LIGHTHOUSE

Architecture against violence

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ARCHITECTURE AGAINST VIOLENCE

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01 **INTRODUCTION**

The objective of this research is to develop an experimental approach to co-housing, shedding light on and challenging the patterns of patriarchal dominance that persist in conventional dwellings. The project addresses the issue of domestic violence and explores the potential of architecture to create environments that can aid healing processes. The aim of the research is to develop design solutions centered on creating a healing environment that provides inhabitants with a feeling of inclusion, safety, and hope for the future. The lack of affordable housing, the crisis of care, and the disconnect between the domestic and productive spheres leaves few suitable housing options for those who do not conform to traditional family structures. While some households can mitigate the challenges posed by current housing patterns, those in crisis, such as those who have experienced domestic violence, are particularly vulnerable to these limitations. A paradigm shift in housing production is necessary if we are to move towards a caring city and counteract gendered, social, and economic inequality.

Framework

Gender

The overarching topic of this research is gender equity. For a feminist critique, it is crucial to understand that the very designation of women can no longer be understood in universal terms. According to the gender theorist Judith Butler (1999), the distinction between sex and gender affirms the argument that if sex has some apparent biological factors, gender is a culturally constructed concept. This sociocultural construction of gender becomes problematic when patriarchal structures produce gendered subjects leading to systems of domination. For instance, the notion of femininity and female domesticity is often geared toward the exploitation of labor. The reality that domestic and care work is not compensated, has placed women at a disadvantage in our society, in which financial capital is essential for survival (Fraser, 2017).

Gender / Home

If gender is culturally constructed, how and where does this construction take place? One answer would be, in our homes. The study of gender and space is an interdisciplinary one, that is concerned not only with space as it has traditionally been defined by architecture, but also with how space is used, appropriated, occupied, and transformed through everyday activities. Specific spaces can be ‘gendered’ according to the gender

which is associated with the activities taking place in them. For instance, the domestic kitchen has historically been gendered female, because the act of cooking has been associated with women. This gendering of space both reflects and has effects on the ways in which gender is constructed and understood in our societies (Rendell, 2000).
Gender roles and perceptions of social orders can affect the way we perceive and inhabit space. For instance, patriarchal family patterns have grown into the nuclear family home, which is at the basis of contemporary city making - not only in terms of quantity, but perhaps more importantly, as it produces the subjectivity of the modern city dweller (Giudici, 2018). The concept of the nuclear family home and the nuclear family is deeply ingrained in our society to the point where envisioning alternatives seems almost implausible.

Gender / Home / Violence
Traditionally, the home has been regarded as a private domain, distinct from the public realm of work and politics. It is seen as a place of refuge and retreat, and the locus of family life, marriage, and childrearing. The idea of compartmentalizing private and public spheres has enforced gender asymmetries. First of all, one could argue that the house as a refuge from the stressfulness of public life or waged work, rarely holds true for women, as they tend to carry out the bulk of domestic labor. Even more detrimental, the notion of the safe family home juxtaposed against the dangerous public sphere disregards the harsh reality of domestic abuse. For women in the home, privacy can also mean confinement, captivity, and isolation. The home is not always a safe haven, it can also be a site of persistent violence and abuse. Criminology researcher Laura Goldsack sheds light on the alarming statistic that women are more likely to experience violence from someone familiar to them within their own home, rather than from a stranger on the street (Goldsack, 1999). However, this crucial fact is often overlooked both in our perception of the family home and in architectural strategies to prevent crime, which tend to prioritize securing the dwelling from external threats.

Women who leave their isolated single-family homes or apartments have limited options for alternative housing. Those who experience domestic violence are often in search of housing, employment, and childcare all at the same time, and find it difficult to align their complex family requirements with the offerings of landlords, employers, and social services. An environment that provides housing, services, and jobs could address many of these difficulties (Hayden,1981). This could potentially be integrated in a mixed-use co-housing development.

Co-housing and cooperative tenure
Co-housing constitutes a pragmatic and at times idealist response to the challenges of living in contemporary societies. Co-housing is here defined as housing with common spaces and

shared facilities. This form of living is considered by several scholars to have the potential to promote gender justice, by facilitating the sharing of domestic tasks and childcare, as well as challenging the notion of the nuclear family (Vestbro, Horelli, 2012).
The term cooperative housing refers to an alternative homeownership where the property is owned collectively by the housing co-op, made up of residents. Housing cooperatives can exist in both owner and tenant form. Owner cooperatives require higher equity, and often require members to invest a share equal to the market value of a housing unit. In tenant cooperatives, members are only required to invest a small amount of money to purchase their shares. Unlike owner cooperatives, tenant cooperatives can continue constructing and receiving subsidies beyond the initial construction project. This makes it easier for tenant cooperatives to invest in new construction - in fact, catering to people beyond committed members was one of the successful survival strategies of cooperatives (Kohl, Sørvoll, 2021).

1.1 Problem statement

The recent Covid 19 pandemic sparked a parallel epidemic of increased domestic violence, referred to as the Shadow pandemic (UN Women, 2021). Triggered by lockdowns, income loss, and social isolation, gender-based violence intensified, exacerbating an already pre-existing crisis. According to a UN Women report (2021), women on a global scale reported feeling more unsafe both in their homes and in public spaces since the pandemic. In addition, several studies have shown that women were the most severely affected by the economic effects of Covid-19, being disproportionately pushed out of employment. There is a major discrepancy with this since women were at the same time the ones who kept the world running during the pandemic – picking up the care workload in hospitals, at home, and in the workplace. Globally, women constitute 70% percent of healthcare workers, while also carrying the heaviest load of domestic work (WHO, 2019). While these jobs are essential for crisis response and collective survival, they have long been undervalued and underpaid. The pandemic is a clear example of how patriarchal structures and gender norms can sustain systems of oppression and violence.

Patriarchal power structures can translate into spatial and social arrangements, which are fostered in our dwellings. The home is the site where the gendered division of labor has been naturalized, creating gender hierarchies and economic asymmetries (Aureli, Giudici, 2016). Housing design has undergone few radical changes since the invention of Robert's Model Home for Families, exhibited in 1851 at the Universal Exhibition in London. The Model Home for Families is a typological prototype, which had a major influence on how we design, inhabit at perceive housing. It comprises of a collection of rooms designed for specific functions: a living area, a

master bedroom, two small children's rooms (divided by gender), a kitchen, a scullery, and a water closet. The model house is explicit in the type of family life that it is designed for and can be seen as a strategic effort to segregate ages, gender, and activities to institutionalize domestic labor. The family doesn't need to share anything with its neighbors, making it truly nuclear, and reinforcing the status of the home as a private sphere. The model home is not just a spatial prototype - it can also be seen as a social diagram (Giudici, 2018). The patriarchal nuclear family model has become a global apparatus, enforcing a form of life that is often at odds with the needs of inhabitants. The co-housing and cooperative models have the potential to provide an alternative way of organizing domestic space – by promoting collective ownership and communal forms of living.

Fig. 1 Robert's model home - Social diagram, made by the author

1.2 Research questions

The research aims to outline the conditions of gender inequality, followed by an exploration of socio-spatial articulations that can be used as tools to counteract systemic gender inequality. The three main research questions are, therefore:

1 How do the conditions of gender inequality translate into spatial diagrams/produce gendered spaces?
-In which way does this affect the gendered segregation of labor and economic inequality?

2 What are the socio-spatial and economic needs of those who survived domestic violence?
-In which ways can collective living be beneficial and what are the potential risks?

3 What kind of socio-spatial reprogramming can contribute to a gender-equitable dwelling?
And which dimensions of the co-housing model can be used to promote this?
-How can the practice of the commons, with attention paid to gender relations and the notion of care, be used as a tool to counteract structures of domination and violence?

1.3 Personal motivation

My personal fascination with the topic of feminism in architecture is what initially drew me to this to this object of research. Through my readings on feminist theory, I realized that the way we design our dwellings has remained stagnant for decades and is still prescribing to patriarchal patterns.

Looking at the co-housing model I see potential in how this type of living arrangement can challenge the outdated values often upheld in conventional dwellings. Violence against women is a deeply rooted societal problem, that derives from systematic gender inequality. Personally, I have seen women who stand close to me, to some extent sacrifice or delay their careers to perform unpaid care work. I know of women in my circle who have experienced or are currently stuck in abusive relationships and have limited means to break the cycle of violence. I am aware that this is a sensitive topic, and I did hesitate to choose it. Nevertheless, I think it's an important one. The solution to gender-based violence can of course not be solved by a single measure. It is a multi-faceted and deeply rooted problem that requires structural and fundamental change. Re-thinking the way we live, and the way we design our built environment is only one aspect of a possible solution.

1.4 Research methods

The main research methods employed are a combination of literature analysis/ historical research, and morphological analysis done through a series of case studies. Each chapter consists of a literature analysis followed by a case study, aiming to identify design elements and conditions that challenge gender norms and contribute to healthy, equalitarian living environments.
The first chapter introduces the user group: survivors of domestic violence. In this chapter I refer to reports by the Blijf Groep, an organization providing services and shelters for survivors of domestic violence. Furthermore, this chapter introduces design elements that contribute to therapeutic environments and place them into the context of designing for survivors of domestic violence. The case studies will be analyzed with the criteria for healing environments. The case study in the first chapter is Ada and Tamar house, a women's shelter designed in close collaboration with the staff who run it. The second chapter introduces the urban context and the programmatic concept, relating the needs of the user group to the specific site conditions. The third chapter introduces the concepts of production and social reproduction and questions the dichotomy between the two. This chapter includes an analysis of the Kalkbreite cooperative, identifying the productive and social reproductive functions within the project and their relation to the dwellings. The fourth chapter provides an overview of different types of co-housing and their feminist aspects. The case study in the fourth chapter is Haus A, where the cluster typology will be analyzed from a feminist standpoint. Finally, the concluding chapter includes a reflection and the main spatial takeaways from the research.

02 **USER GROUP**

The user group that I preliminarily focus on are survivors of domestic violence. However, to prevent social isolation or alienation, the program also includes housing for other target groups, such as solo dwellers, starters, single parents, active elderly, and extended families.

2.1 Domestic violence

Domestic violence is a societal problem that is deeply rooted in a history of gender inequality. Estimates by WHO (2021) indicate that globally about 1 in 3 women have experienced intimate partner violence in their lifetime. This makes domestic violence the most extensive, yet the most hidden form of violence in our society. Although domestic violence is not exclusively a crime against women, women constitute the vast majority of those who experience intimate partner violence (Conner, 2014). According to a study from WODC (2022), 9 percent of the Dutch population aged 16 and older (nearly 1.3 million people) reported having been the victim of one or more forms of domestic violence in the past 12 months. Verbal aggression is not included in this figure, if it were included, the number would be 33 percent.

Financial instability plays a major role in restricting the options and freedom of those who experience domestic violence. Economic dependency on the abuser creates long-term dependence. For survivors of domestic violence, the choice often comes down to feeding, clothing, and housing themselves and their dependents even if it compromises their own safety. Economic instability resulting from domestic violence can result in long-term housing instability. Women often lack title to property, face court battles, and struggle to meet the criteria for rental housing (Conner, 2014).

2.2 Types of shelters

Shelter accommodations for those who experience domestic violence can be divided into three categories.

1 *Emergency shelters* provide safe housing for women and women with children in imminent danger in their own households. The duration of the stay is generally up to 90 days. The emergency shelters are usually in a non-disclosed location and have tight security measures. Services offered in these shelters such as counseling and safety planning are often mandatory for those staying there (Correia & Melbin, 2005).

