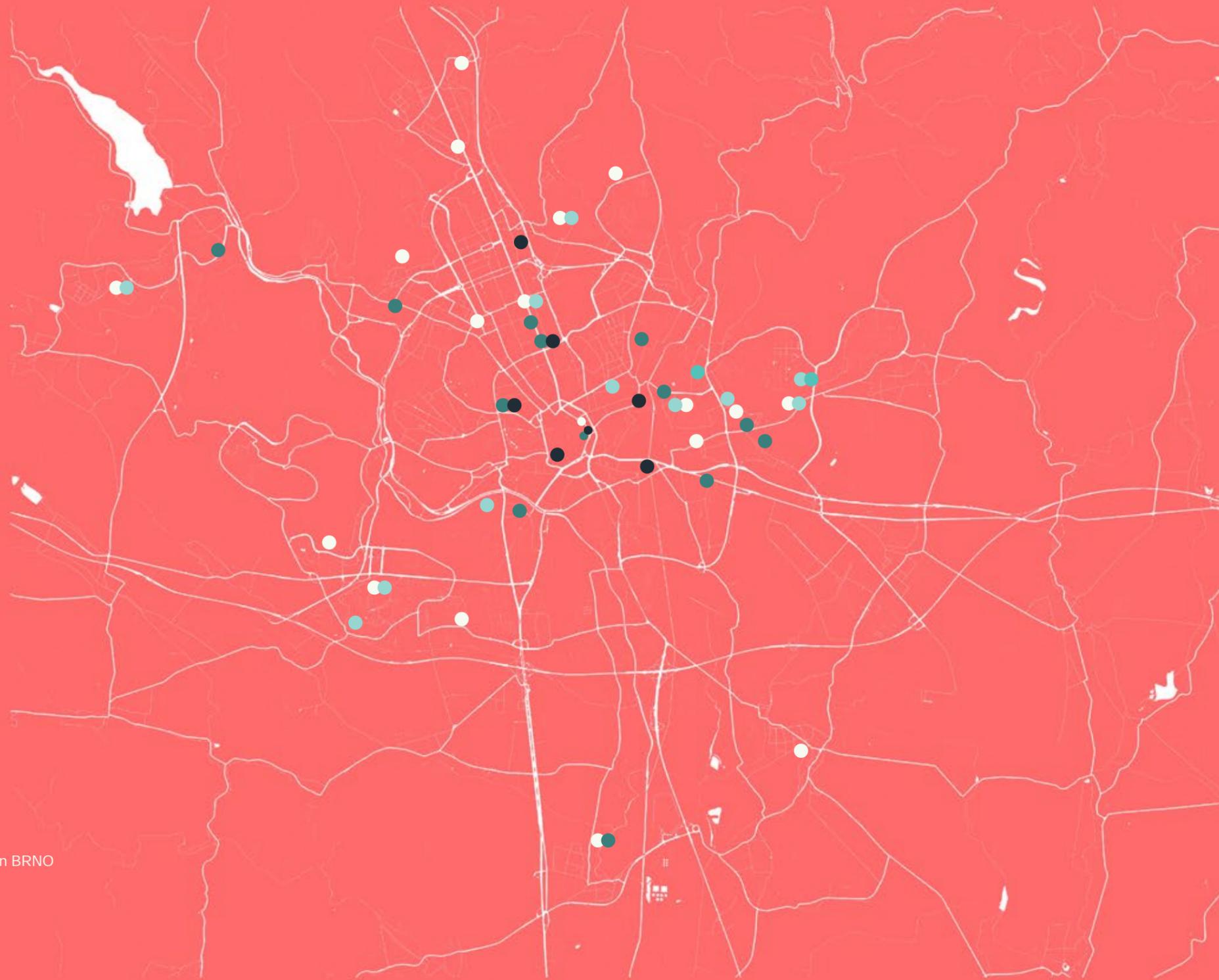
Map 1- Elderly care facilities in BRNO

Homes for the elderly
Home with special regime
Day care center
Home care services for the elderly
Social services for the elderly

Long-Term Care

Long-term care is a subset of social protection that covers a broad range of support services and incorporates health and social care. It involves assistance with basic activities of daily living (ADL), re-habilitation, medical and nursing care such as wound dressing, pain management, medication, health monitoring, palliative care, etc.

Most people will require some type of long-term services and assistance at some point in their lives." An estimated 70% of persons reaching 65 will require long-term care at some time in life, with care lasting an average of three years. Eighteen percent of all seniors would need to stay in a care facility for more than a year.

According to the European Commission's 2012 Ageing Report (2012), the number of care receivers is predicted to increase by 50% by 2060. According to the analysis, the number of people requiring formal long-term care services would more than double by 2060. Long-term care expenditures in the Czech Republic are expected to reach 1.5 percent of GDP by 2060. This entails adapting the social protection system to demographic shifts as well as resolving potential staff shortages (European Commission 2013).
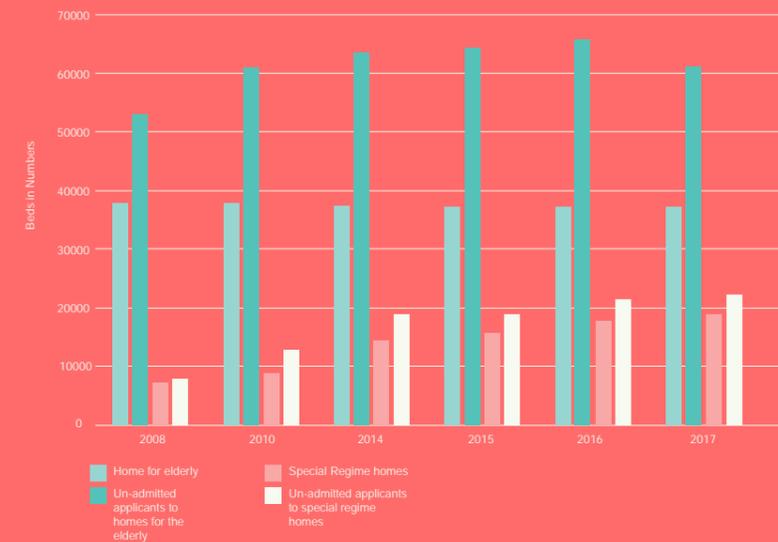
Graph 6 - Comparison of the number of beds in selected long-term care facilities with the un-admitted applicants due to lack of capacity during 2008-2017 in Czech Republic (Statistical yearbook of Ministry of Labor and Social Affairs 2018)

Causes of increase in long-term care demand

The epidemiological change increases the prevalence of neurological disorders (for example, various kinds of dementia) and thus the demand for long-term care. Other factors contributing to the rising need for long-term care include rising hospital costs and efforts to reduce hospital stays. Long-term care for the elderly has already been moved from hospitals to social services in several affluent nations. Concurrently, a substantial percentage of the expenditure was shifted from the health-care budget to the social-care budget. Because social services are not covered by health insurance, this "paradigmatic shift" affects both those in need of care and those who care for them. Another reason is the expanding specialization of medicine, which leaves a lot of fragile patients with complicated demands that are outside the realm of any expertise.

Challenges of long-term care

Critical challenges in formal long-term care include the rise of unregistered residential social care providers for seniors and people with dementia, imbalances in the quality and standards of health care provided to similar patients in the social and health care sectors, and a lack of community social and health services in small towns, which is critical in the Czech Republic, where the majority of the senior population lives in communities of 10,000 or fewer inhabitants.
According to anecdotal data, residential long-term social care facilities for the elderly within the price range acceptable to the majority of the Czech people have significant waiting lists. This lack of capacity in the social care system has resulted in a delay in hospitals providing long-term inpatient care since many hospital stays have been extended beyond medical necessity. In terms of service capacity, the Ministry of Employment and Social Affairs reported 13,820 beds in disabled institutions and 37,477 beds in residential social long-term care for the elderly in 2012. (Ministry of Employment and Social Affairs, 2013). " It is worthy to note that the majority of these residential facilities seem to be of poor quality.

When thinking about the impact of these statistics, the natural assumption within the context of architecture is to think about medical care, hospital design, and accessible cities. However, this overlooks an emerging and serious problem: loneliness and social isolation.

51%
of seniors over the age of 75 live alone

11%
of seniors are in contact with friends and family less than once a month
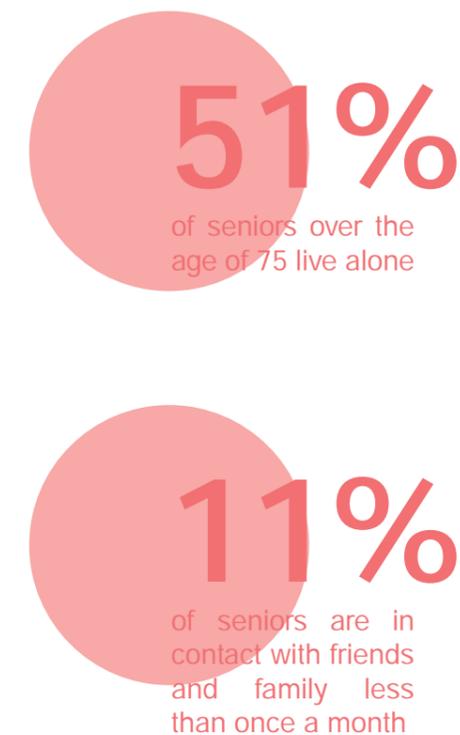
Graph 7- Statistics associated with seniors in social context

Demography and User Analysis (Research-based)

As it was mentioned previously, the lack of number of care-givers for the elderly (in both formal and informal care), the preference of the policymakers, families and the elderly themselves to live and die in their home environment and the shortage of unoccupied rooms in affordable senior homes are some

Of the main issues concerning elderly care in the Czech Republic. In the following pages are presented other important concerns regarding this demographic in the Czech Society.

50%
of all people aged over 65 face problems getting outdoors

12%
of people aged over 65 feel cut from the society

41%
of people aged over 65 feel out of touch with the pace of modern life

50%
of people aged over 75 are too afraid to leave their homes after dark

84%
of Czech seniors who leave their homes have to overcome at least a few stairs

19%
of Czech seniors who are living alone do not feel safe

38%
of Czech seniors do not leave their homes due to fear of injury, crime or their health state

26%
of Czechs who decide to commit suicide are people above the age of 65

Graph 8- Statistics associated with seniors

1. Seniors are amongst the most vulnerable groups in terms of social participation and often face constant **exclusion**. The causes might be a variety of factors such as poor health, low income, low education, the difficulty to commute, inaccessible services, age discrimination in old age, and so on. Chronic loneliness is extremely prevalent amongst the senior population, and several studies have been conducted to examine the measurable health effects it has, such as increasing the risk of impairments, heart disease, strokes, and dementia. According to studies done over a ten-year period, persons without social links are three times more likely to die than those with healthy social contacts.

2. For a person requiring care, family members are frequently excluded when the individual is receiving formal residential care.
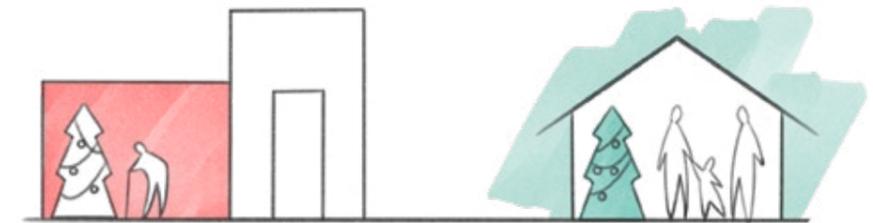
3. The institutional **design** of residential aged care was designed based on a **dominant medical** point of view.
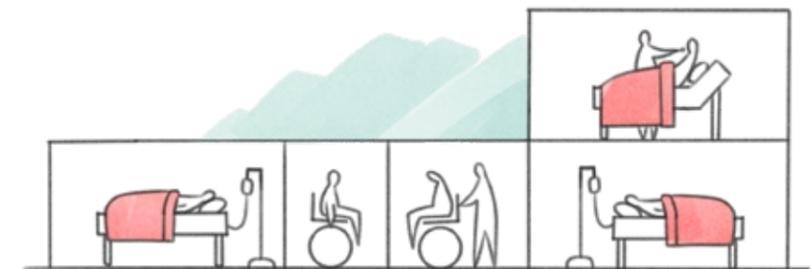
4. Seniors that are forced to leave their natural environment and move into a senior care home often develop dependency on others. Their earlier self-confidence, self-esteem and independence gradually vanish. They are probable to experience feelings of vanity or **loss of will to live**.
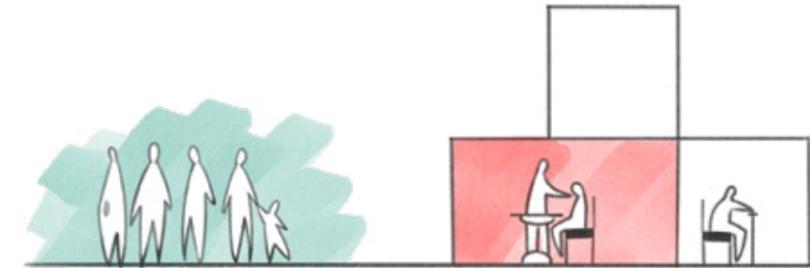
5. Seniors are **not a homogeneous** group. The situation of seniors varies according to gender, place of residence, amount of pension or other socio-economic characteristics. These are groups with different lifestyles and priorities.
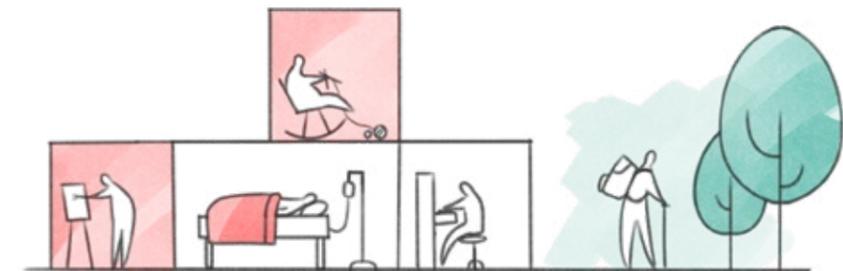
6. Due to the turbulent changes in the world of technology, it may seem that seniors have nothing to pass on, but this is not the case. **Creativity and contribution** is not only in the domain of younger people. Senior citizens are homeowners and consumers, bearers of traditions and experiences, bearers of knowledge, skills and wisdom. By appropriate involvement, all these potentials can be transformed into positive effects. It's just a matter of analyzing the potential and finding ways to use it.
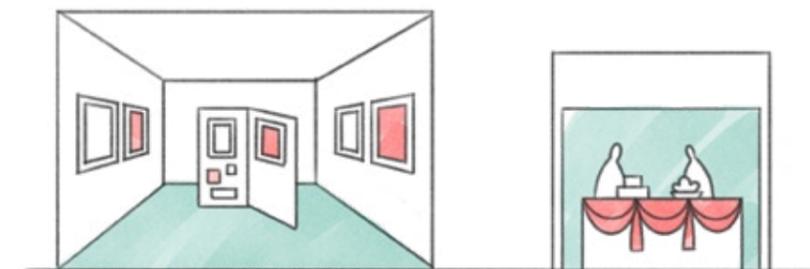
7. There is a pervasive misconception that the senior population cannot learn new information or skills. However, studies confirm that there is **interest in education** at every age. In the senior population, it is perceived that there are higher motivation and perseverance in studying. Education in informal groups is also an element for maintaining mental and physical well-being in the elderly.

8. It is a common belief among the people of society that the elderly demand only a peaceful and quiet life. However, in reality every person is different. By observing the available facilities for the elderly, it is concluded that there is **no choice of social or residential life** considered for this demographic.

9. While more than 80% of seniors in the Czech Republic live in their own houses, design thinking and practice on ageing are more focused on interior residential settings in the Czech Republic and all around the world . **Age-friendliness** should move beyond the contained settings of housing, age-segregated institutions into the **not-private spaces of the city**.
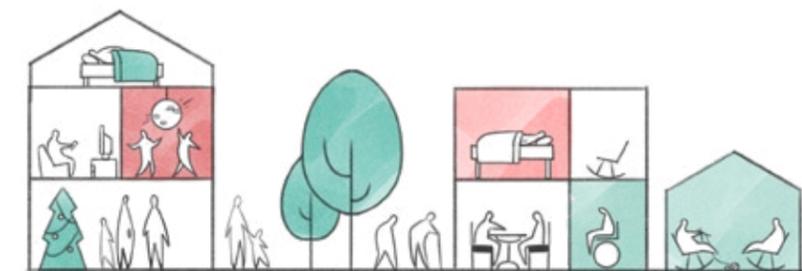
Demography and User Analysis (interview-based)

For the purpose of this project, two senior houses were visited and interviews were conducted based on a series of questions. One of these facilities is named "Nopova special regime house" and the other is "Vestonicka senior home". The houses were chosen to cover both types of elderly care residential facilities in Brno.
Below are a number of quotes pointed out in these interviews.

«Due to better quality of life, we have many older people, in the past the average it was around 75 to 78 , but now most of them are over 80 and we have 100 years old patients.Being 90 is common now.However, because they are getting older they are losing more ability and are much more dependant on someone else's help »
Nopova home for the elderly

« The average age of our clients is 85 years. We have several clients over the age of 100. »
Věstonicka senior home

« This nursing house wasn't built for people on wheelchairs. The reason for this is, in the past the seniors were retired in 50 55. Now, the age is increasing so people were in better health condition than now »
Nopova home for the elderly

« Clients would prefer single rooms, which are in short supply. Most clients live in rooms for two. »
Věstonicka senior home

« Hearing difficulties are quite common here »
Nopova home for the elderly

« We are trying to do our best for them but, one staff for every 30 patients , is very difficult to look after all of them. We do have the program for volenteers here but not many people are coming . Maybe a better advertisement for the society to know more about this possibility could be useful »
Nopova home for the elderly

« The staff who are in charge of activities, in the morning they assign a group work for the patients to work together and in the afternoon they go individually into the rooms and they read something for the patients or just talk, depending on what the patients like to do .»
Nopova home for the elderly

« We also have clients who have no visitors - no families or acquaintances. »
Věstonicka senior home

« The clients believe that the home should have more staff (the number of staff is determined by the South Moravian Region and the amount of money it will give per employee).»
Věstonicka senior home

« There are private houses but they have much higher payments for patients and different conditions. Here, is much cheaper than the private sector. But there is a very long waiting list for patients.»
Nopova home for the elderly

« To be admitted there is no set time limit, sometimes it takes 1 year and sometimes 6 months. It depends on the situation of each person who is going to be admitted here . there was one lady who was being abused at home and she got here after 1 week but most of the applicants are on the list and are admitted one by one and usually the time it takes is 6 months »
Nopova home for the elderly

« The problem is that there are a large number of applicants and a small number of vacancies. Places are freed only when the client dies and is replaced by a new client. So it is impossible to say who will ever be admitted to a home for the elderly»
Věstonicka senior home

By observing the points mentioned it is clear that the concerns of these two examples in Brno are very similar if not the same as the conclusions deduced through the research. To summarize the information received through the interviews, the following points can be assumed.

1. Higher dependency of clients due to higher average age of the demographic.

2. Lack of accessibility

3. Lack of demanded privacy and personal space

4. Shortage of staff and care givers

5. Isolation and loneliness of some clients

6. The elderly are not homogeneous and have different needs and demands

7. High and not affordable private facilities

8. Long waiting lists for applicants and lack of vacancies

Demography and User Analysis (interview-based)

To understand the behavior and characteristics of the elderly demographic, another important information was achieved through the interviews. To obtain a better perspective of the elderly living needs and demands, the following

Timeline of the daily routines and activities of seniors in care institutions in Brno was conducted.

| Sleeping | | Hygiene | Activities | Activities | Activities | Sleeping |

00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

Waking up   Breakfast   Lunch   Dinner   Preparing for bed

Visiting time
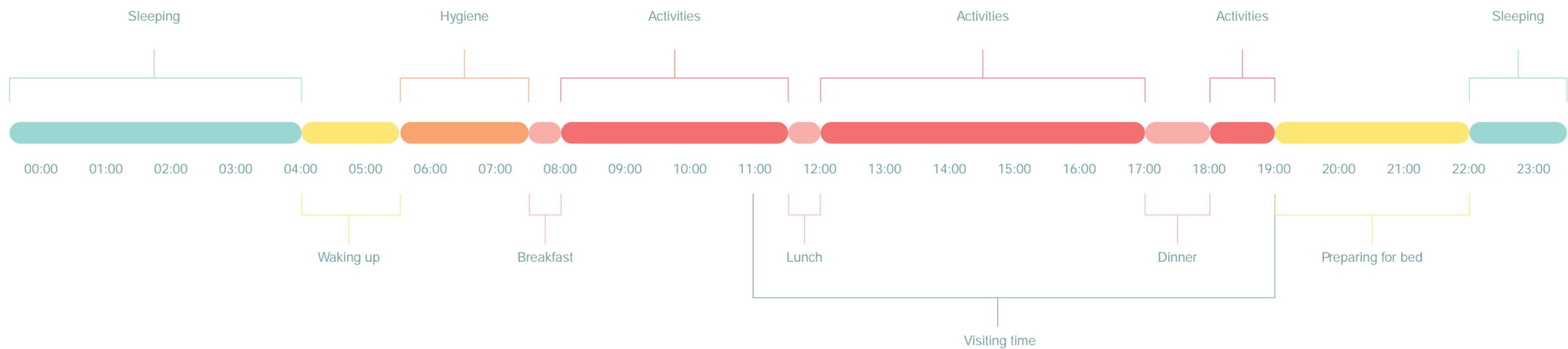
The activities were explained more by the two senior houses as the quotes shown below.

« They do some manual work they sing, they watch tv. The staff take them outside in the garden if the weather is nice or even physiotherapy can be provided in the garden . They like drawing just like children. They all sing together. Before COVID, some people were coming here and selling some clothes or shoes and it was nice for them.Sometimes they bake something like a cake or pudding. They also make sausages out in the garden in the summer. »
Nopova home for the elderly

«During the day, clients can visit an activation workshop, garden, or an activation worker goes to their room (they paint, do embroidery, talk, read to them, practice cognitive functions, sing ...), train with a rehabilitation worker and visit each other. The Home for the Elderly organizes an entertaining program for clients (even lying in bed) for example listening to folk songs, group performances, masses, sports, games and going to the library»
Věstonicka senior home

Chapter 2. Design Introduction

Vision and objectives

As it was described in the previous chapter, the care for the elderly in the urban environment is in need of enhancement especially considering the fast aging population of cities. By observing the current situation and taking into account the obstacles and demands of this demographic, the four following specific objectives were concluded for the development of this project which is to eventually result in a community of care for all age groups.

Accessible

Practical needs
(Safe, affordable,
comfortable)

Social needs
(Independence, control,
sense of identity)

Aesthetic needs
(relaxing, engaging, green)

Inclusive

Multi-generational exchanges
of services, experience and
information

Creating a homey
atmosphere that supports the
experience of continuation in
an everyday life

Seniors as active participants
in society (active aging)

Age-inclusive interations and
activities

Variable

Safe (emotional and
physical) choices for different
living types for seniors (for
example seniors with
different types and levels of
impairements and individual
preferences and living
conditions)

Preserving their daily needs
and routines and extending
their domaine

Sustainable

Re-using existing spaces by
enhancing and adjusting to
senior needs and demands

Continuous use of spaces
for people in different age
groups

Indoor and outdoor green
spaces as a crucial part of
design

Case Studies

For the purpose of this project a number of case studies related to senior citizens,universally, have been studied. Through this analysis, a classification of different typologies were concluded. Below, are demonstrated the recommended typologies for the existing care facilities. Each typology has been specified with a color. The following pages illustrate a more detailed analysis of 24 of the mentioned case studies which have been color coordinated according to the classification shown below.

