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Tijmen Kuyper

How can architectural design facilitate community engagement?

Amidst growing bottom-up and top-down interest in cohousing, this study highlights that it is not simply shared spaces but an engaged community that is the source of cohousing benefits such as informal care, mental health and sustainability. While much attention has been paid to the political, financial and organisational factors involved in making cohousing a reality, this publication addresses the gap in attention to architecture.

Through literature reviews, participatory design, and site visits across the Netherlands, Belgium, and the UK, a "pattern language" of base principles and design solutions has been developed. These principles and patterns transcend specific contexts and architectural typologies, making them widely applicable. The report also links design the patterns to aspects like financial, legal and social considerations in the Dutch cohousing context.

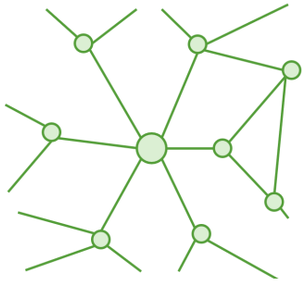
This report is written for people who want to analyse an existing project, people who want to develop new cohousing projects and architects.

Architecture that facilitates community engagement in

7 base principles

40 design patterns

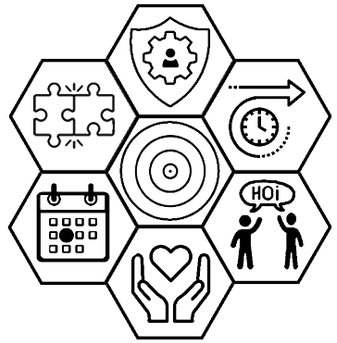
8 steps to implement



ARCHITECTURE FOR COMMUNITY

ARCHITECTURE FOR COMMUNITY

a cohousing pattern language



Best practice design insights for the many forms of collective housing

TUDelft

Tijmen Kuyper

TUDelft

Architecture for community

A cohousing pattern language

Tijmen Kuyper

Author: Tijmen Kuyper

Januari – 2025

Research mentor: Prof.dr.ir. Machiel J. van Dorst

A pattern language is never finished. Any feedback and suggestions are very welcome via info@CoWonen.com

A website version of the pattern language will be made available soon. The link will be on: www.CoWonen.com

“A house that is fine for most,
is interesting for no one”

- Roel van de Pas

Table of contents

Summary

This research report comes from a deep interest in understanding why some buildings foster vibrant communities, while others do not. Now that interest in cohousing is rapidly growing, both from grassroots movements and top-down initiatives, grasping the factors that explain why communities thrive has become increasingly significant. Cohousing may have many advantages from mental health, and informal care to enviromental benefits. Yet it is not simply shared spaces that create these advantages. It is the community itself. The goal therefore is to realize cohousing in such a way that it facilitates community engagement.

In The Netherlands much attention goes to the financial, legal, social, and organizational aspects of cohousing. This report addresses the often-overlooked gap, in practice and in research, of the architectural design dimension. The goal of this report is to bundle insights on ***how to design cohousing so that it facilitates community engagement.*** To address this question, a pattern language was developed with the intention of aiding both resident-led initiatives and architects. A pattern language is a network of interrelated design solutions to common problems.

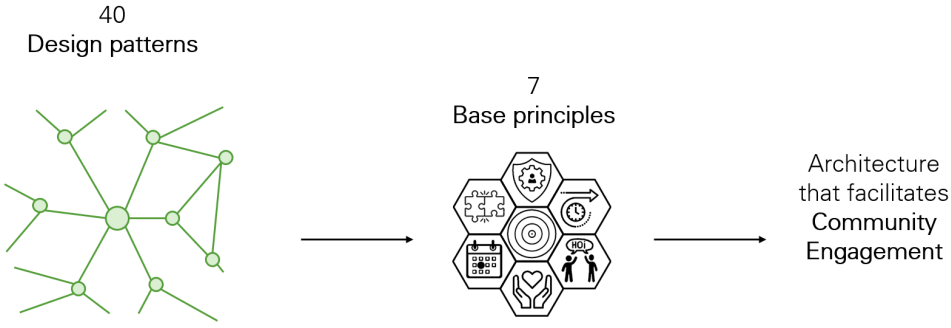
In Part 1 of this report the problem statements and research gaps are introduced. Then, Part 2 of the report details the research methodology, which involves a combination of approaches, including a literature review, participatory design processes, and visits to cohousing communities in the Netherlands, Belgium, and the UK. Over the course of a year, during an iterative process of pattern gathering, writing and testing, the pattern language was created and refined. The result is presented across Part 3, 4 and 5.

Part 3 introduces seven fundamental principles that outline how design can facilitate community engagement. At the core is the principle of **Socio-Spatial Scales**. Communities exist across a spectrum of scales, ranging from intimate to public. The other principles function differently along this spectrum. **Privacy** is the ability to manage access to the self or one's group, offering control to engage or retreat as desired. **Sense of Ownership** is the feeling of control over a space, group, or process. If you feel that you don't have a say over something, you are not likely to engage. **Social Spatial Click** emphasizes that spatial design should align with the residents, their shared vision and the spatial design. Social interaction is divided into two categories: **Spontaneous Interaction** and **Planned Interaction**, each requiring distinct design considerations to facilitate engagement. **Social Continuity** highlights the importance of adaptability in a building's design, enabling it to accommodate changes in household sizes and lifestyles so that residents can stay in their community over time to maintain relationships.

Part 4 outlines 40 design patterns that address common problems with their solutions in cohousing. These patterns describe, among other things, how communities can create social-spatial **layers** in their cohousing with effective **transition zones** in between to balance privacy, ownership, and spontaneous interaction. Several patterns focus on the design of **circulation** which plays a crucial role in cohousing design. Other patterns examine how **specific qualities** of spaces can encourage engagement, discourage use, or even lead to conflicts. Finally, some patterns discuss how the cohousing building can adapt to **changing spatial demands**.

Part 5 ties the patterns and principles together within the Dutch context of a resident-led cohousing development. In 8 chapters the principles and patterns are linked to other relevant aspects like financial, social and organizational. Although written for the Dutch context, it may provide valuable insights for other countries as well. The 8 steps are labelled as "rooms," which serve as metaphors for different iterative phases of the design and development process.

There is no universal or simple formula for designing cohousing so that it facilitates community engagement. Each community, location, and project are unique and require specific and co-designed solutions. This report may help that process as it has identified abstract principles and concrete patterns that provide valuable guidance for designing spaces that support thriving, engaged communities. These are applicable to a wide range of cohousing lifestyle visions, architectural typologies and contexts. Ultimately, it is up to architects and residents to creatively integrate constraints, principles, context, and patterns to co-create cohousing architecture that facilitates their engaged community.



Samenvatting

Dit onderzoeksrapport is het resultaat van een passievolle zoektocht naar inzichten over waarom sommige gebouwen bruisende gemeenschappen hebben, en sommige niet. Belangstelling voor collectieve woonvormen groeit snel, zowel vanuit burgerinitiatieven als top-down vanuit overheden en organisaties. Cohousing kan dan ook veel voordelen hebben, van geestelijke gezondheid tot milieuwinst. Toch zijn het niet de gedeelde ruimtes die deze voordelen creëren. Het is de gemeenschap zelf. Het doel is dan ook om cohousing zo te realiseren dat het gemeenschapsbetrokkenheid faciliteert.

In Nederland gaat nu veel aandacht uit naar o.a. de financiële, juridische, sociale en organisatorische aspecten van cohousing. Dit rapport behandelt echter een vaak over het hoofd gezien aspect: het architectonisch ontwerp. Dit rapport bundelt ontwerpinzichten over **hoe cohousing ontworpen kan worden zo dat het gemeenschapsbetrokkenheid faciliteert**. Om deze vraag te beantwoorden, is een patronentaal (*pattern language)* ontwikkeld die zowel architecten als bewonersinitiatieven inzicht geeft. Een patronentaal is een netwerk van onderling gerelateerde ontwerpoplossingen.

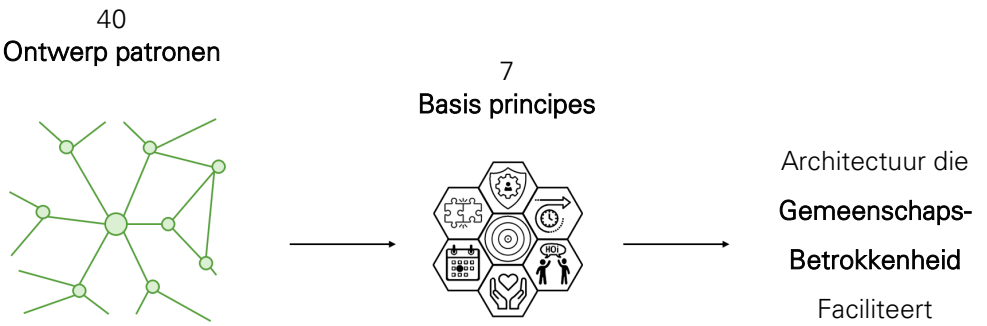
Deel 1 introduceert de probleemstellingen en welke gaten in onderzoek en de praktijk dit rapport adresseert. Deel 2 beschrijft de gebruikte onderzoeksmethodologie, waaronder een literatuurstudie, participatieve ontwerpprocessen en projectbezoeken voor observaties en interviews bij cohousing gemeenschappen in Nederland, België en het Verenigd Koninkrijk. Gedurende een jaar werd in een iteratief proces van patronen verzamelen, schrijven en testen de patronentaal ontwikkeld en verfijnd. De resultaten worden beschreven in deel 3, 4 en 5.

Deel 3 introduceert zeven fundamentele principes die beschrijven hoe architectonisch ontwerp gemeenschapsvorming kan ondersteunen. Centraal staat het principe van **Sociaal-Ruimtelijke Schaalniveaus**, dat benadrukt dat gemeenschappen bestaan op een spectrum van schalen, van intiem tot publiek. De andere principes functioneren langs dit spectrum. **Privacy** is de controle over toegang tot iemand of iemands groep. Dit is zowel de controle om voor minder of juist voor meer sociale interactie te kiezen. **Gevoel van Eigenaarschap** is het gevoel dat een ruimte, groep of proces, deels van jou is en je daar dan ook controle over hebt. **Sociaal-Ruimtelijke Klik** benadrukt het belang dat bewoners, de samenwoonvisie en het ontwerp allemaal bij elkaar passen en blijven passen. Ontmoeten is onderverdeeld in **Spontane Ontmoeting** en **Geplande Ontmoeting**, die beide andere voordelen hebben en vooral ook andere ontwerpoplossingen nodig hebben. **Sociale Continuïteit** is of mensen in de gemeenschap kunnen blijven wonen zodat opgebouwde relaties kunnen blijven bestaan.

Deel 4 biedt 40 ontwerppatronen die oplossingen aandragen voor veelvoorkomende uitdagingen in cohousing en bijdragen aan de basisprincipes. Deze patronen beschrijven onder meer hoe gemeenschappen sociaal-ruimtelijke **lagen** kunnen creëren met effectieve **overgangszones** om privacy, eigenaarschap en spontane interactie in balans te houden. Daarnaast wordt aandacht besteed aan de rol van **routing**, de specifieke **kwaliteiten** van ruimtes die betrokkenheid kunnen stimuleren of belemmeren, en de **flexibiliteit** van ontwerpen om in te spelen op veranderende ruimtelijke behoeften.

Deel 5 verbindt de patronen en principes met de Nederlandse context van cohousing die ontwikkeld wordt door een bewonersinitiatief. In 8 hoofdstukken worden de principes en patronen gekoppeld aan andere relevante aspecten zoals financiën, besluitvorming en organisatie. Hoewel geschreven voor de Nederlandse context, kan het ook voor andere landen waardevolle informatie opleveren. De 8 hoofdstukken zijn acht "kamers" als metafoor voor de fasen van een ontwikkelproces die vaak weer her bezocht moeten worden.

Er bestaat geen universele formule om cohousing te ontwerpen die gemeenschapsvorming garandeert. Elke gemeenschap, locatie en elk project is uniek en vereist een op maat gemaakt co-creatie ontwerpproces met een unieke uitkomst. Dit rapport kan dat proces ondersteunen met de abstracte principes en concrete patronen die waardevolle handvatten bieden voor een ontwerp dat betrokken gemeenschappen faciliteert. Uiteindelijk ligt het in de handen van architecten en bewoners zelf om op creatieve wijze beperkingen, principes, context en patronen te integreren tot cohousing architectuur die hun betrokken gemeenschap faciliteert.



PART 1.
INTRODUCTION

VEEL BEHOEFTE AAN COLLECTIEVE WOONCONCEPTEN

Vastgoedjournaal – mei 2024

Deze woonvorm voor ouderen is immens populair: 44.000 mensen staan op de wachtlijst

De Gelderlander – over Knarrenhofjes - 04-02-2024

Het wegnemen van juridische en financiële belemmeringen voor een nieuwe derde sector: coöperatief wonen.

Hoofdlijnenakkoord PVV, NSC, VVD & BBB - 2024

en gemengde

ncept voor ouderen
rug

80.0000 Geclusterde woonvormen zoals hofjes ter bevordering van het sociaal contact

Programma Wonen en Zorg voor Ouderen - 2022

Een soort studentenhuis voor ouderen: woongemeenschap ongekend populair. 'Dit houdt je gezond'

Noordhollands Dagblad - 2024

A new wave of Collaborative Living

Since the dawn of humanity, people have been living collectively (Maher & Conkey, 2019; Kleuver, 2024). Throughout history cultures across the world are constantly recalibrating on the spectrum between more private and more collective ways of dwelling (Schmid, 2019). In Europe, the interest in various forms of collective housing is currently rising again (Lengkeek & Kuenzli, 2022).

Across the continent a range of diverse bottom-up movements are seeking ways to realise their collective housing ambitions (Czischke et al., 2023). At the same time, governments and developers are increasingly interested in top-down developments of collective housing variants (Fromm & Jong, 2020; White & Madden, 2024).

In The Netherlands, the national government has the ambition to create at least 120.000 new clustered housing households for seniors (Rijksoverheid, 2022). After recent elections the new coalition now also aims to financially and juridically help cooperative housing (Kabinetsinformatie, 2024). Meanwhile over 50.000 people are on the waiting list for bottom-up clustered housing initiative Knarrenhof, while only less than 1% has been lucky enough to inhabit one of the few realised projects. (Knarrenhof, 2024). Responding to this increase in demand for collective housing, municipalities like Breda aim to implement collective housing in each urban development, because “developments in dwelling, care and wellbeing are asking for it" and “residents have initiatives ready to go” (Breda, 2024).

“Build, build, build is the dumbest thing you can do.
You should not build houses but communities”
– Floris Alkemade Rijksbouwmeester 2015 - 2021

Advantages

This rekindling in bottom-up and top-down interest follows academic recommendations to increase the share of collective housing while the country ramps up construction to tackle the housing crisis (TU Delft, 2024). That is because collective housing may have many advantages. If people share facilities, it can be more environmentally friendly (Tummers, 2017), and more affordable than typical housing (Czischke et al., 2023b). Also, collective housing can reduce loneliness (Kuyper; 2019; Kesler, 1991; Kleeman et al., 2023) and improve mental and even physical health (Carrere et al., 2020). Finally, The Netherlands, like many developed nations, faces the problem of an aging population (Staatscommissie Demografische Ontwikkelingen, 2024), and collective housing residents generally provide more informal care to their neighbours. (Hamers, et al., 2023).

However, all these publications also remark that to achieve these positive effects, residents need to actually engage with the community. The presence of collective spaces or even shared intentions is not enough. It is the actual engagement with a community that reduces loneliness, makes people healthier, reduces environmental impact, and makes people provide informal care for each other. Collective housing can indeed facilitate this community engagement, but does not necessarily do so.

On the flip side, a housing community with a lack of engagement leads to neglect of shared spaces. And in that way, collective housing with a lack of engagement, can even cause a range of negative consequences like stress and conflict (Kesler, 1991; Fromm & Jong, 2020; Vannimwegen, 2020; Drenth, 2021). If a conflict leads to the end of a housing community, this may have severe emotional and financial consequences (Kleuver, 2024).

So collective housing can be seen as an effective tool towards community engagement which in turn has many potential individual and societal benefits. But if the tool is not used, or is not working as intended, the advantages don’t take place or may even have adverse effects. As many now seek to build more collective housing for its many potential benefits, how can a collective housing project facilitate community engagement?

Collective housing

For the question on “how can collective housing facilitate community engagement?”, collective housing needs to be defined first. There is not yet an international standard in defining collective housing variants (Schmid, 2019; Czischke et al., 2023). There is a wide range of terms and often different languages, countries and niches use similar terms for different variations of collective housing. Or the other way around, using different words for similar variants. What makes defining collective housing more complicated is that almost each individual community takes on a different place on spectrums such as: more private – more collective, homogenous – divers, young – old, huge – tiny, idealistic – pragmatic, top down – bottom up, inward – outward, high rise – rural, care – careless, and so on (Tummers, 2017; Schmid, 2019; Kleuver, 2024). One collective housing term that is often used is *cohousing*. There is, however, also still no consensus on the definition of cohousing and its different sub-variants (Carrere et al., 2020).

Some simply define cohousing as private households that share additional spaces (Mans, 2024). Some add the legal ownership aspect to it, either individual home ownership or shared ownership in a co-op (Jarvis, 2023). Some provide a definition based on the intended purpose, instead of a definition based on physical or juridical properties (Tummers, 2017). This “intended purpose” of why people cluster their households and shared spaces should evolve along with the group and societal cultural context (Kesler, 1991). Finally, some definitions put more emphasis on the purpose of residents being more connected compared to conventional housing (Hebert et al., 2022).

Czischke et al. (2023), use the term ‘Collaborative Living’ because it goes “beyond the building and out into the neighbourhood scale”. They define collaborative living as a housing community that has collective decision-making, high level of resident involvement, a common vision, intentionality, and sharing of spaces and activities. This definition captures the multiple important aspects of other definitions while still being specific. In this report a group of people that engage in collaborative living are revered to as “community”. The physical building(s) and site(s) used and inhabited by this community are referred to as “cohousing”.

Figure 1.1 In developer-led “co-living” The Old Oak in London there is CCTC in shared spaces

Within this definition falls a wide range of physical designs and communities, from a 4-person shared house tot a tight neighbourhood community. Also, it leaves open various forms of financial judicial variants, from social rent to co-ops and home ownership. It does however exclude housing communities where the people don’t necessarily share the intention to live in a community. As for example, in nursery homes, some student dorms and asylum seeker compounds. Also, it excludes the increasingly notable full-service developer-led “co-living” concepts where residents are mostly passive consumers of a well marketed housing product.

> *“To identify what constitutes collaborative living, projects have to comply with five main characteristics. First, the group develops a common vision of how they want to live together. Second, next to their own private space, residents share some common spaces, social activities, and a number of practical tasks, for example, cleaning common areas or cooking meals for the whole group. Third, residents choose to live like this, in other words, they are not forced to share out of necessity. Fourth, all of this requires collective decision-making by the group, starting as early as the conception and design of the project and continuing to the day-to-day management and maintenance of the project once it is inhabited. Fifth, (future) residents are involved throughout the different stages of the realisation of their project. “*
>
> - Czischke et al. (2023, p. 19)

Community engagement

In this report “community engagement” or in short “engagement” is defined as “an individual being involved in their community”. This involvement is intentionally choosing to live collaboratively, participating in collective decision-making, being involved in the development or maintenance of the collective housing project, working towards the common vision, and most notably the sharing of spaces and activities. This is in line with the definition of “collaborative living” as described in *Towards Collaborative Living* (Czischke et al., 2023).

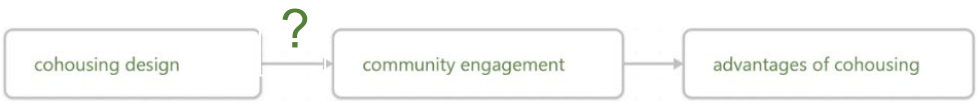
Gaps in practice and research

"… there is a distinct lack of research on which to base future planning and design decisions. We hope that future models will draw from lived experience"

- Fromm & Jong in Cluster Cohousing revisited (2020)

Most current research on cohousing has its scope on financial, judicial, political, organisational, and social aspects, while the spatial cohousing design and its lived experience are rarely evaluated (Fromm & Jong, 2020). The research that is available is not yet bundled in an accessible way for time-pressed architects and resident initiatives to consult. However, architects are already increasingly confronted with the question, for which they are not likely to have received a relevant education (Scotthanson & Scotthanson, 2005; Fromm & Jong, 2020 Schaatsbergen, 2024). Unfortunately, the first build projects of this new wave are already experiencing that the cohousing design is not facilitating community engagement as was hoped (Boer, 2024; Verhoeven, 2024).

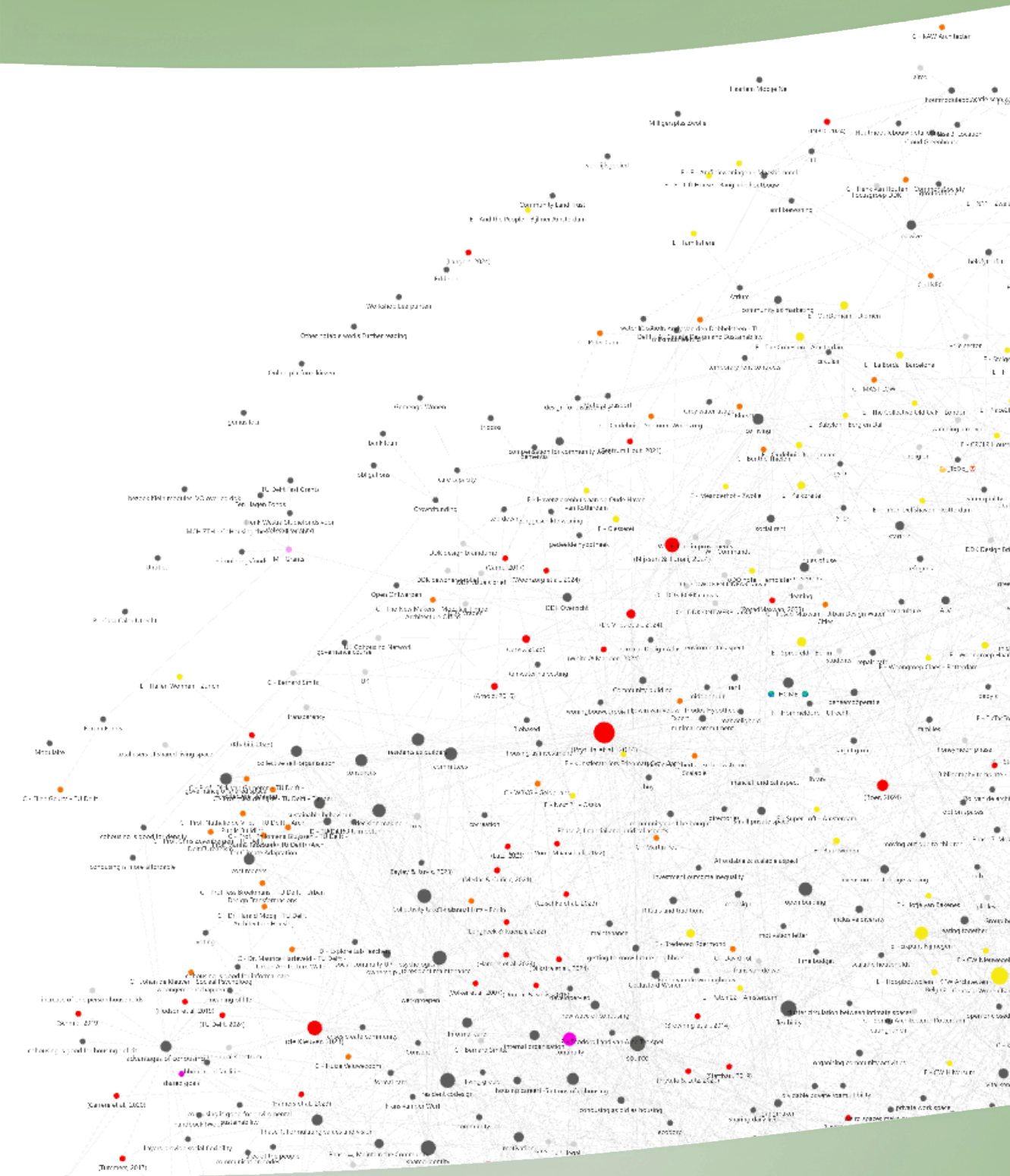
For this current wave of cohousing, it is important that a new generation of architects learn from the lived experiences of existing cohousing projects (Scotthanson & Scotthanson, 2005; Fromm & Jong, 2020). Therefore, it is the aim of this report to bundle available best practice research on how the design of cohousing may facilitate community engagement. The "design" of cohousing is defined as both the process, as the physical outcome of the cohousing.

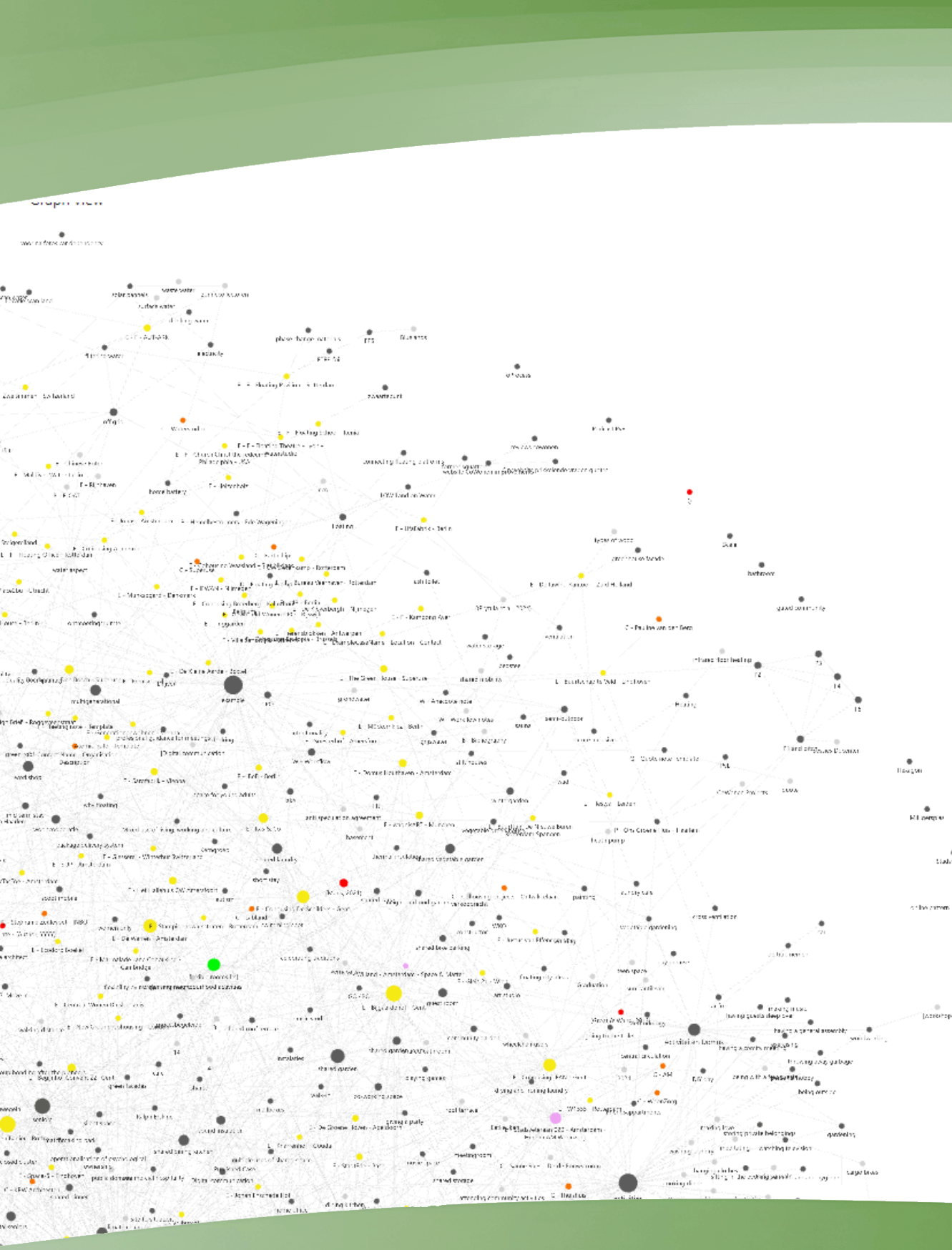


"The combination of scientific sociological research and 1970s architecture is an unfinished project that has run aground in determinism. But it deserves to be continued."

– van de Wall et al. (2016)

PART 2.
RESEARCH APPROACH





Screenshot from Obsidian, software used in the research

“The success of collective housing projects
must be measured by the outcomes of the actual functional phase.”
- Khatibi (2022)

“As a theoretical research tool, the grounded pattern methodology identifies common problems and solutions within complex, ‘live’ environments and provides a clear link between empirical evidence, patterns, and broader concepts.”
- Felstead and Thwaites (2023)

Research objective

The research goal of this report is to bundle insights on the question:

How to design cohousing so that it facilitates community engagement?

An effective way to this is by constructing a pattern language. A pattern language can be both a research objective and research tool (Felstead and Thwaites, 2023). The first chapter of part 2 of this report explains what a pattern language is and why it is used to reach the research objective of this report. In the next chapter it is explained how a pattern language can also serve as research tool. There, the three research questions of this report are explained with their corresponding methodology. In the final chapter of this part, the research process is explained in detail.

What is a pattern language?

A pattern language is a framework developed by architect Christopher Alexander (1977) and his colleagues to describe solutions to recurring design problems in architecture and urban planning. It consists of interconnected "patterns," which are reusable templates that address specific issues within a given context. These patterns form a "language" because they can be combined and adapted to create cohesive designs. Therefore, each pattern is also linked to related patterns. These other patterns can for example be complementary, competing, more specific or more abstract (Salingaros, 2000).

“In one ‘simple’ overview a pattern presents a bridge between a problem and a solution.”
“Complexity kicks in again if one tries to relate patterns to other patterns.”
- Rooij & Van Dorst (2020, p. 59)

Patterns work on different levels. Usually these are on spectrums like abstract to tangible or small- to large-scale. This way, for example, multiple tangible small-scale patterns can together form a large-scale abstract pattern. However, Mehaffy (2019) states that pattern languages should be non-hierarchical, have relationships that overlap, be redundant, yet still ambiguous enough to leave room for creativity. To make patterns useful in practice, pattern sequences can be introduced for certain phases in a design process.

Academic debate around pattern languages

Although widely used in architecture, planning and other fields, there is an academic debate on Christopher Alexanders pattern language. To learn from these critiques, they are summarised below.

In the academic debate over the last decades, over 28 distinct criticisms arose according to Dawes and Ostwald (2017). Some of these critiques are that the original pattern language ignores the political and social realities. Often, Alexanders patterns were seen as impractical and unrealistic in a modernist building industry (Dovey, 1990).