2 *Transitional housing/ second stage program* is aimed at assisting women and their families in the transition from emergency shelter to permanent housing. These units can vary but generally offer services such

as childcare, financial assistance, clinical therapy, counseling, and job development. These units have some security measures, and the stay can range from 6 months up to two years (Correia & Melbin, 2005).

3 *Long-term / Permanent housing* is available to those who have completed a second-stage program and still need subsidized housing and support from the community. These are part of the public housing system and security measures are low. Residents are often offered community-based resources, and emotional, and legal support when needed. These services are on a voluntary basis (Correia & Melbin, 2005).

In this research and design, the focus is on long-term housing with voluntary services.

2.3 User profile - Blijf Groep

The Blijf Groep is one of the leading organizations in the fight against domestic violence. By looking into their services and client profile, the aim is to gain an understanding of the socio-economic background of those who seek shelter as well as the resources available.

Orange House approach

The Blijf groep developed the so-called Orange house approach. With the Orange Houses, there is a social statement: that victims should not have to hide or be ashamed. They promote visible shelters situated in an open setting where they work with all family members. The open setting of the Orange houses is not secret, but safe, and it allows women to keep their social contacts during their stay. The Orange houses offer a variety of services for clients. They work with an empowerment program, where the aim is to help clients use the resources in their community to find their own strength. The Orange houses offer both crises care and a second stage program (Blijf Groep, 2019).

Interviews with former clients show that almost all women felt safe in the Orange House. They were happy with their own apartment and there was high satisfaction with the social workers and the various programs. The women were however less satisfied with having to move from the crisis shelter after six weeks and the uncertainty about where they would end up (Blijf Groep, 2021).

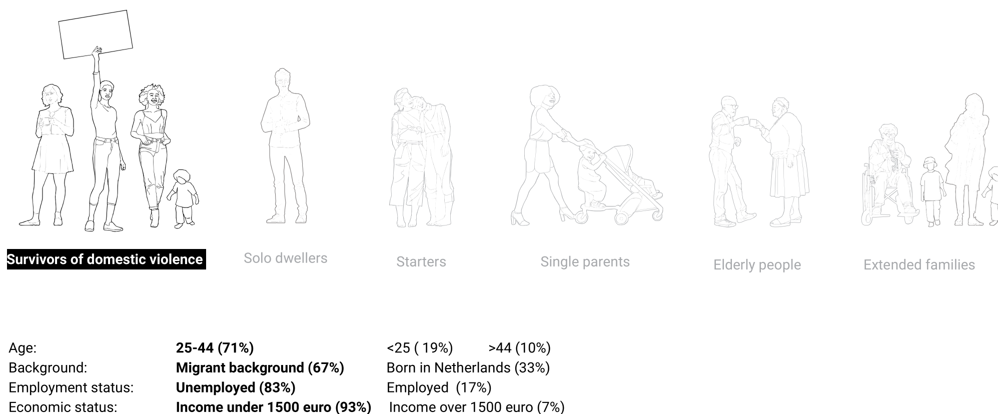
User profile

Most women in the Orange Houses have experienced serious to very serious violence. This is evident from the quantitative research from conversations with women staying in the shelters. The conversations showed that in half of the cases, the violence was accompanied by severe controlling behavior and isolation. In general, the women and children who seek shelter in the Orange Houses have multiple and complex problems. In addition to domestic violence, there is often poverty, addiction, trauma, or psychological problems. Clients in the Orange House also have more risk factors such as unemployment, low income -and level of education. Many clients have a migration background, and partly due to the isolation in their

own homes, many speak little or no Dutch (Blijf Groep, 2021).
The majority of the clients fall into the age group of 25-44 years old. The age of children in the shelter is evenly distributed. In the transitional housing program, 33% of clients are born in the Netherlands. The rest of the clients come from 59 different countries.
Most women who come to the Orange Houses do not have paid work (83%) and an income below 1500 euros (93%) (Blijf Groep, 2021).
This could lead to the misleading conclusion that violence only affects those with a lower income. This is not the case, as most experts agree that violence is blind to socioeconomic status (Conner, 2014). However – it could be concluded that those with a lower income- and socioeconomic status, who experience domestic violence, may not have the resources to leave the violent home, and therefore are more likely to seek shelter services, and require help in finding suitable accommodation.

What happens next?
According to interviews conducted by the Blijf Groep a year and half after leaving the Orange houses, most women reported that things were going better. They experienced peace, had more self-confidence, and said that their quality of life had improved overall. However, the transition from the Orange House to an independent home is challenging, and most women still experience a lot of stress which entails health problems. There is an aftercare program offered to women who have been discharged, however, that program is often stopped prematurely. Many women still require help from social workers and other caretakers after finding independent housing, and longer aftercare would be desirable (Blijf Groep, 2021).

Target group(s)



Age:	**25-44 (71%)**	<25 (19%)	>44 (10%)
Background:	**Migrant background (67%)**	Born in Netherlands (33%)	
Employment status:	**Unemployed (83%)**	Employed (17%)	
Economic status:	**Income under 1500 euro (93%)**	Income over 1500 euro (7%)	

Fig. 2 User groups, made by the author Statistics from Blijf Groep (2021).

Socio-economic needs

Affordability

Economic instability, resulting from a violent relationship often leads to long term housing instability. Victims often lack title to property and struggle to meet the obligations for rental housing alternatives. According to experts, the leading cause of homelessness among women is domestic violence. Homelessness and poverty lead to one choice for many survivors – returning to the abusive partner (Conner, 2014). Ensuring secure, affordable housing is therefore crucial.

Care

The transition from a transitional housing to an independent home is challenging, and most women still experience a lot of stress, which entails health problems. Many women still require help from social workers and other caretakers after finding independent housing and having easy access to care facilities would be desirable (Blijf Groep, 2021).

Employment / Education

Finding employment or education is a fundamental step towards independence. Economic instability creates the ultimate dependent relationship, and it is a common tactic among batterers to restrict their partners access to education, employment and resources (Conner, 2014). Access to education and building employment skills also need to be available.

Community bonds

For survivors of domestic violence, strong community bonds can help ensure both economic and social safety. Building social capital is crucial for women trying to break the cycle of violence. Social capital can take the form of family, friends, co-workers, or neighbors (Conner, 2014).

Target group(s)

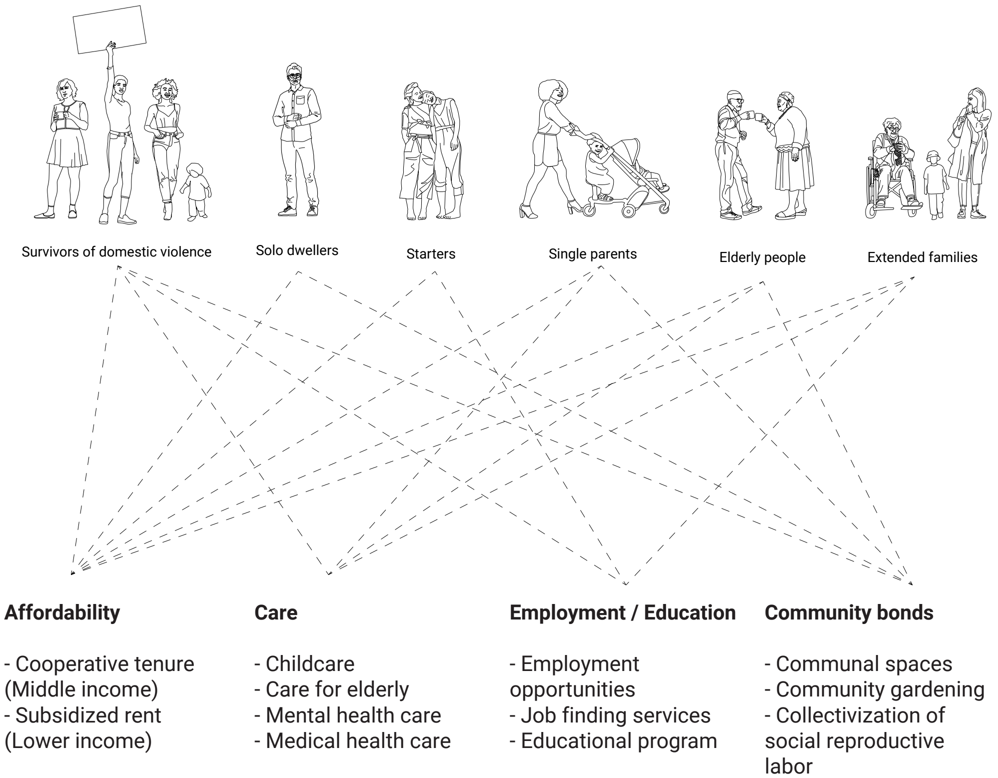


Fig. 3 User groups: Program and tenure, made by the author

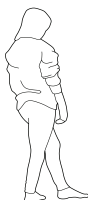
Experience stories (Blijf groep)

Karima

“ Soon there was a house that I could visit. On the way to the viewing I collapsed because I realized **the house was in the middle of nowhere and I would be all alone**. My mother reassured me. I ended up living there for two years.
That time was very tough. After those two years I **returned to my mother.** I started to restart my life in Amsterdam.”

The woman with the sea-green headscarf

“The police took her and her daughter away. They asked her again **if she could go to a relative.** No, she said this time. **That is not possible. “My sister has a small house, and a child herself, it is not possible.”** She was taken to a hotel - where she slept for three days. She was then assigned an **emergency apartment by the shelte**r. She is on the list for a real **house of her own.** Apart from the shelter. “That is one of my greatest wishes, for a long time.”

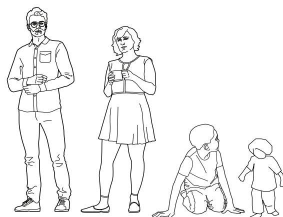


Miriam

“ Sometimes it feels like taking one step forward and ten back. Everything comes at you so much, there is so much uncertainty. **Where am I going to live?** Where do I end up? But I'm here. After six months of **assisted living**, I found a **single-family home** and I have had a **job as a secretary** since last week. I still have **psychological help**, but I am definitely on the right track.”

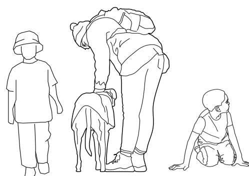
Mischa

“Together with the community police officer and the social workers of Stay Group, I looked at what was **needed for my safety.** Cameras have been installed and **the housing corporation made sure that my house was also safe on the balcony side.** The local police officer regularly drove past my flat to keep an eye on everything. ”



Quirina

“I am now **married for the second time**. With a completely different man. When I met him I was already a lot more stable. So if he did things I didn't like, I said something about it. I dare to draw a line. That is a big difference from before.”



Maureen

“My friends and family lived around the corner. I had a great job and before I met my ex a great life. **Now I live with my two children and dog in Almere, far away from my social life**. I find that difficult and sometimes makes me lonely. Still, leaving my ex is the best decision ever. We are safe now. Fortunately, my children are doing very well. They are now 7 and 4 years old. I eventually want to return to North Holland, but **I depend on the social rent**.”

Fig. 4 Experience stories from former clients of the Orange Houses
Source: Blijf Groep

2.4 Healing architecture

Women who live together within shelters can not only be from diverse age groups, socioeconomic, and cultural backgrounds, but typically they also experience high levels of PTSD, depression, and anxiety (Hughes, 2017). When designing for people who have experienced trauma, studies in environmental psychology can provide guidelines for designing stress reducing environments and spaces to aid healing. The article, When Buildings Don't Work: The Role of Architecture in Human Health (1998) by environmental psychologists Gary Evans and Janetta McCoy, suggests guidelines for design elements that should exist in healing environments. The authors identify dimensions in the design of the built environment that could alter stress levels, and therefore affect human health.

