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Collaborative Housing: A tool for social integration and increased sustainability

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Collaborative Housing

A tool for social integration and
increased sustainability

by

*Ivette Arroyo,
Moohammed Wasim Yahia and Erik Johansson*



LUND UNIVERSITY
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Housing Development & Management (HDM) – Lund University

Housing Development & Management has more than 30 years of experience regarding housing and urban development in developing countries and carries out capacity development, education and research from an international perspective. The focus area includes aspects of planning, design, construction, use, management, climate-sensitive design, resilience, user involvement and the connection between a home and its surroundings from neighbourhood to city level in the Global South. HDM also conducts research on housing and integration, energy use and climate-sensitive design in Sweden. The goal is to increase knowledge about how to conduct and improve participatory processes leading to good housing and sustainable development, especially for vulnerable groups.

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- Be easy to understand.
- Be scientifically correct.

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This report

This report is based on the research project Sustainable living in community: a step towards integration and reduced climate impact conducted by the research team of Ivette Arroyo, Moohammed Wasim Yahia and Erik Johansson at HDM in the period January 2019 to June 2021. Norma Montesino from the School of Social Work, Lund University, contributed with the research on SällBo collaborative housing and in writing one journal paper. Laura Liuke, HDM, contributed in writing one journal paper. Ehsan Kilani, HDM, interviewed refugee women focusing on their housing trajectory when settling down in Sweden and their feedback about collaborative housing and plausible sharing practices. Johnny Åstrand, HDM, gave feedback to the team during the research process, coordinated one expert meeting and contributed to the editing of this report. The project was granted funding from the Swedish National Board of Housing, Building and Planning. The research team has written several scientific research articles and working papers to report project findings. This report intends to summarize the findings in a more popularized form and offer recommendations to different actors within the housing sector and civil society such as starter groups for new projects and professionals from the private and public sector. Many parts of the report deal with the Swedish conditions and examples and the recommendations are primarily aimed for the Swedish housing market. However, the terms used in this report are not specific to the Swedish context but aligned to European research on collaborative housing to make the report useful for international audiences. Hence, many recommendations can be adapted and applied to other contexts.

The authors hope that this report becomes a useful and practical tool for guiding the development of future sharing communities in Sweden and internationally and also contributes to fostering social sustainability aspects in future housing development that leaves no one behind.

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Collaborative Housing

A tool for social integration and increased sustainability



Ivette Arroyo, PhD, is an architect with more than 20 years of experience working as practitioner and academic in Ecuador (2000-2010) and as researcher in Sweden (2011-2022). Her previous research comprises human settlements in developing contexts, organized self-help housing, post-disaster housing recovery and user involvement from a capability perspective. Her current research focuses

on shared forms of housing with a focus on the socio-spatial dimensions, including housing and social integration and coping responses to the COVID-19 pandemic. Dr. Arroyo co-leads the project “Collaborative Housing in a Pandemic Era (CO-HOPE)”, which focuses on the housing affordability-integration-health nexus in collaborative housing projects in five European countries. She is the principal investigator of Lund University Living Lab – a testbed for research on future student housing and social sustainability.



Moohammed Wasim Yahia, PhD, is an architect whose research focuses on the field of urban microclimate, thermal comfort and climate-sensitive urban design. Currently he is doing research on space syntax as a technique to analyse spatial configurations of various spaces at building scale. Dr. Yahia has more than 15 years of working experience as a lecturer and researcher in the field of

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“Sustainable living in community: a step towards integration and reduced climate impact”.

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1 Introduction

Problem and aim

In the current global housing crisis in which low-income groups lack access to affordable housing (Hagbert et al., 2020), different types of collective self-organized housing approaches have re-emerged in Europe since the 2000s (Czischke et al., 2020; Hagbert et al., 2020). Learning from the new wave of collaborative housing is relevant for understanding this alternative housing form that seems to reappear during economic, social, cultural or ecological crises (Hagbert et al., 2020). Current societal challenges in Sweden include lack of affordable housing (Listerborn et al., 2020), increased residential segregation of migrants (Malmberg et al., 2016) and unwanted social isolation of older adults and young people (Schirmer and Michailakis, 2015; Thelander, 2020).

The aim of this report is to contribute with practical knowledge regarding collaborative housing as a tool for accessing adequate and affordable housing as well as for building bridges between people with different backgrounds, ages and living conditions. How can collaborative housing *as a system* and *as a process* contribute to counteract the aforementioned societal challenges? How can the architectural design of collaborative housing encourage social interaction among residents as well as reduced consumption through sharing practices? In this report, the term *collaborative housing* is used to refer to the Swedish *kollektivhus* or *bogemenskaper*, where residents live in complete apartment units, share common spaces and do different activities together (Grip et al., 2015). This report was written during the COVID-19 pandemic and includes some lessons from this crisis that can be useful for future housing development.

Method

This report was written based on interdisciplinary research and using a transdisciplinary approach for understanding and explaining a complex issue within its context (Lawrence, 2004), accounting for a variety of perspectives, linking theoretical and case-specific knowledge, and co-producing knowledge (Pohl, 2011). The object of study is collaborative housing projects in different contexts, namely in Helsingborg, Trosa and others (Sweden); Copenhagen and Roskilde (Denmark) and Amsterdam (the Netherlands).

Scientific methods include systematic literature review, space syntax analysis for two case studies and three examples, fieldwork in SällBo (observations, an online diary and semi-structured interviews with residents) and in Lagnö Bo (observations and survey), as well as

analysis of institutional websites and interviews with professionals in Venligbolig Plus, Tunet and Startblok. The empirical work included interviews with refugee women focusing on their housing trajectory when settling down in Sweden as well as their feedback about collaborative housing and plausible sharing practices.

Housing Development & Management organized an Expert Meeting on 22 March 2021, where around twenty-five experts including researchers, residents from existing collaborative housing in Sweden, professionals from the private and public sector contributed with feedback to the preliminary findings. Hence, this report has also included tacit and professional knowledge from different types of actors. The report is based on several scientific articles and working papers as listed under References.

Organization of the report

The report consists of two parts, Chapters 1–3 and Chapters 4–5. Part 1 gives a brief conceptual description of different aspects of the issue and practical recommendations on planning, designing and self-management of collaborative housing projects. Part 2 includes two case studies from Sweden and three examples from Denmark and the Netherlands as well as a checklist for planning and implementation of future sharing communities.

Ivette Arroyo has been the main responsible for all sections in Chapter 1, and sections *Why collaborative housing?*, *Definition and types*, *Housing policy and collaborative housing* and *Collaborative housing as a system* in Chapter 2. She identified the main recommendations and wrote sections *Towards future sharing communities*, *Make sharing communities more appealing and connected*, *Co-design of flexible and adaptable common spaces* and *Enhance possibilities for involvement* in Chapter 3. Ivette Arroyo wrote the case study *SällBo, Sweden* in Chapter 4 and is the main author of the checklist in Chapter 5 together with Erik Johansson.

Moohammed Wasim Yahia has been the main responsible for sections *Spatial characteristics in collaborative housing* and *Co-design in collaborative housing* in Chapter 2, the section *Improve architectural qualities through co-design* in Chapter 3 as well as the case study *Lagnö Bo, Sweden* in Chapter 4. He drew most figures within the report.

Erik Johansson was the principal investigator for the research project and has been the main responsible for the sections *Housing backlog, finance and affordability* and *Tenure forms* in Chapter 2 and sections *Increase diversity of households to tackle segregation and isolation* and *Prioritize policy mechanisms to support financing* in Chapter 3. He wrote the text regarding the international examples *Startblok (The Netherlands)*; *Tunet, (Denmark)* and *Venligbolig Plus (Denmark)* in Chapter 4.

2 General Considerations

Why collaborative housing?

Several scholars state that collaborative housing is an umbrella term wide enough to encompass several international variations and housing types including, for example, cohousing, collective housing, intentional communities, ecovillages, etc. (Vestbro, 2010; Fromm, 2012; Lang et al., 2018). *Collaborative housing* or *co-housing* are concepts used interchangeably and there is no consensus regarding which of these terms is more comprehensive. In this report, we align ourselves with the European Network for Housing Research¹ (ENHR) and use the term collaborative housing. Collaborative housing has been widely discussed as a form of housing based on sharing common spaces and collaboration (Vestbro, 2010), socializing through cooking and eating together (Vestbro, 2012), solidarity between residents (Bresson and Labit, 2020), as well as a form of housing that entails “mutual support, self-governance and active participation” (Blomberg and Kärnekull, 2019, p. 280). Collaborative housing has been conceptualized as a housing form where residents collaborate within different stages of the project – from design to daily self-management of the building –, agree on a common purpose and have social interaction among them. Collaborative housing can embrace different forms of tenure and collaboration with external actors and enables residents to exert their individual and collective agency to make decisions concerning their living environment (Czischke et al., 2020). Czischke and Huisman (2018) studied the collaborative housing Startblok located in Amsterdam, and found that refugees and Dutch young adults – between 18-27 years old – developed social bonds and social bridges due to having daily interactions in shared common spaces and collaborating for the structured self-organization and self-governance of the building

Definition and Types

The following contemporary definition states that collaborative housing in Sweden is usually

a multi-family building with normally equipped apartments with kitchen, living room and bedrooms, which also has common premises where the residents can cook and eat together, carry out a hobby or just socialize. Residents decide themselves what and how much they do together...[]... There are different forms of tenure: rental housing, cooperative tenancy and cooperative tenant ownership (Grip et al., 2015, p.5, translation by the authors).