1. Day care center / community center for seniors:
Non-residential spaces that focus on social interaction and activities among the seniors,offer medical care or assistance as well

2. Assisted living for seniors:
Residential complexes that provide 24 hour medical care and assistance for daily activities for seniors

3. Housing for seniors:
Residential buildings that are built according to the physical needs and characteristics of the senior living but do not necessarily provide 24/7 medical care

4. Housing for seniors and public use for others:
Residential buildings that are built according to the physical needs and characteristics of the senior living but will not necessarily provide medical care which are integrated with or in close connection to a building of public use

5. Co-living/housing for seniors and for others:
Cooperative or/non-Co-Op residential spaces for other demographics according to their needs(Multi-generational residential spaces)

6. Co-living/housing and public use for seniors and for others:
Cooperative/or non-Co-Op residential and non-residential spaces for all demographics according to their needs(Multi-generational residential and non-residential spaces)

Type 1. Day care center / community center for seniors

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Senior Citizen Community Center Spain	Providing spaces for shared activities among senior citizens only	Senior citizens	Residential neighborhood inside the city	Extracting space programs in public and social spaces according to needs of senior citizens	
La Vorada Center for Seniors Spain	Providing spaces for shared activities among senior citizens as part of a popular linear park	Senior citizens	Residential neighborhood inside city park	Extracting space programs in public and social spaces according to needs of senior citizens Integrating a new function for seniors into an existing function used and known by other demographics	
Casa del Abuelo Mexico	Public day-stay located within the premises of a park. The project starts with the idea of creating a refuge, a place where you can carry out activities in community with the elderly, in a natural, serene, fluid environment, with various interior and exterior spaces	Senior citizens	Suburbs	Extracting space programs in public and social spaces according to needs of of senior citizens	

Type 1. Day care center / community center for seniors

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Senior Center of Guangxi China	The project means to create a space for the retirees, who spent most of their youth in culture revolution. Despite historic impacts, the "communal life" created in culture revolution has been the recollection of the time. The project tries to evoke that sense of belonging for the parents' generation and the generations to come.	Senior citizens	Commercial neighborhood surrounded by urban greenery	Extracting space programs in public and social spaces according to needs of senior citizens, Considering the collective memory of the older generation in the space programing and defining activites	
Sant Antoni - Joan Oliver Library Spain	The project consists of a public library, as a door and chill-out space for reading. A senior center, as a facade of public space, and the interior of the block as playground for children with spatial and relationship richness for a socially dynamic urban project. The senior center sets the public space with its facade and backyard, and becomes an element of social cohesion to enhance the relationship of children playing in the yard with older people who come and go. The garden presents itself, on one hand, as an extension of the reading rooms of the library which proposes a tiered space for a more playful use, and on the other hand raises the illusion that it continues beyond the senior center.	Multi-generational public	Residential neighborhood inside the city	Multi-generational public funtion, attracting and inviting all demographics into the designed space Enhancing the living situation of surrounding social houses	
Home for the Elderly Spain	The main objective is to achieve a comfortable building for the elderly, a space in which users are comfortable, a place with which they can identify with. For this reason, the designers chose known building materials and finishes, warm and comfortable materials, such as ceramic and wood, and in general, a domestic architectural image. The shape of the building in plan is carefully adapted to the space available in one of the parterres of the Prince of Girona Gardens. The building is designed closely related to the park. A volume part of the language, of the materials and operation of the park. In fact,the building can be seen as a pavilion in the park, a viewpoint from which users can visually dominate the surrounding activity in the park and on the street. The ground floor is permeable, one can go through the building through the lobby. In fact, the building is also a new gateway between the street and the park. One of the squares of the park, now paved with wood, will have a new access through the building.	Senior citizens	Residential neighborhood inside city park	Extracting space programs in public and social spaces according to needs of senior citizens Integrating a new function for seniors into an existing function used and known by other demographics	

Type 2. Assisted living for seniors

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
BaptCare Brookview, Westmeadows Australia	consisted of a 90 bed Aged care development with the potential to provide an additional 30 bed expansion in the future. The building needed to be able to provide services such as: high care and dementia care.	Senior citizens	Residential neighborhood inside the city	Extracting space programs in private living spaces according to needs of medical-care dependent seniors	
The Nursing Home at Oleiros Spain	The programme of this home with 140 places is accommodated in four floors plus a great covered terrace, which provides a private, outdoor place. Ground floor includes a 62 places-parking and General Services (Laundry, Kitchen, Warehouse and Changing Room Facilities). These Units are designed in accordance with the same scheme: public-filter-private areas. Coliving room, kitchenette and visit room are placed at public zone; filter contains the main corridor and vertical core and, private area is formed by individual and double bedrooms, finally. The crossable green roof is intended for recreative, private use as well as perfect place to spend time with the loved ones.	Senior citizens	Residential neighborhood inside the city	Extracting space programs in private living spaces according to needs of medical-care dependent seniors Designing a senior care house that does not look like a hospital	
Nursing and Retirement Home Austria	The ground floor hosts public and semi-public zones, the kitchen and services areas, administration, storage and side rooms, the laundry, therapy and seminar rooms, a chapel, as well as consultation rooms.It also boasts a cafe offering access to the enclosed conservatory that extends to the full height of the building. Opening the sliding doors enables different spatial configurations for events or festivities.	Senior citizens	Suburb	Extracting space programs in private living spaces according to needs of medical-care dependent seniors Designing a senior care house that does not look like a hospital	

Type 4. Assisted living for seniors

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Santa Rita Geriatric Center Spain	The fact is that it is possible to build a geriatric center that does not look like a hospital, with neither corridors nor architectural barriers and on a single floor, in which all the rooms have direct access from (and towards) a garden that, as a sort of 'lobby', acts also as direct access towards (and from) the collective spaces. The aim is to ensure total accessibility, physical autonomy, psychical security and respect to individual privacy, facilitating access to visitors.	Senior citizens	Residential neighborhood in suburbs	Extracting space programs in private living spaces according to needs of medical-care dependent seniors

Designing a senior care house that does not look like a hospital

Relative private and independent senior residentail units

An interconnected common zone containing different functions needed for medical and interaction needs of senior residents | |

Type 3. Housing for seniors

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Les Hallates Senior Housing France	The project is part of continuity of the surrounding social houses by offering suitable housing for seniors, but it also includes an association room and medical offices, in order to offer to ensure a mix and proximity services to residents. Located in a residential area, it is surrounded to the south and west by dense social housing constructions from the 1960s, while to the north and east, there are pavilions. Bordered by a square, the project is therefore situated between the individual and the collective, the dense and the diffuse, social housing, and private houses.	Senior citizens	Residential neighborhood inside the city	Extracting space programs in private living spaces according to needs of low dependent seniors Project location among housing with other demographics to prevent senior isolation in their living space	
Agorahaverne Denmark	Sustainable co-housing for seniors with a focus on shared communal space.The blocks containing Ibihaven's 76 apartments are arranged around a covered courtyard containing workshop, exercise, library and lounge spaces in-between a series of small gardens."The atrium garden is a covered 'urban space' which draws nature all the way into the buildings and allows for spontaneous and disorganised meetings between residents and guests.Access to the apartments is via this central courtyard rather than the perimeter of the building.	Senior citizens	Residential neighborhood inside the city	Extracting space programs in private living spaces according to needs of low dependent seniors Creating an active common space to ensure social encounters of residents Creating an indoor common garden to be used throughout the whole year by residents	
Social Complex in Alcabideche Portugal	The Alcabideche Social Complex is a housing complex , which aims to help to fill a gap in the elderly support system. the Social Complex of Alcabideche aims to reconstitute a Mediterranean life style in which the outdoor spaces of streets, plazas and gardens are like an extension of the house itself. The roofs of the housing units also have other functions. In the event of an emergency, users can activate an alarm that alerts the control station located in the central building and the box-shaped roof's light changes from white to red. The central building, within the same modelling and principles, contains all of the common services necessary for proper functioning and quality of living.	Senior citizens	Residential neighborhood inside the city	Extracting space programs in private living spaces according to needs of low dependent seniors Creating familiar common indoor and outdoor spaces to ensure social encounters of residents, Bringing a sense of safety even in the most private spaces for medical emergencies of senior residents	

Type 4. Housing for seniors and public use for others

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Aigues-Vertes Senior Center Switzerland	The premises program included mainly the following activities: - a multi-purpose hall for the entire community of the Aigues-Vertes village; - activity and meeting rooms; - a senior center that can accommodate people requiring medical supervision; - new outdoor facilities in relation to the new building.	Senior citizens as residents/ Other demographic for public spaces	Residential neighborhood in village	Extracting space programs in private to public spaces according to needs of dependent seniors Distribution of public, semi-public, semi-private and private spaces to ensure privacy alongside social interaction	
85 Sheltered Housing Units for Senior and Public Facilities Spain	The mixed program of housing and facilities was determined by high economic restrictions that obliged the designers to maximize the best part of the site: the spectacular views of Barcelona and the ocean beyond. Orientation and topography defined the initial design. Facilities resolve the topographic jump and become a platform from which the south-facing housing units rise in an L-shape.	Senior citizens as residents/ Other demographic for public spaces	Residential neighborhood inside the city	Extracting space programs in private to public spaces according to needs of dependent seniors Distribution of public, semi-public, semi-private and private spaces to ensure privacy alongside social interaction	
Retirement and Nursing Home Wilder Kaiser Austria	A suitable site was found in Scheffau, which is the geographical center of the three municipalities. The new building is situated at the foothills of the "Wilder Kaiser" Mountain Range, directly adjacent to a former residential and care home that no longer corresponds to the required standards. The building consists of two compact volumes interlocking at the central section where they form an atrium. Three different outside spaces are created by the positioning on the plot: a public garden, a separate dementia garden and a playground for children.On the one hand the differentiated formation of the structure enables communication and the encounter between the residents and the community. On the other hand the interior and exterior spaces offer enough possibilities for private withdrawal and contemplation. Integration, Community and individual lifestyle do not exclude each other.The public areas are located on ground floor level. Café-Lounge, Event Hall and Chapel adjoin to the Main Entrance. In the rear area of the ground floor there are the administrative offices, service rooms and a production kitchen.	Senior citizens as residents/ Other demographic for public spaces	Suburb	Extracting space programs in private to public spaces according to needs of dependent seniors Distribution of public, semi-public, semi-private and private spaces to ensure privacy alongside social interaction	

Type 5. Co-living/Housing for seniors and others

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Senior Housing De Dijken 10 Netherlands	Four apartment blocks have been designed .One of the blocks is social housing: the others are regular housing designed for senior citizens.The initial urban plan of a long, consecutive strip of apartments was redesigned in order to create a visual connection between the separate park areas on either side of the building lot.Through the use of various voids, the entrance hall is connected to all the floors above and because of this, basic circulation space becomes a pleasant, unexpected experience for the inhabitants	Senior citizens and other demographics as residents	Residential neighborhood inside city	Extracting space programs in private spaces according to needs of seniors and other demographics Connecting and activating two seperate public parks	
30 Senior Housing Netherlands	The location of the building is in a district build in the seventies. The buildings in this neighborhood are build in a period of lack of houses.Most of them are therefore built and designed fast and with a small budget. A lot of building elements are prefabricated and realized without much craft at all. The program consists in 30 social dwellings. 13 houses for families (95m2) with a garden and 17 apartments for elderly people (85m2) with a private balcony.	Senior citizens and other demographics as residents	Residential neighborhood in suburb	Extracting space programs in private and affordable housing units according to needs of seniors seperated from but connected to social housing for other demographics with a shared outdoor space	

Type 6. Co-living/Housing and public use for seniors and for others

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Armstrong Place Senior Housing USA	This complex development fills a formerly industrial city block with an innovative housing mix: Affordable urban townhomes to keep growing families in the city and family housing adjacent to senior apartments to prevent seniors from living in isolation. the development lies just a block from a stop of a new light-rail line, a park, and a health center. The senior building, with 116 affordable rental units, serves as the anchor for the development, housing neighborhood-serving retail space and services and presenting an iconic tower at the corner that signals a sense of place	Multi-generational residents and public commercial use	Residential neighborhood inside city	Creating affordable housing for seniors alongside other affordable houses for other demographics The close proximity of the senior houses to a health center Creating public retail spaces and service spaces in the housing complex to create a dynamic social connection between the senior resients and others	
Nursing Home France	This major municipal project was envisioned as a response to the elevated need for housing while paving the way for a durable, mixed-use 21st century city. So much data that had to be compiled to come up with smart solutions for a multi-program block (nursing home, social housing, private housing, religious center, and retail businesses). The project provides a strong architectural response to the challenges of urban density and new environmental requirements by creating collective strategies for the entire block.	Multi-generational residents and public commercial/cultural use	Residential neighborhood inside the city	Multi-program dense block containing nursing home, social housing, private housing, religious center, and retail businesses Creating a dynamic common space on the ground floor containing the needs of residents and connecting all functions together	
Nursery in Paris France	The program, packed and complex, offers a dual programming in the same site, including a childcare centre with its staff housing and 13 students housing units. The project must integrate different qualities: openness and privacy, daytime operation for the childcare centre, evening and night for the housing, friendliness and safety.The nursery is set up on the first two levels and the housing overhang on the two upper levels.The outdoor spaces allow different uses, adapted to different ages, seasons, times of day.	Multi-generational residents and public educational use	Residential neighborhood inside city	Bringing senior care together with childcare and students to create a lively and dynamic atmosphere Accomodating the staff for easy and quick access to seniors Distribution of public to private spaces and for the different demographics in a way to create privacy alongside inclusion	

Type 6. Co-living/Housing and public use for seniors and for others

Name	Description (Archdaily)	User	Urban context	Conclusion	Visual (Images from Archdaily)
Mixed-use Kampung Admiralty Singapore	Housing, health facilities and social spaces are all contained within this plant-covered Singapore building. This project was designed according to a "club sandwich" philosophy, with different functions layered on top of each other to create what the architects described as a "vertical village". This is topped by a roofscape of staggered terraces covered in local plants, which function as a community park. The lower levels contain the People's Plaza, a "community living room" with shops, eateries, and access to a tropical garden. The medical centre is located in the middle floors, while the topmost layer contains studio apartments, as well as the green spaces. The close proximity to healthcare, social, commercial and other amenities support inter-generational bonding and promote active ageing in place."	Multi-generational residents and public commercial/cultural use	Commercial neighborhood surrounded by urban greenery	The traditional approach is for each government agency to carve out their own plot of land, resulting in several standalone buildings. This one-stop integrated complex, on the other hand, maximises land use, and is a prototype for meeting the needs of Singapore's ageing population The close proximity to healthcare, social, commercial and other amenities support inter-generational bonding and promote active ageing in place	
The Architect The Netherlands	On the ground, first and partly on the second floors there are different living areas for residents requiring care. Above there is social housing. The Architect has, combined with nursery and community centre at ground level, a sustainable mix of social functions. The layout of the ground floor is flexible and extends into a landscaped garden through a large glass facade. Here all functions come together creating meeting places and relationships in sight. Both, young and old, stay protected and right in the middle of the society.	Multi-generational residents and public commercial/cultural use	Residential neighborhood inside the city	Multi-generation dense block containing nursing home, social housing ,retail businesses, outdoor and indoor common spaces Creating a dynamic common space on the ground floor containing the needs of residents and connecting all functions together Distribution of public to private spaces and for the different demographics in a way to create privacy alongside inclusion	
Walumba Elders Centre Australia	IPH designed a new home for the elders based on their cultural and social needs, while still complying with the requirements of an Aged Care Centre that can provide a range of services under the Commonwealth "flexible aged care provisions". The site was selected to be close to the school and town centre to ensure the elders are able to continue their role as educators and cultural leaders. The Centre performs several functions; it is the home for the residents and staff who have a range of living support needs, it provides a commercial kitchen for the residents and a "meals-on-wheels" service, laundry, a common dining and activity area which is also a central meeting and celebration areas for the community, gender specific private activity areas to allow for gender specific Cultural activities to occur and a generous courtyard for the residents to enjoy. The common area has a fire-pit to allow for the cooking of bush foods, and art troughs and space for a range of activities. It is overlooked by the laundry – a drum-like feature and the administration area.	Multi-generational residents and public cultural use	Residential neighborhood inside city	Balancing privacy of the residents while allowing family access for support Access to outdoor living spaces both public and private Supporting culture activities including ceremonies that may involve fire and smoke Ensuring connection with the general activities of the community	

Typologies in Czech Republic

According to the suggested typologies, the care facilities that are currently available for the elderly in the Czech Republic introduced in the previous chapters can be categorized in the below typologies:

1. Day care center / community center for seniors.
Non-residential spaces that focus on social interaction and activities among the seniors,offer medical care or assistance as well. This typology contains facilities previously introduced as 'Day care centers' and 'social services for the elderly' .

Image 3- Senior point in Brno (Google Image)

Image 4- Senior point in Brno (Google Image)

2. Assisted living for seniors
Residential complexes that provide 24 hour medical care and assistance for daily activities for seniors. This typology contains facilities previously introduced as ' Homes for the elderly' and 'Special regime


Image 5- Nopova special regime home in Brno (Google Image)

Image 6- Podperova home for the elderly in Brno (Google Image)

Chapter 3. Design Analysis

Space Programming charts of typologies

To obtain a deeper understanding of the relative spaces existing in each of the 6 typologies, two sets of pie charts were determined for each of the 24 case studies. The first chart indicates the ratio of built area in comparison to open-space greenery. As for the second chart, four general spaces were specified. The first two are residential spaces which are either used by seniors or other demographics and the second two indicators were non-residential spaces. The 'shared spaces' refers to semi-private to semi-public spaces that are accessible for certain demographics and the 'public spaces' introduces public shared spaces that are accessible by all demographics. The following pages illustrate these charts for each of the analyzed case studies and also contains the average charts for each of the 6 typologies.

1. Day care center / community center for seniors:

Non-residential spaces that focus on social interaction and activities among the seniors,offer medical care or assistance as well

Legend (row 1, left):
- Green area
- Built area

36% / 64%

Legend (row 1, center-left):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

100%

Legend (row 1, center-right):
- Green area
- Built area

79% / 21%

Legend (row 1, right):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

100%

Legend (row 2, left):
- Green area
- Built area

55% / 45%

Legend (row 2, center-left):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

100%

Legend (row 2, center-right):
- Green area
- Built area

47% / 53%

Legend (row 2, right):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

52% / 48%

Legend (row 3, left):
- Green area
- Built area

77% / 23%

Legend (row 3, center-left):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

100%

Legend (row 3, center-right):
- Green area
- Built area

41% / 59%

Legend (row 3, right):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

9% / 91%

Assisted living for seniors:
Residential complexes that provide 24 hour medical care and assistance for daily activities for seniors

Green area
Built area

26%
74%

Others residential
Senior Residential
Shared spaces
Public spaces

15%
85%

Green area
Built area

26%
74%

Others residential
Senior Residential
Shared spaces
Public spaces

46%
54%

Green area
Built area

39%
61%

Others residential
Senior Residential
Shared spaces
Public spaces

27%
73%

Green area
Built area

47%
53%

Others residential
Senior Residential
Shared spaces
Public spaces

30%
70%

3. Housing for seniors:

Residential buildings that are built according to the physical needs and characteristics of the senior living but do not necessarily provide 24/7 medical care


Green area
Built area

43%

57%

Others residential
Senior Residential
Shared spaces
Public spaces

46%

54%

Green area
Built area

100%

Others residential
Senior Residential
Shared spaces
Public spaces

23%

77%

Green area
Built area

32%

68%

Others residential
Senior Residential
Shared spaces
Public spaces

20%

80%

4. Housing for seniors and public use for others:

Residential buildings that are built according to the physical needs and characteristics of the senior living but will not necessarily provide


Legend (top left pie):
- Green area
- Built area

51% / 49%

Legend (top right pie):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

23% / 45% / 32%

Legend (middle left pie):
- Green area
- Built area

16% / 84%

Legend (middle right pie):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

48% / 35% / 17%

Legend (bottom left pie):
- Green area
- Built area

42% / 58%

Legend (bottom right pie):
- Others residential
- Senior Residential
- Shared spaces
- Public spaces

52% / 38% / 10%

5. Co-living/housing for seniors and for others:
Cooperative or/non-Co-Op residential spaces for other demographics according to their needs(Multi-generational residential spaces)

Green area
Built area

55% 45%

Others residential
Senior Residential
Shared spaces
Public spaces

11%
21%
68%

Green area
Built area

45% 55%

Others residential
Senior Residential
Shared spaces
Public spaces

41% 59%

6. Co-living/housing and public use for seniors and for others:
Cooperative/or non-Co-Op residential and non-residential spaces for all demographics according to their needs(Multi-generational residential and non-residential spaces)

Green area
Built area

55% 45%

Others residential
Senior Residential
Shared spaces
Public spaces

4% 2%
21%
73%

Green area
Built area

79%
21%

Others residential
Senior Residential
Shared spaces
Public spaces

6%
25% 34%
35%

Green area
Built area

23%
77%

Others residential
Senior Residential
Shared spaces
Public spaces

9%
6%
33%
52%

Green area
Built area

15%
85%

Others residential
Senior Residential
Shared spaces
Public spaces

15% 17%
12%
56%

The graphs below illustrate the average of the indicators for each typology

Pie chart 1: Green area 41%, Built area 59%

Pie chart 2: 100% (Shared spaces); legend: Others residential, Senior Residential, Shared spaces, Public spaces

Pie chart 3: Green area 42%, Built area 58%

Pie chart 4: 20%, 41%, 39%; legend: Others residential, Senior Residential, Shared spaces, Public spaces

Pie chart 5: Green area 43%, Built area 57%

Pie chart 6: 37%, 63%; legend: Others residential, Senior Residential, Shared spaces, Public spaces

Pie chart 7: Green area 50%, Built area 50%

Pie chart 8: 11%, 31%, 58%; legend: Others residential, Senior Residential, Shared spaces, Public spaces

Pie chart 9: Green area 42%, Built area 58%

Pie chart 10: 51%, 49%; legend: Others residential, Senior Residential, Shared spaces, Public spaces

Pie chart 11: Green area 30%, Built area 70%

Pie chart 12: 10%, 25%, 12%, 53%; legend: Others residential, Senior Residential, Shared spaces, Public spaces

The diagrams below represent the percentage ranges for each of the 4 indicators according to the previous graphs. The colors indicate the number in which the typology owns in the specified indicator.

Others Residential space

0%   21%   41%   73%

Senior Residential space

0%   17%   34%   41% 49% 58%   85%
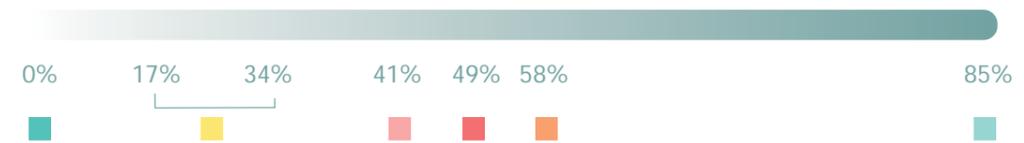
Shared Space (Private)

11% 15%   25%   39%   51%   100%

Public (Shared) space

0% 2%   15%   32%
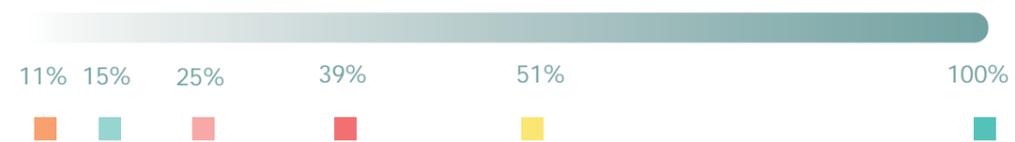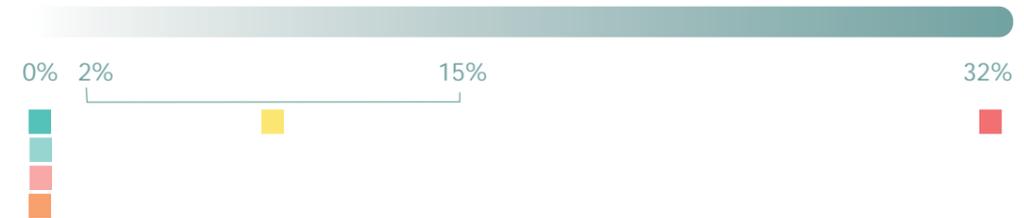
Chapter 3. Design Context

Looking back at the map of elderly care facilities in BRNO, according to the introduced typologies, we can classify them in to the typology 1 and 2. Therefore this map can be changed into the new map on the following page

Map 2- Elderly care facilities in BRNO

Homes for the elderly
Home with special regime
Day care center
Home care services for the elderly
Social services for the elderly
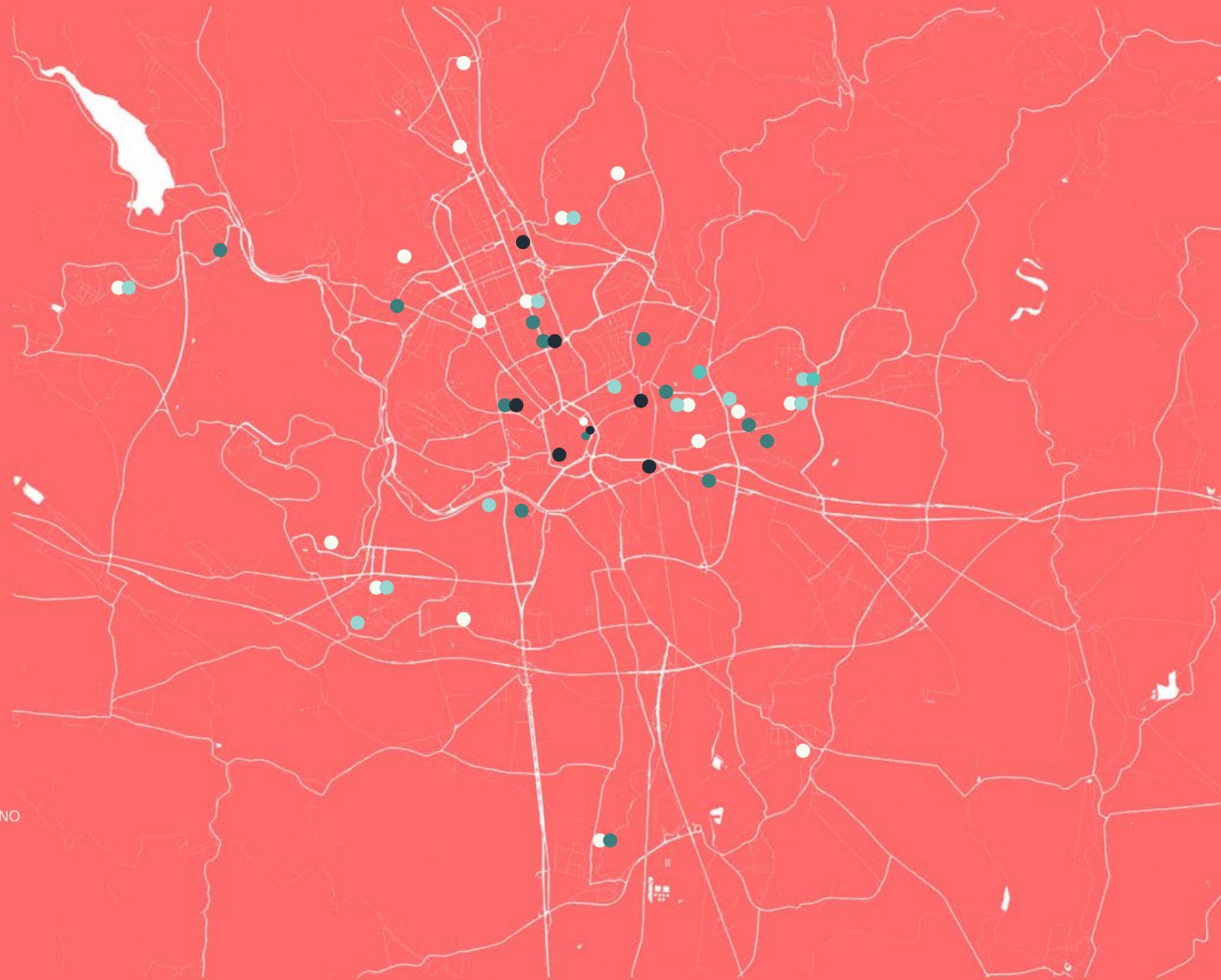
BRNO map of elderly care facility typologies

By defining the placement and density of these two existing typologies throughout the city, we are able to define new typologies with functions according to the missing demands in different regions for elderly care throughout the city. This helps to enhance the existing care infrastructures without having to build completely new buildings.

