

Research

Prevention of Cognitive Impairments Through Architectural Design



Figure 1. Author's own Sketch, Mental Map of the Neighbourhood.

Iga Potok | 2022/2023

Graduation Studio

Designing for Health & Care

'Towards a Healthy and Inclusive Living Environment'

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Figure 2. Author's own Sketch, Overlaps.

Preface



Figure 3. Author's own Sketch, Personal Motivation.

Why did I choose this studio?

I chose the Health and Care studio because architecture significantly impacts our health and well-being. I was intrigued by the concept of 'healing environments' and wanted to find out how architecture can prevent the development of cognitive impairments. The emphasis on research through anthropological methods and social sensitivity promoted in the studio has made the research particularly valuable and out of the box.

My family situation inspired my fascination with the prevention of cognitive impairments. Because of my Grandma, I have personal experience with Alzheimer's and know what struggles come with this disease. Therefore, this project is significant to me.

Abstract

Key words: *Prevention, Intergenerational, Design for encounter, Inclusivity, Aging in place, Active design*



Figure 4. Author's own Sketch, My Grandma.

Short summary of the research

This paper has argued that the absence of inter-generational contact and a deficit of care-taking in communities leads to the societal exclusion of the elderly and increases the development of diseases such as Alzheimer's, dementia and depression. Dementia is a pressing problem of our time. The number of people with dementia is constantly rising and will triple by 2050! The understaffed healthcare system can no longer provide enough care in nursing facilities. Therefore, this thesis aimed to discover how to prevent the development of cognitive impairments by implementing design strategies on the neighbourhood and housing block scale.

The main research question to be addressed in this thesis was what inclusive design strategy can encourage daily inter-generational contact, strengthen communities and prevent cognitive impairments?

The research included primary research on the target group's social needs and future-proof living space design through a one-week observation study, three semi-structured interviews and a questionnaire conducted among 18 participants.

Additionally, secondary research was conducted by analysis of two case studies of community-based design projects.

This study has identified a correlation between staying socially and physically active and has found that the combination of fostering social contact and encouraging physical activity can delay the illness by several years. It investigated the needs and wants of different generations regarding neighbourhood and housing design. It identified that a need to feel like a part of a community is the most important overlap between all age groups.

It also examined how to use the principles of 'Active design' and 'Architecture for encounter' in a housing block.

As a result, the research provides answers on how the architectural design of a housing block can prevent the development of cognitive impairments and thus enable healthy ageing in place.

Conclusively the research identified that it is indeed possible to encourage daily inter-generational contact, strengthen communities and prevent cognitive impairments through a design of a housing block which revolves around the community.

1. Ed Pinches, "Worldwide Dementia Cases to Triple by 2050," Alzheimer's Research UK, July 27, 2021, accessed April 19, 2023, <https://www.alzheimersresearchuk.org/worldwide-dementia-cases-to-triple-by-2050/>.

Introduction

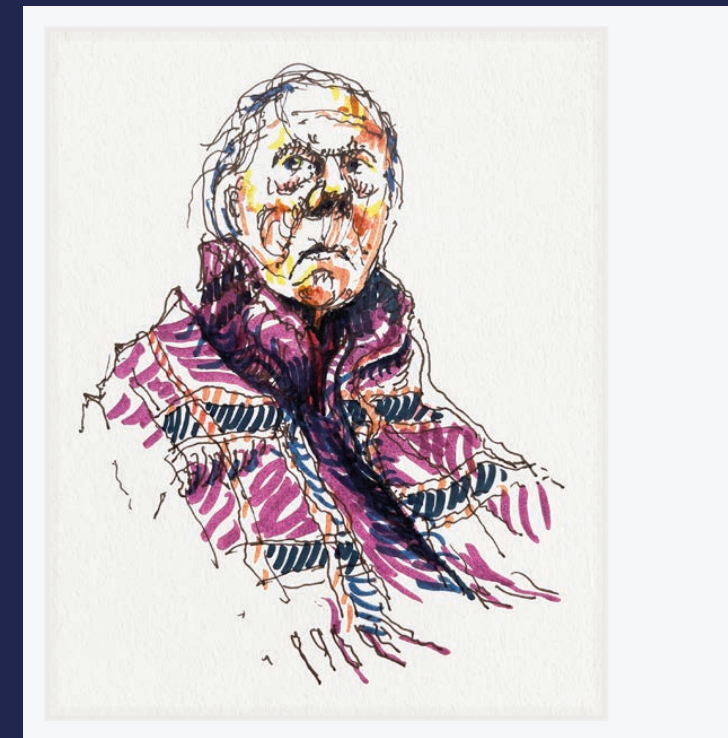


Figure 5. Author's own Sketch, Personal Motivation.

Background

Dementia is a pressing problem of our time. The number of people with dementia will triple by 2050.² Dementia describes a reduced capability to remember, think, or make decisions and interferes with performing daily tasks.³ The most common type of dementia is Alzheimer's disease. The first symptoms of Alzheimer's can be diagnosed only when the loss of neurons reaches 50%.⁴ It is very late. Currently, there is no cure for Alzheimer's. That is why scientists emphasise the importance of prevention over treatment. Several studies have shown that regular mental and physical activity can delay the illness by several years.⁵ But remaining active can also help our brain to cope with the disease and allocate functions from the affected parts of our brain to other, healthy ones. It turns out that even if our brain shows changes typical for Alzheimer's when we lead a life full of social contacts and physical and intellectual activity, no symptoms of the disease are noticeable in everyday life.⁶ Dementia primarily affects people aged 65 and above.⁷ Since the elderly spend most of their time in their homes, housing blocks and neighbourhoods, the architecture of these places significantly impacts their health, activity and social behaviours.⁸ Well-designed architecture can encourage to stay more active or help to form a sense of collectivity, thus encouraging social interaction. Architecture can play a significant role in Alzheimer's prevention.⁹ For example, an age-friendly neighbourhood could help the elderly maintain cognition and limit cognitive decline by encouraging healthy and active ageing.¹⁰ Therefore, architects are encouraged to develop preventative design strategies. Some examples are "Active design", "Architecture for encounter", "Community-based design", and "Nudging". Implementing these strategies can allow the elderly to "age in place" healthily and thus help the understaffed healthcare system, which can no longer facilitate care for people in nursing facilities.

2. Ed Pinches, "Worldwide Dementia Cases to Triple by 2050," Alzheimer's Research UK, July 27, 2021, accessed April 19, 2023, <https://www.alzheimersresearchuk.org/worldwide-dementia-cases-to-triple-by-2050/>.

3. "What Is Dementia? | CDC," Centers for Disease Control and Prevention, April 5, 2019, accessed March 23, 2023, <https://www.cdc.gov/aging/dementia/index.html#:~:text=Dementia%20is%20not%20a%20specific,a%20part%20of%20normal%20aging.>

4. Joanna Podgórska, "O Chorobie Alzheimer'a i Ucieczce Przed Neurodegeneracją (About Alzheimer's Disease and Escaping Neurodegeneration)," April 2022, <https://open.spotify.com/episode/11bKlceJDSB8dLO6gTLUuv>.

5. Eckhard Feddersen and Insa Lütke, *Lost in Space* (Basel: Birkhäuser, 2014).

6. Joanna Podgórska, "O Chorobie Alzheimer'a i Ucieczce Przed Neurodegeneracją (About Alzheimer's Disease and Escaping Neurodegeneration)," April 2022, <https://open.spotify.com/episode/11bKlceJDSB8dLO6gTLUuv>.

7. "What Is Dementia? | CDC," Centers for Disease Control and Prevention, April 5, 2019, accessed March 23, 2023, <https://www.cdc.gov/aging/dementia/index.html#:~:text=Dementia%20is%20not%20a%20specific,a%20part%20of%20normal%20aging.>

8. Joos Droogleevert Fortuijn et al., "The Activity Patterns of Older Adults: A Cross-Sectional Study in Six European Countries," *Population Space and Place* 12, no. 5 (September 1, 2006): 353-69, <https://doi.org/10.1002/psp.422>.

9. Lesley Palmer, "Why Green Spaces, Walkable Neighbourhoods and Life-Enhancing Buildings Can All Help in the Fight against Dementia," *The Conversation*, September 25, 2020, accessed April 19, 2023, <https://theconversation.com/why-green-spaces-walkable-neighbourhoods-and-life-enhancing-buildings-can-all-help-in-the-fight-against-dementia-146712>.

10. Lesley Palmer, "Why Green Spaces, Walkable Neighbourhoods and Life-Enhancing Buildings Can All Help in the Fight against Dementia," *The Conversation*, September 25, 2020, accessed April 19, 2023, <https://theconversation.com/why-green-spaces-walkable-neighbourhoods-and-life-enhancing-buildings-can-all-help-in-the-fight-against-dementia-146712>.

Problem statement and goals

The absence of inter-generational contact and a deficit of care-taking in communities leads to the societal exclusion of the elderly and increases the development of diseases such as Alzheimer's, dementia and depression.

Most studies concerning architecture design for dementia have only focused on minimising the symptoms of dementia by incorporating dementia design principles.¹¹ However, such approaches did not investigate the possibility of preventing cognitive impairments altogether.

It is indisputable that appropriate preventive measures are more effective than the treatment regarding the patient's well-being and cost. **Therefore, inspired by the phrase "prevention is better than cure", this research aims to discover how to prevent the development of the aforementioned diseases by implementing design strategies.** The term "ageing in place" refers to one's ability to live independently, comfortably and safely in one's home and community, despite age, mobility and wealth.¹² Such a strategy requires less staff to care for those in need. It is also more cost-efficient because the cost of providing housing and care is double that of catering solely care. "Ageing in place" also coincides with the will of the elderly to reside at home for as long as possible. Peter Boerenfijn, the CEO of Habion, a company that specialises in elderly care facilities, informs that there is now more than ever a need for inclusive and inter-generational housing to relieve the unwieldy healthcare system.

Research shows that modifying certain risk factors can reduce the probability of developing dementia by around a third.¹³ According to the NHS, the most prominent risk factors are untreated depression, loneliness or social isolation and lack of regular exercise.¹⁴ Staying mentally, socially and physically active and maintaining a healthy and balanced diet are the most effective ways of prevention.¹⁵

The main goal of the research project is to foster daily inter-generational contact to strengthen communities and prevent the development of cognitive impairments.

11. Lesley Palmer, "Why Green Spaces, Walkable Neighbourhoods and Life-Enhancing Buildings Can All Help in the Fight against Dementia," *The Conversation*, September 25, 2020, accessed April 19, 2023, <https://theconversation.com/why-green-spaces-walkable-neighbourhoods-and-life-enhancing-buildings-can-all-help-in-the-fight-against-dementia-146712>.

12. "Definition of Aging-in-Place | New Word Suggestion | Collins Dictionary," in *Collins Dictionaries*, accessed April 19, 2023, <https://www.collinsdictionary.com/submission/401/Aging-in-place>.

13. Elena Rolandi et al., "Estimating the Potential for Dementia Prevention through Modifiable Risk Factors Elimination in the Real-World Setting: A Population-Based Study," *Alzheimer's Research & Therapy* 12, no. 1 (August 7, 2020), <https://doi.org/10.1186/s13195-020-00661-y>.

14. Nhs Website, "Can Dementia Be Prevented?," [nhs.uk](https://www.nhs.uk/conditions/dementia/dementia-prevention/), November 30, 2021, accessed March 19, 2023, <https://www.nhs.uk/conditions/dementia/dementia-prevention/>.

15. "How to Reduce Your Risk of Alzheimer's and Other Dementias," *Alzheimer's Society*, November 25, 2021, accessed October 1, 2022, <https://www.alzheimers.org.uk/about-dementia/risk-factors-and-prevention/how-reduce-your-risk-alzheimers-and-other-dementias>.

Community can be understood as a “friendship between different people or groups, and a sense of having something in common”.¹⁶ The similarities and overlaps are the key elements that bring the community together.

Therefore, this research aims to identify overlaps of needs and wants of different generations regarding neighbourhood and housing design.

To be able to create these catalyst spaces it is important to understand what kind of places can promote interaction between different age groups and strengthen communal bonds.

Research question:

What inclusive design strategy can encourage daily inter-generational contact, strengthen communities and prevent cognitive impairments?

To support the main research question, additional sub-questions arise:

1. What are the specific needs and wants of different generations in terms of neighbourhood and housing design, and how do they overlap?
2. How can the design of public and collective spaces in housing and the neighbourhood foster regular contact between generations?
3. How can architectural design provide stimuli to prevent cognitive impairments?

Design Hypothesis:

Architecture that inspires physical movement and social interactions reduces the probability of developing cognitive impairments and depression.

16. "Community Definition and Meaning | Collins English Dictionary," in Collins Dictionaries, accessed March 23, 2023, <https://www.collinsdictionary.com/dictionary/english/community#:~:text=singular%20noun%20%5Bwith%20singular%20or,campaign%20to%20save%20the%20park.>



Glossary

inclusive design inter-generational
accessibility all-age-friendly community
aging in place 'right to the city' well-being
all-age-friendly community aging in place
'right to the city' well-being inclusive design
inter-generational accessibility all-age-
friendly community aging in place 'right
to the city' well-being all-age-friendly
community aging in place well-being
inclusive design inter-generational inclusive
design inter-generational accessibility
all-age-friendly community aging in
place 'right to the city' well-being all-age-
friendly well-being inclusive design inter-
generational accessibility aging in place

Figure 6. Author's own Graphic, Glossary.

Inclusive design

The term inclusive design refers to “a design approach where the built environment (...) is designed and/or adapted in such a way that it meets the needs of all, regardless of age or ability”.¹⁷

Accessibility

A term that strongly relates to inclusivity. It translates to “capable of being easily reached and/or is available to as many people as possible (...) as a spatial concept, relates to inclusive design principles”.¹⁸

All-age-friendly

Is “a general term applied to mean favourable to and accommodating of all generations (...) often used to broaden relevance of an older-age-focused policy agenda”.¹⁹

Inter-generational

The term inter-generational means “involving persons of different generations”.²⁰

Well-being

The term can be understood “as the state of feeling healthy and happy”.²¹

Community

Community can be understood as a “friendship between different people or groups, and a sense of having something in common”.²²

Aging in place

The term “aging in place” refers to one’s ability to live independently, comfortably and safely in one’s home and community, in spite of age, mobility and wealth.²³

Architecture for encounter

Are “spaces along with their direct architectural environment that enable to promote interaction between residents”.²⁴

Active design

Is “a set of building and planning principles that promote physical activity”.²⁵

17. Sophie Handler, “GLOSSARY OF AGE-FRIENDLY TERMS*,” in *An Alternative Age-Friendly Handbook* (Manchester: University of Manchester, 2015), pp. 6-10.

18. Sophie Handler, “GLOSSARY OF AGE-FRIENDLY TERMS*,” in *An Alternative Age-Friendly Handbook* (Manchester: University of Manchester, 2015), pp. 6-10.

19. Sophie Handler, “GLOSSARY OF AGE-FRIENDLY TERMS*,” in *An Alternative Age-Friendly Handbook* (Manchester: University of Manchester, 2015), pp. 6-10.

20. “Intergenerational Definition and Meaning | Collins English Dictionary,” in Collins Dictionaries, March 23, 2023, accessed April 19, 2023, <https://www.collinsdictionary.com/dictionary/english/intergenerational>.

21. “Wellbeing Definition and Meaning | Collins English Dictionary,” in Collins Dictionaries, April 19, 2023, accessed April 19, 2023, <https://www.collinsdictionary.com/dictionary/english/wellbeing>.

22. “Community Definition and Meaning | Collins English Dictionary,” in Collins Dictionaries, accessed March 23, 2023, <https://www.collinsdictionary.com/dictionary/english/community>.

23. “Definition of Aging-in-Place | New Word Suggestion | Collins Dictionary,” in Collins Dictionaries, accessed April 19, 2023, <https://www.collinsdictionary.com/submission/401/Aging-in-place>.

24. Chantal Schoepp, “Architecture for Encounter - Building Social Ecology,” *Building Social Ecology - Socio-ecological Patterns for Community-oriented and Sustainable Housing Projects in Europe*, August 19, 2022, accessed April 19, 2023, <https://www.buildingsocialecology.org/patterns/architecture-for-encounter/>.

25. “Active Design,” Sport England, accessed March 26, 2023, <https://www.sportengland.org/guidance-and-support/facilities-and-planning/design-and-cost-guidance/active-design>.

Literature review



Figure 7. Stanziola, edited by author, Jane Jacobs Holding a Petition.

Introduction

As outlined in the introduction of this research, the prevention of cognitive impairments, such as dementia, through architectural design is strictly linked with 'Architecture for encounter' and 'Active design'. The primary domain where architecture can actively help prevent the development of aforementioned diseases is encouraging physical activity and social interactions. This chapter will examine how these architectural strategies can be applied in practice on the neighbourhood and housing block scales.

Active design - encouraging physical activity

Neighbourhood's walkability

Good architectural and urban design can massively increase our desire to walk. Limited distances and safe public spaces are the most critical factors that increase a neighbourhood's walkability.²⁶ The proximity of everyday destinations, public transport, health and care facilities, and lively public spaces encourages people to run errands on foot. Proximity is essential for the Elderly who cannot walk long distances. In 2016, inspired by Jane Jacobs²⁷, scientist Carlos Moreno developed the concept of a "15-minute City" based on the idea of 5-minute walkable neighbourhoods that build a 15-minute city. Citizens can reach living, working, commerce, healthcare, education and entertainment spaces within a 15-minute walk or bike ride from their houses.²⁸ The 15-minute distance better serves vulnerable groups of people (like people with disabilities and the elderly).²⁹ Short distances encourage people to walk and increase the probability of spontaneous encounters. Walkability is also a factor that enables the elderly to continue living in their neighbourhood for longer. It is incredibly vital because, in this way, their social network is preserved.³⁰ Another factor connected to walkability is the presence of 'eyes on the street'. Commercial functions on the ground floor increase the interactions and feeling of safety, thus encouraging people to walk. People also walk more frequently in attractive surroundings on even and well-preserved pavements.³¹ Small-scale solutions include wider sidewalks, benches, good street lighting, and well-maintained greenery.³² The less mobile elderly benefit from pedestrianised streets and paths protected from excessive sun exposure and bad weather conditions.³³ The strategies mentioned above include the elderly in the daily urban traffic, making them more self-dependent and lowering their need to receive care and help.³⁴ Since they encourage the elderly to be more physically active, the risk of developing cognitive impairments decreases.³⁵ They also promote

26. Ad de Bont, Anouk Distelbrink, and Wendy van Kessel, *The Active City (Amsterdam: Urhahn | design & strategy, 2017)*, 65.
 27. Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961).
 28. Carlos Moreno et al., "Introducing the '15-Minute City': Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities," *Smart Cities* 4, no. 1 (August 2021): pp. 93-111, <https://doi.org/10.3390/smartcities4010006>.
 29. Georgia Pozoukidou and Zoi Chatziyiannaki, "15-Minute City: Decomposing the New Urban Planning Eutopia," *Sustainability* 13, no. 2 (2021): p. 928, <https://doi.org/10.3390/su13020928>.
 30. Eckhard Feddersen and Insa Lütke, *Lost in Space* (Basel: Birkhäuser, 2014).
 31. Ad de Bont, Anouk Distelbrink, and Wendy van Kessel, *The Active City (Amsterdam: Urhahn | design & strategy, 2017)*, 65.
 32. Ad de Bont, Anouk Distelbrink, and Wendy van Kessel, *The Active City (Amsterdam: Urhahn | design & strategy, 2017)*, 64.
 33. Simon Biggs and Ashley Carr, "Age- and Child-Friendly Cities and the Promise of Intergenerational Space," *Journal of Social Work Practice* 29, no. 1 (February 2015): pp. 99-112, <https://doi.org/10.1080/02650533.2014.993942>, 105.
 34. Ad de Bont, Anouk Distelbrink, and Wendy van Kessel, *The Active City (Amsterdam: Urhahn | design & strategy, 2017)*, 74.
 35. Simon Biggs and Ashley Carr, "Age- and Child-Friendly Cities and the Promise of Intergenerational Space," *Journal of Social Work Practice* 29, no. 1 (February 2015): pp. 99-112, <https://doi.org/10.1080/02650533.2014.993942>, 105.

active ageing amongst the elderly and reduce the risk of chronic diseases.³⁶

"Active design in Buildings" by BETA Office

Neighbourhood design is vital for encouraging physical movement, but our living spaces can equally make a difference. "Active design in Buildings" by BETA Office is a good source of architectural guidelines that specify how to inspire residents to be physically active. "Active Design in Buildings" is based on interviews, literature and precedents, including New York City's Active Design Guidelines (2010) and the Well Building Standard (2016). The findings are collected in the form of a toolkit consisting of principles and design solutions which encourage physical activity in the built environment. The toolkit is divided into different building typologies, including a residential block. The findings of this section are particularly useful for this research. Firstly, they recommend that residential blocks have 4-8 floors for the ultimate environment that fosters physical activity.³⁷ The connectivity and intensity of routes inside the housing block play a crucial role in the residents' engagement. For example, a good design of staircases with an emphasis on materiality, colour and natural light (either by incorporating a skylight or placing it along the facade) can encourage the use of stairs over lifts.³⁸ It is good to integrate intermediate destinations along the route, combining the vertical staircases with communal functions.³⁹ The entrances to the building should be transparent and open and act as a node between routes, therefore inspiring activity by providing various connections.⁴⁰ Since the basement is often accessible from the entrance, it is a good place for communal functions. By incorporating natural light in the basement level, the usage and activity on that level can be maximised.⁴¹ Because of its central position, the courtyard becomes a valuable destination. To maximise its use, it is advised to make it publicly accessible and visible from the street.⁴² It is also essential to introduce seating, areas protected from the sun and greenery. Exercise equipment could also be placed here. An exciting variation could also be the introduction of connections from different building floors via stairs or ramps.⁴³

36. Simon Biggs and Ashley Carr, "Age- and Child-Friendly Cities and the Promise of Intergenerational Space," *Journal of Social Work Practice* 29, no. 1 (February 2015): pp. 99-112, <https://doi.org/10.1080/02650533.2014.993942>, 105.
 37. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 103.
 38. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 105.
 39. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 107.
 40. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 106.
 41. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 111.
 42. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 111.
 43. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 111.

A courtyard is also an excellent place for potential activity functions. Gyms or activity spaces should be placed on the ground floor and could benefit from views of the public spaces, the courtyard and greenery.⁴⁴ Visual connectivity can encourage use by the signalling presence and add quality to a workout space. It also helps to install information boards to inform the residents about possible activities in the building. When deciding on activity spaces, we should consider the variety of users and age groups.⁴⁵ The inclusivity will result in more usability. Alternatively, some of the activity functions could be placed on the rooftop. More relaxed functions like a yoga and meditation room or a sauna could benefit from a more private placement on the rooftop.

Sheltered bicycle parking or storage areas for bulky sports equipment in an easily accessible spot can encourage daily commutes by bicycles.⁴⁶

Lastly, a human scale of the commercial functions in the plinth of the building and accentuating these public spaces by high transparency and incorporating canopies or awnings can make the street façades more lively and encourage pedestrian traffic.⁴⁷

44. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 113.

45. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 113.

46. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 113.

47. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings BETA Office for Architecture and the City* (Amsterdam: Pantheon Drukkers, 2016), 115.

More in-depth information about Active design can be found in the booklet: "Active design in Buildings" published by BETA Office.⁴⁸

This source includes a toolkit which specifies principles and design solutions which encourage physical activity in the built environment. Encouraging physical activity is one of the two main ways of preventing cognitive impairments through architectural design. Therefore, this toolkit will be a valuable source of design ideas for this research and design project. Additionally, the toolkit is divided into different building typologies, including a residential block, which is the chosen scale of this research design project.

48. Auguste van Oppen, Evert Klinkenberg, and Eldrich Piqué, *Active design in Buildings* BETA Office for Architecture and the City (Amsterdam: Pantheon Drukkers, 2016).

Figure 8. Van Oppen, Klinkenberg, and Piqué, *Active Design Toolkit* by BETA Office.

Index Toolkit

	routes	destinations	activity programme	building surroundings	small	medium	large	mobility impaired	wheelchair bound	sustainable	objective
1.01					S						
1.02					S						
1.03					S						Σ
1.04					S			♿			Σ
1.05					S			♿			Σ
1.06					S						
1.07					S						
1.08					S			♿	🌿		Σ
1.09						M					
1.10						M					
1.11						M					
1.12						M		♿			
1.13						M				🌿	Σ
1.14						M		♿			Σ
1.15						M		♿			Σ
1.16							L	♿			
1.17							L				
1.18							L				
1.19							L			🌿	Σ
1.20							L			🌿	Σ
1.21							L			🌿	Σ
1.22							L				
2.01	🎯				S						
2.02	🎯				S						
2.03	🎯				S					🌿	Σ
2.04	🎯				S					🌿	Σ

2.05		🎯			S						
2.06		🎯				M					
2.07		🎯				M					
2.08		🎯				M					Σ
2.09		🎯				M					Σ
2.10		🎯				M					Σ
2.11		🎯					L				Σ
2.12		🎯					L				
2.13		🎯					L				Σ
2.14		🎯					L				
3.01		🎯	📍		S						Σ
3.02		🎯	📍		S						Σ
3.03		🎯	📍				L				Σ
3.04		🎯	📍			M					
3.05		🎯	📍				L				
3.06		🎯	📍			M					
3.07		🎯	📍				L				Σ
3.08		🎯	📍				L	♿		🌿	Σ
4.01			📍			M					
4.02			📍				L	♿			
4.03			📍			M					
4.04			📍			M					Σ
4.05			📍				L				Σ
4.06			📍			M		♿			Σ
4.07			📍	S							

Architecture for encounter

It is vital for the elderly to preserve the already established social networks, but creating new connections is just as important. Older residents tend to spend more time in their homes and closest surroundings; thus, the importance of the neighbourhood as the catalyst for interactions and social networks increases.⁴⁹

In "The Death and Life of Great American Cities," Jane Jacobs pointed out, "A neighbourhood is not only an association of buildings but also a network of social relationships, an environment where the feelings and the sympathy can flourish."⁵⁰

Neighbourhood design

An appropriate neighbourhood design optimal for social interactions is crucial for the elderly.⁵¹ It should offer public and collective spaces that catalyse social interactions. Proximity and comprehensibility are the most critical factors that increase social contact. A concentration of functions and a compact size of urban neighbourhoods result in more spontaneous encounters between neighbours, making it easier to establish new social networks and connections to counter loneliness.⁵² Public outdoor spaces and communal indoor spaces can encourage the elderly to be more socially active outside their apartments.⁵³

Ray Oldenburg emphasises the importance of so-called "third places". Third places are "a great variety of public places that host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work".⁵⁴ They foster social connections and well-being and are the main factor in deciding about the community's vitality.⁵⁵ Examples of such spots include cafés, bookstores, bars, beer gardens, hair salons, and community centres.

An essential factor to consider is the locality of functions. Small businesses, outdoor markets, cafés, corner grocery shops, hair salons and squares activate social contacts more than commercialised shopping malls. The residents get to know the local shop

49. Joos Droogleevers Fortuijn et al., "The Activity Patterns of Older Adults: A Cross-Sectional Study in Six European Countries," *Population, Space and Place* 12, no. 5 (2006): pp. 353-369, <https://doi.org/10.1002/psp.422>.

50. Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961).

51. Jantine Bouma, "Supporting Social Contact Design Principles in Common Areas of Cohousing Communities," *Academia.edu*, May 28, 2010, https://www.academia.edu/4722409/Supporting_social_contact_design_principles_in_common_areas_of_cohousing_communities.

52. Eckhard Feddersen and Lütke Insa, *Lost in Space: Architecture and Dementia* (Basel: Birkhäuser, 2014), 140.

53. Ad de Bont, Anouk Distelbrink, and Wendy van Kessel, *The Active City (Amsterdam: Urhahn | design & strategy, 2017)*, 75.

54. Ray Oldenburg, *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community* (New York: Marlowe and Company, 1999), 16.

55. Ray Oldenburg, *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community* (New York: Marlowe and Company, 1999),

owners and frequent customers and therefore feel less anonymous. Such interactions help to build mutual trust and increase the feeling of safety.⁵⁶

Other crucial factors which influence the elderly's activity are accessibility and proximity. A study in 2009 found that accessibility and proximity of everyday functions significantly increased the probability of the elderly remaining active.⁵⁷ Creating attractive routes around the neighbourhood that connect essential amenities could provide an engaging experience for the elders and function as a daily recreation.⁵⁸ Another aspect to consider is the proximity of functions used by different age groups. It strengthens the multi-purpose character and allows more inter-generational contact, which is nowadays in decline. In addition, researchers focus on how inter-generational relationships improve the well-being of elderly citizens. Social policy professors Simon Biggs and Ashley Carr research how communal places can be re-emphasised to promote collective inter-generational activity. Their research aims to develop a framework for a better understanding of inter-generational relationships. They accentuate the need for a more flexible creation of space, integrating communities' emotional and social sides.⁵⁹ For example, a cafe near a playground would enable parents to supervise their children from a distance while meeting their friends.⁶⁰ Functional synergies make these places more attractive and intergenerationally intelligent.

Lastly, public parks and squares are believed to be the community's most valuable assets. Parks are attractive spots in the neighbourhood that provide space for relaxation and play whilst being among nature. They are a social condenser for planned and unplanned social contact between all age groups.⁶¹

Residential block design

A good neighbourhood design is vital for social interactions, but the creation of collective spaces in a housing block can equally make a change.

The first factor is the size of the community. Large communities overall tend to

56. Jo Williams, "Designing Neighbourhoods for Social Interaction: The Case of Cohousing," *Journal of Urban Design* 10, no. 2 (2005): pp. 195-227, <https://doi.org/10.1080/13574800500086998>, 195.

57. L. Richard et al., "Staying Connected: Neighbourhood Correlates of Social Participation among Older Adults Living in an Urban Environment in Montreal, Quebec," *Health Promotion International* 24, no. 1 (December 2008): pp. 46-57, <https://doi.org/10.1093/heapro/dan039>.

58. Vicky Cattell et al., "Mingling, Observing, and Lingering: Everyday Public Spaces and Their Implications for Well-Being and Social Relations," *Health & Place* 14, no. 3 (2008): pp. 544-561, <https://doi.org/10.1016/j.healthplace.2007.10.007>, 550.

59. Simon Biggs and Ashley Carr, "Age- and Child-Friendly Cities and the Promise of Intergenerational Space," *Journal of Social Work Practice* 29, no. 1 (February 2015): pp. 99-112, <https://doi.org/10.1080/02650533.2014.993942>.