Collaborative housing projects in Scandinavia from the 1970s and onwards have consisted of two types. The first type, the Danish low-rise and high-density typology, is often located in suburbs having similarities to eco-villages. The second typology is the Swedish collaborative housing consisting of multi-family apartment buildings, located either centrally or in suburbs and being more concentrated than the Danish type (Hagbert et al., 2020). Tunet presented in Chapter 4 is one example of the Danish type. *Lagnö Bo* and *SällBo* are examples of the Swedish typology.

There are several approaches to collaborative housing projects. When considering who initiates the project, collaborative housing can be developed through bottom-up or top-down approaches. The most frequent is a bottom-up approach when a starter group² of future residents take the initiative of developing a new project or renovating an existing building as collaborative housing. A top-down approach implies that a social housing organization, private developer or non-profit organization has initiated the project (Czischke and Huisman, 2018).

In the Swedish context, Arroyo et al. (2021a) classify collaborative housing according to different models. First, *the shared paid services model* (1935–1977) consisted of individual apartments without their own kitchen, shared spaces included a central kitchen and employees doing housework paid by the tenants. The construction of projects based on the shared paid services model ended with the *Hässelby familjehotell* built in 1955 and operational until 1977. When the restaurant at *Hässelby familjehotell* stopped providing catering, around a hundred of residents self-organized themselves and continued cooking for each other, experiencing the benefits that their common work had for the community (Berg et al., 1982). To a certain extend co-living³ can be understood as a contemporary interpretation of the shared paid services model where

¹ The European Network for Housing Research (ENHR) has been an organizational platform focusing on housing research since 1988 and started a Working Group focusing on Collaborative Housing in 2016 (See <https://enhrr.net>).

² In this report, the Swedish term “*startargrupp*” has been borrowed from Westholm (2019, p.115) and translated to starter group in English. Starter group denotes a self-organized group of future residents that can be one of the initiators of collaborative housing projects according to the Swedish context, whereas other initiators can be municipal housing companies or private developers.

³ Coliving has a profit-making purpose, mainly targets young adults who are active in working life and lack influence over their living environment.

young adults rent rooms and pay for services; and is not addressed in this report.

Secondly, the *self-work* model was proposed by the Living in Community group (*Bo i Gemenskap grupp*⁴ – BIG group) for residents of all ages. The experience from residents of *Hässelby familjehotell* and the own expectations and experience from the ten female members of the BIG group – architects, journalists and artists – seem to have been key for developing the ideas that constitute the basis of this model. Collaborative housing projects that follow the self-work model are based on collaboration, cooking and eating together, self-governance and influence over the building (Berg et al., 1982; Blomberg and Kärnekull, 2019). Residents have the responsibility of cleaning common spaces and maintaining the common garden whilst in exchange receiving rent reduction. The self-work model was applied to around fifty collaborative housing projects in the period 1980–1990 (Blomberg and Kärnekull, 2019) and it is still appealing and being applied by many starter groups⁵.

The *self-work model with care facilities* is a larger scale variation that combines the former service house (*servishus*) and rental collaborative housing in a property owned by a municipal housing company. This type of collaborative housing includes apartments for different types of households self-managed by the residents and apartments for older adults and disabled people managed by Social Services, schools and day-care centres for children (Berg et al., 1982; Grip et al., 2015). *Stolplyckan* in Linköping is an example of this model built in 1981 with around 350 residents. This collaborative housing project is composed of 135 rental apartments, 27 secure apartments (*trygghetsboende*) for older adults who want more security and social interaction than they can get in ordinary rental housing and 12 apartments for people with disabilities according to the Swedish Act on Support and Service for Certain Disabled People (LSS-lägenheter). Older adults and disabled people use of the common spaces during the day, whilst other residents use them during the evening or shared the use of common spaces (Kollektivhusföreningen Stolplyckan, 2005).

Thirdly, the *second half of life* model for middle-aged people and older adults without children, is a variation of the self-work model and has been applied to at least twelve projects until 2018 (Blomberg and Kärnekull, 2019). In both models cooking and eating together are key for building the community, so that the common kitchen and dining room are considered the heart of collaborative housing projects (Blomberg and Persson,

2019). *Färdknäppen* in Stockholm was built in 1993 based on this model for around 55 residents.

Residents of recent projects are using new concepts to characterise their communities such as living in a community, community living and living together – *bogemenskaper*, *gemenskapsboende*, *boihop* – perhaps to overcome inherited scepticism or lack of knowledge regarding the Swedish term *kollektivhus*. *Sharing communities* (2005–ongoing) is characterised as a contemporary model that focuses on sharing practices, encouraging social interaction and cooperation with neighbours in which different types and degrees of involvement are possible (Arroyo et al. 2021a). *SällBo* in Helsingborg is an example of this model (see Chapter 4).

Housing Policy and Collaborative Housing

The history of Swedish collaborative housing is related to a housing system that shifted from market-driven until the 1930s, to welfare policy in the period 1940–1990s; and then, shifted again to market-oriented housing development (Hagbert et al., 2020). One of the pillars of the Swedish welfare state was promoting *good housing for all* as housing policy, instead of focusing only on low-income households (Hedman, 2008). A million new dwellings were built between 1965 to 1975 to guarantee affordable housing for all in a country of eight million (Listerborn et al., 2020) as part of the aforementioned housing policy. Market-oriented housing policy reforms have hindered the access of low-income people to affordable housing and the repercussions of policy changes from the 1990s have resulted in a housing crisis that currently also affects the middle classes in large urban areas (Grundström and Molina, 2016). Moreover, migrants, older adults with low pensions and young people have limited options to enter the Swedish housing market (Listerborn et al., 2020).

Housing backlog, finance and affordability

Housing policy actors such as the national government and municipalities have important roles in facilitating affordable housing solutions. The local policy of municipalities will affect both the access to land for housing development, tenure forms and the choice of developer. The Swedish National Board of Housing, Building and Planning (*Boverket*), is a key agency in the task of providing regulations and guidelines and administering state support and subsidies. It also plays an important role in guiding and supporting municipalities.

⁴ BIG group: http://www.boigemenskap.se/boigemenskap.se/Forskargruppen_Bo_i_Gemenskap.html

⁵ A mapping of collaborative housing built in different Swedish cities during different periods and classified by tenure form can be found in the website of the Swedish National Association Cohousing NOW (<http://kollektivhus.se/>)

The Swedish National Board of Housing, Building and Planning has estimated that there is a deficit of between 592,000 and 664,000 apartments in Sweden (Boverket, 2020). There is thus an urgent need to increase housing production and housing mobility. In the production of new housing, different housing solutions should be considered to address the current societal challenges. Many one-person households experience unwanted isolation, especially among older adults and young people. Increase of income inequalities affecting the possibilities for vulnerable groups to access the regular housing market as well as residential segregation are other current societal challenges.

Collaborative housing can contribute to solving the housing crisis by addressing several aspects related to social sustainability. Common spaces in a building can be designed to favour social integration of people with different backgrounds, ages and living conditions. Currently there are only around 50 collaborative housing projects in Sweden, partly due to the limited access to adequate finance and lack of economic incentives. It is a big risk to build, own and manage a collaborative housing project (Westholm, 2019). If a starter group manages to get a loan on the regular housing finance market and it is assessed as a high-risk project, the loan is likely to have a high interest level leading to high monthly costs. There is currently no financial incentive on national level for developing collaborative housing. However, since 2020 a small support for building communities (*byggemenskaper*)⁶ in the form of a starting allowance of maximum SEK 400 000 per building was introduced⁷ and some collaborative housing projects are also built as building communities.

An example of the role municipalities can play is the example of Stockholm in the 1980's where a political decision created completely new conditions for collaborative housing in the municipality. The most important measure was land allocation in the municipality for more than 15 new collaborative housing projects, which were developed by municipal housing companies. Moreover, a collaborative housing committee was formed which assisted individuals and starter groups with advice. Due to this policy, 18 collaborative housing projects were completed until 1993 (Assarson and Kärnekull, 2021).

Tenure forms

Collaborative housing projects in Sweden are mostly initiated by the residents themselves by forming a starter

group. The group can establish an association that carries out the construction through self-management, for example as a building community, or they can propose to a municipal housing company or a private developer to become the property owner.

There are three legal tenure forms in the market for collaborative housing in Sweden: rental housing, housing cooperative and cooperative tenancy. The choice of tenure form may depend on the property owner and size of the project as well as on the economic conditions, professional skills and ideological position of the project initiators of the collaborative housing project. It may also depend on whether the location is in a large city, small town or rural area. In medium and large size cities, both municipal public housing companies and private developers are available whereas in rural areas this may not be the case (Westholm, 2019; Assarson and Kärnekull, 2021).

