

1. P2 RESEARCH

1.1 METHODS USED FOR THE RESEARCH (and why)

Co-housing and nature-inclusive design have become popular topics in recent years, with several projects recently built incorporating these concepts. To compare literature with real-life experiences, I visited various co-housing projects where nature is integrated in different ways. By speaking with residents, I aimed to understand what works and what doesn't within this approach. In addition to interviews, I also distributed surveys to enhance the reliability of my research. This allowed me to gather not only the perspective of my direct contacts but also anonymous feedback from other residents. simultaneously, I researched the Tarwewijk to understand the current state of green spaces and potential improvements for biodiversity. Conversations with residents revealed their specific needs for green spaces.

1.2 EFFECTIVENES OF METHOD (and why)

visiting projects, conducting interviews and distributing surveys proved to be very successful. This approach provided me with valuable insights and confirmed certain findings from my research. Before starting my fieldwork, I had already conducted some preliminary desk research, allowing me to ask theory-based questions. However, in hindsight, it might have been more effective to complete my literature review fully before conducting fieldwork. While my findings were certainly useful, a more thorough theoretical foundation could have led to even more precise and targeted responses. By combining insights from co-housing projects and research on Tarwewijk, I aim to create a design that not only follows general strategies but also addresses the specific needs of Tarwewijk.

2. P2 FEEDBACK

2.1 FEEDBACK OF MENTORS ON P2 PRESENTATION

In my P2 presentation, I explained my research, outlined the guidelines, and presented my preliminary site design. I also shared the first draft of my floor plans. My mentors acknowledged the work I put into designing the green public spaces. However, they pointed out that, in contrast, the buildings themselves are currently just ordinary houses (row houses and apartments), and there is more potential to explore. They encouraged me to consider integrating greenery within the dwellings, as this is currently a missed opportunity and needs to be improved in the next phase. So, Birgit told me to: 'bring the greenery into the houses and be more radical!'. Additionally, Tarwewijk is a multicultural neighbourhood. The floor plans should reflect this diversity and appeal to different target groups, rather than following a standard Dutch layout.

2.2 INCORPORATION OF THE FEEDBACK INTO THE PROJECT

Initially, I wanted to design with a 'multicultural' approach in mind. However, considering the many different cultures in Tarwewijk, and not just a few prominent ones, the design should accommodate a variety of cultural needs so that almost every culture or target group can feel at home. In reference projects designed for different cultures, this has often been done by organizing a kind of workshop day with locals or future residents to discuss housing needs. However, I didn't feel this was the right method for my design.

Firstly, considering the time frame and my research and design goals, which focus on 'nature-inclusive design to improve well-being,' a workshop like this would fall outside the scope of my project. Additionally, designing with future and current residents is often a temporary solution. What about the future generations of residents? They might have

entirely different needs and preferences. Therefore, I shifted my focus toward flexible design. How can nature be integrated into a home, and is the house designed to offer residents several options? For example, flexibility in the location of the kitchen, bathroom, and the ability to separate functions both horizontally and vertically.

This led me to the following design question: 'How can a relatively small family home be designed to fit within the Tarwewijk context, be flexible, integrate nature, and maintain a clear connection to the outdoors?' (figure 1) With this question in mind, I developed the following concepts for the family home (figure 2).