60. Ad de Bont, Anouk Distelbrink, and Wendy van Kessel, *The Active City (Amsterdam: Urhahn | design & strategy, 2017)*, 136.

61. Timothy Beatley and Kristy Manning, *The Ecology of Place: Planning for Environment, Economy, and Community* (Washington, DC: Island Press, 1997), 178.

have fewer social interactions than smaller ones. The residents find it hard to get to know their neighbours and remain more anonymous. On the other hand, too small communities can lead to over-stimulation and lack of privacy, which often results in withdrawal from interactions.⁶²

The space of the housing block should create opportunities for the residents to interact and provide spaces that foster contact within the building. Useful examples of specific design principles and solutions regarding Architecture for encounter can be found in "Making space for collective living: an urban design guide" by urban designers from Posad Maxwan done in collaboration with the Municipality of Rotterdam. A selection of the most relevant design solutions are displayed in figure 9.

Social interactions can be divided into passive (unplanned/unintentional) and active (planned/intentional) interactions. Open staircases, atrium, courtyards and places with expansive views facilitate passive encounters.⁶³ They are important for dialogue and exchange between neighbours. Frequent unplanned contact between residents can result in active interactions, closer bonds or friendships.⁶⁴

Active interactions can promote community building. They inspire mutual hobbies, interests and activities between residents.⁶⁵ Active interactions happen in specific locations. Factors that make these spaces more successful are their location, visibility and accessibility.⁶⁶ A central location of communal spaces and activity areas along commonly used routes maximises the possibility of social interactions.⁶⁷ If the residents can hear and see others use the communal spaces, the possibility of interaction increases. The visual connection also makes it possible to observe others from a distance and decide whether or not they want to interact.⁶⁸

Lastly, it is crucial for communal spaces to be of good quality and to offer usage flexibility.⁶⁹ Therefore, not all spaces in the building should be fully programmed by the architect. This leaves room for the residents to be creative and allows the spaces to better suit their changing needs.

62. Jo Williams, "Designing Neighbourhoods for Social Interaction: The Case of Cohousing," *Journal of Urban Design* 10, no. 2 (2005): pp. 195-227, <https://doi.org/10.1080/13574800500086998>, 199.

63. "Architecture for encounter - Building Social Ecology," *Building Social Ecology*, August 19, 2022, <https://www.buildingsocial-ecology.org/patterns/architecture-for-encounter/>.

64. Tawfiq M. Abu-Ghazzeh, "Housing Layout, Social Interaction, and the Place of Contact in Abu-Nuseir, Jordan," *Journal of Environmental Psychology* 19, no. 1 (March 1, 1999): 14-73, <https://doi.org/10.1006/jevp.1998.0106>.

65. Doris Felbinger and Helga Jonuschat, in *Promoting Neighbourly Interactions by the Common Use of Green Spaces* (Ljubljana: Urban Planning Institute of the Republic of Slovenia, 2006).

66. "Architecture for encounter - Building Social Ecology," *Building Social Ecology*, August 19, 2022, <https://www.buildingsocial-ecology.org/patterns/architecture-for-encounter/>.

67. Williams, "Designing Neighbourhoods for Social Interaction: The Case of Cohousing," 199.

68. Williams, "Designing Neighbourhoods for Social Interaction: The Case of Cohousing," 198.

69. Abu-Ghazzeh, "Housing Layout, Social Interaction, and the Place of Contact in Abu-Nuseir, Jordan," 14-73.

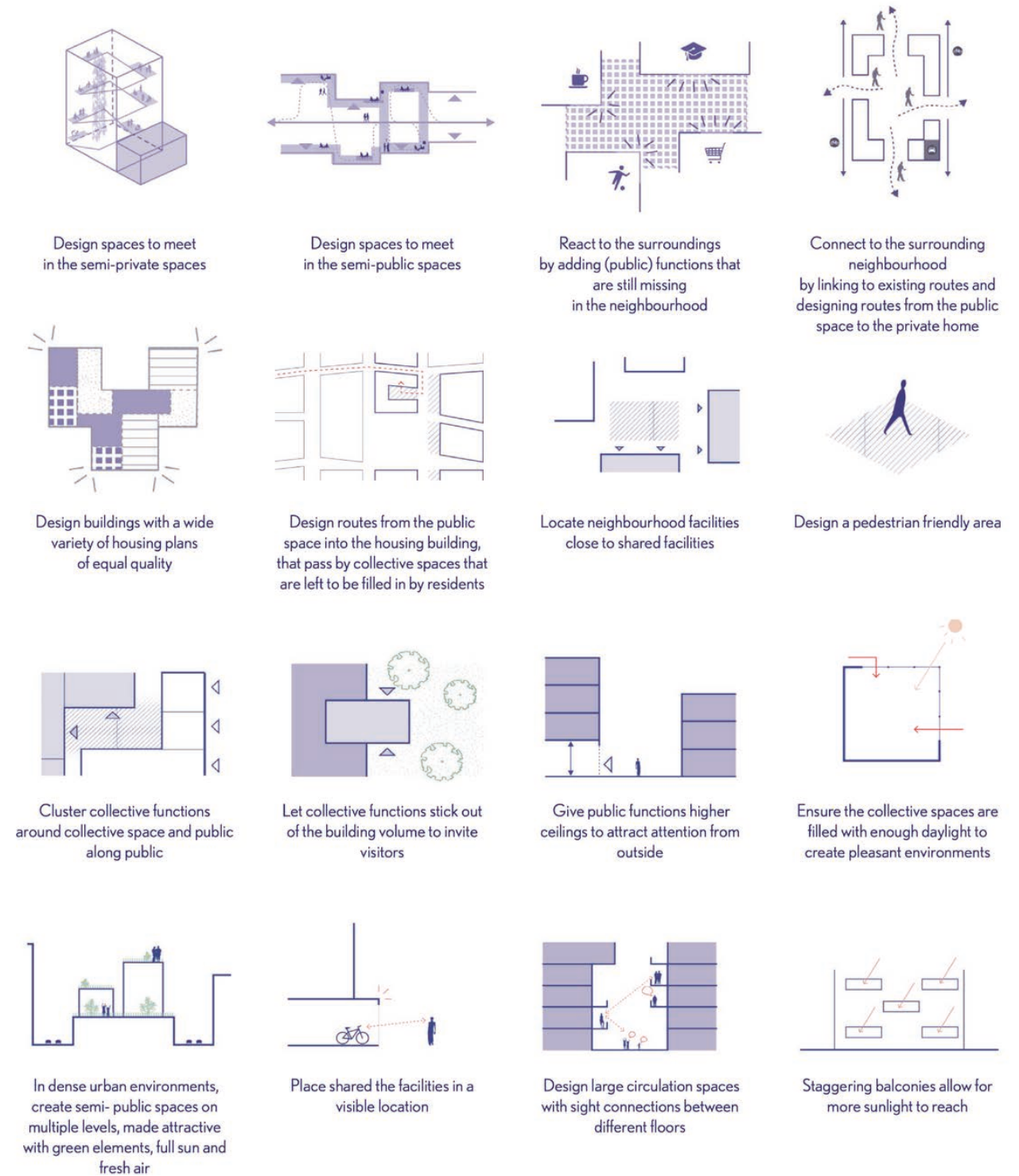


Figure 9. Thomas et al., *Examples of Design Solutions from "Making Space for Collective Living an Urban Design Guide."*

Conclusion

This chapter analysed how implementing strategies like “Active design” and “Architecture for encounter” on the neighbourhood scale and the housing block scale can help prevent the development of cognitive impairments.

Firstly, this study found that the compact size of the neighbourhood and proximity of everyday destinations is essential for the elderly as it encourages them to run errands on foot. The study also identified walkability as a crucial factor. Walkability enables the elderly to continue living in their familiar neighbourhoods and healthily age in place, thus preserving their social network and lowering their need to receive care.

The study also found that promoting inter-generationally intelligent spaces through functional synergies is crucial as it makes them appeal to different age groups.

Moreover, a factor worth considering is the size of the community. Generally, a residential block with 4-8 floors and a medium-sized community is the ultimate environment that fosters physical activity and social contact. Some of the most valuable strategies within a housing block that inspire physical activity are: designing staircases with an emphasis on materiality, colour and light; designing transparent entrances as nodes connecting various routes and functions; providing visual connections and signalling the presence of activity spaces; and encouraging the use of bicycles by providing a sheltered bicycle parking. Lastly, a central, visible and accessible location of communal areas next to commonly used routes, good quality and user flexibility of collective spaces and designing large circulations spaces with visual connections between floors are design strategies that inspire social interaction between residents.

In conclusion, implementing strategies like “Active design” and “Architecture for encounter” encourages social interactions, and promotes physical activity, thus making the residents more resilient to cognitive impairments. To sum it up, following these design principles allows the elderly to keep their social network, establish new contacts, stay active, lower their need for help and care, and age in place.

Method

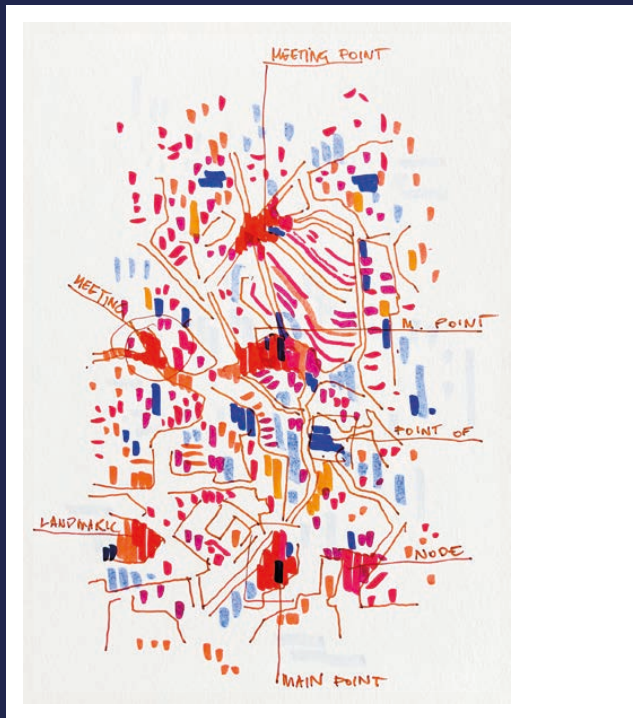


Figure 10. Author's own Sketch, Map of Overlaps.

Introduction

This research comprises two chapters. Each chapter uses different methods to explore the prevention of cognitive impairments through architectural design and answer my research questions. Combining different approaches resulted in a broader view of the topic. The following paragraphs will outline methods used in all three chapters.

Chapter 1: Fieldwork- Primary research

This chapter explores the target group perspective - elderly people aged 65 and above. It investigates their outlook on ageing in place, intergenerational contact, and staying physically and mentally active. It describes their key (planned and unplanned) meeting spots and frequent destinations. Lastly, it uncovers their needs and wants regarding neighbourhood and housing block design.

The methods used in this chapter include qualitative and quantitative approaches. The qualitative ones comprise:

1. a one-week observation study of my grandma and her neighbourhood. I studied a day in her life and analysed how she uses her living space. I researched her usual commute and frequent destinations and determined her needs and wants on the neighbourhood scale. The findings of this observation are illustrated in annotated sketches.
2. Three semi-structured interviews with members of my target group. It was essential to interview the elderly from different social and economic backgrounds.
 - The first interview was held with my cousin's grandma and her two lifelong friends. The discussion touched upon accessible design and life with disabilities. It provided plenty of information about future-proof apartment design fit to the needs of a disabled person. It also specified meeting spots on the scale of a housing block.
 - The second interview was conducted with two retired women in a cafe in the Jeżyce district in Poznań. The discussion touched upon loneliness among the elderly, the importance of meeting spots, and places to pursue hobbies. The conversation also brought up the economic factor.
 - The third interview was conducted with a group of retired members of the University of the Third Age in Poznań.⁷⁰ The discussion focused on their neighbourhood design needs, potential meeting spots and activity places. The group emphasised the importance of community centres, small-scale businesses and local markets, sports and rehabilitation facilities, and the proximity of parks and nature.

70. The University of the Third Age is an educational facility created to educate and stimulate the retired members of the community

The results of the semi-structured interviews will be collected in a form of annotated sketches and detailed descriptions of the findings.

3. The questionnaire collected quantitative and qualitative data to provide better insight into the respondents' answers. The questionnaire was conducted among 18 participants from The University of the Third Age in Poznań aged 65 and above. It touched upon the following:
 - respondents' motivation to leave their house
 - meeting spots in the neighbourhood
 - design ideas regarding meeting spots in a housing block
 - places encouraging physical activity
 - the walkability of the respondents' neighbourhood
 - Importance of green areas in the neighbourhood

The results of the questionnaire will be collected through design guidelines and a detailed description of the findings.

Chapter 2 : Case studies- Secondary research

This chapter explores the practice perspective of architects and residents involved in the design of co-housing and cooperative housing projects. It investigates how "Community-based design" works in practice. It also examines the residents' standpoint as housing block users giving insights into how the building works after being built. Finally, this chapter also analyses how the architecture of a housing block can strengthen the community and provide meeting spots for planned and unplanned encounters and strengthen the connections with the district.

For this chapter, two case studies have been chosen:

1. Kalkbreite, an inclusive housing cooperative in Zurich designed by Müller Sigrist Architekten
2. WohnProjekt Wien, a co-housing project in Vienna designed by einzueins architektur

Both case studies have been selected because their programme provides many communal spaces for the residents to come together and makes it possible to form a sense of community. An added value in these projects was the possibility of analysing the entire building process from the starting idea to the execution of the shared design ideas and testing how they work in practice.

For each case study, I will use a variety of methods:

1. Study of the collaborative building process and "Community-based design" done by analysing data from:
 - available interviews with the architects and residents involved in the building process
 - lectures about the building process published by the architects
 - reviewing articles
2. Study of how the buildings are experienced by their users by analysing data from available interviews with the residents
3. Analysis of programme, plans, sections, pictures
4. Analysis of meeting spots, communal spaces, routes inside and around the building
5. Analysis of apartment types and their flexibility

The findings will be collected through design guidelines, annotated sketches and a detailed description.

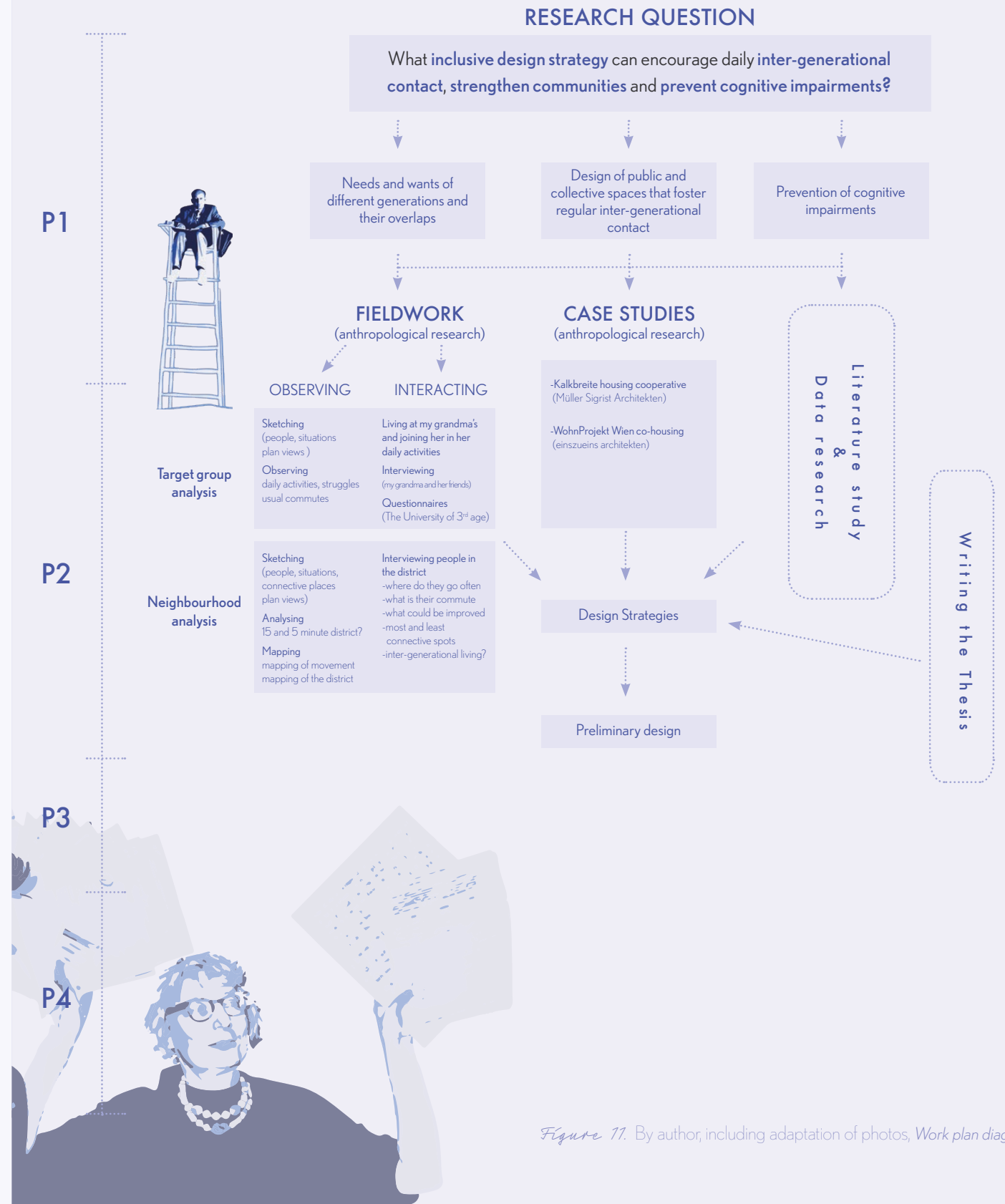


Figure 11. By author, including adaptation of photos, Work plan diagram.

Chapter 1

Fieldwork



Figure 12. Bent, edited by author, *Kitchen Stories* Movie Poster.

Introduction

This chapter will focus on getting to know the target group. It will examine the elderly's social needs and highlight the significance of 'Architecture for encounter' in relation to loneliness among the elderly. It will emphasise the importance of creating meeting spots where passions and hobbies are embraced. It will examine the elderly's needs in their living spaces and neighbourhoods and determine what future-proof and all-age-friendly design is. Finally, it will present the questionnaire results regarding the elderly's social and physical needs.



Fieldwork

1. Elderly's social needs and future-proof living space design
2. Elderly's needs in the neighbourhood and questionnaire results
3. Design Guidelines

Needs of the target group

As mentioned in the previous chapters, the best method of fighting Alzheimer's disease is prevention. Being mentally, socially and physically active significantly reduces the risk of Alzheimer's. The Elderly often experience a significant cognitive decline when they feel lonely, socially isolated or struggle with untreated depression. Also, lack of regular exercise and a bad diet are prominent risk factors.

The topic of loneliness appeared many times during my fieldwork. The elderly often mentioned their and their friends' struggles with loneliness and tried to advise each other on staying more connected. While sitting in a cafe in Poznan, I overheard a conversation between two older women. One of them said :

"You must fill up your day with tasks to not over-think! You can't sit at home the entire day because that is a recipe for loneliness and depression".

Intrigued by their conversation, I decided to join them to get to know how they manage to occupy their day. One of the main takeaways from many discussions I have had over my fieldwork was that having a hobby is essential to a good and active life. Also, in the case of these two older women, this has been their first advice for their peers. Both of them decided to take on a new hobby when they retired. One started painting and has been doing it consistently for ten years; the other joined a choir. Both of them pointed out that their hobby makes them feel young and satisfied. Perusing a hobby is a good way of getting to know other people! Both women mentioned that they actively meet with their friends twice a week. One time with their old-time friends or neighbours, and once with the friends they made more recently thanks to their hobby groups.

Having a hobby is also extremely important to older men. When talking about their passions, they often get very excited. They like to mention the hobby groups that they belong to. One of them was passionate about Nordic walking. He is over 80 years old and has a group with which he regularly trains. He also takes part in competitions every weekend. In this way, he manages to combine physical activity and social contact. Museums, universities and community centres play an essential role as contact initiators in Poland. Most of the Elderly I have talked to have made friends at lectures, workshops, or events organised by these institutions.

It is crucial to create such meeting hubs in also in the neighbourhoods. Neighbourhood clusters should provide a space for the community; for example, a space for workshops, meetings, and exchanges. Since not all elderly can afford to meet in commercial spots, affordable alternatives should exist within the communities.

Architecture starts to revolve around building a community, not anonymity. The layout and selection of functions should encourage us to leave our house and provide a chance to meet and exchange thoughts naturally.

"I meet with friends at least twice a week. Once with my circle of old time friends or my neighbours and once with my hobby group.

Our favourite places to meet are cafes, restaurants or parks.

We really enjoy it in the summer to sit outside in the cafe's garden. We like to go to places that let us stay for a longer time without feeling like we have to keep on ordering food and drinks. We also meet at our homes for special occasions.

Contact with nature is particularly important for us! We really love the newly renewed cafe/restaurant in the middle of Sotacki park. It now has great terraces with an exquisite view of nature! We also like to go to the palmhouse from time to time."



She showed me pictures from the recent choir meetings

"We are very happy to have talked to you! You made us feel a bit younger. Contact with other generations is important for us."

She very proudly showed me a couple of her favourite paintings. She also likes to collect postcards and made paintings inspired by them!

"I started painting at the age of 70, after I had retired. The third age university at the faculty of fine arts offers painting courses for seniors. Now I am 80 years old and I still feel young because I am staying active and engaged in my hobbies! I even had some exhibitions of my work! I really enjoy the artistic workshops and I think that it is crucial to find something that one can enjoy to do during the retirement."

"I recently became such a coffee person."

"Every week I meet with my choir group to practice. We sometimes have concerts for special occasions! I find that having contact with other people is very crucial for me.

One cannot sit the entire day at home because that is a recipe for loneliness and depression. That is why I keep myself occupied at all times!"



"A day without sweets is a lost day"



Figure 13. Author's own Sketch, Meeting in a Cafe.

Inclusive and future-proof living space design

Fieldwork made me realise the importance of designing future-proof spaces. When we are young, it is hard to imagine or understand the struggles that come with age. Cities and dwellings are usually planned with young generations in mind. This leads to the exclusion of the elderly from the public space and the space of their apartments. Since their homes are not designed with future-proofing in mind, many elderly are forced to leave their flats and, as a result, also familiar spaces, social connections and lifelong projects behind. Therefore, we should start designing our private and public spaces with all ages in mind to make ageing in place possible.

During fieldwork, I met with my cousin's grandma, who lives alone in a flat in Poznan. Unfortunately, she is no longer mobile and has to use a walker to navigate in her flat. Because of the design of her living space, she encounters many difficulties in her daily life. Her walker does not fit through the bathroom door, the floor's surface is uneven and she cannot leave the building on her own (the lift in her building does not reach the ground floor). She can no longer reach all of the shelves in the kitchen or use the oven (it is placed too low, and since older people can't bend easily it should be placed higher). She only has a bath which makes it impossible for her to wash herself without the help of her daughter. (A shower is a much better option). Due to her immobility, the balcony is essential to her apartment. It is the only way for her to breathe fresh air, have contact with nature or observe her neighbours. The design of balconies should be more emphasised. They should be generous in size and be at the same level as the apartment floor. Greenery with an automatised watering system could also be integrated to bring nature closer to the residents.

But our living space should not end in our private apartments. We should take ownership of other areas in the housing blocks and jointly make use of them. A shared rooftop, vegetable garden, library, shared kitchen, event space, workout room, communal cafeteria, workshop space and a children's playroom are some examples of collective pockets that could appear inside housing blocks.

The conversation with my cousin's grandma and her two friends made me also realise the importance of social contact. These three friends meet once or twice a week to catch up. They are also always ready to help each other in case of emergencies. They are very fortunate to live in the same building. During our meeting, they mentioned their neighbours a few times. It turns out that they know all the original residents of the building. They got to know them because of the spaces provided by the housing block. The playground with benches for the parents and the staircase were the most connective spots. Many of them got to know each other because their kids did not hesitate to get to know their peers and invited them to play together. Therefore, architects should design places of encounter that strengthen the community. The layout and selection of these functions should inspire unplanned interactions and make contact with our neighbours naturally.

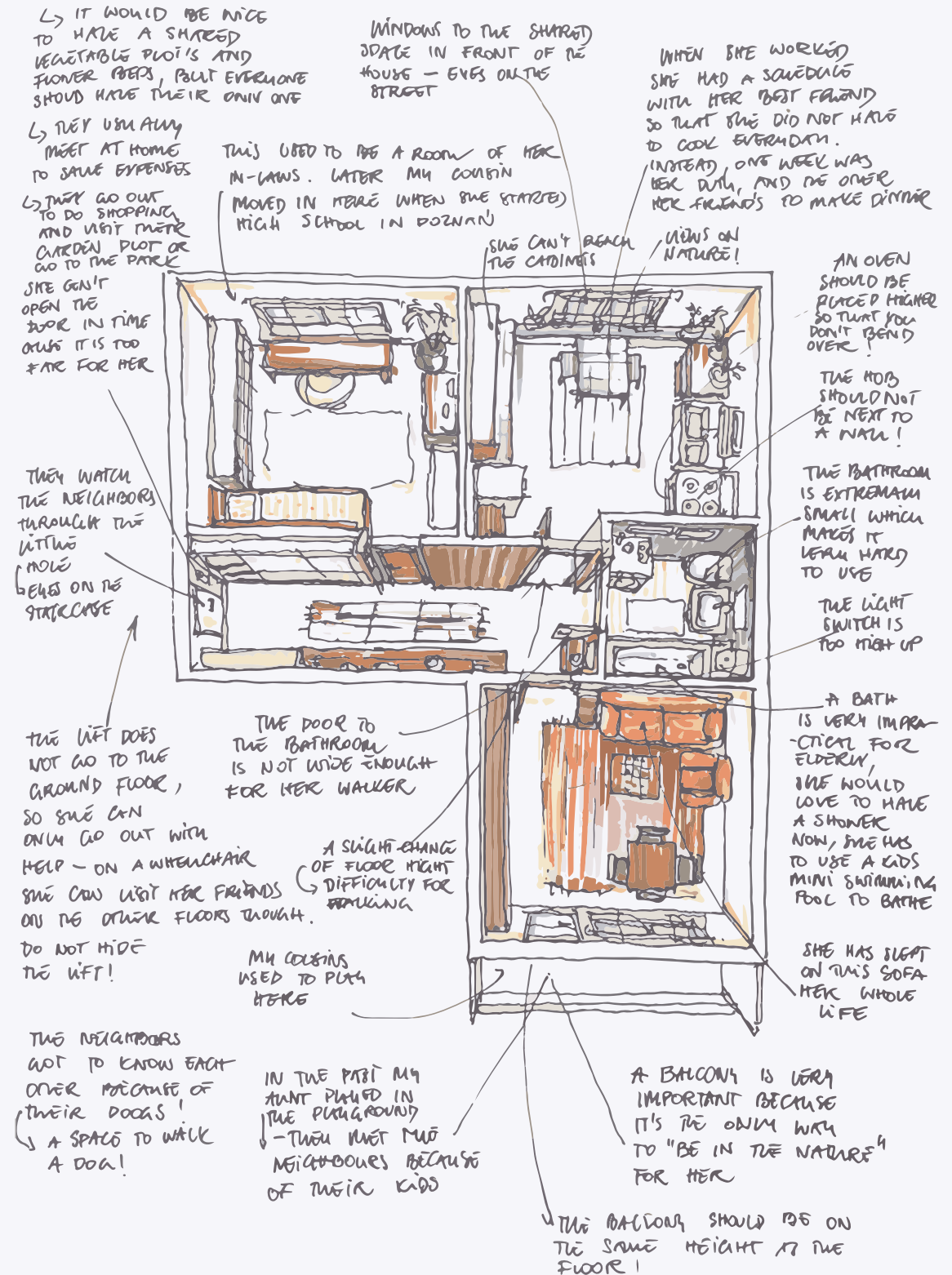


Figure 14. Author's own Sketch, Axonometry of a flat.

"The balcony is the only way for me to have contact with nature and breathe fresh air. Since the lift in my building does not go all the way to the ground floor I can only go outside of the house on a wheelchair with the help of my family"

"We live very close to each other! I live two floors above and my friend lives in the neighbouring building. We meet once or twice a week to catch up, but we are also always there in case someone needs help. It is too expensive for us to meet at cafes and restaurants so we always meet at home."

"I am not very mobile anymore. I use a walker to navigate around the apartment. I encounter a lot of difficulties on a daily basis. I can't go to the bathroom with my walker because the door is too narrow. I only have a bathtub, which makes it impossible for me to shower on my own. My daughter comes to help me wash myself. We use a kids swimming pool to make it possible"

"The oven should be placed higher up so that one does not need to bend over to use it."

"I often go to my garden plot or Sotacki park. I think it would be a good idea to have a shared community garden where you can have your own raised bed to grow vegetable in. It would help people to get to know each other too!"

"Even though I am still mobile, when I recently renovated my flat I opted for the shower instead of the bathtub and installed all the necessary handles. It is very important that the bathroom is big enough for a handicapped person."

"We know all the original dwellers in the building. The playground with benches for the parents helped us to get to know each other. We also met many of them while walking the dog."

"In the past, because of the financial situation in the PRL Poland we decided to organise dinners together to save money. This resulted in having daily contact with each other and made our bond stronger."

"When my friends come to visit they are always positively surprised with how quiet it is here! I am also very glad that I live in such a peaceful place. Even though I enjoy the tranquility I do not enjoy a complete silence. That's why I have my favourite radio on the whole day. I enjoy to listen to the songs from my youth."

"When placing the bedroom in the room next to the road I was worried about potential noise from the street. Luckily it is not the case"

"Thermal comfort is very important, especially nowadays when the gas prices skyrocket. A layout with a limited amount of exterior walls is especially helpful. It is very hard for me to heat up the spare bedroom because 3 of the 4 walls are exterior ones."

"The layout of my kitchen is very good. Even my friends complement it when they come to visit. I have everything close at hand!

It does not bother me to have the pantry so far away. A little movement is always good!"

"I am very lucky to have my own bit of nature. In the summer I like to sit on the terrace and enjoy the garden. I enjoy to look at the birds so I have installed special bird feeders. To have more privacy I created a barrier from the heages."

"I am glad to have chosen a shower instead of a bathtub. Otherwise I would find it very difficult to wash myself."

"I think my apartment fits all my needs perfectly. We moved here with my husband 15 years ago right after we had retired."