Of the existing approximately 50 collaborative housing projects in Sweden that are members of the national association Cohousing NOW (Kollektivhus NU), around 50% are rental, 25% are housing cooperative and 25% are cooperative tenancy. Owner-occupied tenure, which is a tenure form mainly for owning single family houses, is rarely used in Swedish collaborative housing projects but exists in some eco-villages and is common in Denmark.

Each tenure form tends to attract people from a certain income group which may increase social segregation. A study in Denmark showed that collaborative housing residents are very homogeneous in terms of their socio-economic background (Larsen, 2019). Mixing different tenure forms, as well as different types of housing and sizes of apartments, can be a strategy for municipalities to increase social sustainability and reduce segregation (Hagbert et al. 2020).

Rental housing

Most of the collaborative housing projects with rental apartments belong to municipal housing companies, but some are owned by private housing companies. Professional housing companies, both public and private, in general have the advantage of good knowledge about the construction and management processes. Rental housing is more accessible for low-income groups since no purchase price or deposit is needed for moving in. On the other hand, the monthly rents are generally higher than the monthly fees to the cooperative in housing cooperatives. However, in collaborative housing the rents are often reduced as compensation for

⁶ A building community is an economic association that has been formed for the purpose of arranging housing for the association's members through new construction, extensions or conversions (Boverket, 2021).

⁷ Applies to building communities that are organized in an economic association where at least six members have invested SEK 10,000 each. In the beginning of March 2022, SEK 1 corresponded to EUR 0.093.

self-management of the building⁸. The tenants either rent directly from the landlord or from an economic or non-profit association which in turn rents from the landlord. Rental collaborative housing associations can have an agreement of deepened influence with the landlord (housing company) where each tenant has their own rental contract, which applies to both the individual apartment and a share of the common spaces (Assarson and Kärnekull, 2021).

Housing cooperative

Housing cooperative⁹ is a tenure form where the purchase price of the apartment (share) can be quite high, especially in attractive locations of larger cities. It is however often a good investment since the price of apartments follows the market value. The Swedish housing finance system recognises the apartment as collateral for a loan. Therefore, it is possible to get a bank loan for this tenure form when having a stable and sufficient income. The monthly fee to the cooperative (covering maintenance and running cost of the property) is normally lower than the monthly rent paid for rental apartments.

A disadvantage with this tenure form may be that the members of the cooperative can only influence who buys an apartment to a limited extent in comparison with some rental collaborative housing where residents select future residents. Although the new owner will have to adhere to the purpose of the association's statutes to be approved by the housing cooperative to become a member, there is not any guarantee that the new owner will be active in the self-management and participate in common activities.

Cooperative tenancy

Several collaborative housing projects have adopted cooperative tenancy, a new tenure form in Sweden (statutory since 2002). The owner of the building can either be a municipal housing company or an association formed by the residents. In the former case, a residents' association rents the whole building from the property owner and sublets the apartments to the tenants. Investments or maintenance by the property owner often result in increased rents. In the case where the residents' association is also the property owner, the association will have more control over the rents. On the other hand, the association must set aside funds for future maintenance.

This tenure form requires a deposit from each resident, but it is normally more affordable than to purchase an apartment in a housing cooperative. The residents get back the same amount of the deposit that they initially paid if moving out. An advantage with this tenure form is that the association controls who moves in as it chooses its members. This is important to recruit members who are motivated to carry out common activities such as cooking together and self-management. However, this also means more responsibility since the association is responsible for collecting the rents. This tenure form normally implies some degree of self-management and members get rent reduction.

A disadvantage with this tenure form is that, apart from the normal organizational tasks of a collaborative housing, other tasks are required for the operation of the building, and sometimes the members lack both the necessary skills and the time to perform them (Assarson and Kärnekull, 2021). Another disadvantage is that banks often deny loans for this tenure form and that the borrower cannot pledge the apartment as collateral for the loan (Westholm, 2019). However, especially in small cities and in the countryside, where it can be difficult to find interested housing companies, this form may be an interesting option (Assarson and Kärnekull, 2021).

Collaborative housing as a system

This report adopts a systems thinking lens to reframe and conceptualize the complexity of collaborative housing in an attempt to explain how it functions. According to Meadows (2008, p.188), a system is "a set of elements or parts that is coherently organized and interconnected in a pattern or structure that produces

a characteristic set of behaviours, often classified as its 'function' or 'purpose'". In this line of thinking, collaborative housing has been conceptualized as "a socio-spatial system where neighbours have a high degree of social connection, share common spaces and responsibilities, collaborate with each other, make collective decisions and have high influence over their living environment" Arroyo et al., (2021a, p.5).

Residents of collaborative housing projects live in complete apartment units and share common spaces where spontaneous and planned activities take place, so that different types of social connection develop among peo-

⁸ The main author rents a four room apartment plus kitchen (95 m²) from a municipal housing company in a collaborative housing project built in 1989, where the rent is SEK 9 136 in 2021 and the monthly rent reduction corresponds to SEK 769, equivalent to 8.42% of the monthly rent.

⁹ In Sweden you own a share in a housing cooperative association which is proportional to the area of the apartment (the housing cooperative association owns the building). Buying and selling an apartment (share) is according to the market value.

ple. Hence, the importance of studying both the spatial and the social dimensions of the system of collaborative housing.

Purpose, elements and interconnections

Drawing on Meadows' (2008) definition, a system consists of purpose, elements and interconnections as illustrated in Figure 1. The purpose of the system of collaborative housing can for example be to create a small-scale community based on participation and sustainability for people of different ages (Westholm, 2019) or addressing unwanted isolation and segregation whilst enabling access to adequate affordable housing for older adults, young Swedes and refugees (Arroyo et al., 2021b).

Elements of the system of collaborative housing include the following, among other physical or intangible elements illustrated in Figure 1.

- *Project initiator*: a starter group of future residents, a municipal housing company or a private developer, or a combination of initiators.

- *Tenure form*: rental, housing cooperative, cooperative tenancy.
- *Residents*: people of all ages composed in different kind of households, people with a similar or different background (including Swedes and migrants), people with different types of income, people who are active in working life or retired, or other.
- *Building*: the structure and external envelope of the building will shape the spatial qualities that enable or limit the possibility for flexible solutions, for example the possibility to vary the layout and sizes of common spaces to address changing needs over time.
- *Households' apartments*: sizes can vary from one-room up to six-room units according to the purpose and the types of residents.
- *Common spaces*: such as a big kitchen and dining room, activity room, utility rooms, guest rooms (Blomberg and Persson, 2019), among other common spaces available for the use of the residents depending on the number of apartment units.

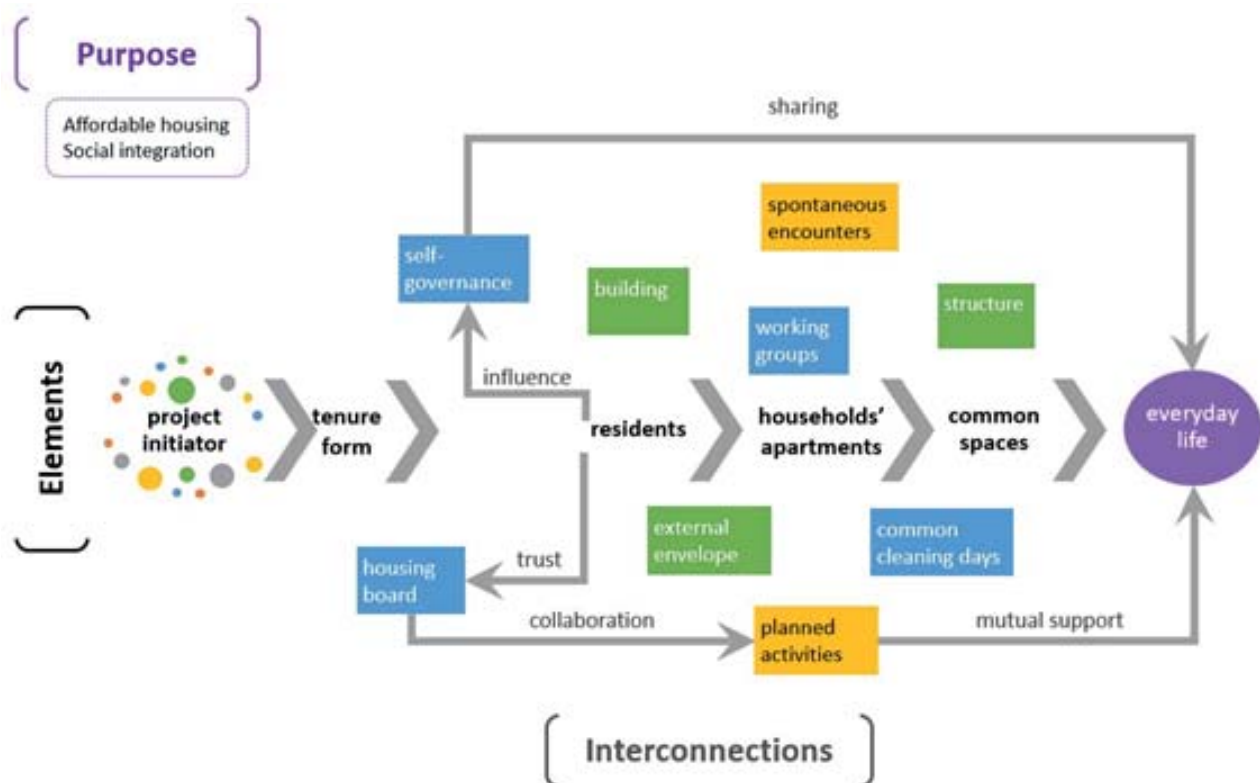


Figure 1 A systems thinking approach applied to collaborative housing with the purpose of counteracting societal challenges such as lack of affordable housing, unwanted isolation and segregation. Elaborated by I. Arroyo