Similarly, another critique is that a pattern language could suggest there is only one 'right' way of building (Mehaffy, 2019; Felstead & Thwaites, 2023). Most of the time this critique was concerned with how Alexander saw, perceived, and defined good architectural quality and form (Rooij & Van Dorst, 2020). In his later works he does, however, address this himself by stressing that the patterns should relate to cultural and social realities (Salingaros, 2000; Mehaffy, 2019).

The original pattern language of Alexander et al. (1977) was broad, and each pattern was not always fully backed by research (Mehaffy, 2019). Alexander and his colleagues regarded the patterns as a hypothesis that could later be improved (Rooij & van Dorst, 2020). Therefore, when applying pattern languages, it is important that any limitations around rigor, bias and accessibility are addressed (Felstead & Thwaites, 2023).

"Each pattern represents our current best guess as to what arrangement of the physical environment will work to solve the problem presented." "…the patterns are still hypotheses, all 253 of them—and are, therefore, all tentative, all free to evolve under the impact of new experience and observation."

- Alexander et al. (1977, p.15)

Despite some academic and in practice critiques, the concept of a pattern language has made a large impact in architectural practice, architectural research and many other fields from gardening to pedagogy and mostly computer science (Mehaffy, 2019).

Why a pattern language is used for the research objective of this report

There are multiple reasons why a pattern language is used in this report to bundle insights on how to design cohousing so that it facilitates community engagement. First, the mere process of constructing of the pattern language itself is a learning process. It provides a framework to gather scattered scientific insights into design principles (Felstead & Thwaites, 2023). This is explained further in the following chapter that explains how a pattern language can also be a methodology framework. In this paragraph it is explained why pattern language as research outcome is chosen in for this research.

Once established, a cohousing pattern language is a valuable communication tool among both professionals and non-professionals because it provides a common language. While it acknowledges the complexity of cohousing design, it divides this complicated reality into understandable pieces (Salingaros, 2000). This allows it to be applicable to various cases and also gives non-professionals insights in how they could effectively design their own cohousing together with their community. Therefore, the established pattern language can help to involve non-professionals in codesign of their own cohousing projects (Felstead & Thwaites, 2023). Additionally, the language can help to analyse existing projects and why they might not function as hoped.

The use of patterns does not need to limit design creativity or always lead to similar cohousing outcomes (Salingaros, 2000). Each community has different values (Kleuver, 2024), lifestyles (Schmid, 2019), and spatial contexts (Camp, 2017; Czischke et al, 2023a). A pattern language always allows for novel ways to combine and relate patterns (Felstead & Thwaites, 2023). How words may make new poetry, how sounds may make new music, cohousing design patterns may always make new unique communities. It is thus an effective way to bundle insights without prescribing a specific recipe that only works for certain groups, locations and societal contexts.

Research methodology

To answer the main research question: *how to design cohousing so that it facilitates community engagement*, three sub questions have been formulated:

What are the base principles that explain how cohousing design facilitates community engagement?

What are the design patterns that explain how cohousing design facilitates community engagement?

How can the design patterns and base principles be used in the development in Dutch cohousing?

To answer these research questions, a grounded pattern methodology has been used. In this chapter it is explained why these questions were formulated and what research methods have been used to answer these research questions.

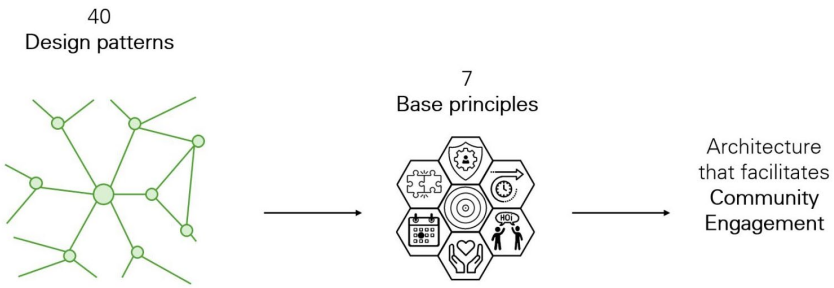


Figure 2.1 This report uses the framework that 40 design patterns lead to 7 theoretic base principles that explain how architecture can facilitate community engagement.

The grounded pattern methodology as a research tool

Besides as research objective, a pattern language can also serve as research methodology as it is an effective research tool to gather, organise and store complex knowledge. In addition to being a developing framework for case and literature research, constructing a pattern language helps to make existing tacit knowledge of professionals clear and shows where there needs to be more academic backing for often-intuitive insights (Rooij & Van Dorst, 2020).

There is, however, not one universally agreed method that is most suited for the development of pattern languages. Recently, Felstead and Thwaites (2023) compared multiple common approaches on how to use a pattern language as a research methodology. They summarised common approaches into 5 “phases” (see figure 2.2). This approach has been used for this research. As Felstead and Thwaites (2023) also indicate, the process is, in reality, not as linear as the word “phases” may suggest. Constructing a pattern language is an iterative process of gathering, clustering, writing, cataloguing and testing patterns. Therefore, in this research these are referred to as “processes” instead of “phases”.

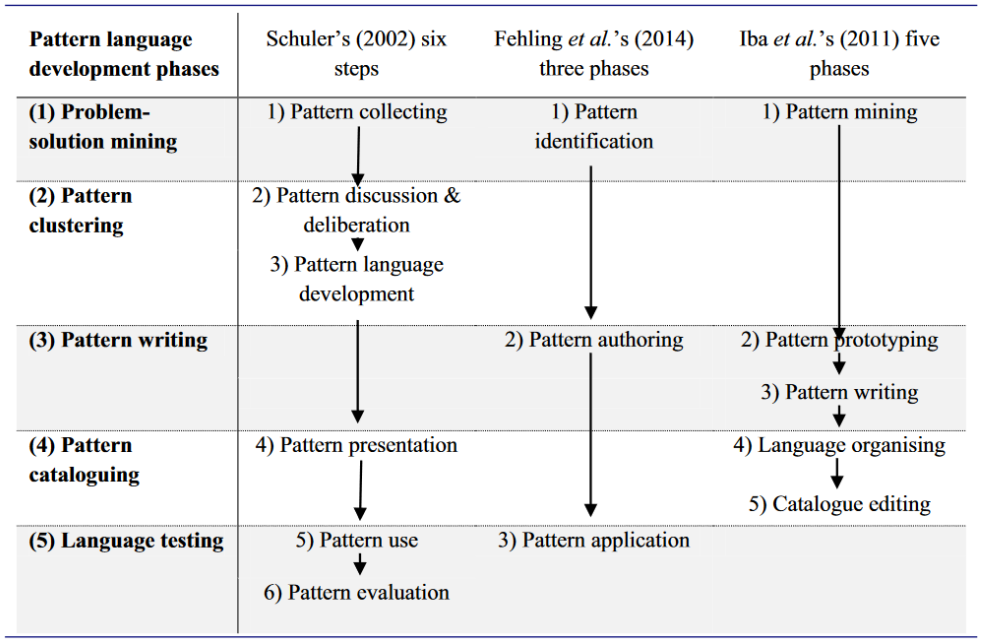


Figure 2.2 Grounded pattern methodology by Felstead and Thwaites (2023)

The 5 “phases” that they describe are briefly listed below as “processes” along with the research methods that have been used for each process. In the next chapter, *constructing the pattern language,* each process and their research methods are elaborated in more detail. All these processes and their methods lead to the answering of the three research questions. The three questions lead to the one research objective to bundle insights on how to design cohousing so that it facilitates community engagement.

The following methods have been used to answer the research questions.

Process	Method

1 Problem-solution mining
To Identify frequently occurring solutions to common problems.
	- Literature review
	- Case visits
	  - Observations
	  - Resident interviews

2. Clustering Grouping together comparable solutions and problems under categories or themes towards implementable pattern.	- Writing and linking patterns in Obsidian. - Participatory meetings using concept patterns, principles and implementation steps with professionals and non-professionals.
3 Writing and improving By drafting prototype patterns with a consequent template. Draft patterns were then tested and improved.	
4 Cataloguing Where the tested patterns are organised within an overall structure, creating the final format of the pattern language.	
5 Testing with design Using the pattern language in real practice and improving the pattern language. The content and structure of the language can continuously be added to and improved upon, in an iterative process.	- Individual cohousing transformation design. - Participating as community expert in a design team of a complex floating cohousing development. - Organising co-design workshops for Dutch cohousing co-ops in development. - Individual graduation design assignment.

In the following paragraphs the research approach per process is described in more detail.

Constructing the pattern language

1. Problem-solution mining

“Identifying frequently occurring solutions to common problems.”

- Felstead and Thwaites (2023)

First, information must be “mined”. For this, two research methods have been used. Firstly, a literature review has been done. Secondly, case visits were done with observations, and resident interviews.

To store and bundle information and insights, the free open-source software Obsidian was used. Obsidian is a software that stores information according to the *Zettelcasting* method (Walker, 2022). This is a way of processing and storing information where knowledge is organised in independent concepts. These notes are then linked to each other, resulting in a web of concepts that is similar to how a human brain works (Helbig, 2019). Also, the results can be comparable to a pattern language, also know as semilattice, complex system or hypertext (Mehaffy, 2019). An example of a famous hypertext is Wikipedia.

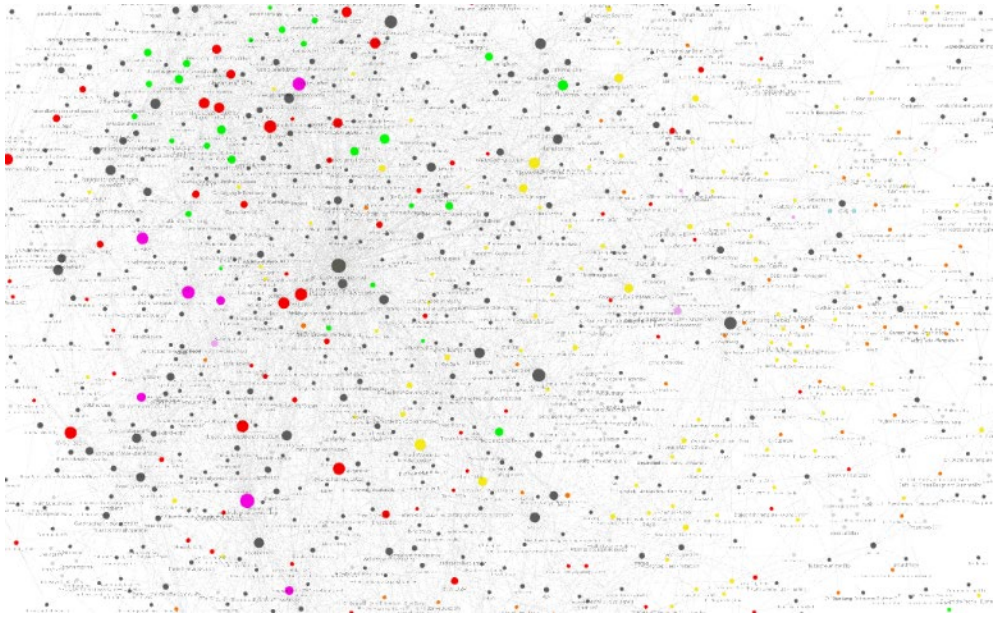


Figure 2.3 A screenshot of the Obsidian that was build for this report. Each dot is a note. Each line represents at least one connection between notes.

For the literature review the following workflow was used:

1. Find literature
2. Place literature in an Excel database.
   In total over 200 relevant sources were found. It was not possible to close read them all. Therefore, the following steps were taken.
   a. Categorize the literature according to theme, scope and type.
   b. Prioritise the literature from Urgent, to A, B, C, D, E.
3. If relevant, the literature was read and marked digitally in reference management software Zotero or marked physically if available.
4. Next, a bibliography note was made with both annotations and a self written summary in data management software Obsidian.
5. Next, in Obsidian relevant atomic notes were populated with the new information and linked to other Obsidian notes according to the *Zettelcasting* method.

Also, 9 existing cohousing projects were visited in the UK, Belgium and The Netherlands to "mine" problems and solutions patterns. At these projects, observations and interviews were done to find problem-solution patterns. If allowed, pictures were taken, and observations were noted down. Also, unstructured interviews with the residents were done with open questions. In each project, at least one resident was asked: "what would you do differently if you could design the project again?"; "How is the design facilitating different community behaviour than expected?"; and "How and why has the socio spatial design changed of time?"

In the UK, Cohousing New Ground and Cohousing Marmalade Lane were visited, both with an overnight stay. These projects where chosen in collaboration with the UK Cohousing Network because they were in the vicinity of London, and because these are two recent groundbreaking projects that have existed long enough for learned lessons to emerge (Wainwright, 2019; Chaudhuri, 2023). In Belgium, Cohousing Bijgaardehof, Cohousing De Schilders, Cohousing JEAN and Cohousing Convent 22 were visited. These projects were chosen as they were part of a two-day excursion organized by cohousing network groups Dutch Cooplink, Zorgsaamwonen and Belgium Samenhuizen. These are exemplary projects of cohousing in the Belgium societal context. In The Netherlands, Centraal Wonen Delft was chosen because of good contact with the architect resident, Schoonschip because of the water context which is relevant for the design part of the graduation, and De Warren because it is arguably the most famous co-op cohousing in The Netherlands.

Figure 2.4 Shared space in Cohousing Marmalade Lane in Cambridge. During colder months the residents stacked the haystacks higher to keep the warmth of the fire within the circle.

2. Pattern clustering

"Grouping together comparable solutions and problems under categories or themes to abstract case-specific solutions towards a general but implementable pattern."

-- Felstead and Thwaites (2023)

For this process, the software Obsidian was also used. Notes, which may represent patterns, projects, literature or more, can be linked together. To link notes effectively, a compass was constructed per note type (Fast, 2022). A "compass" contains certain questions per note like: What note is more abstract? What note is more specific? What note is similar? What note relates to this note? What note is an example of this note? By linking notes to other notes, patterns naturally emerged and were embedded within literature, cases and other patterns. Also, gradually more abstract and more specific patterns emerged. Finally, it helped to merge notes that described very similar concepts, or to split notes up when needed.

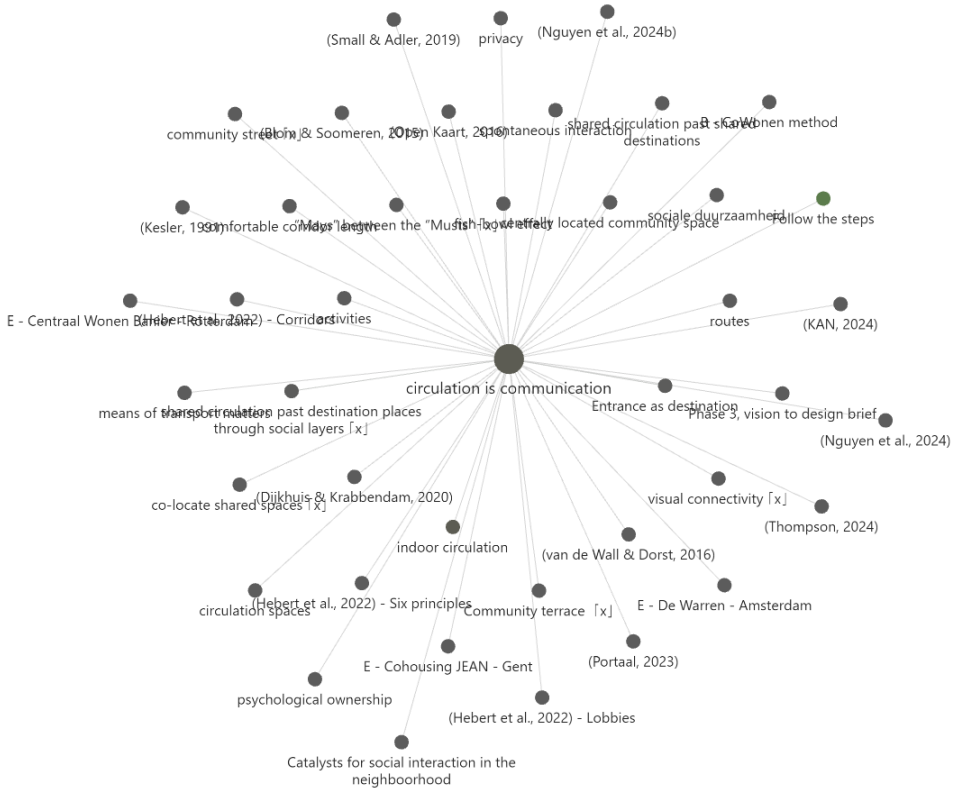


Figure 2.5. Screenshot of how the note “circulation is communication” links to other notes.

3. Pattern writing

“Drafting a prototype pattern name and description within a consistent template and using clear instructional language. Draft patterns are then continually tested and improved.”

- Felstead and Thwaites (2023)

During the year that this research was done, cohousing initiatives, architects, housing associations and knowledge networks were visited to share the developing insights on cohousing design together with cohousing architect Flip Krabbendam. Each time the developing pattern language was summarised and written down in a PowerPoint presentation. Each time, feedback was gathered on context, clarity, examples and more at the presentation or workshops. This way, these encounters with real practice, researchers, residents and architects continuously improved the pattern writing of the pattern language.

During these presentations it was noticed that besides the socio-spatial patterns, also abstract principles were useful to precede the more tangible problem-solution patterns. This provided a *why* before the *how* and *what* of the patterns. Also, these more theoretical core principles helped to embed the pattern language in a wider real life, and often top-down bureaucratic, reality. For example, the concept of *sense of ownership* resonates with individuals but conflicts with many regulations of social housing associations. By letting employees of these housing associations first understand the importance of the more theoretical concept of *sense of ownership* based on their own lived experiences, they are more likely to consider more tangible patterns like a *community walkway* in their clustered social housing projects.

Like the patterns, multiple combinations of these theoretical principles like *privacy, sense of ownership, control, feeling at home, encounters,* were formulated and tested. Trying to both acknowledge nuance and complexity while also not using too many overlapping or too academic principles. Sometimes presentations lasted only 30 minutes, and sometimes 4 hours. This helped to continuously identify the most important insights in the pattern language and which theoretical base principles capture this best. At one point, 6 base principles were used during a presentation for Dutch housing associations (Duivenvoorden & Klaveren, 2024). A short article on the presentation was published by Platform31 and due to popularity republished on multiple websites like Gebiedsontwikkeling.nu, and HetJuisteThuis (Linssen, 2024). This showed that these abstract principles backed by more tangible design patterns with examples seemed to resonate with many in practice.

Figure 2.6 Sharing the developing pattern language at the national Dutch coop day 2024

Figure 2.7 A session with cohousing co-op The Bonte Hulst in Amsterdam

"I am very enthusiastic about it because we have learned to speak the same language. It turned out that we didn't always have the same images in mind. Through the sessions, we have clarified our wishes and requirements. That is incredibly important for the next steps."
– *A future resident of The Bonte Hulst* (Witter, 2024)

4. Pattern cataloguing

"Documenting the relationships between patterns, organizing them within an overall structure, and creating the final format of the pattern language.'
- Felstead and Thwaites (2023)

By rewriting and testing the patterns and base principles for different professionals and non-professionals it helped to improve the structure of the pattern language. From this process the three research questions were formulated and specified with the amount of base principles, patterns and implementation steps. Too many, and people got overwhelmed, too little and the pattern language would not do justice to the complexity of cohousing design.

Meanwhile, one overarching note was made in Obsidian where all relevant patterns, principles and other pattern languages were listed and, wherever possible, categorized. Although the essence of a pattern language is that it is non-hierarchical and linear, keeping a hierarchical and linear structure, just like in the presentations, helped to keep structure and oversight in the growing non-linear knowledge database in Obsidian. This long list was continuously updated and rearranged and finally became the structure of this report.

Eventually 7 base principles turned out to be a good balance between acknowledging nuanced complexity while still being a compact applicable theory in practice. The resulting base principles are described in part 3 of this report and answers the research question: *What if there are 7 base principles that explain how cohousing design facilitates community engagement*?

In Obsidian over 100, often overlapping, patterns were gathered. This proved to be too much in practice and during presentations, and eventually a balance was found at 40 design patterns. During the presentations, the order of introduction was also tested. A roughly thematic cataloguing proved to work better that working from small to large scale or from abstract to tangible. A more thematic order of introduction made each pattern flow more naturally from the previous one. Also, it maintains a balance between abstract and specific, small and large scale; to keep it interesting as one is introduced to the many patterns. This pattern catalogue is Part 4 of this report and answers the research question: *What if there are 40 design patterns that explain how cohousing design facilitates community engagement?*

A loose list of patterns in a catalogue is useful, but the order of problem solving is also important (Salingaros, 2000). And a logical order to introduce and understand them is a different order than to implement them in a real process. To make the patterns useful in the context for Dutch cohousing, pattern sequences are introduced. For this, a structure has been developed with “rooms”. Starting at *“room 1. forming a vision”* to *“room 8. maintaining a community”.* First, not “rooms” but “phases” “or “steps” were used. “Rooms” was chosen because this metaphor better acknowledges the non-linear process of cohousing development and it’s continuous codesign. “Rooms” are a metaphor for something to more easily return back to, while “phases” feel more like a linear process. This idea was suggested by Theodore Zamenopoulos, the professor of Citizen-Led Design at The Open University.in London after a pattern language presentation for the UK Cohousing Network. In these 8 rooms, patterns and principles from the catalogue are referred back to in sequences. These rooms are Part 5 of this report which answers the research question: *What if there are 8 steps to implement the patterns and principles for Dutch cohousing?*

5 Testing with design

“Gaining feedback from end users’ application of draft patterns to confirm and improve the pattern language. The content and structure of the language can be added to and improved upon, as an iterative process.”

- Felstead and Thwaites (2023)

Finally, the pattern language was not just tested with presentations and feedback but also applied in various cohousing design projects. First, the pattern language was used in co-design workshops with aspiring cohousing residents. For this, a pattern presentation was combined with Flip Krabbendams Field and Volume codesign method and used with existing groups Ecodorp Het Groen Spoor and co-op Ons Groene Huis in Haarlem. These codesign sessions helped to see how the patterns functioned as a codesign and communication tool with non-professionals. It showed that some patterns with catchy names and with recognizable clear examples were remembered and used better. Patterns with bland names were more easily forgotten.

In addition, a new codesign method was designed based on the pattern language to fill in a gap in the workshops offered by other professionals. This newly designed, tested and adapted codesign method, “Activities Game” is integrated in Part 5 of this report, along with already established codesign methods. The co-design method helps to bridge from vague vision to a well discussed and tangible design brief while letting non-professionals get familiar with the patterns and principles.

The main design test was to apply the pattern language in the design part of the graduation studio. For this, the design objective was floating co-op cohousing in the Dutch delta. The outcome of combining climate passive, floating and affordability ambitions with the pattern language was an Urban Villa typology. This individual design process of using the developing pattern language helped to switch between consciously applying patterns and intuitively designing and in hindsight realizing what patterns were implemented. If patterns that were not yet defined in the pattern language were intuitively used, these were then integrated in the developing pattern language.

Figure 2.9 The Activities workshop was developed as part of this pattern language.

Figure 2.10 A render from the graduation design that used the pattern language of this report.

To also experience how the pattern language could be applied on a cohousing transformation project, a sketch design was made to transform an empty library in a Dutch village into a 20-household intergenerational cohousing project. Stichting Statiegeld op Jeugd now uses the sketch design to activate stakeholders for the potential development. In this application of the pattern language, the realities of applying the patterns on an existing structure and to combine them with Dutch building regulations while staying within a reasonable budget were experienced. This helped to improve part 5 of this report where the pattern language is embedded in the Dutch cohousing context.

Figure 2.11 Sketch render showing both a solution for the deep building and several patterns in the transformation from an old library to an intergenerational cohousing design.

De Drijvende Kracht initiative was joined to also experience how the patterns work in a real professional design team. *De Drijvende Kracht* is an ambitious and innovative team that is designing and developing social rent cohousing on water. In the team with leading architects, water builders, building innovation experts, juridical advisors, financial experts and more, the role of community design expert was created. In this role, advice was given on how to design so that the floating building facilitates community engagement. Throughout the year the developing pattern language was translated into design briefs, sketch designs, case studies and advice reports. All while participating in the design sessions with the team.

Figure 2.12 Part of the *De Drijvende Kracht* design team.

This research by design research method showed that in a real project different patterns might get cherrypicked and the complex interconnected socio spatial workings of patterns need to be repeated for the duration of a design process in a larger team. Just sharing optional patterns or even regularly providing relevant pattern sequences to the design team was sometimes not enough to get them implemented. Especially more abstract patterns sometimes got lost while more tangible patterns were more easily maintained in the design. In addition, patterns for community engagement don't always correspond with the personal housing preference of everybody in the design team. This makes it important to keep remembering that the residents that we design for have a different dwelling preference than the professionals in the team. It also showed the tensions between housing as an affordable scalable product and tailored cohousing. In the floating building a balance has been found between standard and scalable, and keeping enough of the design open so that it can adapt to community and context. The efficient building technology makes the project affordable while reaching ambitious environmental ambitions

Testing the developing pattern language both in resident co-design, as an individual designer, and in a design team, helped to finetune the 7 base principles and 40 design patterns. The engagement with real live projects also helped to construct the 8 steps to apply these in codesign with professionals and non-professionals and to embed it in the Dutch context and to other relevant fields of expertise.

PART 3.
BASE PRINCIPLES

Cohousing Bijgaardehof by Bogdan & Van Broeck architects (Bogdan, 2022)

"Architecture does not create happiness but merely facilitates it. Architecture can also make things impossible."

– van de Wall et al. (2016)

"Sense of community cannot be forced by a commercial party."

- (Nijssen & Tunali, 2024)

This part of the report gives an answer to the first research question: *What are the base principles that explain how cohousing design facilitates community engagement?* Part 2 of this report explains how these base principles were researched, and formed. This part of the report is the outcome of the research process that is described there.

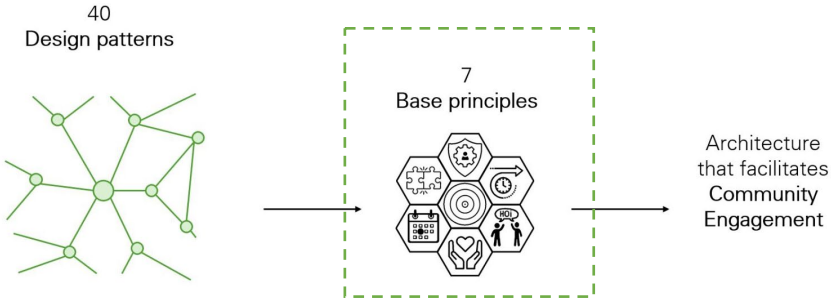


Figure 3.1 7 socio-spatial base principles that explain how design can facilitate engagement.

The base principles are sometimes overlapping concepts, have complex cause-effect relations, have widely different definitions by different people, and do not do full justice to the complexity of the socio spatial workings of a community. Eventually 7 principles were formulated to provide a framework and common language. A balance was sought between including and excluding theoretical concepts. Between complete and compact and between theoretical and practical. The aim is that they help in understanding how design may facilitate engagement.

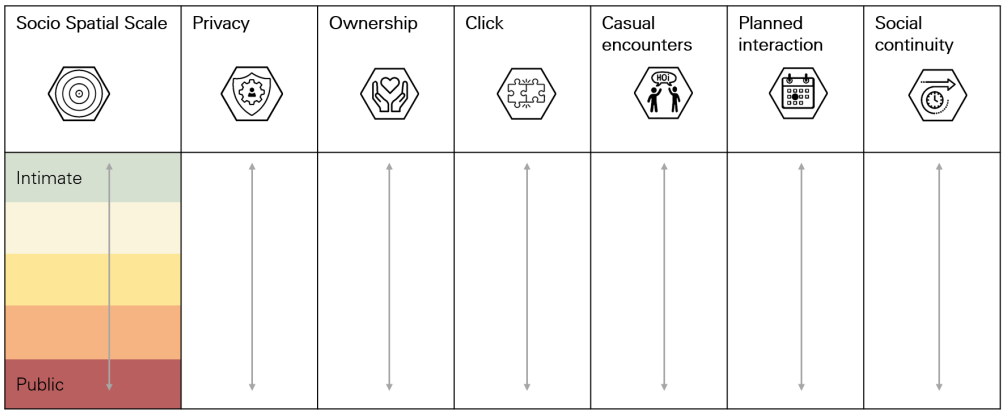


Figure 3.2 The socio-spatial base principles.

Socio-spatial scales

Home, community, and similar concepts are not binary but exist along a spectrum of scales

“There is a world between the intimate and the anonymous”
– Altman (1972)

Social scale

People like to connect with others at a range of scales (Thompson, 2024). A person needs a small-scale social context to come to his own as an individual. That small social spatial context, that group of people, also needs a context of its own, and so on (Krabbendam, 2022). Social processes work differently in different group sizes and, for example, how well you know people (Camp, 2017). A small social scale could be your close family or a group of best friends. A larger social scale could be colleagues, an alumni group or fellow association members. It is a natural phenomenon that when social groups become big, they create smaller scales within. An army, for example, has divisions, battalions and platoons. These social scale levels do not necessarily need to have a spatial component.

Socio-spatial scale

However, often, different social scales do have a spatial component. A faculty often has its own building, wherein different academic chairs occupy a part of the building. When we look at the context of housing in most modern societies, the social scale level of the nuclear family usually has a clear designated spatial scale: the home. Within this household there is usually an even more intimate social-spatial scale: the intimate. For example, a bedroom or toilet. Naturally, most feel that we rather not dress, make love, shower, urinate, or sleep where other family members eat their breakfast, or where your neighbour looks inside through the window. Of course, what activity falls within what socio-spatial scale differs per person and culture. Personal preferences also change over time. But no matter the preferred distribution, different activities do fall within different preferred socio-spatial scales.

In this report a socio-spatial scale is defined as a space that can be accessed by anyone of a certain social group or their invited guests. This can be temporary like a toilet. This space can be legally owned by a larger social scale like a household but temporary be made into an intimate 1-person socio-spatial scale when the door is locked. Therefore, it is useful to think in both activities and facilities.

What do you want to share?

In cohousing codesign and research, the question often asked is: “what do you want to share and what do you want to have privately?” Concepts like “sharing” (Griffith et al., 2022), “collective” (Schmid, 2019), and “home” (Overtoom, 2024), are, however, all on a spectrum of social and possibly socio-spatial scales. To discover living preferences for a cohousing community the question should therefore be: “what do you want to share with whom?”. This is a small question that has many possible answers per facility and activity.

All the other base principles work along socio-spatial scales, and they influence the answers to this question. Therefore, the core principle of socio-spatial scales is further elaborated throughout the report.

Figure 3.3 With whom would you want to share sleeping, a weekly diner, or gardening?

Answers to this question could be plotted on a graph with on one axis the amount of people and the diversity and on the other axis how intimate an activity or a spatial facility that facilitates that activity is (see figure 3.4). Then socio-spatial scales can be drawn and given a name. There are no right or wrong answers in this.