"I like that the flat is very spacious. When it is raining outside I sometimes just walk around my apartment to remain active. Thanks to the spare bedroom, that used to be an another flat, I always have space for my guests."



Figure 15. Author's own Sketch, Meeting with my Cousin's Grandma and her Friends.

Figure 16. Author's own Sketch, My Grandma's Remarks.

A day in a life



The color scheme responds to the time of the day

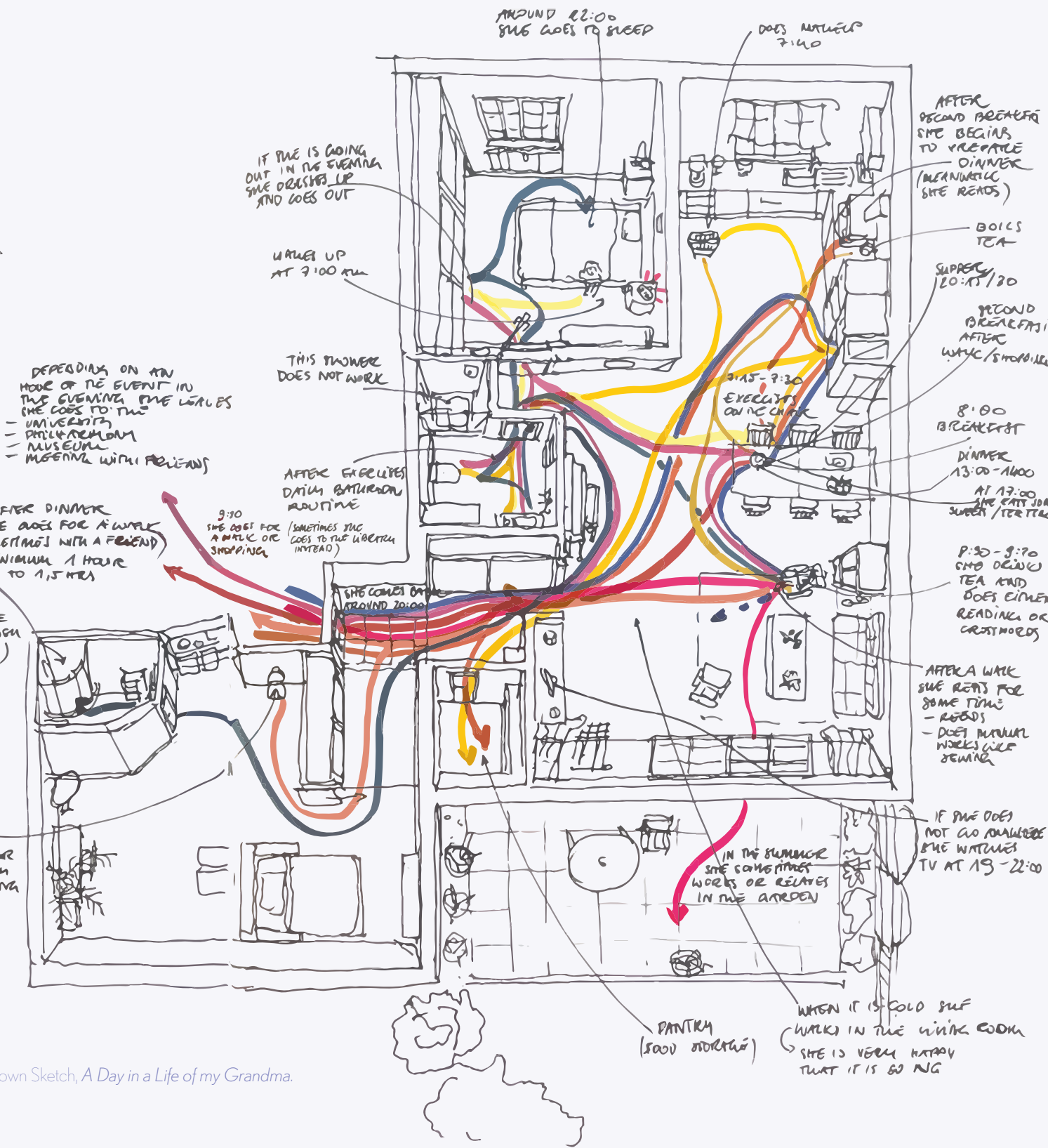
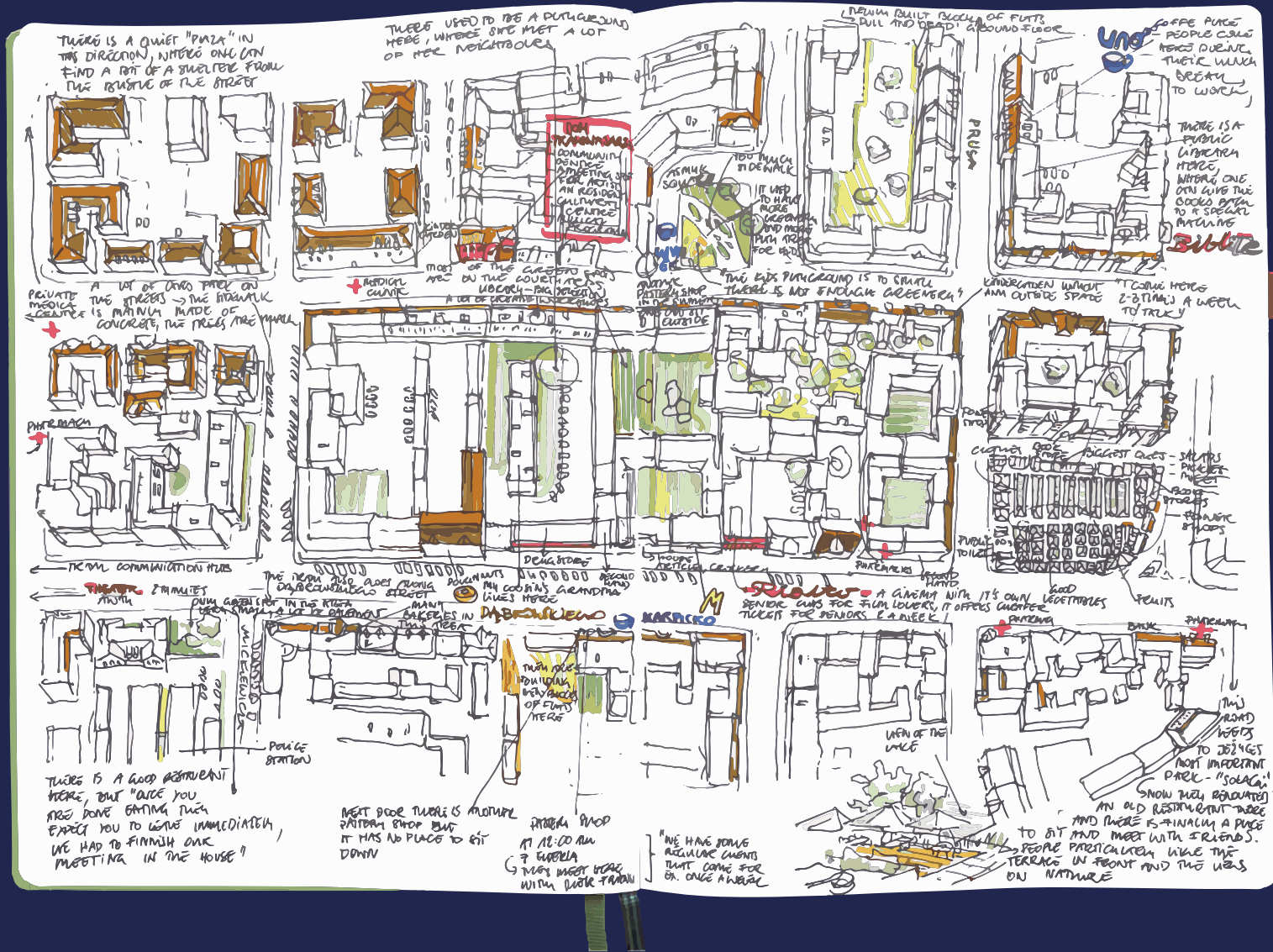


Figure 17. Author's own Sketch, A Day in a Life of my Grandma.



Fieldwork

1. Elderly's social needs and future-proof living space design
2. Elderly's needs in the neighbourhood and questionnaire results
3. Design Guidelines

Figure 18. Author's own Sketch, Annotated map of the Jezyce district.

Needs on the neighbourhood scale

When designing a housing block, we should create connections with the neighbourhood. A good distribution of publicly accessible functions can create possible destinations for others and facilitate social connections in the area. This increases the possibility of natural interactions between the residents of a district and improves the quality of the public space. Ultimately it makes the neighbourhood more attractive, liveable and safe. Connections with other residents are closely linked with elderly' happiness and quality of life.

Some of the most connective places mentioned by the elderly during my fieldwork were meeting spots like cafés, restaurants, bakeries, local grocery shops and food markets. Small businesses activate the sidewalks and make them vibrant and inviting. They break with anonymity and promote face-to-face contact resulting in more social connections. Because of their locality, people become more connected with the district and feel a stronger sense of belonging. Many of the Elderly go to the local markets and small businesses not only to buy food but also to potentially meet their neighbours and chat with the merchants.

Local libraries and community centres are also frequent destinations for the elderly. Many of them mentioned that the cultural centres in their neighbourhood are a way for them to connect with other generations. They like to attend workshops, meetings and events. Community centres can also function as meeting spots for larger groups of people. During my conversations with the elderly, I learned that it could be relatively hard for them to find out information about events in their neighbourhood. They suggested that information boards next to the meeting spots could solve this issue. Medical services are another function essential for the elderly. Pharmacies, local clinics, rehabilitation and physiotherapy centres are crucial to them. They should be located within walking distance of their homes. The elderly want to stay healthy and active for as long as possible. Therefore, besides the strictly medical functions, they use outdoor and indoor gyms, swimming pools and sports centres.

They often choose to exercise in nature. Parks are one of their frequent destinations and the most significant assets of their neighbourhood. They go for walks even two or three times a day! What actively increases the distance of their walks are benches and public toilets. The probability of a longer walk is directly linked to these two factors.

Playgrounds are essential for the elderly with grandchildren. They should be of a generous size and provide sitting spots for the caretakers.

Lastly, the neighbourhoods should be well connected to the rest of the city and its most important public places, cultural spots (like museums, philharmonics, theatres) and green areas (parks, botanical gardens etc.). A variety of transport modes should be offered.



"There is no place where I can meet with my friends in my neighbourhood. There is only one cafe, but it does not have a good cake or coffee."



"It would be useful to have a rehabilitation and medical centre nearby. Physiotherapy is also important. Currently I have to go to the other part of the town for my treatment"



"There are 2 medical clinics in close proximity to my house. One of them is on the parallel street (5 minutes walk). The other one is a bit further away (20 minutes walk)."



"There are a lot of pharmacies in the neighbourhood. I don't have to walk far at all to reach them."



"It would be great to have a market with fresh food in the neighbourhood. In the past every neighbourhood had their own mini market where one could buy fresh produce and meet neighbours. It also helped to make connections with others."



"The public library is very far away. I walk there for 20 minutes and take a trolley to carry the books with me. I check out 5-7 books at once so that I can go there less often."



"The neighbourhood feels like a bedroom. There are no places where one could meet with others. For that one would have to go to the city centre which is very far away."



"We have a relatively good selection of shops but most of them are a 12 minutes walk from the house. Because the groceries are heavy I buy most of the things with my son. He takes me grocery shopping one per two weeks. I only go shopping alone to buy little things."



"The public transport in my area is not good. I have to change at least twice if I want to go to the city centre."



"Nature is particularly important for me. I go on walks 2 times a day to the nearby fields. Unfortunately even these pristine areas are now being built over by huge production halls. It would be great to have a well-maintained park for daily walks."

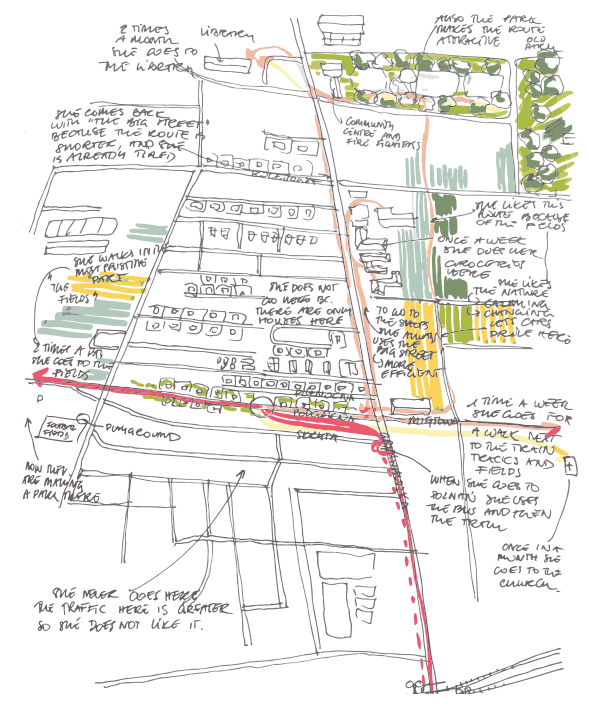


Figure 19. Author's own Sketch, Annotated map of my Grandma's district.

"I have a lot of interests. I think that having something that you are passionate about is very important when you have retired. It started with digging in the archives to find out who my ancestors were. Nowadays, I do it more professionally. I have recently written a book with my friend about a family of Wężyki"

"I sometimes go to the Dom Tramwajarza (House of the Tram Driver), which is a cultural spot on the map of Jezyce district. It is a meeting place for artists and residents. They also organise plenty of musical events and workshops"

"My village has a community and cultural center. They offer a lot of workshops and classes for us. I really enjoyed the dancing classes that we had with the younger generation. The community center organises many meetings with special such as artists, athletes and writers that I like to attend."

"I have brought an album with me in which I have collected the weirdest surnames I have heard. I have categorised them thematically."

"I think that small local shops and market squares play an important role and make me feel like a part of a community."

"A green roof with a community area would be an excellent spot to meet with neighbours and enjoy the views."

"I love to do Nordic walking. I regularly train and attend competitions. We have a Nordic walking group and we meet in parks in Poznan to train together. Besides that, I love to go for walks. I find that having a lot of benches definitely helps. It is important that the neighbourhood has a lot of green areas."

"We would like to attend workshops and events, but finding out information about them is not so easy. It would make a big difference to have an information board with all events for the month! In this way, I would end up attending more of them."

"I love to organise meetings for my friends. I take control of all our celebrations. What would make meeting my friends easier would be a place that would make it possible to organise meetings for larger groups. I often struggle to find places which are not incredibly expensive to rent and have enough space to offer."

"I often go for walks with my friend to the Sołacki park. I also really enjoy the dendrological garden. They now made some impressive light installations there."

"I live in Suchy Las; we have many places for the local community. There is a swimming pool and gym that I use a lot, a community center, a cultural center, a public library and a municipal sports center. The village organises a lot of exciting events for the residents that I gladly attend."

My Grandma: We know each other from The University of The Third Age. We attend lectures together once or twice a month. After the meetings, we often get coffee and catch up. We also meet for special occasions to celebrate!

"I have met a lot of my neighbours because of my dog. I like to chat with others during dog walks. It also forces me to stay active."

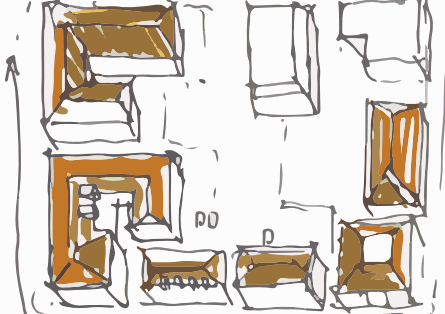
"I used to dance in the folk dance club, but since my knee injury, I can no longer do that."



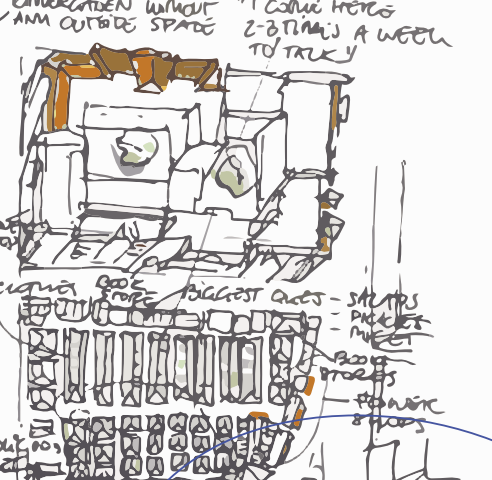
Figure 20. Author's own Sketch, Meeting with the Elderly from The University of the Third Age.

THERE IS A QUIET "PAZA" IN THIS DIRECTION, WHERE ONE CAN FIND A BIT OF A QUIETER FROM THE BUSTLE OF THE STREET

THERE USED TO BE A PUTAGROUND HERE, WHERE SHE MET A LOT OF HER NEIGHBOURS



A LOT OF CAR PARK ON THE STREETS - THE SIDEWALK IS MAINLY MADE OF CONCRETE, THE TREES ARE SMALL



THE MAIN COMMUNICATION HERE



THERE IS A GOOD RESTAURANT HERE, BUT "ONCE YOU ARE DONE EATING THEY EXPECT YOU TO LEAVE IMMEDIATELY, WE HAD TO FINISH OUR MEETING IN THE HOUSE"

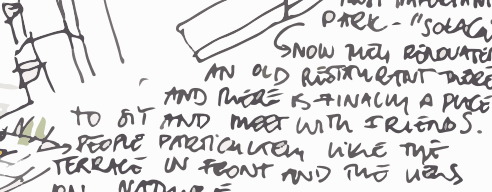
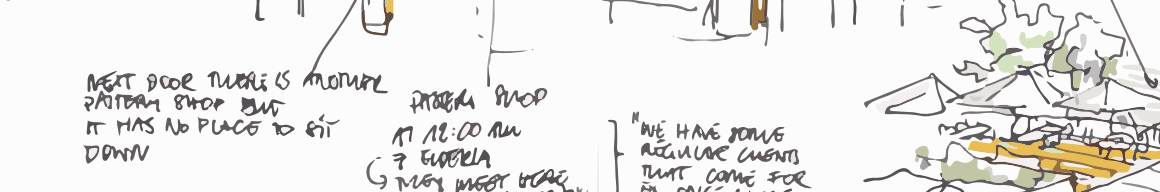
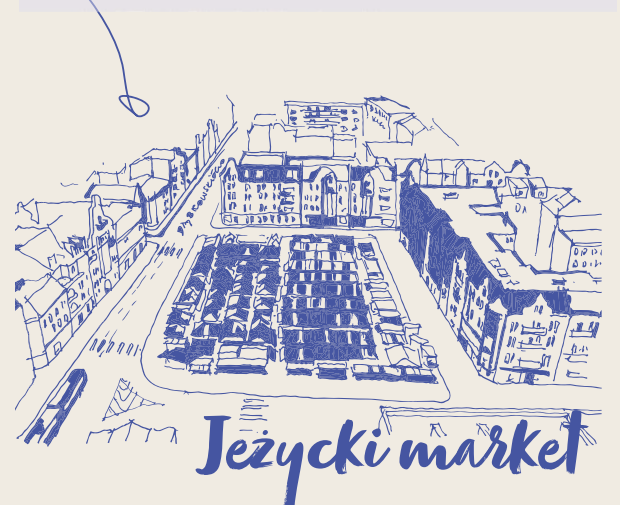
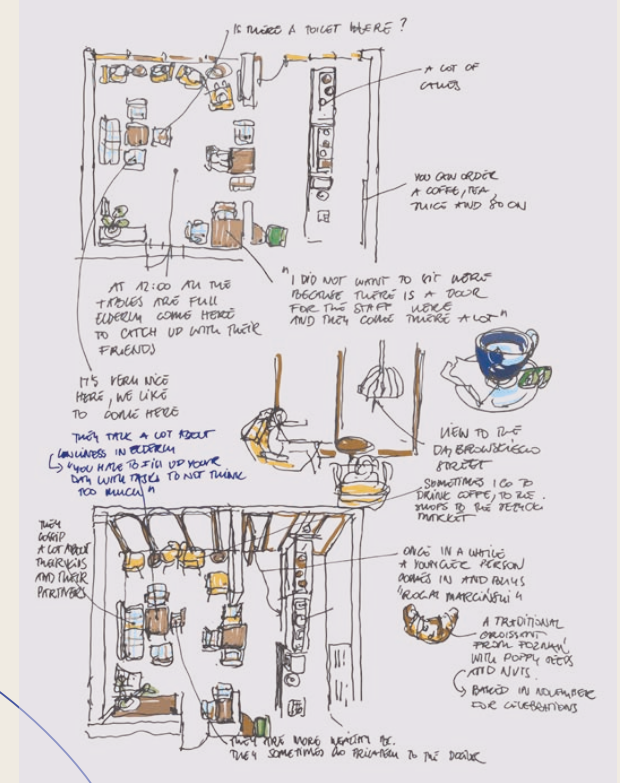


Figure 27. Author's own Sketch, Jezyce district.

Map of a part of Jezyce district

a 15-minute neighbourhood



Jezycki market

Questionnaires

During fieldwork, I tested some of my design ideas through a questionnaire. I have asked the elderly from The University of the Third Age about their frequent destinations, most connective spots and places where they meet other age groups. I got to know what motivates them to go outside, what could increase the time they spend outdoors and what could improve their quality of life.

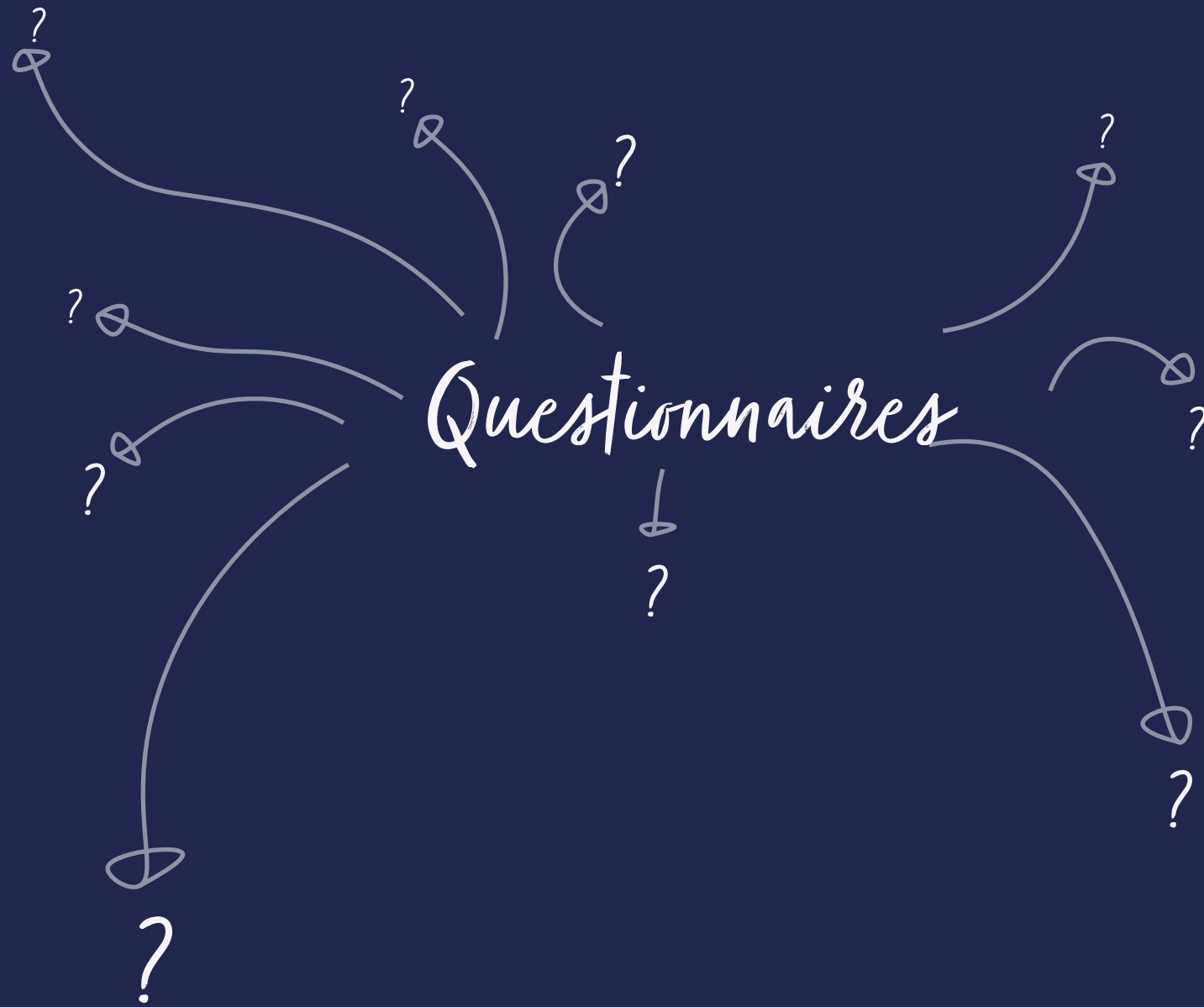
The most frequent destinations of the elderly include bakeries, small shops, local markets, cafés and hairdressers. The elderly actively look for meeting spots in their neighbourhoods. They enjoy meeting in a homely atmosphere over coffee or tea. Therefore, one of the surveyed women proposed combining a cafe with a place for various events. The cafe could, for example, offer workshops or meetings with exciting guests (like travellers, musicians etc.). The casual atmosphere could attract many people.

Since contact with younger generations is generally important for the elderly, places within the neighbourhoods should attract people of all ages to enable these intergenerational encounters. 90% of interviewees would be interested in a cafe where one part would be devoted to socialising and the other to co-working.

Similarly to the other generations, the elderly are also very interested in staying physically active. The interviewees often exercise in indoor and outdoor gyms. They use the swimming pool, join gymnastics classes or go to rehabilitation or physiotherapy. Such places in the neighbourhood are beneficial for their health and well-being. Also, a local medical centre providing healthcare near their home would be beneficial. Since some older people are no longer fully mobile, covered paths meandering through the greenery would allow them to have contact with nature in colder months or with bad atmospheric conditions. 40% of interviewees said that this solution would affect their willingness to go for a walk.

The elderly who remain mobile go for walks in the parks and botanical and dendrological gardens. They consider these spaces as good spots for social interactions. Grandma's also mentioned playgrounds (with benches for the caretakers) as essential destinations in their neighbourhoods. Many elderly would also be interested in a shared vegetable garden which would be a good spot for socialising.

The elderly also emphasise the importance of having a hobby. Men usually have individual interests that they follow but would generally be interested in a shared workshop space. On the other hand, women often look for activities offered by the local community centres, museums or universities.





One person suggested to combine a cafe with a place for various types of events. Such a cafe could offer meetings with interesting guests, e.g. travelers, writers, musicians etc. The cozy atmosphere along with an interesting meeting schedule could attract many people.



Many elderly people own garden plots that are located far away from their home. They would be interested in the idea of a shared garden where everyone can have their own raised bed. This would in their opinion also become a good spot for socializing.

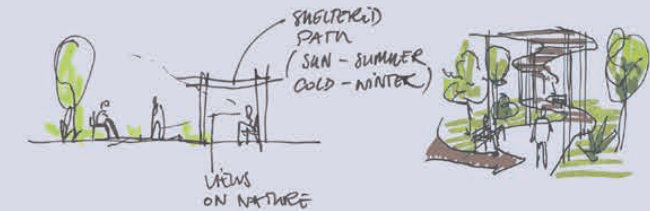


Elderly are interested in outdoor and indoor gyms, swimming pools, gymnastics, rehabilitation and physiotherapy. A place like this in the neighbourhood is very beneficial for their health and directly corresponds with their needs and wishes.



Cafe's, bakeries, local markets, small shops and hairdressers are often mentioned as frequent destinations and places of potential interactions. The locality of these services is a very important factor. The small scale helps with creating bonds between neighbours.

A Staircase is a space where most interactions between neighbours occur. Conversations in these spaces though, are usually shallow.



40% of interviewees said that paths located between the greenery and protected against atmospheric conditions would affect their willingness to go for a walk in autumn and winter.

Design ideas inspired by the questionnaires



The availability of a local health and care center in the neighborhood (with physicians and doctors who the dwellers know) and the possibility of providing health care in close proximity or at home would be very helpful for elderly.



Men emphasize the importance of having a hobby that one is passionate about during retirement. They often find it on their own and totally merge into it. Women usually check what their local community centers, museums or universities have to offer and eagerly use the workshops like: painting, pottery, cooking, gardening, dancing etc.



90% of interviewees said that they would enjoy going to a cafe where in one part students and working members can rent a desk, and non-working members of the community can socialize (for e.g. for breakfast / coffee / dinner or as part of various workshops) in the second part.

Greenery is very important to all Elderly. They often emphasize the importance of green walking spaces and parks (with enough benches and toilets) and relate it directly to their life satisfaction. They consider parks as a good spot for social interaction. Also playgrounds with benches for the parents and grandparents are a prime spot for making acquaintances or friends.

Figure 22. Author's own Sketch, Questionnaire findings.



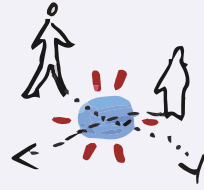
Fieldwork

1. Elderly's social needs and future-proof living space design
2. Elderly's needs in the neighbourhood and questionnaire results
3. Design Guidelines

Design guidelines

*Community*

Create a housing block which revolves around community

*Design for encounter*

Design to increase the possibility of spontaneous encounters

*Meeting spots*

Create meeting spots where passions and hobbies can be embraced

*Balcony design*

Design balconies of generous size with floor on the same level as in the apartment

*Watering system*

Design plant beds on the balconies with automatic watering system

*Connections with neighbourhood*

Design connections with the neighbourhood

*Affordability*

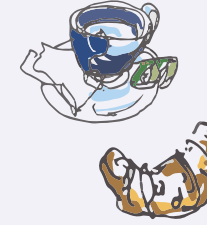
Provide affordable meeting places

*Communal use*

Provide communal spaces like: shared rooftop, communal garden, library, shared kitchen, play room, workout room

*Ownership*

Provide in-between spaces to enable the residents to take ownership of them

*Connective spots*

Design connective spots for the neighbourhood like: cafés, restaurants, bakeries, local grocery shops

*Locality*

Break with anonymity by focusing on local businesses, markets and community centres

*Neighbourhood as a community*

Design communal fictions for the neighbourhood like: community centre, event space, workshop spaces

*Activity spaces*

Provide a variety of activity spaces like: indoor and outdoor gyms, yoga and meditation, rehabilitation and physiotherapy

*Workshop spaces*

Provide workshop spaces for the residents

*Future-proof living spaces*

Design future proof living spaces to enable aging in place

*Information*

Provide information about ongoing communal events

*Medical services*

Provide access to medical services like: medical clinic, house doctor, care centre rehabilitation, pharmacy

*Nature*

Design with close connection to nature and provide sufficient amount of green spaces

Figure 23. Author's own Sketch, Fieldwork Design Guidelines.