Stimulation

Stimulation refers to the amount of sensory information in an environment such as noise, light and smell. Human beings function best in an environment with moderate levels of stimulation - too much, or too little sensory information can lead to unhealthy environments. Crowding or inappropriate interpersonal distances can increase stimulation and stress levels (Evans & McCoy, 1998). Appropriate interpersonal distances can differ for women in different stages of healing. The design should reflect this and accommodate different levels of social engagement. Exposure to stimulation can be influenced by layout and circulation systems. Levels of stimulation are also affected by properties such as complexity or mystery. When used in moderation, these elements can be a useful tool to encourage users to explore the space (Evans & McCoy, 1998).

Coherence

Coherence refers to the clarity or legibility of building elements. Coherence allows users to easily identify the purpose and meaning of spaces inside buildings. Multiple repetitive features, underlying expression of rules, and thematic continuity all contribute positively to coherence. Stress can occur when unpredictable physical surroundings make prediction hard. Conflicting information from adjacent design elements or abrupt shifts in size, color, texture or stimulation levels can heighten stress (Evans & McCoy, 1998).

Control

Control refers to the ability to either alter the physical environment or regulate exposure to one's surroundings. This can be done through a system of spatial hierarchies (offering a privacy gradient), and through a flexible interior (Evans & McCoy, 1998). For maybe the first time, after leaving the violent home, women are in control of their own lives, and this point needs to be reinforced in the environment. It is therefore important that women are able to modify their surroundings (and their own exposure to it), to adjust to their specific needs.

Restorative

Restorative qualities define the potential

of design to function therapeutically and reduce sources of stress. Types of settings such as religious sanctuaries, hospitals and other therapeutic facilities are often designed with restorative practices in mind. Restorative design elements include places of retreat, elements of fascination, and exposure to nature.

Places for *retreat/reflection* can consist of privacy nooks or stimuli shelters, which can offset stressful impacts of high levels of stimulation.

The aspect of *fascination* can be achieved by design elements such as composed window views, water displays or direct or visual contact with nature (Evans & McCoy, 1998).

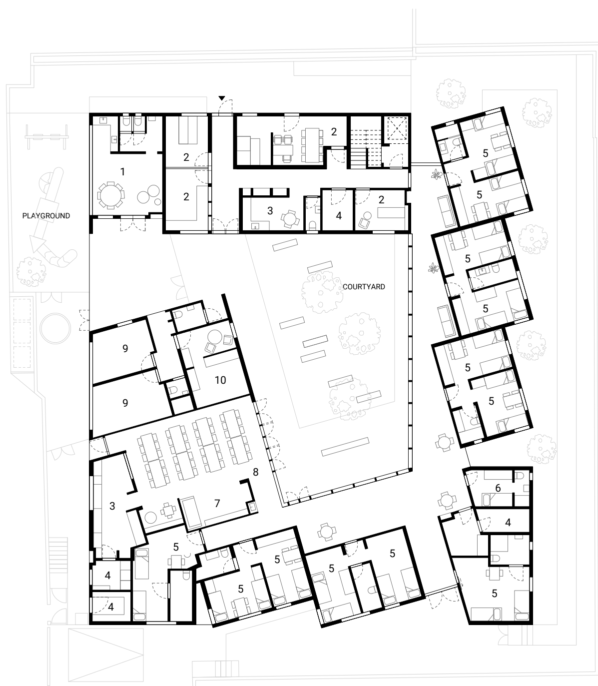
2.5 Case study: Ada & Tamar house

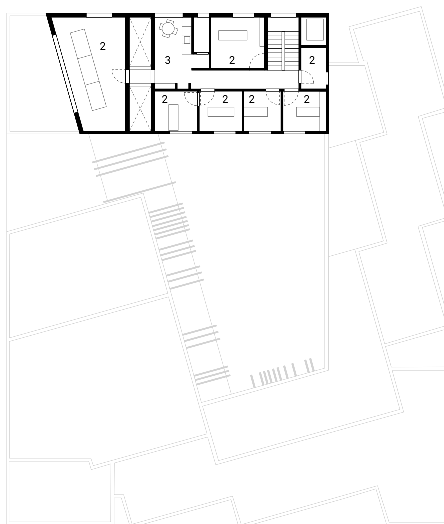
Name: Ada & Tamar House
Location: Tel Aviv-Yafo, Israel
Client: Charity 'No to Violence'
Architect: Amos Goldreich Architecture with Jacobs-Yaniv Architects
Year of realization: 2018
Number of units: 14
Square meters: 880m²

A brick building embracing a secluded courtyard forms the Ada and Tamar House, a shelter for survivors of domestic violence near Tel Aviv. The architects worked in close collaboration with the charity No to violence, and the future staff. The building is located in a quiet residential neighborhood and is within reach of community resources such as health clinics, schools, parks, counseling centers, and recreational functions. The brief called for a safe and sheltered building that would give its residents a sense of home (Merin, 2018).
The shelter offers accommodation for up to 12 families at a time (single women and women with up to three children). Each family requires privacy yet needs to co-exist with other residents and staff. The main design challenge was to create a sense of security, without it feeling like a prison. The building, therefore, has two facades: the protective exterior and the soft interior which offers access to the internal courtyard which is the therapeutic heart of the shelter. Each family is given its own family home that is part of the larger building. Every two units share a bathroom. The aim is to create a framework for a normal daily routine, and the family houses are therefore separated from the communal functions and connected by an internal corridor. Domestic chores are shared by the women, which each must take part in chores according to a rotating schedule (Gonzalez, 2018).
The internal courtyard plays a crucial role as a meeting point for residents. The glazed corridor which surrounds the courtyard provides visual connections between the private family units and the communal spaces (Merin, 2018). The spectrum between privacy and communality is a core aspect of the project. The fact that the private and the communal spaces are separated, yet have a strong visual connection provides at the same time seclusion and connectivity. The external façade is closed off and protected, while the interior is more porous and opens toward the internal courtyard.

Fig. 5 Ada and Tamar House © Amit Geron
(source: archello.com/project/the-ada-and-tamar-house)

Fig. 6 Inner courtyard of the shelter © Amit Geron
(source: archello.com/project/the-ada-and-tamar-house)





1 Nursery
2 Office
3 Kitchen
4 Storage
5 Family room
6 Bedroom
7 TV Room
8 Dining hall
9 Classroom
10 Counselor

Fig. 7 Floor plan of Ada & Tamar House, made by the author

1:500 / A5

Fig. 8 Healing architecture principles, made by the author 1:500 / A5

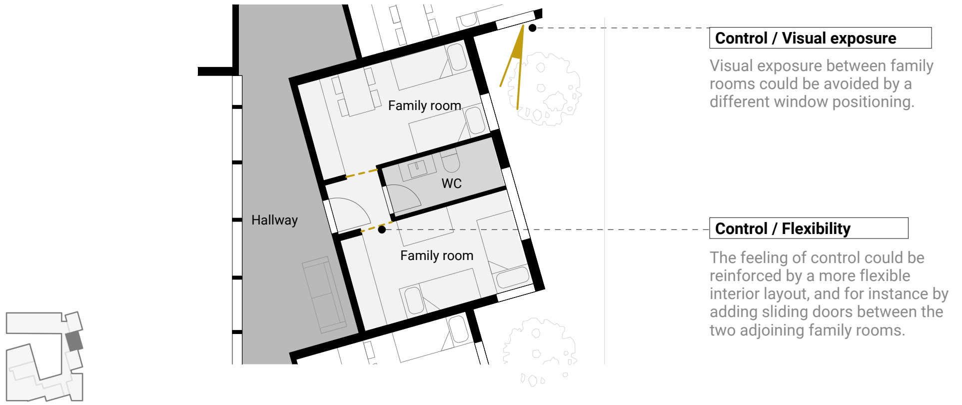
Healing architecture principles

Stimulation
The level of stimulation is well moderated. Spaces with a similar level of stimulation are grouped together. The daycare, with the highest level of stimulation is separated from the main living quarters, and the children's playground is also separated from the central courtyard. The glazed corridor connects the different spaces and provides a visual connection.

Control
The project has a clear spatial hierarchy, contributing to the element of control. The factor of flexibility is, however, not apparent. This could be enhanced by simple measures, such as by adding sliding elements between the two-family units, and between the corridor and the communal spaces. The user's ability to regulate their own exposure to their surroundings is relatively well solved. The users can decide whether to retreat into the private room with low exposure or sit on a couch in the corridor which has a visual connection the communal spaces or be in a more social setting in the communal spaces.

Coherence
The project responds well to the element of coherence, with a clear spatial division and thematic continuity.

Restorative
The architecture possesses some restorative qualities. The element of fascination is achieved by exposure to natural elements, with a view of greenery in the central courtyard and to the back garden. The private units offer space for retreat; however, this could be strengthened by the possibility for spatial separation between the two units sharing a bathroom.



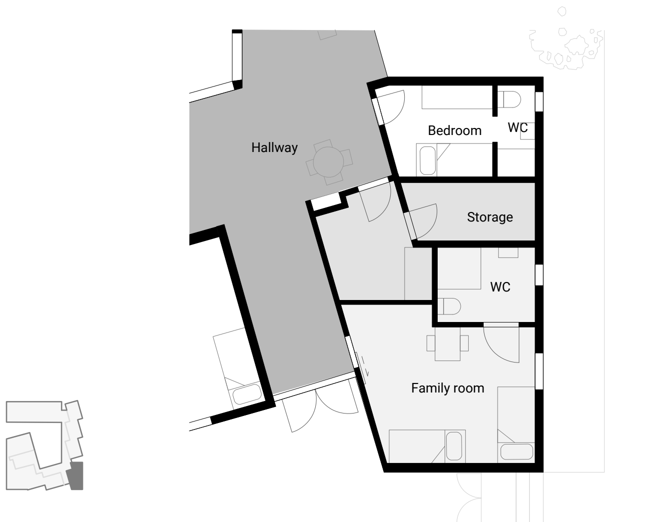


Fig. 9 Private units, made by the author

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03 **URBAN ANALYSIS & PROGRAM ECOLOGY**

3.1 Urban conditions: M4H area

The project location is the M4H area in Rotterdam, which is currently transitioning from an industrial port area to a mixed-use neighborhood. The site offers fertile ground for design explorations of new forms of living and working, presenting an opportunity to question the dichotomies between the productive workplace and the 'non-productive' dwelling.
The urban analysis revealed that there is already a rich variety of programs on site. However, these are organized in programmatic clusters, making the site fragmented. Although there already exists a degree of collaboration between different makers on site, this could be enhanced, in order to create synergies between different modes of production. In our masterplan, we therefore explored the opportunity for creating programmatic synergies, where productive and social re-productive activities, housing and industry could mutually strengthen one another.

3.2 Urban commons

These synergies can be achieved by looking into the urban commons, and how commoning is practiced within cities and neighborhoods.
The *commons* are not material things but social relations. Some scholars prefer to talk about the act of commoning, placing emphasis on the act of sharing rather than the material goods that are shared. Humans have practiced commoning for thousands of years to organize daily life. Commons are dependent on the existence of a shared property in the form of natural or social wealth (land, water, forests, care capacities). The resources are to be shared equally by all commoners, not to be sold. The commons should be autonomous spaces and self-governing. These characteristics distinguish the commons from the public, which is owned, managed and regulated by the state (Federici, 2019).
There is, however, a distinction to be made between the commons and the urban commons. Urban commons refer to shared resources and spaces in cities that are collectively managed or owned by the community. As the American scholar Amanda Huron (2018) describes, the act of urban commoning is the messy everyday practices of building networks of survival in the midst of the high-pressure centrality of the urban. Urban commoning should not be romanticized, as it often derives out of necessity, and is marked by contradictions.