As part of this report a co-design workshop has been designed, and tested, aimed at exploring the community’s preferences for activities per socio-spatial scale. This allows the cohousing design to have the right facilities on the right socio-spatial scales for that specific community. This workshop is described in part 5 “room 4” of this report.

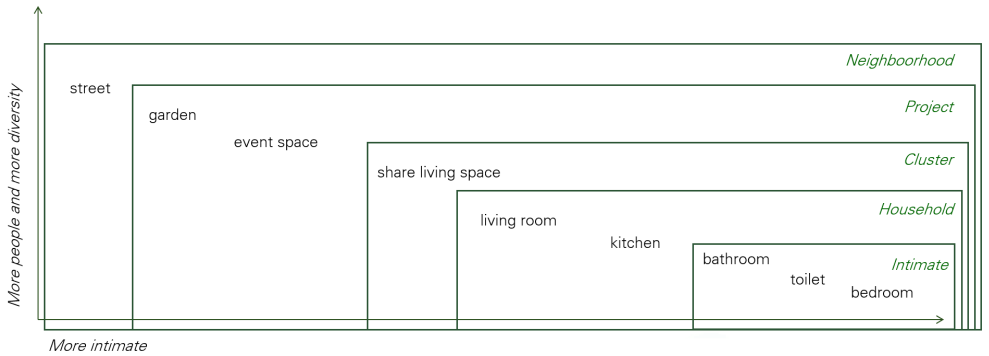


Figure 3.4 Simplified example of drawing socio-spatial scales around (co)housing facilities.

Size matters

In cohousing development there is often the discussion of “community size”. Smaller groups have disadvantages. Generally, smaller groups exists shorter (Nuesink, 2016), there is relatively more work and maintenance per person (Durrett et al., 2022), there is a smaller diversity in talents and skills (ScottHanson & ScottHanson, 2005), and the overall impact is larger if a few people start to engage less (Tap, 2021). However, the larger a community is, the more the sense of community gets lost (Happy Cities, 2024), the harder it is to share daily living spaces, and decision-making becomes harder (Kleuver, 2024). Therefore, most cohousing communities find the balance at around 30 households for an engaged community (ScottHanson & ScottHanson, 2005; Durrett et al., 2022; Jarvis, 2023).

However, this popular “one scale cohousing” model, of around 30 households with one common house with all shared facilities, that is usually developed in the US, UK and Canada, is a middle ground that loses advantages of both larger and smaller communities. A solution to this is “cluster cohousing” where engagement happens on different socio-spatial scales within one cohousing community (Camp, 2017; Fromm & Jong, 2020; Khatibi, 2022). This model of cohousing is common in The Netherlands and Denmark (Schmid, 2019). It is also being “reinvented” in German speaking countries like Austria and Germany (Khatibi, 2022).

Designing with socio-spatial scale levels.

The other 6 base principles relate to socio-spatial scales. Patterns [1] to [4] especially describe how a project can be designed with socio-spatial scales. Pattern [5], reminds us that a *city is not a tree* (Alexander, 1965), and that therefore a community also shouldn’t be. Patterns [7] to [11] address the transition zones between socio-spatial scales.

Example: The tree structure of Centraal Wonen

As the idea of cohousing found its way to The Netherlands in the 70s, a bottom-up movement called “Centraal Wonen”, or “Central Housing” was started. The idea was that households could share some central facilities and would therefore both break up the nuclear family and free inhabitants, especially women, from the enclosed burdens of a household (Drenth, 2023). During the growth of the movement, there were many discussions on community size and what to share (Fromm & Jong, 2020). As there were only a few build examples in Denmark and Germany at the time, and no academic research, the pioneers had to look into organizational sociology to find answers for what is a good community size. After many discussions, there was a breakthrough: make multiple socio-spatial scale levels within one community. Today, there are still over 40 Centraal Wonen projects in The Netherlands, and in most Centraal Wonen projects this “multi scale”, or “cluster” cohousing model is used.

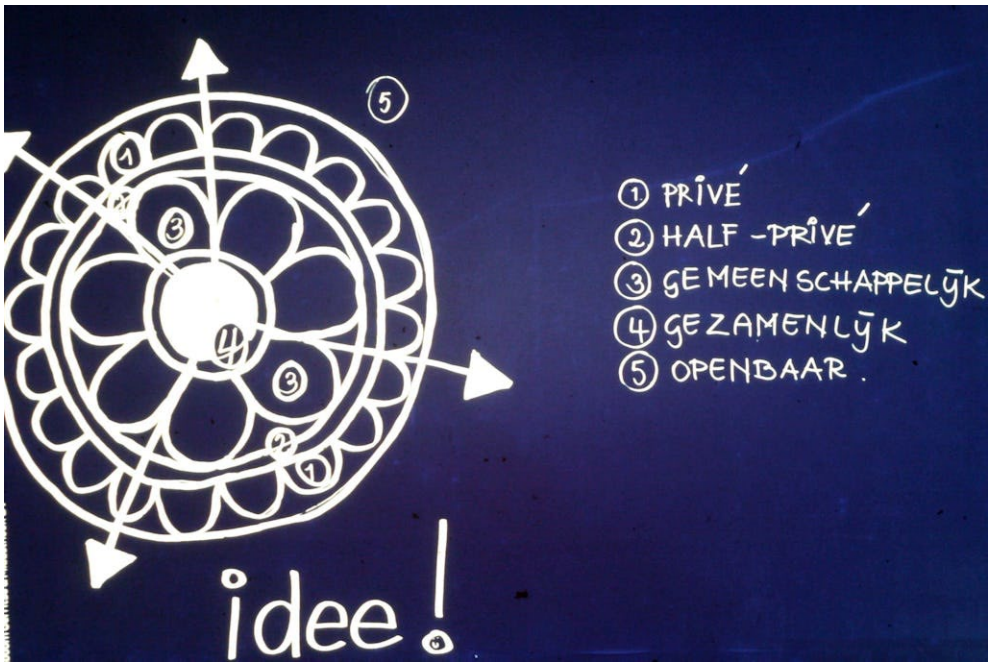


Figure 3.5 The “idea!” to split a community up in multiple levels was the core concept of Centraal Wonen Banier in Rotterdam by EGM architecten.

Tree structure

Centraal Wonen Delft was the third project in The Netherlands and finished in 1981. Architect Flip (Philip) Krabbendam was one of the pioneers and still lives there. He states that a cohousing community should be like a tree, where each branch splits up into increasingly smaller and more intimate groups (Krabbendam, 2022). But he also states that there should be “horizontal connections” between the branches of the tree as is explained in pattern [5].

Figure 3.6 Example of socio-spatial scales in Centraal Wonen Delft

In one of his other projects, Gemeenschappelijk Wonen Nieuwegein, this tree structure is very readable in the design as seen in the illustration below. On the bottom left there are facilities for the entire community, and this is also the connection with the higher socio-spatial scale of the surrounding neighbourhood. The community splits up into three courtyards in which there are multiple households and shared houses. The intimate spaces like bedrooms are on the more secluded higher floors.

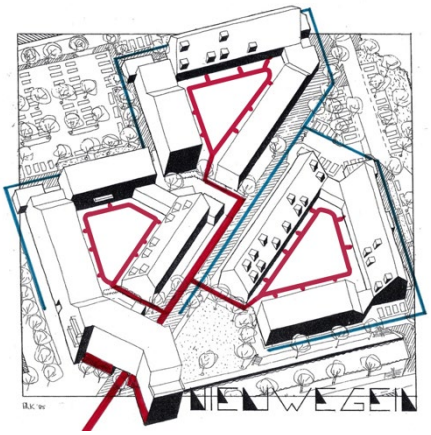


Figure 3.7 Gemeenschappelijk Wonen Nieuwegein, build in 1981.

Privacy

Control over less or more access to the self or one's group.

"…a group of apartment units sharing a short part of the corridor created a close group of neighbors. Social interaction can be regulated and protected from passers-by."
- Nguyen et al., (2024)

Privacy is important

When talking about cohousing, a common first reaction of people is: "I like the idea, but it is nothing for me because I value my privacy!". In a worldwide online survey on collective living filled in by more than 200.000 people worldwide, the most common answer to the question: "what do you think will be the biggest con of living with others?" was "lack of privacy" (Pereyra & Repponen, 2024)**.** Also in more conventional housing, privacy can be lacking in the design. When architect Marlies Rohmer revisited many of her projects one of the main conclusions was that her architecture was often lacking sufficient privacy as residents build high fences and kept curtains closed (Haan, 2016).

"Privacy is essential in a communal situation, especially in a society that values it so high"
- Williams (2003, p.212)

What is privacy

Privacy is in academic literature often defined differently than in common language. An often-used academic definition is that of Altman (1972): "*a selective control of access to the self or to one's group*". 'Control' is a key word here. Privacy does thus not necessarily mean withdrawal from social contact. Privacy is having the control to realise the desired level of access to the self or someone's group. Too much access is called *crowding*, a lack of access *loneliness*. This is a constant bi-directional dynamic process of interpersonal boundaries reacting to changes to internal needs and external context. Privacy is not a binary concept but is a concept on a socio–spatial spectrum of zones also called privacy zoning (Wal et al., 2015). Within one house one can already possibly identify more than 10 different privacy zones (van Dorst, 2005).

“A large share of man’s activities are social, but they ultimately, however practical and outgoing, have their source in privacy”

- Chermayeff & Alexander (1965, p.16)

Safety

A concept that is closely related to privacy is safety. People who feel safe in their communities are more likely to spend time outside their homes, interacting with others. (Happy Homes, 2024). Safety is therefore often stated as a base condition for social interaction (Blom & Soomeren, 2015) and engagement (Bouwmeester & Bouwens, 2024). In neighbourhoods where people feel save there tends to be less loneliness (Berg & Kemperman, 2024).

Privacy paradox

In short, privacy can be summarised as “control over who and what”. And naturally you want greater control over this on a lower intimate socio-spatial scale that involves activities like sleeping and dressing and facilities like a bedroom, than on higher more public socio-spatial scales like a street. Sometimes in spatial design there is a large jump in socio-spatial scales causing a lack of privacy on the lower socio-spatial scale. Designers may envision that a building with a lot off glass facilitates engagement with the street, but when the jump is to great and there is not sufficient privacy, residents will create it themselves (Nio et al., 2022). In this report I call this the *“privacy paradox*”. Designing a very transparent border between a low and high social-spatial scale in the hope that people will engage, often leads to people fully retreating to, and blocking of a socio-spatial scale where they do have control over access to the self or one’s group. Pattern [2] dictates a gradual transition from large to smaller scales. Patterns [7] to [11] elaborate the transition zones between socio-spatial scales and address how to design with the *privacy paradox* in mind.

Figure 3.8 A large jump in socio-spatial scales in Delft. Here, the only way for residents to control the access to the socio-spatial scale of the household is by keeping the curtains permanently shut. The result is an interior without daylight and a street without eyes on it.

Sense of ownership

People care for things that they are allowed to care for.

“A house can be provided by someone other than the resident,
while a home is made by the resident”
- Overtoom (2023, p. 32)

In the early 1970s, Oscar Newman investigated urban crime and the impact of spatial design on community safety. Newman theorized that when residents have a sense of ownership over semi-private areas, they are more likely to watch over and protect them. This became his “*defensible space theory*”. Newman stated that defensible space is a sociophysical phenomenon as both society and physical elements are a part of why people feel responsibility for and engage with a space.

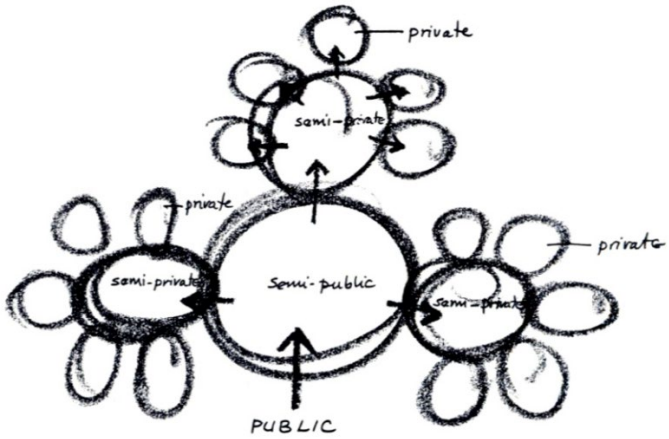


Figure 3.9 Residents feel no control or personal responsibility for an area occupied by too many people (Newman, 1996).

Figure 3.10 Appropriation is an important part of feeling at home (Overtoom, 2024)

When a person or group feels ownership over a space, it increases their sense of belonging and the amount of care they put into it, like keeping it clean, personalising it and maintaining it (Hebert et al., 2022; Mantingh & Duivenvoorden, 2021). In addition, it also increases people's mental health (Evans, 2003).

As was concluded by Newman (1973), people feel little to no control or personal responsibility for an area occupied by too many people. Generally, the larger a socio and/or spatial scale is, the lower the sense of ownership becomes (Taylor & Stough, 1978; Nguyen et al., 2024).

"All residents are owners of the collective gardens, but everybody is no-one"
– Bouwmeester & Bouwens, (2024)

Like "sense of ownership" the concept "psychological ownership" is often used. Both are not referring to legal ownership but the sense that one or one's group feels that they have control over a space (Mantingh & Duivenvoorden, 2021; Nio & Treffers, 2022).

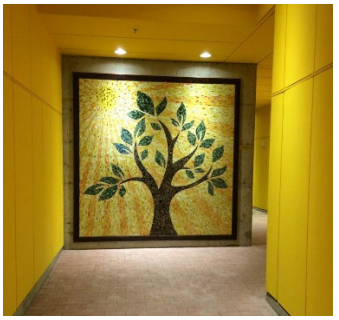


Figure 3.11 & 3.12 Residents feel a sense of ownership in a hallway by, and because of, appropriating space. On the left in a lift lobby in Hanoi Vietnam (Nguyen et al., 2024b), on the right a hallway in Capital Hill Cohousing Canada (Hebert et al., 2022). Pattern [4] suggests a framework for expression per scale level. Pattern [10] underscores the importance of appropriation of transition zones.

Like with privacy, control is again a key concept and inseparable when discussing the concept of ownership (Pierce et al., 2002). And like the sense of ownership, control is an experienced concept. People don't have to act on their ability to control a space, the sense that they are allowed to have control already increases their sense of ownership (Glass & Singer, 1972).

Engagement and a sense of ownership have a positive relationship. The more important a space is for someone, the higher the sense of ownership becomes (Bell et al., 2001). This is influenced by how often people are present in a space and how much people personalised it (Mantingh & Duivenvoorden, 2021). This makes a person engage by investing time, energy and means in a space, group or process. Which again increases the sense of ownership, and so on. As with all positive feedback loops, this spiral can also go downwards.

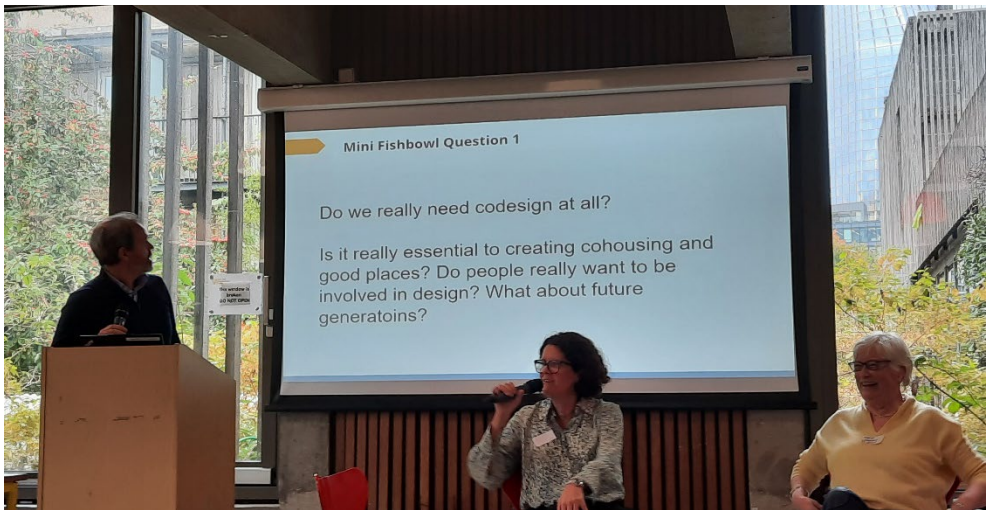


Figure 3.13 After presentations on best practice cohousing design at the UK Cohousing Summit 2024, the question 'do we really need codesign if experts already know so many design patterns?' arose.

Therefore, it is important that in cohousing development the future residents get involved as early as possible to get into a positive spiral of ownership and engagement early on. If residents start developing their sense of ownership over the process, group and design, then by the time they inhabit the new cohousing, they already feel a sense of ownership across the various socio-spatial scales (Berg et al., 2021). This positive spiral needs to be continued during the maintenance phase and residents, along with each new individual need to be able to continuously feel a sense of control and thus ownership for them to stay engaged. (Kesler, 1991; Nijkamp et al., 2024).

“By achieving a high level of engagement, residents view the community as a product of their own efforts. The success of the group then becomes in everyone’s individual interest.”

- Nuesink, (2016)

“The involvement of residents in the planning, construction or conversion as well as in the operational management also strengthens identification sense of ownership of the project, which strengthens the community, reduces costs, promotes more sustainable behaviour and overall contributes to long-term existence.”

- LaFond & Carones (2024)

Figure 3.14 Future residents of co-op Cohousing Ons Groene Huis in Haarlem during a co-design workshop using Flip Krabbendams Field and Volume method.

Socio-Spatial *Click*

The people, their lifestyle vision and the design to facilitate that, should *Click* with each other

"In a cohousing community, it is important that you also feel at home within the group. A key requirement is that you fit well with the group and that the group suits you."
- LVGO, (2021)

What behaviour to design for?

A spatial design is perceived by different people to afford different behaviour (Fayard & Weeks, 2007). These affordances of behaviour are never deterministic but do at least allow and often enhance certain behaviours (Portaal, 2023). When designing cohousing, the question 'what behaviour should be facilitated by the design?' arises.

Of course, this part of the report argues that the design should facilitate the base principles that lead to community engagement. But there remains a vast diversity of styles of cohousing communities that require very different behaviours and thus spatial design.

"If the residents have been closely involved in developing the design brief, then such a choice aligns with the vision of communal living that the group has in mind."
- Dijkhuis & Krabbendam (2020 p. 3)

It is therefore important that future residents are not just involved in a cohousing development, it is also important that their vision on how to live collectively align. Often, different people start or join a cohousing in development with a vaguely defined vision (Mol & Buck, 2022; Kleuver, 2024). This can lead to conflict later down the road, a watered-down vision or the lack of use of costly shared facilities. It is thus important that the people in a cohousing community share a similar vision so that the cohousing design may facilitate that specific way of cohousing. Part 5 of this report provides tools to form a vision.

Click on socio-spatial scales

In the Netherlands, most people first go through a long dating process before they decide who they want to marry and share a big part of their life with. Sharing daily live, and a part of what you call “home” is a very personal social scale, and like marriage, the people should control who they want to live with on a personal scale. As explained in the privacy paragraph, people want to control their access to the self. So, the lower the scale, the more important it is that people click socially. Yet, top-down organizations like social housing associations are wary of letting people choose their own neighbours as it is deemed be unfair in times of a housing crisis (Mat, 2024). While this is true, it is also true that if strangers who don’t click are put together by a bureaucratic system and need to share daily living spaces, the chances of an engaged community are low. Which is likely the reasons for the project in the first place.

People can vary in many ways, like for example age, gender, education, income, background, religion, skills and so on. Mostly, diversity is good for an engaged community and many communities strive for it on most aspects while usually being homogenous on a few (Heren5, 2016; Hebert et al., 2022; Kleuver, 2024). It is, however, important that there is one common cohousing vision, and even better, common core values behind that vision (Mol & Buck, 2022; Schravesande, 2024; Kleuver, 2024; Nguyen et al., 2024b). The more intimate the social-spatial scale, the more people should share a common lifestyle vision, so that they are able to determine what facilities they want to share and with whom they want to share it with.

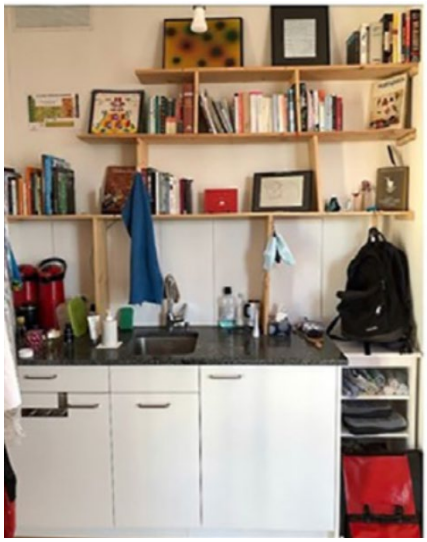
Reason to use

Once this “click” between people, the vision and design is accomplished, shared facilities have a reason to actually be used. Attractiveness is an important and highly subjective concept but very important for people to actually engage with a space (Molster, 2020; Hebert et al., 2022; Happy Cities, 2024). Once there is a click, this reason, or pre-condition, to use a space is much more likely to be established. Pattern [25] *reason to use* underscores this.

> *“the provision of communal space alone may not be enough to encourage use without the design features or amenities that appeal to residents.”*
> - Kleeman et al., (2023)

Yet, communities change. Changes in culture, technology, new people, age, income and more all affect the desired lifestyle of a community and eventually may even change the core vision (Sennet, 2006; Schmid, 2019; Kleuvers, 2023). To keep a click, having ways to select neighbours to fit the vision and design are not enough. Over time, any community will change, and the cohousing building should be able to adapt to changing people and cohousing vision.

In the Mehr als Wohnen project in Zurich, different clusters have the exact same spatial design with small private kitchens and a large cluster kitchen. One group selected people for eating together, while the other did not. Over time the private kitchens in one cluster became storage space while in the other the cluster kitchen was catching dust. Respectively, the communities were frustrated by either the too small cluster or too small private kitchens while the other was deemed useless (Khatibi, 2022). Both communities wished that the design was different to facilitate their vision better. Same design, different visions, both did not have a perfect click.



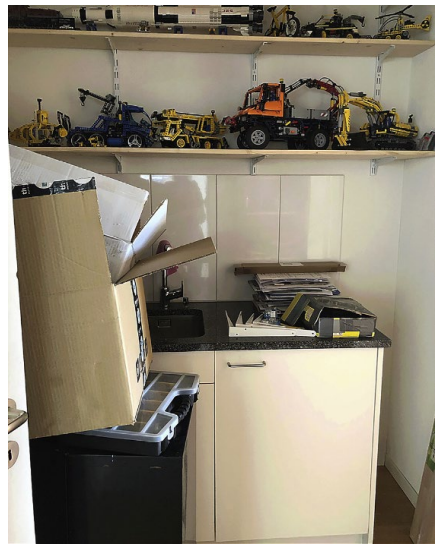


Figure 3.16 & 3.17 On the left a private kitchen of the group that did not use the cluster kitchen. On the right the private kitchen of the group that did not use the private kitchen (Khatibi, 2022).

"Common spaces are often not well-used, with a lack of purpose a major factor (or purposes not matching resident interests)."

- Thompson (2020)

Spontaneous interaction

Unplanned, informal, light-hearted encounters, are the oxygen of any community.

"Facilitating informal interaction is more important than an instagramable design and should not be left up to unsubstantiated intuition"
- Harmen van de Wall (2020)

Social interaction is often stated as an important reason for people to live in a cohousing community (Camp, 2017; Schmid, 2019; Pereyra & Repponen, 2024). There are, roughly, two very distinct types of social interaction ("*ontmoeten*" in Dutch): the planned and the unplanned. Both lead to engagement in different ways and both require very different socio-spatial qualities and are thus separate base principles. Spontaneous social interaction, also often referred to as casual or accidental encounters, are natural opportunities for residents and visitors to meet (ID22, 2017; MVRDV, 2024)

Spontaneous interaction is an important aspect of social sustainability (van de Wall & Dorst, 2016). Casual encounters are important both as a starting point for new social connections and for maintaining existing relationships (Arnold, 2016). Strong social connections can develop when people have opportunities for light, unscheduled interactions with a limited number of neighbours (Happy Homes, 2024). Cohousing design can therefore influence the quantity and quality of spontaneous encounters, leading to both new and stronger relationships within a community, and strengthening overall community engagement. As a bonus, spontaneous encounters have been shown to increase happiness (Molster, 2020).

Spontaneous interaction should be facilitated at many scale levels: from the neighbourhood to the street, the building, the household and at the transition zones between (Mantingh & Duivenvoorden, 2021). A person needs both strong ties and weak ties in a community, with weak ties being equally important. These are relationships that don't take much time or energy but allow you to exchange favours and feel a sense of trust and belonging (Thompson, 2020).

Generally, the lower a socio-spatial scale, the stronger the relationships and therefore spontaneous interaction becomes more important for maintaining and strengthening relationships. While at higher social-spatial scales, the function of creating new contacts and a sense of overall trust and belonging becomes more important.

Planned social interaction will become more prevalent for social interaction the more public a social-spatial scale level is (Dijkhuis & Krabbendam, 2020). On lower socio-spatial scales like a house share or small cluster that shares daily living spaces (pattern [28]), activities like eating together are more easily arranged in a spontaneous informal manner. The larger the social scale, the more activities like eating together require planning, coordinating and teamwork. It starts to look more like work and are therefore often managed in designated working groups for planned interaction (Dijkhuis & Krabbendam, 2020). In the past decades, due to cultural and economical shifts, people have had increasingly less time for being at home. This makes spontaneous interaction increasingly important for cohousing communities as people find less time for organizing and attending planned social events (Fromm & Jong, 2020; Drenth, 2021).

"increase the affordance of proximity and privacy in the space by influencing the legitimacy of certain behaviors that might otherwise be seen as rude or intrusive."

- Fayard and Weeks (2007, p. 47)

Thompson (2020) states that there are different types of spontaneous encounters. In circulation spaces, people encounter each other more often but receptivity is relatively low, meaning that people are less likely to engage in long and meaningful interaction. In destination spaces like a common room or garden, people are less likely to spontaneously interact but once they do, they are not on the move, and thus their receptivity is higher.

Space	Encounters	Receptivity
Circulation	High	Low
Destination	Often low, aim for high	High

Figure 3.18 According to Thompson (2020) social connections develop through encounters + receptivity + catalysts and different spaces provide these to different extents.

Thompson also states that a catalyst is needed for social connections to develop. This is the reason to interact beyond saying “hello”. Whyte (1980) constructed the concept of “*triangulation”*. It is the process by which some external stimulus provides a linkage between people and prompts people to talk to each other. Simply said, triangulation is having something to talk about (Heren5, 2016).

Figure 3.19 In his book Soft City, David Sim (2019) describes a nursery home where seniors barely used the common room and if they did, they did not interact much. An architect came up with a simple solution: cut a hole in the hedge so the seniors could watch and talk about the adjacent basketball court.

In line with Thompsons theory, proximity is an important concept in understanding how design may facilitate spontaneous interaction. If people are physically closer to other people or facilities, they are more likely to engage with them (Paes, 2017; Khatibi, 2022; Nguyen et al., 2024). Besides leading to higher chances of spontaneous interaction proximity also leads to a higher sense of ownership (Kesler, 1991; Fayard and Weeks, 2007; Mantingh & Duivenvoorden, 2021).

Finally again, attractiveness as described at the base principle “click”, is important for both residents to actually go to spaces (Dijkhuis & Krabbendam, 2020), and to linger there (Thompson, 2020) to increase spontaneous encounters and therefore their engagement with the community. Pattern [14] emphasises the importance of circulation design.

“Spontaneous interaction is the oxygen of any community.”

- Flip Krabbendam

Planned interaction

Traditions, rituals and events provide social structure and identity in a community

“A range of events or organised activities can provide catalysts for residents to meet others with similar interests. “

- Thompson (2020)

Often when people think about designing for cohousing, they think about an event space for organized social activities. Shared organised events may offer residents a safe and comfortable opportunity to interact and by doing this engage with the community (Fromm & Jong, 2020; Kleuver, 2023). “Planned interaction”, “organised activities” or “events” are defined in this report as a social interaction that is planned beforehand with a date, time and place. This ranges from a yearly general assembly about the building to a regular weekly movie night and a birthday party.

Figure 3.20 A public event in the common room of cohousing De Warren (Warren, 2024).

In many western countries, people have parted from traditional lifestyle with religious norms and conservative social structures and traditions. By parting from this, many in society also lost those traditions and rituals that shape a persons life, and give meaning and create strong community bonds (Sennet, 2012; Kleuver, 2023). A cohousing community can provide a social framework with new traditions and rituals that foster a sense of belonging, purpose and community.

In addition, planned events are highly practical, if not necessary, to keep a community running. On DIY-days, a community can collectively do maintenance tasks and simultaneously increase their sense of ownership. At meetings they can make decisions on how to spend collective means and discuss if there is still a click between people, vision and design. For many in a community, it is the planned get togethers with working groups that are a large part of their social interaction within a community (Kleuver, 2023).

Planned interaction happens on all possible socio-spatial scales, but as explained in the previous paragraph, it is more prevalent on higher socio-spatial scales. It is also a great way for a lower scale level to interact with higher scale levels by, for example, inviting the neighbourhood to an event in the common space of a community. For design to lead to community engagement by facilitating planned interactions, physical space is quite essential (LVGO, 2021). Research done by Nguyen et al., (2024b) found that due to lack of such a space for events, people organised parties and traditions in the corridor. Pattern [26] describes multifunctional spaces which many communities have used to host various events.

Figure 3.21 Bulletin board with events at project Gleis 21 in Vienna (LaFond & Carones, 2024)

Social continuity

Valuable social relationships need much time to grow and to thrive

“When buildings incorporate flexible design,
it allows people to remain in a community long-term and build stronger social ties.”
- Hebert et al, (2022c)

Valuable social and spatial relationships need time to develop. Generally, the longer people live in a community, the higher the quality of relations gets, creating a higher overall trust, satisfaction and sense of community (Happy Cities, 2024). People are more likely to engage with people and places they trust, feel at home with and feel connected to (Kessler, 1991; Overtoom, 2024). A person is more likely to provide informal care for a neighbour they have known for 20 years rather than 2 months. So, the longer people are able to stay in the community, the higher the engagement, leading to the many potential benefits of cohousing.

“It is an ongoing process to assess whether the building continues to meet the needs of current and future residents.”
- Oosterlee (2023)

Flexibility is a key word in this. In the “click” paragraph it has already been discussed that a community’s vision can change over time and that the design should be able to adapt to that. But even if the community keeps the same activities and values, individual members will inevitably go trough different phases in their lives (LVGO, 2021; Prytula et al., 2024). Maybe they get a partner, have kids, get a divorce, start working from home, or become wheelchair bound. Ideally the cohousing design can facilitate these kinds of changes in the life of a single household to facilitate the social continuity of the overall community. Again, this works on different social spatial scales. Even in the social-spatial scale of the neighbourhood, for example, people feel engaged more if they meet similar employees in the local shop (Thompson, 2020). The “why” for social continuity is not complicated. The “how” and “what”, which are discussed in patterns [27] and [36] to [39], however, are.