Conclusion

This chapter examined the elderly's needs in their living spaces and neighbourhoods and determined how to make them future-proof and all-age-friendly.

Firstly, this study found that neighbourhoods and housing blocks should be designed to increase the probability of spontaneous encounters by, for example, providing communal spaces like a shared rooftop, communal garden, library, shared kitchen, playroom, and workout room. The neighbourhood should also introduce connectivity spots such as a community centre, an event or workshop space, cafés, small businesses, bakeries or local grocery shops. A big emphasis should be put on the locality of these functions. Additionally, providing spaces where passions and hobbies can be embraced, such as a workshop or a communal garden, is essential.

A questionnaire has found that the Elderly want to stay physically active and often exercise in indoor and outdoor gyms, join sports classes or go to physiotherapy or rehabilitation. Therefore, communal spaces should be provided for different kinds of physical activity in the housing block. The Elderly also mentioned in the questionnaire that proximity to ample green areas such as parks motivates them to stay physically active.

Therefore, the housing block should be designed with a close connection to nature, provide sufficient green spaces, and be close to a Park.

Lastly, access to medical services such as pharmacies, local clinics, and rehabilitation and physiotherapy centres should be provided within walking distance.

In conclusion, a future-proof and all-age-friendly design of the neighbourhood housing block ensures that the elderly can 'age in place'. Additionally, a housing block which revolves around the community keeps the elderly cognitively engaged and fosters social contact between residents.

Chapter 2

Case Studies



Figure 24. Edited by Author, *Stedenbouwkundigen* Jacoba Mulder and Cornelis van Eesteren.

Introduction

This chapter will investigate how “Community-based design” works in practice by analysing two case studies:

1. Kalkbreite, an inclusive housing cooperative in Zurich designed by Müller Sigrist Architekten
2. WohnProjekt Wien, a co-housing project in Vienna designed by einzueins architektur

Each case study will begin with an analysis of the collaborative building process. This part will explore the perspectives of architects and residents involved in the design. Next, the chapter will investigate how the design of public and collective spaces inside and outside the housing block can foster social interactions. Finally, the design of the living and half-private spaces will be analysed.

To conclude, from each case study, design guidelines will be created.



Figure 25. Edited by Author, Kalkbreite - Exterior View from the south.

Kalkbreite

Housing cooperative

Architects: Müller Sigrist Architekten

Area: 22900 m²

Year of completion: 2014

Number of dwellings: 88

Residents (approximate): 250

Jobs provided: 200

Average living space per person: 31.2 m²

City's average living space per person: 39 m²



Figure 26. Author's own Sketch, Kalkbreite - Residents sketch.

Kalkbreite

Housing cooperative

1. Collaborative building process and residents' opinions
2. Design of public and collective spaces that foster contact
3. Design of living and half private spaces

Time line of the development

2006

A group of 50 citizens took part in a workshop about the future developments on the site. A Kalkbreite association was founded out of future dwellers of the development.

2007

The Kalkbreite association won the building rights for the plot. **What convinced the city was the 5 000 m² of small businesses and commercial spaces offering jobs for 200 people, 7 500 m² of living space for 250 residents and 600m² of communal space.** They also included the entire neighbourhood in the planning process through multiple workshops and site tours.

2008

The city and the cooperative launched a competition for the project with a very clear programmatic description. **The program of the building was decided by the Kalkbreite association through public consultations with the future residents.**

The proposal by Müller Sigrist Architects and landscape architects Freiraumarchitektur was selected from the 55 designs

2014

The building was completed in August 2014. Every now and then, the residents gather to decide the flexible shared spaces are going to be used. They can change functions every year according to the needs of the residents

1975

First plans to build over the tram depot were made, but the project started only in the year 2000.

2007

Shortly after, it became a **Kalkbreite cooperative**. They started planning a self-sufficient mixed use complex that would go over the existing tram depot. **This was a bottom up approach of the district citizens.**

Motto of the project

"The declared goal was to bring people of different incomes, nationalities, age groups and household constellations together in order to ensure the diversity of District 4"⁷²

Developing Kalkbreite - a housing cooperative

Housing cooperatives are not new to Zurich. This model has a rich history in the city and is under constant development. 22% of the housing stock in the city is made up by non-profit housing cooperatives. A third of all new builds since the year 2000 are organised cooperatives.⁷¹

Kalkbreite, one of the housing cooperatives and the analysed case study, stands out due to its diverse program and social importance. What is particularly fascinating about this building is the involvement of the citizens at every stage of the project. Unlike the typical construction process, Kalkbreite started out as a neighbourhood initiative of 50 citizens eagerly looking for new housing-typologies. As the Kalkbreite cooperative, the group began to plan the program of the self-sufficient mix use complex. The program of the building was therefore the embodiment of the needs of its

inhabitants and not solely the architect's vision. The entire neighbourhood was included in the planning process through multiple workshops and site visits.

Although the plot was initially planned for office use, the Kalkbreite association managed to convince the city and get the building rights for the plot. This was possible thanks to the vast area dedicated for small businesses and commercial spaces (that help to root the building in the neighbourhood) together with an interesting mix of various living space typologies, a mix of inhabitants (corresponding with Switzerland's demographics) and what was the design-key of this project - 600m² of communal space.

The programme of the building focused on the communal living and creating links with the neighbourhood is a big achievement. It exceeds the typical standards of affordable housing construction and incorporates future-proofing as a part of the planning process.

71. Susanne Schindler, "Genossenschaft Kalkbreite in Zürich," BAUWELT, 2014, <https://www.bauwelt.de/themen/bauten/Kalkbreite-Mueller-Sigrist-Architekten-Zuerich-Genossenschaft-2172373.html>.

72. Susanne Schindler, "Genossenschaft Kalkbreite in Zürich," BAUWELT, 2014, <https://www.bauwelt.de/themen/bauten/Kalkbreite-Mueller-Sigrist-Architekten-Zuerich-Genossenschaft-2172373.html>.



There are **many shared spaces** outside the apartments that can be used jointly like the sewing workshop, cafeteria, terraces and the inner courtyard (my three-year-old daughter's favourite). I have lived here for a year and I already know many residents, which I am very happy about. It is because **many opportunities for social exchange** were created here!⁷³



I live in a 1 room cluster dwelling. **I am a wheelchair user** and I am very happy that in this building my needs were taken into account from the beginning, which is rarely the case. **Everything regarding my apartment was pre-discussed during the planning phase, so the bathroom and kitchenette are adjusted to my needs.** I do use the common room the most. **My apartment is relatively small so when I have guests over I invite them the common room,** People don't use the common room as a shared living room very much, they usually stay in their apartments in the evening, but those who want come.⁷⁴

I am an architect and I was involved in the project from the beginning. **I really like the hybrid programme** of the building with the tram depot, shops, restaurants, and offices as well as the large variety of different dwelling typologies. **I think that the involvement of the residents in the planning process is a revolutionary concept** that could be implemented in many other cities.⁷⁵



The places of interaction are diverse and the psychological barriers are low so getting in touch with the neighbours happens automatically. We became interested in this project because of its goal to include the neighbourhood in their planning process. They wanted to open the building to the neighbourhood and not just an isolated island.⁷⁶

I live in a 1,5 room cluster dwelling. The cluster has 9 dwellings. We share a communal space with an extra kitchen. Since we all share the communal space our dwellings do not count as separate entities. Therefore, our apartments can face the road, which would otherwise not be possible. **Around 50 % of people in Zurich live alone in very large dwellings. We wanted to together find an alternative to housing communities.** Now we merely have to agree on the use of shared spaces and the share of electricity costs!⁷⁷



I value the shared areas in the building. I used the workshop to make my own furniture! **Some places like the entrance hall and cafeteria have determined functions, but there are also rooms for which the functions are chosen by the residents. One can always meet neighbours in the communal areas!** I use our shared library and laundry room a lot, and when the weather is good we eat our dinner at the courtyard and talk with the neighbours. When we have guests we rent a room in the guest house in our building. Therefore, we get to have our privacy and we don't need an extra room in our flat.⁷⁸

Even though my apartment is smaller than my previous one, I feel way better in it. **My apartment is very bright thanks to the big windows that face the beloved courtyard.** What is special about this housing project is its variety of communal uses. **The actual space in the flat ends up being a bit smaller than the Zurich's average but for that each resident gets to enjoy the communal spaces** like the cafeteria, which is managed by us. The demographics in the building are already predetermined and mirror the demographics of Switzerland. **The building also has many commercial areas like shops, restaurants, doctors office, day-care centre etc. so you don't necessarily need to leave the complex to run errands.**⁷⁹



Opinions, reflections and needs of the residents of Kalkbreite

The Kalkbreite cooperative was established before there were even any plans for the development of the plot. Therefore, this project, fully initiated by future residents, paid special attention to the needs of its dwellers. The program of the building was created by public consultations and workshops in the district and later adapted by the architect. This is why it is especially valuable to get to know the opinions of the residents after a couple of years of living in the building. Some of them are presented above. The main getaways are that the residents really value the communal areas in the buildings and link them directly with opportunities for social exchange. People find it good to know their neighbours. Some of them proudly say that they know the majority of the residents. What is more, since the places of interactions are diverse and the psychological barriers are low, most of the contact happens naturally. Another point often mentioned by dwellers is the diversity of living typologies, which results in a healthy mix of inhabitants and affordability. The average living space per person (31,2 m²) is lower than Zurich's average (39 m²) but the residents emphasize that reduction of individual living space is compensated by plenty of common meeting areas and facilities. Additionally, the residents are willing to move into a smaller unit if the number of occupants in their flat has changed, for example after the children have moved out.

Figure 27. Author's own Sketch, Kalkbreite - Residents sketch.

Footnotes to the resident's opinions:

73. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 877-80.

73. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 877-80.

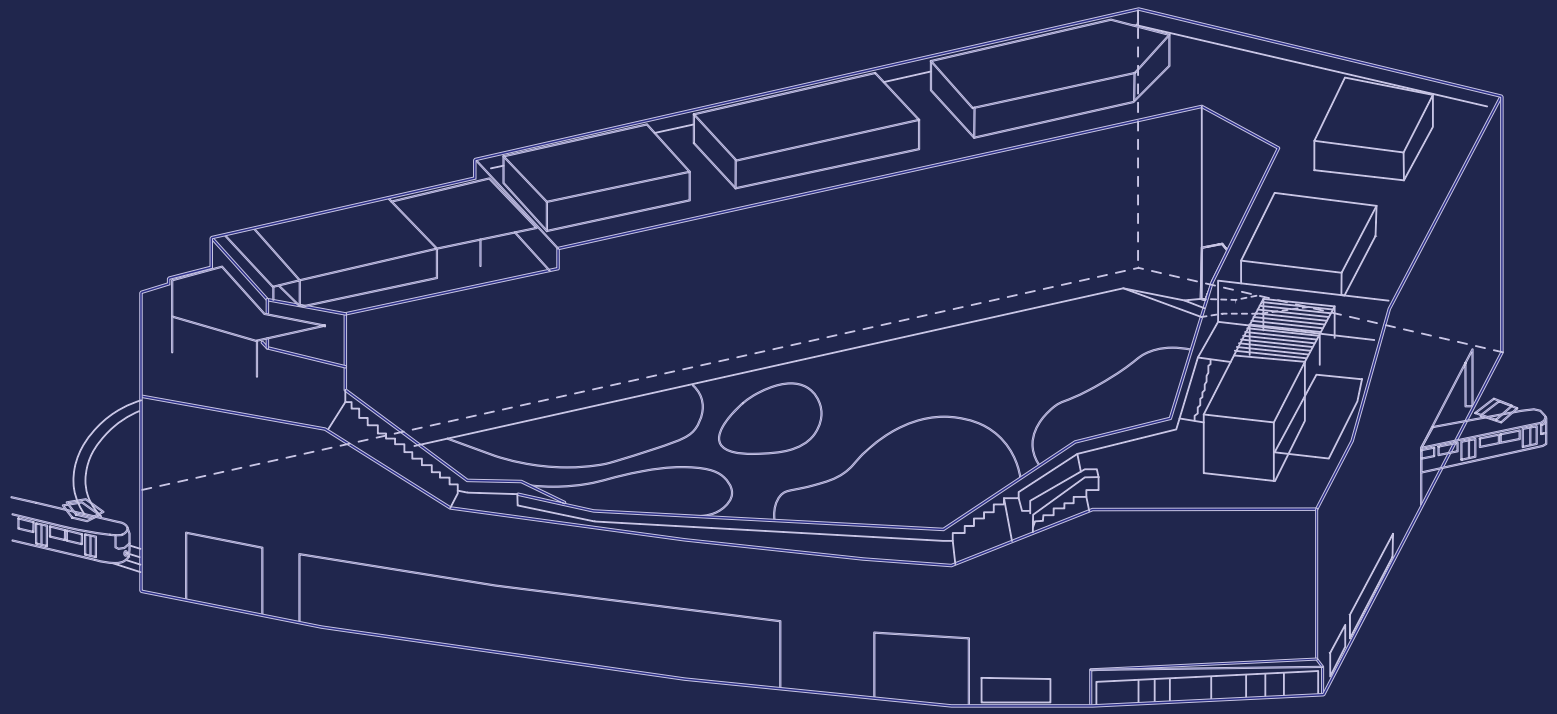
75. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 877-80.

76. Stadt Zürich and Marcel Bächtiger, "Wohn- Und Gewerbesiedlung Kalkbreite – Auszeichnung Für Gute Bauten Der Stadt Zürich 2011-2015," September 15, 2016, accessed April 21, 2023, <https://www.youtube.com/watch?v=loNrsdDmwrA>.

77. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 877-80.

78. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 877-80.

79. Eva Hediger, "Wir sollten in Grandhotels leben," Hellozurich, 2011, accessed April 21, 2023, <https://www.hellozurich.ch/de/aktuell/kalkbreite.html>.



Kalkbreite

Housing cooperative

1. Collaborative building process and residents' opinions
2. Design of public and collective spaces that foster contact
3. Design of living and half private spaces

Figure 28. Edited by Author, Kalkbreite - Bird eye Axonometric view.

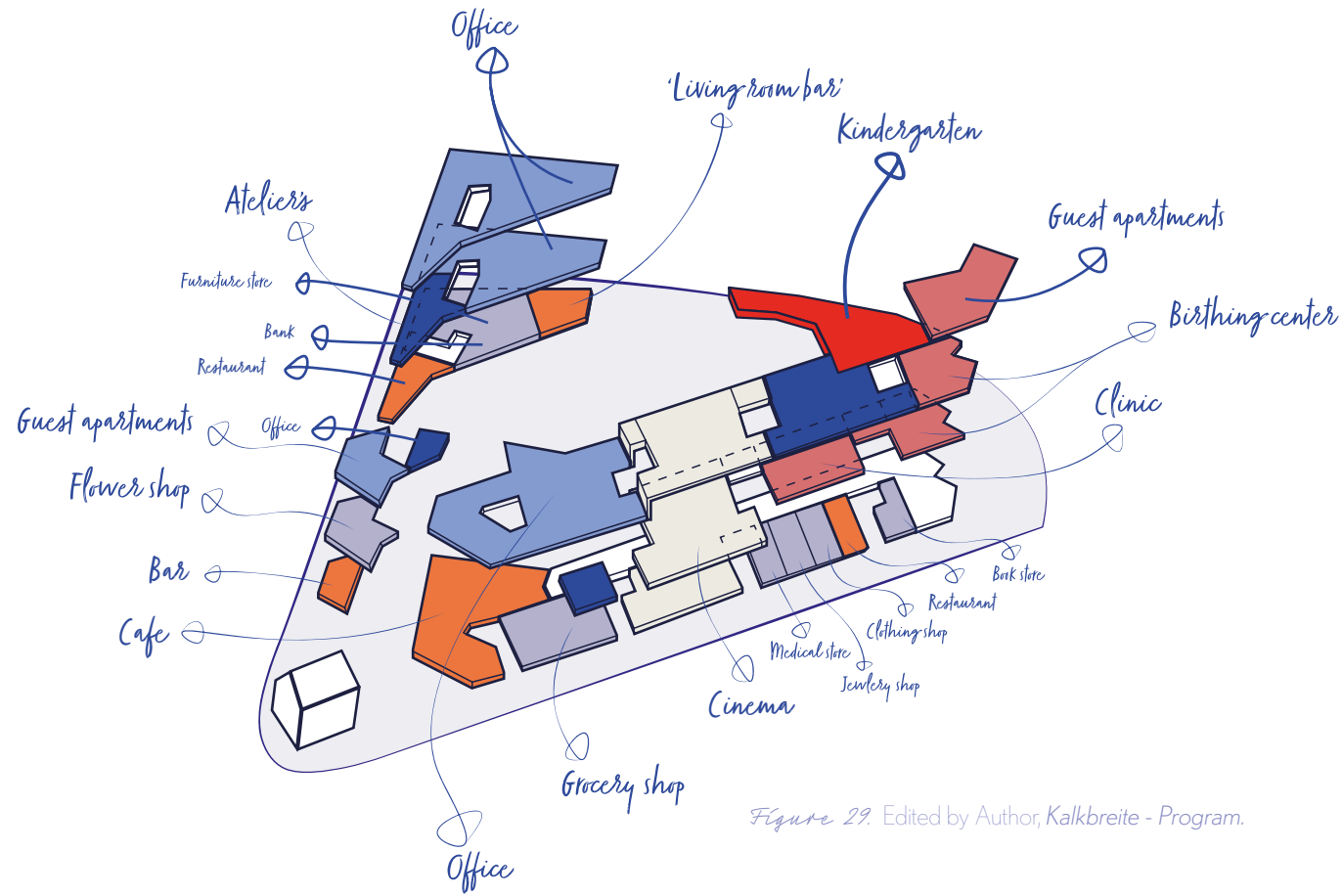


Figure 29. Edited by Author, Kalkbreite - Program.

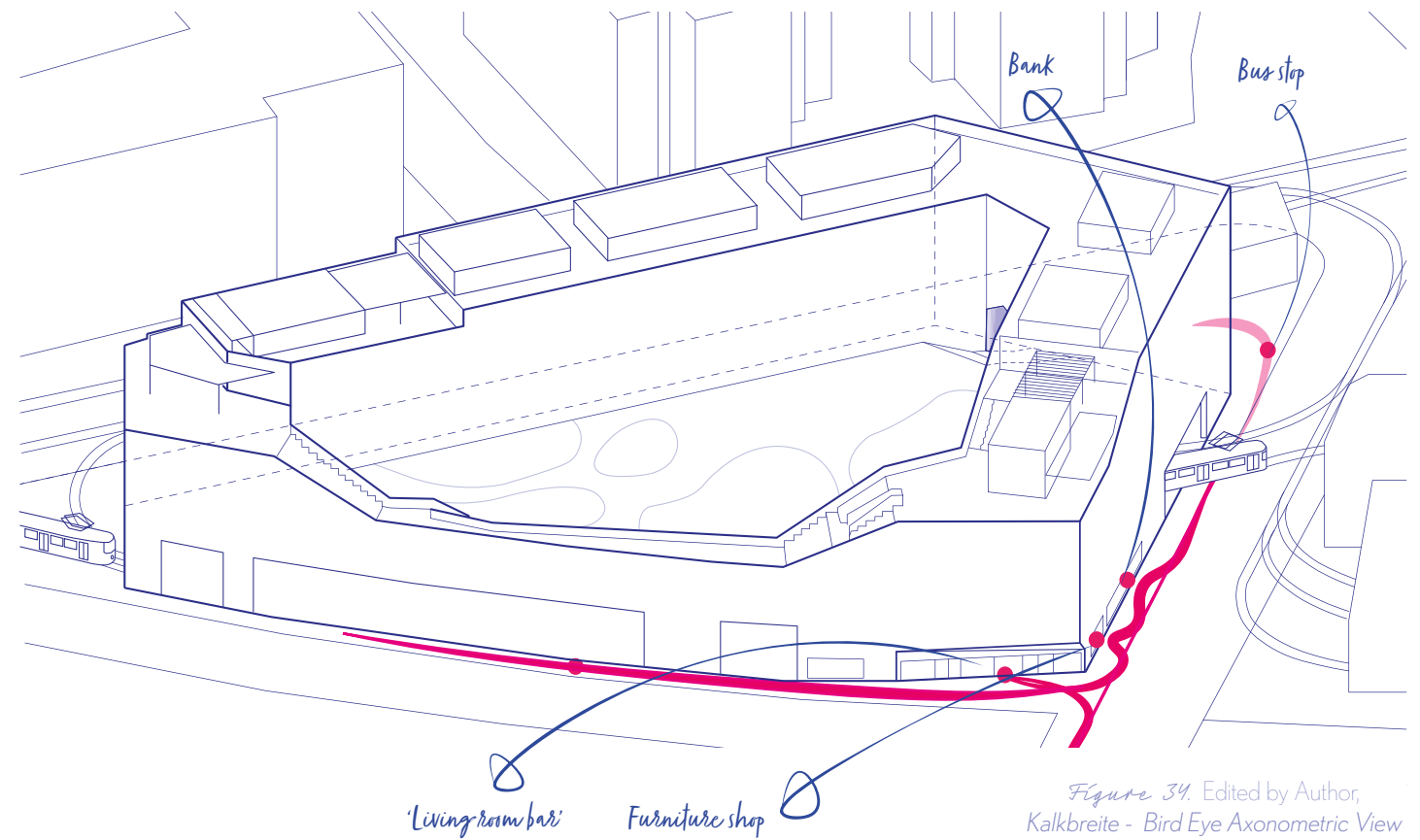


Figure 34. Edited by Author, Kalkbreite - Bird Eye Axonometric View (South).



Figure 31. Kalkbreite - Bird eye View from the South.

Links with the neighbourhood

The project aims to create various connections with the district through carefully considered street programming. The variety of shops, cafés, restaurants, small businesses, a flower shop, a book store and a clinic are only some examples of the public programme of the ground floor. These facilities become destinations of the residents and other people in the district and encourage social contact. The building therefore has an impact on the whole neighbourhood. Because there is a high transparency of the commercial functions facing the streets the sense of security is strengthened and therefore the walkability in the building's vicinity is increased.



Figure 30. Kalkbreite - Exterior View, Houdini Cinema.

Eyes on the street

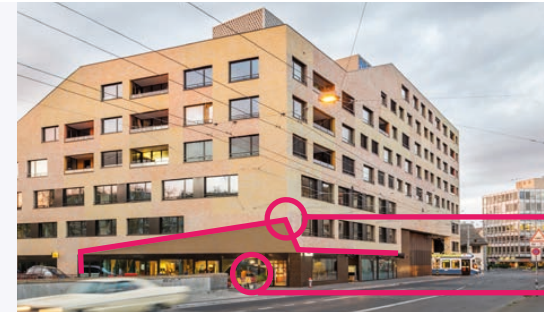


Figure 32. Kalkbreite - Street View from the South.

Spaces around the building that inspire interactions

The detailing of the housing block and the accentuation of the corner gives a signal to the by-passers and invites them to the commercial functions on the ground floor. Placement of the lively cafe and restaurant around the less busy corner of the building increases safety and makes the route around the block more interesting.



Figure 33. Kalkbreite - Exterior View Next to the Railway Tracks.

Perforations in the facade and proper street lighting adds to the feeling of safety and increases the walkability along the most enclosed part of the building.

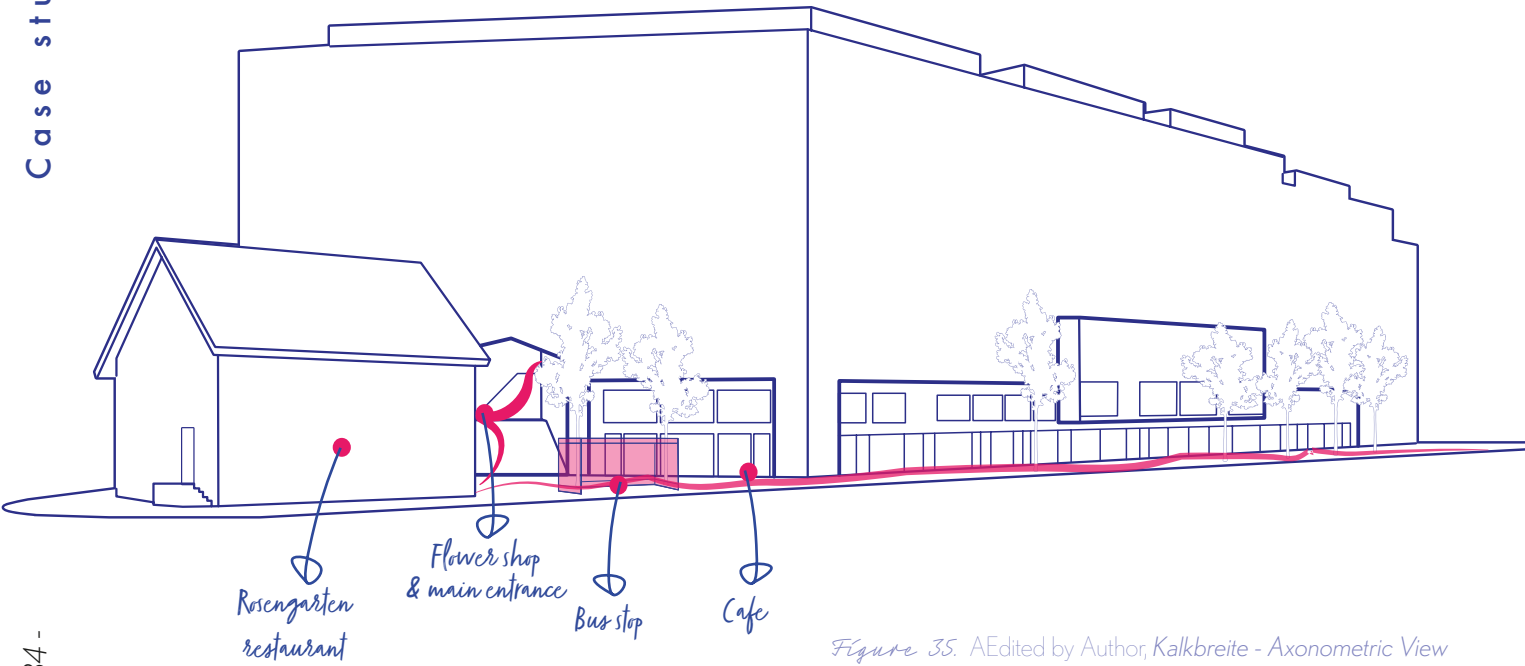


Figure 35. AEdited by Author, Kalkbreite - Axonometric View (Rosengarten square).

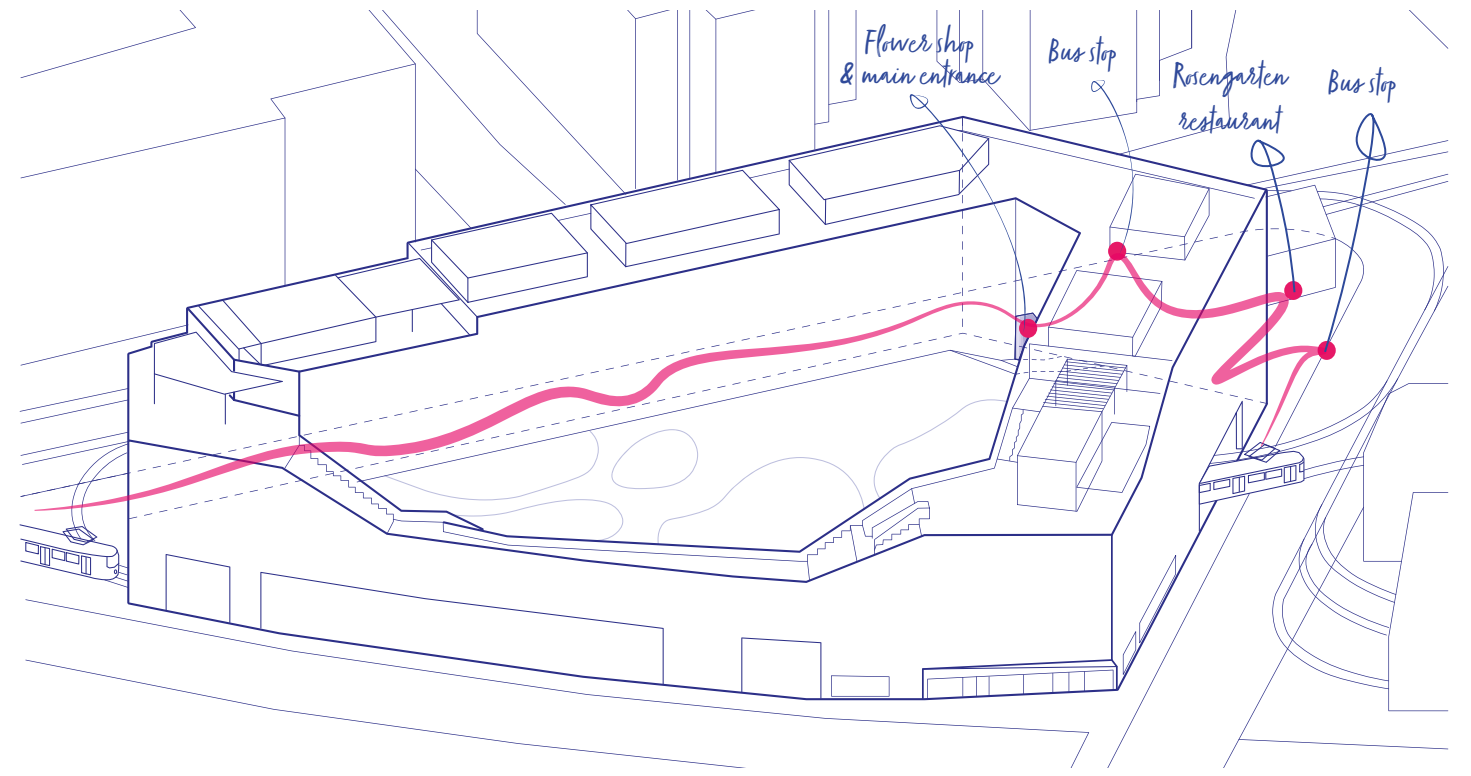


Figure 38. Edited by Author, Kalkbreite - Bird Eye Axonometric View (Rosengarten).