The urban commons face contradictions due to the nature of the *urban* as a site of dense population,

capital accumulation, and state regulation, which can create conflicts between accessibility and exclusion and tension with the market economy and the state. A feminist perspective can help address these contradictions by highlighting how people create and maintain the commons in the urban context. For example, on the contradiction of access and exclusion, prioritizing housing availability for family and friends in cooperative housing can create exclusion for new members but also facilitate a network of care. A feminist viewpoint also highlights that cities, despite being centers of capital accumulation, can also be sites of subsistence. Understanding diverse economies helps recognize ways people in cities survive without paid work. For example, women in African cities are often the innovators of urban subsistence, growing crops that supply cities with a significant amount of their vegetable (Federici, 2019). In cooperatives, collective gardens and food co-ops allow members to rely on their housing commons for at least partial subsistence, relieving some of the economic burdens of living in costly cities (Huron, 2018).

3.3 Food commons / Housing / Gender

Throughout history, there has been a close relationship between areas used for cultivating food and housing. Both food and shelter are crucial components in the social reproduction of (urban) lives. Historically and currently, women have relied more on communal sources of food than men, as they are often primarily responsible for taking care of their families and communities. Women are the ones that have suffered the most from the privatization of natural resources and have been the most dedicated to protecting them. Today, women are the primary social force preventing the complete commercialization of nature, supporting non capitalist land use, and subsistence-oriented agriculture (Federici, 2019). However, the ways in which urban areas have been developed under capitalist systems have led to a disconnect between food production and housing, and to an increasingly commercialized food system. This has resulted in a normalized state in which food is produced outside of urban areas and then provided in a commodified form to urban dwellers (Cicchianni, Dehaene, Bracalenti, Devritendt). In sustainable urban development, the right to grow and the right to shelter should be rejoined under the same sphere of discussion.

3.4 Neighborhood commons / Urban farming & Community kitchens

Urban farming can be seen as a form of urban commons. On the scale of neighborhoods, community kitchens and allotment gardens can be seen as a form of *neighborhood commons*. Community kitchens come in many forms, from institution-led cantines to society-led kitchens. While not all community kitchens aim to subvert the food system, some have progressive aims and are

focused on transforming aspects of the food system. Disruptions to the food distribution infrastructure during the recent pandemic have led to some communities rethinking alternative ways to produce crops and source food. Community kitchens have the potential to combine local food sourcing and educational programs for community empowerment and reskilling. Under the cooperative form, there is potential in creating food commons, built on alternative economies, de-commodifying food provisions. Community kitchens and urban community gardens can serve as an important neighborhood infrastructure that addresses injustice in the availability of healthy, local food and can break with patriarchal and individualized approaches to the food system (Tornaghi).

3.5 Industrial vs community production

A study by Melissa N. Poulsen (2016) compares two urban farms in Baltimore, Maryland: a “community farm” and a “commercial farm”. The community farm emphasizes community engagement and prioritizes civic participation and food access for low-income residents. It strives to create a socially inclusive space and is not aimed at making a profit, relying on grants and volunteers to maintain it. The commercial farm focuses on financial sustainability, job creation, and selling farm produce to restaurants nearby. Scholars have raised concerns regarding equity of access to local food and social exclusion in urban agriculture. The civic agriculture approach, which the community farm embodies, prioritizes civic and environmental considerations over economic gain. However, the commercial farm provided new jobs for residents of the neighborhood and guarantees long term financial sustainability. By developing collective activities that would engage the surrounding community, and by selling part of the produce to the residents of the neighborhood, the commercial farm could reorient itself as a forum for civic agriculture while still maintaining its overarching focus on job creation and economic sustainability (Poulsen, 2016).

The question is whether an urban farm can provide lower-income customers access to affordable, local food while still remaining financially sustainable? Recent research suggests that socially oriented urban farms may achieve economic viability under a nonprofit model, which allows farms to prioritize social goals over economic efficiency. In addition, studies show that farms are more likely to achieve civic engagement when they are run by the very people they serve (Poulsen, 2016).

3.6 Agriculture and care

The benefits of city farms, community gardens, and healing gardens in improving physical, social, and mental health in urban areas are increasingly recognized. Farming for health is a growing phenomenon in the Netherlands, and so-called green care farms are a major exponent of this. The

green care farms combine agricultural production and social care, and they started as a bottom-up initiative by motivated farmers in the 1970s (Hassink, Van Dijk, 2006).
Green care farms have been found to have a positive impact on the health and well-being of various target groups. The farm provides a structured environment with activities such as working with animals and plants. Clients feel like they are part of a social working community, rather than being patients with limitations. This positive experience is attributed to the farm providing sufficient safety, challenges and a different environment than traditional healthcare institutions. On a Green Care farm, working with plants is a commercial activity. Clients take part in the production process - the quality and quantity of the crop are important. Studies have shown that working on a green care farm with true agricultural production had an added value for clients (Hassink, Van Dijk, 2006).
The main target groups of the Green Care farms are clients who are mentally or physically challenged, former addicts, long-term unemployed, elderly with dementia, children with learning difficulties etc. The green care farms could prove beneficial for survivors of domestic violence, as the working environment offers social contacts and can contribute to rehabilitation, inclusion and can be used as an educational tool. Most Green Care farms are located in the rural parts of the country. However, the target groups that may benefit from the farms, such as survivors of domestic violence, clients with addiction, and long-term unemployed are often concentrated in urban areas. In fact, today around 90% of the Dutch population lives in cities, and therefore the benefits of integrating farming activities for health into the cities is apparent (Hassink, Van Dijk, 2006).

	Type of farms	Therapeutic qualities	Productive aspects
Therapeutic setting	**Healing gardens**	Healing gardens are designed to support healing processes and recovery of stress. Working or walking in these gardens can serve as means of rehabilitation.	The aim is to reach therapeutic goals - agricultural production is not important
Work setting	**Green care farms**	Meaningfull activities organized in a stress free enviroment can have educational an therapeutic qualities for diverse target groups.	On a Green Care farm, working with plants is a commercial activity. Clients take part in the production process - the quality and quantity of the crop are important.
Recreational setting	**Community / Allotment garden**	These can have indirect therapeutic effects, and can stimulate social cohesion.	The production is often focused on self-substinence. Recreation and productivity hold equal importance.

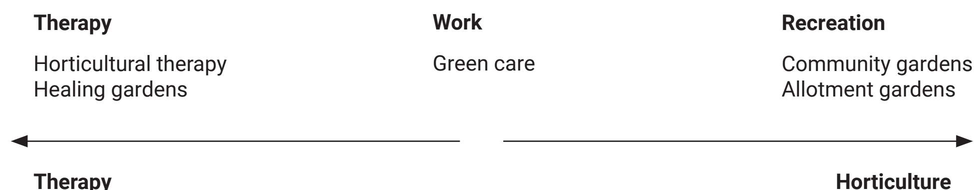

Fig. 10 Agricultural practices and their therapeutic and productive qualitites, made by the author Adapted from Hassink & Van Dijk (2006).

3.7 Discussion

For the programming of *Lighthouse*, I see an opportunity in combining housing, agricultural production, and care facilities. As demonstrated by the case of the Green Care Farms, the productive aspect of agricultural practices does not need to be separated from the therapeutic qualities – and it can even have an added value. The civic agricultural approach is something that I want to integrate into the program. Both community farms (non-profit) and commercial farms can follow the principles of civic agriculture, by prioritizing social and environmental goals over economic gain. However, the importance of financial sustainability should not be underestimated, to ensure long-term success. The program should have a mix of community and commercial oriented agricultural practices, as well as farming initiatives for health, such as the green care farms – to create a programmatic ecology that combines housing, agriculture, care, recreation, and education.

There are potential conflicts / synergies between the socio-economic needs (affordability, care, employment, community) and socio-spatial needs (stimulation, control, coherence, restorative) of the target group, that can create productive frictions, influencing the programmatic concept. For instance, urban farms can provide simultaneously employment, care, community bonds, stimulation, and restoration. There might be a conflict between the goal of affordability and the urban farming program, as there is often a high investment cost in the beginning to initiate urban farming projects. The economic model therefore needs to be focused on long-term affordability. Another potential conflict might occur between the goal of community collaboration and restorative qualities. However, in the stress reducing environments of the green care farms- social bonds and restorative qualities might very well coincide. Studies have shown that working with plants can give a sense of responsibility and control, and opportunities to make independent decisions (Hassink, Van Dijk, 2006). This might be beneficial to the target group and corresponds to the element of control.

04 **PRODUCTION & (RE)PRODUCTION**

4.1 Productive vs reproductive?

Social reproductive labor is the care, education, and literal production of the labor force. This work can range from childcare, housework, and care for the elderly – this form of labor was, before capitalism, never seen as separate from other productive activities. Contemporary capitalist societies however tend to separate reproductive, or domestic labor, from waged labor, or production, making the work of social reproduction go unseen and undervalued (Giudici, 2018).

The role of the house in the institutionalization of social reproductive labor, has been brought to light by feminist scholars. It is not by chance that the urge to manage and compartmentalize life within the household emerged at the same time as when the uprise of waged labor was changing the economic landscape of Europe. This development, which Marx describes as primitive accumulation, refers to the process of depriving producers of their own means of production by the appropriation of land, enclosure of the commons and privatizing resources. This drove people to urban centers where their only means to get by was to sell their own labor power. The process of primitive accumulation marked the uprise of capitalism, however what has been less discussed is that it also occurred within the family, redefining women's role as non-productive (Aureli, Giudici, 2016).

In this context, architecture plays a crucial role. Economic asymmetries need not only to be enforced -for instance by relegating women to kitchens and excluding them from workshops – but perhaps more importantly, *naturalized*. This would require each family member to have an explicit, unspoken role - but also that the character of different rooms within the house be equally fixed.
The functional division of the home resulted in a "rational" division of tasks, which came to be seen as natural. The naturalization of gender hierarchies has helped sustain housing models such as the nuclear family home, which can be exclusionary and does not meet the needs of many urban dwellers (Aureli, Giudici, 2016).

The nuclear family home is designed to uphold particular social structures- ingraining divisions of labor, gender, and class into the fabric of our cities. The idea that domestic work should be carried out in the privacy of the home, excludes women from public space, and isolates them in their own homes. The notion of the nuclear family home

as a place of retreat from waged labor, is a “patriarchal fantasy”, reliant on the exploitation of the social reproductive labor of women (Harper, 2019).

Role of the house in naturalizing the gendered division of labor
The text *Counter-planning from the Kitchen* by Maria S. Giudici (2018), takes on a feminist critique of type, looking at modern housing as a place for women’s hidden and unwaged work. Giudici argues that the division between production and reproduction was supported by typological thinking in housing production. The text covers three main topics: the role of the room, dialectics of day and night spaces and the relationship between served and servant spaces.

The rigid separation of dwellings into *rooms,* is something that we take for a given – but it has not always been the case. Take for instance vernacular housing such as the Dutch Hallenhuis - with a large production hall and small living quarters, the use of the rooms would shift throughout the day depending on the season. Flexibility of use was facilitated by limiting fixed services and the mobility of furniture. The rooms did not present diagrams of life, and reproductive and productive labor would happen in the same spaces. Even though the genders were not necessarily equal, the productive capability of women was not questioned. The modern house has a more rigid division of rooms, suggesting a division of roles within the household.

Dialectics of day and night spaces
The polarization between the public living room and the private bedroom is a relatively new construction. Pre-modern houses offered more fluid thresholds that could contain different social spheres. The conscious planning of the bedroom as a separate room emerged in Europe in the 13th century. With this separation of the bedroom, the domestic was separated from the public (Giudici, 2018). The perception of the bedroom as a completely private sphere, where marital love is contained, is slowly starting to change. Modern technology allows us to work remotely from the house, turning the bedroom into an office or living room.