Table 1 Comparison of projects, tenure forms, owners and affordability in different projects. Source: Elaborated by the authors based on Westholm (2019)

Project	Tenure form	Owner	Unit size (m ²)	Investm. Deposit (SEK)	a) Cost per m ² /year b) Rent/fee per month	Common spaces (m ²)	Comment
Botium (Växjö)	Housing cooperative	Housing cooperative association	109	2.060,000	a) SEK 715 b) SEK 6,500	170	The fee includes water and internet, but not heating and electricity
Lagnö Bo (Trosa)	Cooperative tenancy	Cooperative tenancy association	67	800,000	a) SEK 1,743 b) SEK 9,734	170	Yearly fee to the association is SEK 300
Sofielund (Malmö)	Cooperative tenancy	Municipal housing company	65	5,000	a) SEK 1,684 b) SEK 9,120	200	Rent reduction due to self-management
Majbacken (Gothenburg)	Rental	Municipal housing company	38	2,000	a) SEK 1,610 b) SEK 5,100	200	Membership to association: SEK 530/year

- *Housing board*: the residents are organized as an economic or non-profit association for the formal administration of the building and the finances of the community (self-management). Residents elect the housing board that normally consists of a group of 5 to 7 residents on a yearly basis, according to the respective housing statutes.
- *Self-governance of the community*: different tasks related to cleaning or social activities are undertaken by working groups. Hence, residents self-organize themselves for cleaning the common areas, cooking in groups in the common kitchen and eating together, among other planned activities.

Figure 1 illustrates the interconnections between the elements of the system of collaborative housing. The residents and other elements are held together by trust and collaboration as well as practices such as mutual support, influence and sharing – for example sharing common spaces, activities, things, responsibilities, rules.

Project initiators, tenure form and affordability

The project initiator decides the purpose of the collaborative housing project, the tenure form and the type of residents that the project targets. Hence, the sizes of apartments are decided according to the types of future households that will live in the building.

When the project initiator is a group of future residents, the process from idea conception up to moving to the building can last five to ten years or more. When the initiators have the support of a municipal housing company, the process can last five years as in Sofielund in Malmö.

Table 1 shows that the investment, deposit, monthly rent or fee vary depending on the tenure form. When the project initiator is a group of medium-income people, having as purpose socializing and mutual support, they may choose housing cooperative as the tenure form with the unintended consequence of excluding low-income groups from the project because of not being able to afford to purchase an apartment (share).

Self-organization, hierarchy and resilience during crisis

Meadows (2008) identifies three inherent characteristics of systems, namely self-organization, hierarchy and resilience. Building on our previous conceptualization of collaborative housing as a socio-spatial system, it is not surprising that the three inherent features of systems identified by Meadows were immediately activated in the studied collaborative housing projects when the COVID-19 pandemic struck Sweden in March 2020. The following paragraphs provide definitions and practical examples regarding self-organization, hierarchy and resilience within the system of collaborative housing during the pandemic.

Self-organization is “the ability of a system to structure itself, to create new structure, to learn, or diversify” (Meadows, 2008, p.188). According to our research, each collaborative housing association self-organized its community as a collective response to protect itself from the virus. A recurrent pattern seems to have been limiting outsiders’ access to common spaces, closing common spaces for residents, suspending common cooking and eating in common spaces and communicating through digital channels. Ways to support each

other, such as helping with picking up COVID-tests, keeping an eye or helping vulnerable older adults, was something taken for granted because residents dared to ask help from their neighbours (Arroyo et al., 2021a).

Hierarchy in systems thinking implies “subsystems within systems”, where systems are organized to create larger systems (Meadows, 2008, p.187). In collaborative housing projects, we found that residents have been able to sub-divide the whole system – the building – into smaller systems – areas within the building due to the design qualities. When common spaces are distributed in different areas in the building, it has been possible for retired people to continue meeting there; whereas people working outside the community have stopped using those common spaces or used other ones. The households’ apartments are the smallest sub-system within the collaborative housing system and residents have been able to choose to self-isolate themselves when a family member got the virus (Arroyo et al., 2021a).

Resilience is “the ability of a system to recover from perturbation; the ability to restore or repair or bounce back after a change due to an outside force” (Meadows, 2008, p.188). Our study shows that after some months of living and learning more about COVID-19, residents renegotiated access and use of common spaces by sub-groups of residents and started using the common garden for socializing whilst keeping physical distance. Residents appropriated and adapted the use of existing common spaces for the new conditions set by the pandemic and a common experience seems to be that many of them have not felt isolated during the pandemic and value their living environments even more (Arroyo et al., 2021a).

Scale of collaborative housing projects

“What is the ideal size for a collaborative housing project? The answer can only be that it depends on what you want with the common spaces” (Grip et al., 2015, p. 26, translation by the authors).

Apart from collaborative housing based on the *shared paid services model*, a new type of building denominated service building (*servicehuset*) developed in the late 1960s. A service building in Sollentuna with 1000 apartments included “an indoor center with commercial and social services, daycare centers and kindergartens, a restaurant, hobby rooms and a reception” (Berg, 1982, p.20). The same authors argue that people moving from collaborative housing to the service building in Sollentuna moved out again because of the anonymity, lack of contact among residents and the scale. Hence, the scale of the project in terms of number of apartments and households is important to consider when developing future collaborative housing projects.

Berg et al. (1982) discuss advantages of having between 20 and 50 apartments in a collaborative housing project. They argue that it is positive to have at least 20 apartments for being able to exert direct democracy for making decisions and the possibility to fit 20 apartments more easily in an existing building. By contrast, they argue the advantages of 50 apartments in terms of having a good financial basis for the common spaces or regarding having ability to cope with households who do not accomplish common duties. A progress report on collaborative housing in 1989 by the City of Stockholm states that 50 apartments or more provide a better basis for dividing the self-work required for common spaces and gives stability to the community (Grip et al., 2015). Blomberg and Persson (2019) studied ten collaborative housing projects and argue that experience has shown that projects with 30 to 60 apartments function well.

Drawing on their experience of living in a large community composed of around 350 residents (174 apartments), some residents of Stolplyckan suggest that a good scale for future collaborative housing projects might be around 100 apartments¹⁰. First, because having 100 apartments will positively benefit the economy of the association of residents for self-managing the community. Secondly, because residents will be able to find people with their same interests and this is key for securing both working groups and social activities.

The possibility of combining secure housing (*trygghetsboende*), housing for disabled people (*LSS-boende*) and rental collaborative housing in one property might appeal to municipal housing companies to invest in them, considering that the use of common spaces would be optimized and benefit different types of residents whilst saving money and resources. Stolplyckan has currently 135 rental apartments, 27 secure housing units for older adults and 12 units for disabled people. These numbers represent 77%, 15% and 8% of the total 174 apartments (350 residents).

Size of common spaces and apartments in view of the experience from the pandemic

In a new collaborative housing project, the purpose, scale, municipal land use plan and the Swedish building code will shape the building design, the number and sizes of apartments as well as the types and sizes of common spaces. In the case of a renovation project, the purpose, the building structure and envelope shaping the spatial qualities of the existing building will affect the number and sizes of apartments as well as the location, types and sizes of common spaces. For example, a collaborative housing project with the purpose of socializing for adults over 40 years old without children

¹⁰ Study visit to collaborative housing Stolplyckan in July 2021.

may require one-room up to three-room apartments. By contrast, a collaborative housing project with the purpose of intergenerational integration, addressing people of all ages will require many sizes of apartments – one-room up to six-room units.

In the late 1970s, the BIG group argued that cooking and taking care of children together with others was enjoyable, and meanwhile saved time. They proposed that the size of apartments in collaborative housing projects should be 10% smaller than apartments in regular apartment buildings to allocate that area for common spaces without increasing the cost of the building (Berg et al., 1982). More recently, other authors have argued for having apartments 15% smaller than regular ones (Blomberg and Persson, 2019).

In the line of thinking of the BIG group, when considering apartments with an estimated area of 52 m² each, 40 households living in apartments 10% smaller than regular ones would share common spaces with a total area of 208 m². As mentioned before, around fifty collaborative housing projects following the 10% smaller apartments rule were built in the period 1980–1990, which was suitable for inhabiting, sharing and socializing.