Figure 36. Kalkbreite - Tram Stop.

Rosengarten square

The Kalkbreite building is shaped in such a way that it creates a triangular plaza in front of it called Rosengarten square. This clever placement of a public square in the busiest corner of the plot where a bus and tram stop are located, guaranties a great exposure and attracts passers-by.

On the square there is a Rosengarten restaurant, a cafe and a bar. Additionally, the use of greenery makes the space feel more intimate and adds to the overall quality of the public plaza.

Right next to these lively functions the architects placed the main staircase to the heart of the building (the courtyard). The entrance placement in the busiest area maximises the interactions between residents and visitors



Figure 39. Kalkbreite - Main Exterior Staircase.

An entrance to the private staircase with a lift is located right next to the main staircase. Nevertheless, because of the intriguing and guiding design of the main entrance the residents are more likely to use the main stairs and therefore stay physically active. The cave like entrance with a light at the end of this 9 meters elevation invites the visitors to the courtyard.



Figure 37. Kalkbreite - Rosengarten Square.



Figure 40. Kalkbreite - Flower Shop.

To make the staircase more interactive and to invite potential passers-by to the courtyard, the designers planned small businesses along the main staircase. One of them is a local florist shop.

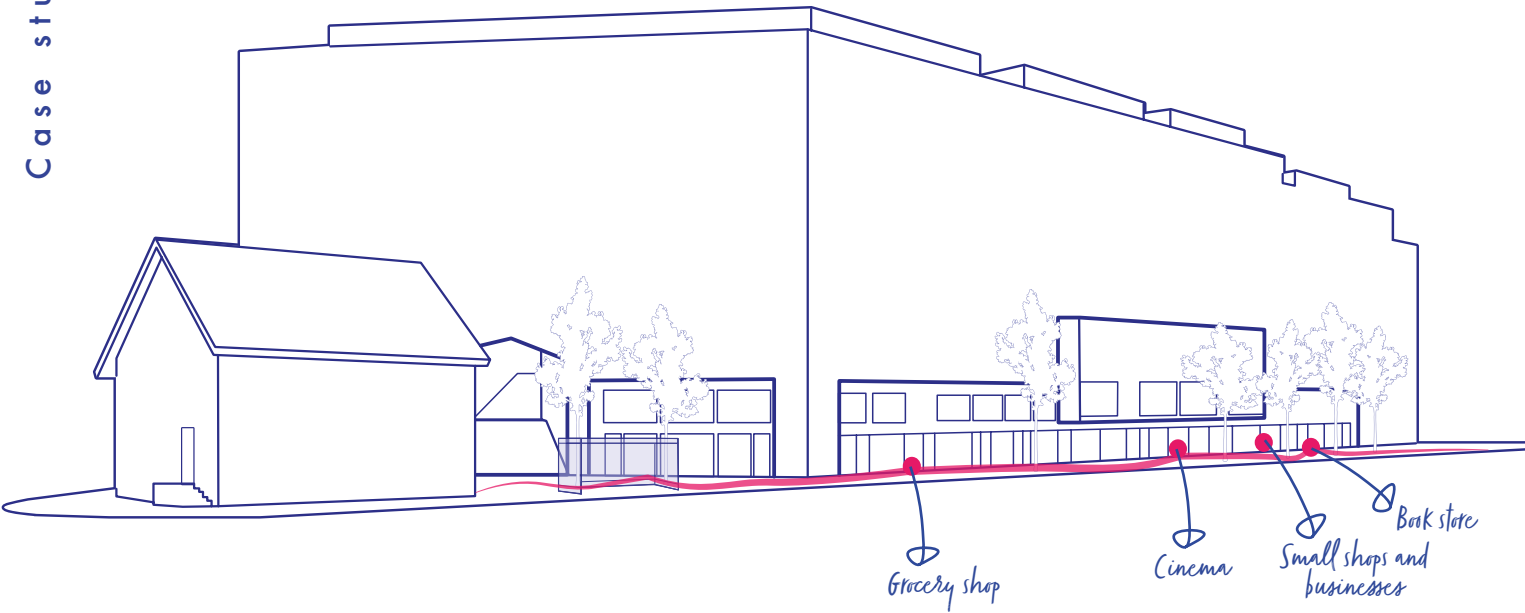


Figure 47. Edited by Author, Kalkbreite - Axonometric View (North).

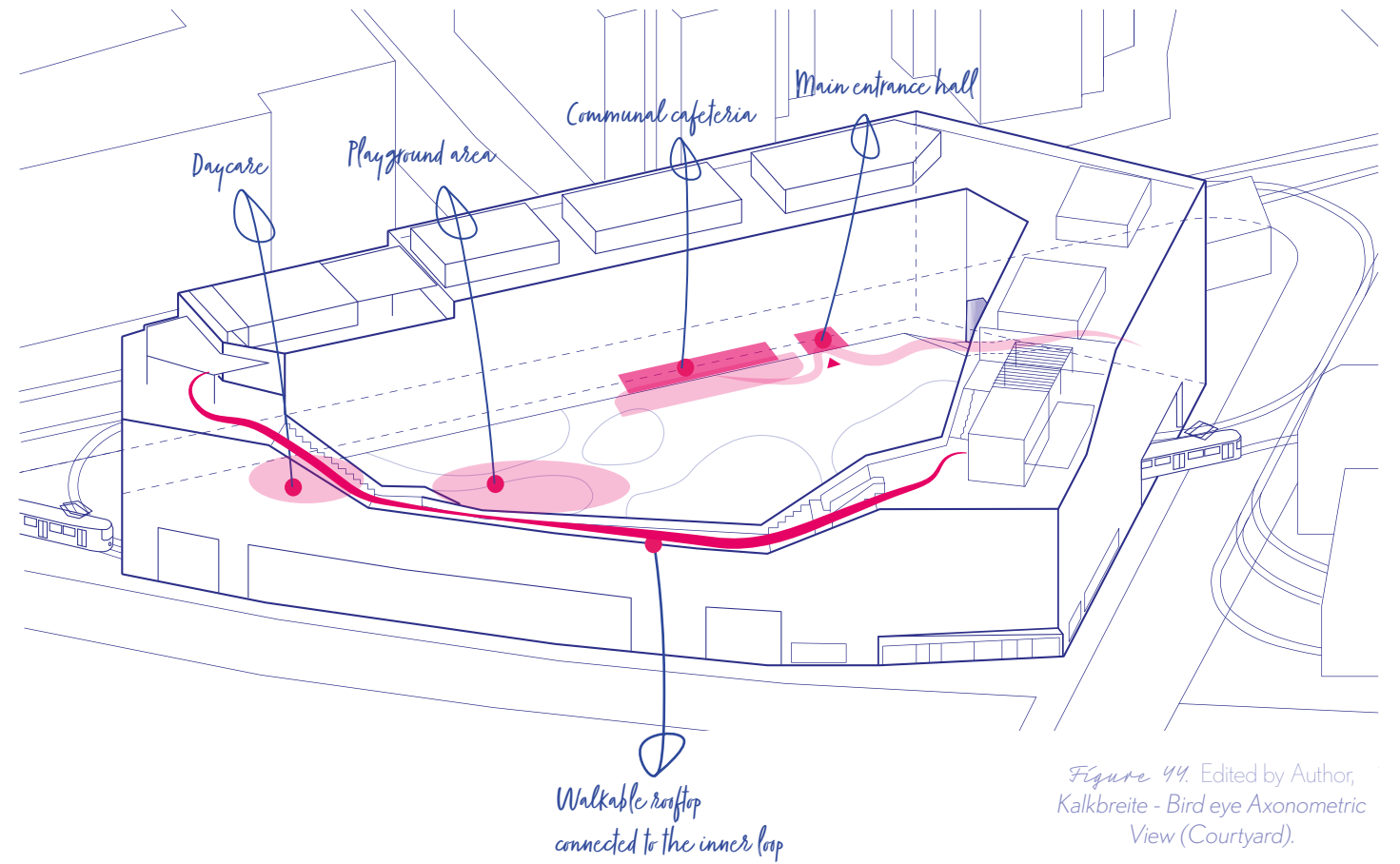


Figure 44. Edited by Author, Kalkbreite - Bird eye Axonometric View (Courtyard).



Figure 42. Kalkbreite - Exterior View (Rosengarten square).

Facade next to Badener street

Many commercial functions are located along the Badener street. To ensure closer social interactions the architects chose to place many small businesses here for example: a local grocery shop, a book store a medical store and a jewellery store. The biggest commercial function located along the street is the cinema.

On the 1st and 2nd floor there is also a clinic and a birthing centre.

Below the building there is a tram depot

There is also a bicycle storage for the residents located on the ground floor



Figure 43. Kalkbreite - Exterior View from the North.



Figure 45. Kalkbreite - View of the Courtyard.

The courtyard

The publicly accessible courtyard is plays a special role for the Kalkbreite community. The located above the tram depot public space is a meeting spot of many residents and visitors. The main entrance hall of the building is located right next to the representative staircase and serves as an important node that connects some of the communal functions in the building.

On the courtyard there is also a communal cafeteria managed by the residents. On the warm days some of the residents bring their dinner to the outdoor terrace of the cafeteria and enjoy a chat with their neighbours.

There is also a small play area for the kids here right next to the daycare facility.

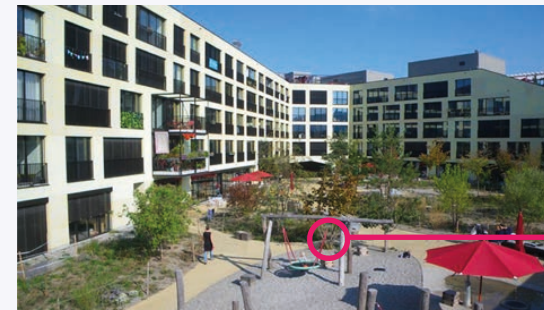
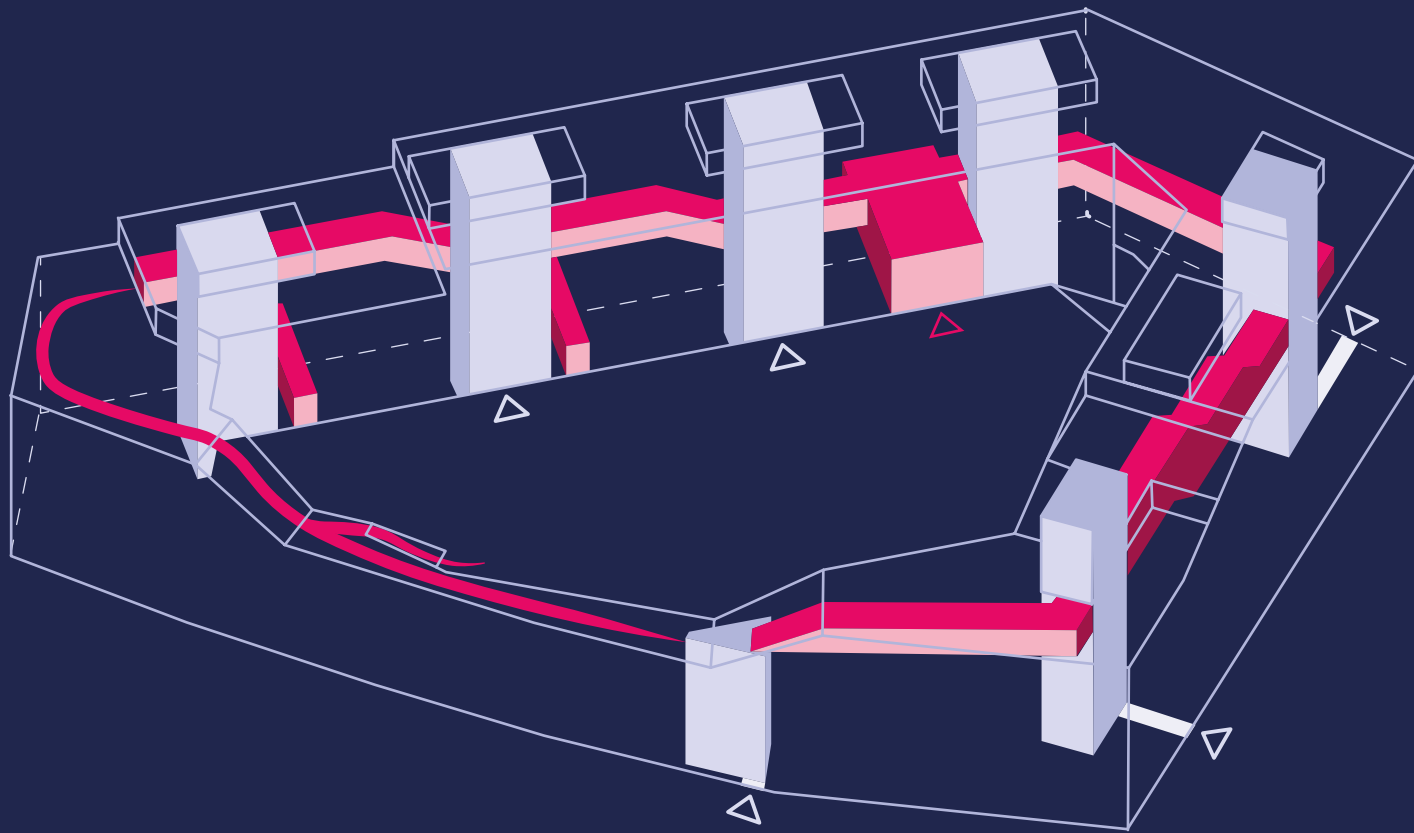


Figure 46. Kalkbreite - View of the Courtyard from the Rooftop.



Kalkbreite

Housing cooperative

1. Collaborative building process and residents' opinions
2. Design of public and collective spaces that foster contact
3. Design of living and half private spaces

Figure 47. Edited by Author, Kalkbreite - Circulation Axonometry.

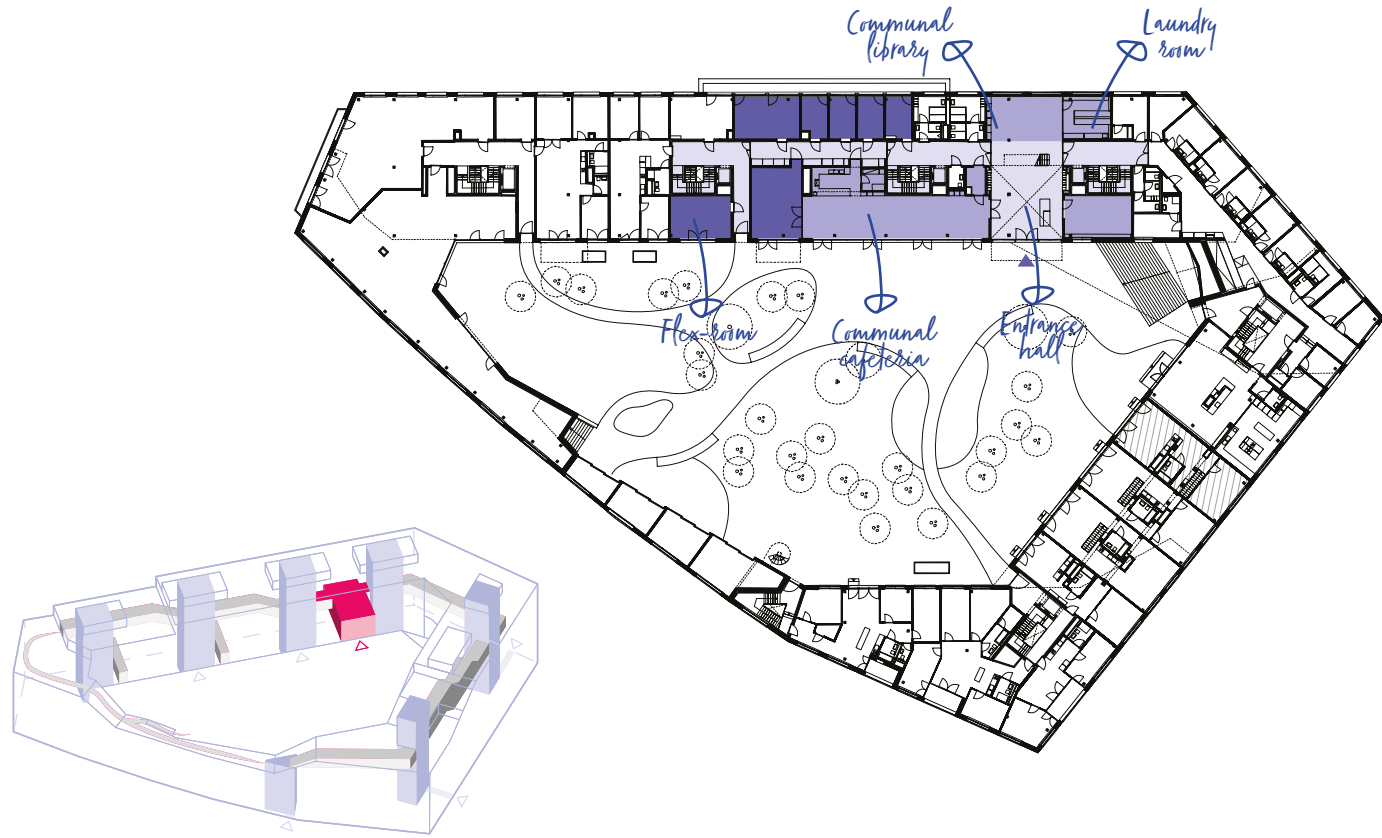


Figure 50. Kalkbreite - Circulation Axonometry (ground floor).

Figure 48. Kalkbreite - Plan of the Ground Floor.

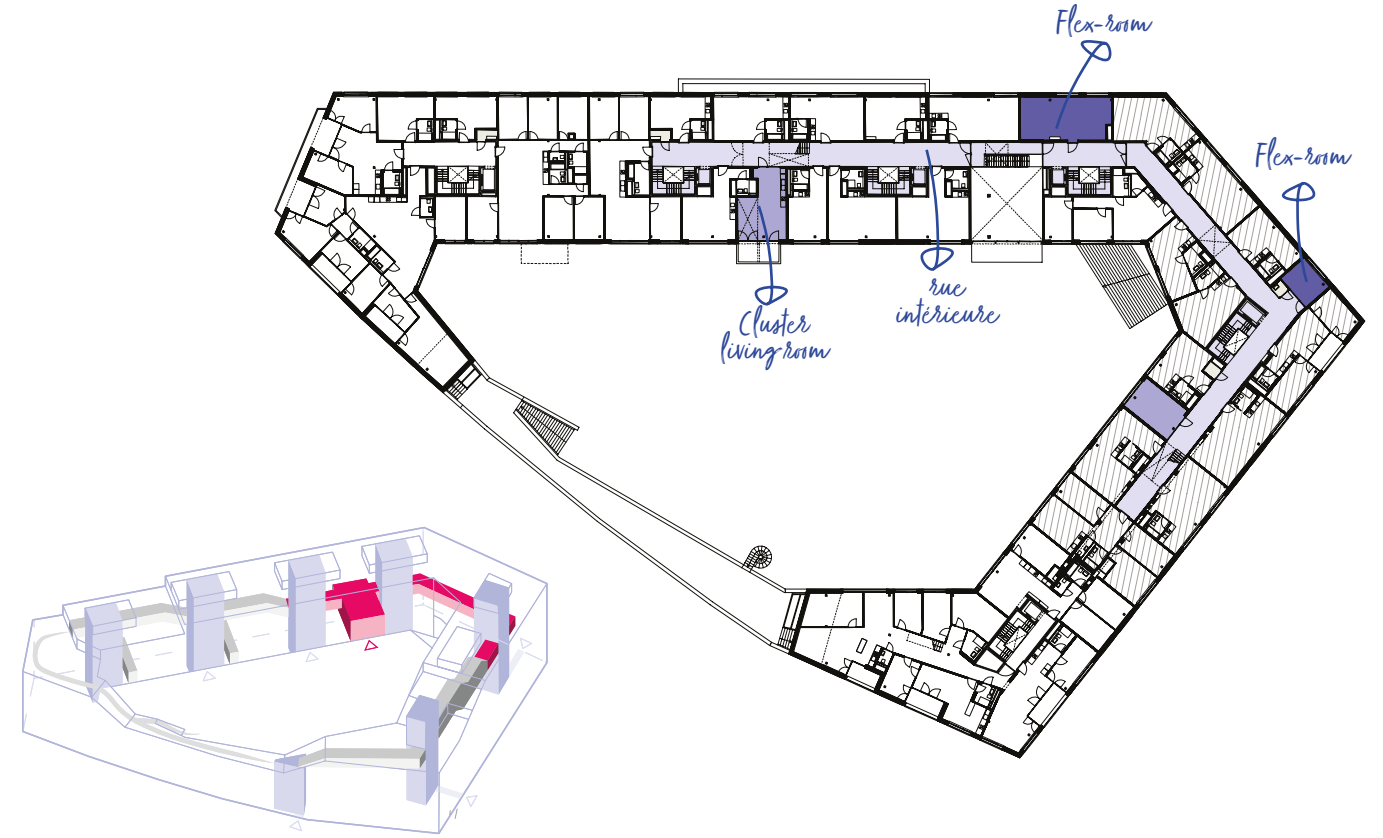


Figure 53. Kalkbreite - Circulation Axonometry (1st floor).

Figure 57. Kalkbreite - Plan of the 3rd Floor.



Figure 49. Kalkbreite - Main Entrance Hall

Main Entry hall

The entry hall located right next to the courtyard is a vibrant meeting spot for the residents. The entry hall does not only serve as a communication node. It also becomes a place of unplanned encounters between neighbours thanks to its clever programming. The entry hall houses the reception desk, the post boxes, a communal library as well as a shared laundry room. It also is a starting point of the rue intérieure - an interior road along which many communal areas are located.



Figure 51. Kalkbreite - Entresol.



Figure 52. Kalkbreite - Library.

Thanks to the mix of different functions the interactions between residents happen naturally. The staircase in the middle of the room leads to the entresol where the residents can write a message on a colourful card to let their neighbours know what they can lend them.



Figure 54. Kalkbreite - Flex room - Meeting Room.

Shared spaces along the rue intérieure

The 2,5 meters wide rue intérieure organises the cooperative community and helps the residents to establish physical and social connections. It wraps around the entire building and connects different dwelling clusters, flexible rooms and shared living rooms. The communal living spaces have glass walls and therefore encourage interactions. Among the flex rooms one can find for example a sewing studio an atelier, a weight



Figure 56. Kalkbreite - Cluster Living Room.



Figure 55. Kalkbreite - Flex Room - Yoga

studio or a yoga room. The functions can change yearly and are chosen by the residents. There are also rooms in the building that can be rented out externally for conferences and etc.



Figure 59. Kalkbreite - Blue Staircase.

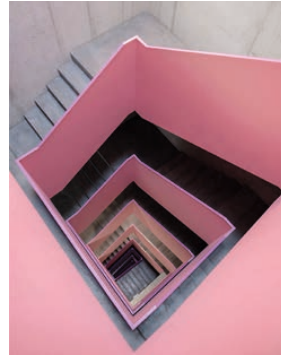


Figure 60. Kalkbreite - Pink Staircase.

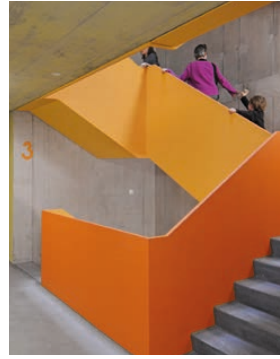


Figure 61. Kalkbreite - Orange Staircase.

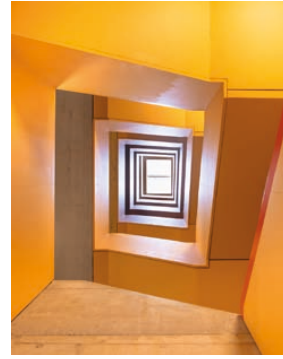


Figure 62. Kalkbreite - Light-Well.

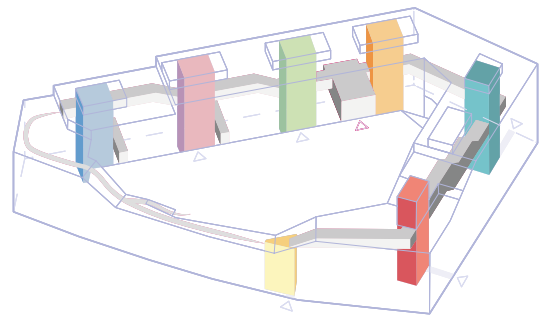


Figure 66. Kalkbreite - Staircases Scheme.



Figure 63. Kalkbreite - Circulation Scheme.



Figure 64. Kalkbreite - Post Boxes.



Figure 58. Kalkbreite - Green Staircase.



Figure 65. Kalkbreite - Cluster 2.

Staircases

The staircases in the building serve not only an inner circulation system but also as a guide around the building. The staircases help the residents to navigate thanks to their distinctive colours different in all parts of the building.

Outside of the main entrance on an intercom board in a form of a map illustrates the circulation system of the building. The post boxes in the entry hall have colourful badges that represent the parts of the building based on the nearest staircase colour.

To make the typical horizontal corridors more active the route was given an additional layer of spatial variety. It meanders through different levels of the building in both vertical and horizontal directions.



Figure 67. Kalkbreite - Corridor.

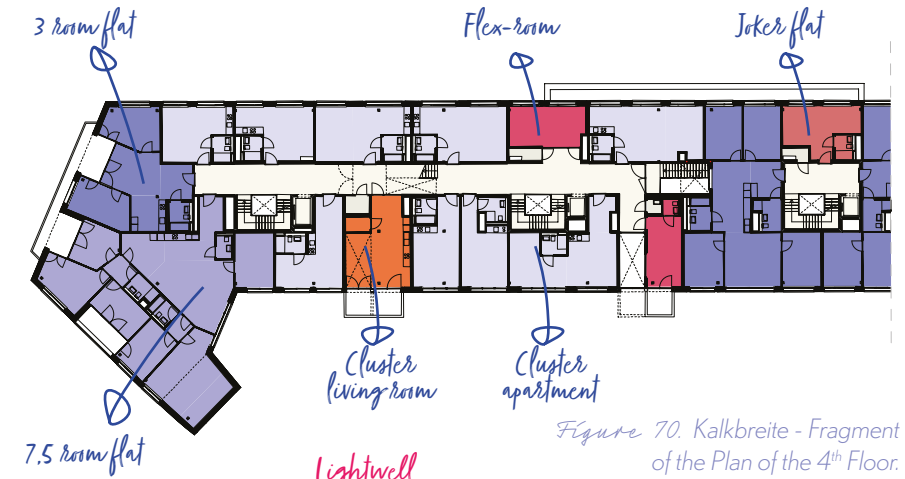


Figure 70. Kalkbreite - Fragment of the Plan of the 4th Floor.



Figure 68. Kalkbreite - Light-Well Between 2 Flats.

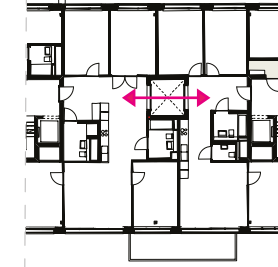


Figure 69. Kalkbreite - Fragment of the Plan of the 4th Floor (Light-Well).

Some of the flats are visually connected by light-wells.



Figure 71. Kalkbreite - Fred's Flat.



Figure 72. Kalkbreite - Fred's Flat 2.

Types of apartments

The building offers a wide selection of dwelling types starting from the 29 m² one-room apartment up to large 412m² 17-room shared flats. What is special for this building is its unusual living forms like dwelling clusters. There are 3 dwelling clusters in Kalkbreite which comprise of thirty-one 1-room flats. The residents of such dwellings get to share a communal space with a kitchen and living room area.



Figure 73. Kalkbreite - Cluster Living Room.

Joker flats are offered for short term stays up to 4 years. These flats change their owners regularly and do not have their own kitchen.

Design guidelines:

Public program

Small businesses, medical clinic, cafés and restaurants and bars, bookstore

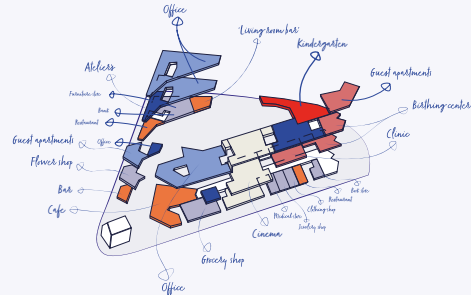


Figure 74. Edited by Author, Public Program.

Commerce on the ground floor

Increased safety, new destinations, links with the neighbourhood



Figure 75. Commerce on the Ground Floor.

Eyes on the street

Increased safety because of the high transparency of the commercial functions



Figure 76. Eyes on the Street.

Shared library

Inspires interactions, creates a feeling of being a part of a community, sustainable



Figure 83. Shared Library.

Flex-rooms

The functions of these rooms are chosen by the residents, community



Figure 84. Flex-Rooms.

Cluster living rooms

Maximise the interactions between residents. Glass doors - visibility



Figure 85. Cluster Living Rooms.

Public plaza in the busiest area

Public functions attract passers-by and maximise unplanned encounters



Figure 77. Public plaza in the Busiest Area.

Greenery

Makes the space feel more intimate and adds quality to the square



Figure 78. Greenery.

Main staircase

Clever placement on the busy plaza increases use



Figure 79. Main Staircase.

Colourful staircases

Ease way-finding, encourage use

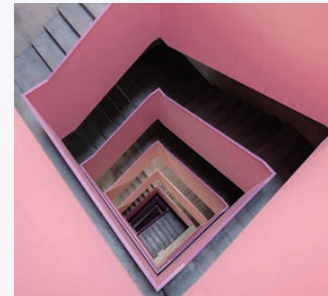


Figure 86. Colourful Staircases.

Light-wells

Encourage use

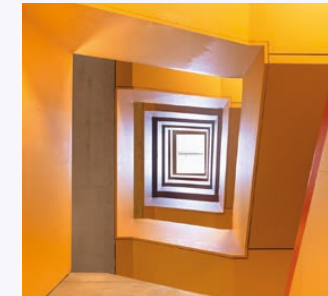


Figure 87. Light-wells.

Interior loop with shared spaces

Connects all communal spaces in the building, encourages interactions

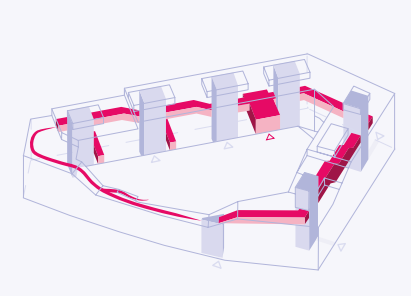


Figure 88. Interior Loop With Shared Spaces.