PART 4.
PATTERN CATALOGUE

Cohousing De Schilders in Ghent by Havana Architects

“Each pattern represents our current best guess as to what arrangement of the physical environment will work to solve the problem presented. ... all free to evolve under the impact of new experience and observation.”

- Alexander et al., (1977)

“There is no simple, deterministic relationship between physical characteristics of an environment - such as distance, open architecture, or the presence of shared resources - and patterns of informal interaction that occur in that environment.”

- Fayard and Weeks, (2007)

This part of the report gives an answer to the second research question: *What are the design patterns that explain how cohousing design facilitates community engagement?* Part 2 of this report explains how these patterns were researched. 40 patterns have been formulated to reach a balance between complexity and comprehensiveness. This part of the report is the outcome of the research process that is described there. Almost all patterns are interacting with other patterns and multiple principles. The index below uses a rough thematic grouping.

All patterns describe a problem, then a design proposition to solve that problem, followed by a precedent to back up the proposition. Finally, each pattern's main relations are indicated.

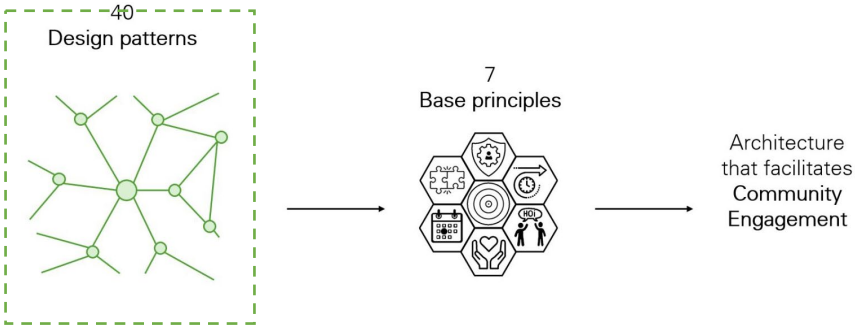


Figure 4.1 40 socio-spatial base principles of how design can facilitate engagement.

Social spatial scales

Soft edges of scale levels

Circulation

Qualities of spaces

Flexibility

A layered community [1]

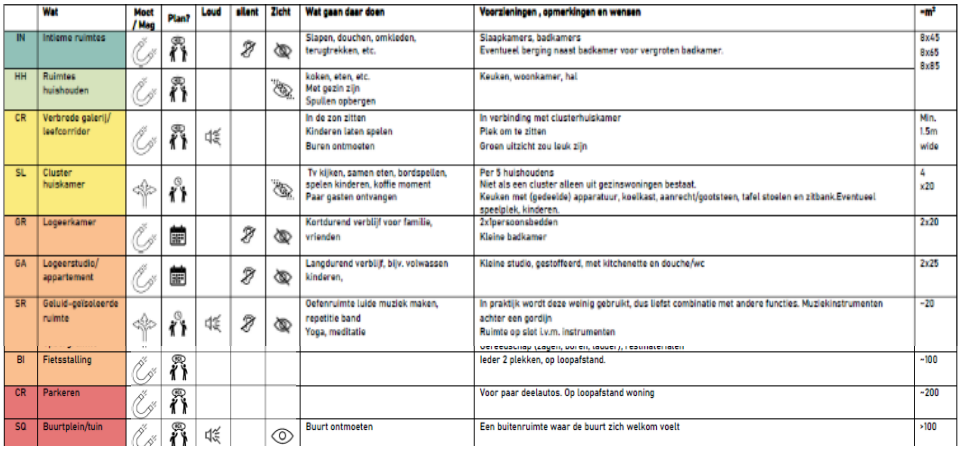
Problem

As described in part 3 of this report, all base principles work differently across different social and spatial scales. In addition, some facilities work better in a large community, others in a small one.

Figure 4.2 Sharing a daily use kitchen with over 20 people without formal maintenance?

Proposition

Make the program with the cohousing design in a sequence of socio-spatial scales. Consciously design facilities that click best for the community per each scale. This creates multiple layers of community. Part 5 describes methods on how to co-design for this.



	Wat	Moet / Mag	Plan?	Loud	silent	Zicht	Wat gaan daar doen	Voorzieningen , opmerkingen en wensen	~m²
IN	Intieme ruimtes						Slapen, douchen, omkleden, terugtrekken, etc.	Slaapkamers, badkamers Eventueel berging naast badkamer voor vergroten badkamer.	8x45 8x65 8x85
HH	Ruimtes huishouden						koken, eten, etc. Met gezin zijn Spullen opbergen	Keuken, woonkamer, hal	
CR	Verbrede galerij/ leefcorridor						In de zon zitten Kinderen laten spelen Buren ontmoeten	In verbinding met clusterhuiskamer Plek om te zitten Groen uitzicht zou leuk zijn	Min. 1.5m wide
SL	Cluster huiskamer						Tv kijken, samen eten, bordspellen, spelen kinderen, koffie moment Paar gasten ontvangen	Per 5 huishoudens Niet als een cluster alleen uit gezinswoningen bestaat. Keuken met (gedeelde) apparatuur, koelkast, aanrecht/gootsteen, tafel stoelen en zitbank.Eventueel speelplek, kinderen.	4 x20
GR	Logeerkamer						Kortdurend verblijf voor familie, vrienden	2x1persoonsbedden Kleine badkamer	2x20
GA	Logeerstudio/ appartement						Langdurend verblijf, bijv. volwassen kinderen,	Kleine studio, gestoffeerd, met kitchenette en douche/wc	2x25
SR	Geluid-geïsoleerde ruimte						Oefenruimte luide muziek maken, repetitie band Yoga, meditatie	In praktijk wordt deze weinig gebruikt, dus liefst combinatie met andere functies. Muziekinstrumenten achter een gordijn Ruimte op slot i.v.m. instrumenten	~20
BI	Fietsstalling							Ieder 2 plekken, op loopafstand.	~100
CR	Parkeren							Voor paar deelautos. Op loopafstand woning	~200
SQ	Buurtplein/tuin						Buurt ontmoeten	Een buitenruimte waar de buurt zich welkom voelt	>100

Figure 4.3 Example of a design brief where colours indicate the dominant socio-spatial scale of facilities. Still depending on the activity, a facility may have a different social-spatial scale.

There is no perfect size or amount of layers in a community. As described in base principle “click”, it is most important that people share facilities on a socio-spatial scale that they want. In figure 4.4 there is a schematic example of a layered community where not every group has the same amount of layers and shared facilities within the community of a car free street.

Most people, for example, don’t want to share a kitchen with people from outside their family. Some would like to share facilities like a garden, vegetable greenhouse and tools with 10 other families. And maybe 3 of those families would even like to pool resources and share a grand luxury kitchen together. This shows that within a larger community, smaller scales can exist, and not all need to share similar facilities, while everyone maintains a click on their scales.

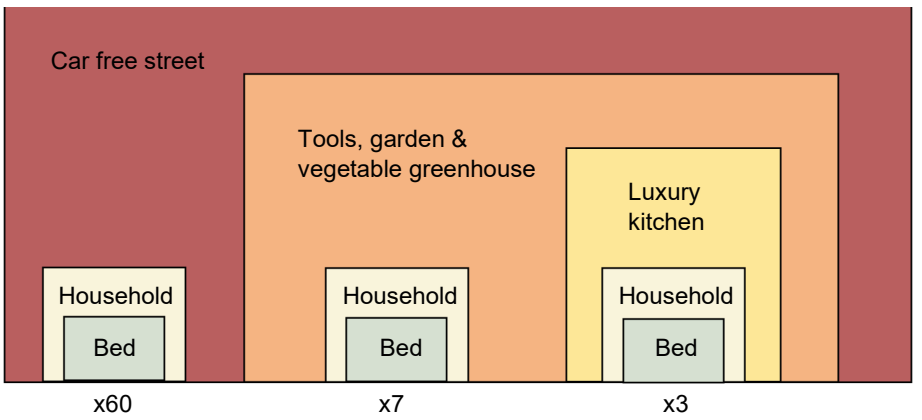


Figure 4.4 Schematic display of potential diverse layers community within community.

Precedent

In Centraal Wonen Hilversum, the first of its kind in The Netherlands, there are multiple social spatial scales. First, there is the social scale of the neighborhood which has a spatial component of a pedestrian street trough the cohousing project (in red). Then there are the facilities on the scale of the entire community (in orange). Within this community there are 10 clusters of 4 to 5 households (in yellow). There are also households that do not belong to a cluster and thus “ skip” a social-spatial scale that others do have. Within the households the more intimate bedrooms are positioned on the higher floors and on the back.

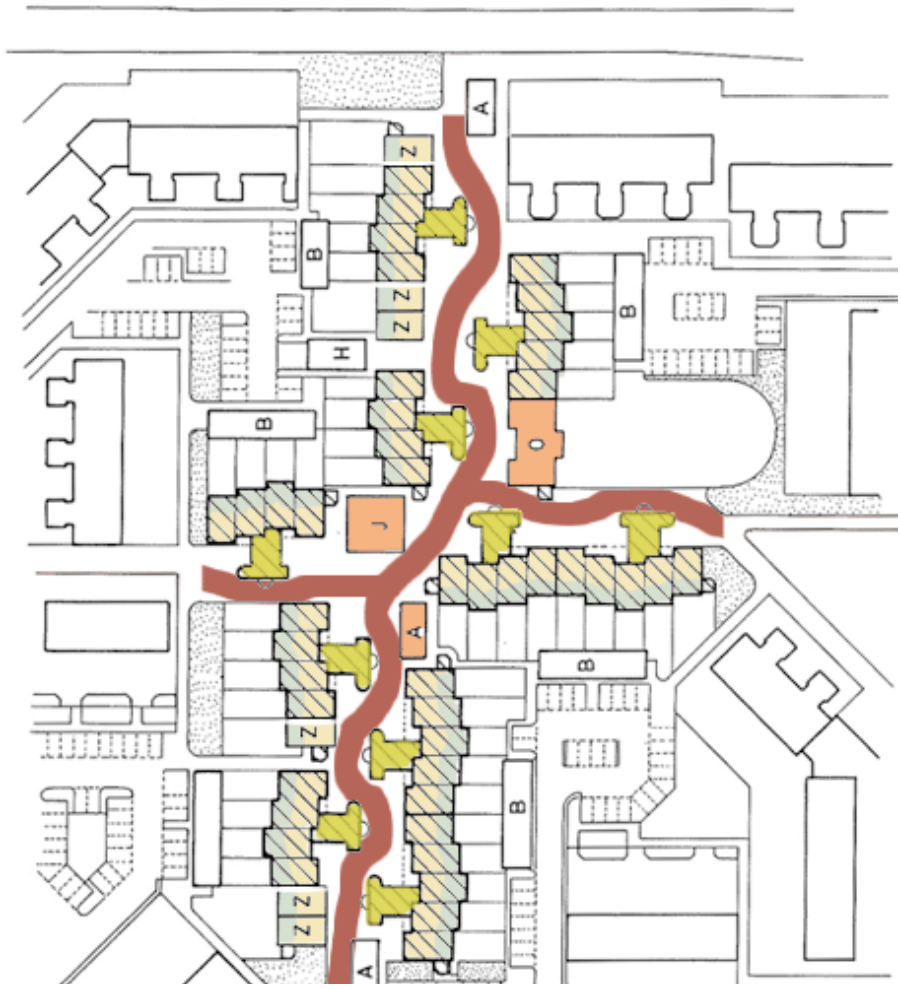


Figure 4.5 Centraal Wonen Hilversum with schematic colours of the socio-spatial scales.

Relations

Organisational aspects closely relate with the socio-spatial aspects. For example, a kitchen that is meant for daily use can be used in a spontaneous unplanned way by over a 100 people, but generally that is only possible if there is a formal organisation that cleans and does maintenance. With 4 people that is not needed to spontaneously share a daily kitchen. Generally, the higher a social spatial layer, the more formal the organisation needs to be.

Linked to maintenance and organisation is decision-making. Generally, on a small scale of up to 15 people, “consensus” is often chosen, meaning that everyone agrees on decisions. Also, the impact of the decision matters. A new neighbour has great impact on daily life and is generally something everybody must agree on. The higher the social scale, the harder it is to reach consensus, and the more likely it is people adopt consent (no one disagrees strongly) or even majority vote. In part 5, more is explained about these aspects of cohousing.

Also, costs play a big role in determining what facility is best on what social-spatial scale. For example, a big wood workshop with professional tools and space can be paid for and used by only three households, but unless they use it daily, that makes little sense. In practice this is a facility that is often used at a scale of 30 or more households. Again, there are no right or wrong answers, and there is always an exception to the rule. Below an overview of what is often seen in practise. More research is needed to evaluate what type of facility often functions well in terms of effective use and maintenance in relation to social, organisational and cultural aspects.

Rules of thumb for Scale Levels					
Socio-spatial scale	People	Maintenance	Decision making	Space example	Choosing who
Intimate	1 ~ 2			Bedroom	Dating
Household	1 ~ 6	Informal	Private	Living room	
Living together	4 ~ 15	Trust	Consensus	Shared kitchen	Choosing with consensus
Good neighbours	50 ~ 100	Task groups	Consent / majority	Event space	Clear expectations both ways
Neighbourhood	> 100	Formal	Majority / ALV	Com. garden	No control

Figure 4.6 Rules of thumb of organization aspects per possible socio-spatial scale. More research is needed to back up this overview.

Important related patterns are pattern [3], that dictates that the socio-spatial scales should be readable in the design. And pattern [4], that each social scale should have spatial framework for expression. Pattern [5] addresses the problem of designing routing strictly in sequences.

A gradual privacy gradient [2]

Problem

Where socio-spatial scales meet, there is a difference in privacy. When socio-spatial scales are very different this may affect the privacy of the low socio-spatial scale leading to the *privacy paradox* as described in part 3, negatively impacting privacy and social interaction.

Proposition

When designing the spaces of a spatial scale, determine if there is a difference in required privacy and design the more public facilities on the more public side (van Dorst, 2005). For example, in most cohousing projects, families have their own complete homes with a bedroom, bathroom and kitchen at the social-spatial scale of a household. As the bedroom is on a more intimate scale within the household, it is better not to have the intimate bedroom at the side of a more public street or walkway. The household kitchen would be a better fit. This way, there is a more gradual transition from socio-spatial scale levels (Nguyen et al., 2024).

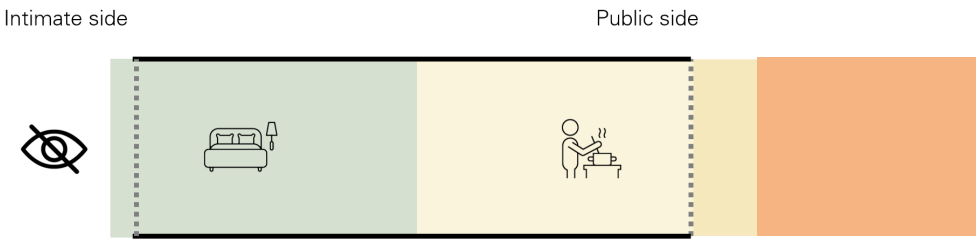


Figure 4.7 Private side with less chance of people looking inside, and public side where spontaneous interaction and indoor-outdoor connection is more likely.

In Christopher Alexanders original pattern language, pattern 127 resembles this one:

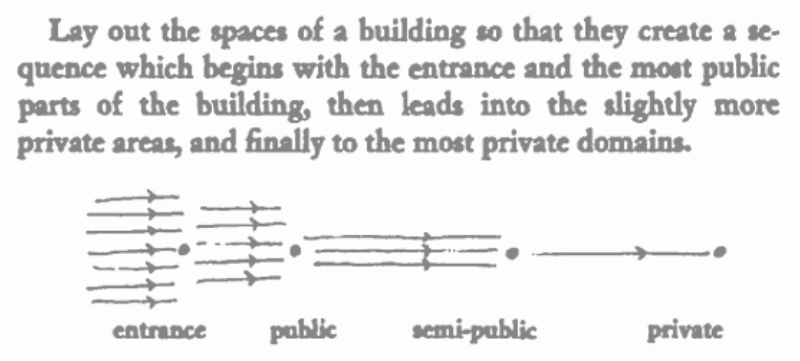


Figure 4.8 Alexanders pattern 127, the Intimacy gradient (Alexander et al., 1977).

Precedent

In most Dutch rowhouses, the living room and often the kitchen are on the street side, while bedrooms are upstairs or in the back. Yet in apartments with walkways (*galerijflat* in Dutch) the bedroom is often on the walkway side because the entrance hallway takes space between the structural walls. To design a spacious living room, this often ends up at the wide available space in the back. The resulting bedroom next to the shared walkway is a big jump in privacy.

Figure 4.9 Bedrooms next to a long and public walkway in Delft. Closed curtains all the way.

Relations

Reducing the *privacy paradox,* keeps curtains open more often and increases the *eyes on the street* and thus heightens the safety of the higher scale level of, for example, the more public street or walkway (Jacobs, 1961).

Besides designing with the gradual gradient of scale levels in mind, also make sure there is a transition zone where scales meet as is described in the patters [7] to [11].

For climate passive buildings (*Passivhaus*), the south side should have big windows and a cantilever, perfect for a living room. The cool north is then reserved for the more intimate bedrooms with smaller windows.

Figure 4.10 Mehr Als Wohen is a cohousing cooperative in Zurich (Khatibi, 2022). Notice how, despite the playful plan, there is always a gradient in socio-spatial scale levels. Between the cluster spaces and the intimate spaces of the bed and bathrooms, there is always a kitchen or living room used for one or two bedrooms.

.

Show those scales and clusters [3]

Problem

Territoriality is a concept where different spaces become territories where different people or groups feel control over and as a result have different social rules (Paul A. Bell et al., 2000). If these territories, with their rules and norms, are not visually recognizable, conflict can arise. Also feeling at home relates to visually identifying home (Overtoom, 2024), and with home being a concept that works trough socio-spatial scales it is good to visually recognize this gradient.

Proposition

Therefore, in the design, the different socio-spatial scales should be readable (van de Wall & van Dorst, 2016). Also, different groups that are on a similar scale, like 4 clusters of 5 households, should be visually distinct within the visual language of a larger scale. This can ben done with different colours, material, signs, volumes, gates and more (Bouwmeester & Bouwens, 2024). Design noticeable entrances of each social spatial scale. And don't forget, where does the postman deliver, guests ring the bell and the pizzaman wait for you?

Precedent

In Centraal Wonen Hilversum the community has a different design in shape and colour than the surrounding neighbourhood. Within the community, each cluster of 5 houses has one cluster room and kitchen which are the only buildings with a flat roof terrace, and these cluster rooms stick out into the street (Kesler, 1991; Fromm & Jong, 2020). Yet, the clusters have no distinct expression from each other.

Figure 4.11 Centraal Wonen Hilversum, also known as Wandelmeent.

Centraal Wonen Delft has a similar building height and density as the rest of the neighbourhood, but it stands out in the neighbourhood in terms of buildings form and materialisation. Within the community there are four large clusters which each a distinct colour. Today people still identify with “their” colour and the associated lifestyle (Drenth, 2021). The different living groups within each coloured clusters are less apparent in the design.

Figure 4.12 The four colors of Centraal Wonen Delft.

Figure 4.13 At Spaarndammerhart in Amsterdam carefully designed passages indicate the transition to a lower social-spatial scale level (Pintos, 2021).

Relations

This is a great opportunity for an architect to design for aesthetic complexity. Visual variety in façade design reduces perceived density and boosts residents' sense of place (Happy Homes, 2024). Areas with a new type of façade every 10 meters, roof landscapes and changes in the building edges are generally perceived as more favourable by most people. (Karssenberg et al., 2016; Molster, 2020).

The architect thus has a task in making different scales and groups per scale visually distinct while maintaining coherence on a larger scale. Yet, the design should also leave space for each social scale to be appropriate. Pattern [4], *Framework for expression*, describes this.

"Ensure abundant, pleasant visual stimulation along building edges and pathways. Ban blank, boring spaces"

- Happy Homes (2024)

"Variety works within rules"

- John Habraken

Framework for expression [4]

Problem

When people are allowed to personalise a space or collaboratively design it, they feel more connected to their homes and their neighbours. It can also lower levels of stress and increase feelings of belonging and inclusion (Mantingh & Duivenvoorden, 2021; Hebert et al., 2022). People feel a stronger sense of attachment and belonging to places that express their sense of self, culture and values (Happy Homes, 2024). At the same time, “too much” or unattractive personalisation can also lead to conflicts within a community or clash with formal regulations (Bouwmeester & Bouwens, 2024). Fire safety regulations also restrict personalisation (UK Home Office, 2023; Brandweer, 2024).

Proposition

Within the readable design of the architecture as described in pattern [3], there should be a framework in each spatial scale for each corresponding social scale to express their shared identity and have a sense of ownership (Hebert et al., 2022). By imposing constraints, usually literally designing zones and walls that may be appropriated, the spatial scale remains readable in the architecture while still allowing an infinite number of possible designs for self expression of the residents of that social scale. Also, expression and appropriation may remain within fire safety regulations.

For example, households may colour their front door (Happy Homes, 2024). Each cluster of households makes a wall painting within an architecturally designed frame by the shared entrance, while the community of 30 homes may express themselves collectively by choosing the façade material and colour together.

To avoid conflict, clear rules need to be set up front to avoid annoyance by those that cannot appreciate some else’s way of expression or disappointment by someone that feels unexpectedly too limited in their expression by sudden restrictions from neighbours. These expressions can also be great opportunities for shared events where people come together to create or change how they want to express their socio-spatial scale. In any cohousing, the first generation has a large opportunity to express themselves in the design, but should consider how, when and where new residents may alter the expression in the future.

Precedent

At Cohousing New Ground in London residents are allowed to express themselves in the indoor corridors within the boundaries set by the fire department. In the garden, each resident has an appointed garden box which they can plant and maintain to their own liking. On a wall, next to a shared path, the residents proudly display a mosaic artwork they created together.

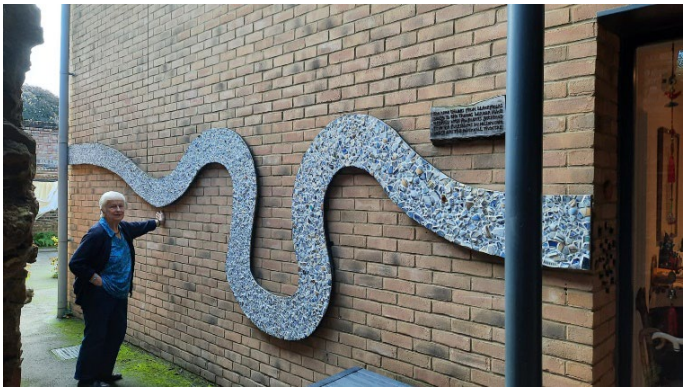


Figure 4.14, 4.15 & 4.16 Frameworks for expression at Cohousing New Ground.

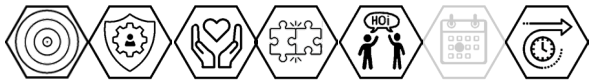
At Cohousing Marmalade Lane in Cambridge, expression was a source of conflict. In the apartment building, after debate, residents are now allowed to choose their own colour of sunshades. However, someone was not allowed to change the colour of the balustrade as it would impact the coherence of the spatial scale level of the entire apartment building too much. At the projects rowhouses, disagreement about a rose gate to someone's household garden let to such disagreement that someone permanently left the community.

Figure. **4.17 & 4.18** In Marmelade Lane, expression was source of conflict.

Relations

Homeownership might impact the freedom in which community residents will allow each other to express themselves, as residents might be afraid that a neighbour's expression might lower their own property value. In a coop, property value is no concern, as is described more detailed in part 5, room 2. Finally, the *transition zone* [7] is a great place for a *framework for expression*.

A community is not a tree [5]



Problem

Pattern [2] states that socio-spatial scales should be designed in a sequence of public to private. If each smaller socio-spatial scale branches into an even smaller branch to create a sequence of an intimacy gradient, then a tree structure forms. This does, however, isolate the lower social scales and creates no horizontal/lateral connections.

Proposition

Make connections between groups of similar scale levels: same scale connections.

Precedent

In his 1965 essay “a city is not a tree” Christopher Alexander observed that well functioning cities that had organically grown formed a semi-lattice structure where each node has many connections and not just one to a higher level like in many planned cities (Alexander, 1965).

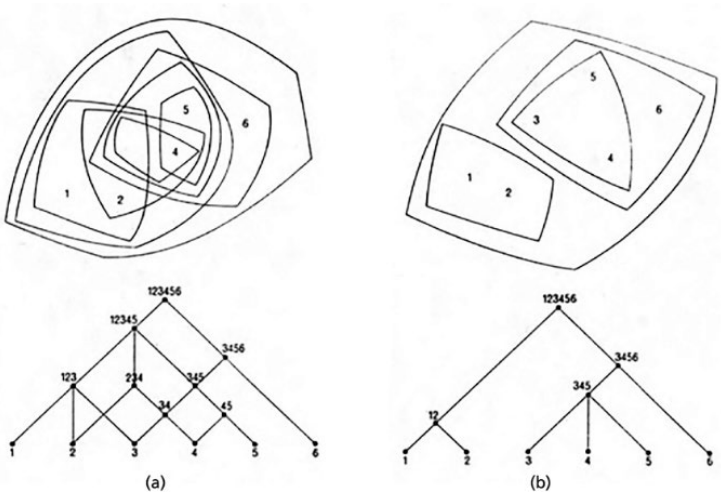


Figure 4.19 On the left a semi-lattice diagram, on the right a tree diagram. The left is how cities often organically grow. On the right is a more top-down planned approach.

In Centraal Wonen Delft each of the 4 clusters contains multiple groups that share a kitchen and daily living space and kitchen. These are connected indoors. One can thus walk from one kitchen to another, without first having to go to the circulation space of a higher socio-spatial scale level. Architect resident Flip Krabbendam calls these “in-between-doors”. They have proven to break up the isolation of the group and they facilitate more spontaneous interaction (Drenth, 2023). Also, they facilitate a greater social continuity as residents can more easily join a different cluster kitchen if that works out better socially.

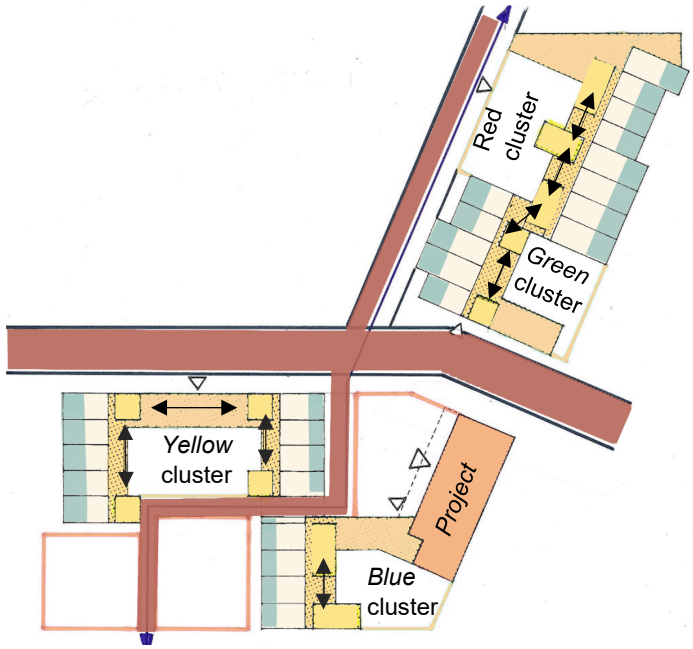


Figure 4.20 Plan of Centraal Wonen Delft. In yellow there are shared kitchens with shared living rooms. The black arrows indicate the many in-between-doors in the design. Here residents don’t have to go to a higher scale level but can directly reach each other.

Relations

This pattern falls under the more abstract pattern *circulation is communication* [14]. It can also negatively affect the base principle *privacy*. Pattern [6] addresses this problem. It does increase social continuity due to increased flexibility and their *comfortable connection* [15].

For fire safety, being able to flee to two sides is often necessary. These connections can help the design in meeting these safety requirements.

Same scale connections are not highways [6]

Problem

If “in between doors” as described in pattern 3 become the shortest route home for other groups, it does affect the social spatial scale of the space that multiple groups regularly travel through.

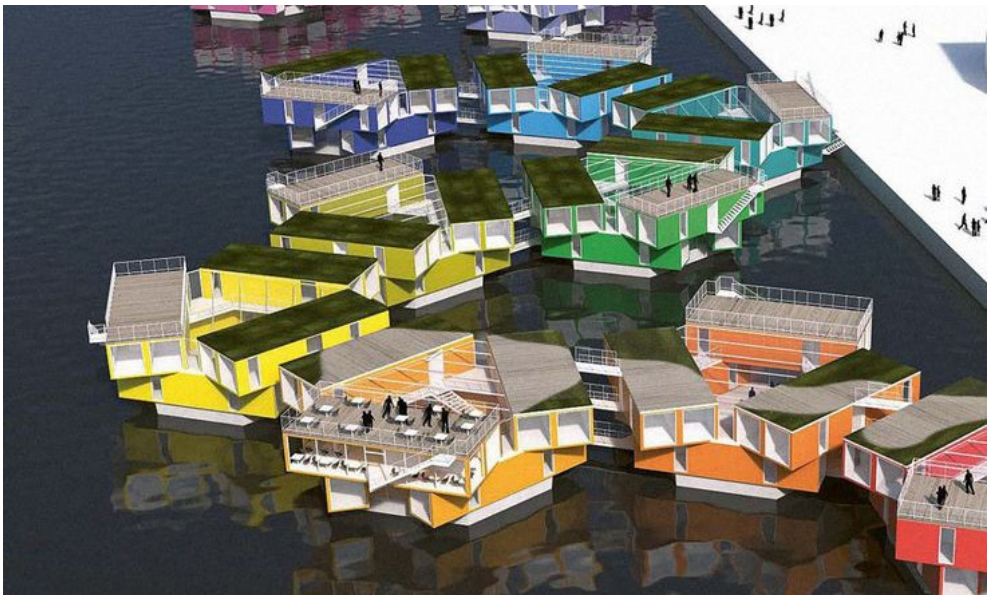


Figure 4.21 These “Urban Riggers” by architecture office BIG provide 9 student rooms per rigger with each a collective courtyard. If these would have been built as rendered here, the courtyard of the Riggers near the mainland would have become circulation spaces for tens of residents and their guests, greatly affecting the privacy, sense of ownership and thus effectively the social scale of this near-the land riggers as well.