Type 1

Type 2
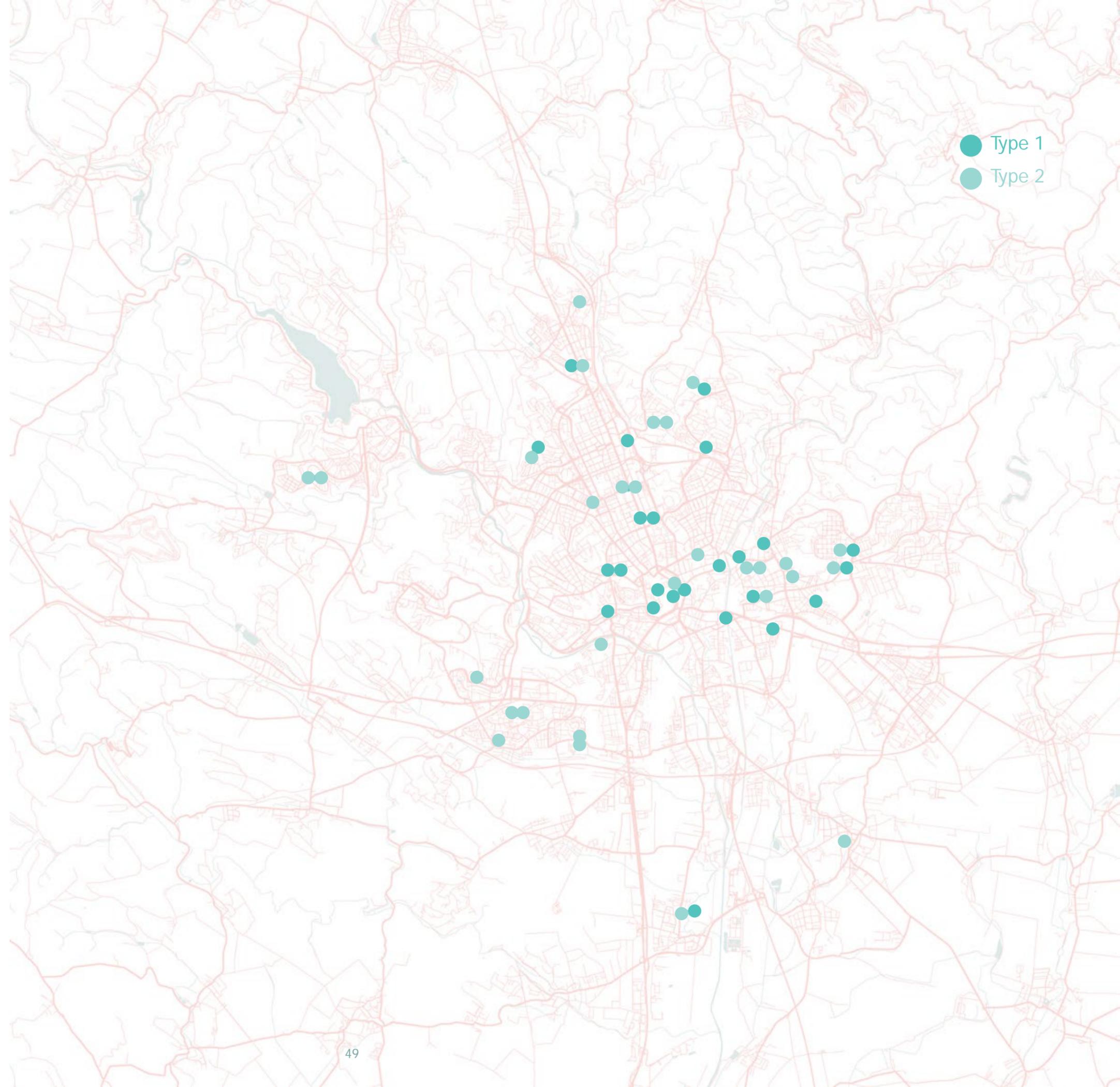
BRNO map of residential buildings

As it was mentioned in the previous chapters, as the population ages, not only it is not practical to move all current and future senior demographic to senior housing facilities, but also the elderly and their families prefer to stay in their own living environment. Displacing this demographic can be followed by many negative consequences such as depression and isolation and loss of sense of belonging. For this reason, this map represents where current and future senior citizens and their families and possible care-givers currently reside. With this in mind, new typologies can be defined to make the elderly's existing living environments age-Inclusive.
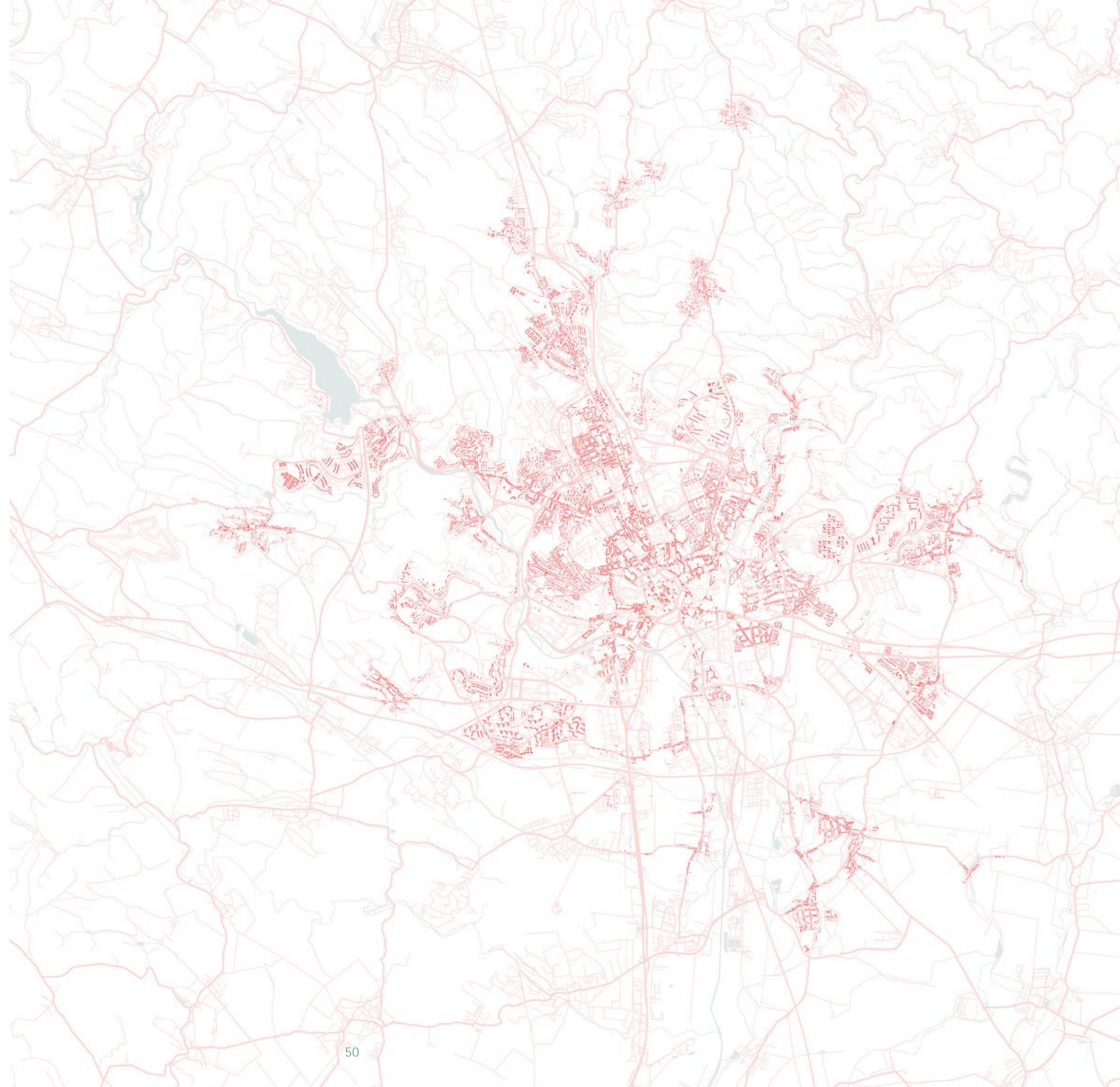
BRNO map of public Infrastructure

There are certain public cultural functions that are either free of charge or mostly including senior discounts. These functions consist of cinema's, theaters, galleries, museums, etc. This map indicates these public infrastructures that can be used as important social interaction spots throughout the city of Brno for intergenerational contact that have the benefit of being affordable for the elderly.
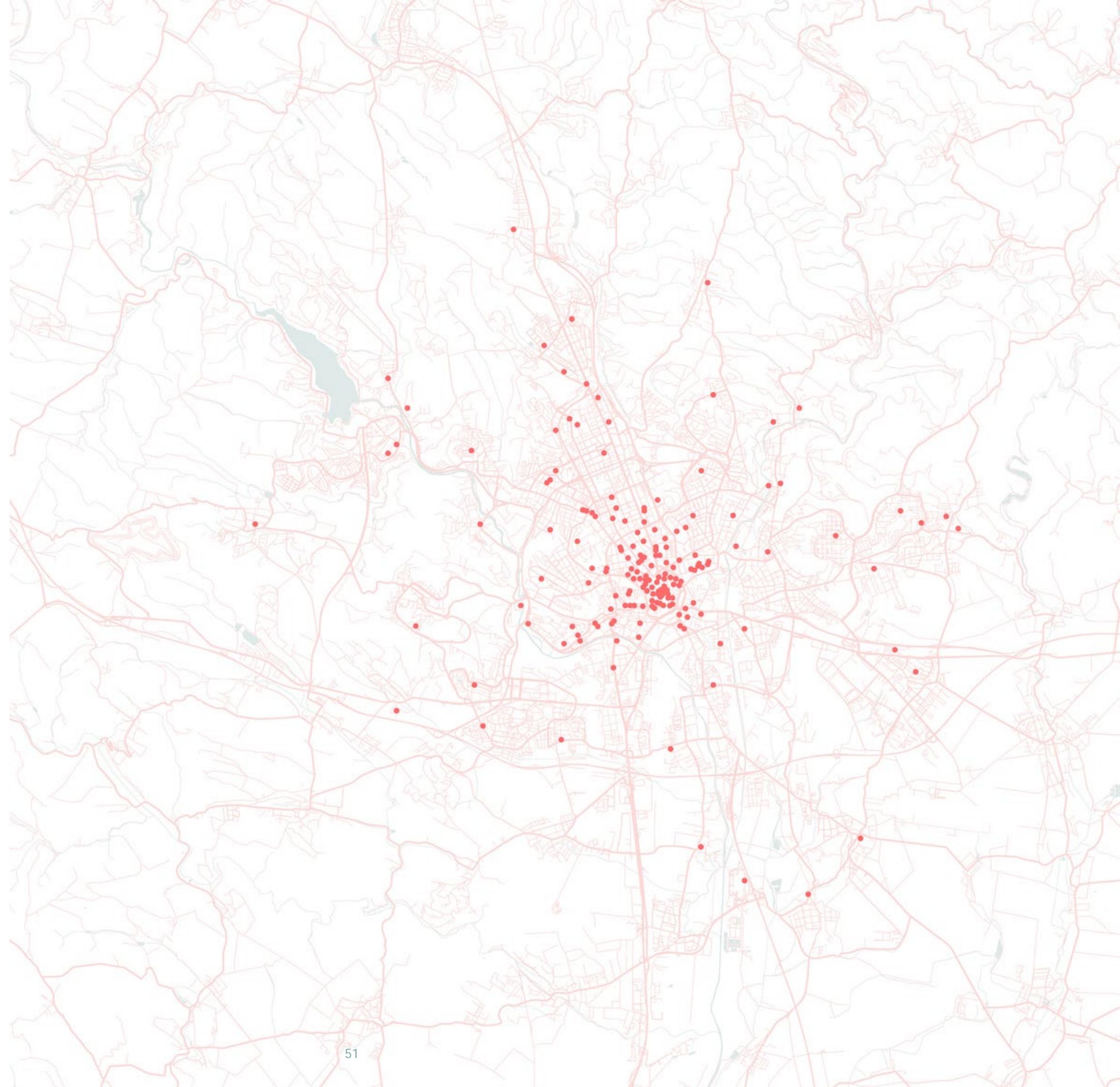
BRNO map
Classified into
3 regions

The three previously shown maps of elderly facilities, residential buildings and public infrastructures in Brno resulted in the map of 3 main regions in Brno. To do so, the density of each indicator in each map were analyzed. According to their density, the city of Brno was then divided into the three regions of center, inner-periphery and periphery. This map was then used to further develop the design process of defining the new care typologies.
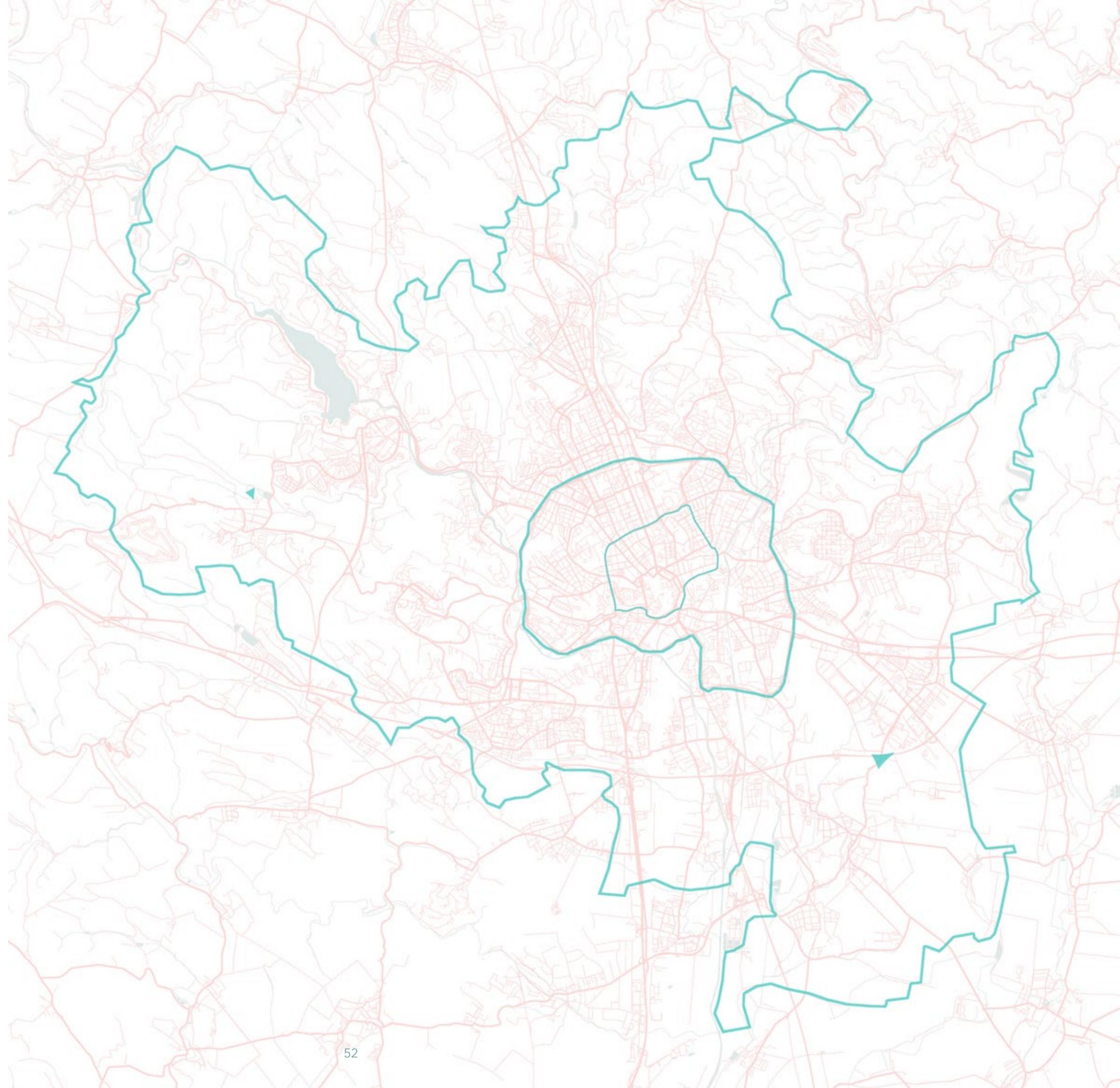
BRNO
Classified into
3 regions

The elderly facility type one, elderly facility type two, residential buildings and public infrastructure were used as defining parameters in shaping the new care typologies' space programming process.
The illustrated diagrams show the relative range of density of the mentioned parameters in the three regions of Brno.

Parameter / Region	Typology 1 of care facility	Typology 2 of care facility	Residetial buildings	Public infra-structure
Center				
Inner-periphery				
Periphery				
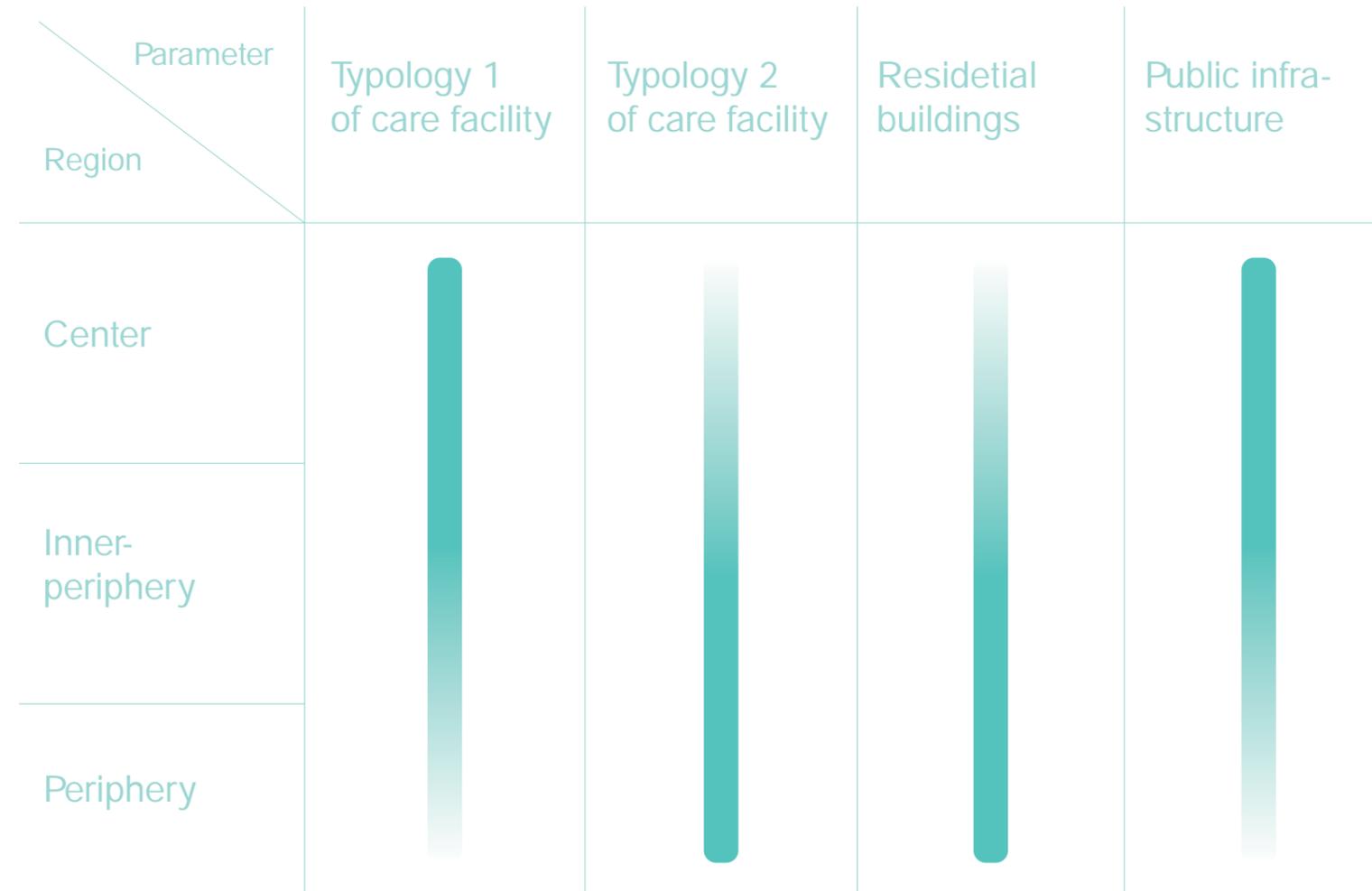
The care typologies of Brno

By considering the demonstrated parameters in previous pages, the space programming of the new typologies of care were concluded according to the context of Brno. By taking into account the density and availability of the 4 parameters in the 3 regions of Brno, and with respect to the results from the case studies analysis, the following spectrum of program zoning for the new care typologies for Brno were deduced.

The general program zoning is divided into residential spaces and shared spaces.

This general classification then develops into a more detailed programing. The residential spaces expands to senior residential and other demographics residential spaces. The shared spaces also branches out to private shared spaces and public shared spaces. The suggested range of percentage for each of these zonings were concluded by analyzing a number examples of elderly care facilities which were shown in more detail in the previous chapter of case studies.

Program \ Region	Center	Inner-periphery	Periphery
Residetial Spaces	80%	60% 20%	0%
Shared Spaces	20%	40% 80%	100%

Table 2- Suggested program zoning for three regions of Brno

Program \ Region	Center	Inner-periphery	Periphery
Senior Residetial Spaces	85%	60% 20%	0%
Others Residetial Spaces	15%	40% 80%	100%
Private Shared Spaces	10% 40%	15% 70%	25% 90%
Public Shared Spaces	0% 30%	10% 45%	10% 55%

Table 2- Suggested program zoning for three regions of Brno in more detail

The care typologies of Brno

Followed by a more distinct and detailed space programming for the residential spaces and shared spaces was classifying the list of needed spaces according to proximity and accessibility into three domains of urban environment. The spaces that are needed Locally, in districts and in the city scale.

The diagrams below show the demanded spaces required for the care community in the urban environment in the three mentioned scales.

Local scale

Multi-generational housing(assisted living, co-housing, collective housing), meeting points, activity(art, games,etc.) Points, gardens(indoor and outdoor), multi-function area, medical care space, social and medical assistance and care centers(distributing volunteers or care givers according to needs and demands), dining spaces

District scale

Experience and skill exchange points, Multi-generational learning points(language classes, cooking workshops, gardening workshops, art studios), public health and wellness center(-consists of three main parts of 1.prevention zone containing spa, cognitive activity center and physical activity center, 2. Treatment zone including physiotherapy, hydrotherapy, consultation and pharmacy, 3. Home-care zone which includes training and distributing care-givers.) Medium scale gathering and meeting points for instance amphitheater,cafe/restaurants/bars, and multi-function areas, markets

City scale

Multi-generational education points(for instance in universities) , working and business spaces, trade centers

The care typologies of Brno

The space programs that were introduced in the previous page were then assigned to the three suggested new typologies that are illustrated below. These typologies can be implemented and modified or even combined according to their surrounding context. Having all of these typologies throughout the city and in the correct consistency according to the scales of local,district and city, defines the city as a whole as a care community.

Care housing

Age-integrated collective-care housing(for low to medium dependent seniors), assisted-care multi-generational housing(for high dependent seniors) meeting points, activity(art, games,etc.) Points, gardens(indoor and outdoor), medical care space

Day Care center

Meeting points, activity(art, games,etc.) Points, gardens(indoor and outdoor), multi-function area, social and medical assistance and care centers(distributing volunteers or care givers according to needs and demands), dining spaces, markets, cognitive activity center and physical activity center, Multi-generational learning points

Care community center

Experience and skill exchange points, Multi-generational learning points(language classes, cooking workshops, gardening workshops, art studios), public health and wellness center(consists of three main parts of 1.prevention zone containing spa, cognitive activity center and physical activity center, 2. Treatment zone including physiotherapy, hydrotherapy, consultation and pharmacy, 3. Home-care zone which includes training and distributing care-Givers.) Medium scale gathering and meeting points for instance amphitheater,cafe/restaurants/bars, and multi-function areas, working and business spaces, trade centers

Care Typologies Classified into 3 regions of Brno

The following table demonstrates the listed spaces required for an age-inclusive care community according to the different regions specified in the city of Brno.

Region / Program	Center	Inner-periphery	Periphery	
Senior Residetial Spaces	Age-integrated collective-care housing(for low to medium dependent seniors)	Age-integrated collective-care housing(for low to medium dependent seniors), assisted-care multi-generational housing(for high dependent seniors)	Using the existing senior houses and special regime houses	
Others Residetial Spaces	Student housing, co-operative housing	Student housing, social housing, co-operative housing, foster care housing, orphanage,	Age-integrated collective-care housing(for low to medium dependent seniors), multi-generational family houses, social housing co-operative housing	
Private Shared Spaces	Medical care spaces,meeting points, activity points, gardens, dining spaces	Medical care spaces,meeting points, activity points, gardens, dining spaces	Medical care spaces,meeting points, activity points, gardens, dining spaces, markets, cognitive activity center and physical activity center, Multi-generational learning points	
Public Shared Spaces	Using the existing public infrastructures for example cinema's, theaters, galleries, museums, etc.	Using the existing public infrastructures for example cinema's, theaters, galleries, museums, etc. or creating new social interaction points in contexts that lack this function	New public spaces for example library, amphitheater, playground, gallery, exhibition, etc,.	

Residential building types in the region of Center

To implement the new care typologies in the city of Brno the context of the surrounding buildings are to be analyzed. The reason is for the new care typology to be blended and integrated as much as possible in its environment to create inclusivity between the new and existing functions. To do so, the residential buildings in Brno were classified into three categories according to the existing types. The following maps illustrates the three types of residential buildings in the 3 specified regions of Brno .