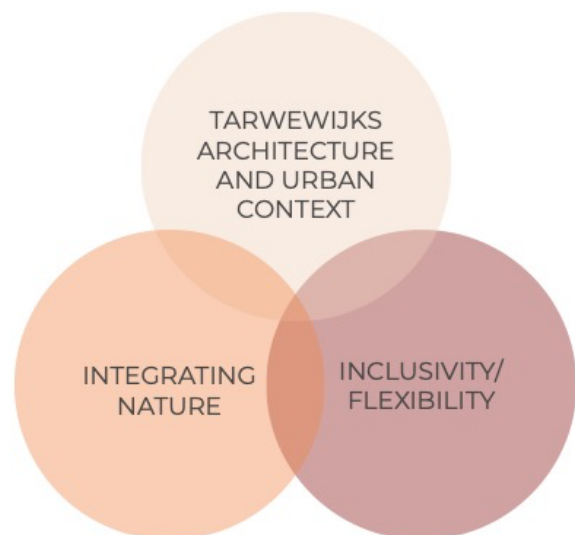


Figure 1

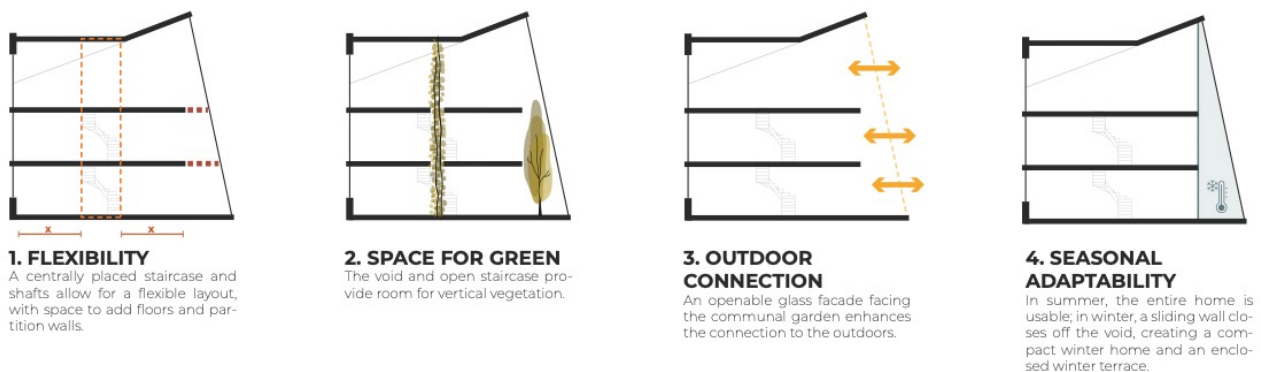


Figure 2

Since not all concepts for the family home apply to the apartments, I have set the requirement that the apartments must also be flexible in layout and have a connection to nature. Each apartment will have a view of the communal green space. To integrate nature, these apartments will be designed with a shared stairwell that can also serve as a small additional space, where greenery is incorporated (Figure 3).



Figure 3

2.3 PRELIMINARY RESULTS OF RESEARCH AND DESIGN (product, process, planning)

My research in P1 and P2 provided guidelines for designing an urban plan for Polslandstraat. These guidelines include improving biodiversity, creating a co-housing project, and connecting the interior with nature, each with its own set of sub-guidelines (Figure 4).