However, the COVID-19 pandemic 2020–2022 seems to have challenged the 10% smaller apartments rule considering that the units were also used for other uses than inhabiting such as being in quarantine, studying and working from home. The spatial qualities of some apartments in existing projects allowed families with sick members to divide functions according to the layout of indoor spaces – zoning rooms for healthy and sick family members. Having extra doors connecting apartments with the building corridor and with an outdoor garden to enter or leave the unit has been an advantage. However, fixed interior partitions limited adapting open spaces – such as the kitchen – into an extra sound isolated room for working or studying during the pandemic. If the rooms would have been 15% smaller instead of 10% as they are, it would have been more challenging for families with four members or more to work, study and take care of sick family members simultaneously.

Some residents of different collaborative housing projects self-organized themselves during the COVID-19 pandemic and started using the common spaces – both outdoors and indoors. “By keeping physical distance and avoiding social isolation their lived experience was adapted to the new conditions” (Arroyo et al., 2021a, p.14). Outdoor common spaces that were used according to the availability in each building were the common garden, semi-covered outdoor terraces,

rooftop gardens, urban gardens, etc. Indoor common spaces were used according to the spatial qualities of each building and included the lobby (if available), TV room, the common dining room, sometimes the common kitchen and balconies (if available)¹¹.

The pandemic has unveiled the need of being able to transform living environments – in both the apartment units and the common spaces – so that spaces can be used for different functions during temporal or unforeseen situations or when the living situation of residents changes over time. Common spaces should not be concentrated in one location in a building but placed in a way that the collaborative housing system can be divided in at least two subsystems, with possibility of direct connection to outdoor common spaces.

Internal organization

According to Berg et al. (1982, p.31), “collaborative housing has an organizational structure that stimulates collaboration in non-hierarchical forms” and identify the need for at least two organizational systems. Firstly, the system for organizing work related to the common spaces and social activities. Secondly, the organization for doing the formal part of the administration of the building. Grip et al. (2015) state that collaborative housing communities can be organized as a non-profit association (*ideell förening*), as an economic association (*ekonomisk förening*) or as both. Moreover, according to the tenure form, the organization of the administration of the buildings can be organized as a housing cooperative association (*bostadsrättsförening*) or as a local rental association (*hyresgästförening*).

In general, the organizational structure of collaborative housing associations includes a housing board and smaller working groups. The board is elected by the members of the association in the annual meeting, in which all residents should participate and any decisions about changes in the organization's statutes could also be made. The *housing board* has the responsibility of managing the formal administration of the building and the economy of the association, bringing different issues to be discussed at the housing meetings – that can imply a number of meetings per semester or on a monthly basis.

The *working groups* self-organize themselves and carry out their tasks, informing the housing board and bringing issues that need to be discussed to the housing meetings. Decisions are made by the residents during house meetings through direct democratic forms – i.e., one person, one vote (Berg et al., 1982). Associations mostly work with building consensus and decision is postponed until the issue has been properly discussed

¹¹ This was reported by 14 collaborative housing associations in the period October – November 2020.

(Grip et al., 2015). This implies decisions regarding social activities, common work, maintenance of the building, among other issues related to everyday life.

When an apartment is empty, some associations assign the task of recruiting possible future residents to a working group, whereas in other communities the property owner conducts the recruitment. When a working group is in charge of the recruitment, households who have expressed their wish to live collectively through the housing queue and have actively signed for the available apartment, are sometimes interviewed by the working group. If this is the case, the working group suggests at least two candidate households who could move to the available apartment and the final decision is made by the housing board.

Spatial characteristics in collaborative housing

Common spaces in collaborative housing projects are the most important facilities where the kitchen is often considered the heart of the building (Vestbro, 2010). In addition to the kitchen and the dining room, various design factors affect the spatial layout of the building. For example, the proportion of common spaces compared to private apartments (Vestbro, 2012), how the common spaces are connected to each other (Hillier and Hanson 1984), the location of common spaces in the building (Palm Lindén, 1992), accessibility (Vestbro, 2010), social control in these spaces, and connection to the neighbourhood (Moss Kanter, 1972, quoted by Goodwin and Taylor, 1982).

General design principles

Space and its spatial connection to other spaces have to do, among other things, with ordering and control (Hillier and Hanson 1984; Hagbert et al., 2020). This is explained through the concepts of symmetry/asymmetry. A symmetric connection means that two spaces have the same connection to the surroundings so that one can access these two rooms in more than one direction (see rooms A and B in Figure 2a). An asymmetric connection appears where one space is accessed only through one other space, which means it is controlled by another space (see room B in Figure 2b). The space with a high share of asymmetric connection has a tree-like structure (Hillier and Hanson 1984; Hagbert et al., 2020). Both types of spatial connections were found in the studied collaborative housing projects (see Chapter 4).

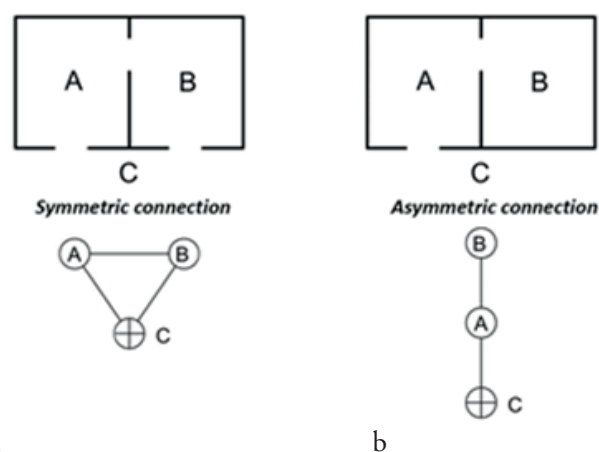


Figure 2 Diagram where layout (a) represents a symmetric connection (a distributed space) and layout (b) represents an asymmetric connection (a non-distributed space). Modified by M.W. Yahia based on Stonor (2011),.

Accessibility, availability and social control

Collaborative housing projects should provide common spaces that have full accessibility for all ages and that are also available all the time. One way to provide this is to consider universal design¹², or a design for all ages, where the building suits the needs of all generations. If the collaborative housing project will be inhabited only by older adults or a mix of generations, its design has to consider the special health and social care needs of older adults (Westerholm, 2010). Considering universal design in collaborative housing will also benefit the design of the spaces made for children and youth. Such spaces are often created in less attractive ways than spaces for adults, and the teenagers are easily forgotten in the design (Vestbro, 2010). By considering a level of control in the spaces for children and youth, to check who is using the space and how the kids use it, the parents/residents can practice a level of social control. Such control can be achieved by (1) designing an asymmetric space so that the space is physically controlled by another space or (2) by encouraging visual connectivity/transparency that allows such control to these spaces (see Chapter 3: Improve architectural qualities through co-design).

Spatial analysis

To understand how common spaces are connected to each other and to what extent these spaces are accessible

¹² "Universal design is a process that enables and empowers a diverse population by improving human performance, health and wellness, and social participation" (Steinfeld and Maisel, 2012, p.29)

to other spaces in the collaborative housing project, spatial configuration can be used. The space syntax methodology (Hillier and Hanson, 1984; Hillier, 1996) provides tools to analyse the spatial characteristics of a space (configuration, visibility, and accessibility) as well as their functional relations to the physical, social and psychological environment. DepthMapX¹³ can be used as a tool to evaluate different spatial configurations of collaborative housing projects as 2D drawings. Depth-MapX aims to produce a map of spatial elements and connect them via relationships (for example, intervisibility, intersection or adjacency) and then performs a graph analysis of the resulting network (see the example of Lagnö Bo in Chapter 4).

The objective of the analysis is to derive variables which may have social or experiential significance. The following syntactic measures can be performed by using DepthMapX, (1) connectivity, which calculates the number of neighbour lines directly connected to a certain space in the layout (Figure 3a), (2) depth, which is defined as the number of moves or syntactic steps that are needed to reach one space from another (Figure 3b) and (3) integration, also called availability or accessibility, which is a calculation referring to how a space is connected to other spaces in its surroundings (Hu et al., 2017; Li, 2011; Hillier and Lida, 2005).

Collaborative housing and the neighbourhood

Two principles for the connection of collaborative housing to the neighbourhood have been identified: “detaching” from the surrounding context and “attaching” to the collective (Moss Kanter 1972, quoted by Goodwin and Taylor 1982; Hagbert et al., 2020). These principles of attaching and detaching could be interpreted in a socio-spatial context. On the one hand, the need for privacy and security in and around the building is highly important. On the other hand, solidarity in collaborative housing, both internally to foster the social cohesion of the community in the building as well as externally to create a social function to the neighbourhood, is also important. *Sofielund* in Malmö is an example of the attaching principle where the building is open to the neighbourhood, which can contribute to social sustainability on a larger urban scale and make the area more attractive. However, a project that is detached from the neighbourhood can run a risk to manifest itself as a closed or “gated” community as mentioned by Hagbert et al. (2020), which can physically and socially exclude the ones who are perceived as not belonging to the community.