Family houses with 1-2 floors

Apartments with 3-6 floors

Residential buildng with 7 floors and above
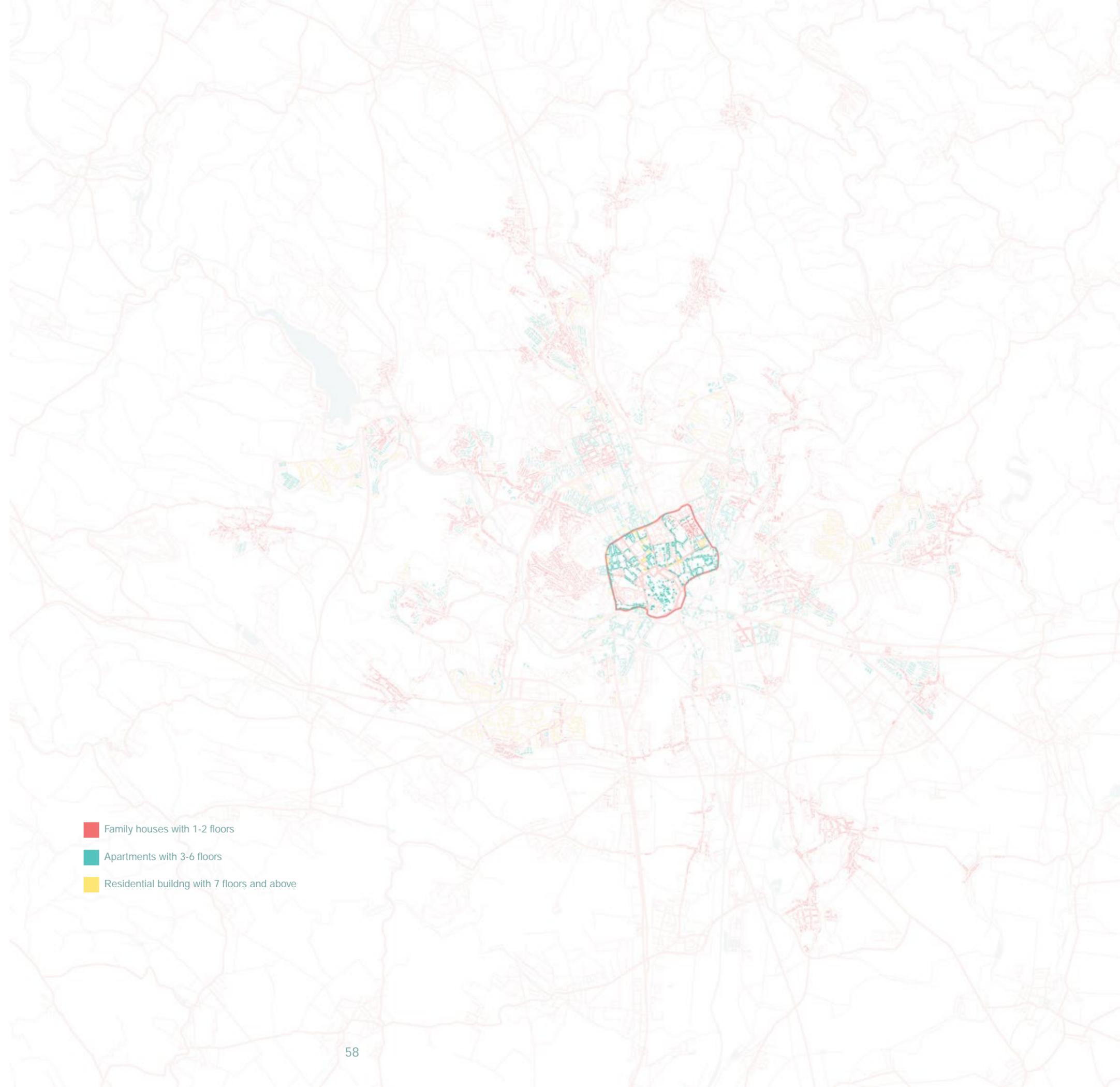
Residential building types in the region of Inner-periphery

■ Family houses with 1-2 floors

■ Apartments with 3-6 floors

■ Residential buildng with 7 floors and above
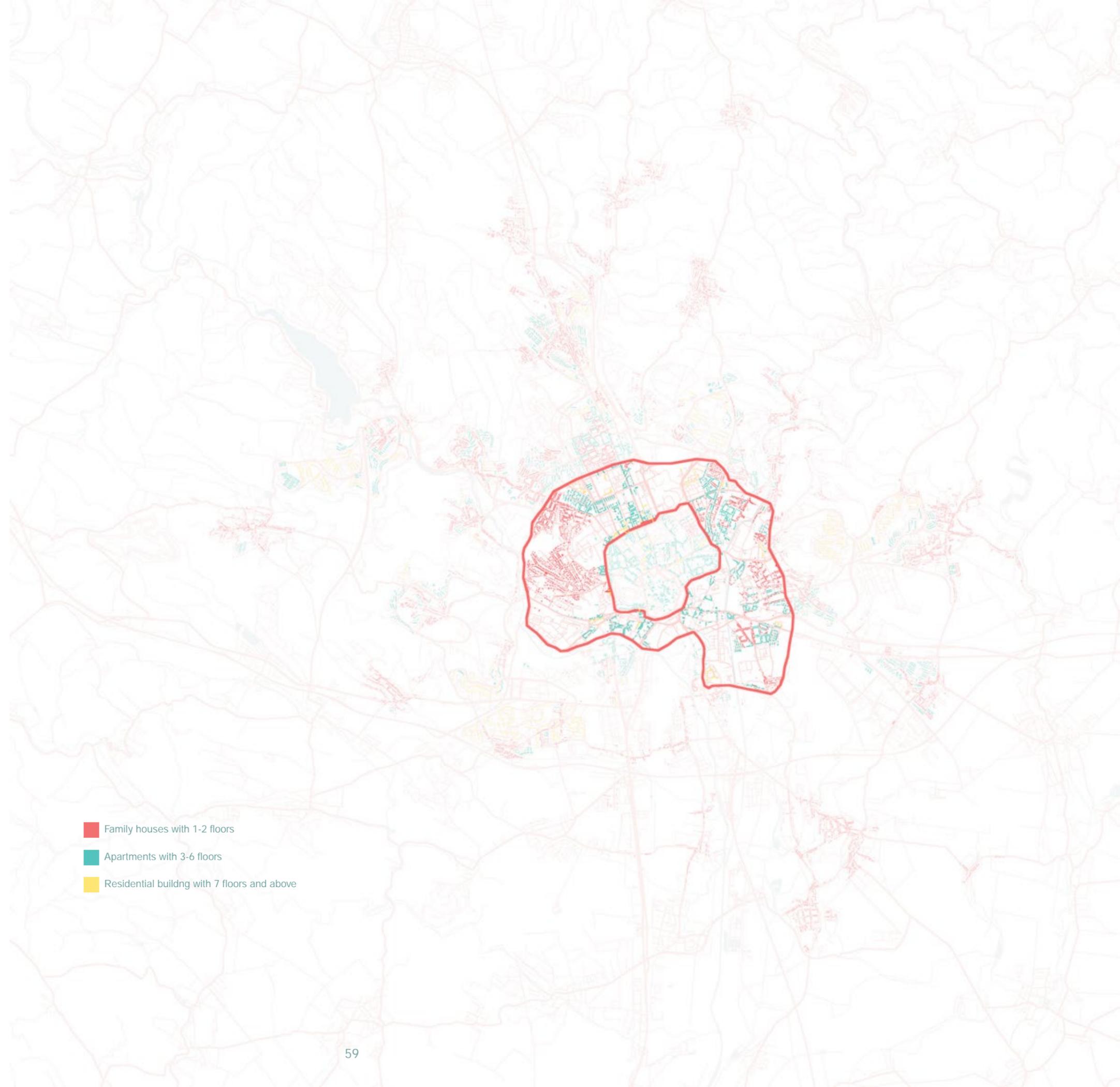
Residential building types in the region of Periphery

Family houses with 1-2 floors

Apartments with 3-6 floors

Residential buildng with 7 floors and above
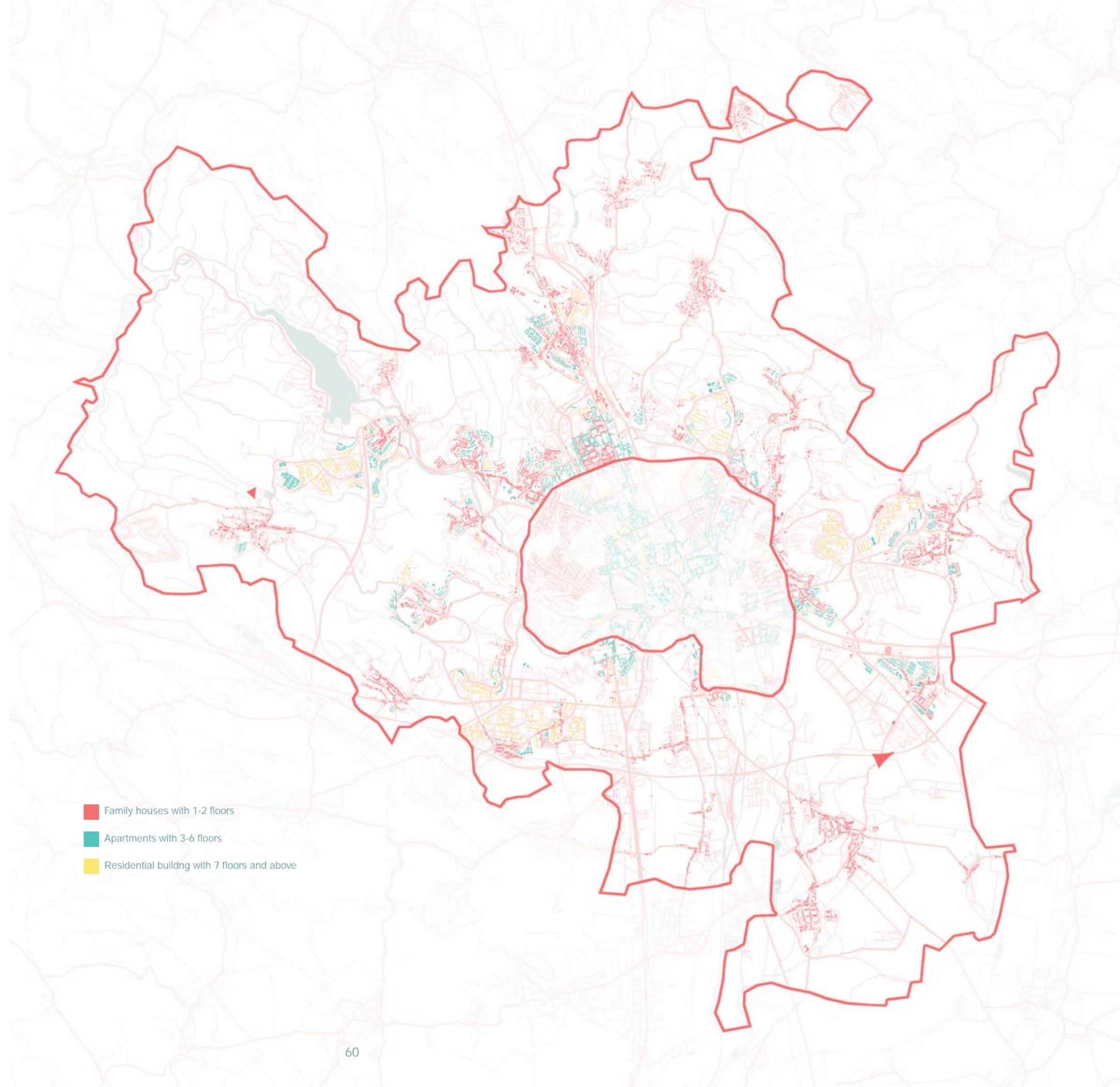
Residential building types percentage in the three regions of Brno

For the purpose of this project, the percentage of each type of residential building in the three main regions of Brno were calculated. According to these percentages, for purpose of this project, the 3-6 stories building type in the center region and the 1-2 stories type in the periphery region were chosen since they are the most repetitive types in their respected regions.

0.5%
8.5%
92%

■ 1-2 stories
■ 3-6 stories
■ 7 and above stories

Center

0%
30%
70%

■ 1-2 stories
■ 3-6 stories
■ 7 and above stories

Inner-periphery

22%
60%
18%

■ 1-2 stories
■ 3-6 stories
■ 7 and above stories

Periphery
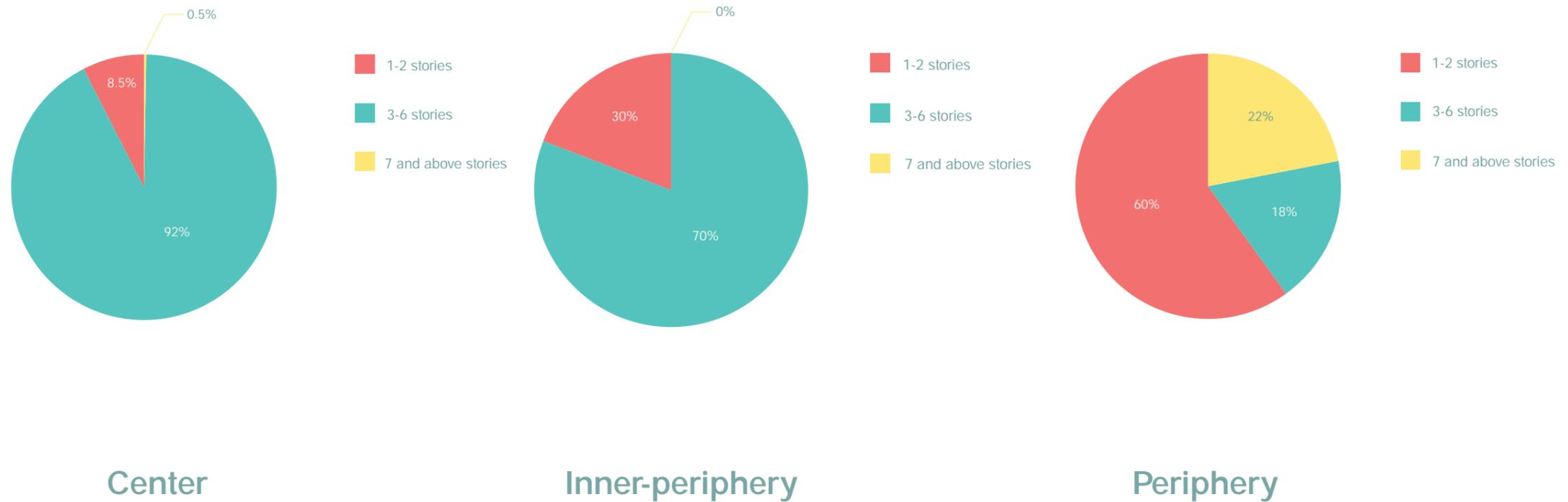
Typology 1. Collective-Care Housing

Project location and Site analysis

Choosing the location of the project within the introduced center region of Brno.

Finding the public cultural infrastructure in the chosen area.

Specifying and choosing an accessible public infrastructure(for this project the marked location is a restaurant named Panksy. Which holds small gatherings,outdoor street music events and displays photographs and paintings throughout the year).

Project location and Site analysis

A typical residential block in the center region. Containing buildings in the category of 3-6 stories which encircles a courtyard.

Two accessible public infrastructures in close proximity and relationship to the selected residential block.

Locating the public transport within walking distance from the chosen residential block.

Project location and Site analysis
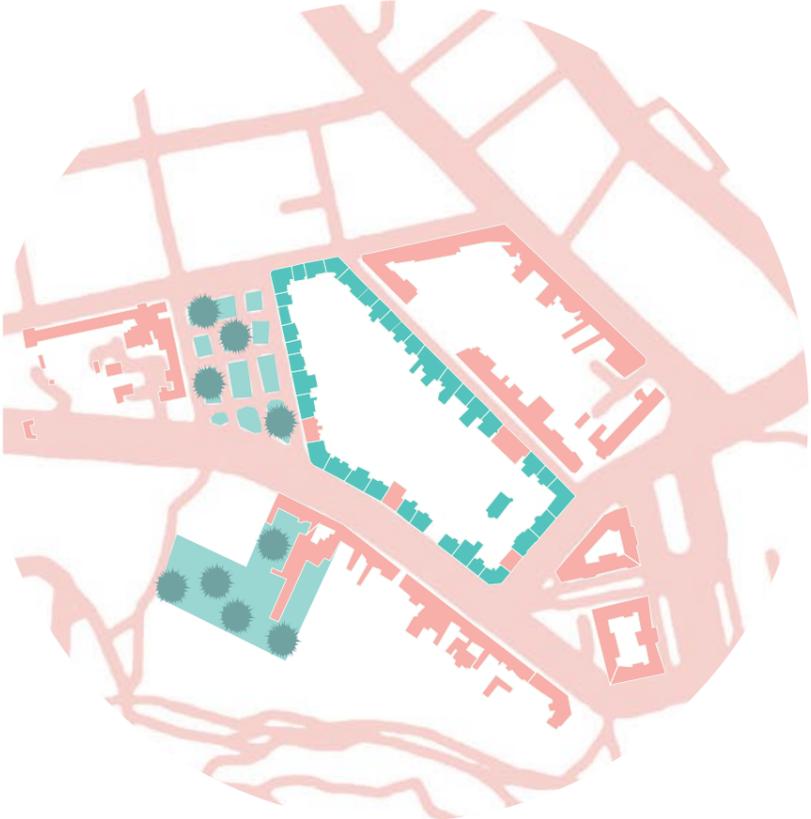
Public greenery/park in close proximity to the chosen residential block.

Medical laboratory and pharmacy as part of the residential block.

Location of a hospital in close proximity to the residential block.

Project location and Site analysis

Location of universities in close proximity to the residential block which influences the demographic present in the area. Also, it can be used as learning point which is accessible to the seniors.

Existing educational institution that can be used as learning points for senior residents.

Detecting the lands that are owned by the city and can be used to assign new functions.

Project site in the block

Legends

- Chosen city block
- Residential buildings
- Public infrastructure (Panksy cafe)
- Private gardens
- Public garden
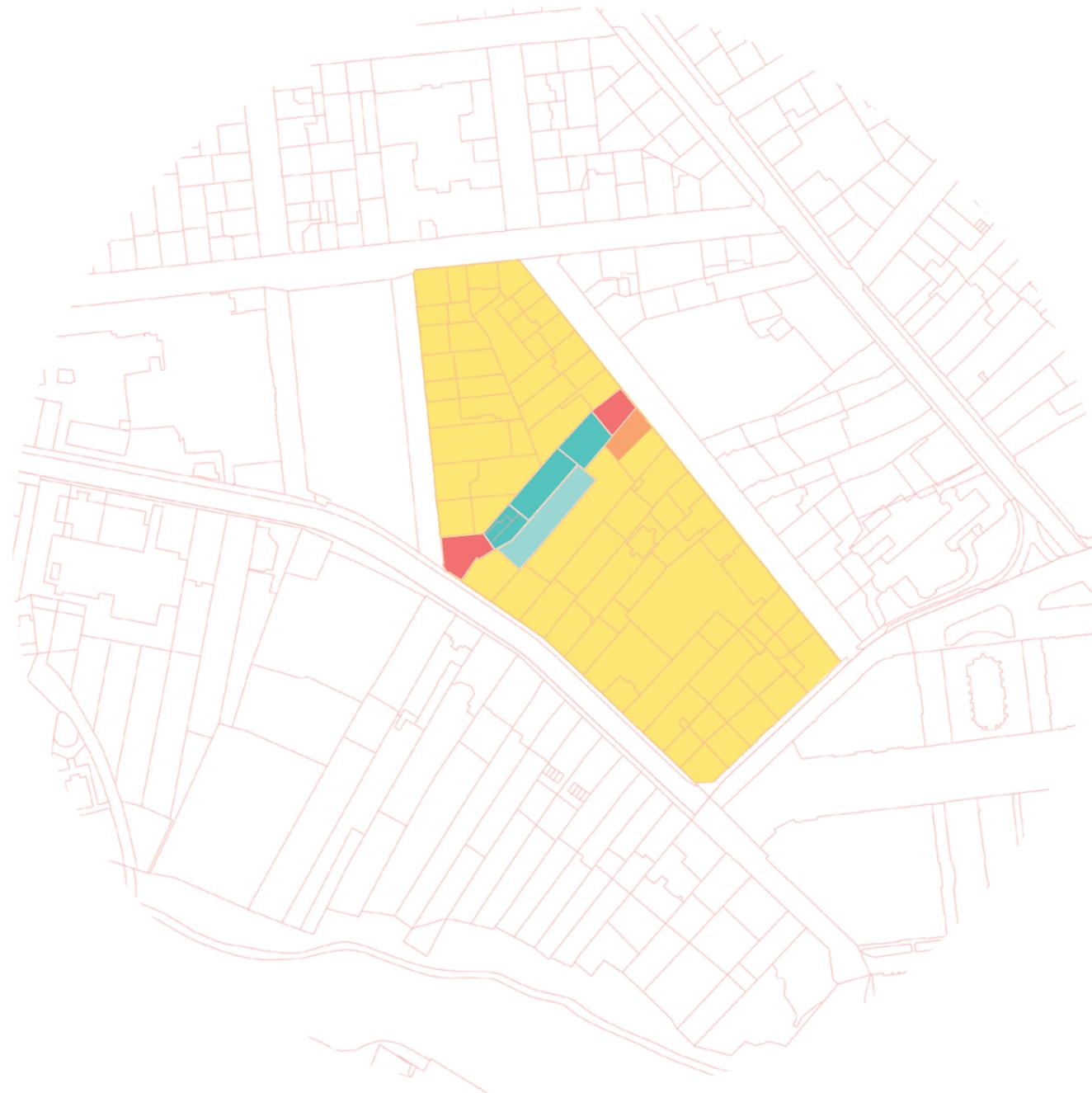
Design concept (circulation)

This map illustrates the main connecting pathways considered for the design of the project. The main pathway connects the two residential buildings through the courtyard. This results in connection routes to the education points, medical centers and public infrastructures on both sides for the residents of both buildings, while creating a new dynamic and inclusive space within the courtyard.

Design concept (circulation)

Private access connections from residential buildings to private gardens

Semi-private access connections from private gardens to the semi-private shared garden between the two residential buildings

Design concept (circulation)

Semi-public access connections

Public access connections

Design concept (spaces)

Private gardens for residents

Location of space on map

Design concept (spaces)
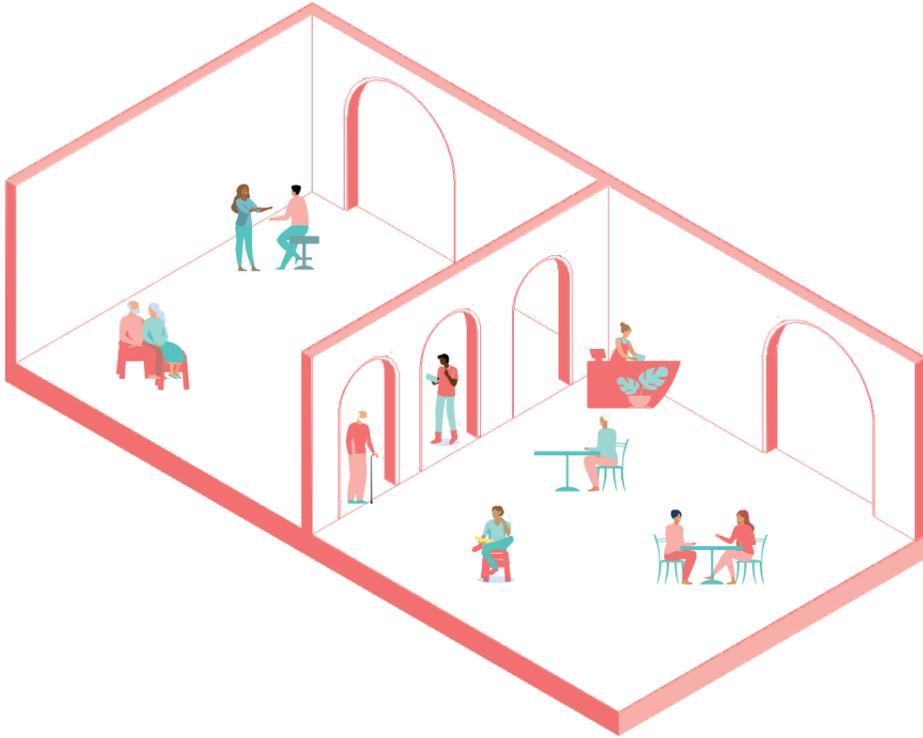
Connecting the existing cafe (Panksy)
to the residential building by means of
a shared workspace/reading area

Location of space on map

Design concept (spaces)

Shared winter garden between the residents of the two residential buildings

Location of space on map

Design concept (spaces)
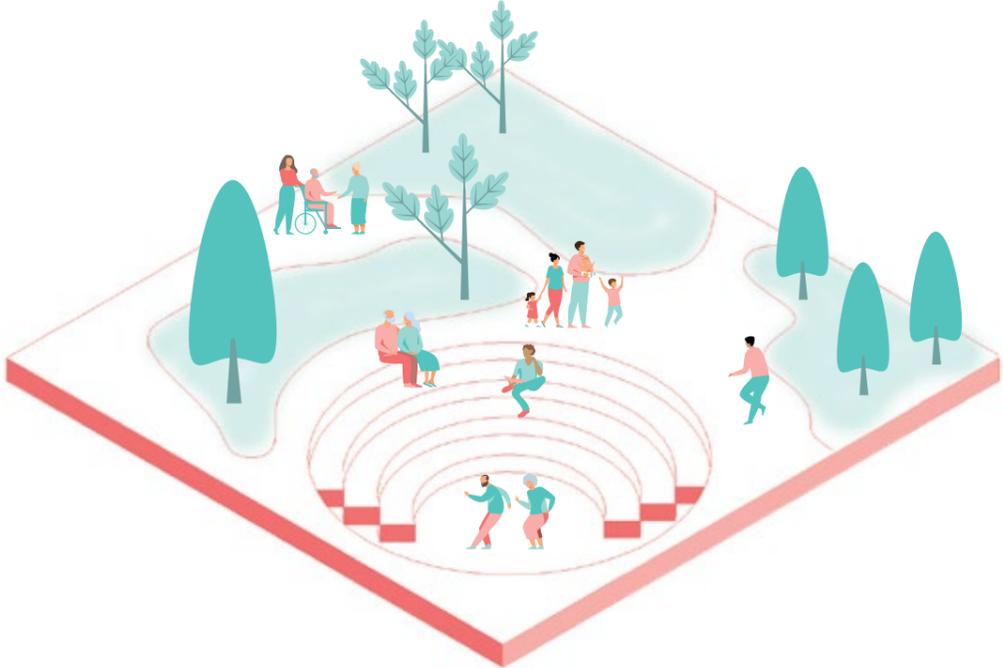
Public garden and open space amphi-
theater in the city-owned land

Location of space on map

Design concept (spaces)
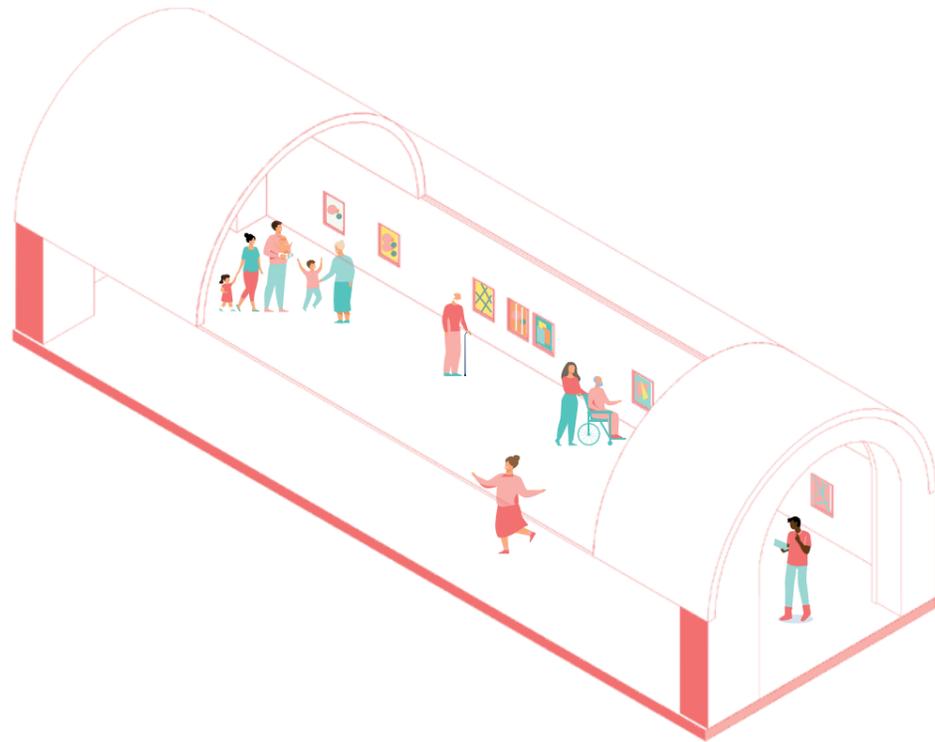
Public passage through the residential
building