Just as the dialectics between day and night spaces are characteristic for the modern flat, a hierarchy between *served and servant spaces* is equally explicit. This hierarchy for instance is evident in Robert’s model homes, where the kitchen is removed from the living room, cramped up in a small space without windows. This enclosure represents the origin of the modern kitchen and is a clear example of the institutionalization of domestic work. Before the invention of complex chimney systems, buildings often hosted only one central kitchen shared by different households, making cooking by necessity a social chore. In the beginning of the 20th century in the Netherlands, the kitchen lost its status as a social element. The disproportion between the small kitchen and a large (often unused) living room is a clear diagram of the gendering of the house (Giudici, 2018).

4.2 Combining employment opportunities and housing for survivors of domestic violence

Combining living and working has many apparent benefits for women who are building independence after experiencing domestic violence. Economic instability creates the ultimate dependent relationship, and it is a common tactic among batterers to restrict their partners access to employment, education and resources (Conner, 2014). This is reflected in the statistics from the Blijf Groep, where 83% of women staying in the shelters are unemployed, with a lower income and level of education. After leaving the shelter, women have to find a way to ensure stable income and combining work, services and housing in one environment could therefore be beneficial.

Entry into the paid labor force is, however, not always a solution. Although working for pay has become an alternative for some women, not only do they experience labor force disadvantages, but it is also an option that can have significant implications for individual families – and some women may even face serious safety risks associated with their labor force entry. An intermediate alternative to paid labor is government support, that provides financial stability while allowing women to focus on recovery, build employment skills and work towards financial independence (Conner, 2014). Access to education and employment services therefore also need to be available.

To be able to find and maintain employment, survivors first need to find safe and stable housing. Policies such as Housing First emphasize providing permanent housing as a priority, and this model has been adapted for survivors of domestic violence. The Housing first model is based on the idea that ensuring stable housing before addressing other concerns, makes dealing with those concerns easier. Research shows that clients of the program reported that the housing stability resulted in fewer absences from work, job stability, higher income, and an increased feeling of safety (Sullivan, Olsen, 2016).

4.3 Case study: Kalkbreite

Name: Kalkbreite
Location: Kalkbreitestrasse 6, Zurich, Switzerland
Client: Genossenschaft Kalkbreite
Architect: Müller Sigrist Architekten
Year of realization: 2014
Number of units: 82
Square meters: 22900 m²

Kalkbreite is a cooperative development situated in the center of Zurich. The site is surrounded by traffic and integrated into the interior of the block is a hall for city trams. It is a hybrid development, with complex and diverse programming integrated into a homogenous volume. The core idea of creating a living and working community, resulted in diverse dwelling forms as well as commercial and office units. Around 500 people live and work at Kalkbreite (Muller Sigrist Architecten, 2015).

Funding and tenure
The Kalkbreite cooperative was formed in 2006 as a result of a public workshop. The work of developing the spatial programming was done in a participatory process, future residents in fact took part in all phases of the project. The cooperative intends to promote social mixing and has 97 units with affordable rents. Factors such as age and income influence the rental price. Due to collaboration with several organizations, the Kalkbreite cooperative can offer apartments to people who would be unable to find decent accommodation within the standard housing market (Marchal).

Program- Healthcare facilities
The ground floor and the first two floors of Kalkbreite contain 4.500m2 of non-residential space for shops, restaurants, offices, ateliers, health care practices, and a cinema. The program offers rich care related functions such as a daycare, medical practice, birth center and psychotherapy. The abundance of care related and commercial functions, offer basic social services and are highly beneficial to residents and the nearby community (Muller Sigrist Architecten, 2015)

Dwellings
On the upper floors, there are dwellings and communal spaces which occupy an area of 8.727 m2. A wide variety of dwelling types were developed, ranging from 29m2 studios to a 412m2 shared apartment with 17 rooms. The private dwelling areas are reduced to 35m2 per household, which allows for spacious communal spaces.
A large open staircase leads up to the internal courtyard, located on the second floor. Here, the entrance halls to the dwellings are located as well as many of the communal facilities. From the double height entrance hall, a village square, or a so-called *rue intérieure*, runs throughout the entire building (Muller Sigrist Architecten, 2015).

Fig. 11 Courtyard of Kalkbreite ©Martin Stollenwerk
(Source: Archdaily, 2018)

Fig. 12 Entrance hall ©Martin Stollenwerk
(Source: Archdaily, 2018)

Fig. 13 Stairs to the courtyard ©Martin Stollenwerk
(Source: Archdaily, 2018)

1 Staircase
2 Birthcenter
3 Daycare
4 Living room flex
5 Office
6 Cafeteria
7 Entrance hall / reception
8 Laundry room
9 Pension
10 Shared living / dining room
11 Large household
12 Courtyard

Fig. 14 Floorplan of 2nd floor of Kalkbreite, made by the author

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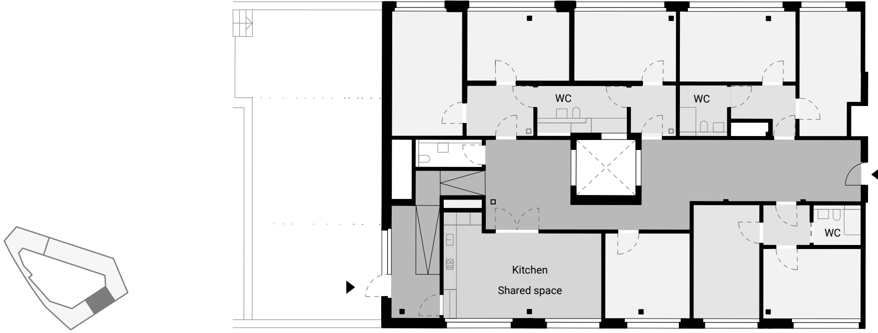


Large household cluster 6th floor

Cluster flat 3rd floor

Fig. 15 Cluster dwellings in Kalkbreite, made by the author 1:250 / A5

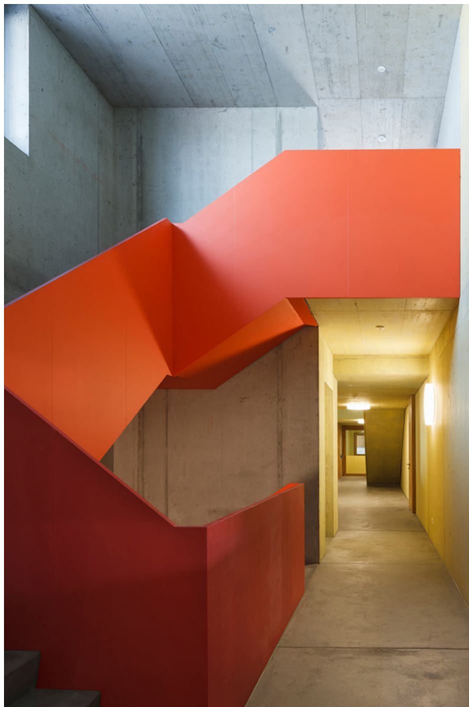


Fig. 16 Stairwell ©Martin Stollenwerk
(Source: Archdaily, 2018)

Fig. 17 Rue intérieure ©Martin Stollenwerk
(Source: buildingsocialecology.org/patterns/rue-interieure/)

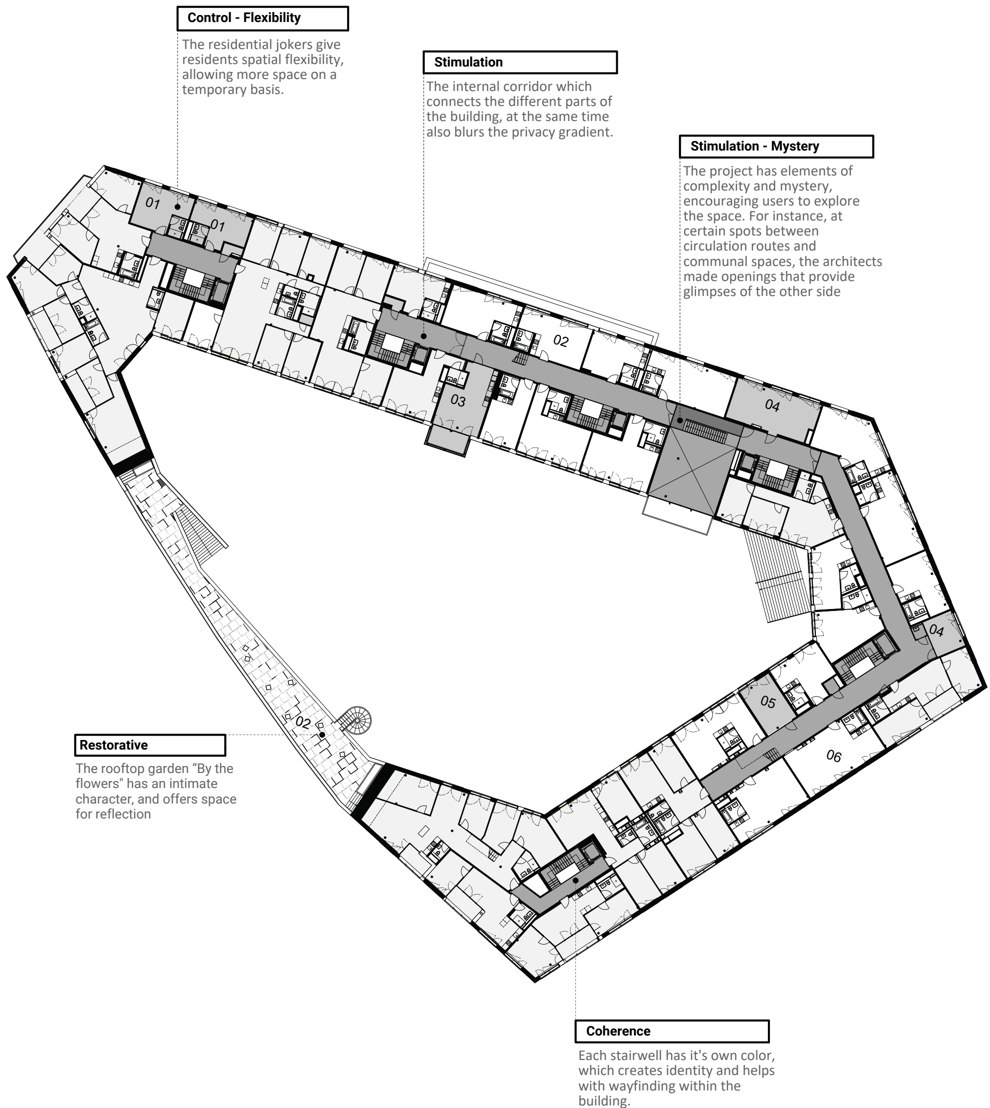
Healing architecture principles

Stimulation
The design includes elements of complexity and mystery, inviting residents to explore the space. However, the project offers quite a high level of stimulation, with perhaps limited areas for retreat in the interior spaces. The internal corridor which links the different parts of the building, also blurs the boundaries between private and shared spaces.

Control
The concept of community and collaboration takes precedence over the element of control in the project. Flat-sharing and cluster living are emphasized in the overall Kalkbreite concept, allowing residents to live together while also maintaining individual private spaces. Each apartment is equipped with a bath and kitchen and is more spacious than typical apartment rooms, offering ample opportunity for retreat and control over social engagement. However, the rue intérieure compromises the feeling of control, as anyone can pass through your cluster. Residential jokers provide temporary spatial flexibility, creating more space when needed.

Coherence
The homogenous building volume and the interior corridor create a sense of coherence, while color-coded accents in the seven stairwells facilitate navigation.