Small businesses on the staircase

Attract passers-by and invite the to the courtyard



Figure 80. Small Businesses on the Staircase.

Courtyard as the heart of the project

Communal functions like the cafeteria and the playground foster interactions



Figure 87. Courtyard as the Heart of the Project.

Main entrance hall

Meeting spot of the residents thanks to the mix of often used functions in one place



Figure 82. Main Entrance Hall.

A variety of apartment types

Offers an apartment for every budget and needs. Enables smaller one-person apartments, joker flats- temporary up to 4 years

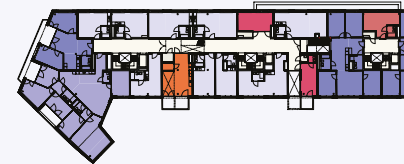


Figure 89. A Variety of Apartment Types

Staircases organise the route vertically

Clear organisation of space makes way finding easier. The changes between horizontal and vertical make the route more attractive



Figure 90. Staircases Organise the Route Vertically.



Figure 97. Edited by Author, WohnProjekt - Exterior view from the street.

WohnProjekt Wien

Co-Housing Vienna

Architects: einszueins architektur

Area: 5.300 m²

Year of completion: 2013

Number of dwellings: 39

Residents (approximate): 100



Figure 92. Author's own Sketch, WohnProjekt - Residents sketch.

WohnProjekt Wien

Co-Housing Vienna

1. Collaborative building process and residents' opinions
2. Design of communal spaces
3. Design of living and half private spaces

Time line of the development

The group was actively looking for a city plot in Vienna. **It soon became clear that to be able to obtain such a plot they would need to apply for a housing subsidy due to the high prices.** The group had to cooperate with a developer and an architect and take part in a competition.

The members of **the group decided on a „sociocracy” organisational model**, which divided the group members into working teams who would then make autonomous decisions. One aspect was crucial for the success of this model namely, a decision could be made only if there were no serious objections.

Each member of the group had to invest their capital and time (11 hours a week) into the project. 24 000 hours were invested in this enterprise (from the first idea till the moving in date)

The group decided together on the program of the building's communal spaces. **They allocated 700 m² for shared spaces** such as a workshop, a studio, a bicycle storage and a multi-purpose room in the basement, a communal kitchen and a playroom for kids on the ground floor and a sauna, a library and a garden on the rooftop. **The communal uses make up 23% of the total floor area.**

2013

The building was completed in late 2013. The residents meet regularly in their working teams and together make sure that the building functions well for all residents.

2009

Heiz Feldmann decides to start a co-housing project in Vienna. The formation of the group happened quite rapidly and soon the first workshops were held to find out the advantages of communal life. Since then, the group and interested parties met once every month.

The group managed to find an appropriate plot for with an on-going competition. They had only 6 weeks to propose their project proposal for the former Nordbahnhof building site. **The group won the competition thanks to their special attention to social sustainability.**

Motto of the project

The members of the group united under a shared motto:
“Individuality within community”⁸¹



Figure 94. Edited by Author, WohnProjekt - Residents.

Developing WohnProjekt Wien - a co-housing project

Co-housing projects are becoming more and more popular in Vienna, where the WohnProjekt is located. Recent surveys done in Austria show that only 5% of people living in the country were interested in co housing in the year 2009. In 2014 this number grew to 39%.⁸⁰ That means that more than one third of the people in Austria are interested in co-housing projects nowadays. People do not want to live in an anonymous housing blocks anymore. They are also more and more often feeling lonely. Therefore, models based around community living and sharing gain more and more popularity in the recent years. Another aspect that is important for many is having a flat that is fitted to the individual needs of it's inhabitants.

With these ideas in mind, Heinz Feldman started the co-housing project in 2009. The project was fully organised by the group of people interested in a new form of communal living.

The group managed to find an appropriate plot. Their project won the competition and got the building rights thanks to the emphasis that the group put on the social sustainability. All members of the group were involved in the planning process. Each person was required to

invest 11 hours a week in the project. The group organised themselves in a model of sociocracy and was divided into working teams. The program of the building was planned together. A special emphasis on communal spaces was put resulting in 700m² of community spaces (23% of the total floor area). This was made possible because they weren't requested to build a car park for each apartment in the building. Instead the group has 6 shared cars for all residents. This saved them around half a million Euros and 800 m² of space. The building was completed in 2013.

80. Katharina Bayer, "Housing Cooperatives," *Housing Cooperatives* (2023), https://www.youtube.com/watch?v=TeXIUaBiDZA&t=321s&ab_channel=ZadrugaZadrugator.

81. Katharina Bayer, "Housing Cooperatives," *Housing Cooperatives* (2023), https://www.youtube.com/watch?v=TeXIUaBiDZA&t=321s&ab_channel=ZadrugaZadrugator.



Figure 93. Edited by Author, WohnProjekt - Participatory process.

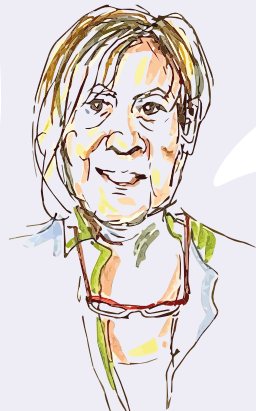


When I was planning my flat with the architects I realised that since I am actively participating in this process then it will be my responsibility if I would be dissatisfied with my apartment.⁸²



The biggest change for me was that before I was living in an 80m² apartment and had my own my car. Now my apartment has 35 m², I sold my car but now I have six different shared cars to choose from when I need one! We even have 2 shared cargo-bikes. This for me proves that sharing really makes sense for me.⁸³

It is important for me to feel like I am a part of a community. I decided to move here because I really value the solidarity aspect of this project, it is clearly visible in everyday life in here! We have two solidarity flats for people in need, we offer each other neighbourly help with children, a friendly advice, or take care of the sick people. I find it crucial to share my happiness with others!⁸⁵



I have recently retired and decided to move here with my son. We rent two separate apartments here. I work in the grocery store and cafe here in our building. Many of my friends complain about loneliness, boredom and feeling useless. I am sure that because I live in this co-living housing project it will never happen to me. I really value the social aspect of this place. There is always something to do around here! I started my own cafe - something that I never thought that I would do!⁸⁶



I am a single mother of a young boy. The community focused approach is very important to me. We have a large shared kitchen on the ground floor. Almost every day together with my son we use the common kitchen's dining table. As a community we organised shared cooking. This means that I only have to cook once a month and I get to enjoy a reasonably priced warm meal everyday! This makes me very happy. We also use the playroom on a regular basis. It is especially useful in winter when the weather outside is not best. Also the library in the building is a place that I visit often to work and meet friends. Overall I really enjoy having so many communal spaces. My apartment is not the biggest so they are of great advantage.⁸⁴



I was actively looking for a community housing project because of my previous living situation. I used to have a flat in a big housing block where I did not know my neighbours. I find it important that people of different age groups are living in our housing project. The communal aspect of this project convinced me because I really want to have a purpose when I retire. My favourite part of the building is the airy staircase. One can talk to one another from floor to floor thanks to the big light well in the middle of the staircase. Sometimes I go out of my flat and wonder from floor to floor because I know that I can always bump into my neighbours here! I also find that the asymmetric balconies are a great feature! They add some character to the building.⁸⁷

Opinions, reflections and needs of the residents of WohnProjekt Wien

It all started because of a dream of a single man. Heinz Feldmann, the initiator of the project wanted to find out what are the advantages of communal living. At all stages of the project the way that the future building will be organised was discussed and decided by the group of future residents. Among them was the architect from „einszueins“ architecture office - Markus Zilker. He joined the project as a private person, but after 3 months his office was assigned for the design of the WohnProjekt. The architecture office was the mediator between all of the residents and divided the participatory project in 3 scales. Personal living spaces (the individual planning), workshops for community spaces and lastly the arrangement of all flats. This meant that the community was involved in all decisions regarding the program of the building. Therefore, it is extremely interesting to get to know the residents experience the building. Some of their opinions are presented above. The main factor mentioned by all the residents is the communal aspect. The residents decided to join this project for particularly this reason. They all find that it is important for them to feel like a part of a community. They often emphasize that they only need to leave their flat to meet other people, have a talk, go for a walk together or offer each other support. The space that offers a possibility for these kind of unplanned encounters is the staircase. It is appreciated by all of the residents thanks to the void which goes through all of the floors. This maximises the potential interactions because one can talk to one another from floor to floor. The building reflects their needs and is organised around the communal spaces. They have a shared kitchen, a children's play room, a shared library, a sauna, a rooftop garden, guest apartments, a big room for events, a workshop, a laundry room and many more.



This project exceeded my expectations! When I need help or a friendly talk all that I have to do is step out of my door! I meet my neighbours on the staircase all the time. Sometimes they ask me to help them with taking care of their children or offer a joined walk around the neighbourhood. The important part of our philosophy is that everyone has their own space-their apartment as a retreat but one can always use the communal spaces if needed. We wanted to make sure that we create individuality within our community. The architecture of our building builds up on this idea. I am very happy about the shared library. I no longer need to buy all of the books alone. I can also rent a shared car and use our common laundry room.⁸⁸

Figure 95. Author's own Sketch, WohnProjekt - Resident sketches.

Footnotes to the resident's opinions:

82. Katharina Bayer, "Wohnprojekt Wien: Potentials of Building and Living Together," November 22, 2016, accessed April 19, 2023, https://www.youtube.com/watch?v=TeXIUaBiDZA&t=321s&ab_channel=ZadrugaZadrugator.

83. Katharina Bayer, "Wohnprojekt Wien: Potentials of Building and Living Together," November 22, 2016, accessed April 19, 2023, https://www.youtube.com/watch?v=TeXIUaBiDZA&t=321s&ab_channel=ZadrugaZadrugator.

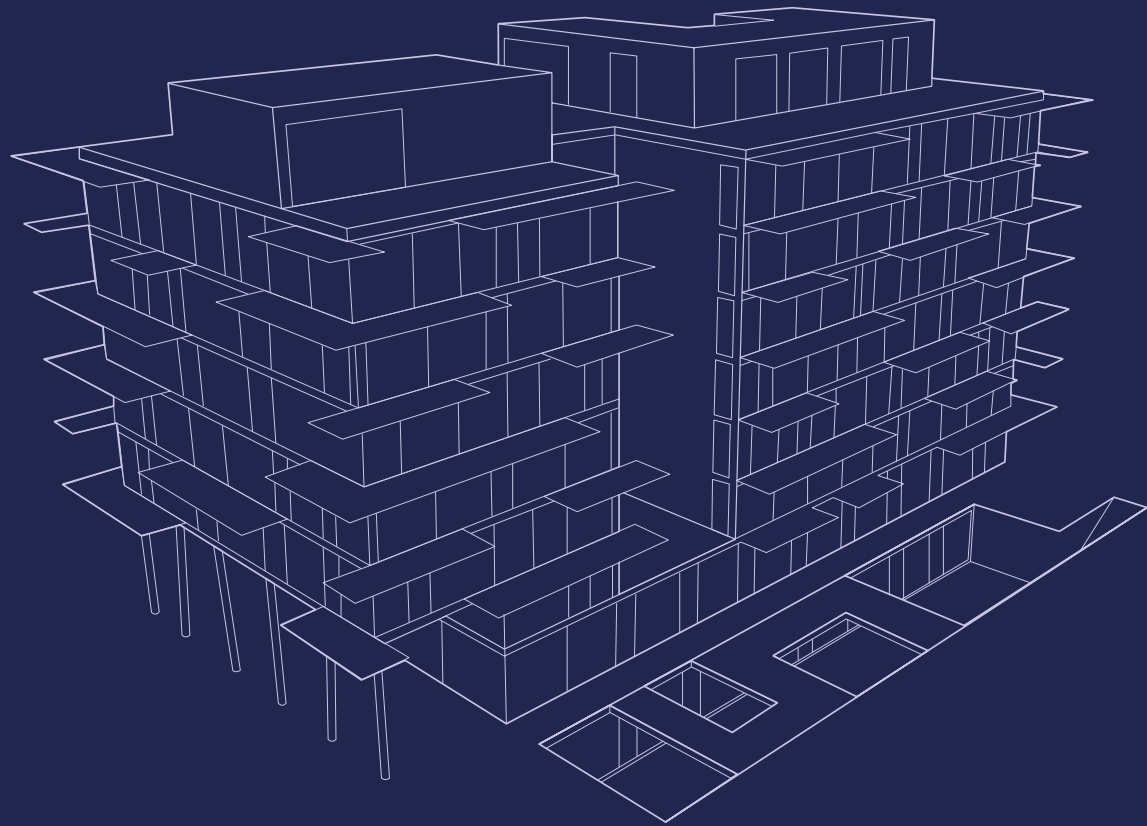
84. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 856-67.

85. Katharina Bayer, "Wohnprojekt Wien: Potentials of Building and Living Together," November 22, 2016, accessed April 19, 2023, https://www.youtube.com/watch?v=TeXIUaBiDZA&t=321s&ab_channel=ZadrugaZadrugator.

86. Katharina Bayer, "Wohnprojekt Wien: Potentials of Building and Living Together," November 22, 2016, accessed April 19, 2023, https://www.youtube.com/watch?v=TeXIUaBiDZA&t=321s&ab_channel=ZadrugaZadrugator.

87. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 856-67.

88. Institut für internationale Architektur-Dokumentation GmbH & Co. KG, "Process: Kalkbreite Housing and Commercial Development in Zurich," *DETAIL Zeitschrift Für Architektur*, September 2015, 856-67.



WohnProjekt Wien

Co-Housing Vienna

1. Collaborative building process and residents' opinions
2. Design of communal spaces
3. Design of living and half private spaces

Figure 96. Edited by Author, WohnProjekt - Axonometric view.

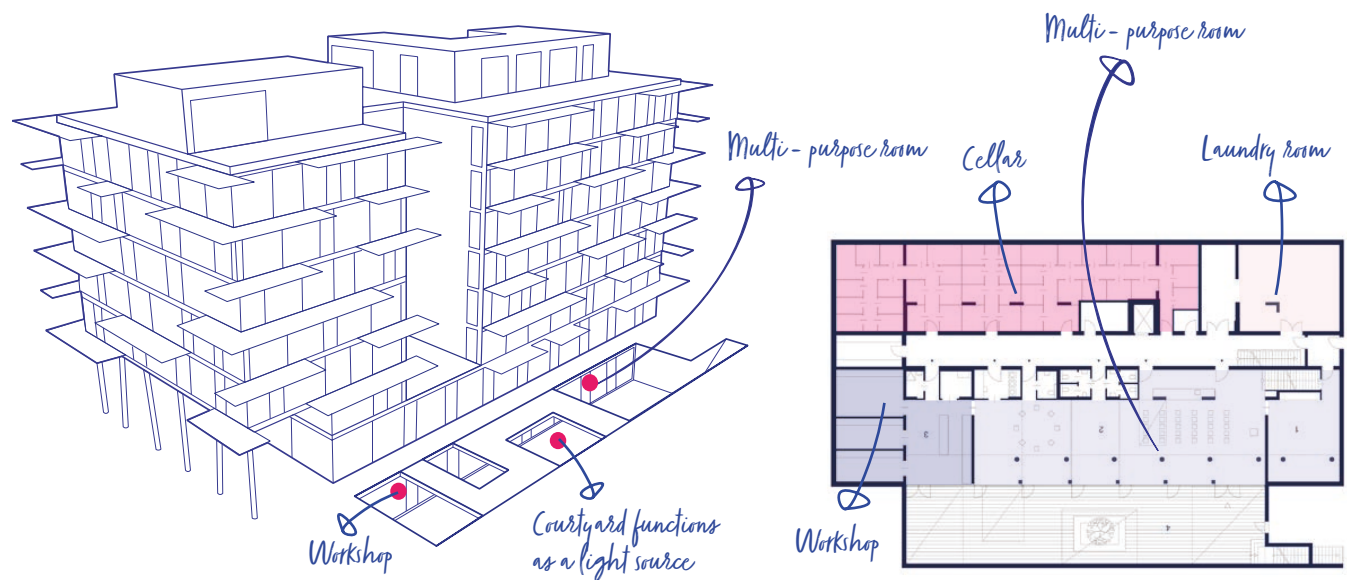


Figure 104. Edited by Author, WohnProjekt - Axonometric view (Underground).

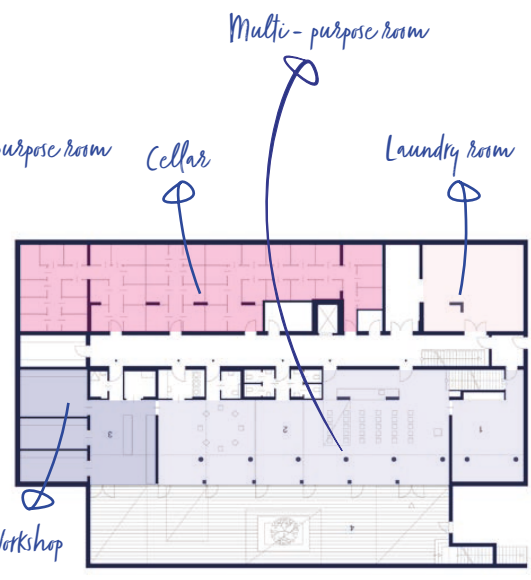


Figure 105. WohnProjekt - Plan of the underground.

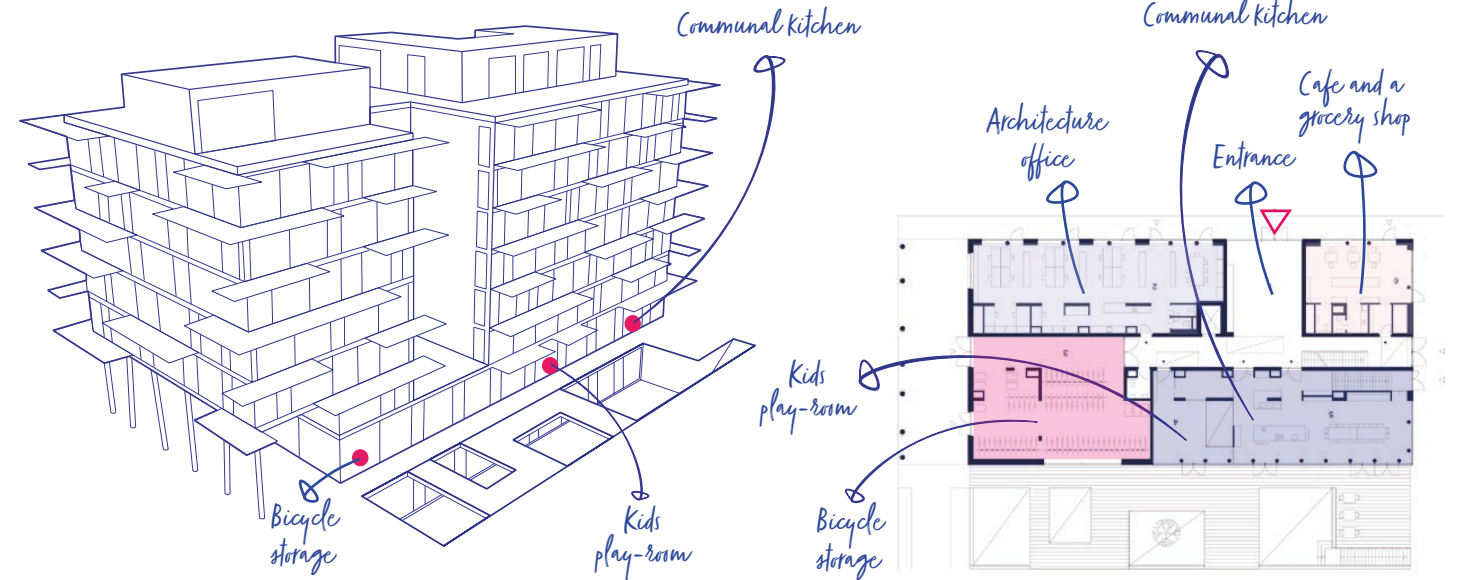


Figure 112. Edited by Author, WohnProjekt - Axonometric view (Ground floor).

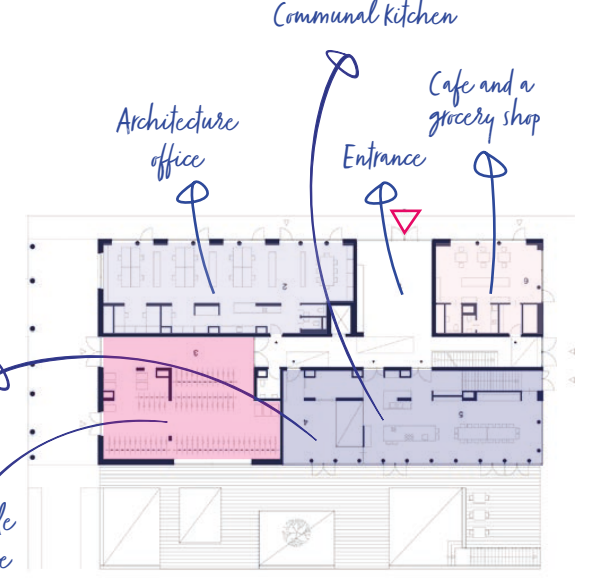


Figure 113. WohnProjekt - Plan of the ground floor.

Communal spaces in the building - Underground

The programme of the building gives a special attention to the spaces for the community. To maximise the amount of community spaces in the house some of them were placed underground and lit up by the sunken courtyard and light wells. In this way it is possible to have more communal areas without taking the optimal living spaces in the building. Additionally the light wells between 2 floors visually connect all of the communal spaces and therefore increase the potential encounters between neighbours.

The program of the basement includes an event space, a workshop for working with wood and metal as well as a laundry room and a cellar. The residents also decided to run a food cooperative together which means that the vegetables from the local farmers are being delivered directly to the buildings and are supplying all the inhabitants.



Figure 100. Courtyard view.



Figure 102. Courtyard.

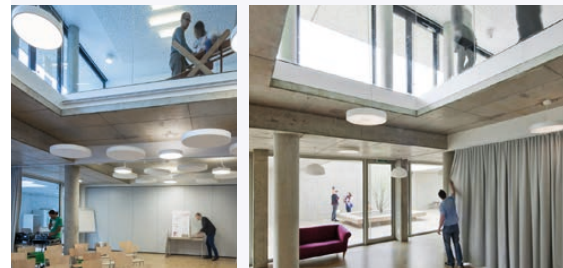


Figure 107. Light-well.



Figure 103. Multi-purpose room.



Figure 97. Children playing in the courtyard.



Figure 98. Residents in the courtyard.

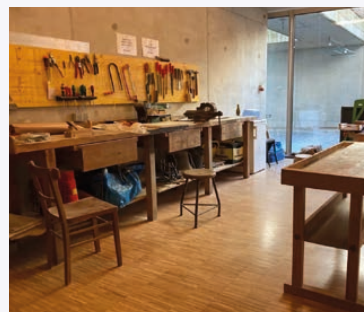


Figure 99. Workshop.



Figure 108. Vegetable garden.



Figure 110. Cafe.

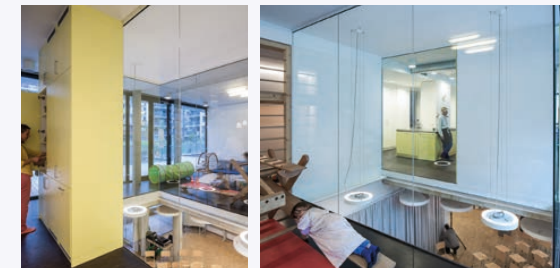


Figure 109. Shared kitchen.



Figure 111. Kids play-room.



Figure 106. Communal kitchen.

Communal spaces in the building - Ground floor

On the ground floor of the building there are both commercial and community related functions. There are 350m² of commercial functions located on the side of the street like the architecture office (the creator of this project) and a cafe and grocery shop (run by 8 inhabitants). Facing the garden are the generous bicycle storage, a children's play room and the shared kitchen. Because the shared play area on the ground floor is separated from the communal kitchen by a light well and a glass door, the parents can take care of their children from a distance while interacting with their neighbours. All of the children's loud play can take place here and provide an acoustic comfort for the parents without limiting their contact with kids. This also means that their flats become a calmer and more relaxed area. The shared kitchen on the opposite side of the room is regularly

used by the residents and the employees of the office during lunch time. Everyday residents meet here to have a shared warm meal. Most of the residents also grow their own produce in the garden located just outside the building.



Figure 107. Bicycle parking.

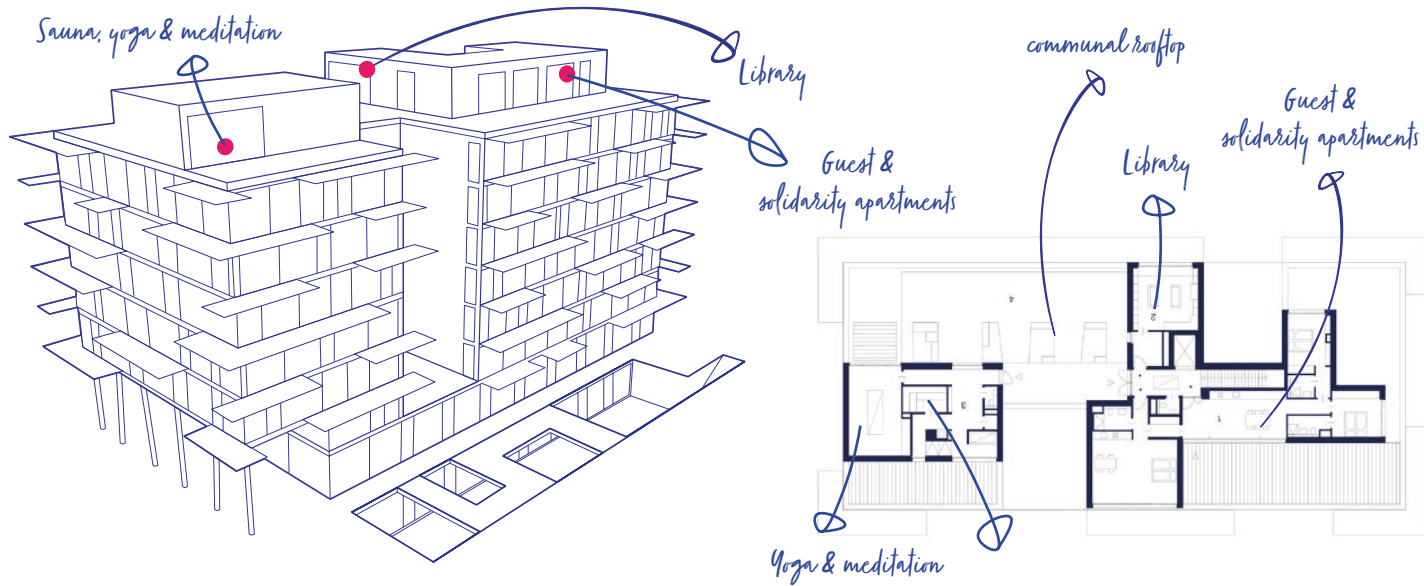


Figure 119. Edited by Author, WohnProjekt - Axonometric view.

Figure 120. WohnProjekt - Rooftop plan.

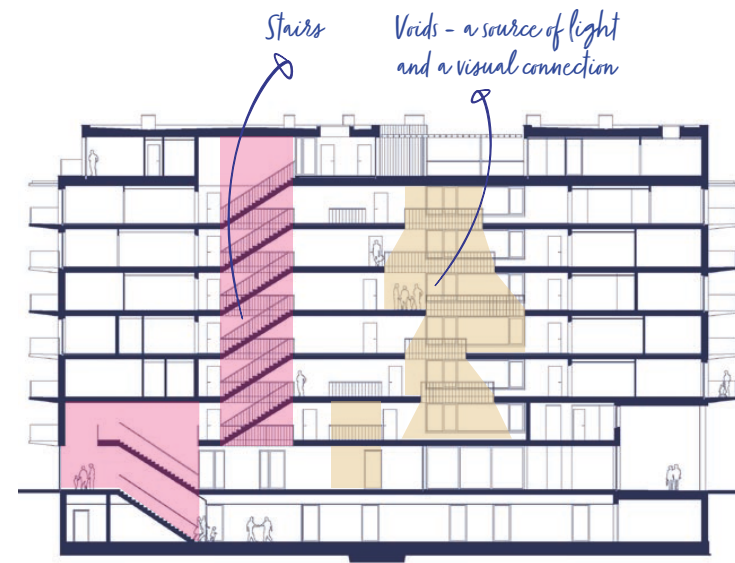


Figure 123. WohnProjekt - Cross-section.

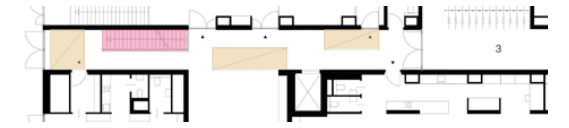


Figure 126. WohnProjekt - Ground floor fragment.



Figure 125. WohnProjekt - 1st floor fragment.

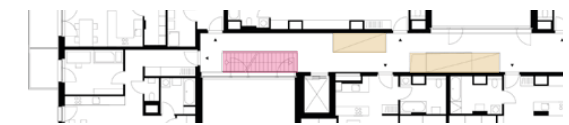


Figure 124. WohnProjekt - 2nd floor fragment.



Figure 116. Yoga and meditation.



Figure 118. Library.

Communal spaces in the building - Rooftop

Following the philosophy of the architecture office the best areas in the building are intended for communal use. Therefore, the rooftop provides the residents with a shared library, a sauna, a yoga and meditation room as well as the rooftop terrace and garden area.

The library is often mentioned by all residents as a very special place for them. Some of them choose to work here, meet with their friends or simply read. They also lower their consumption because they do not need to always buy their own books.

The rooftop is also a place where the solidarity flats and guest apartments are located. The residents want to give back to society for example by supporting refugees and giving them a temporary living space in the solidarity flats.

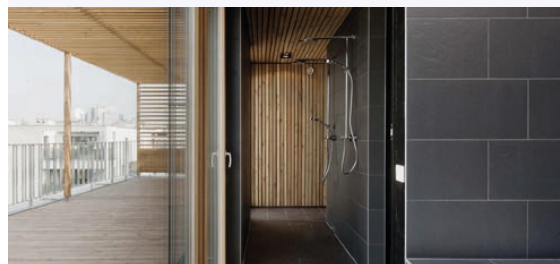


Figure 117. Sauna.