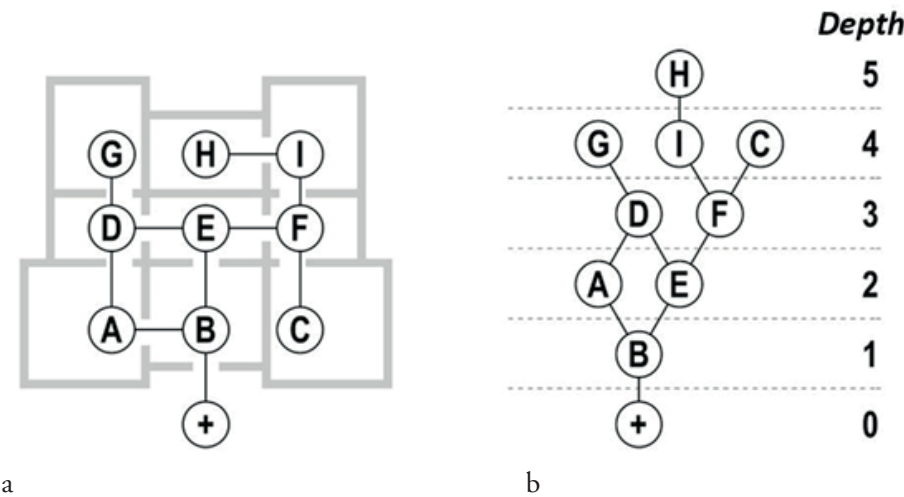


Figure 3 Illustration of (a) connectivity and (b) depth or syntactic steps (Dawes and Ostwald, 2018).

¹³ DepthmapX is an open-source and multi-platform spatial analysis software for spatial networks of different scales. The software was originally developed by Alasdair Turner from the Space Syntax group as Depthmap, now open-source and available as depthmapX. (<https://spacegroup-pucl.github.io/depthmapX/>)

Co-design in collaborative housing

A good design of a collaborative housing project can only result from participation processes where the residents have the possibility to contribute with their opinions (Vestbro, 2010). The process of participation starts from the involvement of the future residents in designing the architectural layout of their community (Bunker et al., 2011; Field, 2004; Lietaert, 2010; McCamant and Durrett, 1998, 2011).

Participation in the design process can have a number of aims and stages. First, when the process is initiated by future residents, they should participate in defining the scale of the project, the target groups, number and sizes of apartments as well as the type and area that would be available for the common spaces (Berg et al., 1982). Hence, the most appropriate physical layout for facilitating internal social dynamics would be co-designed in close collaboration with the architects. Second, it is important to consider and agree on the different types of spaces and the number of common facilities in relation to the financial resources of the project initiators. Thirdly, by involving the future residents and other possible final space users, the right balance between privacy and community can be determined (Gerards et al., 2015; Sanoff, 2008). In a study of ten contemporary collaborative housing projects in Sweden, Westholm (2019) found that all projects were driven by the future residents from the initial idea and the planning phase until its construction. Future residents have had “influence on the design of apartments, common spaces and the outdoor environment, and the associations have in various ways participated in the planning of the physical environment” (Westholm, 2019, p.12, translation by the authors)

3 Recommendations

Towards future sharing communities

This chapter presents recommendations that are intended for developing future sharing communities. *The self-work model and the second half of life model* are still adopted by many starter groups. In these types of collaborative housing, people share collective values and purposes such as collaboration, cooking and eating together, self-governance and influence over the building – e.g. all residents have turns for cleaning common spaces, among other maintenance activities. The self-governance of the building contributes both for building the community whilst residents get rent reduction in rental collaborative housing.

In the Swedish context, this research has shed light on residents’ collective resilience in several collaborative housing projects due to their capacity for self-organizing themselves and coping with the COVID-19 pandemic. Even in the context of crisis, collaborative housing provides a space for the emergence of sharing communities. *Sharing communities* is a notion proposed by Östlund (2016) implying “people living in a community with a joint use of a resource of space”. A further development of this notion is that

“sharing communities based on social practices of inhabiting, sharing and being involved in everyday life can tackle current societal challenges – housing affordability, unwanted isolation and segregation... [whilst being] resilient even in times of crisis because they self-organize themselves and renovate social ties among the members” (Arroyo et al., 2021a, p.3).

Future sharing communities should consider having between 30 and 75 apartment units with different sizes of apartments according to the type of project initiator and the project’s purpose as discussed earlier. When collaborating with a municipal housing company, future projects might consider having up to 100 apartments, 75 rental apartments self-managed by the future residents and 25 apartments managed by Social Services or the Housing Department, or other administrative unit according to the respective municipality. These public institutions could allocate the 25 apartments for people living in any situation of vulnerability such as older adults in need of service housing, people with disabilities, structural homeless, refugees, young adults with low income, among others. Another possibility could be combining tenure forms, for example 75 housing cooperative units and 25 rental apartments through collaboration between housing cooperatives (HSB or

Riksbyggen¹⁴) and municipal housing companies. The following recommendations are identified to be considered by project initiators and policy makers, among others, when developing future sharing communities.

1. Make sharing communities more appealing and connected
2. Increase diversity of households to tackle segregation and isolation
3. Prioritize policy mechanisms to support financing
4. Improve architectural qualities through co-design
5. Co-design of flexible and adaptable common spaces
6. Enhance possibilities for involvement

Make sharing communities more appealing and connected

Strategies should be developed and implemented to encourage people with different backgrounds, ages and living situations to choose living in sharing communities as well as attaching them better to the neighbourhood.

The potential of sharing communities

Reframing collaborative housing projects as *sharing communities* and making implicit the purpose of social integration to counteract segregation and isolation might engage people with different backgrounds, ages and living situations. In future projects, the emphasis should be more on sharing practices, encouraging social connection of different types of residents and more flexibility regarding their involvement in the community.

Residents of collaborative housing share a view of society in which individual and social ties are strong. Making future sharing communities appealing for people who do not share collectivist practices – people who are not interested or do not have the time to participate in common activities – will enhance the potential of social integration. This might imply a shift to different ways and degrees of being involved in the community. For example, voluntary cleaning of common areas without rent deduction and different degrees of involvement according to the frequency and/ or types of activities – e.g. being involved on: (1) a daily basis, two hours per week, six hours per month, etc.; (2) in almost all planned activities or only for certain planned activities, or (3) being involved only for cooking and eating together.

Sharing practices and integration with the neighbourhood

Shared spaces located in the ground floor for municipal social services – such as pre-schools or meeting places – as well as rental spaces for commercial activity – co-working spaces or a cafeteria – might attract people with different backgrounds, ages and income levels. Revenues from renting space to the municipality or private actors could contribute to the finance of the association self-managing the sharing community. Another possibility is that the property owner sets aside part of the revenues for future expenses related to the building. Such an approach can lead to financial sustainability of this housing form, where revenues could be used for having a common fund for maintenance of the building over time.

Moreover, a shared space for repairing, carpentry and fixing of personal and common things could promote sharing practices among residents and neighbours. Another possibility is promoting reusing practices in a shared space for swapping second-hand clothing and other things. Such shared spaces with the neighbourhood should be co-managed in collaboration with different local associations. Sharing communities could also offer shared outdoor space and semi-covered meeting places for attaching better to the neighbourhood.

Increase diversity of households to tackle segregation and isolation

Strategies should be developed and implemented to encourage municipal housing companies and private developers to combine different tenure forms in a sharing community project to increase diversity of households aiming at reducing segregation and unwanted isolation.

Choice of tenure form

The tenure form is crucial for developing sharing communities that have the potential to tackle segregation and unwanted isolation. Refugees and some newly arrived migrants, might have low income because it takes a long time to get a permanent job in Sweden and be able to qualify for a bank loan. Young adults or families with low income and retired people with low pensions might also not be able to borrow money from a bank for purchasing an apartment in a housing cooperative or to pay the deposit of a cooperative tenancy apartment. Thus, rental housing is the tenure form recommended for developing future sharing communities to provide access to affordable and adequate housing for people living in any situation of vulnerability. Hence,

¹⁴ HSB and Riksbyggen are the two largest housing cooperative associations in Sweden.

both municipal housing companies and private developers could play an important role in developing future sharing communities.

Mixing different tenure forms in the same sharing community project would enable people with different income levels – that otherwise would rarely meet – to join the same project, become neighbours and meet in everyday life; and therefore, build social bridges among them. This might be achieved through collaboration between municipal housing companies and housing co-operatives – such as HSB and Riksbyggen – or in partnership with the private sector. An example of a mixture of tenure forms within the same collaborative housing is the recent Danish housing area Karise Permatopia which consists of 90 terraced houses in different sizes, of which half are rental housing and the rest have either (non-speculative) cooperative or owner-occupied tenure (Karise Permatopia, 2021).

Prioritize policy mechanisms to support financing

Housing policies should include incentives to support the financing of participatory planning, co-design, construction and self-management of future sharing communities.