Restorative
The connection to greenery contributes to the restorative qualities of the project. The rooftop gardens, *By the roses* and *By the grass*, offer intimate spaces with restorative qualities, and shared areas such as saunas, yoga, and meditation rooms provide space for reflection.



01 Residential Joker
02 Cluster dwellings
03 Communal kitchen and living room- cluster dwelling
04 Communal space ‘Box’
05 Communal living room - cluster dwelling
06 Cluster dwellings - large household

Fig. 18 Healing architecture principles, made by the author 1:500 / A5

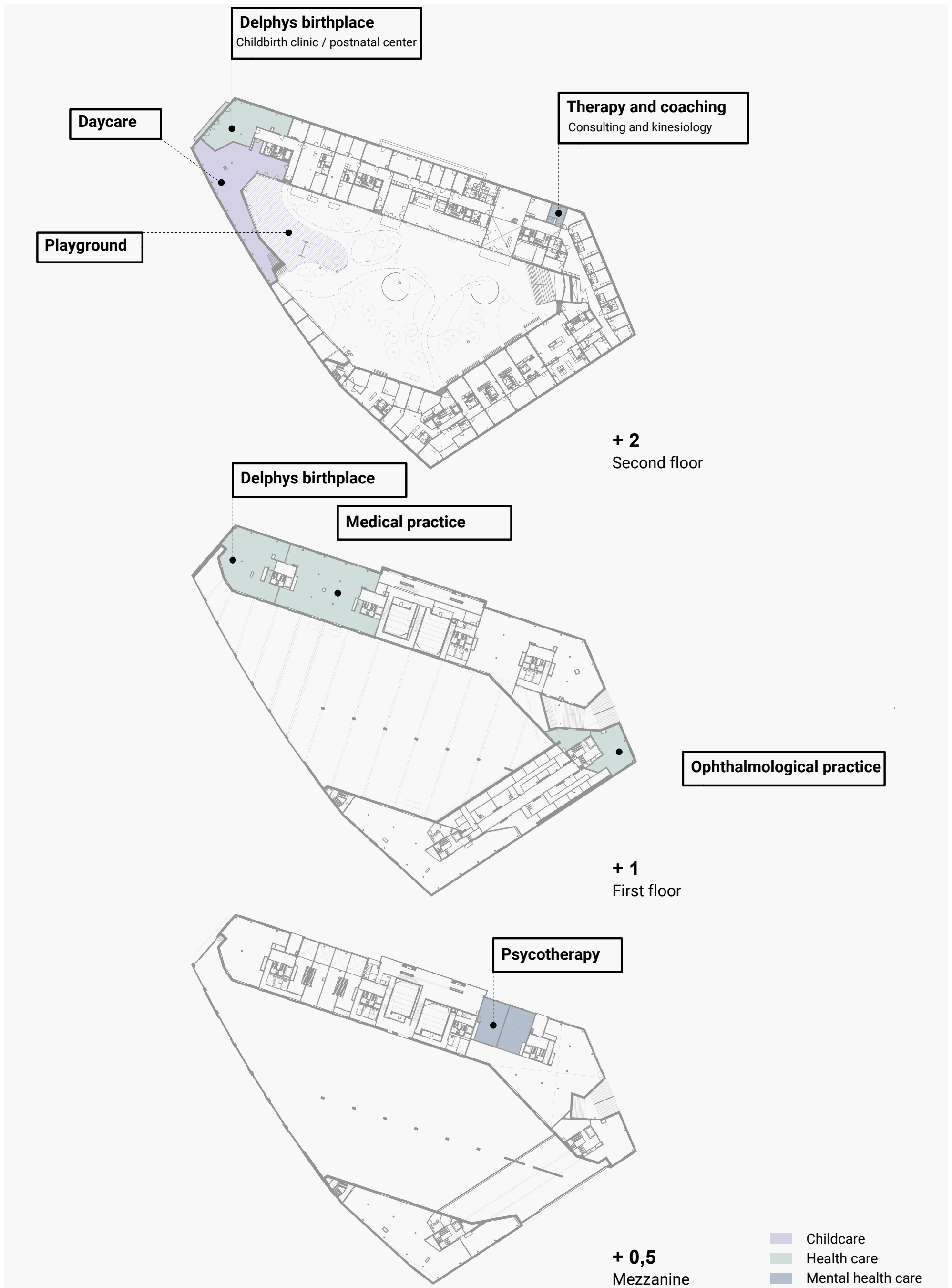
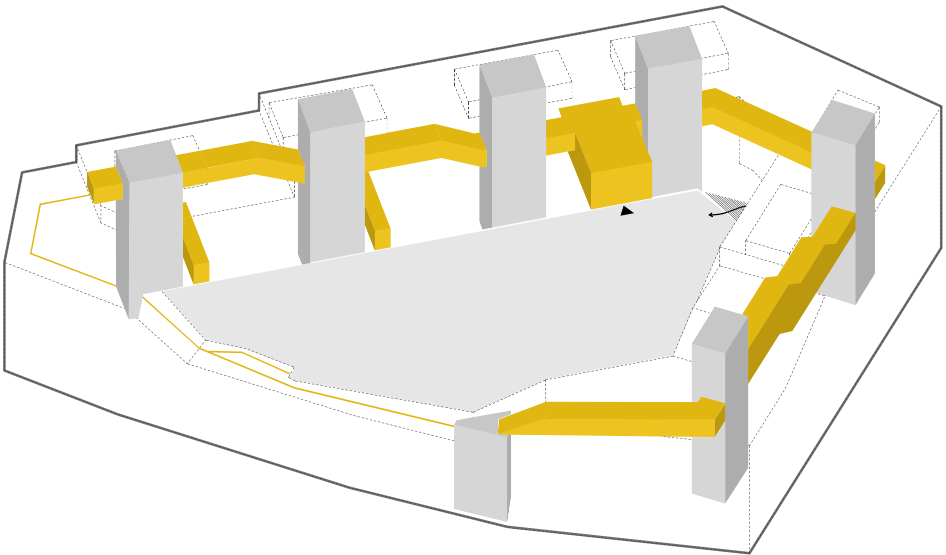


Fig. 19 Density of care facilities, made by the author



Social circulation / Rue intérieure

Practical circulation / Cores

Fig. 20 Circulation principle, made by the author
Adapted from © Müller Sigrist Architekten

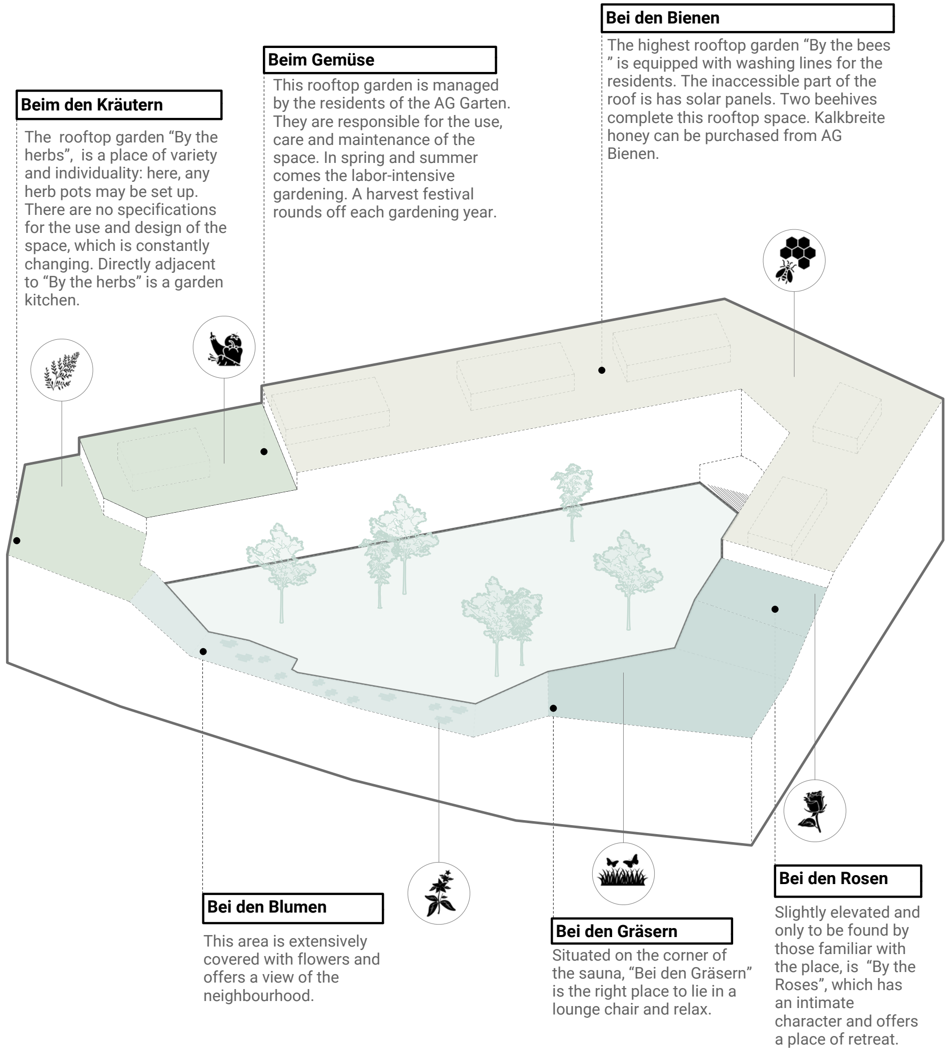


Fig. 21 Rooftop gardens, made by the author
Text source: Genossenschaft Kalkbreite, 2014

05 **GENDER EQUITABLE CO-HOUSING**

5.1 Gender equitable aspects of co-housing

Feminist arguments for co-housing have been brought to discussion by scholars and material feminists. In the text Design for Gender Equality-The History of Co-housing, Vestbro and Horelli highlight the feminist aspects of this housing type and put it in a historical context.

Material feminists were influential in the development of collective housing in Europe in the late 20th century. The material feminists criticized the separation between the household and public space as well as the separation between the domestic and the political economy. In order to overcome the dichotomy between domestic and urban space they developed housewives cooperatives, new types of housing such as the kitchenless house, the public kitchen, daycare centers, and community dining clubs. The material feminist argued that for women to be equal members of society, there is a need to create feminist homes and neighborhoods with socialized housework and childcare. Even though decades have passed since the first material feminist emerged, and we have come a long way toward equality, their claims of the importance of equality in the domestic sphere for women in the labor market still holds true (Vestbro & Horelli, 2012).

Integration of housing, work, and care facilities

The possibility for equality in the labor market is dependent on a system of care. Co-housing models such as the New Everyday Life (1991) focused on integrating housing, work, and care facilities in the living environment. The New Everyday Life was initiated by a group of women, forming the BIG group, which rejected the idea of separating social reproductive and productive activities. They argued that domestic chores and childrearing could be transferred from individual homes to shared spaces, such as in co-housing. Care facilities should be offered within the neighborhood, and not in centralized institutions. They introduced new terms such as local housework, local care, local production, and local management (Vestbro & Horelli, 2012). The New Everyday Life model, which sought to integrate work (both paid and unpaid), care, and housing in one environment, still seems relevant. In fact, it is currently being employed in several gender aware neighborhood developments in Germany, Spain, Austria, Italy and Finland (Vestbro & Horelli, 2012).

Collectivization of domestic work
A key characteristic of co-housing, is the possibility of collectivizing domestic work. The sharing of domestic tasks and collective organization varies between co-housing projects. In the Swedish self-work model developed in the 1980s, residents are required to perform compulsory tasks which are specified in a contract. The most frequent compulsory task is cooking, which each resident is responsible for every two to three weeks (Vestbro & Horelli, 2012). In many co-housing projects the organization of domestic work is done internally, whether compulsory or voluntary. Collectivizing domestic work however does not automatically ensure equal participation of all genders.