Location of space on map

Design concept (space distribution)
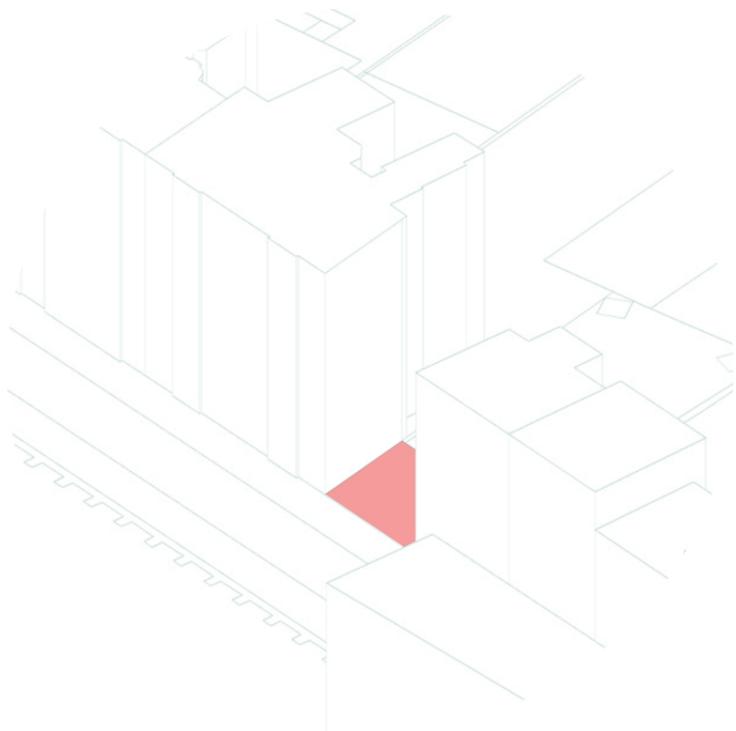
Residential plot and surrounding build-
ings

29 m

20 m

24 m
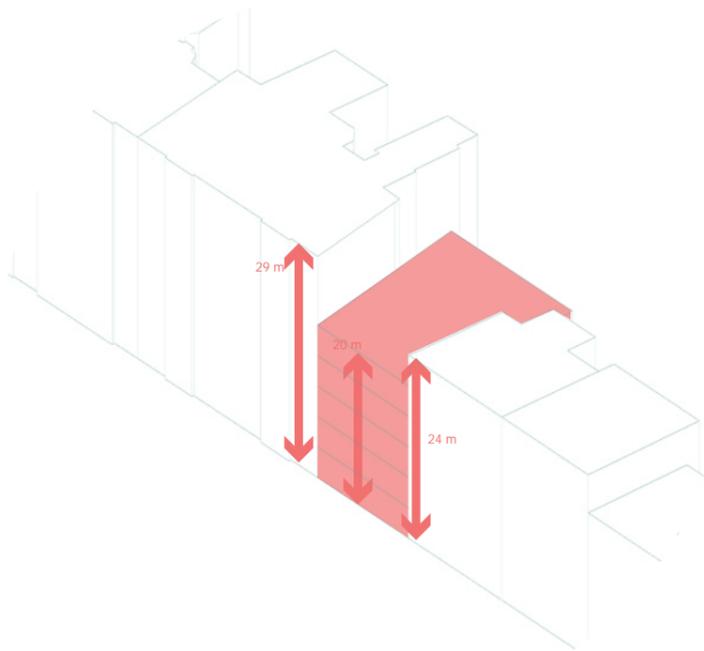
Height extrusion
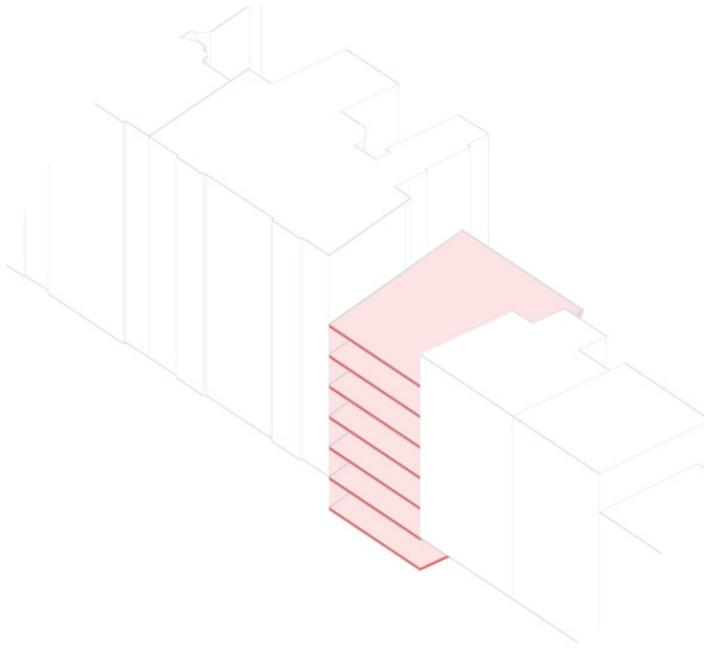
6 floors and a basement

Design concept (space distribution)
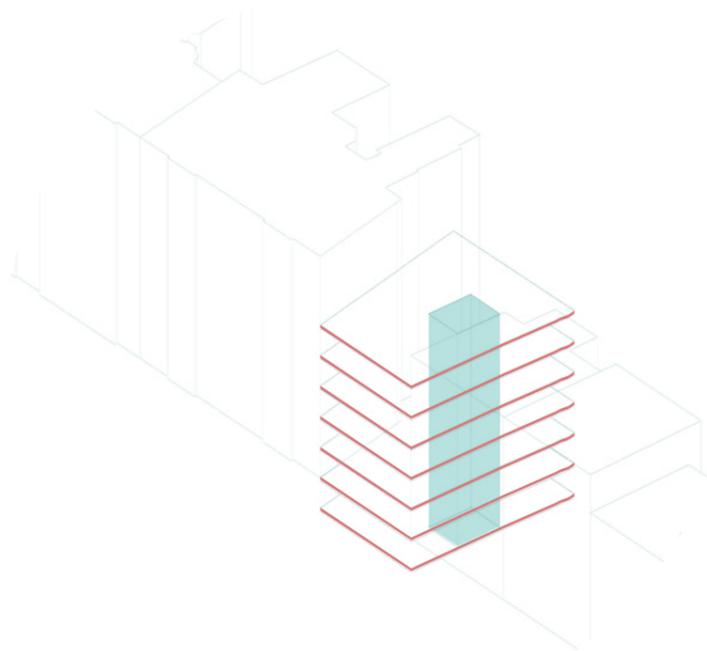
Vertical access
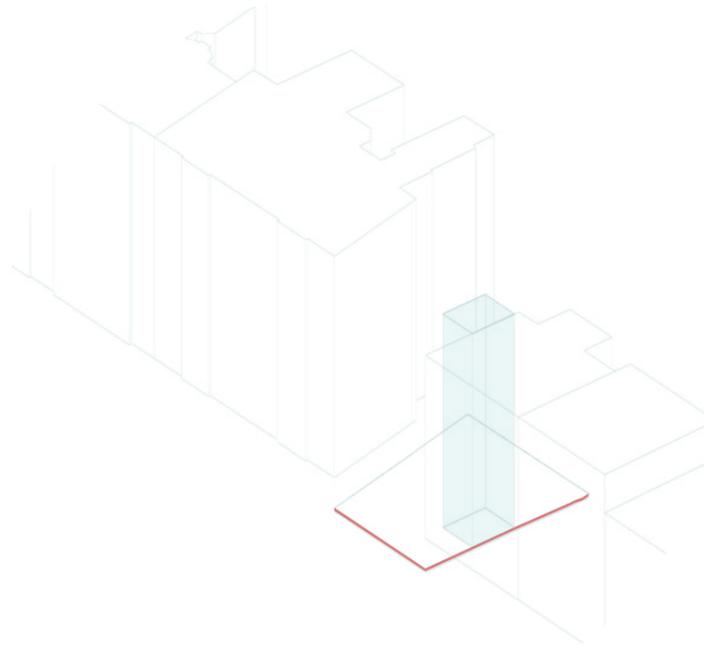
Basement as the service area containing storage spaces, main kitchen and laundry room
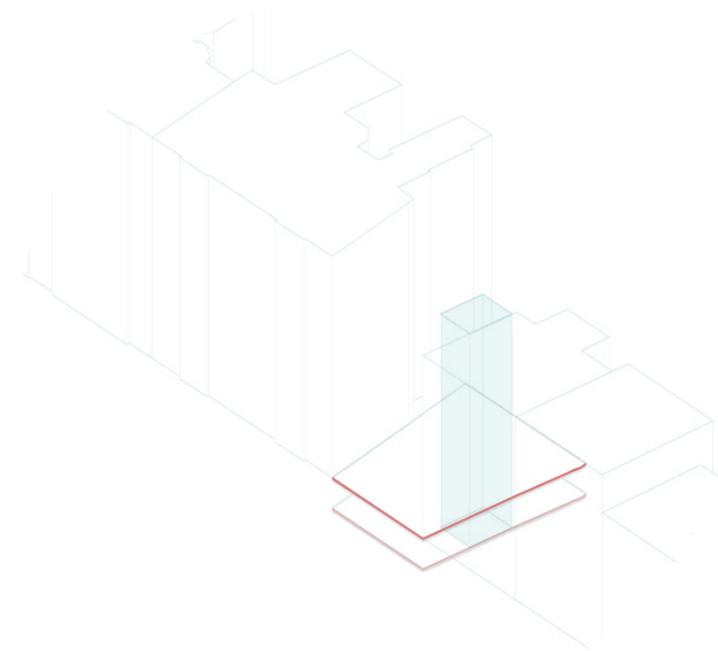
Ground floor as shared space containing meeting area, dining area, activity area, administration office and reception

Design concept (space distribution)
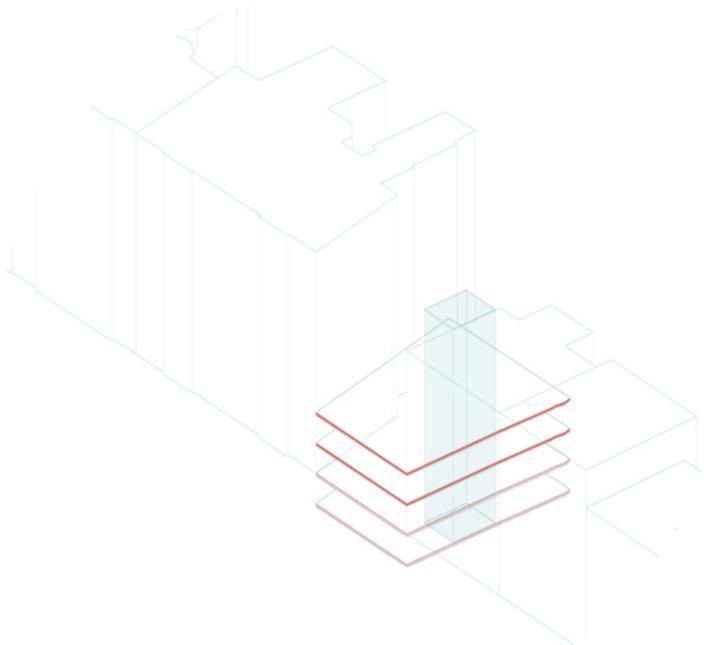
First and second floor as senior residential area
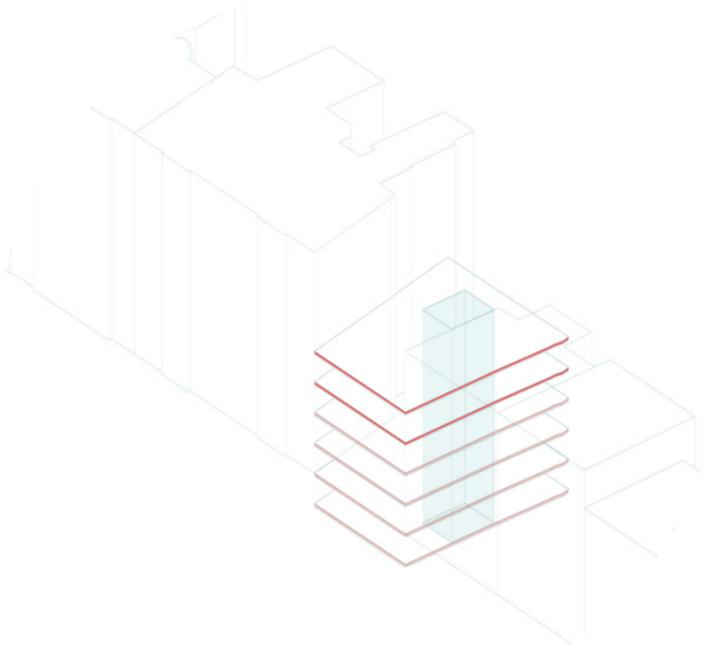
Third and fourth floor as other demographics co-housing
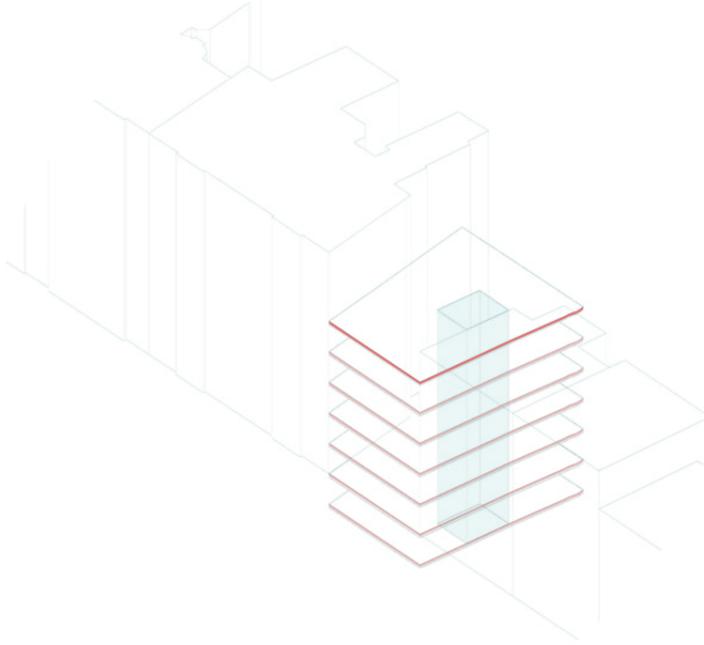
Rooftop as shared garden for the co-operative housing units

Site Plan
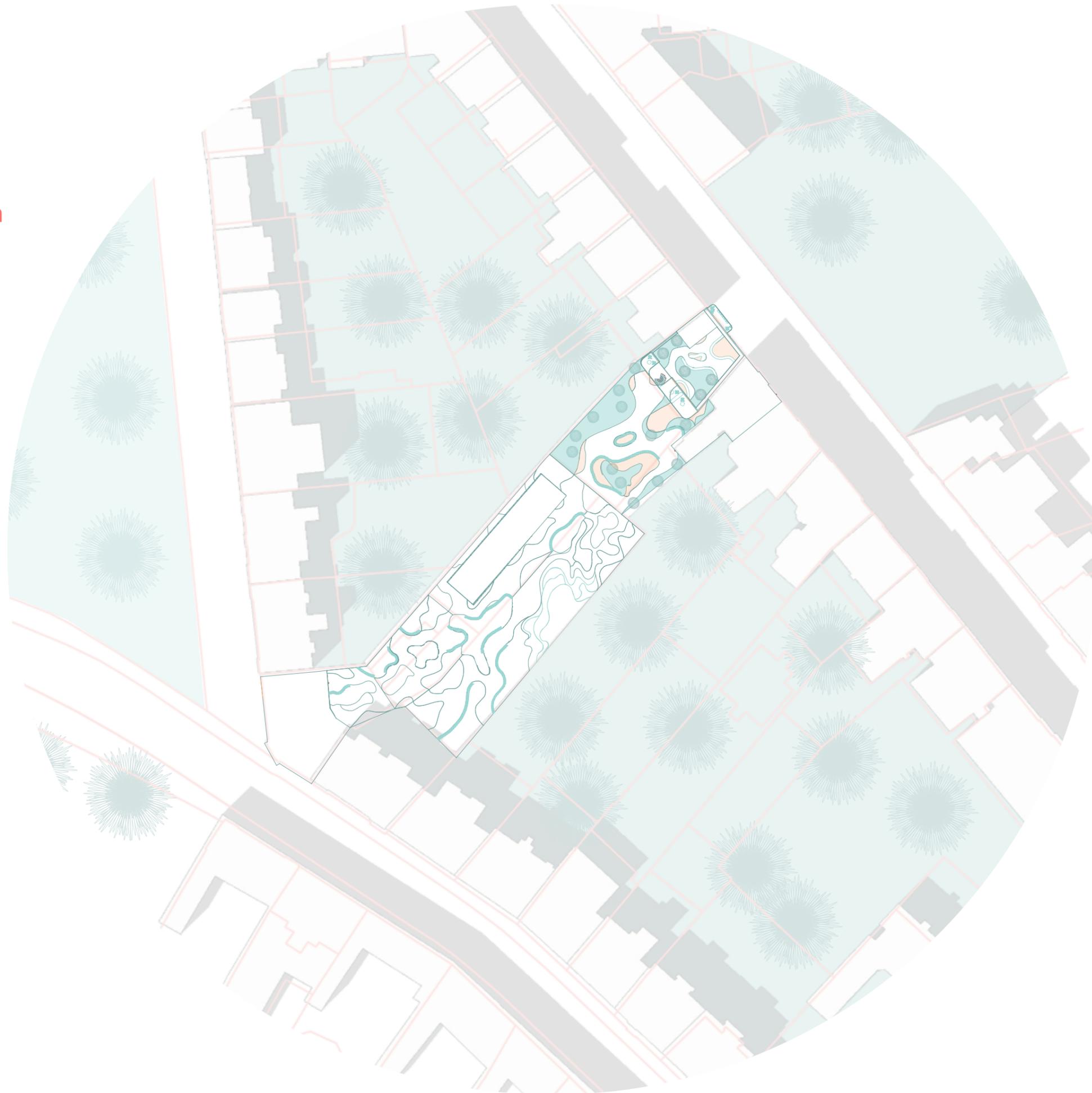
Ground Floor Plan

1. Entrance
2. Reception
3. Administration Office
4. Activity area
5. Dining Area
6. Reading/Meeting Area(shared with Cafe Panksy)
7. Reading/Work Area (shared with residential building)
8. Cafe Panksy
9. Cafe Kitchen
10. Gallery Walk-through
11. Private garden
12. Public Pathway

Scale1:200

0   2   4   6   8   10
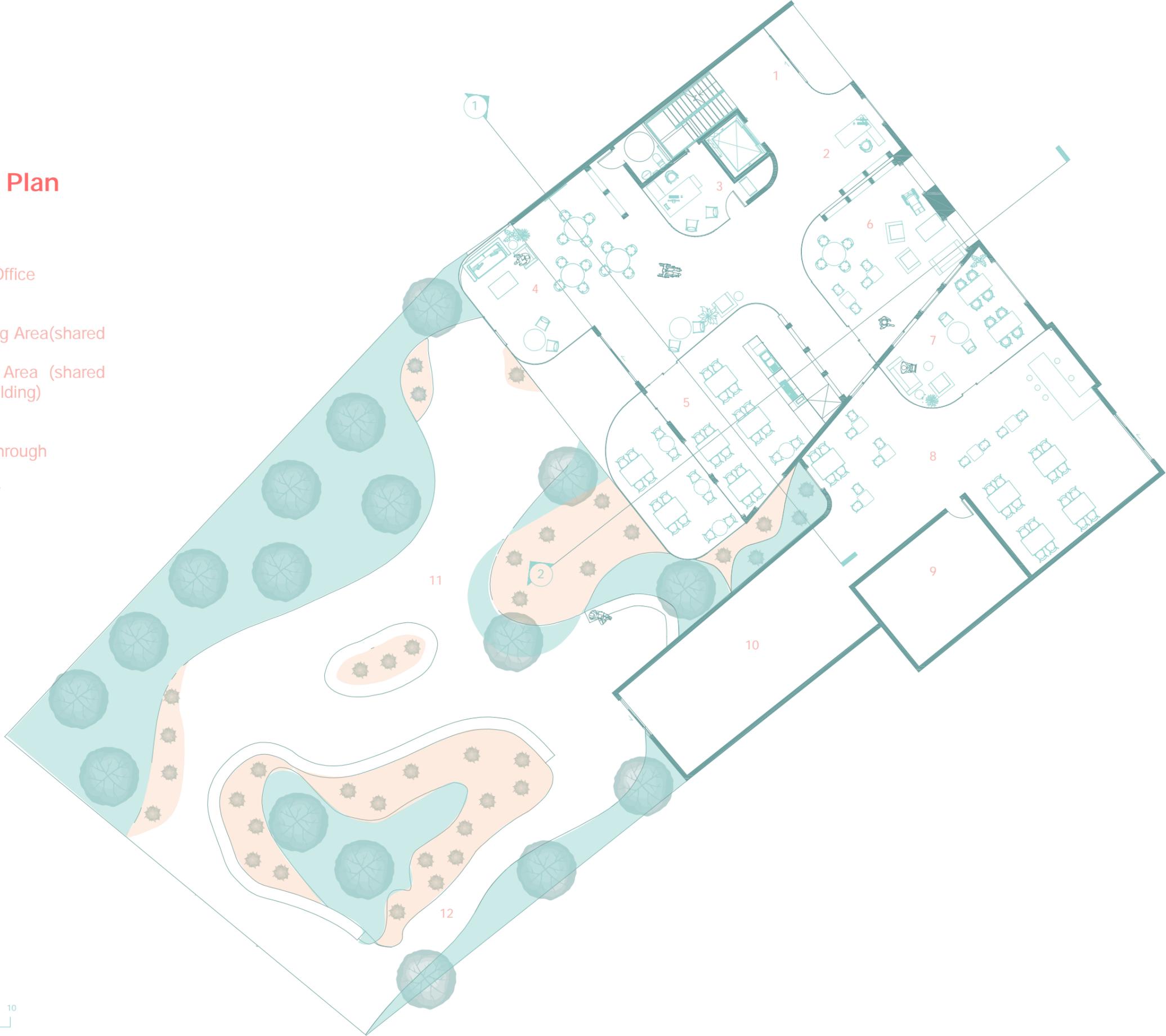
First Floor Plan

1. Shared Kitchen
2. Shared Dining Area
3. Shared Living Room
4. Semi-Private Meeting Room
5. Senior Single Bed Unit
6. Senior Single Bed Unit
7. Senior Double Bed Unit
8. Pantry

Scale1:200

0   2   4   6   8   10

Second Floor Plan

1. Shared Kitchen
2. Shared Dining Area
3. Shared Living Room
4. Massage/Activity Room
5. Senior Single Bed Unit
6. Senior Single Bed Unit
7. Senior Couple Unit
8. Pantry

Scale1:200

0   2   4   6   8   10

Third Floor Plan

1. Shared Kitchen
2. Shared Dining Area
3. Shared Living Room
4. Guest Room
5. Senior Single Bed Unit
6. Senior Couple Unit
7. Couple Unit
8. Pantry

Scale1:200

0   2   4   6   8   10

Fourth Floor Plan

1. Shared Kitchen
2. Shared Dining Area
3. Shared Living Room
4. Guest Room
5. Single Bed Unit
6. Couple Unit
7. Couple Unit
8. Pantry

Scale1:200

0   2   4   6   8   10

Rooftop Plan
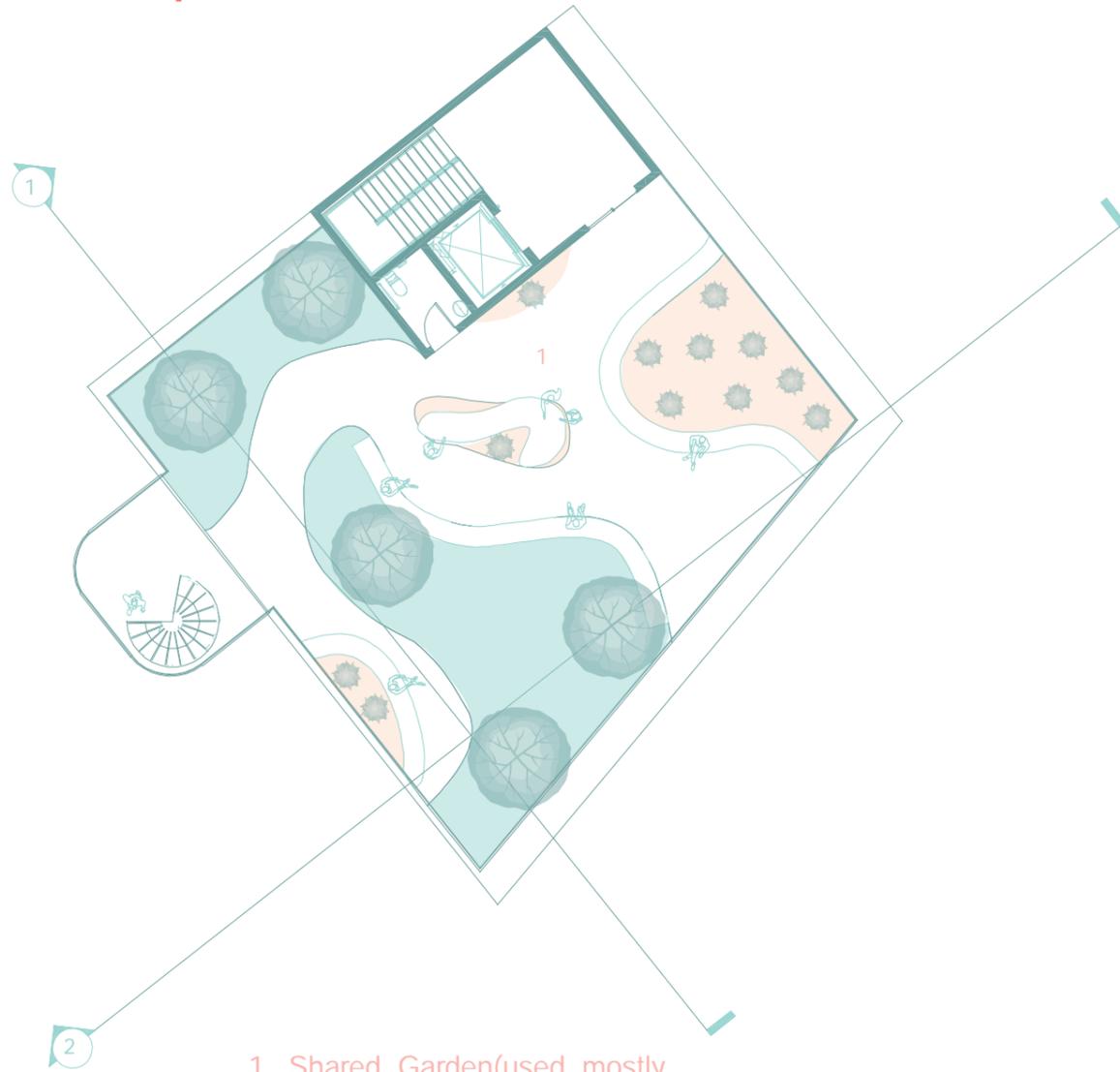
1. Shared Garden(used mostly by the non-senior residents of the third and fourth floor)