Figure 114. Residents in the shared library.



Figure 115. Residents on the rooftop.



Figure 121. Staircase - voids.

Communal spaces in the building - Staircase

Even the design of the staircase supports the ideas of community focused living. Thanks to the continuous voids, the staircase becomes a place of unplanned encounters between residents of all floors. Inhabitants often mention that if they want to meet people all they have to do is step out of their apartment. The arrangement of the voids on the staircase was free and has been chosen through a participatory process as a response to the flats arrangement (different on each floor). Additionally thanks to the large openings on each of the levels the created space is very bright and inviting and therefore, does not feel like a monotone corridor. The staircase is filled with personal objects which clearly demonstrates that the residents take the ownership of the communal spaces in the building. There is no room for anonymity here.

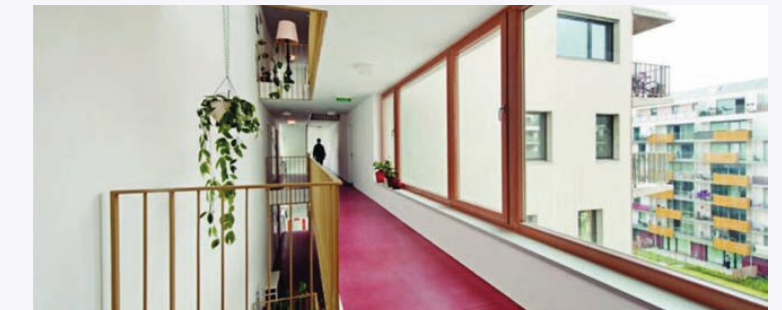
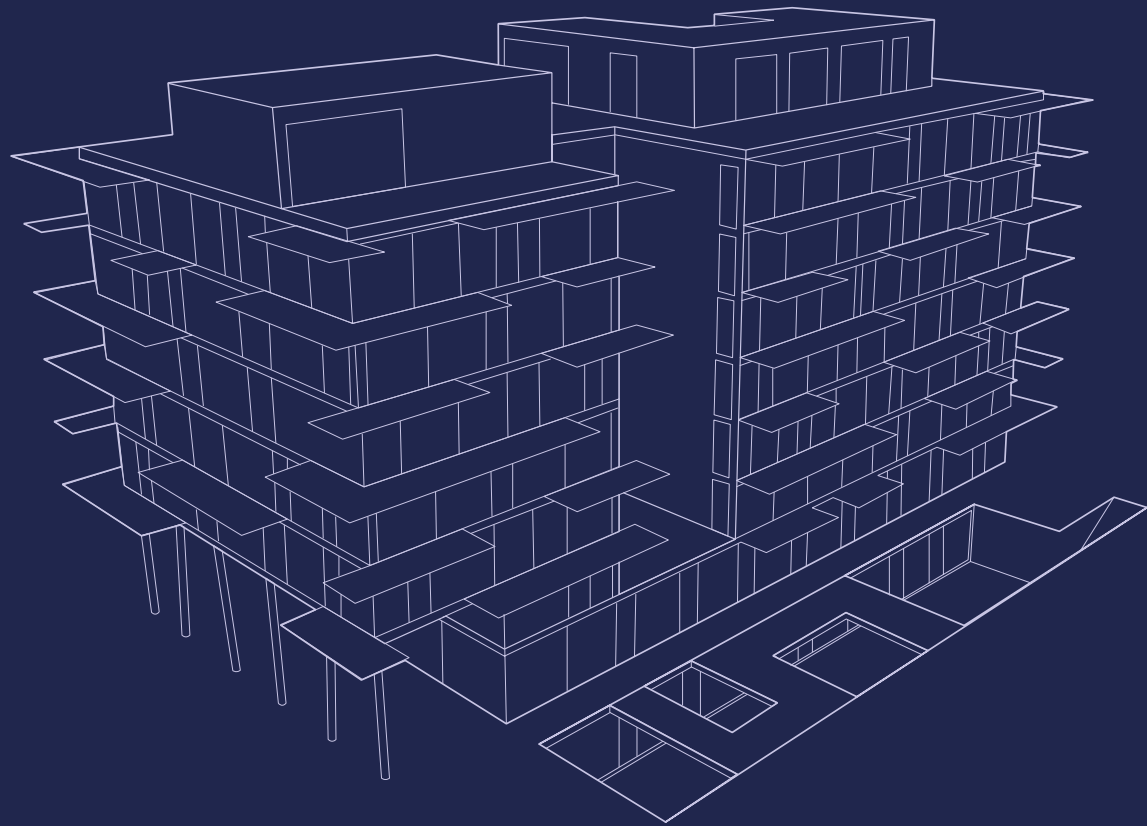


Figure 122. Staircase.



WohnProjekt Wien

Co-Housing Vienna

1. Collaborative building process and residents' opinions
2. Design of communal spaces
3. Design of living and half private spaces

Figure 127. Edited by Author, WohnProjekt - Axonometric view.

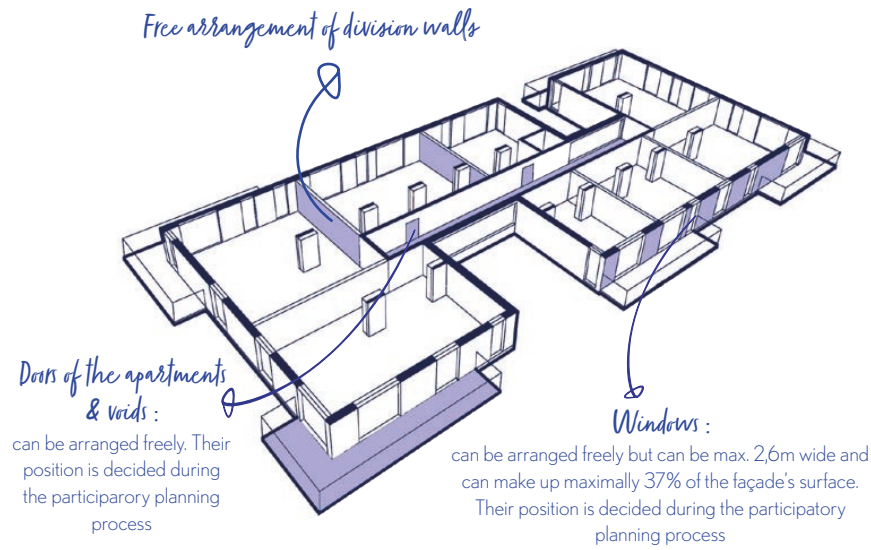


Figure 130. Flexible floor plan axonometry.

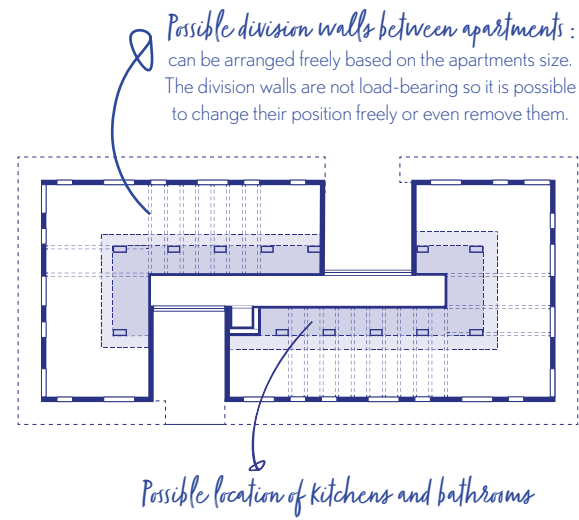


Figure 131. Flexible floor plan scheme.

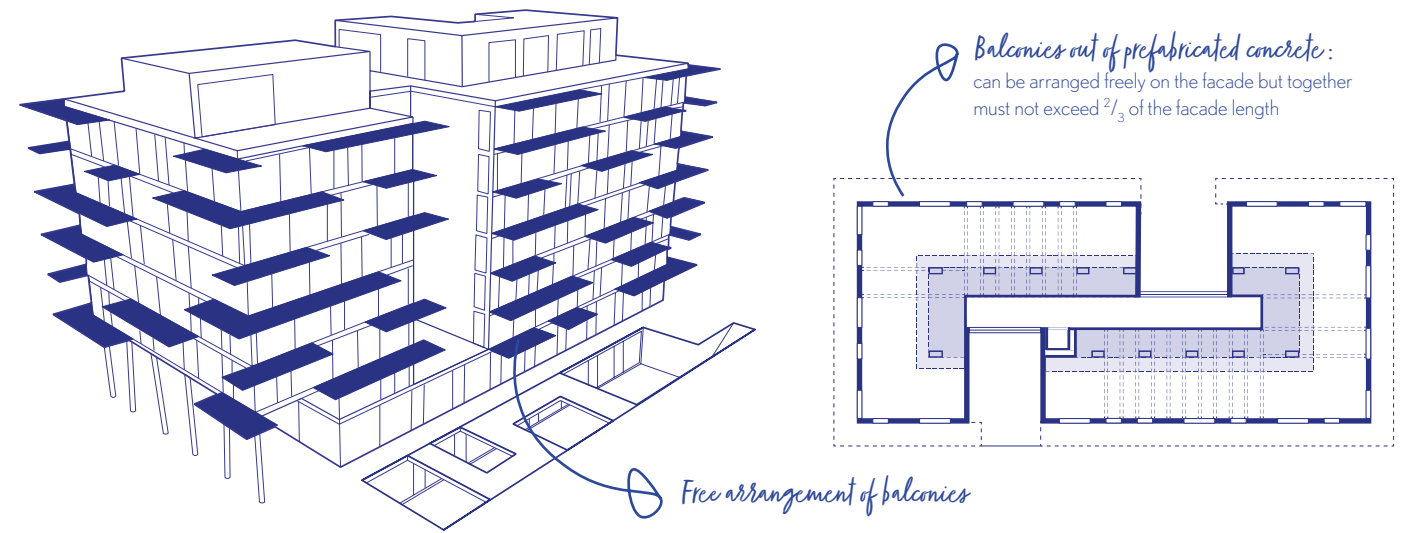


Figure 134. Edited by Author, WohnProjekt - Axonometric view (balconies).

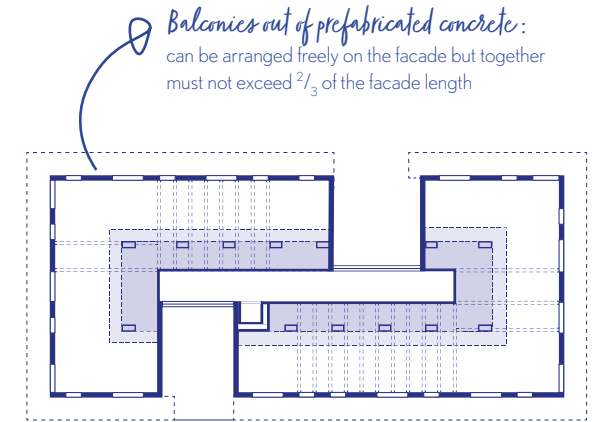


Figure 135. Flexible floor plan scheme (balconies).



Figure 129. Interior of a flat.

Flexibility in the apartments

The construction of the building allows for maximum flexibility when it comes to the arrangement of individual dwellings. The structural elements are the outer walls, the shafts and the staircase. Because the division walls between the flats are not load bearing they can be arranged freely depending on the sizes of apartments or even removed entirely or changed if needed.

The location of the doors and windows is also free and was decided during a participatory process by the residents. The plan also suggests possible locations of service areas in apartments such as bathrooms and kitchens.

Thanks to this flexibility no floor in the building is identical and flats are better suited for the residents needs. The flexible arrangement of walls also makes the building more future-proof.

Another aspect worth of mentioning is the size of the apartments. Because of the substantial communal areas, the individual flats can be more compact. An average area per person of 32 m² (together with the shared spaces - 35m²) is lower then the Austrian average of 42m². This also makes the project more socially sustainable by offering a cheaper alternative for living.



Figure 128. View from the window.



Figure 132. Residents on the balconies.

Half private spaces - balconies

The flexibility of this project can be also seen in the free arrangement of balconies. Their length and distribution was decided by the residents. The only rule was that the joint length of all balconies could not exceed the $\frac{2}{3}$ of the facade length.

Because of their arrangement the balconies also encourage spontaneous interactions between inhabitants. The residents point out that the asymmetric layout of the balconies gives the building its special character.



Figure 133. Balconies.

Design guidelines:

Light-wells

Visual connectiveness



Figure 136. Light-wells.

Event room

Connection with the district



Figure 139. Event Room.

Workshop

Importance of hobbies



Figure 142. Workshop.

Attractive communal rooftop

The best place in the building is for the community



Figure 145. Attractive Communal Rooftop.

Shared library

More books to choose from, meeting spot, sustainability



Figure 147. Shared Library.

Rooftop garden

Views for all residents, meeting spot



Figure 151. Rooftop Garden.

Active underground

Thanks to the light coming from the courtyard there is more communal space



Figure 137. Active Underground.

Vegetable garden

A place for encounters, hobbies and sustainability



Figure 140. Vegetable Garden.

Bicycle storage + car pool

sustainability + Active design



Figure 143. Bicycle Storage.

Voids on the staircase

Visual connection between all floors, more possibilities of encounters

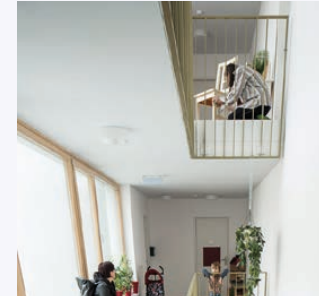


Figure 146. Voids on the Staircase.

Staircase filled with light

fights the monotonousness

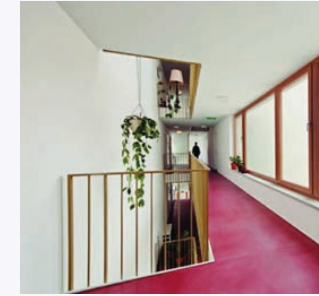


Figure 148. Staircase Filled with Light.

Free arrangement of balconies

individuality, spontaneous interactions



Figure 150. Free Arrangement of Balconies.

Small businesses

Sustainability, locality, encounter



Figure 138. Small Businesses.

Visual connection

Safe play environment, acoustic comfort



Figure 141. Visual Connection.

Communal Kitchen

meeting spot, parties, lunch time encounters



Figure 144. Communal Kitchen.

Free plan

Multiple possibilities of arranging the dwellings, future-proofing- possibility of change, individuality

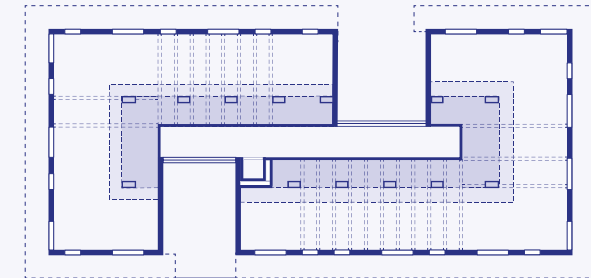


Figure 149. Free Plan.

Conclusion

This chapter examined how “Community-based design” works by analysing two case studies. Firstly, this study found that feeling like a part of a community is the most significant overlap of needs between people of all ages. Residents in both housing projects put a particular emphasis on communal functions in the housing block. They mentioned that providing a variety of collective functions for the residents to come together is one of the key aspects of their housing block design. Opportunities for social exchange were also implemented in the circulation spaces, for example, by visual connections between all floors, the attractive design of the staircase and the implementation of a sufficient amount of light. The research has also shown that combining multiple collective functions and placing them in a visible location right next to busy circulation spaces maximises their use. A good idea that makes the collective spaces more inter-generationally intelligent is placing functions that appeal to different age groups close by, thus creating functional synergies. The inter-generational aspect was important for all generations and was even inscribed in the Kalkbreite residents’ motto. Additionally, various apartment types and sizes should be provided as it allows for a healthy mix of people of all ages, financial possibilities and family sizes. Lastly, it is recommended to incorporate a free plan of the apartments as it offers multiple arrangement possibilities, strengthens individuality and future-proofs the space. In conclusion, both buildings’ design fosters planned and unplanned social interactions. Additionally, each analysed project creates links with the neighbourhood through its public and collective programme. Based on the opinions of the residents involved in the building processes, the design strengthens the community and provides meeting spots for its residents and passers-by. In addition, the design of half-private areas, such as the circulation space, fosters contact between neighbours. Lastly, the variety of apartment types and flexible living space design ensures a healthy mix of residents.

Discussion



Figure 152. Stanziola, edited by author, Jane Jacobs Holding a Petition.

This research explored how a housing block and neighbourhood design can help prevent the development of dementia.

The research included primary research on the target group's social needs and future-proof living space design in the first chapter and secondary research analysis of two case studies of community-based design projects in the second chapter. The results can ignite a discussion on the importance of preventative design in a housing block by stating current problems and research gaps and providing design guidelines. This paper has argued that the absence of inter-generational contact and a deficit of care-taking in communities leads to the societal exclusion of the elderly and increases the development of diseases such as Alzheimer's, dementia and depression. This thesis aimed to discover how to prevent the development of the diseases mentioned above by implementing design strategies.

In this thesis, the main research question to be addressed was what inclusive design strategy can encourage daily inter-generational contact, strengthen communities and prevent cognitive impairments?

1. What are the specific needs and wants of different generations in terms of neighbourhood and housing design, and how do they overlap?

This study has found that the needs and wants of different generations regarding neighbourhood and housing block design have multiple overlaps. Firstly, based on the case studies, it was established that people of different ages and incomes could unite and realise a housing project following shared values. One of the more significant findings from this study is that feeling like a part of a community is the most important overlap between all age groups.

The research has also shown that residents have specifically emphasised providing enough communal functions in their housing blocks. For example, in WohnProjekt Wien, the residents decided to allocate as much as 23% of the total floor area to communal spaces like the shared kitchen and playroom, the communal rooftop with a sauna and meditation space or the shared library. All the residents agree that the social aspect of the project and the opportunities for social exchange that both the circulation areas and the shared spaces provide make living in their housing block special. The research has also shown that the design of the circulation space with visual connections between all floors is particularly useful as one only has to step out of their apartment to bump into neighbours. The residents believe it is one of the best architectural solutions. The questionnaire among the elderly of The University of the Third Age has shown that the elderly find inter-generational contact valuable. This was also confirmed by the elderly living at WohnProjekt Wien, where the community's intergenerational aspect was why they joined the housing project. They described contact with younger

generations as purposeful and giving meaning to their life. For the residents of the Kalkbreite housing cooperative, the intergenerational aspect is even inscribed in the motto of the inhabitants to bring people of all ages, incomes, household constellations and nationalities together. The relevance of inter-generational contact is supported by the research of Simon Biggs and Ashley Carr, who emphasise the importance of functional synergies which make spaces inter-generationally intelligent.¹ Therefore, it is recommended to put functions that appeal to different age groups in one area, for example, a shared kitchen next to a playroom or a café next to a playground. Lastly, medical services such as pharmacies, local clinics and rehabilitation and physiotherapy centres are essential for all age groups and should be within walking distance of one's home.

2. How can the design of public and collective spaces in housing and the neighbourhood foster regular contact between generations?

3. How can architectural design provide stimuli to prevent cognitive impairments?

The third sub-question on how architectural design can provide stimuli to prevent cognitive impairments is strictly tied with the second sub-question on how the design of public and collective spaces in housing and the neighbourhood can foster regular contact between generations. Therefore, preventing the development of cognitive impairments directly corresponds with the design of communal areas that encourage social contact. The literature on 'Architecture for encounter' has identified two types of social interactions: passive and active. The research has shown that the design of a housing block which revolves around the community and incorporates a variety of meeting spots can help encourage daily contact between residents and thus strengthen the community. As demonstrated in the second chapter encouraging communal use by providing shared spaces in the housing block increases the possibility of encounters. Such areas could include a shared rooftop, communal garden, library, shared kitchen, playroom or workout room. The research in the first chapter has also shown that communal spaces where passions and hobbies can be embraced facilitate active encounters and encourage residents to develop deeper bonds over shared interests; therefore, providing areas like a communal vegetable garden or a workshop is advised. The research in the second chapter has also shown that the use of a meeting spot increases when it combines various functions in one place. It is thus an excellent idea to make use of the frequently used circulation space of the lobbies and combine it with functions such as a shared library, laundry room or shared kitchen. This study also

1. Simon Biggs and Ashley Carr, "Age- and Child-Friendly Cities and the Promise of Intergenerational Space," *Journal of Social Work Practice* 29, no. 1 (February 2015): pp. 99-112, <https://doi.org/10.1080/02650533.2014.993942>.

demonstrated a correlation between the visibility of the communal spaces and the use frequency.

When a communal area is visually connected with frequently used circulation space, the probability of interaction between residents increases. The findings of Jo Williams support the relevance of location, visibility and accessibility of communal areas. For example, in her article "Designing Neighbourhoods for Social Interaction: The Case of Cohousing", she points out that a central location of communal spaces and activity areas along commonly used routes maximises the possibility of social interactions.² Based on the analysed case studies, the visibility principle should also be applied to circulation spaces where visual connections between all floors can foster interactions between people living on different floors. For example, residents of the analysed case study- WohnProjekt Wien, have listed it among the best architectural solutions to enhance communal ties.

The study demonstrates a correlation between the above-mentioned findings and the literature on 'Architecture for encounter'. This research has identified that incorporating design strategies such as 'Architecture for encounter' can encourage daily intergenerational contact, strengthen communities and prevent the development of cognitive impairments. "Making Space for Collective Living an Urban Design Guide" by urban designers from Posad Maxwan, done in collaboration with the Municipality of Rotterdam, has identified some of the main principles of encouraging social contact in a housing block design. These principles include, for example, choosing the proper size of the community, designing spaces to meet in the semi-private and semi-public spaces, clustering collective functions around collective spaces and public functions around public areas and designing large circulation areas with visual connections between floors.³ Finally, this research has found that providing a variety of apartment types is an inclusive inter-generational strategy that allows people of different ages, financial possibilities and family sizes to find the best-suited living option, thus promoting a healthy mix of residents. Additionally, a free plan of the apartments offers multiple arrangement possibilities, strengthens individuality and future-proofs the space. This makes it possible to alter the apartment to the changing needs of an ageing person, thus promoting ageing in place.

The third sub-question on how architectural design can provide stimuli to prevent cognitive impairments is also related to encouraging physical activity among the residents and the concept of 'Active design' in the literature. The study demonstrates a correlation between fostering social contact and staying physically active. This research has identified that combining both factors can delay the illness by several years. The

2. Jo Williams, "Designing Neighbourhoods for Social Interaction: The Case of Cohousing," *Journal of Urban Design* 10, no. 2 (2005): pp. 195-227, <https://doi.org/10.1080/13574800500086998>, 195.

3. Laura Thomas et al., *Making Space for Collective Living an Urban Design Guide* (Den Haag: POSADMAXWAN, 2022).

questionnaire has found that the Elderly are very interested in staying physically active and often exercise in indoor and outdoor gyms, join sports classes or go to physiotherapy or rehabilitation. Therefore, providing communal spaces for different kinds of physical activity in the housing block is recommended. The “Active design in Buildings” by BETA Office states that visual connectivity of an activity space can encourage use by signalling its presence. They also suggest considering a variety of users and age groups, as inclusivity results in more usability.

Moreover, the research has also shown that a location next to an ample green space like a park is of great value to the Elderly and increases their desire to go for a walk. Providing enough seating areas and making the housing block’s surroundings pedestrian-friendly is also crucial. The questionnaire results indicate that providing everyday amenities nearby encourages walking among the Elderly. As illustrated by the case studies, commercial functions also ensure eyes on the street, increasing safety and walkability. Eckhard Feddersen and Insa Lüdtkke in “Lost in Space” clearly state that the concentration of functions enables the Elderly to continue living in their neighbourhoods for longer by establishing new connections, keeping their existing social network and being more self-dependent.⁴ The relevance of the compact size of the neighbourhood is also supported by the theory of the 5-minute walkable neighbourhoods by Carlos Moreno, where walkability plays a crucial role in encouraging physical activity amongst the residents.

The case studies have also shown that staircases filled with light encourage residents to choose stairs over lifts. Lastly, this study has also found that placing a generous size of bicycle storage encourages residents to cycle.

4. Eckhard Feddersen and Insa Lüdtkke, Lost in Space (Basel: Birkhäuser, 2014).

Conclusion



Figure 153. Stanziola, edited by author, Jane Jacobs Holding a Petition.

This research aimed to identify how to prevent the development of the diseases such as Alzheimer's and dementia by implementing design strategies.

In this thesis, the main research question to be addressed was *what inclusive design strategy can encourage daily inter-generational contact, strengthen communities and prevent cognitive impairments?*

The three sub-questions of this research were as follows:

1. What are the specific needs and wants of different generations in terms of neighbourhood and housing design, and how do they overlap?
2. How can the design of public and collective spaces in housing and the neighbourhood foster regular contact between generations?
3. How can architectural design provide stimuli to prevent cognitive impairments?

To answer the first sub-question, the specific needs of different generations have been researched, and their overlaps have been identified. It was concluded that feeling like a part of a community is the most crucial overlap between people of all ages. Therefore, it is recommended to design a housing block which revolves around the community by providing a variety of communal areas for the residents to come together.

Opportunities for social exchange should also be implemented in the circulation spaces by providing visual connections between all floors, paying particular attention to the attractive design of the staircase, and implementing enough light. It is also a good idea to introduce connective spots for the neighbourhood, such as a community centre, event spaces or workshop spaces, cafés, small businesses, bakeries or local grocery shops.

The second significant finding was that intergenerational contact was of utmost value to all generations. A particular emphasis on these interactions was put by the elderly, who described them as purposeful and meaningful. Therefore, it is necessary to include functional synergies in the design of a housing block. Combining functions which appeal to different age groups makes the space more inter-generationally intelligent. Ample green areas like parks were described as the most significant assets to inhabitants of all ages. Therefore, it is recommended to design with a close connection to nature and locate the housing block near a park or provide sufficient green areas. Lastly, access to medical services such as pharmacies, local clinics, and rehabilitation and physiotherapy centres is essential and should be provided within walking distance.

The second sub-question is directly tied to the third sub-question, as preventing the development of cognitive impairments is strictly connected with the design of communal areas that encourage social contact. The results indicate that encouraging

collective use by providing a variety of shared spaces, such as a shared rooftop, communal garden, library, shared kitchen, playroom or workout room, fosters social contact between residents. Additionally, providing spaces where passions and hobbies can be embraced is essential, thus facilitating active encounters between the residents. An excellent strategy to maximise the use of collective space is to combine multiple functions in one place. To ensure the highest probability of interaction, communal areas should be visible and placed next to busy circulation spaces. The visibility aspect should also be applied to circulation spaces where visual connections between floors increase the probability of spontaneous encounters between neighbours living on different floors.

This study has identified a correlation between staying socially and physically active and has found that the combination of fostering social contact and encouraging physical activity can delay the illness by several years. Therefore, it is recommended to provide collective spaces for different kinds of physical activities in the housing block and consider a variety of users. Visual connectivity of these spaces is essential to encourage use.

This study has identified that a location next to a park or a green area increases the elderly's desire to walk. It is also advised to make the surroundings of the housing block pedestrian friendly and provide everyday amenities nearby. The study demonstrates a direct correlation between the concentration of functions and the elderly continuing to live in their neighbourhood longer, thus keeping their social network and being more self-dependent.

Lastly, various apartment types should be provided as they promote a healthy mix of residents and, with a free plan, future-proof the space. It enables the elderly to age in place by making it possible to alter the apartment to the changing needs of an ageing person.

Conclusively, it is indeed possible to encourage daily inter-generational contact, strengthen communities and prevent cognitive impairments through a design of a housing block which revolves around the community; however, its design must address the aforementioned aspects.

While the ultimate goal of the design to be developed under this research is to prevent the development of cognitive impairments altogether, the researcher recognizes that in some cases, it can only be possible to delay the effects of dementia by several years. The proposed housing block, therefore, should also provide initial care and medical help. This can be done by including an elderly day-care for the early stages of dementia and dementia care for the later stages of dementia in the housing block; in this way, dementia patients can stay in their familiar environment for as long as possible.

The results of this research support the hypothesis that architecture that inspires physical movement and social interactions reduces the probability of developing cognitive impairments and depression.

So far, literature and architects have focused on minimising the effects of dementia, but there has not yet been any research on how architectural design can prevent the development of cognitive impairments. This paper addresses this research gap.

Bibliography

- Centers for Disease Control and Prevention. "About Dementia," April 5, 2019. Accessed March 23, 2023. <https://www.cdc.gov/aging/dementia/index.html#:~:text=Dementia%20is%20not%20a%20specific,a%20part%20of%20normal%20aging>.
- Abu-Ghazze, Tawfiq M. "Housing Layout, Social Interaction, and the Place of Contact in Abu-Nuseir, Jordan." *Journal of Environmental Psychology* 19, no. 1 (March 1, 1999): 14-73. <https://doi.org/10.1006/jevp.1998.0106>.
- Sport England. "Active Design." Accessed March 26, 2023. <https://www.sportengland.org/guidance-and-support/facilities-and-planning/design-and-cost-guidance/active-design>.
- Bayer, Katharina. "Wohnprojekt Wien: Potentials of Building and Living Together," November 22, 2016. Accessed April 19, 2023. https://www.youtube.com/watch?v=TeXIUaBiDZA∓ab_channel=ZadrugaZadrugator.
- Beatley, Timothy, and Kristy Manning. *The Ecology of Place: Planning for Environment, Economy, and Community*. Washington, DC: Island Press, 2013.
- Bont, Ad de, Anouk Distelbrink, and Wendy Van Kessel. *The Active City*. Amsterdam: Urhahn | design & strategy, 2017.
- Bouma, Jantine. "Supporting Social Contact Design Principles in Common Areas of Cohousing Communities." Academia.edu, May 28, 2010. Accessed January 14, 2023. https://www.academia.edu/4722409/Supporting_social_contact_design_principles_in_common_areas_of_cohousing_communities.
- Buffel, Tine, Sophie Handler, and Chris Phillipson. *Age-Friendly Cities and Communities: A Global Perspective*. Bristol: Policy Press, 2019.
- Carr, Ashley, and Simon Biggs. *Age- and Child-Friendly Cities and the Promise of Intergenerational Space*. *Journal of Social Work Practice*. Vol. 29. Taylor & Francis, 2015. <https://doi.org/10.1080/02650533.2014.993942>.
- Cattell, Vicky, Nick Dines, Wil Gesler, and Sarah Curtis. *Mingling, Observing, and Lingering: Everyday Public Spaces and Their Implications for Well-Being and Social Relations*. *Health & Place*. Vol. 14. Elsevier BV, 2008. <https://doi.org/10.1016/j.healthplace.2007.10.007>.
- Cheng, Irene. *Active Design Guidelines: Promoting Physical Activity and Health in Design*. New York, United States of America: City of New York, 2010.
- "Community Definition and Meaning | Collins English Dictionary." In *Collins Dictionaries*. Accessed March 23, 2023. <https://www.collinsdictionary.com/dictionary/english/community>.
- "Definition of Aging-in-Place | New Word Suggestion | Collins Dictionary." In *Collins Dictionaries*. Accessed April 19, 2023. <https://www.collinsdictionary.com/submission/401/Aging-in-place>.
- Fedderson, Eckhard, and Insa Lüdtker. *Lost in Space*. Basel: Birkhäuser, 2014.
- Felbinger, Doris, and Helga Jonuschat, eds. *Promoting Neighbourly Interactions by the Common Use of Green Spaces. Paper Presented at the ENHR Conference "Housing in an Expanding Europe: Theory, Policy, Participation and Implementation."* Ljubljana, Urban Planning Institute of the Republic of Slovenia, Slovenia, 2006.
- Fortuijn, Joos Droogleever, Marieke Van Der Meer, Vanessa Burholt, Dieter Ferring, Sabrina Quattrini, Ingalill Rahm Hallberg, Germain Weber, and G. Clare Wenger. "The Activity Patterns of Older Adults: A Cross-Sectional Study in Six European Countries." *Population Space and Place* 12, no. 5 (September 1, 2006): 353-69. <https://doi.org/10.1002/psp.422>.
- Handler, Sophie. *An Alternative Age-Friendly Handbook*. Manchester: University of Manchester, 2015.