Proposition

Same scale connections should not be the main route towards a higher social-spatial scale of too many people to not affect the privacy and therefore social-spatial scale. And if they do, as pattern [16] describes, they should pass destination spaces but not go trough.

Precedent

Figure 4.22 Eventually the urban riggers got built like this, maintaining the privacy of each courtyard. There are, however, no same scale connections here as is advised in pattern [4].

Figure 4.23 & 4.24 At Schoonschip in Amsterdam by Space & Matter (Groot & Potjer, 2024), children use the same scale connections that connect the 5 clusters of each 6 houses. The residents enjoy the spontaneous interactions it facilitates, and it makes the floating neighbourhood feel like one community where people can visit each other without going via the land. Still, privacy of the clusters is maintained as the 5 main piers directly connect to the land and are used for circulation to higher social-spatial scales of neighbourhood and city.

Relations

This pattern addresses a problem created by pattern [5], *a community is not a tree*. Patterns [14], [17], [18] and [19] also address the balance between privacy and interaction while designing circulation in a cohousing project.

Transition zones: the cement between scales [7]

Problem

People don't have to move trough a space to affect its privacy. Where one socio-spatial scale level meets a higher socio-spatial scale level, and the border is transparent, like a window or fence, people can look into the lower scale, greatly affecting the privacy. This often leads to the permanent closing of the transparent border (closed curtains). This also negatively affects the safety of the higher scale level as there are less *eyes on the street,* and it decreases the spontaneous interaction as there is no visual connection between the scales. Also, it affects ownership as a visual connection to a place heightens the sense of ownership (Kesler, 1991; Paes, 2017; Thompson, 2020). Finally, it reduces the daylight inside which may impact the mental health of the people inside.

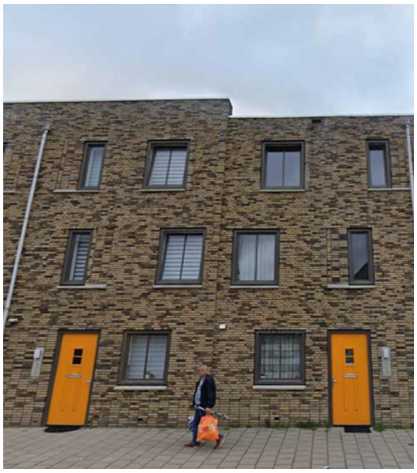


Figure 4.25 & 4.26 An older street in Deventer (left) and newly built street in The Hague with closed blinds. Both have no transition zone between the household and city scale levels.

Proposition

Design a transition zone between scale levels. Besides a literal zone, it can also be more subtle like a stoop, a patio, a door alcove or canopy.

Precedent

Figure 4.27 At Cohousing JEAN, the scale level of the household has a little terrace and high greenery to the path that is used by the community of 10 households. Residents stated that despite the large windows, they usually keep their curtains open which is rare in Belgium. Note that this is not a public street. The size and effectiveness of a transition zone very much depend on how big the transition is between socio-spatial scales.

Figure 4.28 At apartments Brekersveld in Rotterdam, architect Ianthe Mantingh added steps from the balconies to transform a no-mans-land into vibrant transition zones (Mantingh, 2024).

Relations

Also, for walkway apartments, transition zones can help as cement between the social-spatial scale of the floor and, usually, the household. Especially as walkways usually go right past windows. However, with these extra wide walkways, daylight can become a problem. For this there are various solutions.

Figure 4.29 At Knarrenhof Gouda, each level has a setback providing more daylight to the floors below.

Figure 4.30 There are also various forms of walkways away from the windows with balconies.

Figure 4.31 A walkway variant where the private balconies stick out is a common solution. However, here the private areas do no longer serve as transition zones between the walkway and the windows. Another disadvantage of this model is that the private areas are surrounded by more public spaces. Here the transition zone does not offer *refuge* anywhere (Browning et al, 2014). *Refuge* is the feeling of safety that a wall at your back provides.

Pattern [8] further explains how a transition zone can function as a bufferzone for privacy. Pattern [9] further explains how a transition zone can function as a threshold zone that leads to more spontaneous interaction. Pattern [10] explains how a transition zone can be an expression zone for a sense of ownership as explained in pattern [3].

Buffer zone: transition zone as buffer [8]

Problem

When there is a large jump in social-spatial scales residents will often permanently close the transparent border of the zones (closed curtains) or they try to create distance in another way.

Figure 4.32 A facade in The Hague that is so transparent that paradoxically it is always closed

Figure 4.33 A street in Delft where a resident made its own bufferzone.

Proposition

There are no clear quantifiable rules on how big transition zones needs to be to function as buffer. Multiple aspects need to be taken into consideration. Most importantly, the greater the jump in scale level, the greater the buffer needs to be to keep transparent borders transparent. Another important aspect is the transparency of the border. Transparency applies to all the senses: sight, sound, smell and touch (the vibrations of a train).

Precedent

Buffer zones are not just relevant between the scales of a household and a street or walkway. Between intimate and household there is another common buffer zone: the hallway. Hallways hide. They hide sight from a visit to the bathroom, sound from the living room television, smell from the kitchen and so on.

Figure 4.34 Hallways hide

Relations

Besides the “what”, the “who” is very important for the functionality of buffer zones. Generally, Dutch people are relatively okay with open curtains and neighbours looking inside. In many other cultures, especially Islamic, any transparency to a higher scale level is always, at least visually closed off (Nio et al., 2022).

Threshold zone: Transition zone as connector [9]

Problem

Some research suggests that in many neighbourhoods 80% of casual encounters between neighbours happen in the transition zone between household and street (Mantingh & Duivenvoorden, 2021). Yet, sometimes the transition zone does not function this way.

Another problem is that cohousing communities are sometimes seen as gated communities that live with their backs towards their surroundings (Ruiu, 2014).

Figure 4.35 Transition zone between a household and street at Cohousing Marmalade Lane.

Proposition

For a transition zone to function for spontaneous interaction, people need to stay there, and others need to pass it. First of all, people need to want to spend time there. Therefore, there needs to be a *reason to use* [21]. This becomes higher if people feel at home at the transition zone [10]. Also, people of the higher scale level should actually walk past there so that *circulation becomes communication* [14]. Again, the difference between socio-spatial scales is important, people are more likely to spend time in their transition zone if there is not a large jump in social spatial scale levels.

Figure 4.36 The American porch is a typical transition zone with often a literal threshold that creates enough vertical and horizontal distance (privacy) and a unique quality (a sheltered outside) that people spend much time there. As long as neighbours walk and not drive past [12], it is a great threshold for spontaneous interaction in a more rural setting.

Like the buffer, the threshold function of a transition zone also functions between all socio-spatial scales. To avoid that clusters within a project become isolated from the larger community, and to avoid cohousing projects from becoming gated communities within a neighbourhood, design for the threshold function.

Again, there is no perfect size for a threshold zone and it depends on many factors. A small height difference of around 0.5 meter can help (Sim, 2019). And generally, if a zone is small there is little quality to spend time there, but if it is too large, it can loose the function of transition zone but can become a walled of destination in itself like a garden with high fences.

"Some residential corridors are large enough to provide neutral ground for residents to meet, and safe spaces for children to play. Residents of small units might also use them as break-out spaces, for silence or enjoying winter sunlight. Spaces like this should be pleasant (natural light, well-ventilated, seating), easy to clean, and afford purposeful but flexible use."

- Thompson, (2020)

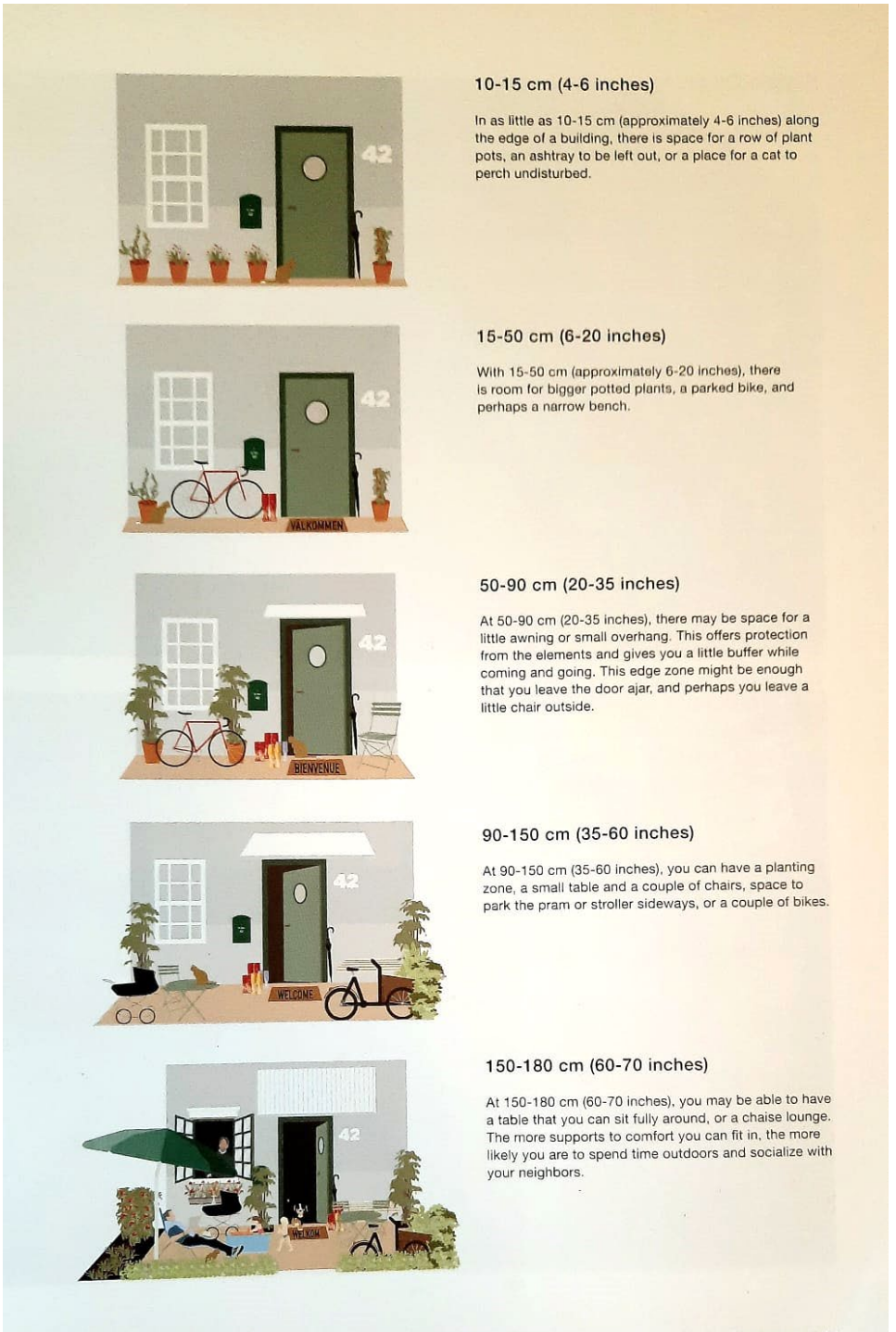


Figure 4.37 How different sizes facilitate different uses. From Soft City by David Sim (2019).

Precedent

Figure 4.38 Bankjes *collectief* (benches collective) is an initiative that encourages people to open their bench to neighbours once a month in the summer. This shows that a simple bench in a threshold zone can become an event space for planned interaction.

Figure 4.39 Cohousing Bijgaardehof in Ghent is a collection of three large clusters of around 20 households. They each share facilities like shared living rooms, laundry and co-working spaces. Between the clusters and the communal garden, they have a threshold zone.

Figure 4.40 Cohousing Bijgaardehof also has a transition zone towards the neighbourhood park. Between the walls of a former factory, the community shares a vegetable garden with the higher socio-spatial scale of the neighbourhood.

Figure 4.41 Vrijburcht in Amsterdam has incorporated “third places”. These spaces, not home and not work, can become an inviting place for the scale of the neighbourhood, yet is still run by the scale of the community (Hebert et al., 2022; Thompson, 2024). Like the vegetable garden in Bijgaardehof, these type of spaces can have spatial, social and organisational overlaps with the neighbourhood.

Relations

Besides already described relations to other patterns, pattern [11] shows how a transition zone can be dynamic and give residents control to choose for social interaction (privacy). Again, culture and context are very important aspects as to why a transition can function for spontaneous interaction. And here too counts, the higher the socio-spatial scale, the more formal the organisation generally needs to be to maintain and organise the transition zone.

Design the zone, not the furniture [10]

Problem

To facilitate spontaneous interaction, architects often design benches in the transition zones. This leaves less space for people to express themselves [3] and lowers the sense of ownership. It is good if people can express and show their (shared) identity to a higher scale level (Blom & Soomeren, 2015; De Bont & Kessel, 2021). Also signs of personality can act as catalysts for interaction as conversation starter (Thompson, 2020). But appropriation of space can also go further than the transition zone which leads to fire safety concerns and conflict.

Figure 4.42 & 4.43 Two projects where the architect designed benches. Notice how people place their own chairs next to it and mostly use the benches as shelves for expression.

Proposition

Design clear territoriality with material, elevation, colour, texture, form, and more. (Mantingh & Duivenvoorden, 2021; De Bont & van Kessel, 2021). Of course, a more literal border like a fence can clearly indicate the border a of transition zone. So, paradoxically, to make these soft zones between the scales function best, they need to have clear borders.

Precedent

Figure 4.44 At Knarrenhof Gouda the residents on the ground floor, and on the walkways, all have clearly designed transition zones.

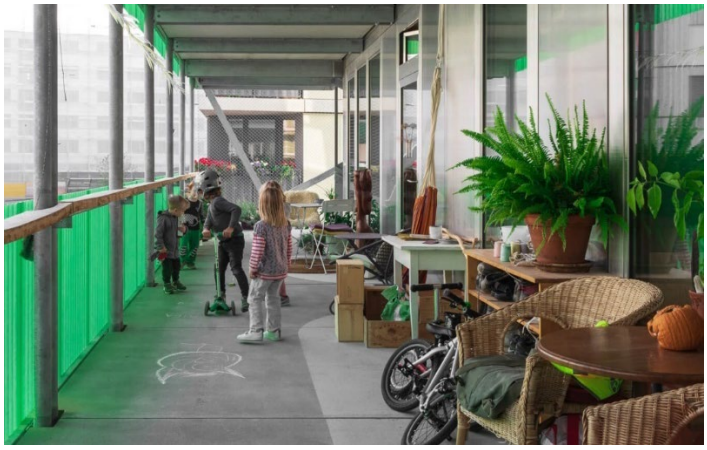


Figure 4.45 At Stadterle in Basel the community terraces have well defined zones

Relations

Increasingly strict fire safety regulations have the danger of making transition zones increasingly sterile and devoid of a sense of ownership and spontaneous interaction.

A dynamic transition zone [11]

Problem

Depending on the mood or activity of a person or group, people might enjoy a transition zone that either functions as buffer or connector (Dorst, 2005).

Proposition

Design dynamic transition zones. Easily movable elements that make the transition zone and the border between scales more transparent or more closed (Khatibi, 2022).

Precedent

These can be curtains, blinds, movable partitions, doors, double doors. All simple but very effective elements that let people choose between buffer or connection.

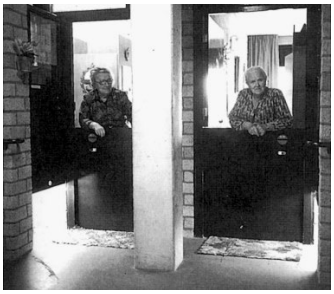
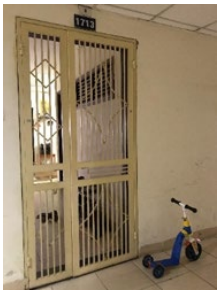




Figure 4.46, 4.47 & 4.48 Dynamic transition zones may offer a range of options in openness.

"If we are at home, we might open both doors or only open the wooden door and lock the outer steel grille door to provide ventilation and visibility in and out apartment unit."
- Resident quote from Nguyen et al., (2024)

Slow and soft streets [12]

Problem

In streets with more space allocated to cars, people are more unhappy and people feel more isolated (Happy Homes, 2024). The faster people move, the less likely they are to have positive social encounters and a strong sense of community (Scotthanson, 2005; Sim, 2019; Molster, 2020; (Happy Homes, 2024).

Proposition

Design for slower movement to increase spontaneous interaction. In street design, prioritise pedestrians over bicycles, bicycles over electrical bicycles, electrical bicycles over public transit, and public transit over cars. Make streets much more than circulation and parking. Create spaces for small events, spontaneous encounters and transition zones. When designing a community, place car parking, if you really need to have it, on the edge of the community (ScottHanson & ScottHanson, 2005).

Figure 4.49 Residents celebrate a party on the street in Amsterdam.

Precedent

Figure 4.50 At Cohousing Marmalade Lane a car free public street passes through the project. All objects are movable to make way for fire trucks. The street functions for neighbours to bike through, but is also appropriated by the community as people feel a sense of ownership.

Figure 4.51 In Rotterdam, the municipality is turning one car spot into bicycle spots, picknick benches or greenery.

Figure 4.52 & 4.53 *Holliday streets (Vakantiestraatjes* or *Leefstraatjes* in Dutch) are increasingly popular in Belgium and The Netherlands. During the summer, residents turn their street into a lively community. The streets become attractive places to be (pattern [20]) instead of just for circulation and parking.

Figure 4.54 & 4.55 The Stampioendwarsstraatsjes in Rotterdam are two car free streets with social rent studios and small apartments. The residents can choose their new neighbours. The *Click* and car free street are enough ingredients for a vibrant community.

Relations

Strict parking regulations often dictate a certain amount of car parking per household. Many communities in The Netherlands, Belgium and UK manage to get an exception to these rules but still often have a surplus of expensive spaces for cars. Many then use these as extra parking for (cargo) bikes as there usually does seem to be a lack of space for that.

Public-private-places [13]

Problem

At the scale level of a neighbourhood spontaneous interaction becomes increasingly hard. The legitimacy of starting a conversation with someone becomes much smaller when that person is more likely a stranger and social norms usually dictate one to keep to themselves.

Proposition

Create physical smaller places within the public domain with something to talk about. Then *triangulation* (as explained at base principle spontaneous interaction) can take place (Krabbendam, 2022).

A bus stop is a good example. It is a more enclosed space where strangers come closer together for a shared purpose. Now they are not just strangers, they are temporarily the social group of people waiting on the bus in a specific and defined space. This increases the legitimacy of starting a conversation (Fayard and Weeks, 2007). But what to start talking about? When the bus is delayed, triangulation happens, and people have a reason to start a spontaneous interaction.

Figure 4.56 A public-private-place with triangulation.

Precedent

A popular public-private-place is a neighbourhood playground. Here parents, and possibly others, come together and have something to talk about: the playing children.

Figure 4.57 & 4.58 "Happy to Chat" benches are spreading quickly. The one on the left has three languages on it, all providing the legitimacy to chat, and due to the different languages, something to chat about (Griffiths, 2021). The one on the right has a playground to talk about.

Figure 4.59 In the public library of Rotterdam benches are positioned in such a way that multiple strangers can sit down. The big chess board provides triangulation.

Relations

The worldwide *Placemaking* movement is helping to create more sense of ownership in the public domain. Placemakers often create surprising places and activities for people to come together (Project for Public Spaces, 2024).

Circulation is communication [14]

Problem

A common room catching dust. A collective garden growing over. A place without people. The way circulation spaces are designed has a great impact on privacy, sense of ownership and spontaneous interaction.

Figure 4.59 At this senior appartement building in The Hague a beautiful shared penthouse sits atop the roof. Yet the space is rarely used. After things got stolen and broken, residents realised that the facility, a living room for over 200 people, might not be fitting the social-spatial scale. Then the organisation and maintenance was changed. Still, no one came up. For at least one, very simple reason: no one ever passed it unplanned. Circulation here, does not lead to communication.

Proposition

Daily routes should pass places where people spend time.

Precedent

Figure 4.60 In American Pocket Neighbourhoods, paths pass playgrounds which makes people pass places with people. (Chapin & Susanka, 2011).

"Well-connected and accessible communal spaces facilitate both planned and spontaneous encounters of a collective-living setting."

Khatibi, (2022)

Relations

Many of the patterns are more specific patterns than this very important one. Pattern [2] states that it is important for circulation to follow the sequence of social-spatial scales. Pattern [5] and [6] are about why and how same scale connections may facilitate engagement. Pattern [10] describes how a transition zone can be a threshold zone for spontaneous interaction. Patterns [15] to [19] describe how circulation through a project can be consciously designed for.

Comfortable connections [15]

Problem

People generally avoid the uncomfortable. If circulation space is uncomfortable people will avoid using it, possibly hindering movement towards some spaces within a community. Also, uncomfortable circulation may lead to people spending little time in it, making the chance of people passing people smaller.

Proposition

There are multiple ways to make a route comfortable. First of all, keep it short. People tend to take the shortest route possible. Long routes to any facility can discourage people from going there at all. Proximity is an important concept (Paes, 2017; Bouwmeester & Bouwens, 2024). It is especially important for people to quickly reach any space that is visible. If, for example, you look out on a shared garden but have to walk a long way to reach it, this can be very discouraging for ever using the space.

Secondly, a circulation space should have quality. That is a subjective concept but generally most people feel more comfortable in a circulation space with ample daylight and social control. (van de Wall & Dorst, 2016). So, no long and dark corridors (Nguyen et al., 2024b). Also, width matters. Depending on the social spatial scale, generally it is important that people can both pass each other and have places to have a chat. 2,35 meter wide is quoted as a good width for that (Wal et al., 2015).

Depending on the climate, season and location, either in- or outdoor circulation greatly impacts how comfortable it is. In Northern European context it is often seen that within projects where some people have an indoor connection, and some an outdoor connection, the people with indoor connection use shared facilities a lot more (Dijkhuis & Krabbendam, 2020). This discrepancy can lead to a spiral of these residents having a higher sense of ownership. While the outdoor connected residents come in a negative spiral of decreased sense of ownership.

´Residents need to feel comfortable spending time in the lobby to connect with neighbours. Comfort includes physical elements, such as lighting, warmth, and acoustics, but also speaks to a sense of belonging—specifically, the feeling that one is not loitering.´

- Hebert et al., (2022)

Precedent

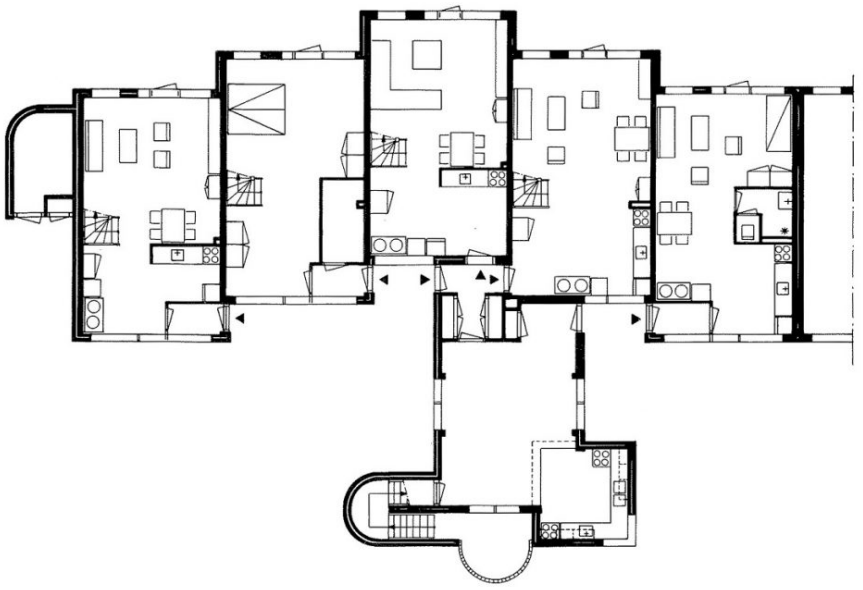


Figure 4.61 In Centraal Wonen Hilversum, two of the five households have a comfortable connection to the shared living space. They have a closer proximity and an indoor connection. Over the past decades, these households have repeatedly shown to feel a higher sense of ownership and use the space a lot more (Kesler, 1991; Fromm & de Jong, 2023).

Relations

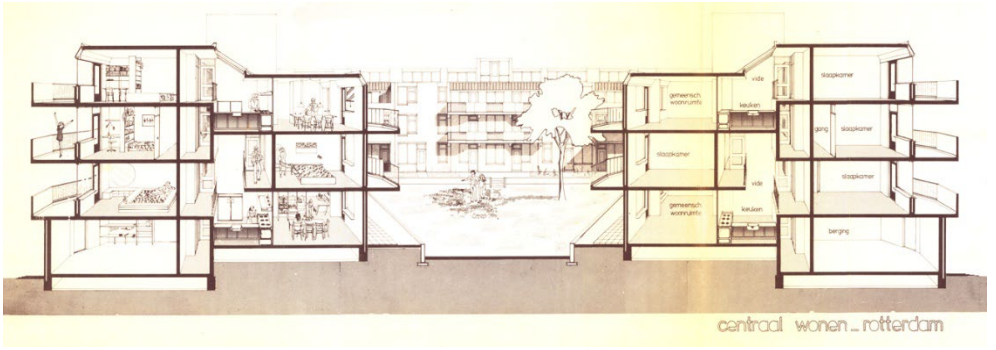
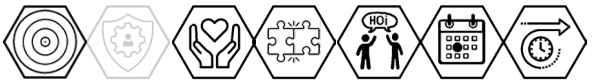


Figure 4.62 At Centraal Wonen Banier in Rotterdam the split-level floorplans are connected by long indoor corridors. This has allowed the entire community to turn 7 cluster shared living spaces into *option room*s [25] which, among other things, allow for higher social continuity.

Figure 4.63 At WindSong Cohousing Community in Denmark an indoor-outdoor street makes the circulation space more comfortable year-round. This increases the use of transitions zones leading to more spontaneous interactions [9].

When designing indoor, semi-outdoor, or outdoor circulation, important aspects are costs, fire safety, regulations and climate design. For example, if a glass covered circulation space is designated as indoors, this often reduces the total façade area lowering insulation cost. Yet, it may impact fire safety regulations for escape routes regarding fire and smoke compartments. In the summer, regulations may dictate expensive cooling installations when a glass covered circulation space is deemed indoors. It is up to the architect and design team of advisors to find a complementary design regarding all aspects including architecture for the community.

Design daily routes: co-locate mays and musts [16]



Problem

People are like water: they usually take the shortest or most comfortable route [15]. This route from a high to a low socio-spatial scale has a great influence on whether people pass through spaces, interact with the people already there, feel a sense of ownership of these spaces and, to a greater extent, use them (Hebert et al., 2022; Portaal, 2023; Janssen, 2024). In short, the daily journey home determines to a large extent whether someone engages with the people and spaces of a community.

But there are more spaces someone must go to besides “home” or “away”. Not consciously designing with this in mind is both a great risk and a missed opportunity.

“The backdoor is used more than the front entrance,
because that is where the bike parking is”
- Resident of The Warren cohousing coop in Amsterdam (Hoexum, 2024)

Proposition

When co-designing a design brief and later the actual design, separate activities and their corresponding facilities in musts and “mays”. A roof terrace? You may go there, but you never must. The mailbox? You must. Common room with couch and television: may. The activities workshop in part 5, room 4 helps a group to build a design brief in this way.

During the design, strategically co-locate the must facilities with the may facilities. May facilities don’t have to directly be next to must facilities but should be placed at least along the route between must facilities that create the daily routes in a project (Dijkhuis & Krabbendam, 2020; Hebert et al., 2022; Thompson, 2024).

Must facilities
- Private household
- Parking
- Lift on high floor
- Trash container
- Laundry
- Mailbox

May facilities
- Roof terrace
- Shared living room
- Staircase on high floor
- Shared kitchen
- Couch with television
- Shared garden

Figure 4.63 Common “must and may” facilities.

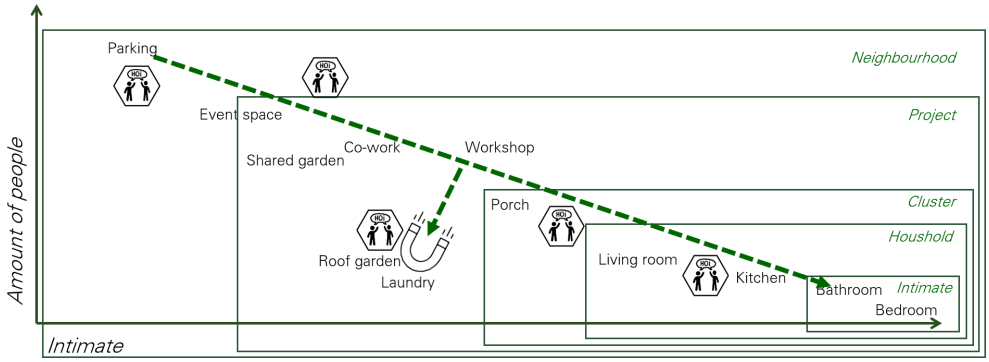


Figure 4.64 Schematic illustration of a daily route. The parking at a neighbourhood scale is the first “must”. The bedroom on an intimate scale is the second “must”. The roof garden is a “may” and has the risk of being used very little because it is also not on a daily route. The laundry, however, is another “must” and can be placed there. This increases the likelihood that someone uses the roof garden, spontaneous interaction here, and evolves a sense of ownership.

Of course, not everything falls within the binary distinction of must and may. Some facilities are not a must but still tempting enough to go there. This is discussed in pattern [20].

“the pathway to garbage and recycling rooms is often well-traveled, and a surprising place where neighbors may socialize as they bump into each other.“

Hebert et al., (2020)

Precedent

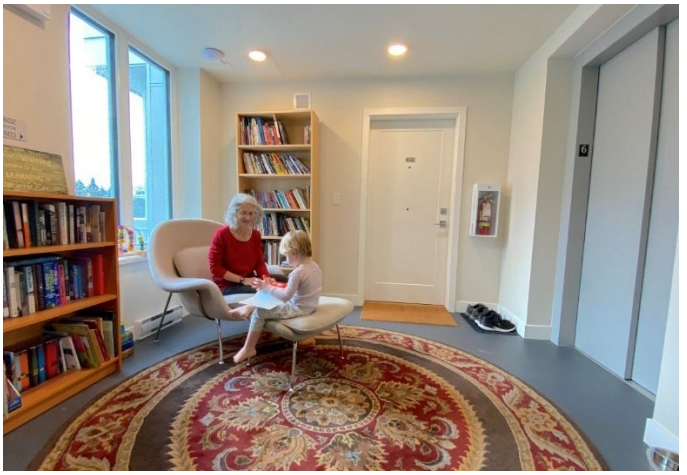


Figure 4.64 Little Mountain Cohousing in Canada (Hebert et al., 2020). The chair and books are a “may” facility. The lift, assuming it is a high floor, can be considered as a “must”. By co-locating these, the chair became an attractive place for someone who would like to spontaneously socialise.

Figure 4.65 Communities like Stadsveteraan020 combine a bar “may” with laundry “must”.