Scale 1:200

0 2 4 6 8 10

Basement Plan

1. Shared Laundry Room
2. Storage
3. Storage
4. Locker Room
5. Kitchen Storage
6. Kitchen (for food preparing for the dining area)

Section 1

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
0.00

Level -1
-4.00

Scale1:200

0   2   4   6   8   10

Section 2

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
0.00

Level -1

Level -1
-4.00

Scale1:200

0   2   4   6   8   10

North Elevation

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
0.00

Scale1:200

0   2   4   6   8   10

South Elevation

Scale1:200

0   2   4   6   8   10
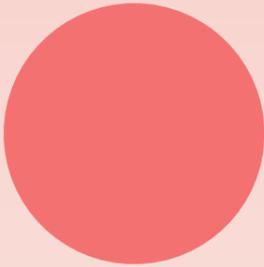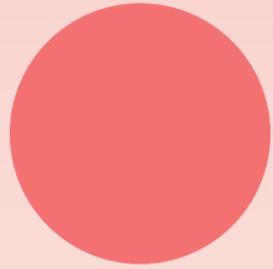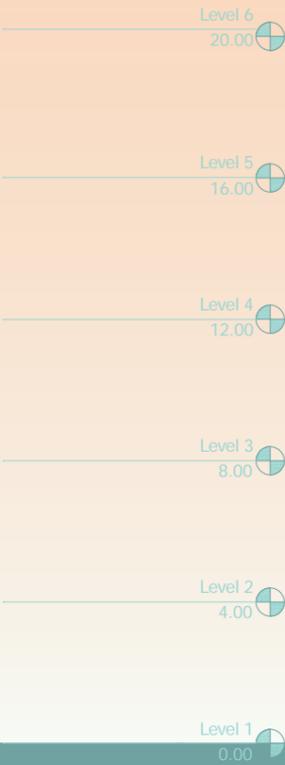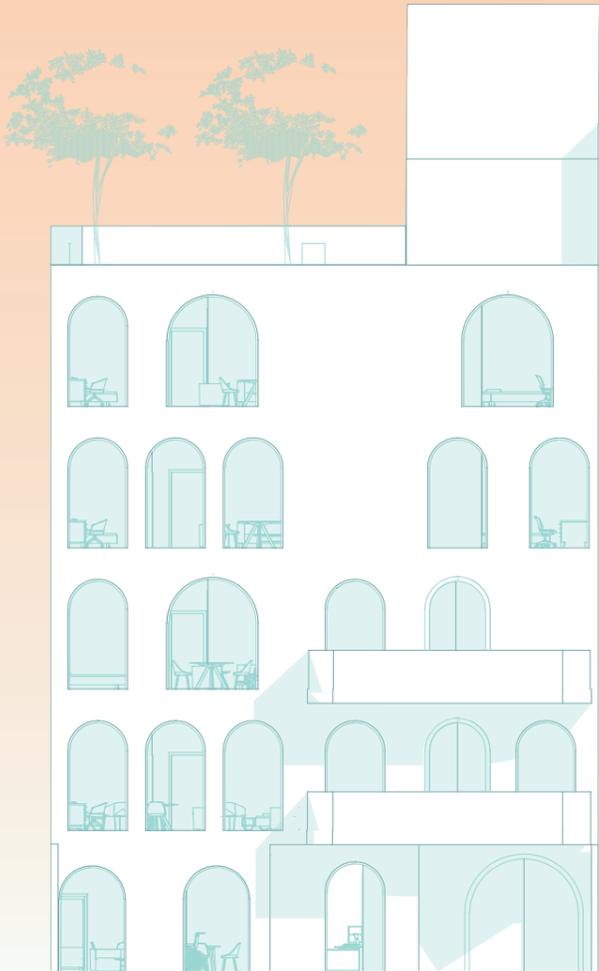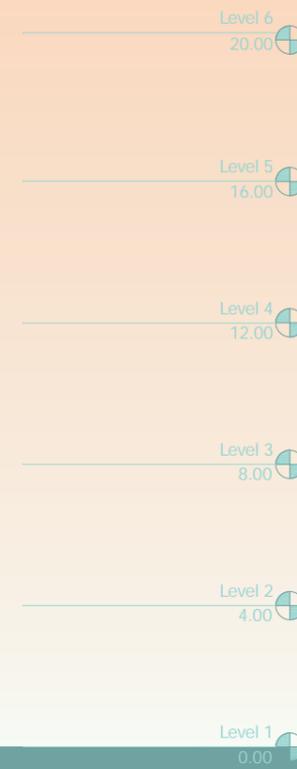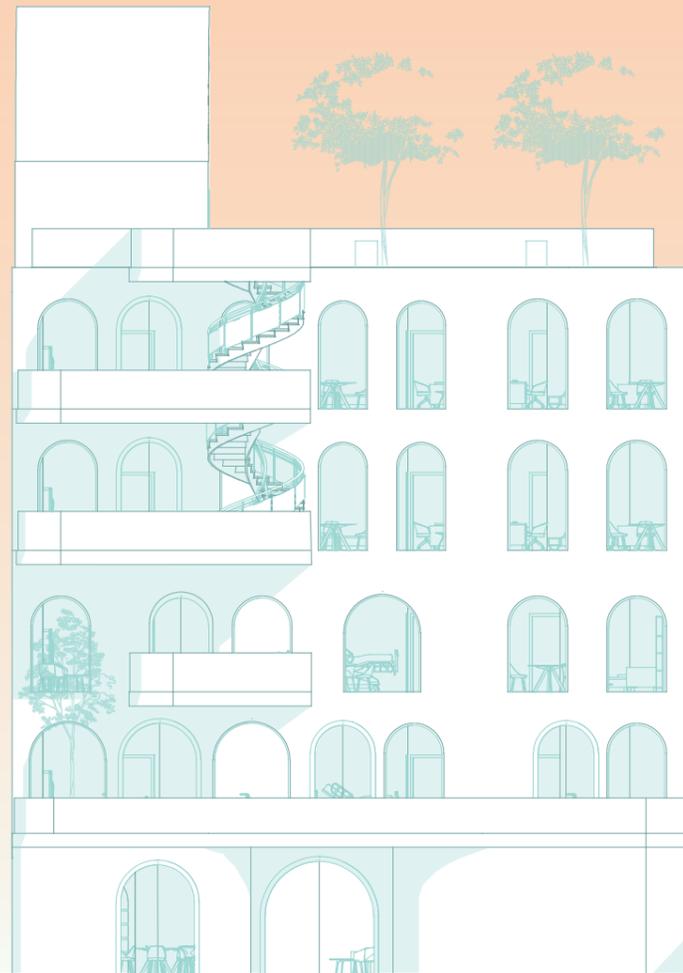
Axonometric of Opposite Residential Building

Axonometric of Ground Floor and Gardens
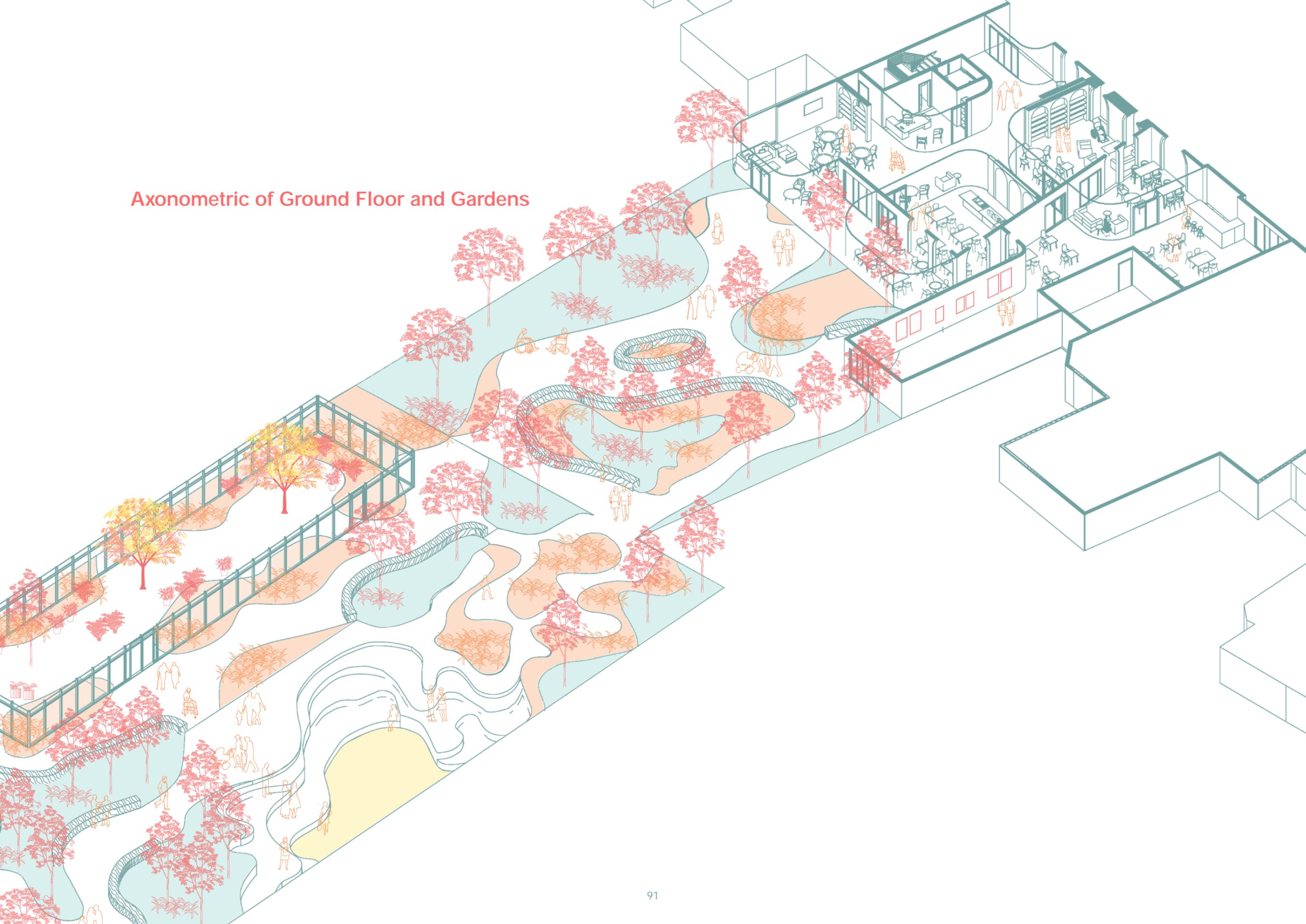
Visualization

Dining area on the ground floor

Meeting/Reading area on the ground floor

Administration office on the left, Meeting/Reading area in front and dining area on the right

Visualization

Activity area on the ground floor

Shared kitchen/dining area/living room
on floors 1,2,3,4

Senior single bed unit

Visualization

View from private garden to residential building

Shared winter garden on the left. View from public garden's amphitheater area

Shared rooftop garden

Typology 2 & 3. Day Care Center & Care Community Center

Project location and Site analysis

Choosing the location of the project within the introduced periphery region of Brno.

The chosen area with prominent 1-2 floors family house type and high residential density.

Existing residential senior facilities in the chosen area

Project location and Site analysis

1.6 KM

0,9 KM

1 KM

Calculating the diameters within the chosen area as a first step in identifying the areas in which the new typologies can be.

1.2 KM

1.2 KM
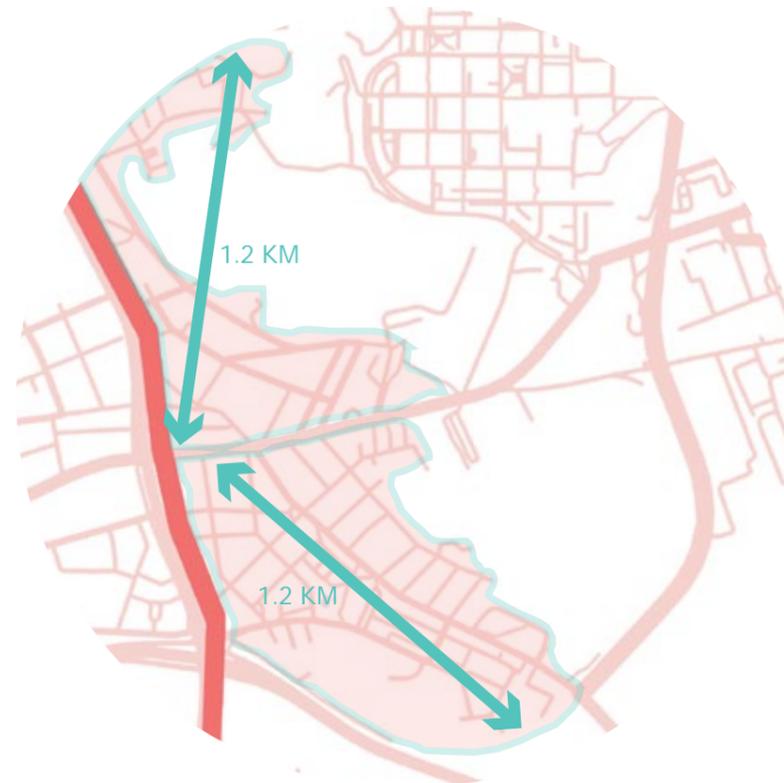
Dividing the chosen area to two, according to the diameter which is within walking distance for the senior residents. The average distance a senior is able to walk without causing any physical damage, is withing the range of 2 to 3.6 Kilometers per day. This means 1 to 1.8 Kilometers per one trip which takes about 15 to 25 minutes depending on the senior. These two regions represent the diameter in which the "Day care center" typology is to be implemented.

To locate the 'Care community center" typology the area in which is accessible equally for both of the previously mentioned two areas, has been selected.

Project location and Site analysis (Care community center typology)

Specifying the location in the identified area

A typical residential block in the periphery containing city-owned land.

Close proximity of public transport withing the area, and to other parts of the city of Brno.

Project location and Site analysis (Day care center typology, Location 1)

Specifying the location in the identified area for the "Day care center" typology.

High exposure to residents due to existing neighborhood park and existing local shops known and used frequently by residents of the area.
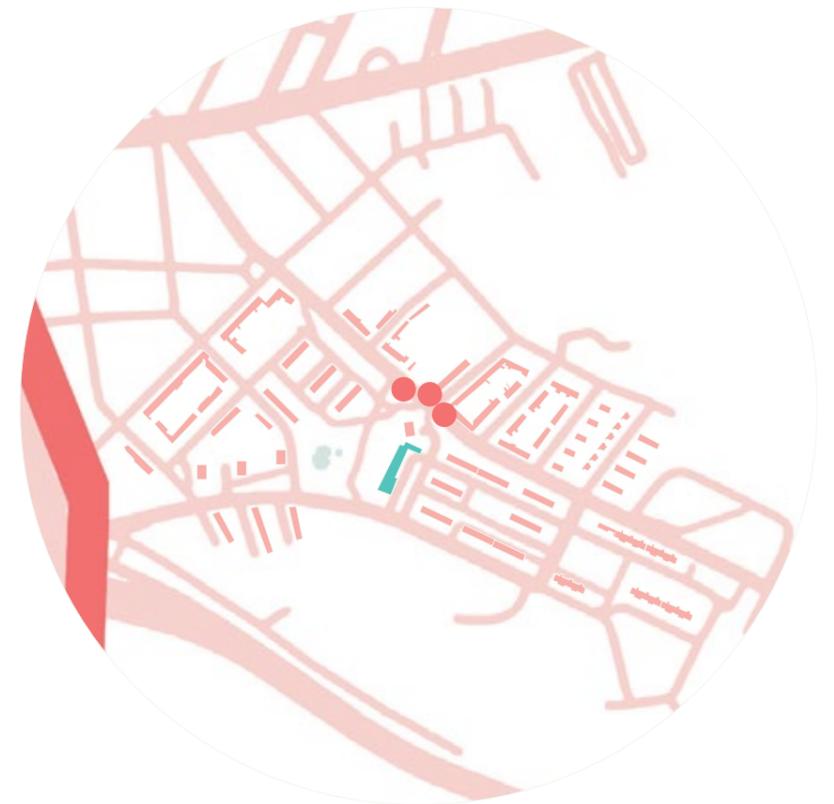
Close proximity to public transportation within the area.

Project location and Site analysis (Day care center typology, Location 2)

Choosing the location of the project within the introduced periphery region of Brno.
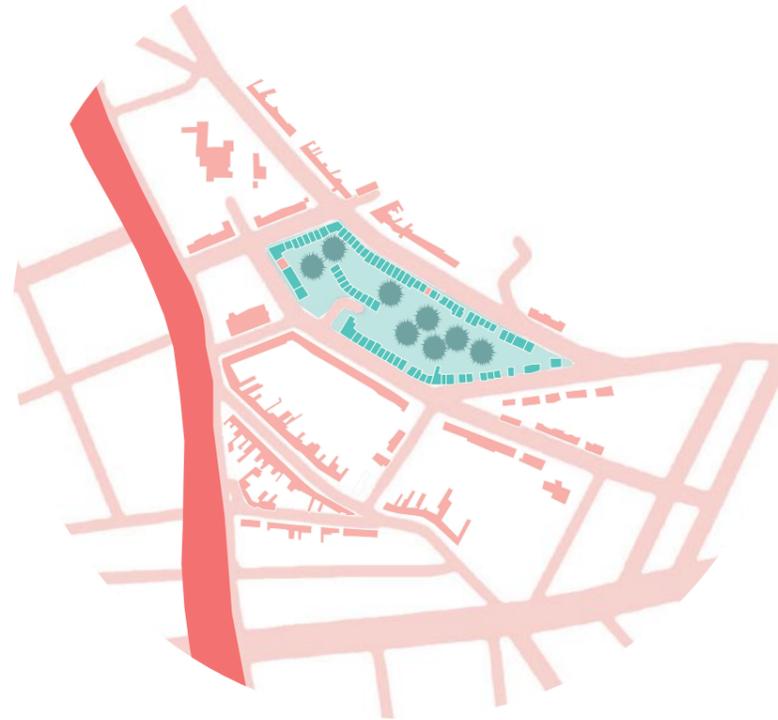
The chosen area with prominent 1-2 floors family house type and high residential density.
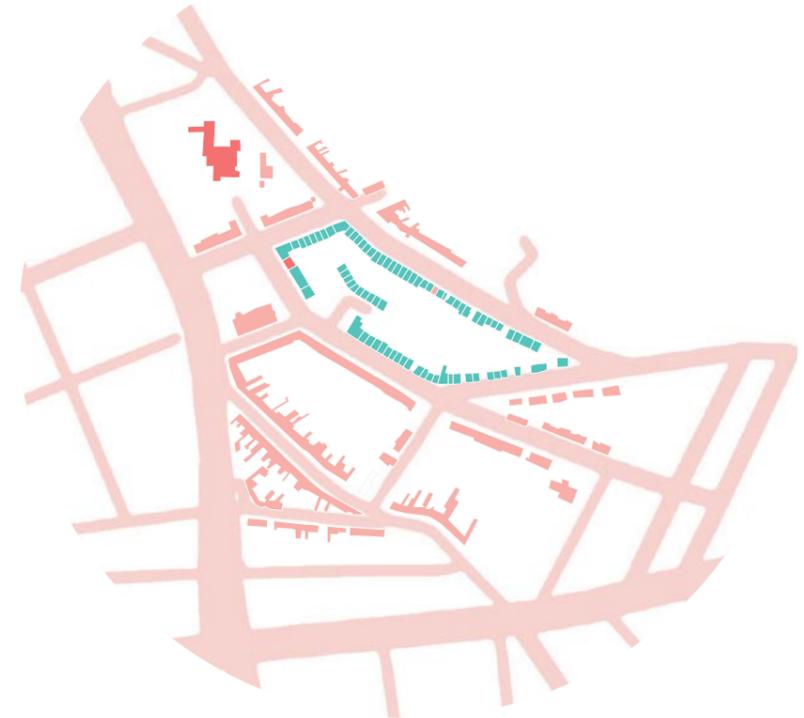
Existing residential senior facilities in the chosen area

Project location and Site analysis (Day care center typology, Location 2)
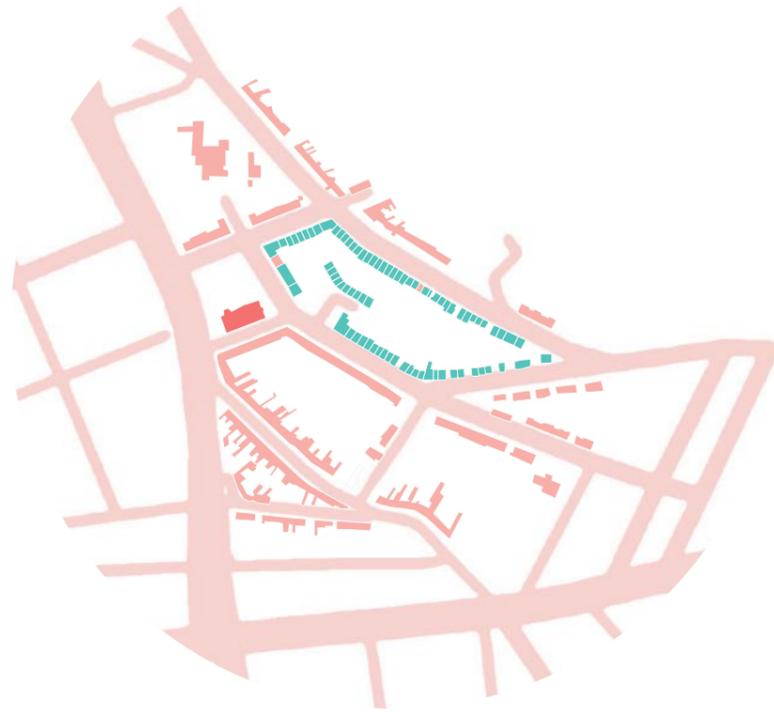
Existing church overlooking the chosen project site as an important social and multi-generational interaction point.
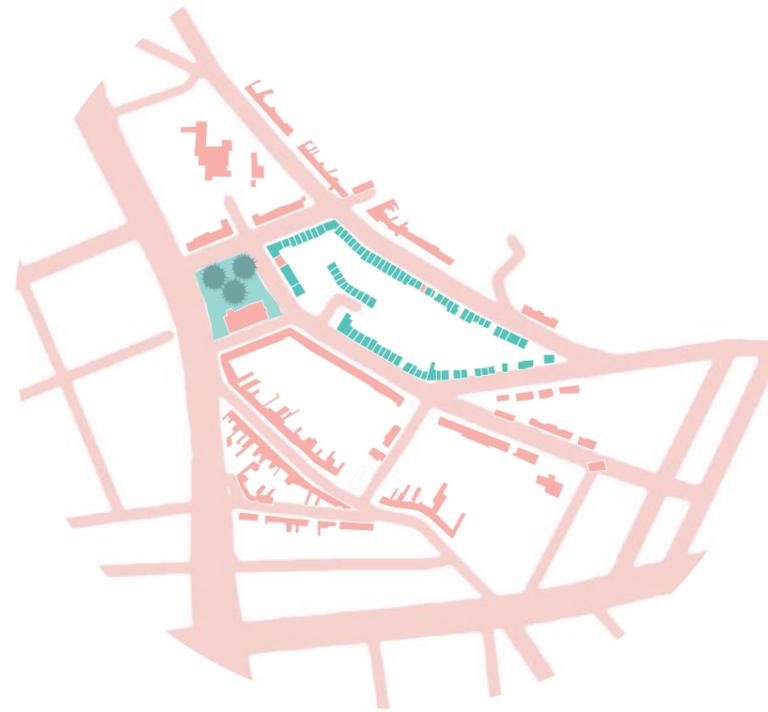
Existing park as an important social and multi-generational interaction point.

Existing playground as an important social and multi-generational interaction point as part of the chosen site.