- Hediger, Eva. "Wir sollten in Grandhotels leben." Hellozurich, 2011. Accessed April 21, 2023. <https://www.hellozurich.ch/de/aktuell/kalkbreite.html>.
- Alzheimer's Society. "How to Reduce Your Risk of Alzheimer's and Other Dementias," November 25, 2021. Accessed October 1, 2022. <https://www.alzheimers.org.uk/about-dementia/risk-factors-and-prevention/how-reduce-your-risk-alzheimers-and-other-dementias>.
- Institut für internationale Architektur-Dokumentation GmbH & Co. KG. "Process: Housing Project in Vienna." *DETAIL Zeitschrift Für Architektur*, September 2015.
- Institut für internationale Architektur-Dokumentation GmbH & Co. KG. "Process: Kalkbreite Housing and Commercial Development in Zurich." *DETAIL Zeitschrift Für Architektur*, September 2015.
- "Intergenerational Definition and Meaning | Collins English Dictionary." In *Collins Dictionaries*. Accessed April 19, 2023. <https://www.collinsdictionary.com/dictionary/english/intergenerational>.
- Jacobs, Jane. *The Death and Life of Great American Cities*. New York: Random House, 1691.
- McCamant, Kathryn, Charles Durrett, and Ellen Hertzman. *Cohousing: A Contemporary Approach to Housing Ourselves*. Berkeley, CA: Ten Speed Press, 1994.
- Moreno, Carlos S., Zaheer Allam, Didier Chabaud, Catherine Gall, and Florent Pratlong. "Introducing the '15-Minute City': Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities." *Smart Cities* 4, no. 1 (January 8, 2021): 93-111. <https://doi.org/10.3390/smartcities4010006>.
- Nhs. "Can Dementia Be Prevented?" nhs.uk, November 30, 2021. Accessed March 19, 2023. <https://www.nhs.uk/conditions/dementia/dementia-prevention/>.
- Oldenburg, Ray. *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community*. New York: Marlowe and Company, 1999.
- Palmer, Lesley. "Why Green Spaces, Walkable Neighbourhoods and Life-Enhancing Buildings Can All Help in the Fight against Dementia." *The Conversation*, September 25, 2020. Accessed April 19, 2023. <https://theconversation.com/why-green-spaces-walkable-neighbourhoods-and-life-enhancing-buildings-can-all-help-in-the-fight-against-dementia-146712>.
- Pinches, Ed. "Worldwide Dementia Cases to Triple by 2050." Alzheimer's Research UK, July 27, 2021. Accessed April 19, 2023. <https://www.alzheimersresearchuk.org/worldwide-dementia-cases-to-triple-by-2050/>.
- Podgórska, Joanna. "O Chorobie Alzheimer i Ucieczce Przed Neurodegeneracją (About Alzheimer's Disease and Escaping Neurodegeneration)," April 2022. <https://open.spotify.com/episode/11bKlceJDSB8dLO6gTLUuv>.
- Pozoukidou, Georgia, and Zoi Chatziyiannaki. "15-Minute City: Decomposing the New Urban Planning Eutopia." *Sustainability* 13, no. 2 (January 18, 2021): 928. <https://doi.org/10.3390/su13020928>.
- Richard, Lucie, Lise Gauvin, Céline Gosselin, and Sophie Laforest. "Staying Connected: Neighbourhood Correlates of Social Participation among Older Adults Living in an Urban Environment in Montreal, Quebec." *Health Promotion International* 24, no. 1 (December 20, 2008): 46-57. <https://doi.org/10.1093/heapro/dan039>.
- Rolandi, Elena, Daniele Zaccaria, Roberta Vaccaro, Simona Abbondanza, Laura Pettinato, Annalisa Davin, and Antonio Guaita. "Estimating the Potential for Dementia Prevention through Modifiable Risk Factors Elimination in the Real-World Setting: A Population-Based Study." *Alzheimer's Research & Therapy* 12, no. 1 (August 7, 2020). <https://doi.org/10.1186/s13195-020-00661-y>.
- Schindler, Susanne. "Genossenschaft Kalkbreite in Zürich." BAUWELT, 2014. Accessed January 3, 2023. <https://www.bauwelt.de/themen/bauten/kalkbreite-Mueller-Sigrist-Architekten-Zuerich-Genossenschaft-2172373.html>.

Schoepp, Chantal. "Architecture for Encounter - Building Social Ecology." Building Social Ecology - Socio-ecological Patterns for Community-oriented and Sustainable Housing Projects in Europe., August 19, 2022. Accessed April 19, 2023. <https://www.buildingsocialecology.org/patterns/architecture-for-encounter/>.

Stadt Zürich, and Marcel Bächtiger. "Wohn- Und Gewerbesiedlung Kalkbreite - Auszeichnung Für Gute Bauten Der Stadt Zürich 2011-2015," September 15, 2016. Accessed April 21, 2023. <https://www.youtube.com/watch?v=1oNrsdDmwrA>.

Thomas, Laura, Karlou Westerbeek, Gintare Norkunaite, Maria Kibera, Ruth Höppner, Maria Kluijtenaar, and Annette Bombeke. *Making Space for Collective Living an Urban Design Guide*. Den Haag: POSADMAXWAN, 2022.

Van Oppen, Auguste, Evert Klinkenberg, and Eldrich Piqué. *Active Design in Buildings BETA Office for Architecture and the City*. Amsterdam: Pantheon Drukkers, 2016.

"Wellbeing Definition and Meaning | Collins English Dictionary." In *Collins Dictionaries*. Accessed April 19, 2023. <https://www.collinsdictionary.com/dictionary/english/wellbeing>.

Williams, Joann. "Designing Neighbourhoods for Social Interaction: The Case of Cohousing." *Journal of Urban Design* 10, no. 2 (January 1, 2005): 195-227. <https://doi.org/10.1080/13574800500086998>.

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Figure 1. Potok, Iga. *Mental Map of the Neighbourhood*. 2022.

Figure 2. Potok, Iga. *Overlaps*. 2022.

Figure 3. Potok, Iga. *Personal Motivation*. 2022.

Figure 4. Potok, Iga. *My Grandma*. 2022.

Figure 5. Potok, Iga. *Personal Motivation*. 2022.

Figure 6. Potok, Iga. *Glossary*. 2022.

Figure 7. Stanziola, Phil. *Jane Jacobs Holding a Petition*. 1961. Edited by Iga Potok. *The Guardian*. <https://www.theguardian.com/artanddesign/2017/apr/30/citizen-jane-jacobs-the-woman-who-saved-manchattan-from-the-bulldozer-documentary>.

Figure 8. Van Oppen, Auguste, Evert Klinkenberg, and Eldrich Piqué Piqué. *Active Design Toolkit by BETA Office*. 2016. BETA. <https://beta-office.com/project/active-design-buildings/>.

Figure 9. Thomas, Laura, Karlou Westerbeek, Gintare Norkunaite, Maria Kibera, Ruth Höppner, Maria Kluijtenaar, and Annette Bombeke. *Examples of Design Solutions from "Making Space for Collective Living an Urban Design Guide"*. 2022. POSAD MAXWAN. <https://posadmaxwan.nl/en/news/122/making-space-for-collective-living-an-urban-design-guide>.

Figure 10. Potok, Iga. *Map of Overlaps*. 2022.

Figure 11. Potok, Iga, ed. *Work plan diagram*. 2022. By author, including adaptation of photos:

Stanziola, Phil. *Jane Jacobs Holding a Petition*. 1961. *The Guardian*. <https://www.theguardian.com/artanddesign/2017/apr/30/citizen-jane-jacobs-the-woman-who-saved-manchattan-from-the-bulldozer-documentary>.

Stedenbouwkundigen Jacoba Mulder En Cornelis van Eesteren. n.d. Photograph. Beeld Van Eesteren Museum. Amsterdam, Netherlands.

Hamer, Bent. *Kitchen Stories Movie Poster*. 2004. *IMDb*. <https://www.imdb.com/title/tt0323872/>.

Figure 12. Hamer, Bent. *Kitchen Stories Movie Poster*. 2004. Edited by Iga Potok. *IMDb*. <https://www.imdb.com/title/tt0323872/>.

Figure 13. Potok, Iga. *Meeting in a Cafe*. 2022.

Figure 14. Potok, Iga. *Axonometry of a flat*. 2022.

Figure 15. Potok, Iga. *Meeting with my Cousin's Grandma and her Friends*. 2022.

Figure 16. Potok, Iga. *My Grandma's Remarks*. 2022.

Figure 17. Potok, Iga. *A Day in a Life of my Grandma*. 2022.

Figure 18. Potok, Iga. *Annotated map of the Jezyce district*. 2022.

Figure 19. Potok, Iga. *Annotated map of my Grandma's district*. 2022.

Figure 20. Potok, Iga. *Meeting with the Elderly form The University of the Third Age*. 2022.

Figure 21. Potok, Iga. *Jezyce district*. 2022.

Figure 22. Potok, Iga. *Questionnaire findings*. 2022.

Figure 23. Potok, Iga. *Fieldwork Design Guidelines*. 2022.

Figure 24. *Stedenbouwkundigen Jacoba Mulder En Cornelis van Eesteren*. n.d. Edited by Iga Potok. Photograph. Beeld Van Eesteren Museum. Amsterdam, Netherlands.

- Figure 25. Nastsasi, Michaelle. *Kalkbreite - Exterior View from the South*. 2018. Edited by Iga Potok. *Michele Nastasi*. <https://www.michelenastasi.com/portfolio/kalkbreite-zurich/>.
- Figure 26. Potok, Iga. *Kalkbreite - Residents sketch*. 2022.
- Figure 27. Potok, Iga. *Kalkbreite - Residents sketch*. 2022.
- Figure 28. Grabmeier, Johanna. *Kalkbreite - Bird eye Axonometric view*. 2022. Edited by Iga Potok. *Stadt Von Unten*. <https://stadtvonunten.de/suk/pro/kalkbreite/>.
- Figure 29. Müller Sigrist Architekten. *Kalkbreite - Program*. 2017. Edited by Iga Potok. *issuu*. https://issuu.com/detail-magazine/docs/978-3-95553-359-5_bk-en-best-of-det.
- Figure 30. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Exterior View, Houdini Cinema*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 31. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Bird eye View from the South*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 32. Nastsasi, Michaelle. *Kalkbreite - Street View from the South*. 2018. *Michele Nastasi*. <https://www.michelenastasi.com/portfolio/kalkbreite-zurich/>.
- Figure 33. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Exterior View Next to the Railway Tracks*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 34. Grabmeier, Johanna. *Kalkbreite - Bird Eye Axonometric View (South)*. 2022. Edited by Iga Potok. *Stadt Von Unten*. <https://stadtvonunten.de/suk/pro/kalkbreite/>.
- Figure 35. Müller Sigrist Architekten. *Kalkbreite - Axonometric View (Rosengarten square)*. 2022. Edited by Iga Potok. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/en/kalkbreite/architecture-kalkbreite/siegerprojekt-arpa/#gallery-8>.
- Figure 36. *Kalkbreite - Tram Stop*. 2015. *zurichbytram*. <https://zurichbytram.ch/kalkbreite-bahnhof-wiedikon/>.
- Figure 37. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Rosengarten Square*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 38. Grabmeier, Johanna. *Kalkbreite - Bird Eye Axonometric View (Rosengarten)*. 2022. Edited by Iga Potok. *Stadt Von Unten*. <https://stadtvonunten.de/suk/pro/kalkbreite/>.
- Figure 39. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Main Exterior Staircase*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 40. Bachmann, Yves. *Kalkbreite - Flower Shop*. 2019. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/geschichten-aus-dem-haus-blumerei-kalkbreite/>.
- Figure 41. Müller Sigrist Architekten. *Kalkbreite - Axonometric View (North)*. 2022. Edited by Iga Potok. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/en/kalkbreite/architecture-kalkbreite/siegerprojekt-arpa/#gallery-8>.
- Figure 42. Stollenwerk, Martin. *Kalkbreite - Exterior View (Rosengarten square)*. 2017. *Architektur Steiermark*. <https://www.gat.st/news/kalkbreite-zuerich>.
- Figure 43. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Exterior View from the North*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 44. Grabmeier, Johanna. *Kalkbreite - Bird eye Axonometric View (Courtyard)*. 2022. Edited by Iga Potok. *Stadt Von Unten*. <https://stadtvonunten.de/suk/pro/kalkbreite/>.
- Figure 45. Schopp, Volker. *Kalkbreite - View of the Courtyard*. 2014. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/en/kalkbreite/shared-spaces/>.

- Figure 46. Diggelmann, Aline. *Kalkbreite - View of the Courtyard from the Rooftop*. 2019. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/perspektiven-des-wohnens/>.
- Figure 47. Müller Sigrist Architekten. *Kalkbreite - Circulation Axonometry*. 2014. *COOPERATIVE CONDITIONS*. Edited by Iga Potok. <https://www.cooperativeconditions.net/home/8-the-competition>.
- Figure 48. Müller Sigrist Architekten. *Kalkbreite - Plan of the Ground Floor*. 2017. *Architektur Steiermark*. <https://www.gat.st/en/news/kalkbreite-zuerich>.
- Figure 49. Frei, Jasmin. *Kalkbreite - Main Entrance Hall*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.
- Figure 50. Müller Sigrist Architekten. *Kalkbreite - Circulation Axonometry (ground floor)*. 2014. *COOPERATIVE CONDITIONS*. Edited by Iga Potok. <https://www.cooperativeconditions.net/home/8-the-competition>.
- Figure 51. Frei, Jasmin. *Kalkbreite - Entresol*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.
- Figure 52. Schopp, Volker. *Kalkbreite - Library*. 2014. *Building Social Ecology*. <https://www.buildingsocialecology.org/projects/kalkbreite-zurich/>.
- Figure 53. Müller Sigrist Architekten. *Kalkbreite - Circulation Axonometry (1st floor)*. 2014. *COOPERATIVE CONDITIONS*. Edited by Iga Potok. <https://www.cooperativeconditions.net/home/8-the-competition>.
- Figure 54. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Flex room - Meeting Room*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.
- Figure 55. Schopp, Volker. *Kalkbreite - Flex Room - Yoga*. 2014. *Bauwelt*. <https://www.bauwelt.de/themen/bauten/Kalkbreite-Mueller-Sigrist-Architekten-Zuerich-Genossenschaft-2172373.html>.
- Figure 56. Frei, Jasmin. *Kalkbreite - Cluster Living Room*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.
- Figure 57. Müller Sigrist Architekten. *Kalkbreite - Plan of the 3rd Floor*. 2017. *Architektur Steiermark*. <https://www.gat.st/en/news/kalkbreite-zuerich>.
- Figure 58. Frei, Jasmin. *Kalkbreite - Green Staircase*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.
- Figure 59. HinderSchlatterFeuz Grafik. *Kalkbreite - Blue Staircase*. 2014. *hinderschlatterfeuz*. https://www.hinderschlatterfeuz.ch/_signaletik/Kalkbreite/kalkbr1.html#bild.
- Figure 60. Gehl, Dominik. *Kalkbreite - Pink Staircase*. 2014. *Dominik Gehl*. <https://dominikgehl.com/zurich-kalkbreite>.
- Figure 61. Smídek, Petr. *Kalkbreite - Orange Staircase*. 2015. *Archiweb*. <https://www.archiweb.cz/en/b/polyfunkcni-objekt-kalkbreite-wohn-und-gewerbesiedlung-kalkbreite>.
- Figure 62. Gehl, Dominik. *Kalkbreite - Light-Well*. 2014. *Dominik Gehl*. <https://dominikgehl.com/zurich-kalkbreite>.
- Figure 63. HinderSchlatterFeuz Grafik. *Kalkbreite - Circulation Scheme*. 2014. *hinderschlatterfeuz*. https://www.hinderschlatterfeuz.ch/_signaletik/Kalkbreite/kalkbr1.html#bild.
- Figure 64. HinderSchlatterFeuz Grafik. *Kalkbreite - Post Boxes*. 2014. *hinderschlatterfeuz*. https://www.hinderschlatterfeuz.ch/_signaletik/Kalkbreite/kalkbr1.html#bild.
- Figure 65. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Cluster 2*. 2014. *Archdaily*. <https://www.kalkbreite.net/en/kalkbreite/shared-spaces/>.

archdaily.com/903384/kalkbreite-muller-sigrist-architekten.

Figure 66. Müller Sigrist Architekten. *Kalkbreite - Staircases Scheme*. 2014. *COOPERATIVE CONDITIONS*. Edited by Iga Potok. <https://www.cooperativeconditions.net/home/8-the-competition>.

Figure 67. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Corridor*. 2014. *Building Social Ecology*. <https://www.buildingsocialecology.org/patterns/rue-interieure/>

Figure 68. Stollenwerk, Martin. Egloff, Michael. *Kalkbreite - Light-Well Between 2 Flats*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.

Figure 69. Müller Sigrist Architekten. *Kalkbreite - Fragment of the Plan of the 4th Floor (Light-Well)*. 2017. *Architektur Steiermark*. <https://www.gat.st/en/news/kalkbreite-zuerich>.

Figure 70. Müller Sigrist Architekten. *Kalkbreite - Fragment of the Plan of the 4th Floor*. 2017. *Architektur Steiermark*. <https://www.gat.st/en/news/kalkbreite-zuerich>.

Figure 71. Frei, Jasmin. *Kalkbreite - Fred's Flat*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.

Figure 72. Frei, Jasmin. *Kalkbreite - Fred's Flat 2*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.

Figure 73. Frei, Jasmin. *Kalkbreite - Cluster Living Room*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.

Figure 74. Müller Sigrist Architekten. *Public Program*. Edited by Iga Potok. *issuu*. https://issuu.com/detail-magazine/docs/978-3-95553-359-5_bk-en-best-of-det.

Figure 75. Nastsasi, Michaëlle. *Commerce on the Ground Floor*. 2018. *Michele Nastasi*. <https://www.michelenastasi.com/portfolio/kalkbreite-zurich/>.

Figure 76. Figure 30. Stollenwerk, Martin. Egloff, Michael. *Eyes on the Street*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.

Figure 77. *Public plaza in the Busiest Area*. *zurichbytram*. <https://zurichbytram.ch/kalkbreite-bahnhof-wiedikon/>.

Figure 78. Stollenwerk, Martin. Egloff, Michael. *Greenery*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.

Figure 79. Stollenwerk, Martin. Egloff, Michael. *Main Staircase*. 2014. *Archdaily*. <https://www.archdaily.com/903384/kalkbreite-muller-sigrist-architekten>.

Figure 80. Bachmann, Yves. *Small Businesses on the Staircase*. 2019. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/geschichten-aus-dem-haus-blumerei-kalkbreite/>.

Figure 81. Schopp, Volker. *Courtyard as the Heart of the Project*. *Genossenschaft Kalkbreite*. <https://www.kalkbreite.net/en/kalkbreite/shared-spaces/>.

Figure 82. Frei, Jasmin. *Main Entrance Hall*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.

Figure 83. Schopp, Volker. *Shared Library*. 2014. *Building Social Ecology*. <https://www.buildingsocialecology.org/projects/kalkbreite-zurich/>.

Figure 84. Schopp, Volker. *Flex-Rooms*. 2014. *Bauwelt*. <https://www.bauwelt.de/themen/bauten/Kalkbreite-Mueller-Sigrist-Architekten-Zuerich-Genossenschaft-2172373.html>. Figure

85. Frei, Jasmin. *Cluster Living Rooms*. 2019. *hellozurich*. <https://www.hellozurich.ch/en/news/kalkbreite.html>.

Figure 86. Gehl, Dominik. *Colourful Staircases*. 2014. *Dominik Gehl*. <https://dominikgehl.com/zurich-kalkbreite>.

Figure 87. Gehl, Dominik. *Light-wells*. 2014. *Dominik Gehl*. <https://dominikgehl.com/zurich-kalkbreite>.

Figure 88. Müller Sigrist Architekten. *Interior Loop With Shared Spaces*. 2014. *COOPERATIVE CONDITIONS*. Edited by Iga Potok. <https://www.cooperativeconditions.net/home/8-the-competition>.

Figure 89. Müller Sigrist Architekten. *A Variety of Apartment Types*. 2017. *Architektur Steiermark*. <https://www.gat.st/en/news/kalkbreite-zuerich>.

Figure 90. HinderSchlatterFeuz Grafik. *Staircases Organise the Route Vertically*. 2014. *hinderschlatterfeuz*. https://www.hinderschlatterfeuz.ch/_signaletik/Kalkbreite/kalkbr1.html#bild.

Figure 91. Grabner, Martin. *WohnProjekt - Exterior view from the street*. Edited by Iga Potok. 2022. *wohnprojekt.wien*. <https://wohnprojekt.wien/projekt>.

Figure 92. Potok, Iga. *WohnProjekt - Residents sketch*. 2022.

Figure 93. Hurnaus, Hertha, Kurt Hoerbst, and Julia Liese. *WohnProjekt - Participatory Process*. 2015. Photograph. Edited by Iga Potok. *DETAIL 9/2015 - Konzept: Wohnen - Urban Und Gemischt*.

Figure 94. Hurnaus, Hertha, Kurt Hoerbst, and Julia Liese. *WohnProjekt - Residents*. 2015. Photograph. Edited by Iga Potok. *DETAIL 9/2015 - Konzept: Wohnen - Urban Und Gemischt*.

Figure 95. Potok, Iga. *WohnProjekt - Resident sketches*. 2022.

Figure 96. einszueins architektur. *WohnProjekt - Axonometric view*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 97. Hurnaus, Hertha. *Children playing in the courtyard*. 2016. *einszueins*. <https://www.einszueins.at/project/wohnprojekt-wien/>

Figure 98. Hoerbst, Kurt. *Residents in the courtyard*. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 99. Hacker, Alissa. *Workshop*. 2022. *1000things*. <https://www.1000things.at/blog/wohnprojekt-wien-alternatives-wohnen/>.

Figure 100. Hoerbst, Kurt. *Courtyard view*. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 101. Hoerbst, Kurt. *Light-well*. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 102. Hoerbst, Kurt. *Courtyard*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 103. Hurnaus, Hertha. *Multi-purpose room*. 2016. *simonprize*. <https://www.simonprize.org/co-housing-wohnprojekt-wien/sheet/>.

Figure 104. einszueins architektur. *WohnProjekt - Axonometric view (Underground)*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 105. einszueins architektur. *WohnProjekt - Plan of the underground*. 2017. *Premio di Architettura Baffa Rivolta*. http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/O6_wohnprojekt-wien-einszueins-architektur-bayer-und-zilker-gmbh/.

Figure 106. Hurnaus, Hertha. *Communal kitchen*. 2016. *EUMiesAward*. <https://miesarch.com/work/1640>.

Figure 107. Hoerbst, Kurt. *Bicycle parking*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com>.

com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/.

Figure 108. Hoerbst, Kurt. *Vegetable garden*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 109. Hoerbst, Kurt. *Shared kitchen*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 110. Mestrovic, Marko. *Cafe*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 111. Hoerbst, Kurt. *Kids play-room*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 112. einszueins architektur. *WohnProjekt - Axonometric view (Ground floor)*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 113. einszueins architektur. einszueins architektur. *WohnProjekt - Plan of the ground floor*. 2017. *Premio di Architettura Baffa Rivolta*. http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/06_wohnprojekt-wien-einszueins-architektur-bayer-und-zilker-gmbh/.

Figure 114. Pollach, Andrea. *Residents in the shared library*. 2017. *madamewien*. <https://www.madamewien.at/sieben-stock-dorf/>.

Figure 115. Mestrovic, Marko. *Residents on the roof top*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 116. Hoerbst, Kurt. *Yoga and meditation*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 117. Hurnaus, Hertha. *Sauna*. 2016. *EUMiesAward*. <https://miesarch.com/work/1640>.

Figure 118. Mestrovic, Marko. *Library*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 119. einszueins architektur. *WohnProjekt - Axonometric view*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 120. einszueins architektur. einszueins architektur. *WohnProjekt - Rooftop plan*. 2017. *Premio di Architettura Baffa Rivolta*. http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/06_wohnprojekt-wien-einszueins-architektur-bayer-und-zilker-gmbh/.

Figure 121. Hoerbst, Kurt. *Staircase - voids*. 2016. *simonprize*. <https://www.simonprize.org/co-housing-wohnprojekt-wien/sheet/>.

Figure 122. Hurnaus, Hertha, Kurt Hoerbst, and Julia Liese. *Staircase*. 2015. Photograph. *DETAIL 9/2015 - Konzept: Wohnen - Urban Und Gemischt*.

Figure 123. einszueins architektur. *WohnProjekt - Cross-section*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 124. einszueins architektur. *WohnProjekt - 2nd floor fragment*. 2017. *Premio di Architettura Baffa Rivolta*. http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/06_wohnprojekt-wien-einszueins-architektur-bayer-und-zilker-gmbh/.

Figure 125. einszueins architektur. *WohnProjekt - 1st floor fragment*. 2017. *Premio di Architettura Baffa Rivolta*. http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/06_wohnprojekt-wien-einszueins-architektur-bayer-und-zilker-gmbh/. einszueins architektur.

Figure 126. einszueins architektur. *WohnProjekt - Ground floor fragment*. 2017. *Premio di Architettura*

Baffa Rivolta. http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/06_wohnprojekt-wien-einszueins-architektur-bayer-und-zilker-gmbh/. einszueins architektur.

Figure 127. einszueins architektur. *WohnProjekt - Axonometric view*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 128. Hoerbst, Kurt. *View from the window*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 129. Hoerbst, Kurt. *Interior of a flat*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 130. einszueins architektur. *Flexible floor plan axonometry*. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>.

Figure 131. einszueins architektur. *Flexible floor plan scheme*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>. Potok.

Figure 132. Mestrovic, Marko. *Residents on the balconies*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 133. RCKA. *Balconies*. 2017. *RCKA*. <https://rcka.co.uk/article/office-trip-to-vienna/>.

Figure 134. einszueins architektur. *WohnProjekt - Axonometric view (balconies)*. 2022. Edited by Iga Potok. *Archello*. <https://archello.com/project/wohnprojekt-wien>. Potok.

Figure 135. einszueins architektur. *Flexible floor plan scheme (balconies)*. 2022. Edited by Iga Potok. *einszueins*. <https://www.einszueins.at/project/wohnprojekt-wien/>.

Figure 136. Hurnaus, Hertha. *Light-wells*. 2016. *simonprize*. <https://www.simonprize.org/co-housing-wohnprojekt-wien/sheet/>.

Figure 137. Hoerbst, Kurt. *Active Underground*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 138. Mestrovic, Marko. *Small Businesses*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 139. Hoerbst, Kurt. *Event Room*. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 140. Hoerbst, Kurt. *Vegetable garden*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 141. Hoerbst, Kurt. *Visual Connection*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 142. Hacker, Alissa. *Workshop*. 2022. *1000things*. <https://www.1000things.at/blog/wohnprojekt-wien-alternatives-wohnen/>.

Figure 143. Hoerbst, Kurt. *Bicycle Storage*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 144. Hurnaus, Hertha. *Communal kitchen*. 2016. *EUMiesAward*. <https://miesarch.com/work/1640>.

Figure 145. Hoerbst, Kurt. *Attractive Communal Rooftop*. 2014. *Kurt Hoerbst Photography*. <https://architektur.hoerbst.com/projekt/wohnprojekt-krakauerstrasse-einszueins-architektur/>.

Figure 146. Hurnaus, Hertha. *voids on the Staircase*. 2016. *simonprize*. <https://www.simonprize.org/co-housing-wohnprojekt-wien/sheet/>.

Figure 147. Pollach, Andrea. *Shared Library*. 2017. *madamewien*. <https://www.madamewien.at/siebenstock-dorf/>.

Figure 148. Hurnaas, Hertha, Kurt Hoerbst, and Julia Liese. *Staircase Filled with Light*. 2015. Photograph. *DETAIL 9/2015 - Konzept: Wohnen - Urban Und Gemischt*.

Figure 149. einszueins architektur. *Free Plan*. Edited by Iga Potok. *einszueins*. <https://www.einszueins.at/project/wohnprojekt-wien/>.

Figure 150. Mestrovic, Marko. *Free Arrangement of Balconies*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 151. Mestrovic, Marko. *Rooftop Garden*. 2019. *Werde*. <https://werde-magazin.de/blog/2020/03/12/zu-hause-im-wohnprojekt/>.

Figure 152. Stanziola, Phil. *Jane Jacobs Holding a Petition*. 1961. Edited by Iga Potok. *The Guardian*. <https://www.theguardian.com/artanddesign/2017/apr/30/citizen-jane-jacobs-the-woman-who-saved-manhattan-from-the-bulldozer-documentary>.

Figure 153. Stanziola, Phil. *Jane Jacobs Holding a Petition*. 1961. Edited by Iga Potok. *The Guardian*. <https://www.theguardian.com/artanddesign/2017/apr/30/citizen-jane-jacobs-the-woman-who-saved-manhattan-from-the-bulldozer-documentary>.