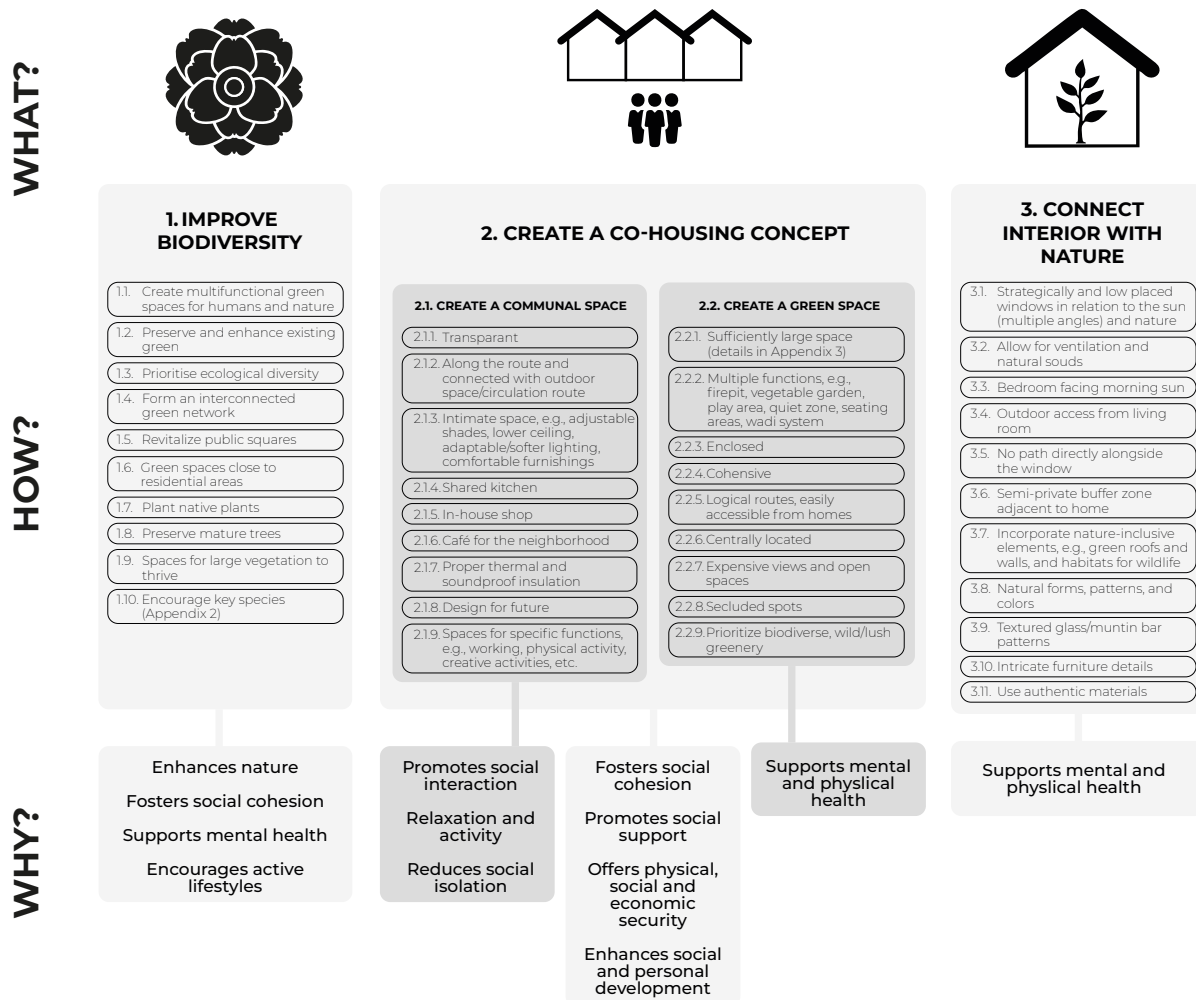


Figure 4

I worked on the co-housing part of my urban design plan. The overall urban plan was already well-structured before the P2, consisting of regular housing, apartments, and a co-housing project with a communal garden. For the following of my graduation, I developed the co-housing project further, as my research has provided specific guidelines for it. This project includes three rows of housing: two with portico stairwell apartments and one row of family homes with a communal space. I started with the family homes because those best represents my concept.

So far, I have developed the project at multiple scales: site plan (1:500), floor plans showing the entire co-housing project (1:300), urban section highlighting the communal garden (1:200), floor plan scenarios for both family homes and studios/apartments (1:200), elevations (1:200), a detailed floor plan of a family home (1:50), climate section of the family home including technical information (1:50), construction overview, fragment design (1:30) (including 2 elevations, 3 vertical sections 2 horizontal sections), and 16 detail drawings (1:5).

Building on the site design, I began by developing the various dwelling typologies, construction methods, and the climate concept, as these aspects are fundamental to the overall project vision. Therefore, construction and climate strategies were integrated early in the process. While working on these elements, the first four circular design principles shown in Figure 3 naturally emerged.



Once these elements were reasonably in place, I focused on the facades. The rear facade was clear from my concept (a completely transparent and openable facade), but the front facade was more challenging and took longer than expected. Initially, I struggled, but once the concept became clear, everything fell into place. The facade concept now balances a connection to the rear facade and my overall design vision while also responding to the neighbourhood in a sustainable and circular way. Simultaneously, I have been working on the fragment design, which has led to material choices and design solutions aligned with the last two circular design strategies (figure 2).

2.4 WHAT I LEARNED SO FAR

In addition to learning a lot about co-housing, flexible and nature-inclusive design, and biobased approaches, I have learned to think more outside the box. This remains challenging for me as I am very practical and often think about whether something is feasible and achievable. However, through all the feedback I've received over the past few weeks, I have noticed that it increasingly pushes me to think outside the box.

Figure 2

Additionally, I have realized that having a strong concept is key to successful design. I was able to develop this concept clearly in the environmental design, massing, sections, and floor plans, which made that part of the process flow quite smoothly. However, when I started designing my facades, I didn't have a strong concept yet, which caused me to get stuck. Once I had established clear concepts and themes for the facades, the design process improved significantly.

3. FINAL PHASE IMPLEMENTATION

3.1 P3 to P4

SITE DESIGN

During the session with the landscape architect, I aim to fine-tune my site design.

DETAILS

Additionally, I will continue developing my fragment, selecting and designing the details. These are not yet finalized, and there are several aspects that I want to focus on. Some of the things I'll address include the use of authentic materials and incorporating natural patterns and colours (also in the interior) I've also explored alternatives for the concrete ground floor, finding a biobased option, which I plan to incorporate into my details. I will also investigate how the floors and shafts can be made as accessible as possible to ensure the house is adaptable to future climate control system developments.

INTERIOR DESIGN

Based on the details, I could further develop the interior design, focusing on how the materials, integration of nature, greenery and the connection with outside will be reflected within the spaces.