Project location and Site analysis (Day care center typology, Location 2)
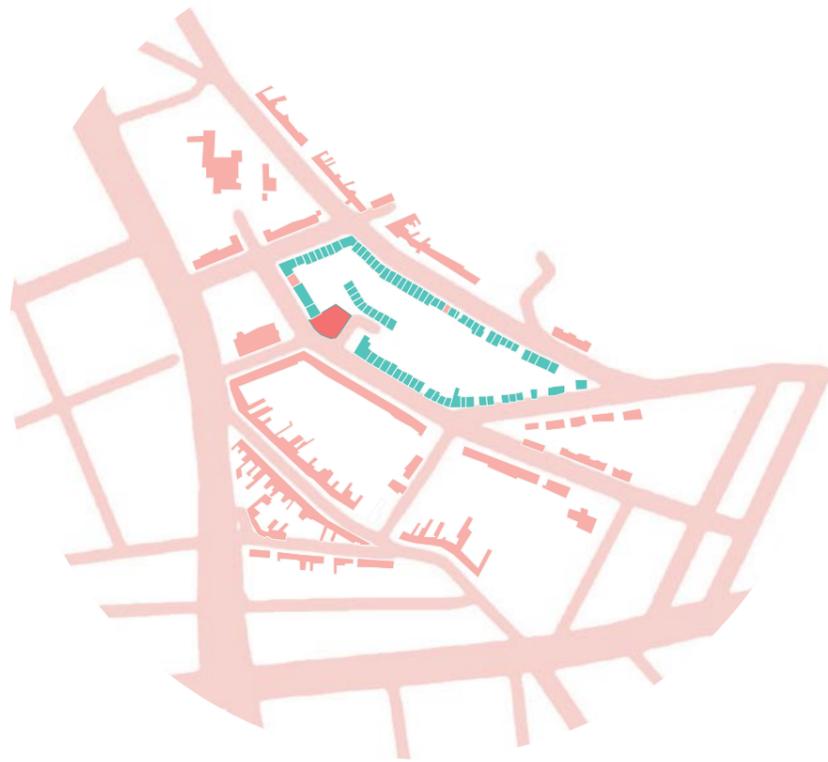
Specifying the project site which is a plot that is city-Owned.
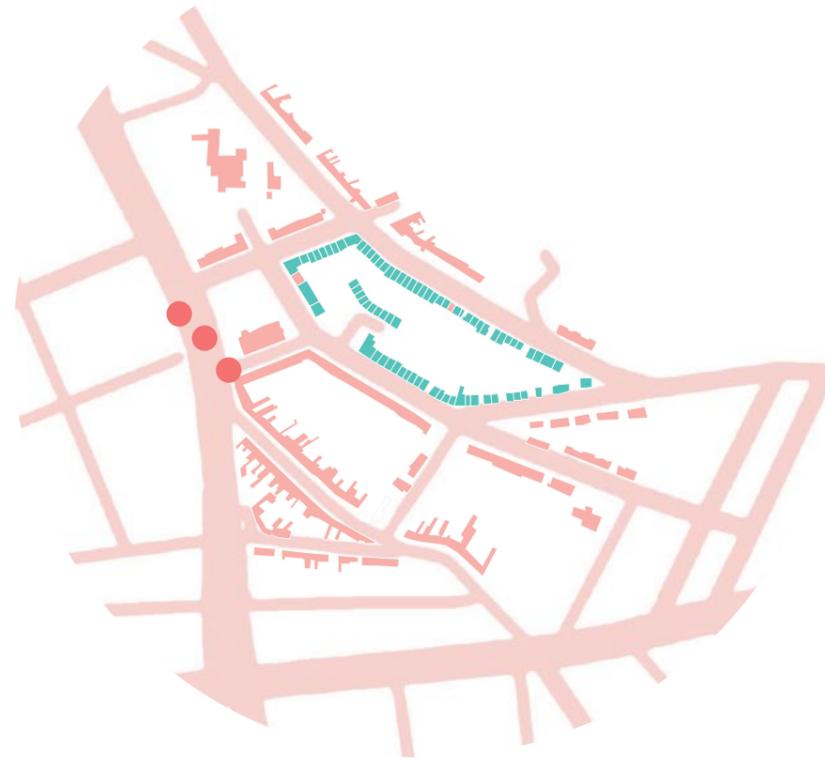
Close proximity to public transportation.
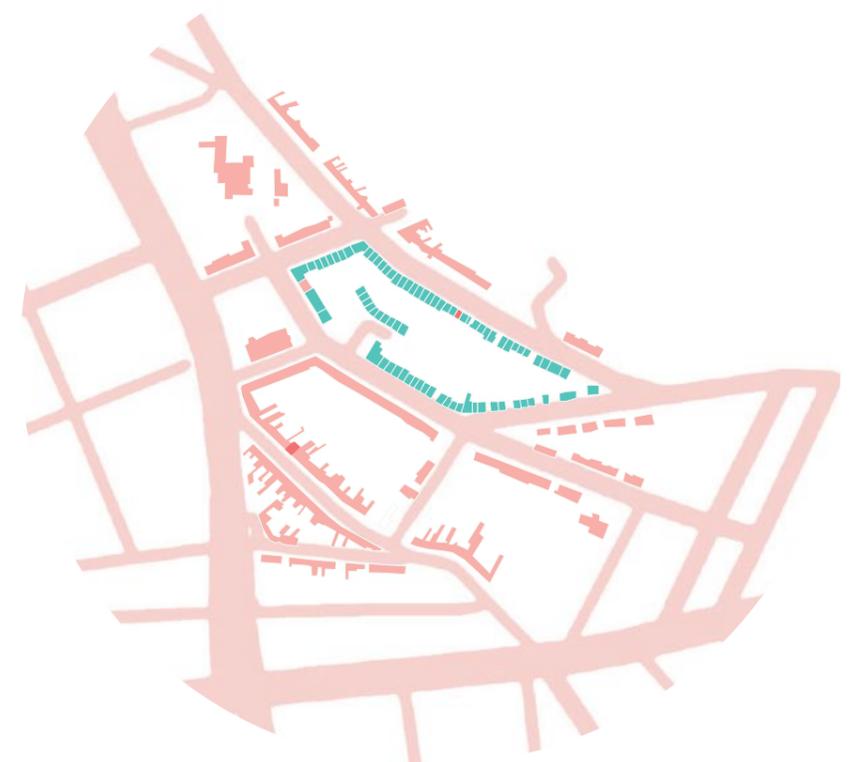
Close proximity of two kindergartens as influencing typologies in the existing demographic of the area.

Project site in the block

Legends

■ Chosen city block

■ Project site

Design concept (circulation)

This map illustrates the main connecting pathways considered for the design of the project.

Legends

■ Connection to existing senior residential facilities

■ Connection to the public transportation

■ Semi-public connection to residential zone behind the project site
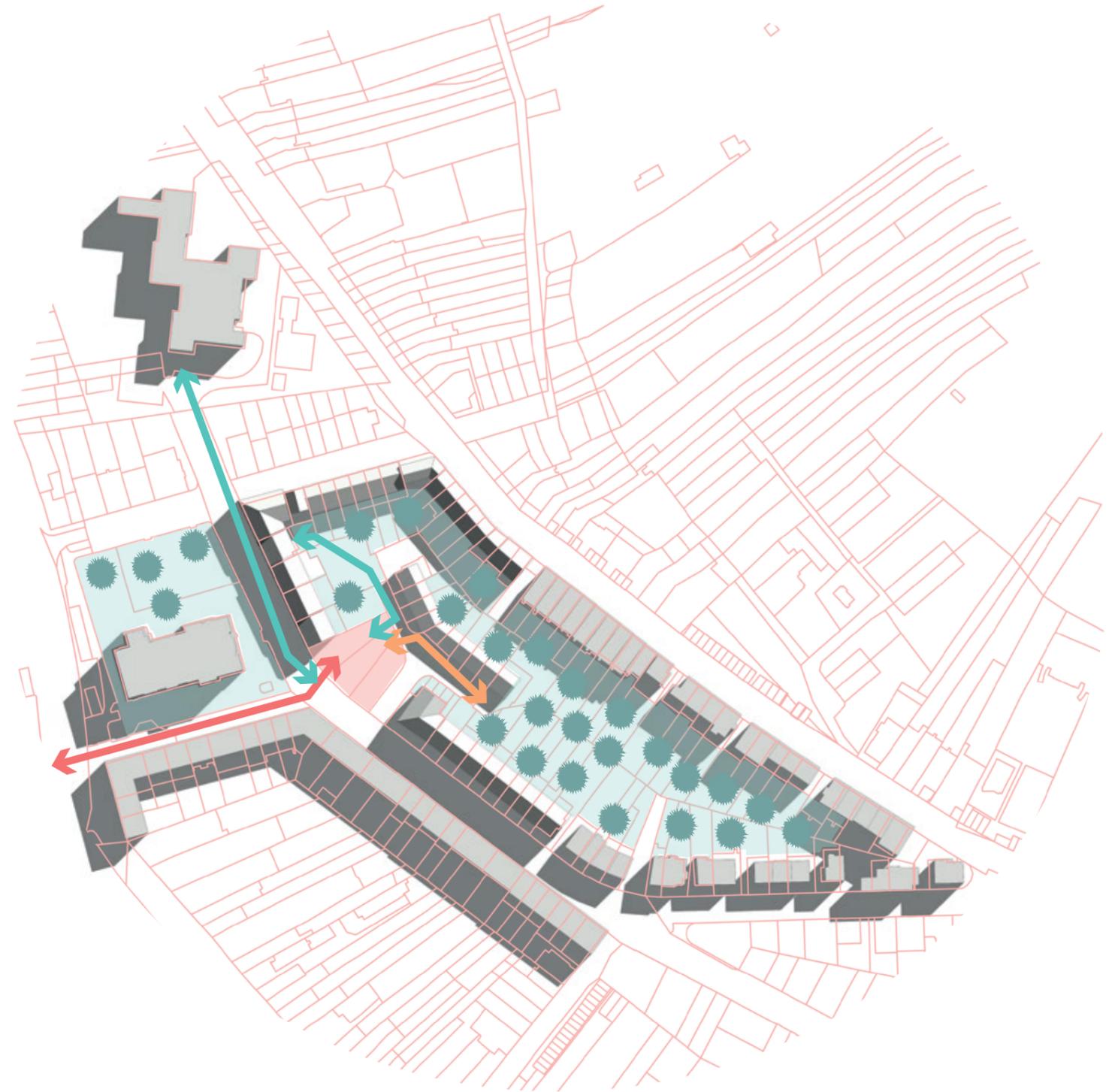
Design concept (spaces)

Multi-generational public park and children's playground.
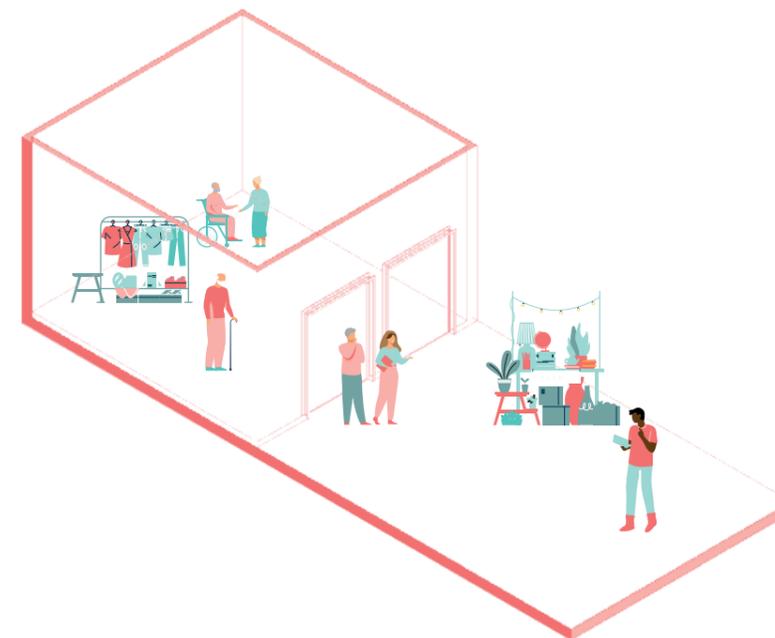
Local market space as the public front to the day care center which can be used as a space to sell and buy handmade products or small local businesses.

Design concept (spaces)
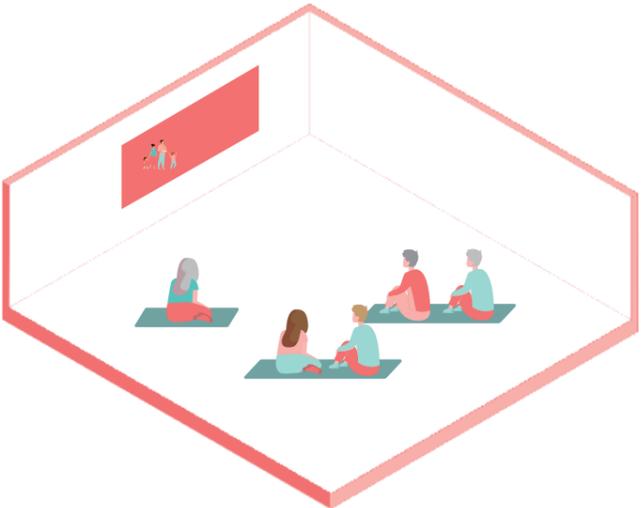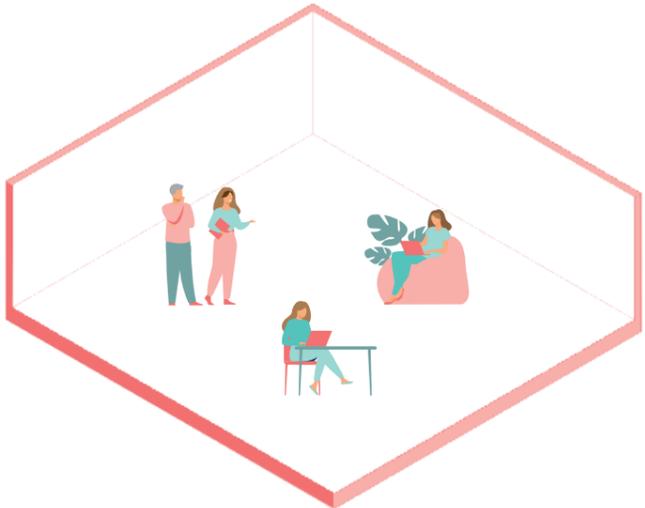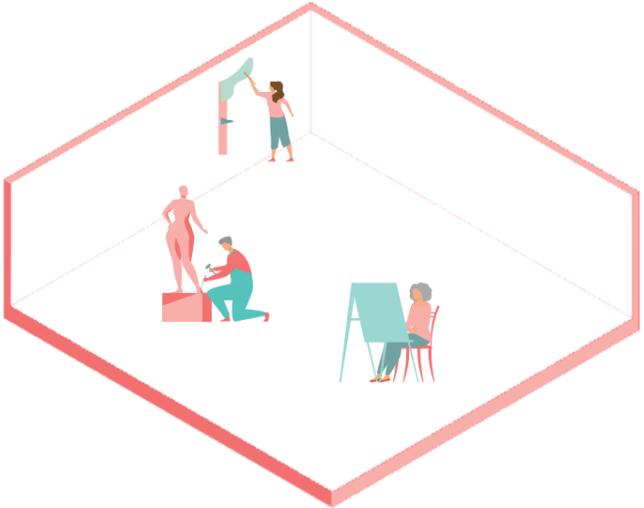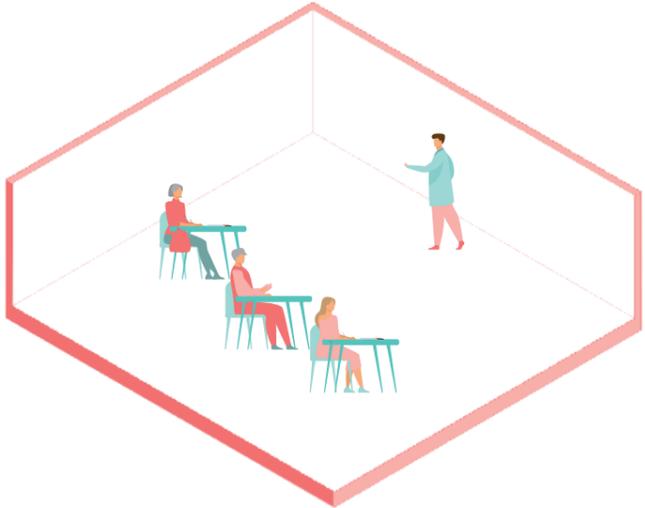
Multi-function space that can be used as class, art studio or workshop, working/reading space and watching movies.
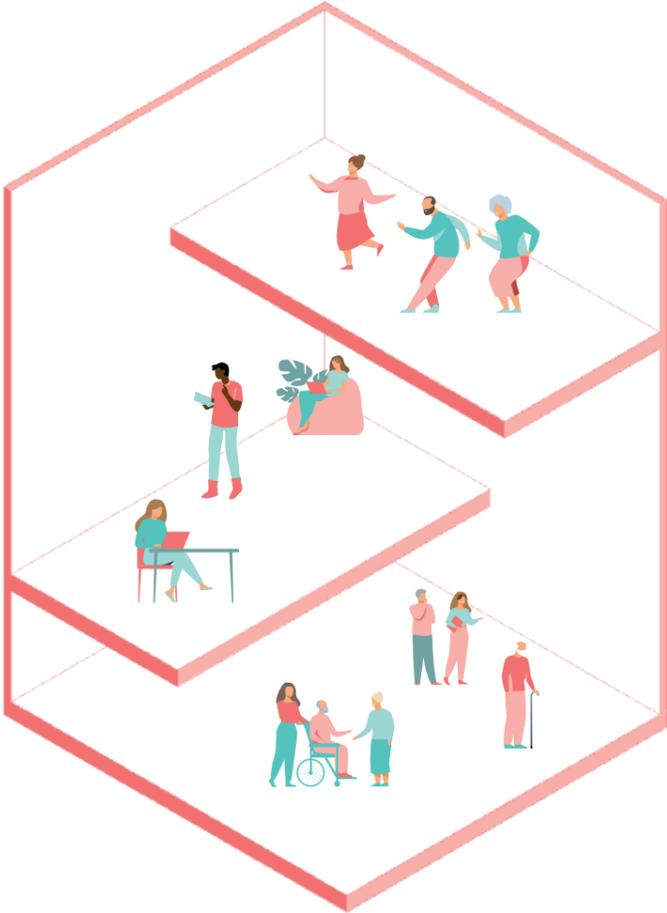
Visual connection of different floors of the day care center.

Design concept (space distribution)

Dividing the site according to privacy.

Legends

■ Public zone

■ Semi-public zone

■ Semi-privatezone

Placing the market in the public zone as a public front.

Legends

■ Public zone

■ Local market

Placing the meeting area in semi-public zone in connection to the playground.

Legends

■ Semi-public zone

■ Playground area

■ Meeting area

Placing a quiet dining area in the semi-private garden as a semi-private zone in connection to residential area and senior residential facility.

Legends

■ Semi-private garden

■ Quiet dining space

Design concept (space distribution)

Ground floor as main interactive area containing dining and meeting area and market space.
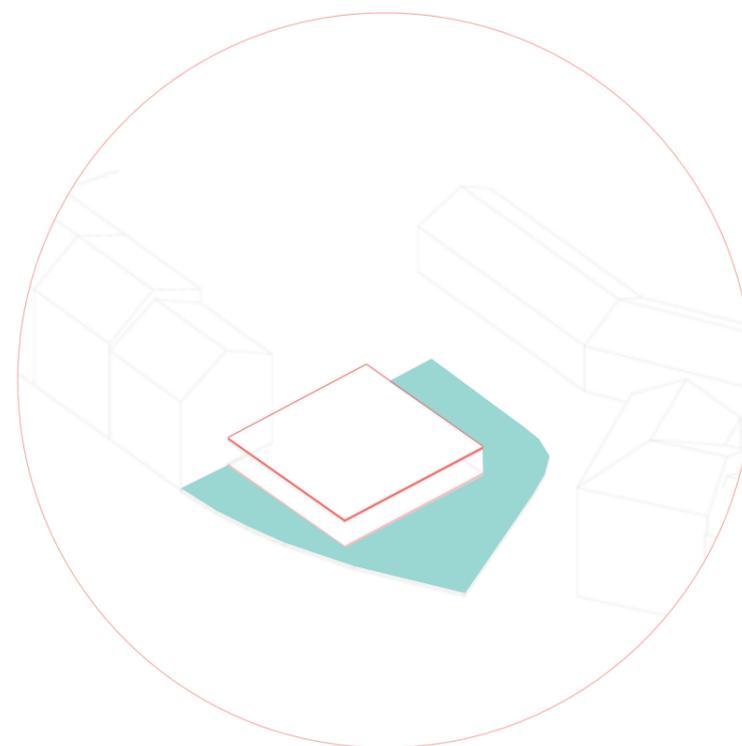
First floor as multifunction area containing multifunction hall and administration office.

# Design concept (space distribution)

Second floor as physical rehabilitation area containing dance classes and physiotherapy room.

Third floor as winter garden containing a greenhouse that produces vegetables to be used in the center's kitchen and also as a space to teach urban farming.

Design concept (Form)

1. Built-up area mass extrusion

2. Dividing the mass into sections to bring it to a more human scale.

3. Height adjustment according to surrounding. Moving backwards to create an inviting entrance and an outdoor space for extending the market front to the outdoors during spring and summer.

4. Creating sloped roofs for better integration into the surrounding context.
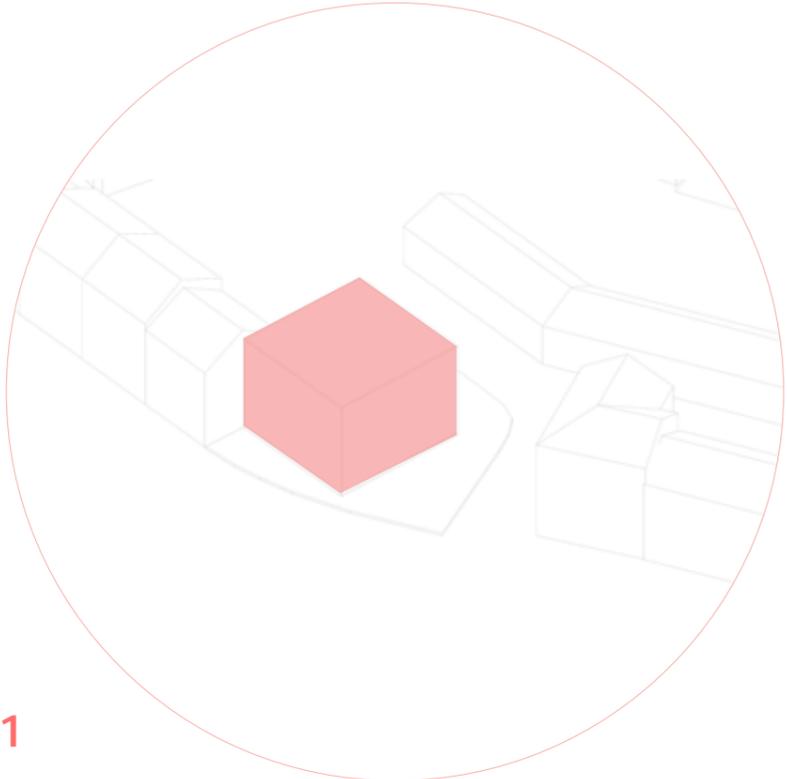
1
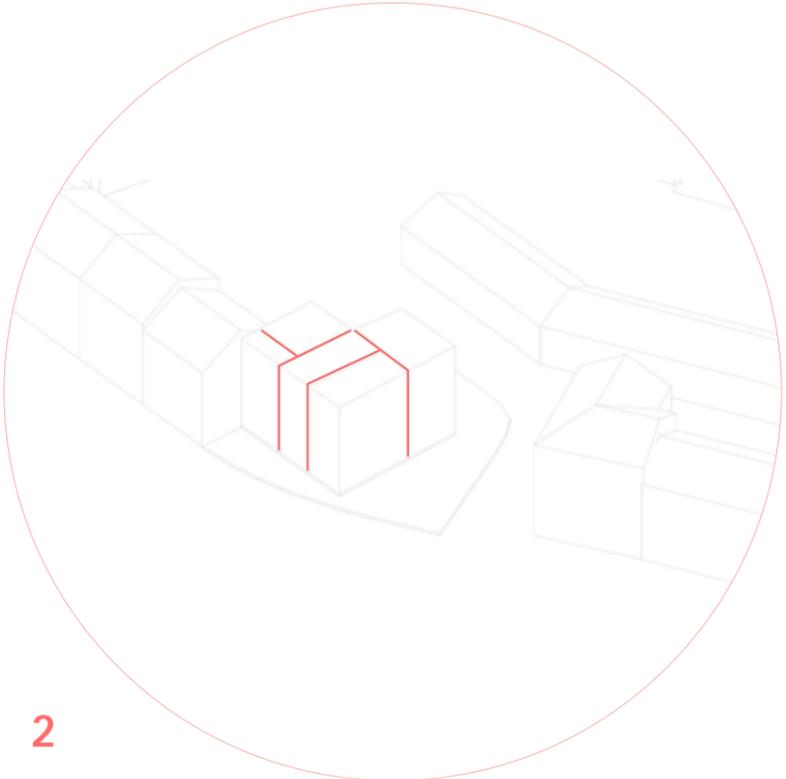
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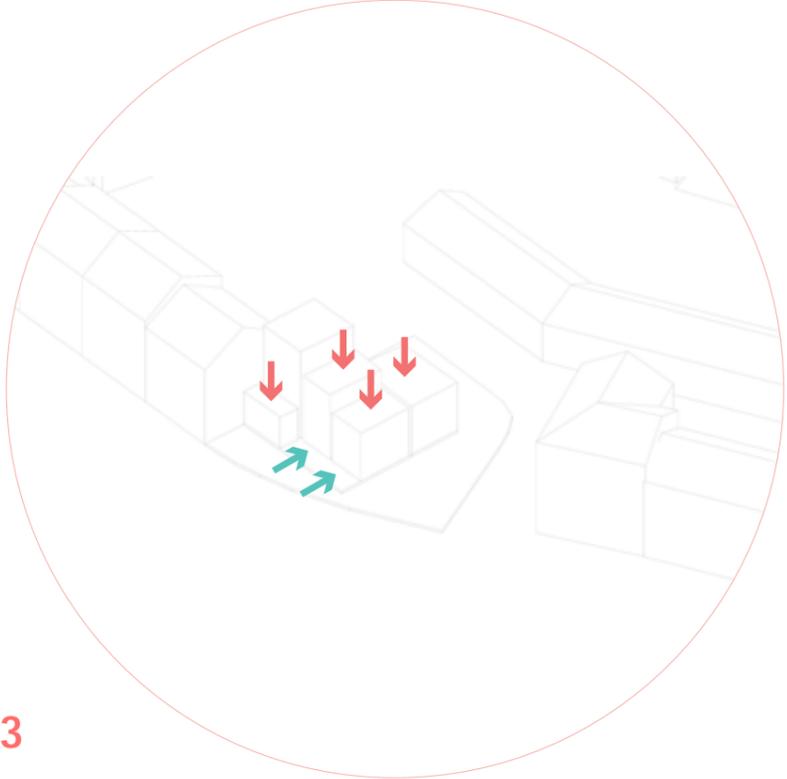
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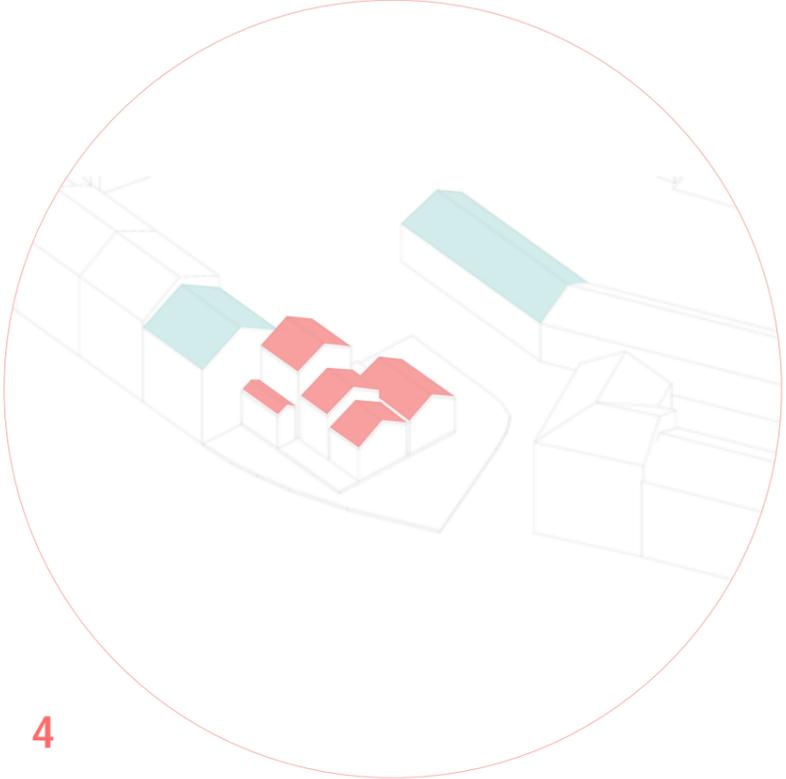
4