Support from national and local authorities

Both national and local authorities can play important roles in enabling future sharing communities. At national level it is recommended that authorities make it easier to get finance for new projects both in terms of soft loans and by introducing financial incentives in order to create favourable conditions for sharing communities. This is especially important from the early stages of the project where funding is needed to pay consultants, to purchase land, etc. Financial support could be for example as a starting allowance for the development of new projects, similar to the SEK 400 000 support that currently exists for building communities (*byggemenskaper*). National authorities could also facilitate loans for sharing communities' associations.

At local level it is recommended that municipalities facilitate the formation of sharing communities through a modified land use policy which facilitates land access also for small players on the housing market such as private persons and small groups, contributing to an increased diversity of the housing offer. This can be done through both access to plots for new construction and, in collaboration with municipal housing companies, offer access to existing buildings which can be renovated and adapted into sharing communities. Moreover, municipalities could create project competitions for land allocation where projects which favour social, economic and ecological sustainability are chosen

(Westholm, 2019). Municipalities could also assign a civil servant to support project initiators during the whole process from initiating the project to construction as suggested by Westholm (2019), and similar to the municipal advisers on energy and climate that offers free consultation. A way for municipalities to support financially is by offering municipal bail (Westholm, 2019). Finally, both national and local authorities could support innovative pilot projects in which this housing form is developed incorporating the lessons from the COVID-19 pandemic.

Other possible funding mechanisms such as rental housing revolving funds granted to non-profit actors, renovation revolving funds granted to municipal housing companies as well as possible regulations to enable Community Land Trust should be considered for the Swedish housing context.

Improve architectural qualities through co-design

Innovative co-design approaches should be developed to address the visions and needs of residents of future sharing communities over time whilst achieving good architectural qualities and affordability.

Co-design approaches

When creating a new sharing community or renovating an existing building to adapt its spatial configuration into a sharing community, it is important to find the right locations for private areas, common spaces, and spaces shared with the neighbourhood. In other words, it is crucial to provide a clear definition of what is private (households' apartments), semi-private (common spaces for the residents), and public (shared with people of the neighbourhood). In addition, how all these spaces are connected to each other is highly important for fostering social interaction among residents. Even when municipal housing companies adapt buildings to sharing communities, it is recommended to involve at least some of the future residents in the renovation process at an early stage.

Participation in the design process increases the possibility of achieving a spatial program that addresses the needs of the future residents as well as how much they can afford to pay. The visions and tacit knowledge of the future residents should be integrated with the professional knowledge and expertise of architects and designers. Such an iterative co-design process would include planning meetings and workshops with residents, elaboration of architectural sketches, feedback from future residents and formalized agreements to provide clear insights about the function of common spaces, sizes, physical connections and accessibility to different spaces, as well as the design of different types of apart-

ments that are suitable for different types of users.

Spatial analysis is a recommended approach to study the physical connections and accessibility in common facilities. It is recommended to use the tool Depth-MapX to perform a set of spatial network analyses to understand how different spatial configurations of collaborative housing projects can function. It is recommended that the process includes spatial analysis showing how the common spaces are connected and how much accessibility these spaces have.

The output of the spatial analysis could then be discussed and reviewed by the architects and future residents to ensure that the spatial layout corresponds well to the resident's needs and visions regarding their future sharing community. Applying such a co-design approach will give an opportunity to explore how and when future residents might use different common spaces and include people's feedback as a complement to space syntax analysis. The proposed iterative co-design approach should be carried out until consensus

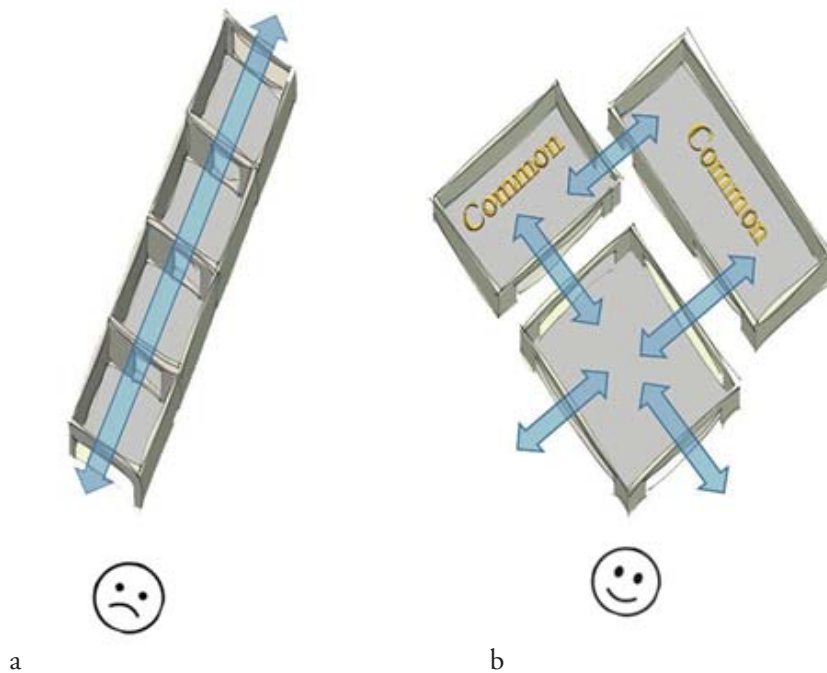


Figure 4 Accessibility patterns in common spaces where (a) accessibility from only one direction (b) accessibility from more than one direction. Elaborated by M.W. Yahia.

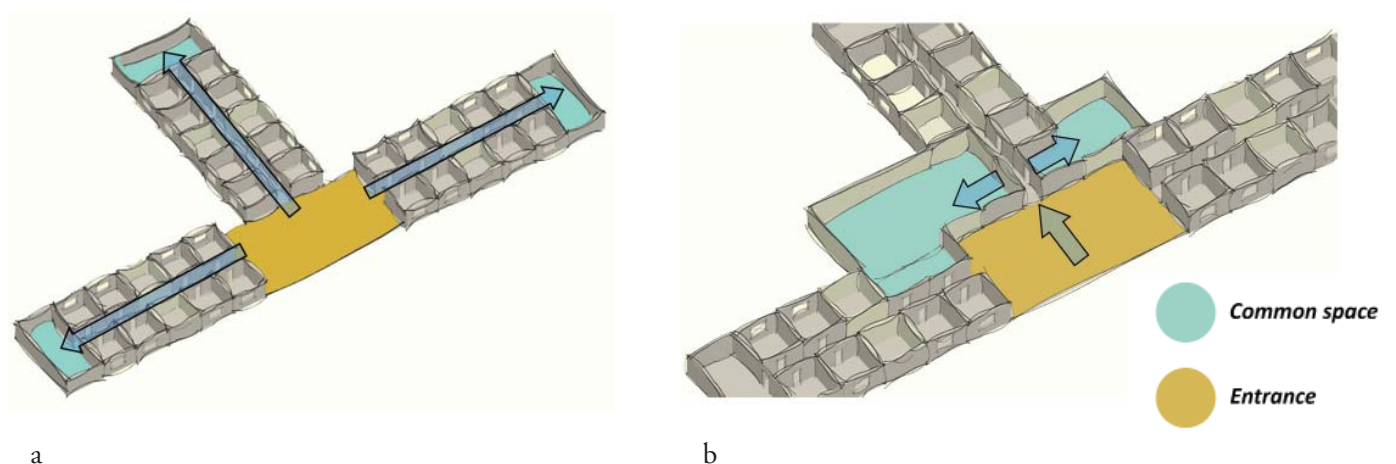


Figure 5 Location of the common spaces: (a) deep into the building and (b) near the main entrance. Elaborated by M.W. Yahia.

between future residents, the property owner and the architects is reached.

Accessibility

To increase accessibility of the common spaces, it should be avoided designing the space in a way that it is only accessed through one other space which means that it is controlled by other spaces (see Figure 4a). On the contrary, it is recommended to consider designing a “symmetric space”, which means that a space is accessed from more than one direction (see Figure 4b).

Position of common spaces

When it comes to the common spaces in future sharing communities, it is recommended to position the most important common spaces (kitchen, dining room, living room) near the main entrance (see Figure 5b). This facilitates more spontaneous meetings compared to common spaces located deep into the building (see Figure 5a).

Transitional spaces

Transitional spaces such as corridors can play an important role to foster more spontaneous meetings among residents in future sharing communities. It is, therefore, recommended that the spatial design provides meeting spots, corners (attached to corridors) that can facilitate small sitting areas (resting areas) with furniture (see Figure 6b)

Visual contact and social control

Terraces and balconies increase the visual contacts among residents. Even if the residents do not meet each other face to face in one room, terraces and balconies provide an opportunity for residents to see each other or perhaps just wave to a neighbor passing by. This may contribute to increasing casual encounters. Therefore, it is recommended to consider an adequate design of balconies/terraces (see Figure 7), as these design components facilitate wider visual angles that can help the residents to meet each other.