SIDE FACADES

I have designed the front and rear facades of the co-housing project, but I have not yet addressed the side facades.

CAFÉ

Adjacent to the portico stairwell homes is a café, which will serve as the social hub of Polslandstraat. I have not yet developed this space, as there are no floor plans or facades yet, only a rough massing. A conversation with my tutors after the P3 led to the conclusion that focusing on the housing design should be the main priority, as finalizing some products to a higher level is better than starting to design something new.

3.2 P4 to P5

3D IMPRESSIONS

So far, I have worked on a drawing showing the interior of a family home, including climate aspects and technical information. However, this drawing does not yet reflect the materialisation of the interior. After my P4, I would like to create a 3D impression that includes materials and colour, possibly of both the interior and exterior. These drawings could also highlight the connection between the home and the outdoor spaces.

PHYSICAL MODEL

For the P5, we are also required to build a physical model. I don't have much experience with model-making yet, so I would like to discuss with my tutors which part of the project would be most interesting to develop as a physical model. I was thinking of representing the entire co-housing site, showing the different housing rows and the communal garden.

4. GENERAL REFLECTION QUESTIONS

1. *What is the relation between your graduation project topic, your master track (Ar, Ur, BT, LA, MBE), and your master programme (MSc AUBS)?*

My graduation topic (Enhancing Well-Being by Design: The Role of Co-Housing and Nature), closely aligns with the studio topic (Dwelling Graduation Studio: Designing for Health and Care in an Inclusive Environment). Both focus on creating environments that promote well-being, emphasizing co-housing and nature.

As a student in the Architecture master's program, I am in the process of gaining the knowledge and skills to explore how design can enhance quality of life. My project investigates the relationship between co-housing, natural elements, and well-being, which aligns with the studio's objectives of designing inclusive environments that support health and care.

2. *How did your research influence your design/recommendations and how did the design/recommendations influence your research?*

Integrating fieldwork with theory has led to recommendations on promoting biodiversity, designing a co-housing project, including shared and green spaces, and integrating nature into the home. By visiting various co-housing projects and speaking with residents, I gained valuable insights into how green spaces and shared facilities enhance quality of life. This experience showed me which design strategies work and which do not. Additionally, my research on biodiversity in Tarwewijk and conversations with residents provided specific insights into what is needed to improve biodiversity in the area and what residents would appreciate. These studies resulted in the three main guidelines, which, along with the sub-guidelines, I have already applied almost entirely. In that sense, my guidelines have had a significant influence on my design.

As previously mentioned, after the P2, I also explored literature and references on multicultural design during my process. This led me to prioritize flexibility and adaptability in my approach. I also deepened my understanding of biobased design, ecological strategies, and circular climate-responsive design. Over the past few weeks, I have focused on identifying relevant circular design principles for my project. Additionally, one of the projects I had already visited served as a strong reference for climate-responsive design, prompting me to conduct a more detailed study of this project.

Beyond climate considerations, I also delved into material choices. For example, I did some research on selecting a durable, weather-resistant type of wood. For example, I focused on thermally modified wood sourced from European production forests rather than imported materials requiring long-distance shipping.

My ambition to design a rear facade entirely made of glass with a wooden structure led me to explore various window systems and reference projects with similar facades. Existing window systems did not align with the concept I envisioned. After carefully studying several facades using similar structural principles, I decided to design a custom rear facade system myself rather than selecting an existing one.

Additionally, while designing the fragment and its detail drawings, I focused on biobased construction and researched material options as well as dry building systems and materials. My decision to use bricks for the facade also led me to explore companies that sell reclaimed bricks.

3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?

The reason I chose to conduct fieldwork on projects based on nature and co-housing, grounded in existing literature, is to bridge theory with real-world application. Previous research has highlighted the role of nature and co-housing in enhancing well-being, but I believe it's crucial to build upon this by examining residents' experiences in relevant projects. This approach allows me to identify what works and what doesn't, providing insights that inform not only my own work but also contribute to the broader field of design. By grounding my methodology in both theoretical frameworks and practical fieldwork, I aim to create design principles that are both evidence-based and directly relevant to current challenges in architecture. This methodology offers valuable insights into improving well-being through design, while also ensuring the practical feasibility and adaptability of the concepts.

In addition to visiting relevant projects, I also conducted research on the Tarwewijk to better understand the state of green spaces and how biodiversity could be improved in the area. Conversations with residents further supported this research by revealing their specific needs in relation to this topic. Combining my research on the Tarwewijk and co-housing projects will help create a well-thought-out design that fits the needs of the Tarwewijk community.