# Ground Floor Plan

1. Entrance
2. Reception
3. Local Market
4. Bar
5. Kitchen
6. Meeting/Activity Area
7. Playground
8. Dining Area
9. Semi-Public Garden
10. Bicycle Racks
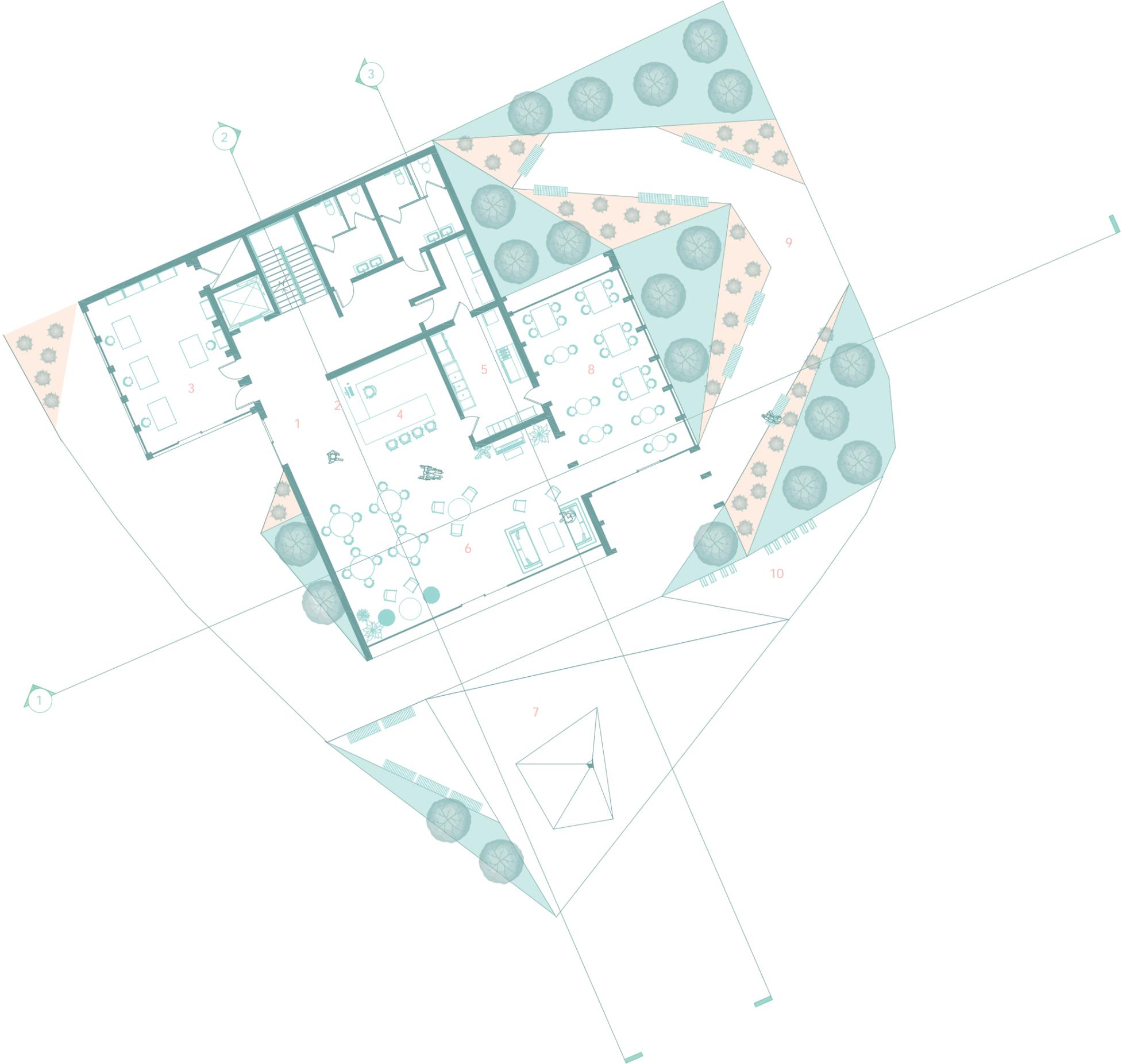
Scale1:200

0   2   4   6   8   10

First Floor Plan

1. Reception
2. Administration/Consultation Office
3. Multi-function Area (work-space, classroom, workshop, movie watching)
4. Storage
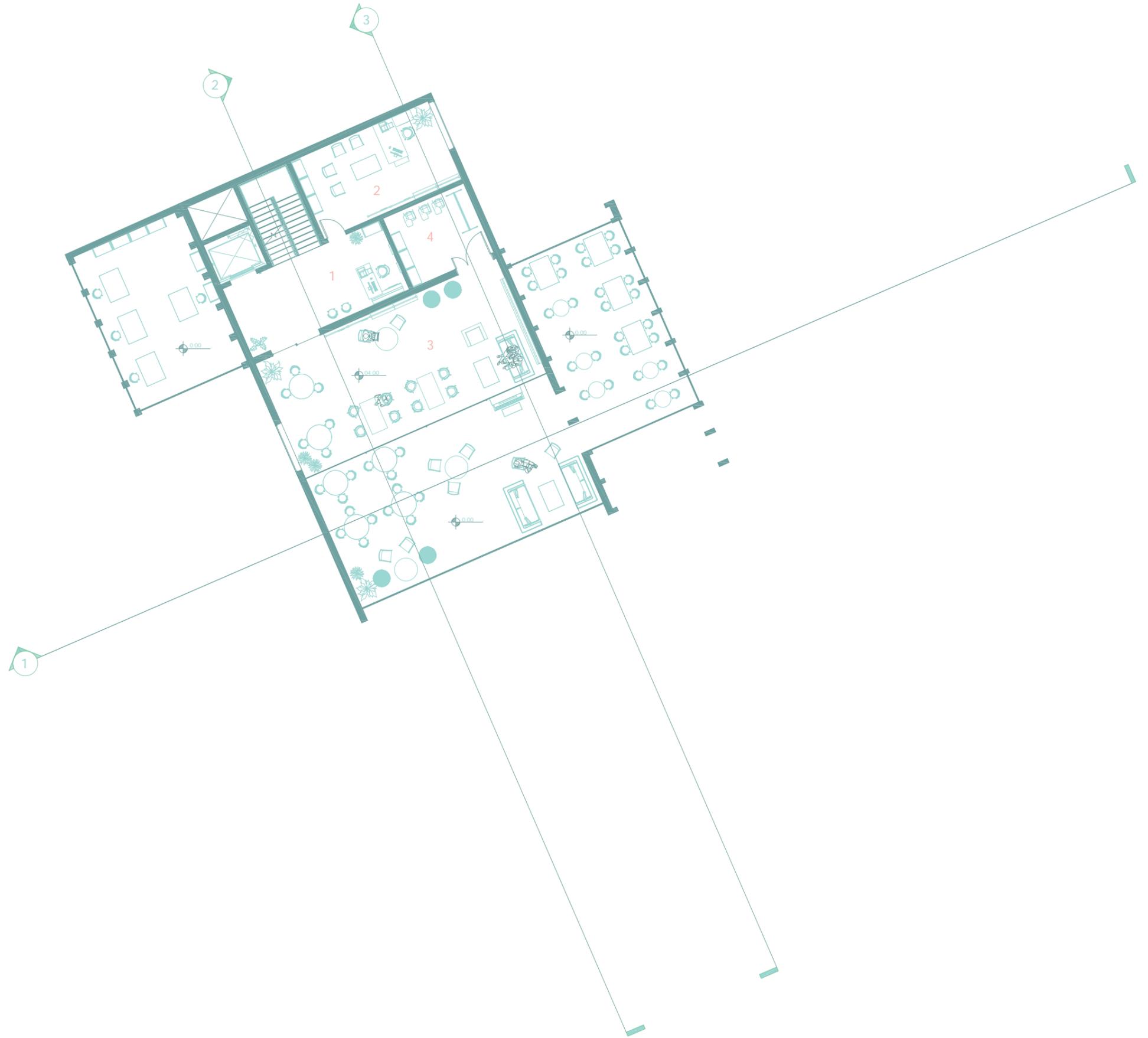
Scale 1:200

0   2   4   6   8   10

Second Floor Plan

1. Dance/Exercise space
2. Physical Therapy
3. Storage

Scale1:200

0   2   4   6   8   10

Third Floor Plan

1. Greenhouse (used for growing vegetables and urban gardening classes)

Scale1:200

0   2   4   6   8   10

Site Plan

Section 1

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
0.00

Scale1:200

0   2   4   6   8   10

Section 2

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
0.00

Scale1:200

0   2   4   6   8   10
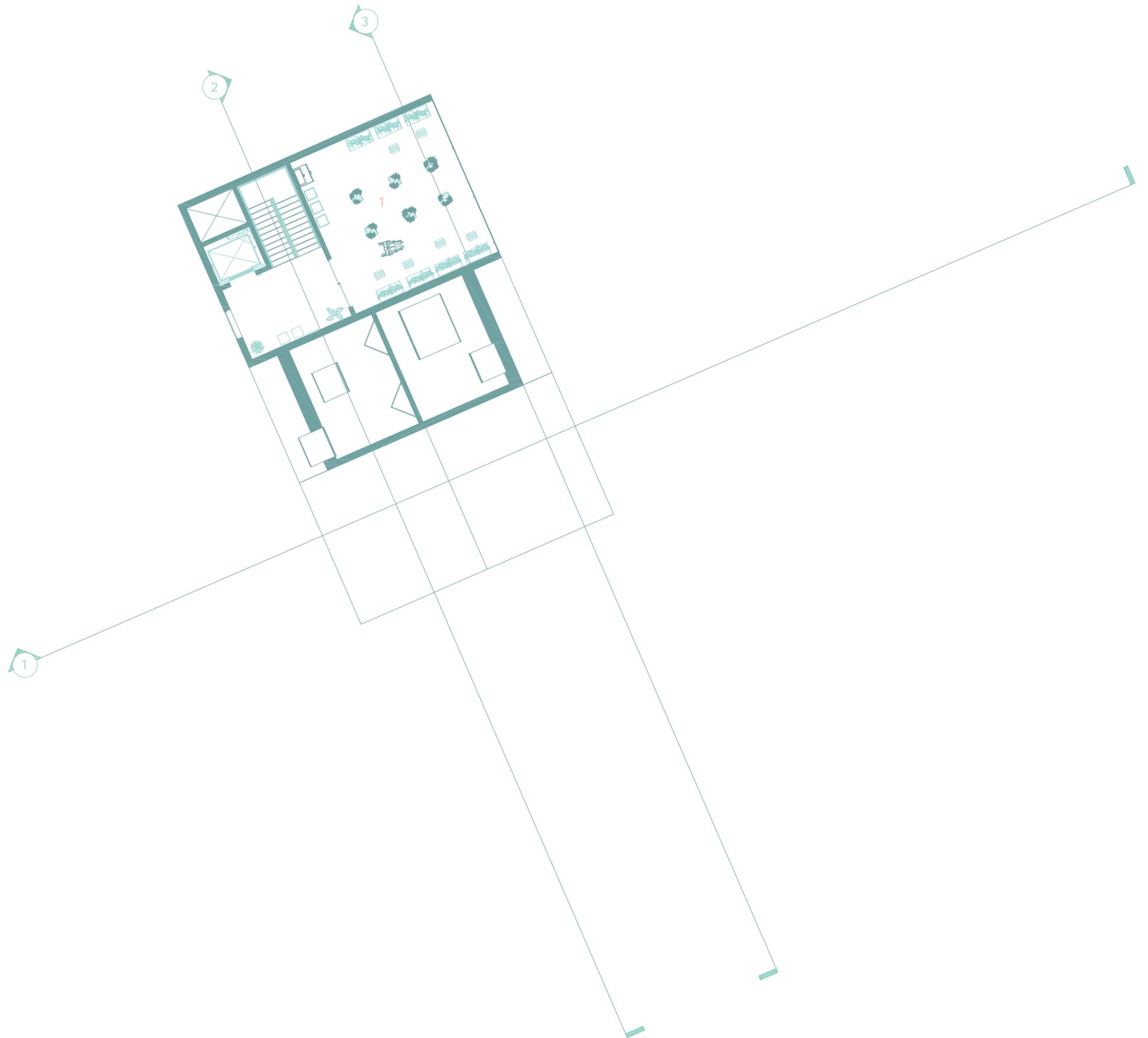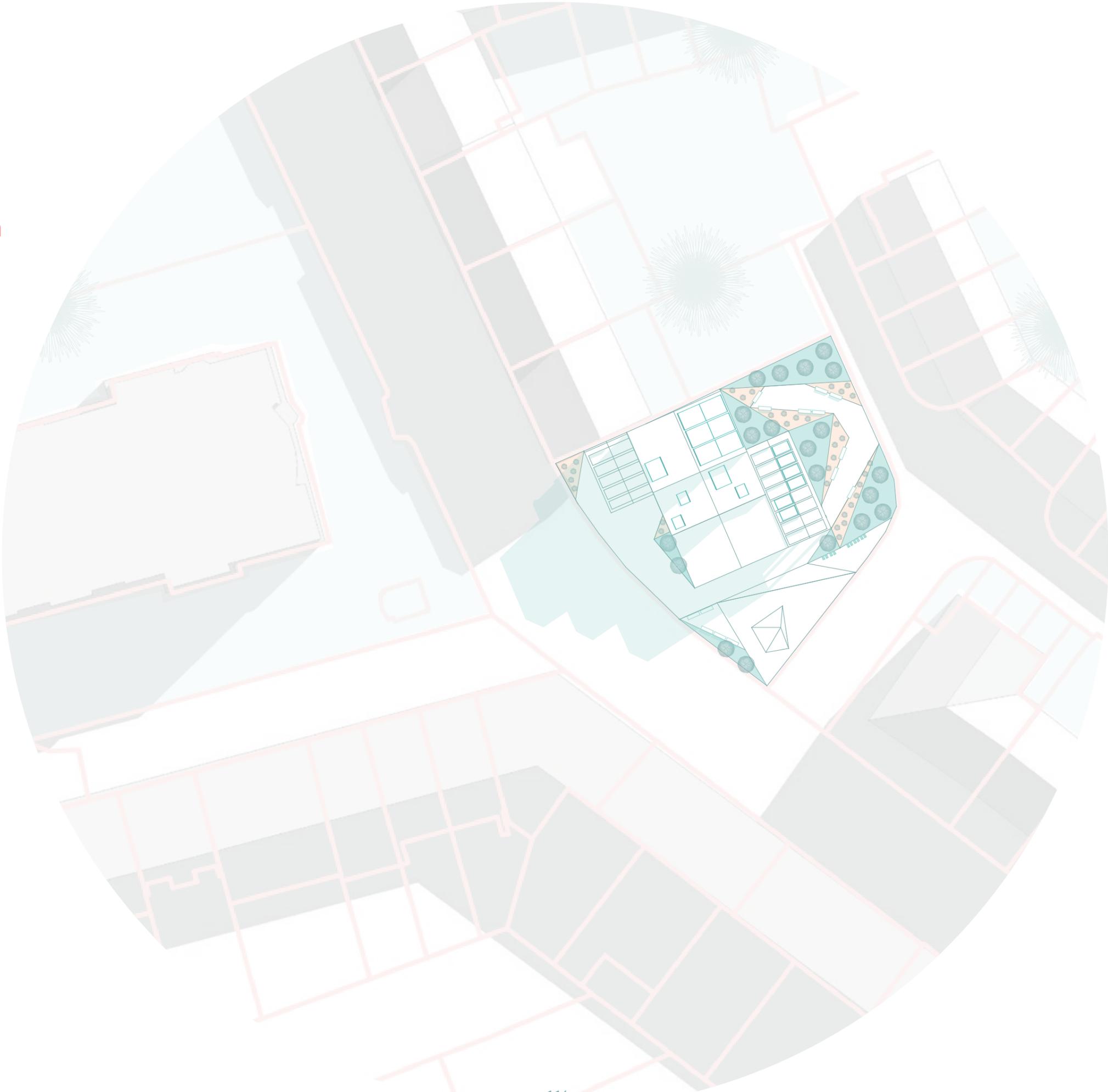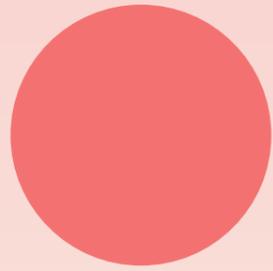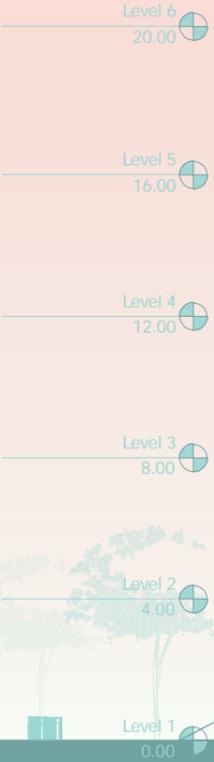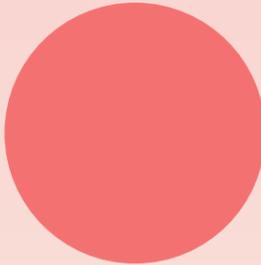
Section 3

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
0.00

Scale1:200

0   2   4   6   8   10

North Elevation

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1

Scale1:200

0   2   4   6   8   10

South Elevation

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1

0   2   4   6   8   10

West Elevation

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1

Scale1:200

0   2   4   6   8   10

East Elevation

Level 6
20.00

Level 5
16.00

Level 4
12.00

Level 3
8.00

Level 2
4.00

Level 1
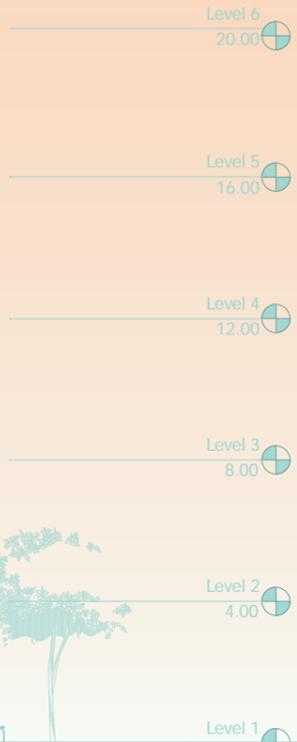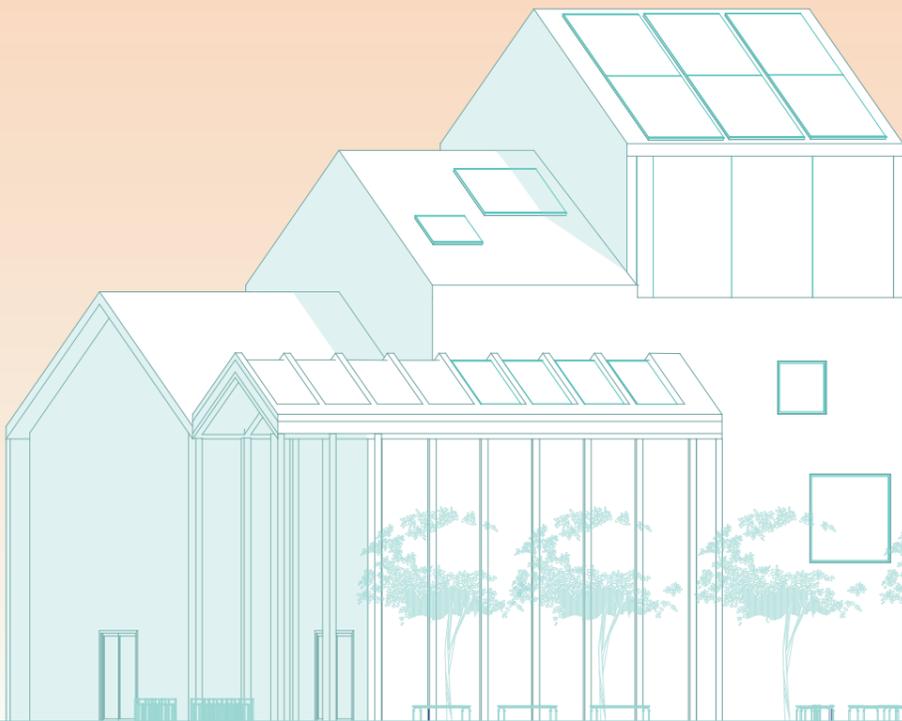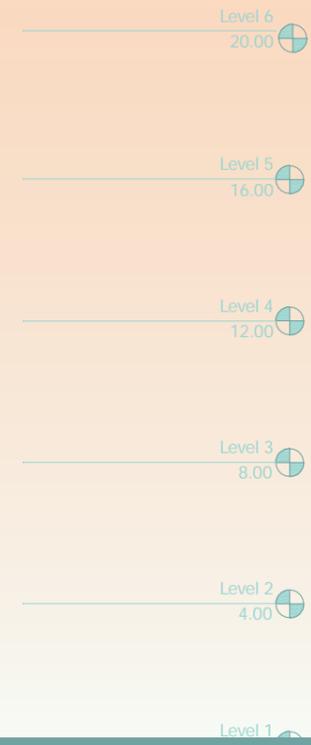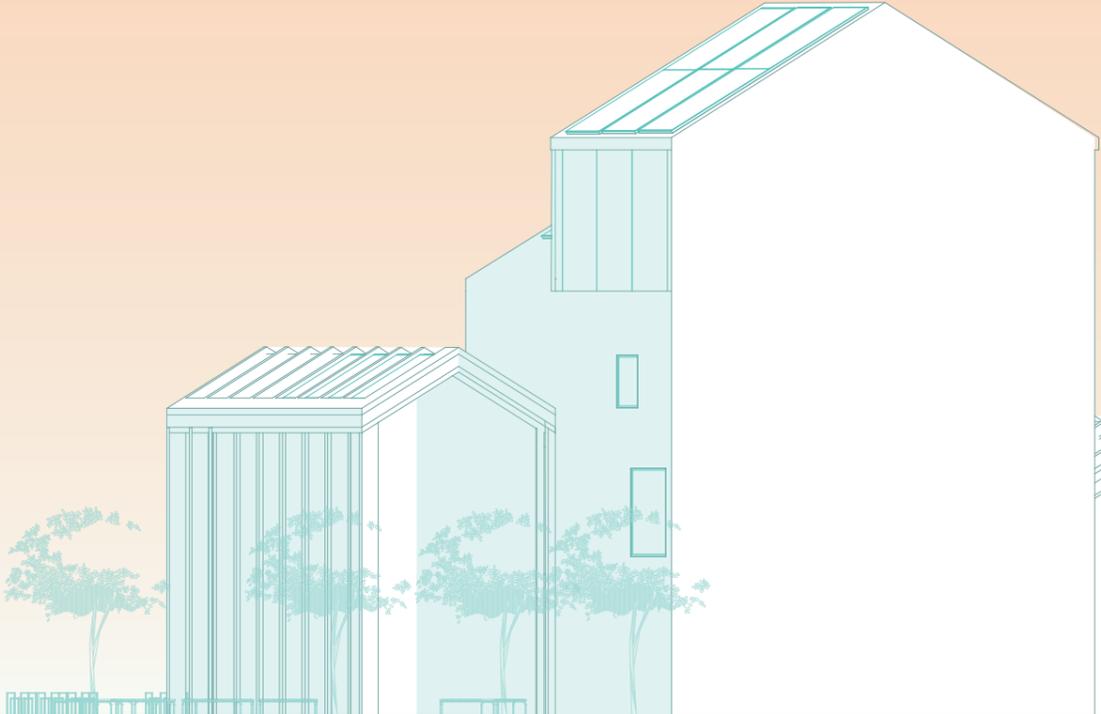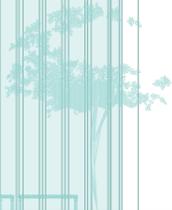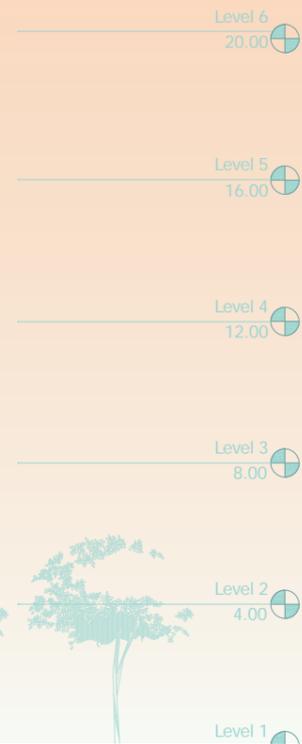
Scale1:200

0   2   4   6   8   10

Ground/First Floor Axonometric

Second Floor Axonometric

Visualization

View to the center from the South East

View from the playground

Visualization

Semi-public garden

Dining area

Visualization

Meeting/Activity area on the ground floor

Multi-function room (In this image set up as a work space)

Visualization
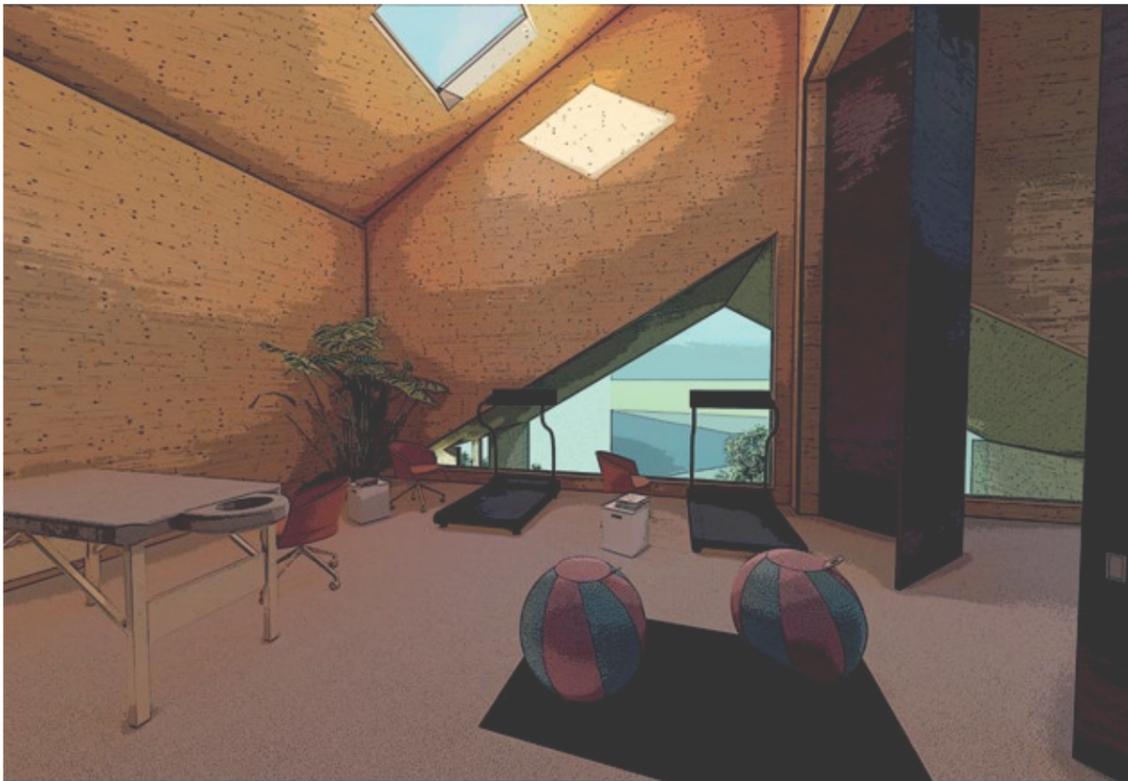
Physical therapy

Greenhouse

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