Strengthening social bonds
Studies have shown that the co-housing model generally leads to strong community bonds, and children spend more time with neighbors and friends than in other housing projects, which leads to a supportive and safe environment for them (Vestbro & Horelli, 2012). This is one of the reasons why this housing model could be suitable for survivors of domestic violence. Communal spaces in co-housing can provide an opportunity to strengthen social networks. For survivors of domestic violence, strong community bonds can help ensure both economic and social safety (Conner, 2014).

5.2 Feminist reconstruction of the commons

The creation and maintenance of housing cooperatives is hard work, and according to Amanda Huron (2018), women tend to do the bulk of unpaid organizational work associated with founding and running limited equity housing cooperatives. The work of maintaining the commons in co-housing needs to be carefully thought out, in order not to contribute to gender asymmetries. Organizational work, which tends to be performed by women is harder to see and quantify, and is therefore often unwaged – while manual labor which is more visually obvious and tends to be performed by men, is often paid.
The commons can be seen as a social process, grounded in labor.
The commons can also be seen as a place of social reproduction – where the labor is often naturalized or made invisible. A feminist perspective of the commons can help make this labor visible. Creating and maintaining the commons is often the (unwaged) work of women and under capitalist logic, the work of the commons, just like the work of women has been rendered invisible. If the house is the stage in which a new common based economy is built, it should be women, historically the houseworkers and prisoners of the home, who should reclaim the house as the center of collective life -providing safety without isolation, and most important providing a foundation for collective forms of social reproduction (Federici, 2019).

5.3 Case study: Haus A

Name: Haus A
Location: Dialogweg 6, Zurich, Switzerland
Client: Baugenossenschaft Mehr als wohnen, Zürich
Architect: Duplex Architekten
Year of realization: 2015
Number of units: 11 cluster flats
Square meters: 6883 m2

Haus A is located at the Hunziker Areal in Zurich, a new vibrant district consisting of 450 apartments, restaurants, shops, ateliers, and daycare centers. The urban planning concept consists of a cluster of small, detached buildings which together form a network of paths, open spaces, and squares. Haus A is a six-story building, with 11 cluster apartments, up to two on each floor. The ground floor has a workshop and one cluster unit with assisted living. The internal circulation is arranged in a central atrium which separates the two cluster flats on each floor (Boudet, 2015).

Cluster apartments
The cluster apartments of Haus A are a new type of flat sharing, with a generous communal living room and kitchen, and smaller private apartments with a sleeping area, kitchenette, and bathroom. The individual space requirements are minimized which allows the communal spaces to be planned more generously. In addition to the living room and kitchen, each cluster shares a cloak room, guest bathroom, storage room, and balconies. Every two clusters share a laundry room situated in the atrium. The spaces for social reproduction are given high spatial qualities. The laundry rooms are fully glazed, and the shared kitchen receives natural light and a view into the atrium, allowing for interaction between residents of different clusters.

The juxtaposition of privacy and security on the one hand and community engagement on the other is a special characteristic of the project. Because each private unit is equipped with a bathroom and kitchenette, a retreat into one’s private zone is always possible. However, according to a recent article featuring interviews with inhabitants of the cluster flats in Haus A, residents reported that the kitchenettes in the private units were rarely used (Khatibi, 2021). This is because the kitchenettes are too small to be used as real kitchens, and moreover do not have a stove due to fire regulation. Some residents considered the kitchenettes a waste of resources and would have preferred more spacious communal kitchens (Khatibi, 2021).

Fig. 22 Haus A ©Johannes Marburg
(Source: www.german-architects.com/de/duplex-architekten-zurich/project/mehr-als-wohnen)

Fig. 23 Atrium of Haus A © Michael Egloff
(Source: www.german-architects.com/de/duplex-architekten-zurich/project/mehr-als-wohnen)

Commons
Practicing the commons within co-housing settlements can be challenging, and socio-spatial disagreements are bound to come up. The inhabitants of the clusters in Haus A, form their own associations and take responsibility of self-managing their cohabitation activities.
Changing social circumstances, such as changes in working patterns, household structures and unexpected events such as the covid 19 pandemic, point out the resilience of the cluster typology, and at the same time highlights some of its partial inflexibility. The boundaries between private, semiprivate and public must be constantly renegotiated, which can lead to conflicts. For instance, during the pandemic, one resident reported that people were using the communal space as an office, since the bedrooms were not big enough for a home office. This created problems as they were occupying a collective space that was meant to be shared by everyone. This situation highlighted the need for functional flexibility in the shared semi-private spaces. The use of sliding doors and flexible elements could promote flexibility and facilitate spatial separation when needed, in the interconnected shared spaces (Khatibi, 2021).

Gender equity
Living as one household, without familiar bonds, in a cluster co-housing provides a platform for change in social relations and challenges the paradigm of the nuclear family. The cluster co-housing community is centered around communal cooking, communal dining, collective cleaning in the shared spaces as well as gender and social diversity.
In Haus A, each cluster housing association sets its own requirements regarding age, gender, social diversity, and the framework around collective activities – which can generate different socio-spatial outcomes. For instance, the use of the communal kitchen depends on the flat sharing agreement in different clusters. In some clusters, it is a requirement to be willing to cook and eat together, while in others this not a requirement and people therefore don’t participate (Khatibi, 2021). Each cluster forms its own micro community, defining its own set of social-and perhaps gender relations.

1 Foyer
2 Wardrobe
3 Desk
4 Two bedroom flat
5 One bedroom flat
6 Kitchen / Dining
7 Living room
8 Storage
9 Laundry
10 Dry room

Fig. 24 Floor plan of Haus A, made by the author

1:500 / A5

L
K
B
WC
WC
B
K
L
L
B
B
WC
K
WC
L
K
WC
B
WC
KITCHEN
L
K
WC
B
L
K
WC
B
LAUNDRY

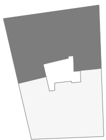


Fig. 25 Cluster unit, made by the author

Fig. 26 Healing architecture principles, made by the author

Healing architecture principles

The contrast between privacy and community engagement, which is a defining characteristic of the project, creates some potential frictions when looked at from the rationale of design principles for healing environments. Although the private units are fairly autonomous, each cluster has only one entrance, meaning that residents have to pass through shared space to get to their apartments. This limits the ability to regulate social interaction, minimizing the feeling of control. The private units have a kitchenette as a buffer zone between the dwelling and the shared space, which strengthens the position of the private unit as a place of retreat. The restorative qualities of the project could perhaps be strengthened by implementing more greenery, counteracting the excessive use of concrete. The way the shared spaces are organized, creating different sizes of spaces allowing for different levels of intimacy is well executed. Small privacy nooks create stimuli shelters, allowing a place for reflection, even near more active areas. The element of coherence is addressed, and each cluster is clearly defined, with some points of encounter between different clusters in the circulation area.

06 **REFLECTION**

6.1 Reflection

The conditions of gender inequality can translate into spatial and social arrangements that uphold gender asymmetries. The house has been the site for the systematic exploitation of social reproductive labor, projecting a form of life that is often at odds with the actual needs of inhabitants. The rigid division of dwellings into rooms, the dialectics of day and night spaces and the hierarchy between served and servant spaces in contemporary dwellings, contribute to the gendering of the home. The partitioning and functional organization of the home can project a diagram of life, suggesting a 'rational' division of tasks which have come to be seen as natural. The naturalization of gender hierarchies has enabled housing models such as the nuclear family home, which can be exclusionary and fails to meet the needs of many urban dwellers.

The fact that the work of social reproduction is still largely assigned to women creates economic imbalance and prevents true equality in the waged labor force. The way we define and organize the spaces where social reproduction takes place, facilitating the collectivization of domestic and care work can perhaps have some effect. What is needed however is a systemic change in how we perceive the boundaries between production and (re) production.

Socio-economic and spatial needs of survivors of domestic violence

Gender inequality can result in gender-based violence. Domestic violence is the most pervasive, yet hidden form of violence, and it takes place within our homes. Women who leave the violent home, often have limited options for alternative housing, and aligning complex needs with the offerings of landlords, employers and social services can prove difficult. The main socio-economic needs of survivors of domestic violence, addressed in this research, are *affordability, care, employment opportunities and community ties*.

Ensuring *affordability* is key, as domestic violence is the leading cause of homelessness among women (Conner, 2014). The cooperative model can provide affordable housing, and implementing a non-profit rental model will ensure long-term affordability. Some apartments should be subsidized to accommodate lower income households.

Having access to *care facilities* and *employment opportunities* are

important aspects in the path towards independence. The M4H area can be a testing ground for new forms of living and working, where production, social reproduction, and care coincide in one environment. Integrating urban farming as the main productive program could be suitable, as working with plants can simultaneously have healing qualities and facilitate social bonds.

Collective living in co-housing can be beneficial for survivors of domestic violence, as it enables the building of *community ties*. This can be facilitated by offering a variety of shared spaces for different types of social encounters, both planned and spontaneous. Increased social capital can help insure both social and economic safety. There are, however, potential risks, as survivors come from all backgrounds and cultures, some with a history of addiction or mental illnesses. The co-habitation is therefore not guaranteed to be successful, and this form of living might not be suitable for all.

When designing living environments for people who have experienced trauma, there are many design tactics that can be implemented to create stress reducing environments and spaces that can aid healing processes. The dimensions that are mentioned in this research are *stimulation, coherence, control, and restoration*. If paid attention to, these aspects can result in spatial qualities that can be beneficial for survivors, as well as for other residents.

Gender equitable dwelling

Co-housing has the potential to promote gender-equitable living – but this is not a given. The possibility of facilitating the collectivization of reproductive labor is one of the main arguments for the feminist qualities of co-housing. However, collectivizing domestic work does not automatically ensure equal participation of all genders. Attention needs to be paid to the way social reproductive labor is organized, as well as the practice of the commons. A feminist perspective can shed light on the often-hidden work of maintaining the commons in co-housing.

Living together without familiar bonds challenges the notion of the nuclear family. In self-managed co-housing, the residents can define their own set of social and gender relations. Co-housing can also play a role in redefining the distinction between production and social reproduction, by integrating work, living and care in one environment. To reconstruct the domestic sphere in a more equalitarian manner, we need to not only imagine an alternative type of dwelling, but an alternative type of society.

6.2 Spatial takeaways from the research

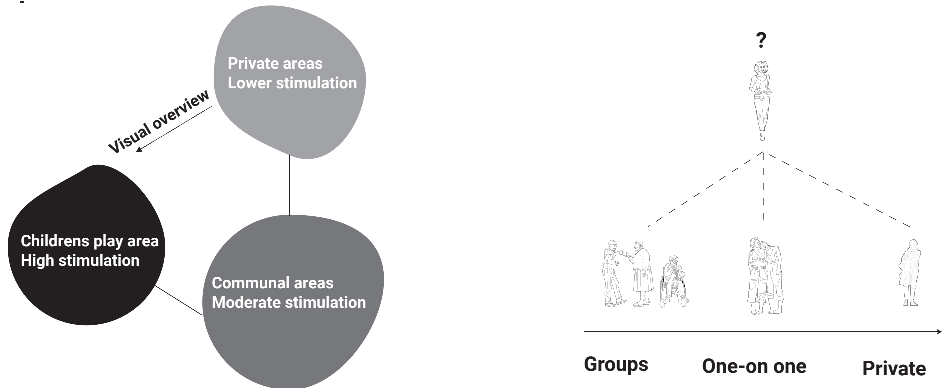


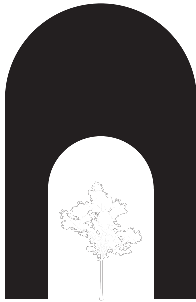
Fig. 27 Design factors in healing environments, made by the author

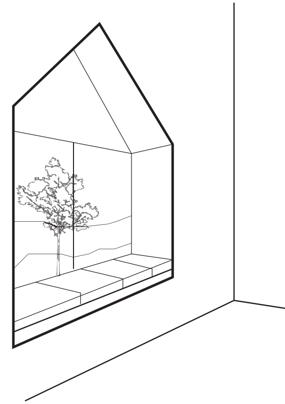
Stimulation

- Spaces with similar levels of stimulation should be grouped together to ensure a clear spatial hierarchy
- Spaces with a higher stimulation level should be located adjacent to the circulation.
- Children's play areas, with a high level of stimulation, should be located next to active shared spaces. However, a visual connection from more private spaces would be desirable.
- Moderate level of mystery, for instance partial vistas, can encourage users to explore the space
- Appropriate interpersonal distance may vary for women in different stages of healing. The design should reflect this by offering smaller intimate spaces for one-on-one encounters as well as larger spaces for group gatherings.
- Visual exposure should be low in private areas, moderate in intermediate areas and increasingly high in communal spaces.