Relations

Be aware that fire escape routes can become the main daily routes for many if this is the most comfortable connection [15] between must destinations. In this case it could be considered to only make these accessible in case of emergency (van de Wall, 2020).

Daily routes past visible destination spaces [17]

Problem

Walking past a shared space with a closed door is not inviting for spontaneous interaction (Nguyen et al., 2024b). Even if you somehow know there are people there, the act of opening such a closed door and possibly disrupting the activity inside, is a relatively high barrier. Yet having circulation pass trough destination spaces impacts the privacy of them and makes it less attractive to use the space as people may often walk through.

Proposition

Daily routes [16] should pass shared destination spaces but not go through. But if the shared destination spaces have visual connectivity with the circulation and if possible, a dynamic transition zone [11], it allows the users of the space to choose between buffer or connection.

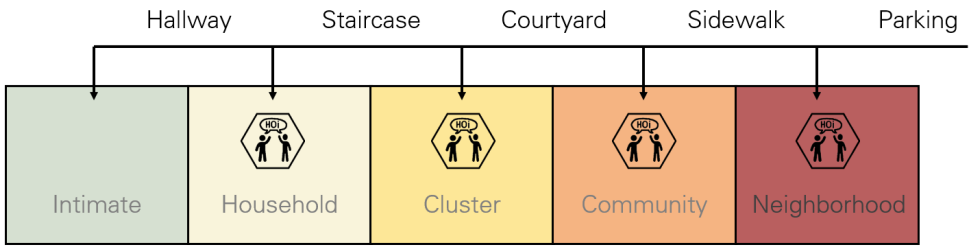


Figure 4.66 Circulation passes the destination spaces but does not go through them.

Precedent

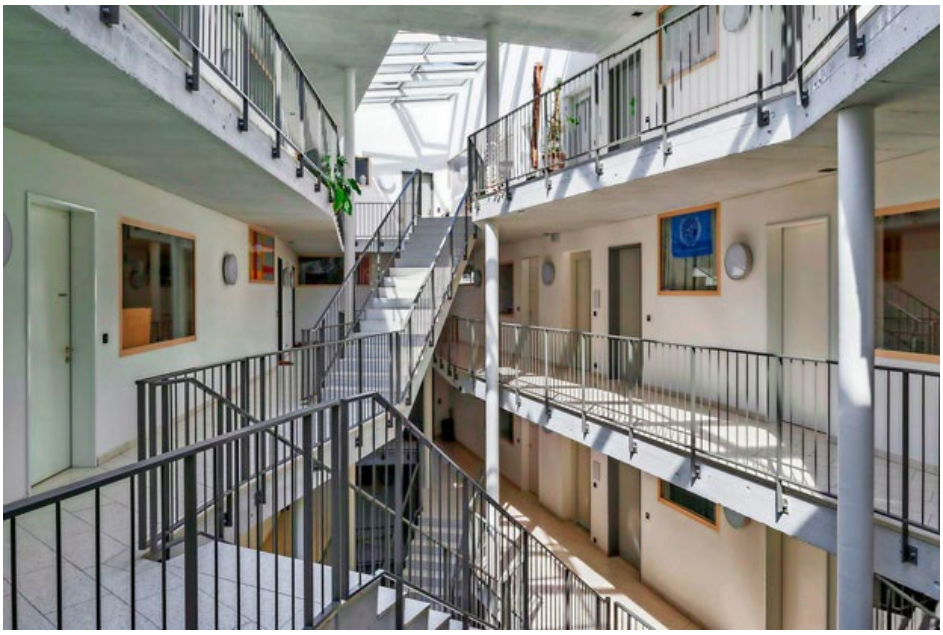


Figure 4.67 In Mehr als Wohen in Zurich indoor windows facilitate spontaneous interaction.

Figure 4.68 In Cohousing Schilders in Ghent there is a window from the shared kitchen to the main entrance and hallway.

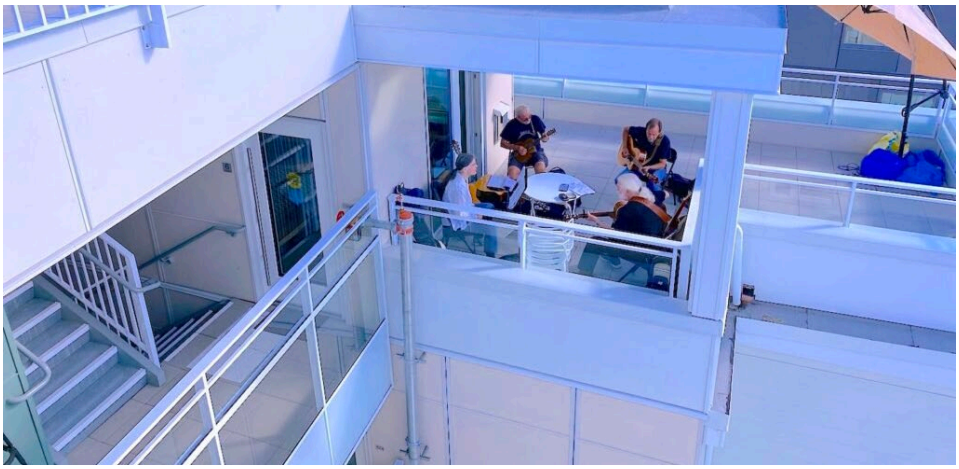


Figure 4.69 At Little Mountain Cohousing in Canada, a variety of spaces are visible from circulation spaces. Sometimes directly, sometimes through glass doors (Hebert et al., 2022).

Relations

Figure 4.70 In Centraal Wonen Delft a group kitchen lies along the path between the front door (right), the bike parking and laundry (left), the lower scale levels and a same scale connection [5] to another kitchen (behind). So, people often pass by [16]. People can look trough the windows to see if there are people. The door functions as dynamic threshold [11] facilitating privacy.

Sometimes you don't want interaction. Therefore, also consider the not-now-route [19] and secluded space [32].

Daily routes through pause spaces [18]

Problem

Pattern [17] dictates circulation should not pass through destination spaces. Yet, another good way for two people to spontaneously interact is when they are both in a circulation space. For this, people must spend more time here to heighten the chance of this happening.

Proposition

Design *pause places* along daily circulation routes [16]. These are places on the route to linger increasing the chance of people bumping into each other. (Hebert et al, 2022; Thompson, 2024; Nguyen et al., 2024). People should feel the legitimacy to linger, and for this they should feel that they are not disturbing others or getting in the way (Hebert et al., 2022).

Pause space examples are a bulletin board, the mailbox, the lift, a swap box, (new) art, landscaping and a nice view. These can also function as triangulation, something to start a conversation about. Expression [4] and personalized transition zones can also be a reason to linger [10]. Finally, people are more likely to linger in comfortable circulation [15].

Pause spaces could also be more literal places to sit or be, like seating nooks. And some of these seating areas may even provide a unique activity like a good coffee machine [25]. Don't forget that as long as such a place is literally on a route, it is less attractive than, for example, a more private space to spend time with guests as described in pattern [17].

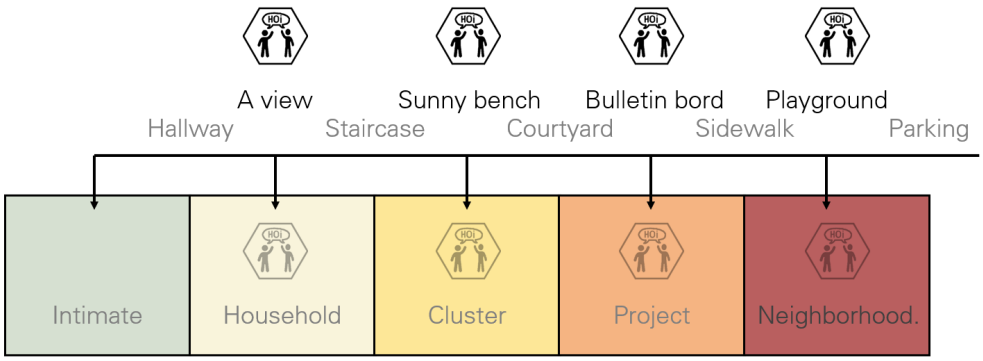


Figure 4.71 Daily routes trough pause spaces and past destinations spaces.

Precedent

Figure 4.72 At Cohousing Marmalade Lane there is a seating area next to the main entrance.

Figure 4.73 The main living room of The Warren. Residents spend a bit less time here than expected as the space might not afford enough privacy and is not the most tempting place for most spontaneous activities [20] (Drenth et al., 2023; Boer, 2024). It is, however, an excellent multifunctional space [26] and does still provide plenty of pause spaces along the spectacular staircase of the price winning design.

Figure 4.74 A bulleting board in the middle of the indoor street of Woongroep Haarlem.

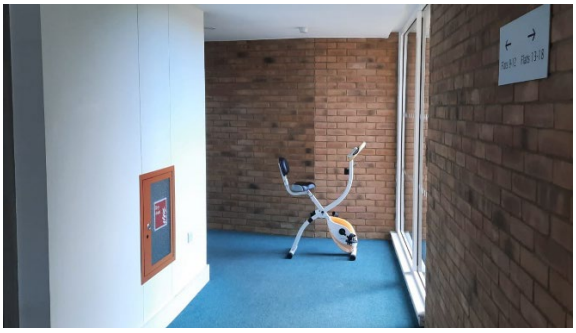


Figure 4.75 Working out with a view along the route in Cohousing New Ground in London.

Figure 4.76 The water pump (must and pause place) on the route in Hofje van Bakenes

Relations

Transition zones as described in patterns [7] to [11] function very similar to a pause space. The difference is that the transition is from a lower social spatial scale level than circulation. But both transition zones and pause spaces share the function of increasing the chance that people pass other people [14].

A longer not-now-route [19]

Problem

Sometimes you don't want to meet your neighbours. Everybody has bad days. You may have a visitor you don't want everybody to see. Maybe you are cross with someone for a while. Whatever the reason, sometimes you also need the privacy of going up and down social spatial scale levels without spontaneous interaction. Without passing windows of shared places [17] and places where other may linger [18]. Sometimes you just need a not-now-route!

Proposition

Design, as good as possible, for everybody a secondary route that avoids social interaction as much as possible. But do make sure that this route is never the shortest route between most "must" places. Otherwise, the important patterns of [14], [17] and [18] are not likely to work at all.

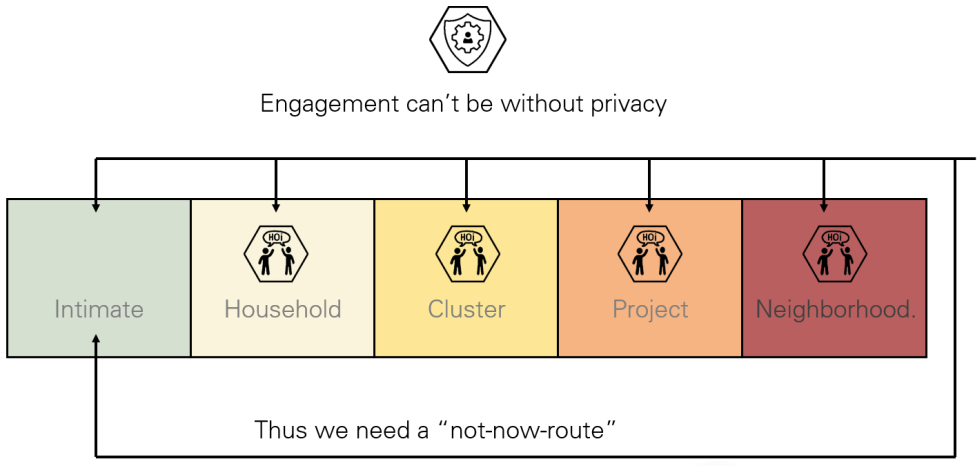


Figure 4.77 The not-now-route.

Precedent

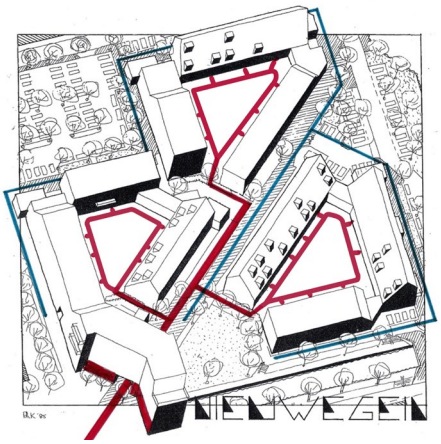


Figure 4.78 At Gemeenschappenlijk Wonen Nieuwegein people may take the social route (in red), from the living group through the cluster courtyard, along the community street and past the community facilities. Or they may step right outside on the street. People can thus always choose between a very social or a not-now-route. One lesson learned is that someone's parked car or the supermarket (must places) are much easier reached by the not-now-route.

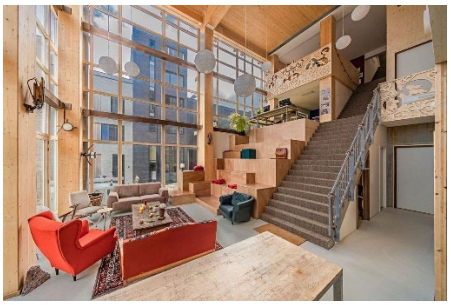
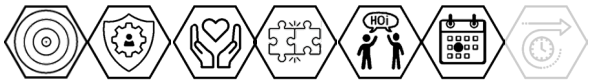


Figure 4.79 & 4.80 Also at De Warren, people may take the backdoor (left) or social route (right). This is appreciated by residents (Boer, 2024). But here, the not-now-route is often the shortest.

Relations

Same scale connections [5] may serve as not-now-routes. They will likely still lead past social places of social interaction but at it at least provide a choice between two routes. Fire exits may also serve as not-now-routes.

Tempting shared space [20]



Problem

Not all spaces have a “must” function [17]. What will make people actually use a space?

“It became apparent that some shared spaces were rarely used,
which is a poor outcome considering the time and money spent on designing,
constructing and maintaining these spaces.”
- Thompson (2020)

“The provision of communal space alone may not be enough to encourage use
without the design features or amenities that appeal to residents.”
- Kleeman et al., (2023)

Proposition

Design tempting shared spaces. For this the base principle *Click* is very important. What is attractive for one can be repulsive for another. What is fun for some, can be off putting for others. Yet there are some design qualities that most people will find tempting or design faults that can make a space unpleasant for most.

First of all, spaces with much daylight are generally considered attractive. If the location allows for it, this comes with a nice view as well. Attractive lighting is very personal and cultural depended, but being able to have control over the type of lightning and shading per situation makes the space more attractive for more situations. Same goes for attractive and controllable climatization like temperature and ventilation. Finally, a space should be furnishable. For example, spaces with doors and windows all around that provide little space for furniture to be placed against a wall will find less use.

Relations

There are many more design considerations that make spaces tempting. Some important ones are described as separate patterns because these are specifically important for cohousing and are often lacking in existing projects. First of all, the bad acoustics of larger shared spaces can heavily impact the attractiveness to spend time there [21]. Secondly, shared spaces often lack cozy corners [22]. Furthermore, the interior design, or simply the furniture should find a balance between personal and high quality [23]. Finally, shared spaces can be both indoor and outdoor, but if these are co-located, they may greatly enhance each other and make them more tempting [24].

Important as these are, these are mostly conditions for a space to not be unattractive. But what makes people actually go there? In what scenario, is going to that specific space the most attractive option compared to all other the spaces and activities? This is discussed in pattern [25] with pattern [26] to [35] describing specific qualities that spaces may have that may make them tempting fort certain activities or facilities that fit the click of a social spatial scale level. And closely related to *Click*, *Sense of Ownership* and organisational aspects, what is the function on the right socio-spatial scale level to function in an attractive way [1]?

Precedent

Figure 4.81 The multifunctional shared space of the Biotope cluster at Cohousing Bijgaardehof in Ghent has one big disadvantage: it is so tempting that it is used so much by the residents for various activities, that they have to reserve it for planned activities many weeks in advance.

Attractive acoustics [21]

Problem

You can see architectural drawings but not hear them. Acoustics, the way sound bounces of the surfaces in a space, can become a serious nuisance in shared spaces making them very unattractive to be in (Durrett et al., 2022).

Figure 4.82 Cohousing Marmalade Lane, like many other communities, struggle with acoustics in their shared spaces. They had to install expensive acoustic panels and chandeliers to dampen sound to make the spaces more usable.

Figure 4.83 Cohousing New Ground also had to install acoustics panels to make the common living room usable by more than a handful of people.

Figure 4.84 Cohousing Jean struggles with acoustics in their concrete outdoor spaces.

Proposition

In general, softer materials, less open spaces, and less glass help. But it is always important to get professional advice from acoustics experts early on in the design, both in- and outside.

Precedent

At Cohousing Bijgaardehof an acoustics advice bureau was part of the design team from day one. The shared spaces have no acoustic panels and still have pleasant acoustics.

Figure 4.85 The acoustics ceilings of shared spaces in Cohousing Bijgaardehof.

Relations

Creating cozy corners [22] helps to break up the space. Sound can also create nuisance between spaces. This is addressed in pattern *serious sound insulation* [40].

Create cozy corners [22]

Problem

A "*panopticon"* is a system or place where individuals self-regulate their behaviour due to the perception of being constantly observed. This has been the inspiration for circular prisons with courtyards where prisoners have the feeling of constantly being watched (Martinez-Millana & Alcaraz, 2022). Such a place is not somewhere you are likely to relax or socialise with friends. Yet, cohousing courtyards, with the best intentions, can resemble a panopticon prison, making the central courtyard a not so tempting place to spend time as there is very little privacy.

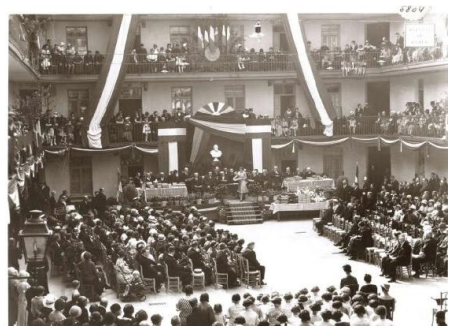


Figure 4.86 & 4.87 La Familistère in France is often named as the first modern cohousing. The inner courtyard is excellent for planned events but lacks a cozy quality for casual use.

"*Refuge*" is a psychological concept of spaces that provide a sense of safety, shelter, and privacy, allowing individuals to retreat and feel protected (Browning et al., 2014). It is the reason that in a restaurant you rather sit with you back against the wall, than with you back towards the door. Similar to the increasingly popular Japanse concept of *Feng Shui*. Long story short, people feel comfortable with a solid wall behind them, a nook is even better, to feel sheltered, while being able to oversee any openness.

In their book "the intermediate size, a handbook for collective dwellings", Bijlsma and Groendland (2006) state that "enclosure" – the use of walls, ceilings, or other boundaries to define a space – is key to create a sense of containment, privacy, and protection.

Figure 4.88 Residents of Cohousing New Ground indicated that they often use their space for planned activities, but for spontaneous use by one or two, it sometimes lacks coziness.

Proposition

The simple solution is to design cozy corners. The architecture can create nooks, window places or height differences to break up larger spaces into more cozy human scale corners. But also, movable room dividers, like screens, plants, or bookcases on wheels create cozy.

Precedent

Figure 4.89 A window place in Cophenhagen by Vandkunsten architects.

Figure 4.90 Cohousing JEAN in Ghent. Residents decided to use greenery to create more cozy corners in the garden.

Figure 4.91 Cohousing Biotope Belgium creates coziness within a larger space with columns, beams and furniture. Also, natural materials and textures can elevate coziness.

Figure 4.92 Vasalishof in Culemborg created cozy corners with walls and greenery.

Figure 4.93 At Centraal Wonen Banier in Rotterdam, lowering the garden makes it cozy.

Figure 4.94 & 4.95 At Hart van Vathorst in Amersfoort the shared space has been divided into cozy corners with movable furniture that has partly been made by the residents.

Figure 4.96 At Marmelade Lane residents turned a redundant closet into a cozy corner.

Relations

Cozy corners improve acoustics [21]. Cozy corners can also be pause places next to circulation spaces [18]. Threshold zones with cozy corner quality also makes them more attractive to be in and function better as a connector [9].

Often large open spaces are designed in cohousing to facilitate large events. But, do realise that these big events are relatively rare and that for the rest of the year movable furniture may still create the cozy corners that are necessary for casual everyday use of a space.

Biophilic design is a movement within architecture that also links enviromental psychology to nature inspired design. Among other things, to facilitate stress reducing places. “14 patterns of biophilic design” published by Terrapin is a pattern language about this and is online available for free (Browning et al., 2014).

Quality and personal interior [23]

Problem

The interior design and actual stuff inside a shared space can often end up messy and with discarded furniture of residents. Due to the higher social spatial scale level, residents often don't want to invest a lot in furniture as others might break it. The result is both a low quality and impersonal interior. Yet, having an interior designer do everything, may result in much lower ownership for the users, especially if they are not allowed to change anything.

Figure 4.97 Example of a shared space with low quality furniture

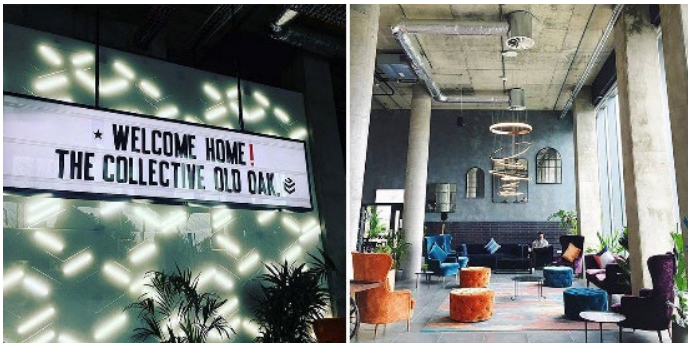


Figure 4.98 & 4.99 Developer-led co-living The Old Oak in London. An example of a shared space with very high quality furniture and interior design but it is not personal. The landlord has to remind people that they are at home with a sign. In this project residents may not even hang anything on the wall in their own bedroom.

Proposition

Design the space so that residents can design the interior design themselves or a working group of residents (Gifford, 2007; Hebert et al., 2022). This can be with advice from design professionals, but residents should remain a sense of ownership over the end result (Mantingh & Duivenvoorden, 2021). For this a collective budget should be available. Wherever possible, strive for a higher quality that residents may have in their more private spaces to make the spaces actually tempting [20] (Kesler, 1991).

Precedent

Figure 4.100 At Centraal Wonen Delft the residents of one living group pooled money and bought furniture together. Two residents then made a design that the entire group liked. The result is personal and of relatively high quality with a high sense of ownership (Chaudhuri, 2024).

Figure 4.101 At Cohousing Marmalade Lane the residents proudly invested in and installed a tea corner in the multifunctional space.

Figure 3.102 De Warren residents aim to make the shared space personal and of high quality.

Relations

Patterns [4] and [10] are similar in that they also prescribe the importance of residents taking ownership over the infill of spaces.

Complementing indoor and outdoor spaces [24]

Problem

Depending on the climate and location there will be more indoor or outdoor spaces and the rigidness between them will differ. If some indoor and outdoor spaces are not co-located these might be used very little.

Proposition

Co-locate indoor and outdoor spaces so that they may compliment each other in quality and function.

Precedent

Figure 4.103 In Kas&Co in Utrecht by INBO, the shared garden courtyard and a greenhouse shared space compliment each other. Also, notice the transition zones on the community terrace.

Relations

Often the transition between indoor and outdoor is also a transition between socio-spatial scales. Patterns [7] to [11] describe how to design for this.

Reason to use [25]

Problem

Usually, people will use a space if it has a purpose and if that space is the very best for a certain activity. If not, spaces are often left unused (Thompson, 2020). Then there is not a good *Click* between lifestyle vision, people and design.

Figure 4.104 At Cohousing Convent 22 in Ghent, 9 adults on the autism spectrum live together. They did not select each other but were designated this cohousing by their caring parents. Unfortunately, despite the beautiful, shared living room, the residents rarely use it. They don't share any interests, values or lifestyles besides their autism label. The shared living room is therefore rarely the most attractive scenario to use for these specific residents, besides necessary meetings. This is a clear example that a click between lifestyle vision, people and design is more important than just providing a high quality space.

Proposition

Always think in scenarios. In what realistic scenario do these specific residents actually choose this space over any other space on any scale level? For spaces that aim to facilitate spontaneous interaction, there should be a clear and tempting reason why someone would decide to go there by themselves instead of anywhere else. Someone has to be there first.

Pattern [16] describes that there are some places you “must” go to, like laundry or parking. Patterns [20] to [24] describe how places can be more attractive to want to spend time in. Patterns [26] to [35] describe certain qualities that a space may have so that “may” places become places people actively choose to engage with.

Precedent

Figure 4.105 At Cohousing Wijgaard in Ghent, quality coffee draws people to a shared space

Figure 4.106 At Vrijburcht in Amsterdam the design uses the context specific quality of the water to make a shared space with a unique reason to use it at the neighbourhood scale.

Relations

Society always changes and so will cohousing communities. At the start of Centraal Wonen Delft there was one TV that drew people to a shared living room. Now everybody has many screens in their more private spaces and this unique quality is lost.

Designing option spaces can help the building to adapt to inevitable changes in lifestyle [27].

Multifunctional space [26]

Problem

Space is expensive and not every activity will happen at the same time.

Proposition

Design multifunctional spaces. With just changing furniture, the function can easily change, possibly multiple times a day. Besides movable furniture it is important that there is easily accessible storage space. Also, it is important that there is flexible lighting and climatization to make the space easily adaptable to various activities. The space can even be used by different groups of various socio-scales. For this, circulation is important so that higher scale levels can make use of the space without negatively impacting the privacy of other spaces [2].

Precedent

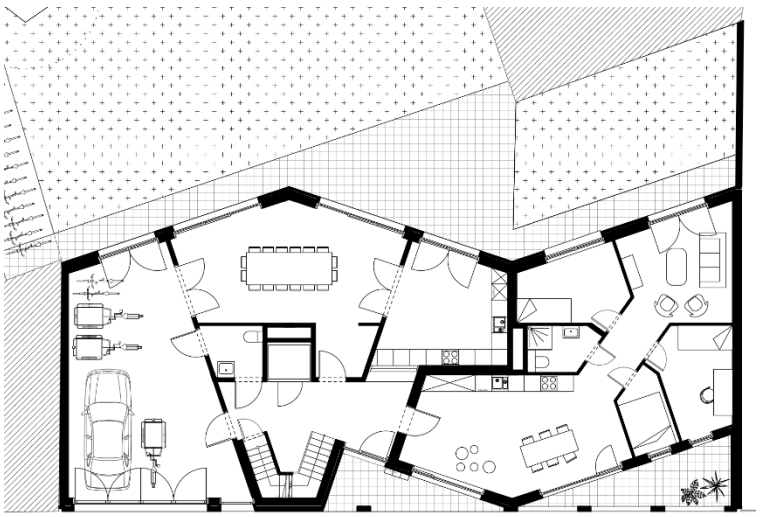


Figure 4.107 At Cohousing Schilders the parking garage (left) is located next to the shared living room. The residents can easily empty the car park and use it as an extension of the shared living room during events.

Figure 4.108 & 4.109 At Vrijburcht in Amsterdam outdoor and indoor spaces are used multifunctionally for events. Sometimes private, sometimes for the community, sometimes for the neighbourhood.

Figure 4.110 Storage within the multifunctional space in Cohousing New Ground.

Figure 4.111 Also, at Cohousing Bijgaardehof the outdoor space is used for events that make a connection with the neighbourhood.


Figure 4.112 & 4.113 In Centraal Wonen Delft residents realised their multifunctional space was too large for most activities. To make it cozier they installed an indoor curtain.

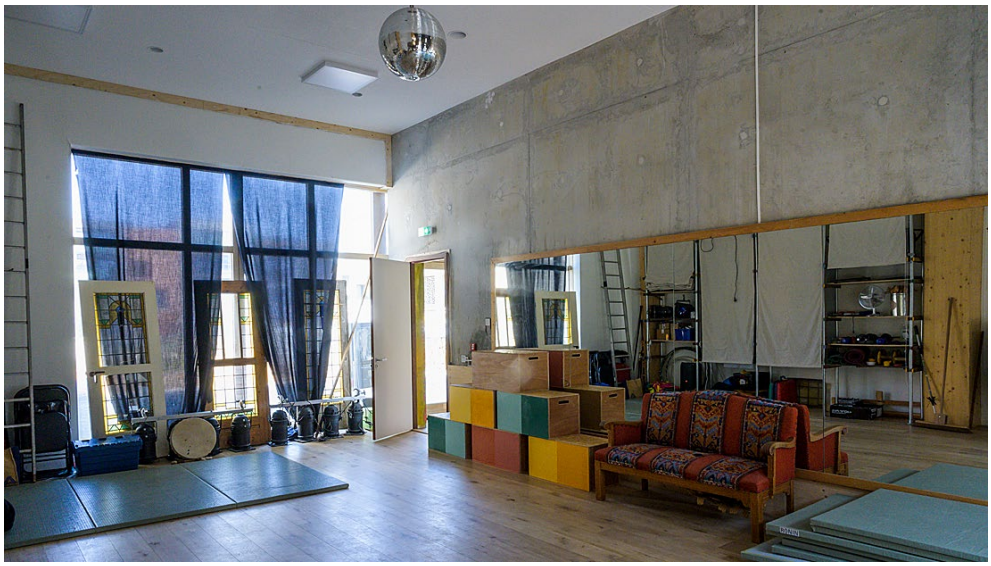


Figure 4.114 At The Warren in Amsterdam, besides the famous staircase hall, there is a second multifunctional space for parties, sports, seminars, movie nights, and more.

Relations

Beware of acoustics [21] and sound [30], [40]. Complementing both multifunction indoor and outdoor space enhances their usability [24]. And if these usually large spaces are also meant for casual spontaneous use, or even as shared living space [29], do design cozy corners [22]. Some activities need more permanent facilities that can't be changed multiple times a day. For that, *option spaces* are handy [27].

Option space [27]

Problem

Multifunctional spaces [26] can change function just by changing furniture. But some activities require more dedicated spaces. For example, woodworking, making art and working at home. Yet over the years the need for such specific facilities may still change.

Figure 4.115 At newly build Stadsveteraan020 the drawings of books baked into the bricks already reflect something different than what is on the inside before the building is even finished. The architects had envisioned a library, but the residents preferred to use the space as an art studio. Luckily the space itself is more flexible than the façade decoration.

Proposition

Design spaces that can be changed relatively easily by changing a few non-bearing walls or facilities with minimal changes to the space plan. For this, more permanent services, structure and circulation need to allow for this flexibility. So, although maybe initially water access, sewage connection and strong ventilation might not be needed for a certain room, consider to invest in piping so that it can easily be accessed later.

As for size, try to make option spaces a bit larger than initially might seem necessary for the initial use to allow for more functions later on (Krabbendam, 2022). Also consider a range of room sizes to accommodate a variety of possible functions (Kim, 2006).