4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

My graduation project addresses the growing concern of well-being, particularly in mental, physical, and social aspects, as many people struggle with these issues today. As (future) architects, it is essential that we explore how our designs can contribute to improving these aspects of life.

We currently live in a society where rapid changes are taking place, not only in terms of climate change and how we address it as a society, but also in how we manage this within the built environment, extending even to the buildings we design and the people living in them. Therefore, I believe it is crucial to design buildings that are adaptable to future developments related to these changes. Additionally, I believe designing flexible and adaptable spaces for different scenarios and people with varying needs, both now and in the future, should not be considered a luxury but a standard. People relocate frequently throughout their lives, and living in a home that suits your needs is essential for overall well-being.

Beyond flexibility, integrating nature and establishing a connection to the outdoors has been proven to positively impact human well-being. I believe that designing for qualitative spatial experiences, such as incorporating nature and natural light, is more important than simply maximizing square meters. In the future, due to our environmental impact and housing shortages, I foresee a shift toward smaller living spaces, shared resources, and less personal ownership. My challenge was to design shared facilities and compact homes that still offer high quality and meet the needs of residents.

This approach, which balances human well-being with environmental considerations, is both academically valuable and socially relevant, contributing to a sustainable future.

5. *How do you assess the value of the transferability of your project results?*

My research and design serve as an example, aiming to connect people with nature and with each other within the Tarwewijk context. However, the main principles, including (sub)guidelines on co-housing and nature-inclusive design to enhance well-being, are relevant and applicable to various urban contexts.

The list of (sub)guidelines I have developed for biodiversity, shared and green spaces, and the integration of nature into housing can be adapted to other projects facing similar challenges. My research combines theoretical insights with practical experiences from existing co-housing projects, providing a well-founded basis that remains valuable beyond the context of Tarwewijk. Moreover, flexibility is one of the key aspects of my design. By making homes and shared spaces adaptable to different needs and cultures, the design remains relevant for future residents. This enhances the applicability of my design principles in other neighbourhoods and cities. Finally, my research contributes to broader academic and societal discussions on how architecture can promote well-being. The lessons drawn from my research and design can serve as inspiration for future projects and policies aimed at sustainable and inclusive living environments.

5. TWO SELF-DEVELOPED REFLECTION QUESTIONS

1. *Which guidelines from the co-housing project visits had the greatest impact on my design process?*

Visiting the projects gave me insight into what does and doesn't work, particularly in the layout of communal spaces and gardens. I found that a shared space divided into different functional zones with corresponding amenities is more effective than a single multifunctional space. Moreover, residents' experiences showed that such functional layouts not only optimize the use of space but also encourage specific activities. For this reason, I incorporated this principle into my design.

In addition to the layout, location also plays a crucial role. Communal spaces situated along a main route, centrally positioned, or directly connected to outdoor areas tend to be used more frequently, as their visibility and accessibility are improved.

I also learned that private balconies do not encourage the use of communal spaces and, consequently, social interaction. This insight led me to exclude private outdoor areas in my design unless they are directly adjacent to the shared garden.

Another key observation was that a communal garden is more effective in fostering interaction and a sense of unity when it is designed as a central and cohesive space, with homes overlooking it. If the garden is divided into separate, disconnected sections, clusters of residents may form, which can reduce overall cohesion. Additionally, having a logical routing through this space is essential to enhance accessibility and usability. The different functions assigned to the garden also played a significant role in shaping my design.

These insights were important from an early stage and had a major influence on the structure of my urban plan. Ultimately, all these aspects together led to a logical spatial organization of the project area, forming the foundation for the further development of my design.

2. *What has been the biggest challenge in my design process so far, what caused it and how could I prevent something like this in the future?*

Without a doubt, the most challenging part was designing my facades. I struggled with this for several weeks because I wasn't sure what I wanted, which led to continuous dissatisfaction with my designs. Later, I realized that this was because it was the only part of my entire design for which I didn't have specific guidelines or a clear vision. The only requirement I had set was that the facade should fit within its surroundings. However, this wasn't a solid guideline either, as many buildings in the area might be demolished in the near future. That meant I could only align my design with what is currently being developed.

Realizing this made me understand that I first needed a clear concept before continuing to design randomly, only to end up dissatisfied. I've noticed that my satisfaction with a design comes from making well-thought-out, logical, and substantiated choices rather than just creating a facade that looks aesthetically pleasing. This insight will also be valuable for my future projects, I now see that I need to define my vision and concept clearly from the start, not just for the surroundings, massing, and floor plans, but also for the appearance of the facade.