Control

- Users should be able to modify their surroundings and regulate the level of social interaction, to adjust to their specific needs.
- Flexibility can contribute to the feeling of control and can be facilitated by movable partitions and furniture.
- Providing a range of spaces that provide solitude and intimacy, to those that foster contact with the public creates a spatial hierarchy and contributes to a feeling of control.





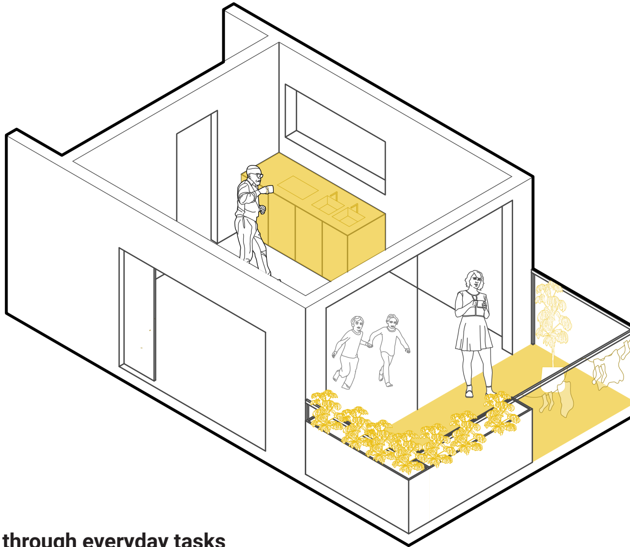
Coherence

- Legibility of building elements, and easy wayfinding within the interior space contributes to coherence
- The meaning of each space should be clear
- Design elements such as color, texture and size should be coherent within each part of the building. However, defining different areas with colors for instance, could improve legibility and help create identity.

Restorative

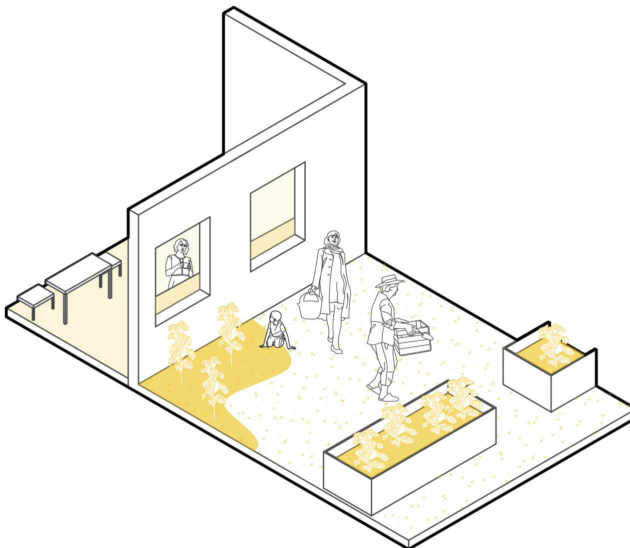
- Restorative design elements include places of retreat, elements of fascination, and exposure to nature.
- Places for retreat/reflection can consist of privacy nooks or stimuli shelters, which can offset stressful impacts of high levels of stimulation. Offering stimuli shelters within shared spaces can be beneficial. Users may not always need ultimate privacy, but a place for reflection, even if it is near more active areas.
- Direct or visual contact with nature elements can have restorative qualities.

Spatial prototypes



Community building through everyday tasks

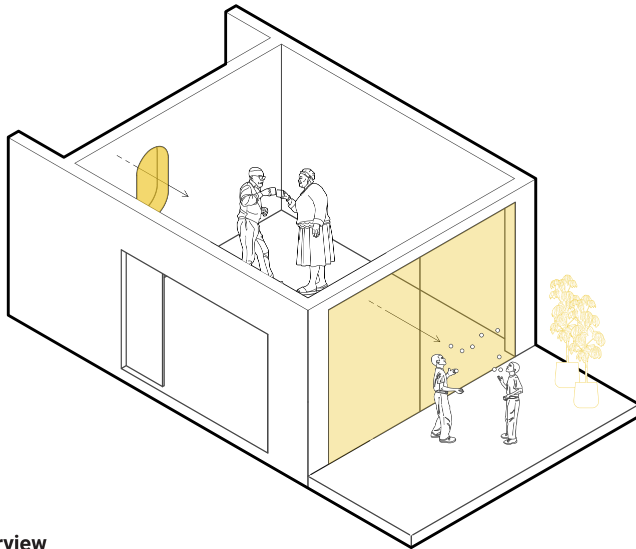
Offering shared spaces for social reproductive activities, can spark spontaneous encounters, and be part of establishing trust between neighbors.



Urban farming

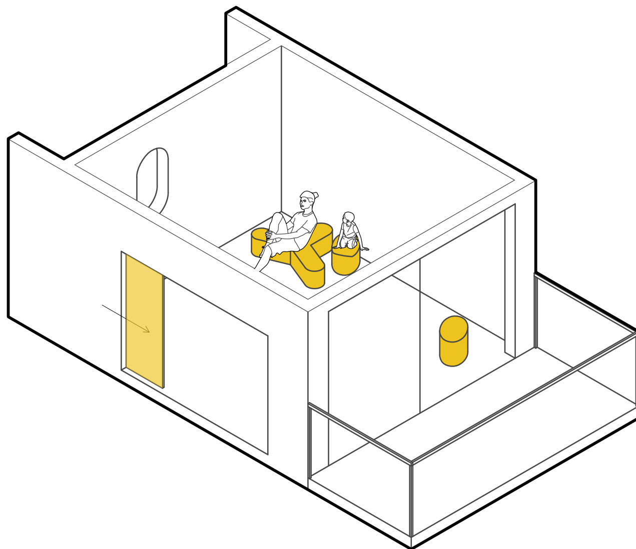
Agricultural activities such as urban farming, community kitchens, and allotment gardens can provide care, community building, education, and employment.

Fig. 28 Design principles / Community & Care, made by the author



Control / Visual overview

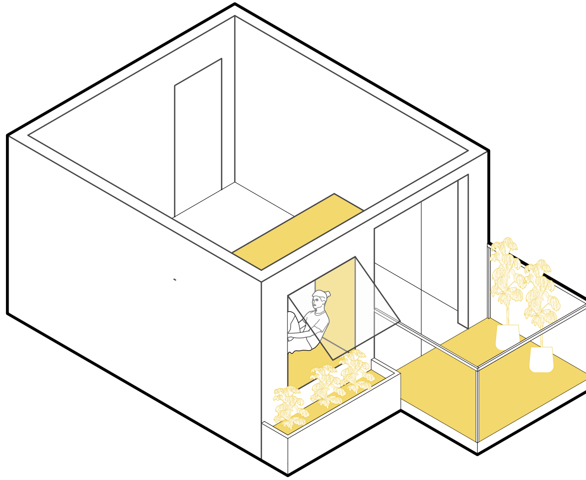
Offering visual overview of shared spaces alleviates social anxiety and provides a feeling of control.



Control / Flexibility

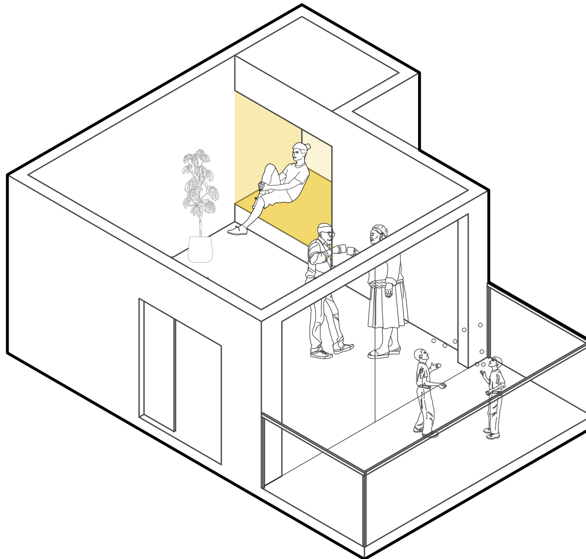
Flexibility can be achieved by flexible interiors and sliding wall elements.

Fig. 29 Design principles / Control, made by the author



Restorative

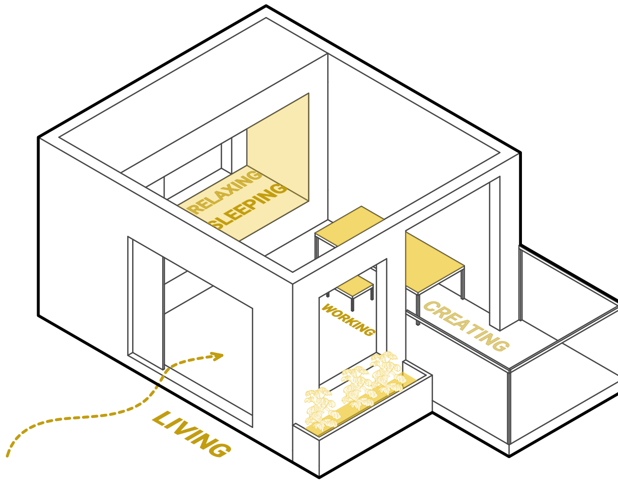
The deep window seat can serve as a place of retreat, with plenty of daylight and views of greenery. The balcony can be a first step of the survivor leaving the home and being exposed to the public.



Stimuli shelter

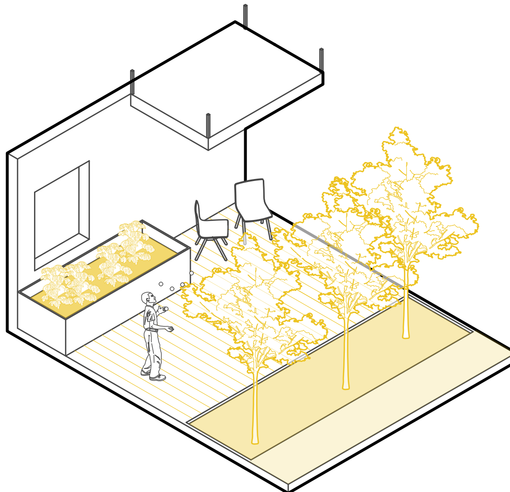
Offering stimuli shelters in shared spaces gives users a chance of retreat, even in social circumstances.

Fig. 30 Design principles / Restoration & Stimulation, made by the author



Fluid thresholds

Abandoning the idea of a rigid division of rooms and the separation of day and night spaces, allows residents to freely appropriate the space according to their needs.



Buffer zones

The exterior spaces should offer a privacy gradient. The boundary between public, semi-public and private zones can be established by the use of the right plants. Visual overview is important, to establish safety.

Fig. 31 Design principles / Thresholds, made by the author

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