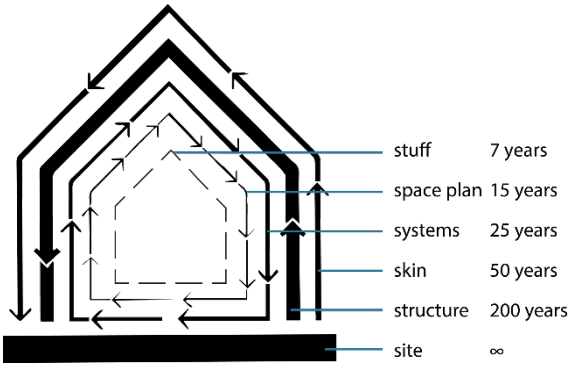


Figure 4.116 The shearing layers of Brand. Option spaces should be able to change function with only changes to stuff and minimal changes to the space plan (Brand, 2006).

Examples of functions in options spaces are an art studio, co-working space, gym, small theatre, library, guest room, children's playroom, teen room, laundry space, very specific hobbies, a shop, extra bedroom [39], storage [33], a guest room [35], and so on. Outside spaces can also be option spaces allowing for specific use like a playground, firepit, vegetable garden, vegetable greenhouse, drying laundry, parking, BBQ area, etc. There are no good or right answers. It is all about *Click*! Spaces that facilitate the specific vision of residents that like it.

Circulation for option spaces is important as it will determine if option spaces can also serve higher or lower social-spatial scale levels in the future, without impacting privacy of other spaces in the community.

Precedent

"We used a space as a music corner; we have musical instruments and a sofa, and it was like a second living room. With the lockdown, many of us moved to a home office, and the music corner turned to an office"

- Mehr als Wohen in Zurich (Khatibi, 2022)

Figure 4.117 At Marmalade Lane a long narrow space designed for canoe storage got turned into a little self service organic shop for the residents.

Figure 4.118 Also at Marmelade Lane a wood workshop in an option space. Another is a gym.

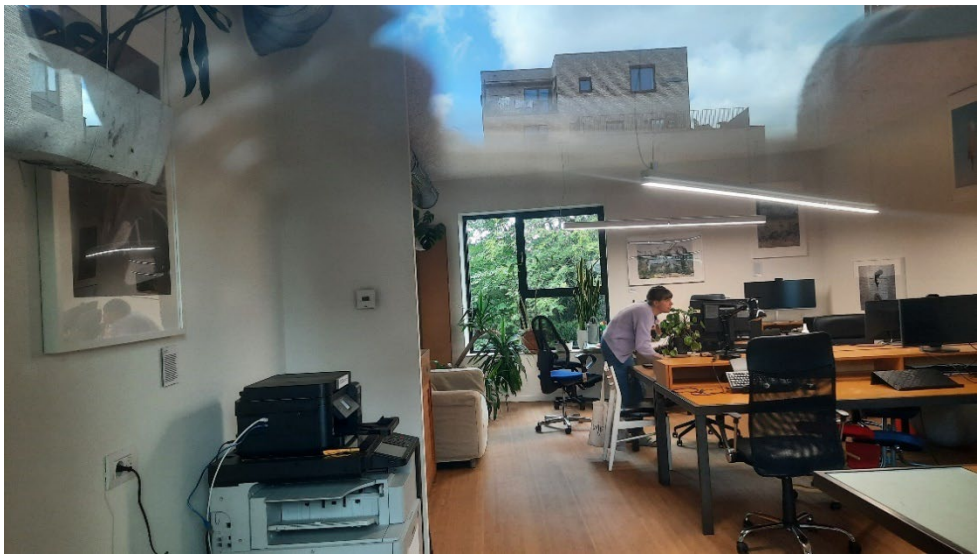


Figure 4.119 A co-working space at cluster Wijgaard in Cohousing Bijgaardehof.

Figure 4.120 At Centraal Wonen Banier there were 7 clusters with each a shared living space for a specific socio-spatial scale. Over the years these spaces were not used much. Luckily, they all had a *comfortable connection* [15] for the entire community. Three of these rooms were transformed into a co-working space, an art studio and guest rooms. The remaining four were turned into multifunctional [26] shared living rooms [28] that are used by different social groups within the scale of the entire community. For example, on Tuesday night one of these rooms is used by 10 people that want to eat vegan while another is used by teens to watch a movie (Dijkhuis & Krabbendam, 2020).

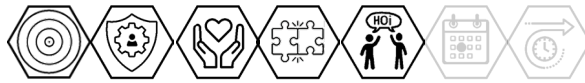
Figure 4.121 & 4.122 At Spreefeld in Berlin one large option space is a multifunctional space for theatre, dance and more. Another is used as a workshop (LaFond & Carones, 2024).

Relations

An option space can be many things [25]. Therefore, consider what qualities of the patterns [26] and [29] to [33] the spaces should have.

Swap rooms [39] are very similar. The difference is that these are designed as extra bedrooms for households. In practice, these have often functioned as option spaces and have gotten different functions on different socio-spatial scales.

Daily living space [28]



Problem

Some people have the ambition to share daily live with more people than their own family.

Proposition

Sharing daily living spaces can mean sharing bathrooms, kitchens, living rooms and even bedrooms. These are spaces needed in daily live. Generally, spontaneously sharing daily living spaces with more than 10 adults tends not to work, and if it does, there is increasingly more formal organisation, planning and maintenance needed (Dijkhuis & Krabbendam, 2020).

When sharing daily living spaces, the most intimate scale, often just a bedroom, is especially important as that is the only space to truly retreat from social interaction. When engaging in such an intense form of collaborative living, all spaces, intimate and shared, should be tempting to use [20]. Shared spaces should especially be tempting if residents have an alternative elsewhere. For example, if they have a small kitchenette in their private studio, they are much less likely to use a complete shared kitchen daily if it is not much more tempting.

Click is very important for this type of intense collective housing, as it will only work if residents, lifestyle vision, and design align. It is thus definitely not for everyone. But if it works, sharing daily living spaces can truly bring the many advantages of collective living into everyday life.

Precedent

Figure 4.123 Sharing unplanned dinner in a group kitchen (9 people) in CW Delft.

Figure 4.124 Woongroep Claes, where I live. Even within a shared house there are socio-spatial scales. My bedroom is an intimate space. My office is just for me but sometimes housemates use it and walk in without knocking. I share the bathroom with one other person. The large kitchen, living room, garden and laundry room, I share with all 4 others. A higher scale level is immediately a busy anonymous street in Rotterdam. During the writing of this report, informal care was often provided by my housemates with cooking, wine and conversation.

Figure 4.125 In German speaking countries, cluster cohousing (Cluster-Wohnung) is increasingly popular. The picture is of Möckernkiez in Berlin (Stattbau, 2019).

Relations

For sharing daily living spaces, it is exceptionally important that residents may choose their neighbours / housemates. It is generally accepted that people should choose their own friends and romantic partners. Choosing with whom you share daily live with is equally as important.

Sunny (or shady) space [29]

Problem

Depending on the climate and season, sunny or shady places can be a very convincing reason to use or avoid a space [20]. People who don't experience enough daylight tend to suffer more from sadness, fatigue and clinical depression (Happy Homes, 2024). Also, some facilities like a vegetable garden cannot function without ample sunlight.

Proposition

Consciously design for sunny and shady spaces depending on the climate. Sometimes a shady place is the most tempting [20]. Sometimes getting some vitamin D is a reason to use a space [25]. A bench in front of sunny stone wall will warm up the outdoor space making it pleasant where elsewhere it is still too cold (Sim, 2019). Many (vegetable) gardens and greenhouses need ample sun.

"Build weather"
- David Sim in Soft City (2019)

Precedent

Figure 4.126 Cohousing New Ground catches the sun in their lush vegetable garden.

Relations

Passive building techniques are very dependent on sun direction and project location.

Loud space [30]

Problem

Children, tools, events, climate installations, making music, playing games, and other things can be very loud.

Proposition

Therefore, some space should be able to facilitate loudness. This can generally be done by placing them far from any silent spaces [31] and/or with very serious sound insulation [40]. And once again, don't forget the acoustics for those within the loud space [21].

Precedent

Figure 4.127 Children's playroom in Windsong Cohousing (Wood, 2015).

Relations

Have good consensus before building the community about loudness to avoid conflict.

Silent space [31]

Problem

Sleeping, working, yoga, relaxing, sitting in the morning sun, praying, reading, and other activities require silence.

Proposition

These can be on all socio-spatial scale levels. These spaces should be far from loud spaces [30] and if needed have extra serious sound insulation [40].

Precedent

"Part of our shared garden is a quiet garden.
We have agreed that you can sit there and not feel obliged to socialise.
Reading a book, meditating, relaxing, everything is allowed. In silence."
- LVGO, (2021)

Figure 4.128 A literal “silent space” for retreat and meditation in Eikpunt Nijmegen.

Relations

Places that have the option of visual privacy are secluded spaces [32]. These often overlap with this pattern.

Secluded space [32]

Problem

Sometimes you want to be in a space with privacy. In communities people sometimes have very little private space in favour of communal space. This can lead to problems if you want to do an activity that requires more space than you have on the social spatial scale that you want to share the activity with. For example, you have 4 friends over and don't want to mix with other people that you share the large enough space with. Where to go?

"She misses a place to sit secluded with her own friends, without being disturbed"
- (Drenth et al., 2023)

Proposition

A place with privacy. Maybe a loud space [30] or a silent space [31]. A sunny [29] or multifunctional space [26]. But most importantly, being able to temporarily lower the space to a private scale level. Like you can lower a public toilet to an intimate space by locking the door. To be secluded from the chaos of your family or the curiosity of your neighbours. This can be either a lockable space, or a space that you can claim or reserve for a certain time period. It can also be a space that is not lockable, but not on the route and where it is generally respected that if you use it, people wont disturb you.

Precedent

Figure 4.129 At Cohousing New Ground, there are many places to sit outside, but this one they go to when they want to have a secluded chat with someone.

Relations

This pattern can be a reason to use a certain space [25].

Necessary space [33]

Problem

Garbage collection smells, technical space is loud [30], car parking is car parking, storage space is messy. Toilets! In a cohousing, there are many necessary but, not so sexy, spaces.

Proposition

Don't forget these in design briefs and of course in the design. Be wary of their sound, smell or messy appearance in the design. But do realise that some of these spaces like, garbage and laundry, are "must" places and important for daily routing [16] or the functioning of other places.

Precedent

Figure 4.130 & 4.131 Some functional and necessary, but not so sexy, spaces in De Warren.

Relations

For functional spaces it is good to consider what social spatial scale fits best [1]. Storage is best kept at the household scale at maximum to avoid growing clutter of forgotten items.

Specific space [34]

Problem

For some activities a multifunctional space [26] is not suitable. For some, even option spaces [28] that may change function every few months will not be enough. Some activities need a very specific space. A space very specifically designed for a specific activity or function.

These spaces can be the very reason people start to live in a community. For example, because they want to share a grand permaculture forest. To have a music studio with thick walls. To have a complete theatre. A pool even. They can be the very specific design that *Click* with vision and people, that are the very motivation for people to live collectively. Specific spaces can also just be functional in that they serve as necessary logistic spaces [33].

However, specific spaces have the risk that they lower the flexibility of the community to change vision. On the other hand, these specific places will help to keep the community specific, but it will be hard and expensive to let specific spaces change along with people and vision.

Proposition

Embrace the specific places, as these can be the very motivation for cohousing. Still consider, although during the development it is hard to imagine, that the specific spaces might need to change function in the future. See pattern option space for recommendations for that [28]. And in the meantime, make sure to keep carefully selecting new residents to keep the *Click*, so that new residents will still enthusiastically keep using these specific places.

Precedent

Figure 4.133 At Cohousing Bijgaardehof a vegetable garden and greenhouse on the roof are the perfect specific places for the lifestyle vision of the residents of the Biotope cluster.

Figure 4.132 In Cohousing JEAN in Ghent the residents have a specific laundry room with extra good ventilation and a high ceiling to tackle laundry up to dry it.

Figure 4,134 A grand kitchen at Centraal Wonen Delft. A specific space for a specific activity.

Figure 4.135 At Strowijk IEWAN in Nijmegen, residents allocated a part of their shared outdoor space for a constructed wetland to filter “grey” waste water.

Guest gradient [35]

Problem

Many “normal” homes have a guest room. In cohousing this is a function that is often shared at the community scale to free up a lot of space and funds. But for how long and how often may guests stay? Many parents with adult children like to keep an extra bedroom available in case their children need to come live with them again for a while. In addition, some communities choose to temporarily house refugees. And some like to have a flexible part of the community of people that stay with the community only for a few months or years. In short, there is a spectrum of guest types. How to facilitate this?

Proposition

Depending on the size of the community, consider to design multiple, and a variety of guest accommodations. Smaller multifunctional spaces could also be turned into guest rooms if sudden need is high. Besides the obvious beds, it is often appreciated if guests have a bathroom or even their own kitchenette for longer stays. For these considerations there are no good or bad answers, but it is wise to consciously discuss the various options. Sometimes a guest apartment is also designed. Then multiple bedrooms share one bathroom and possibly even a kitchen. A guest bathroom can also function as a toilet for other nearby shared spaces.

A guest accommodation may also provide flexibility for residents in times for various reasons like a relationship crisis, a hot summer where some private bedrooms get uncomfortable, or noise during construction work outside.

Precedent

In the Biotope cluster of Cohousing Bijgaardehof, the two guestrooms share one bathroom with a bath. This is the only bath in the project and therefore a unique quality that residents themselves also like to use [25].

Figure 4.136 One of the three guest rooms in Centraal Wonen Zevenkamp in Rotterdam. The more than 40 Centraal Wonen projects around the Netherlands have a network where people can be a guest for free in other projects across the country.

Figure 4.137 At Woongroep Haarlem the community has permanent and temporary residents. Temporary residents live in a studio for 2 to maximum 4 years. If they are lucky, in that time a permanent family unit becomes available, and they can move along [37] (Kleuver, 2023).

Relations

In the lifestyle vision it is good to discuss what type of guests you want to be able to host, and for how long.

Lifelong homes [36]

Problem

Households and their demand for space changes. A lover may move in. Kids may be born. Relationships might break up. Children may move out. Children may move back in. Maybe your family stays the same, but a specific private hobby or work requires more space. Maybe you end up in a wheelchair. Life changes. And if your house can change along, these changes don't have to force you out of your community.

Proposition

First of all, welcome the wheelchair. Consider designing spaces including bathrooms, all wheelchair proof, without thresholds, with wide doors, with 1500mm turning circles and with 1200mm wide hallways. And in the circulation, a lift. Or the possibility to add one later.

But how can household sizes change? Over the decades much has been tried, with various degrees of success. To evaluate what usually works, more research is needed. But for this report, roughly three common types of solutions have been identified. *Moving along* [37], *flexible walls* [38] and *swap rooms* [39].

Precedent

Figure 4.138 Hallenwohnen in Zürich is an experimental type of collaborative living where spaces are in towers on wheels which can be rearranged for events or changing households.

Move along [37]

Problem

Changing households as described in pattern livelong homes [36].

Proposition & Precedent

The most common solution is to have a variety of households within the community and then hope that people will move on. This is basically the system most societies have as a whole. We also see the problem now in Dutch society of “empty nesters” staying in family homes as they enjoy the extra space and have no incentive to move to a smaller home. The same seems to happen in cohousing communities (Felder, 2012).

If this system of household flexibility is still (partly) chosen, the question remains at what scale level the home size diversity should be. One is to have specific clusters for specific ages and/or household styles. The downside to this is that age does not equal lifestyle. Diversity can also be within clusters, which brings the benefits of multigenerational living to this scale.

Figure 4.139 Munksogaard in Denmark. Each cluster is for a specific age group or lifestyle. Getting a fitting house size for your changing age, family size or lifestyle means waiting for a spot to be free, hope that you may get it, and then move to leave your cluster behind.

Flexible walls [38]

Problem

Changing households as described in pattern livelong homes [36].

Proposition & Precedent

Habraken had the groundbreaking architectural concept of Open Building that still inspires many architects and communities today (Habraken, 1962; Open Buliding, 2024). The bearing structure of the building should allow for changing floor plans. For floor plans, non-bearing flexible walls can be used. In theory, and sometimes practice, this results in very flexible buildings where residents can have a high sense of ownership. His theory was therefore called: *De drager en de mensen.* Which roughly translates to *structure and the people.*

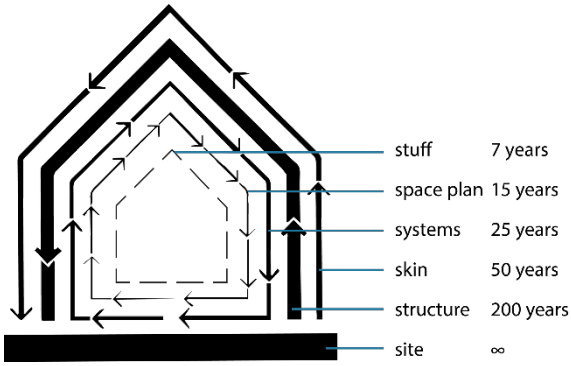


Figure 4.140 The shearing layers of change theory was built on Habraken (Brand, 1994).

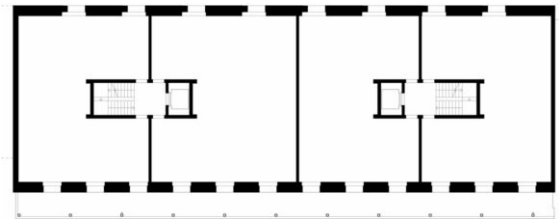


Figure 4.141 An open floorplan that residents may fill in at cohousing Künstlerateliers Erlenmatt Ost in Basel (Prytula et al., 2024).

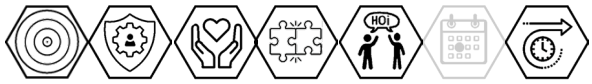
Figure 4.142 Flexible walls were at the core of the design of Gemeenschappelijk Wonen Nieuwegein by architect Flip Krabbendam. In 2010 a big renovation removed the flexible walls because of their bad sound insulation (Krabbendam, 2020).

A few big downsides have been experienced over the years of this solution. The first is that walls are rarely changed in such a way that household sizes actually change. At most, a larger room is divided into two or one wall is removed to combine two spaces. But most of the time these spaces were already from the same household. Legal and fire safety concerns have made it hard to change household defining walls.

What often happened was that people removed the walls and placed them in the storage. This was because flexible walls, due to their inherent light weight, were lacking necessary sound insulation [40]. Even within one household this leads to high nuisance.

In addition, the overall architecture is more expensive due to the larger span of the bearing construction and the flexible partition walls.

Swap rooms [39]



Problem

Changing households described in pattern livelong homes [36].

Proposition

Option spaces as described in pattern [27] can also be used for the intimate and household scales levels. This has the great advantage that the walls remain in place, which allows them to make them heavy and with proper sound insulation. Also swapping a space to a new user comes at much lower costs than moving walls. And if there is no need for a swap room for a household, it can function as an option space [27]. A great advantage is that in theory, unlike moving along [37], this allows people to have changing household sizes while they remain in the core unit to which they have grown attached to and have a high sense of ownership of.

A big challenge is the circulation. How do you get to these swap rooms from the core of your household? For this there are multiple options. For all variants, comfortable connection [15] is important, outdoor circulation is not advisable unless the climate allows for it year round.

Sometimes a swap room is between two core households and one of both can internally connect to it. While this circulation is comfortable and stays within a scale level, it has very low flexibility. If both households don't want the extra space, they have a problem.

Another option is to access the swap room through shared circulation at a higher scale level. Then the privacy is lower, and the size of that scale level becomes very important [1]. It is advised not to share such circulation with more than 15 adults (Kesler, 1991; Happy Homes, 2024; Nguyen et al., 2024). However, shared circulation between household spaces does raise spontaneous interaction a lot. *Click* is important as not everyone will be open to this.

The final option is a shared house typology, where there is no more core household, but where daily living spaces are shared with more people than the family [28]. Again, this type of collective living only works if the residents are intrinsically motivated to make it work.

Precedent

At Centraal Wonen Hallehuis in Amersfoort there are three extra bedrooms that residents of a core unit may rent. Circulation goes via a shared hallway. There is a waiting list for these rooms (Krabbendam, 2020).

Figure 1.143 Tinggarden in Denmark has bedrooms accessible via outside, often used by teen and adult children. This is, however, not a comfortable connection in winter [15].

In Gleis 21 in Vienna, small flexible apartments can be connected to the neighbouring core. At Sargfabrik in Vienna, option / swap spaces were built along central corridors. There, individual units can also be combined or separated (LaFond & Carones, 2024).

Figure 4.144 Villa Sandwijck in Utrecht is a formerly squatted now legal coop. 20 rooms are flexibly swapped among the residents. They share 3 kitchens, a living room, an attic, winter garden and a guest room. Some residents came alone, got partners, and later children, all while remaining in the flexible community (Cooplink, 2024). The downside: because no one needs to leave, the social continuity is so good that the community average becomes older.

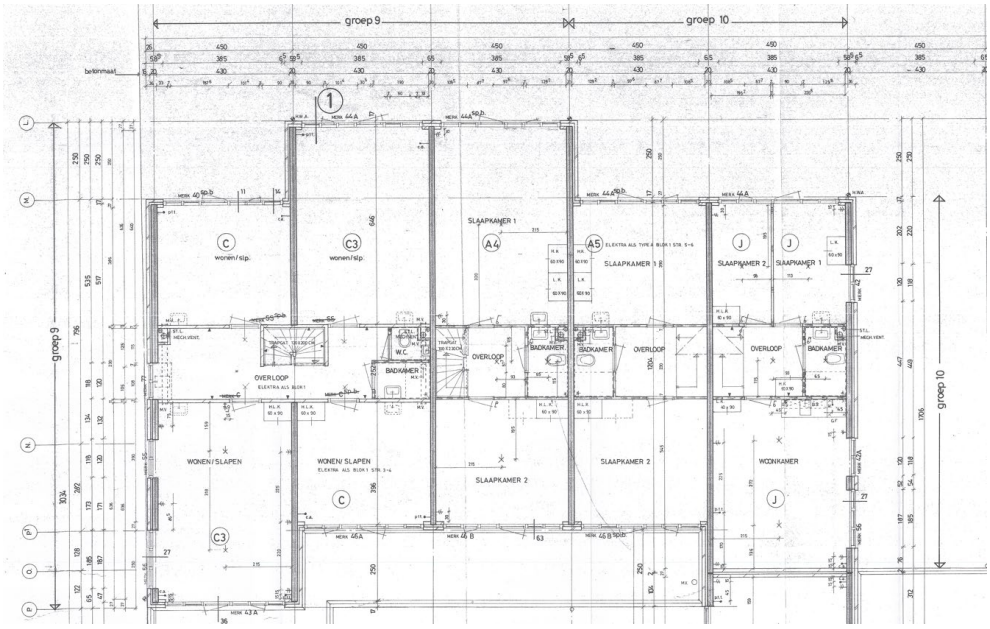


Figure 4.145 At Centraal Wonen Delft, there are many socio spatial scales. At the scale of a group that share a kitchen and living space, there are around 15 "*vlakjes*" or "spaces" around staircase circulations. Between the spaces are bathrooms and sometimes a kitchenette. The swap rooms vary in size and some even have an internal bathroom and kitchen. The various swap rooms can be suitable for a large bedroom, a living room, a studio or it can be split up into two small bedrooms. Over the years, the flexible system has functioned very well. Sometimes people come in by themselves and rent one room, or an inhabitant can expand their own household with the extra room. Residents in this system need to have a flexible mindset and don't need to mind the shared circulation, kitchen and bathroom.

Relations

A swap room is very similar to the pattern option space [28]. The difference is that these swap rooms have the household or private scale level as the main function. Guest accommodation [35] and swap rooms can also be flexibly interchanged depending on demand.

For swap rooms to work, a financial judicial organization that allows for it is advised. Basically, as long as the entire building has one owner that rents out spaces it can work. This can be a rental coop as with Centraal Wonen Delft and Villa Sandwijck or a normal coop like De Warren. Read part 5, room 2 for more. Another consideration is fire regulations. It is advisable to design them as separate fire compartments, which also may improve their sound insulation [40].

Serious sound insulation [40]

Problem

Sound is a huge nuisance in many communities. Without proper privacy in the intimate and household spaces, people have less energy and motivation to engage on the higher scales.

Proposition

A heavy structure and well designed floors are key. As many communities have ecological ambitions and want to use biobased materials as much as possible, most of the time wood is the preferred option for the construction. This is, however, much lighter than the heavier traditional concrete. Therefore, the architect should pay extra attention to detailing and the community should consider to invest in serious sound insulation and professional advice. Also, try not to design any bedrooms next to a neighbour's living room or a loud space [30].

"In hindsight, we should have chosen thicker walls."

- (Boer, 2024)

Precedent

Cohousing Bijgaardehof in Belgium had acoustics and sound experts on the design team from day one. This made them choose for a thick concrete construction despite their high enviromental ambitions. Instead, they invested in innovative climate installations.

Relations

Acoustics within a space are discussed in pattern [21]. Spaces that need to be extra quiet in pattern [31].

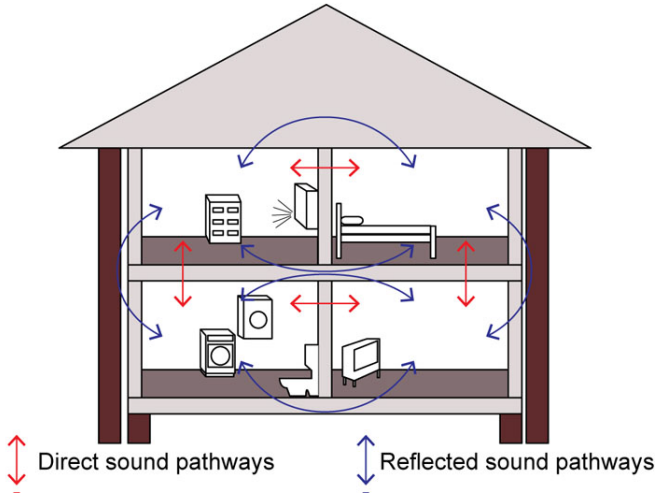


Figure 4.146 Sound can travel through a building in many ways. Through air vents, power plugs, under doors, through walls and floors. Also take into consideration direct and reflected sound pathways (Your Home, 2024).

Figure 4.147 Iewan in Nijmegen, like many other communities, opted for a biobased building.

PART 5.
LANGUAGE IN CONTEXT

Co-design with Wooncoöperatie Het Groene Spoor

“It is essential, however,
that any pattern language links to existing languages at its boundaries”
- Salingaros, (2000, p. 157)

"The process of building a community
first requires a social construction process
and then a physical construction process."
- de Kleuver, (2023, p.12)

Pattern language in context

This part of the report gives an answer to the third research question: *How can the design patterns and base principles be used in the development in Dutch cohousing?* Part 2 of this report explains how these steps were researched and constructed along with the pattern language. This part of the report is the outcome of the research process that is described there.

A common critique on Alexander's pattern language is that it ignores juridical, social, economic and financial realities (Salingaros 2000; Mehaffy, 2019). Therefore, with all the principles and patterns introduced, they will be referred back to in sequences and embedded within the Dutch societal context.

This is done roughly in the order of problem solving. Patterns sequences will be integrated into a compact 8-step method for bottom-up cohousing development in The Netherlands. Yet, most of the steps can also inspire top-down developments or be used for similar projects in other countries. In this chapter the "steps" are called "rooms". A development is not linear, and often previous phases will have to be returned to, and the "room" is therefore a better metaphor. In these rooms stand "tables", at which certain topics or themes can be discussed and researched together. Also, in each room, are "doors", these are links to non-spatial aspects like organisational, financial and juridical elements.

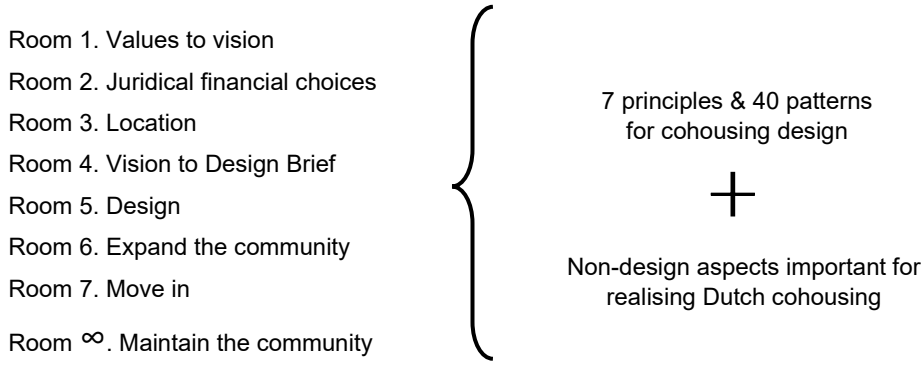


Figure 5.1 8 rooms with choices for a Dutch cohousing initiative to implement the pattern language in relation to other relevant aspects.

Room 1. Values to vision

Start with a small group that shares a similar cohousing dream. With these people you can start a “core group”. Usually this consists of 5 to 10 people (no more than 15) with high motivation and have the time to regularly come together. The most important decisions are made early. If those are postponed this could place “time bombs” in the community (Kleuver, 2023).

Room 1, table 1. Inspiration and information

First, gather a lot of information and inspiration. Do a lot of research. Read handbooks, visit existing projects, talk to people that already live in projects with similar values, talk to people that have gone trough a similar development process, be inspired, be warned, be realistic and dream. Gather all this information in the core group. This will help you to make your dream more tangible and expectations more realistic.

There are many aspects to think of to gather examples for. Think of type of location, type of neighbourhood, juridical ownership variants, specific facilities, price range, care, community size, types of diversity, and so on. These aspects are referred back to in other *rooms,* but it is already good to orientate early on all of these important aspects.

Also gather information and inspiration about the intensity of sharing. While gathering information, ask yourselves: what would I like to share, when, why, and with whom? You don’t have to have all the answers yet, but questioning yourself this will help to make your dream more tangible. Throughout this report, examples of projects are mentioned for inspiration. To find other projects in The Netherland to visit or for inspiration you can look on these websites:

Resources to find projects for inspiration	
Websites with projects on a map	gemeenschappelijkwonen.nl/gw-op-de-kaart cooplink.nl/initiatieven crowdbuilding.nl/discover
Books with many Dutch examples	Wonen in de 21ste eeuw – Peter Camp, 2016 A history of collective living – Susanne Schmid, 2019
Open days at existing projects	aktieagenda.nl/bin cooplink.nl/agenda

Door 1. Finding other projects for inspiration.

Room 1, table 2. Shared core values

Chances are that the core group has beautiful dreams and ambitions. Table 2 is to find out together what the underlying values behind these tangible dreams are. These are the *Why* behind the *How* and *What*. Why do you want to dwell together, instead of alone? What makes it worth to start this long and testing adventure together?

Try to come together around 3, but not more than 5, core values (Kleuver, 2023). For example, if you dream about a large permaculture forest, an underlying core value is likely a sustainable planet. Other core values are for examples affordable housing, autarky, a religion, sharing daily live, informal care, multigenerational living, etc. Formulate these as positive values so that they provide guidance. Try to not use negative criteria like “not eating meat”. Also, don’t make them too vague. For example, “sharing” is vague as that can be interpreted very differently. Sustainability is also still vague and has many aspects, but everybody that underscores it can at least agree that more is almost always better. These core values will have to be described more specifically in the vision at table 5.

Part of this discussion is how you look at the balance or distribution of investment and reward in a community. This will always be unequal (Mol & Buck, 2022; Kleuver, 2024). Investment is not just initial financial input or monthly rent / contributions, but is also time, talent and knowledge. Reward is not just an amount of private m^2. But also, the location of a private dwelling, a say in collective decision making, access to shared facilities etc. Related to this discussion is the diversity in terms of age, income, background and more. Room 2 briefly describes different financial juridical variants for a cohousing community.

It is important to reach a strong consensus on these core values and what is seen as a fair balance between input and output. These core values will guide the project and should not be changed lightly later on (Mol & Buck, 2022; Kleuver, 2023). Besides these few core values, the community can achieve other ambitions as well, but these core values are the driving motivation and serve as a compass when hard decisions need to be made.

Consider base principles *Social-Spatial Scales* and *Click* along with patterns [1] and [25]. A community can have different layers and therefore different clusters within a larger community may have different core values. As long as all the core values of higher scale levels work together with those on lower levels, this can work. One cluster may have music as core value while another has organic eating, together they may form a larger community with the core values of Christianity, affordable housing and having an active relationship with the wider neighbourhood.

Room 1. Table 3. Decision making

Making decisions is a large part of a cohousing development. Sometimes decisions are small and fun, sometimes it is about millions of euros or greatly affects what the community will be like. As a core group you will have to make many decisions. There are various forms of democratic decision-making. Well known is the majority vote. But usually communities avoid this, as it often leads to conflict en disengaged community members. Most communities opt for various types of *Socratic decision making* and *Deep Democracy*.

Two core concepts are *consensus* and *consent*. Consensus means that a solution is sought that everybody agrees with. Consent is a solution that everybody can live with, and nobody has any grounded objections against. In larger communities' different social scales have different decision making. It is essential that in the beginning, the type of decision making used for future decisions, is decided with consensus.

Often different social-spatial scales have different decision making. Read more about this in pattern [1]. There are various resources available about deep democracy like books and podcasts. Also, many communities hire experts to help them with decision making.

Resources to learn more about decision making (and more)	
Online recourses	cooplink.nl/podcast Handboek Wooncoöperaties by !Woon, free online
Books	deepdemocracy.nl/de-boeken/
Find experts to help	crowdbuilding.nl/experts gemeenschappelijkwonen.nl/ondersteuning

Door 2. Resources to learn about decision making.

Room 1. Table 4. Goals

Based on the values and gathered information, formulate, and decide on tangible goals of the community. These goals can later more easily be altered, unlike the more rigid underlying values. An example for a core value is music. A corresponding goal can be to form a community band that practices every week in a specific repetition studio.

Especially consider base principles *Click* and patterns [25] [26], [27] and [34] when thinking about wanting certain facilities for specific goals.

Figure 5.2 The Greenhouse houses 5 families with a strong sustainability vision.

Room 1. Table 5. Constructing a vision together

Now the core group has all the ingredients to build a vision document. Include, as concrete as possible, all the relevant choices from room 1 (and if possible already room 2 and 3) and make sure that everybody in the core group understands all 7 base principles, especially *Click,* before finalising the vision. Write down the vision on not more than 2 pages, and try to be as specific as possible. Avoid vague phrases that have very different interpretations like: “we live in a community but also live independently.” Make dreams like that more specific by, for example, giving a description of what day to day life will be like. Room 4 describes a workshop that can also be done to make a vague vision more specific and tangible.

The vision document will guide you in future phases when hard decisions need to be made. Also, it will help you to find other people that *Click* with your specific cohousing vision. Finally, it will help you to legally and financially organise your community and to find a suitable location.

Door 3. Sociale Architectuur (Kleuver, 2023) and Handboek wooncoöperaties Amsterdam (Mol & Buck, 2022) are both good publications to consult when forming a vision.

Room 2. Juridical financial choices

Chances are that from room 1, forming the vision, there is already a clear idea what juridical financial form fits best for your specific vision. This is a big and important part of any community, although not always deemed to be the most fun part of it. It can make or break developing communities. This chapter briefly describes the main variants. There are many more financial judicial options, and many hybrid versions thereof, than the few described here.

Private home ownership (CPO)

CPO (*Collectief Particulier Opdrachtgeverschap*) is the Dutch financial juridical organisation type where multiple households collectively commissions a project. It is comparable to German *Baugruppen* and the dominant way to organise cohousing in Belgium, the UK and the US. Key is that, although the project is organised collectively, in the end the homes are privately owned. This is attractive for those who see housing as a personal financial investment and a way to grown wealth while still wanting a more collective lifestyle. Famous examples of cohousing with private home ownership in The Netherlands are Knarrenhofjes, Vrijburcht in Amsterdam and Cohousing Arnhem.

While the sense of ownership might be higher, a problem with private home ownership is that people might see their home as an investment and therefore neighbours should not jeopardise their home value. In some projects this leads to conflict on patterns [4] and [10] that dictate that people should be able to express themselves by appropriating designated spaces. On the long term *Click* and *Social Continuity* also might reduce. As households are privately owned, houses are often sold to the highest bidder. Other community members have little or no control in choosing new neighbours to have them socially click with the group and the specific cohousing vision. Also, innovative architectural solutions for social continuity like *option spaces* [27] and *swap rooms* [39] are much more difficult with private home ownership.

Figure 5.3 Knarrenhof is an organization that organizes CPOs with their famous formula.

Cooperative in short coop (*Vastgoedcoöperatie / Wooncoöperatie*)

The *Vastgoedcoöperatie* often called *Wooncoöperatie* (not to be confused with *woningcorporatie*), is a new way to organize housing in The Netherlands and is often revered to as the 3rd way for housing. Residents form an association and collectively own the project. The residents then rent from their own association. After a few decades, the collective loan is paid off, and rent becomes increasingly affordable. In Germany, Austria and Switzerland this model is already used by millions. This model radically departs from the notion that a home is a speculative investment for the growth of personal wealth. Capitalism is taken out of the housing market once the coop is established, and in theory the houses will remain for eternity, and no-one will ever cash in on increased property value. The rent is also relatively cheap.

This model has many great benefits for the principles and patterns of architecture for community engagement. As the residents own the building together, they feel a high level of ownership and no conflicts will arise over decisions that may affect individual property values. Also, it is much easier to maintain a social-spatial *Click* as the residents can choose new residents. Finally, the social continuity is potentially much better as unconventional solutions like *option* spaces [27] and *swap rooms* [39] are much easier to organise. Finally, communities that aspire to distribute community input and output not just based on financial capacity, can distribute spaces and recourses in a way that they seem fair. Famous projects are De Warren in Amsterdam, Kalkbreite in Zurich and La Borda in Barcelona.

Figure 5.4 In 2022 Ecodorp Boekel became the first new build Dutch Vastgoedcoöperatie.

Rent cooperative (Beheercoöperatie / Wooncoöperatie)

A *Beheercooperatie* is very similar to a *Vastgoedcoöperatie* and is also considered a *Wooncoöperatie*. The difference is that the juridical ownership lies at another party, usually a social housing association (*woningcorporatie)*. A resident association either rents the entire project and then sublets all spaces, or residents rent spaces directly from the owner. In both systems the residents, as *Beheercoöperatie* have a high sense of ownership and can choose with whom and how they will live. During development, residents are already highly involved in decision making. Also, in maintenance (*beheer*), the residents take much higher responsibility than with regular (social) rent. This allows for relatively high quality for relatively low rent (see figure 5.5). Famous projects are most Centraal Wonen Projects in The Netherlands, Stadsveteraan020 in Amsterdam and Boschgaard in Den Bosch.

The advantages are similar to the *Vastgoedcoöpertie* but across the board a bit less. As the residents are not the (collective) owners of the project, they have less control. A big problem for *Social Continuity* can be that anybody that rents from a social housing association must earn below a certain income to be applicable for a new rent contract. This can jeopardize diversity goals and residents may not be allowed by these national regulations to move to a more fitting space within the community if their income has become too high for a new social rent contract. This impacts patterns [37], [38] and [39] which are the most important *Social Continuity* patterns.

Figure 5.5 Beheercoöperatie Broedplaats. “most beautiful social housing in The Netherlands”.

Door 4. The emerging Dutch coop cohousing movement

The various types of *Wooncoöperaties* are increasingly popular financial juridical ways to realize cohousing in The Netherlands, besides the long established routes of private homeownership (CPO) and social rent. Cooplink is a fast growing non-profit knowledge network providing free knowledge sessions, excursions, a knowledge base, a podcast and more. Look at the Cooplink knowledgebase to learn more: cooplink.nl/kennis

Figure 5.6 The national Cooplink Day hosts more stakeholders each year, bringing together aspiring and established communities, experts, banks, governments and more.

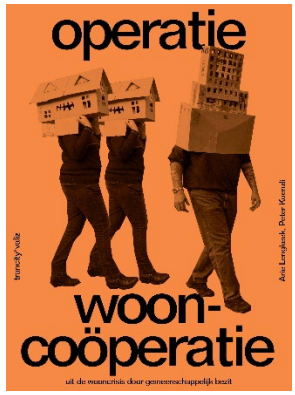


Figure 5.7 Read and learn more about the coop cohousing as a movement in *Operatie Wooncoöpertie* (Lengkeek & Kuenzli, 2022) and *Together Towards Collaborative Living* (Czischke et al., 2023). The last one can be downloaded for free online. books.open.tudelft.nl/home/catalog/view/80/139/208

Room 3. Location (location, location!)

Ideally, you find a location that fits your vision, often that will never happen a 100%. Not finding a location is the number one reason most initiatives never materialise. Countless core groups around The Netherlands have already been location hunting for over a decade, having to endure many heavy disappointments. Success factors are: being flexible, being steadfast, looking in many municipalities, being pro-active, being creative, being persistent, and a lot of luck (Mol & Buck, 2022; Kleuver, 2023). When weighing locations consider, apart from whether the location fits your vision, the following:

General considerations for a cohousing location	
Question to ask yourselves	Principles and Patterns
Does the location offer a desirable price/quality/quantity ratio that fits the vision	*Click*
What is the total community size that is possible or allowed at this location?	*Socio-Spatial Scales* [1] [2]
Does the architectural expression that is allowed fit the vision of the community?	*Sense of Ownership* [3] [4] [10]
Possibility for desired specific facilities, such as community gardens	*Socio-Spatial Scales, Click* [29] [34]
What will be the relation to surroundings	*Socio-Spatial Scales, Privacy* [2] [9] [12] [14] [20] [30] [32]
If the group aims to fulfil a specific neighbourhood function, is there a demand for that in this location?	*Socio-Spatial Scales* [25] [26] [34]
Can highly attractive communal spaces be created along the route from parking/outdoor areas to more private spaces?	*Spontaneous interaction* [14] [15] [16] [17] [18] [20]
Is it possible to have a not-now-route (which involves a longer walk than the social entrance)?	*Privacy* [14] [19]
Are transition zones like front gardens and / or wide galleries possible?	*Spontaneous interaction, sense of Ownership.* [5] [6] [7] [8] [9]

In case of an existing building	
Question to ask yourselves	Principles and Patterns
Is it easily adaptable?	*Social Continuity* [27] [36] [38] [39]
Is the structure soundproof?	*Privacy* [40]

Door 5. Resources to find a location

Besides contacting local politicians and being well known locally, these resources might help:

Resources to learn more about decision making (and more)	
Online recourses	crowdbuilding.nl/discover#plots nl.woongroep.net cooplink.nl/initiatieven
Organizations	!Woon: in Amsterdam, Utrecht Haarlem. Derde Bouwstroom: in Noord-Brabant. WBVG: in Gelderland. De Drijvende Kracht: Is pioneering in floating cohousing for countless water locations in the Dutch delta landscape.
Find experts to help	crowdbuilding.nl/experts gemeenschappelijkwonen.nl/ondersteuning

Figure 5.8 Crowdbuilding.nl hosts a map with plots with cohousing potential.

Room 4. Vision to design brief

Hopefully with a location in sight, but not necessarily, it can be time to move on from vision document to a design brief. For this step, a new workshop has been designed complementing the pattern language. This workshop can also help to form the vision in the first place.

Activities Workshop

In many collective housing projects, common spaces are not used as was expected during the design. During the development of a housing project with common spaces, people often think about spaces. However, it is important to first translate your vision to activities that you, as a group, want to engage in. These activities enriched with variables such as the social-spatial scale and frequency can lead to specific requirements and wishes for a design brief with spaces that will more likely will be used. In this chapter the different parts of the workshop(s) are described.

Room 4. table 1: Learning about the principles & patterns

Figure 5.9 Sharing principles and patterns.

Before the workshop starts, a summary of the base principles and pattern language as described in this report is given. This provides basic knowledge for the participants on the “dos and don’ts”. This is a summary of patterns [1] to [40]. Especially pattern [25], *Reason to Use* and base principles *Socio-Spatial Scales*, *Privacy*, *Click* and *Planned Interaction* are important for this workshop.

Room 4. Table 2: Activities per socio-spatial scale

Figure 5.10 Each colour represents a socio-spatial scale level.

Depending on the project, and especially the community size, several social scale levels of “publicness” are determined with the group. These are usually: intimate, household, cluster, project, and neighbourhood. Patterns [1] [2] [5] and *Privacy* are important for this step.

Then, more than 60 activities are discussed and assigned to a social-spatial level. Each level has a distinct colour. The estimated frequency of each activity is also immediately discussed with everyone and written on the activity cards. It can also happen that this step leads to good fundamental discussions like: do we want a garden where people are allowed to make a fire?

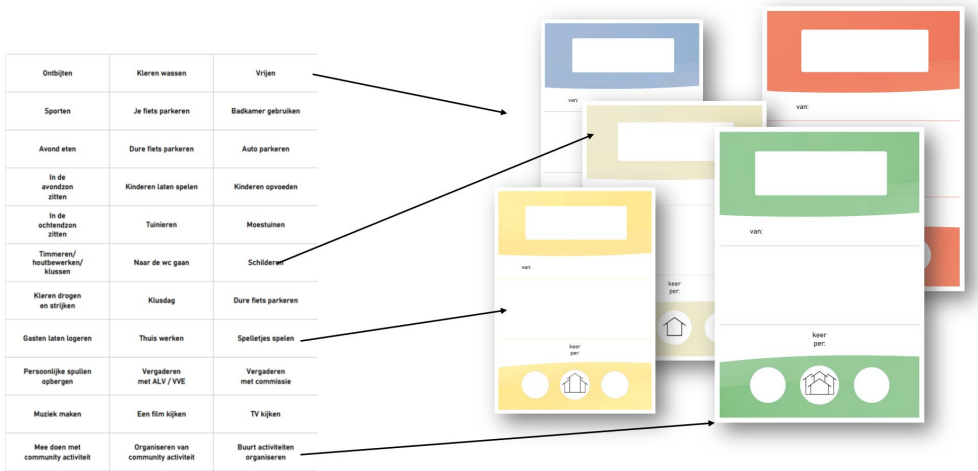


Figure 5.11 Sticker sheets with activities help to quickly build the activity cards.

Room 4. table 3: Specification of the activities

Figure 5.12 Other sticker sheets help to quickly add detail to the activity cards.

Using sticker sheets with icons, participants quickly and intuitively provide all activity cards with characteristics such as: is it must or may to do this activity [16]? Does it make a lot of noise [30]? What do you need for it? Also consider patterns [29] [31] [32] [34].

Must or may activity?
Spontanious or planned?
How often?
Is it noisy?
Does it needs te be quiet?
Out of sight?
What else is needed?

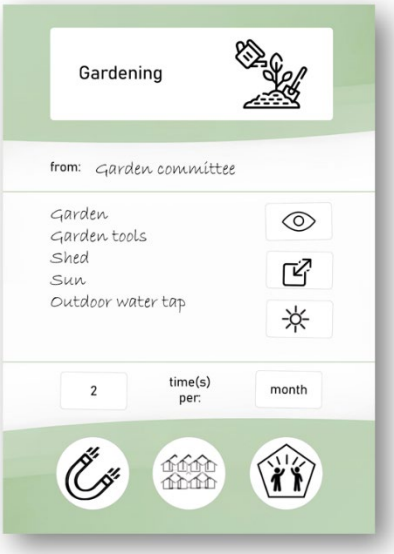


Figure 5.13 Questions to ask while creating the activity cards.

Table 4: Give activities a space

Figure 5.14 Wooncoöperatie Ons Groene Huis assigning the activity cards to spaces.

Everyone receives a set of cards, and in turns, the activity cards are placed by spaces. These “spaces” are made in the process by writing the name of a space on an envelop. This is an iterative process of merging and dividing “spaces”. The facilitators of the game provide feedback on cohousing patterns but also on building regulations and architectural insights. Consider the patterns [25] to [39] while asking these questions: do all the activities realistically fit in a busy daily/weekly/monthly/yearly schedule? Do activities on different social layers in the same space conflict? Who has the responsibility for the maintenance of a space? Can certain spaces have a different social-spatial scale at different times?

Beforehand, it is good if the residents have already at least a rough idea of the amount of m^2 that they can afford. This provides a space budget that can be divided among spaces of the different scale levels. It is also good if residents think of a time budget. In reality people have less time to spend in a community than expected. During the workshop, participants usually start with creating a space for each activity. To make the plan affordable it is then an iterative conversation to combine different activities in the same space. Especially consider patterns *multifunctional space* [26] and *option space* [27].

In the end, On the envelopes with the activities, the qualities and specifications are written that are needed to facilitate these activities. This is a first, and already detailed design brief!

Room 4. table 5: Continue with the *Field & Volume* workshop(s)

Figure 5.15 Wooncoöperatie Het Groene Spoor doing the Field & Volume workshop.

Now that the group has established an initial design brief, the *Field & Volume* codesign method by Philip Krabbendam can be used to further explore the desires and limitations of the group, and possibly already a site. The spaces, along with their corresponding activity cards in an envelope, each receive their own block at a 1:200 scale. Participants can now investigate how to spatially combine these on the intended plot. This leads to numerous questions and important discussions. The conclusions from these conversations further strengthen the design brief and even vision.

During this three dimensional exploration of the cohousing vision and the corresponding design brief, consider patterns that are important for *Social-Spatial Scales* [1] [2] [3], transition zones between scales [7] [8] [9] [11] and circulation [5] [6] [12] [14] [15] [16] [19].

Figure 5.16 Wooncoöperatie Ons Groene Huis during a Field and Volume workshop.

Room 5. Design

When you reach this room, room 1 to 4 are hopefully mostly done, or at least, room 3 and the location. During this room, the processes of *Room 6, building the community* can also start up. Now it really is time for the serious dance of imagination & calculation (*Rekenen en Tekenen in Dutch).* At the time a project moves from sketch design (SO) to preliminary design (VO), choices start to get serious and money questions become very real and residents tend to wake up from the dreaming phases. The core values established in Room 1, that hopefully still resonate strongly with everybody in the group, will help in guiding the decision making.

At this part, an architect really starts to take the lead and consults with the residents with the rhythm of a heartbeat (Open Kaart, 2023). Not too often, not too little, but regular. The architect should start with drawing extreme variants that make it clear what choices have to be made. Don't draw too specific, as that will create confusion in the discussion. Only draw what needs to be discussed and keep the rest still vague.

During the sketch design and allocating limited funds consider at least patterns: [15] [20] [23] [26] [27] [34] and [40]. But it is best to go through them all to check if no common cohousing design mistakes accidentally slip into the design before it is too late to change it.

Figure 5.17, 5.18 & 5.19 Is Co-design just for resident-led projects? Architecture office INBO did extensive codesign for social rent Space-S with hundreds of residents for 5 years and stayed under budget and within time, resulting in various forms of cohousing (INBO, 2017).

Room 6. Build the community

Start expanding the community. Nearing the design phase, more and more work needs to be done. Applying for subsidies, legal work, financial work, contact with many stakeholders, writing tender documents, building and maintaining a network etc. It is an intense phase and people of the community will have to specialise in certain aspects. More hands and brains on the team are now welcome. These new people should of course be equally enthusiastic about the core values, goals and vision formulated in room 1.

Choose new people carefully, usually with an onboarding test period. Manage expectations and make clear that it will still be a long and tiring, often frustrating, process. Exclude too dominant people, embrace people with enough free time, and strive for a diversity in skills and talent. And try to strive for diversity in as many aspects as your project's financial structure, plot regulations, and the vision allows for.

And while the community expands, the design gets designed, and the building gets built, don't forget to celebrate moments. Do fun things together besides the necessary. Start forming group traditions and engage in fun rituals. While the vision turns into a building, keep building a community that everybody will want to keep engaging with.

Figure 5.20 De Warren designed rituals for all important milestones during their bumpy process. One of the residents is a professional rituals designer (Boomkens, 2021).

Room 7, Move in

Time to move in! Try to do as much as possible as residents in the construction of building and outside spaces. From painting to installing a façade and planting greenery. The more you invest time, resources and energy in the building, the greater the *Sense of Ownership* will be. Besides, of course, saving money. When choosing what to finish first, always do shared spaces first. Patterns *tempting shared space* [20] and *reason to use* [25] will never be any stronger. When decorating and furnishing the building keep in mind patterns [4] [10] [18] [21] [22] [23]. Enjoy the honeymoon phase!

Figure 5.21 Opening of Beheercoöperatie Iewan in Nijmegen. "*It is possible*" says the banner.

Figure 5.22 Cohousing Bijgaardehof in Ghent at the very start.

Room ∞, Maintain the Community

If all went well, room 8, is room ∞, and you can enjoy it for a long time. Organise events and enjoy the forming of traditions from Wednesday-soup-day to equinox bonfires. Keep an eye on *Click*, and all other base principles regularly. Evaluate the goals and vision every couple of years and discuss if everybody still underscores the core values of Room 1. Also, the activities cards of Room 4 can be revisited occasionally to restructure, among other things, the options spaces [27]. And do accept that the world changes, and as a community you may change as well. Hopefully the patterns [4] [5] [10] [15] [24] [26] [27] [35] [36] [37] [38] [39] allow the design enough flexibility to transition along with the people, so that everybody may continue to live in cohousing that facilitates their engaged community.

Figure 5.23 Stampioendwarstraatjes in Rotterdam has an engaged community since 1894.

Figure 5.24 & 5.25 Hofje van Bakenes is a senior lady community that thrives since 1395.

"... the end goal of the project, improving quality of life, should be upheld even after delivery: a project should not be considered 'done' once all the buildings have been delivered."

- Janssen (2024)

PART 6
CONCLUSION & DISCUSSION

Cohousing Bijgaardehof by Bogdan & Van Broeck architects (Bogdan, 2022)

Conclusion

This research report is the result of a fascination into why some buildings facilitate thriving communities and some don't. In times where society wide, both bottom-up and top-down, interest in cohousing rapidly increases, understanding success factors is increasingly important. As most aspects like financial, juridical and organizational have received attention in recent publications, this report aims to address the gap of the design aspect. Therefore, this report has the goal to bundle insights into:

How to design cohousing so that it facilitates community engagement.

To reach this goal, a pattern language has been constructed with the aim that the results may be used by resident-led initiatives and architects. In part 2 of this report the research methodology is described. The study combined various research methods, including a literature review, participatory design and field visits to cohousing communities in The Netherlands, Belgium and the UK. Over a year, the pattern language was formed, tested and adapted. The resulting pattern language is presented in three chapters.

In part 3 of the report seven base principles that explain how design may facilitate community engagement have been formulated. At the basis lies the principle *socio-spatial scales*. This is the concept that any community has multiple scales from intimate to public. The other base principles work differently along this spectrum. *Privacy* describes the ability to control the level of interaction with others. This can be both the option to choose to have more or less contact to reach the desired level of social interaction at any moment. A *sense of ownership* is the ability to feel control over a space, group or process, which can both lead to a positive or negative spiral of engagement. *Click* describes that a spatial design should facilitate behaviour that fits a specific lifestyle vision and residents that strive for that. Social interaction is split in two principles, *spontaneous* and *planned*, as they both have different paths to engagement, and both require different design. Finally *social continuity* is the capability of a building to adapt to changes in household sizes and lifestyle so that residents may remain in their community.

In part 4, common problems and solutions are presented in 40 design patterns. First, these patterns describe how communities may design multiple complementary layers of community. Then, how these different layers can be expressed and have effective transition zones for both privacy, ownership and spontaneous interaction between them. Multiple patterns describe considerations of how to design circulation as circulation is one of the important reasons that can make shared spaces actually be used or not. Multiple other patterns describe

qualities that can make spaces be engaged with, avoided or lead to conflict. Finally, a handful of patterns explore considerations of how the cohousing building can adapt to changing demand of space at the lower social spatial scales like, most commonly, the household.

In part 5, the patterns and base principles are referred back to in sequences and embedded in the Dutch context of resident-led cohousing development. This is done in 8 rooms which are metaphors for phases that can and often must be returned back to.

To conclude, there is not one simple recipe of how to design cohousing so that it facilitates community engagement. Each location is unique, and each community is unique, and therefore each cohousing building should be unique. Yet, throughout the various types of cohousing communities, abstract base principles and tangible patterns have been identified that describe how design might facilitate engagement. With these insights in mind, it is up to the architect and residents themselves, to cleverly combine constraints and creativity, principles and innovation, dreams and patterns, into a cohousing design that facilitates a unique thriving and engaged community.

Figure 6.1 Bijgaardehof in Ghent

Discussion

At the start of part 4, the pattern catalogue, there are two quotes that warn the reader. The first by Christopher Alexander warns that patterns are a best guess of a common solution to an occurring problem, but these are free to evolve under the impact of new evidence. The same goes for all patterns and principles in this pattern language. This report gives an initial overview of cohousing design patterns for community engagement but as more research is needed, this pattern language will evolve.

Not all relevant literature and cohousing cases have been studied to form this pattern language. In both literature and cases there was a western European scope. With a not exhaustive literature and case study, more research may thus be done to further provide more width, depth and validity to this cohousing design pattern language. This pattern language is therefore an inductive start, but both the language itself and the individual patterns could benefit from more research, especially in other regions and non-western dwelling cultures.

Many developing communities and architects are still eagerly looking for confident answers to how they can design a future proof community for their dynamic households. Hence, another prominent research gap is an in-depth evaluation of various types of solutions for household flexibility in cohousing. This evaluation should be done in communities that have existed for many years to be able study the difference between architectural concept and lived reality. Here the governance, legal ownership type, and local laws are important factors to consider.

The second quote that warns the reader at the start of part 4 is from environmental psychologists Fayard and Weeks. It warns the reader that these patterns never have a simple deterministic relationship and should always be considered within a wider and complex context of other patterns and aspects. It was beyond the scope of this study to examine other relevant aspects in great depth. With part 5, the report aims to acknowledge that the design is only a small part of what determines if a cohousing community will see high engagement.

A notable research gap is what facility, for example a kitchen, works on what social scale. Often, researchers ask a general population questions on what people want to share, but as those answers are personal, the outcome is often not of much use for a specific cohousing. More interesting would be to conduct structured research on existing cohousing projects where people do want to share certain facilities. In such research the spontaneity of the use of these facilities, type of governance and formality of cleaning and maintenance should be

included. Such research outcomes could very much help future communities determine if they for example should share a daily kitchen with 3 or 7 families in an informal unplanned lifestyle.

Finally, a concern that many, especially more top-down, cohousing developers have, is the choosing of neighbours. As The Netherlands sees long waiting lists for social housing, many housing associations are increasingly reluctant to grant “chosen” people the ability to cut in line for a house (Portaal, 2023). Especially as those that could benefit from cohousing, are not always those likely to be selected by an established community. While this is true, it is also true that a *click* between people, lifestyle vision and design, is vital for engaged communities, especially on lower, more intimate socio-spatial scale levels. More research should thus be done to explore a nuanced approach that could do justice to these two conflicting realities.

The choice was made to keep the total of patterns in this language at 40, yet many more can be identified, to do more justice to the complex socio-spatial workings of cohousing. Also, the complex complementary or conflicting relations of patterns deserve further analyses. Yet 40 is also still a large amount which limits the usability for time pressed architects. Future research could therefore make both a more compact version to make the language more applicable in practice, and a more complex version doing more justice to the actual socio-spatial complexity of cohousing.

With these initial results, residents and architects of various types of cohousing can find guidance, as the results can provide warnings, inspiration and suggestions in their dynamic journey of designing cohousing for an engaged community.

Figure 7.1 Future residents of cohousing coop Ons Groene Huis during a workshop.

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Thank you! – Tijmen Kuyper

A pattern language is never finished.
Any feedback and suggestions are very welcome via info@CoWonen.com

A website version of the pattern language will be made available soon. The link will be on:
www.CoWonen.com

For the latest online version:
Go to **CoWonen.com**

Tijmen Kuyper

How can architectural design facilitate community engagement?

Amidst growing bottom-up and top-down interest in cohousing, this study highlights that it is not simply shared spaces but an engaged community that is the source of cohousing benefits such as informal care, mental health and sustainability. While much attention has been paid to the political, financial and organisational factors involved in making cohousing a reality, this publication addresses the gap in attention to architecture.

Through literature reviews, participatory design, and site visits across the Netherlands, Belgium, and the UK, a "pattern language" of base principles and design solutions has been developed. These principles and patterns transcend specific contexts and architectural typologies, making them widely applicable. The report also links design the patterns to aspects like financial, legal and social considerations in the Dutch cohousing context.

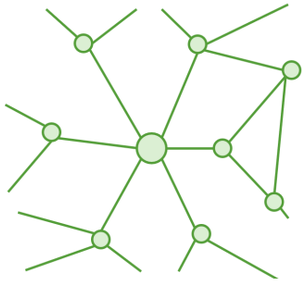
This report is written for people who want to analyse an existing project, people who want to develop new cohousing projects and architects.

Architecture that facilitates community engagement in

7 base principles

40 design patterns

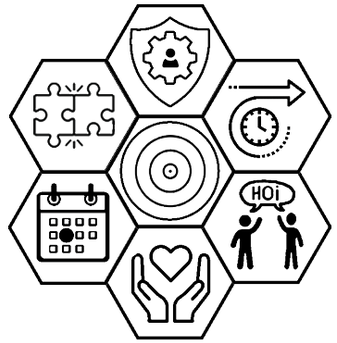
8 steps to implement



ARCHITECTURE FOR COMMUNITY

ARCHITECTURE FOR COMMUNITY

a cohousing pattern language



Best practice design insights for the many forms of collective housing

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