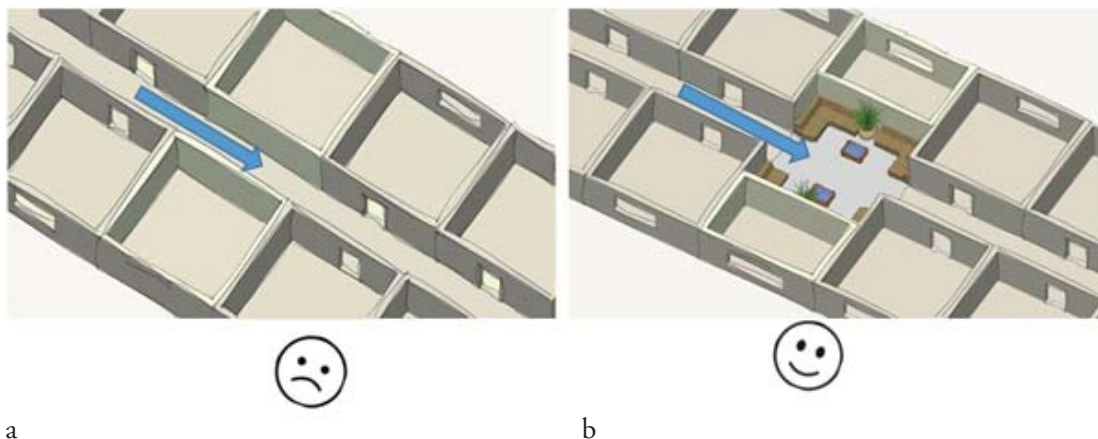


Figure 6 Meeting spots in corridors where (a) shows only transitional spaces and (b) shows meeting and transitional spaces. Elaborated by M.W. Yahia.

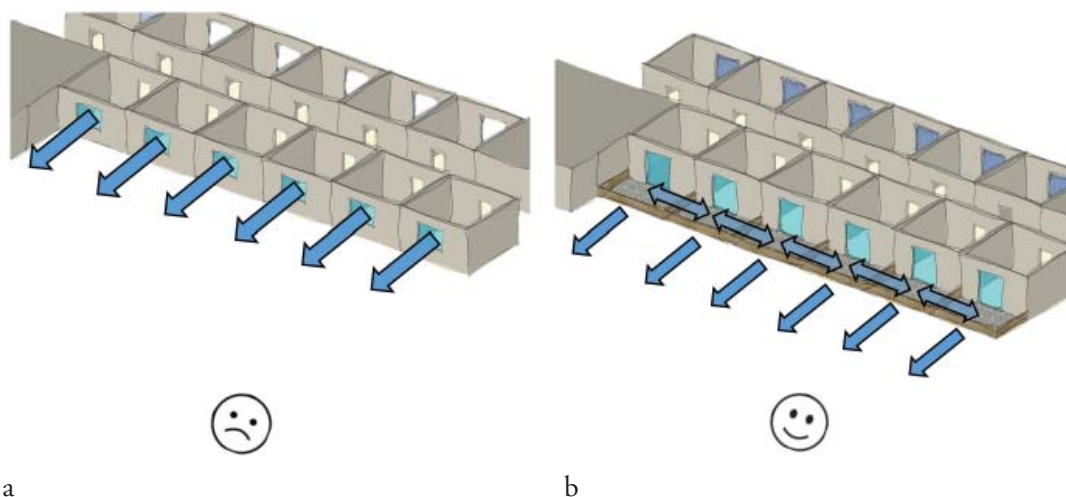


Figure 7 Possibilities for visual contact: (a) without balconies/terraces and (b) with balconies/terraces. Elaborated by M.W. Yahia.

The concept of visual contact can also be considered in the interior design of the building when a level of social control is required, for example, in the children's rooms where the parents need to keep an eye on small children.

Common outdoor spaces

Open outdoor spaces are recommended to be protected against rain, snow, strong sun and wind so that these spaces can be used in all seasons and in situations of crisis such as a pandemic (Figure 8). By adding design elements such as trees, pergolas, shading devices, rain protection etc., to adapt the outdoor space to different weather conditions in different seasons, the time of using the outdoor space will increase, which in turn will increase the opportunity for the residents to meet each other. This will help to increase social interaction among residents.

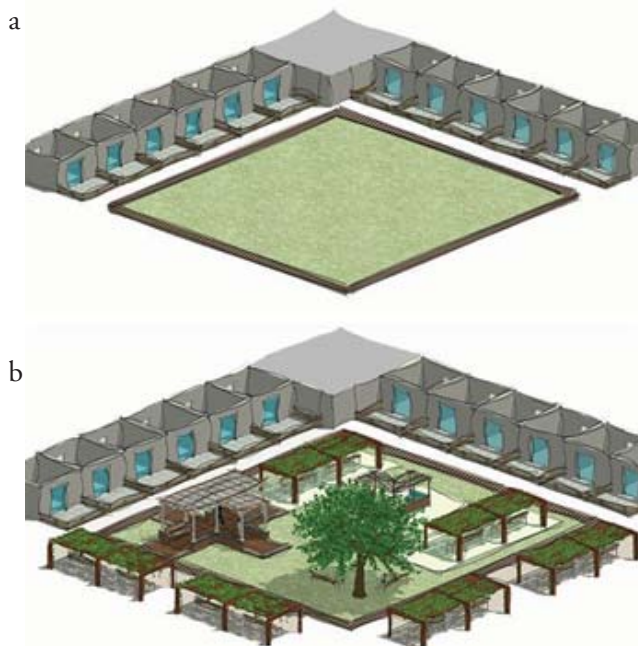


Figure 8 Protection against bad weather conditions in open spaces: (a) unprotected space, (b) protected spaces by using pergolas, shading trees and shading devices/rain protection. Elaborated by M.W. Yahia.

Connection to the neighbourhood

Outdoor spaces can play an important role to increase the visual contact with the surrounding neighbourhood so that the sharing community is less inward-oriented and can contribute to a certain level of social sustainability at the neighbourhood scale. Activities such as urban farming and poultry farming can further be organized (see the example of TUNET in Chapter 5).

Co-design of flexible and adaptable common spaces

A process approach for developing future sharing communities over time should be adopted to facilitate that future residents have influence over the planning and spatial design of flexible and adaptable common spaces regardless of the type of project initiator.

A process approach for developing sharing communities

The underlying thinking of a *process approach* for developing future sharing communities is an understanding of *housing as a process* (building on Turner, 1976; Turner and Fichter, 1972) instead of housing as a finished product that is the dominant approach in contemporary housing development in Sweden and globally. When considering housing as a process, future residents will have influence over their living environment from idea conception, planning, construction and self-management. By contrast, housing as a product sees housing development as a finished product with no influence from future residents.

A *process approach* for the development of future sharing communities is recommended to enable future residents to be highly involved during different stages of future projects, even when the initiator is a municipal housing company or a private developer. High involvement of future residents is important for making key decisions that will shape the socio-spatial dimensions of future sharing communities. This has been very frequent in collaborative housing projects when the initiator is a starter group, but it tends to be overlooked when the initiator is a public or private organization. The latter can be avoided if the organization pre-selects some future residents that are willing to act as a starter group and be highly involved during the process – initial idea, planning phase, construction and self-governance. If the organization does not have the possibility to pre-select future residents, another option might be to leave some common spaces unfinished and without allocating any function to them, so that future residents can be involved in a later stage and make decisions over such common spaces.

Common spaces for future sharing communities

It is recommended that the project initiators or starter group make decisions regarding the types of sharing practices that will be fostered in the community, how social interaction and cooperation with neighbours would be encouraged whilst allowing more flexibility regarding involvement in the cleaning of common spaces and other housing related responsibilities.

As discussed earlier, common spaces used by residents during the COVID-19 pandemic were the common

dining room, TV room as well as the entrance lobby (if available in the building). Hence, it is important learning from what common spaces were used as well as what types of spaces were missing. Other indoor common spaces that should be considered when developing future sharing communities are an entrance lobby, an extra multipurpose room including kitchenette, shared space for co-working including scanning and printing facilities, semi-covered outdoor space and rooftop gardens or terraces and balconies. It is recommended to include common spaces that address contemporary needs of different types of residents. A sharing community project should be able to split into smaller subsystems for being used simultaneously by different groups of residents in case of future pandemics or other unforeseen situations (e.g., having a common kitchen and dining room and also a multi-purpose room with kitchenette). Moreover, shared spaces with the neighbourhood aiming at attaching the sharing community better to its surroundings to foster sharing practices and social interaction between people are recommended.

Enhance possibilities for involvement

Degrees of involvement in future sharing communities based on different levels of self-governance and sharing practices should be developed and tested.

Social practices of inhabiting, sharing and being involved take place to different extent in different housing forms depending on the existence or absence of common spaces as well as according to the degree of collectivity or lack of it. Figure 9 is an attempt to develop a typology of degrees of resident involvement based on different levels of self-governance and sharing practices. *Self-governance* implies the inherent characteristic of self-organization and includes activities such as being part of the housing board, taking part in decision making during house meetings, being active in a working group, cleaning the common spaces and corridors, and participating in common cleaning days, among others. *Sharing practices* include sharing common spaces, cooking for neighbours, eating with neighbours, participat-

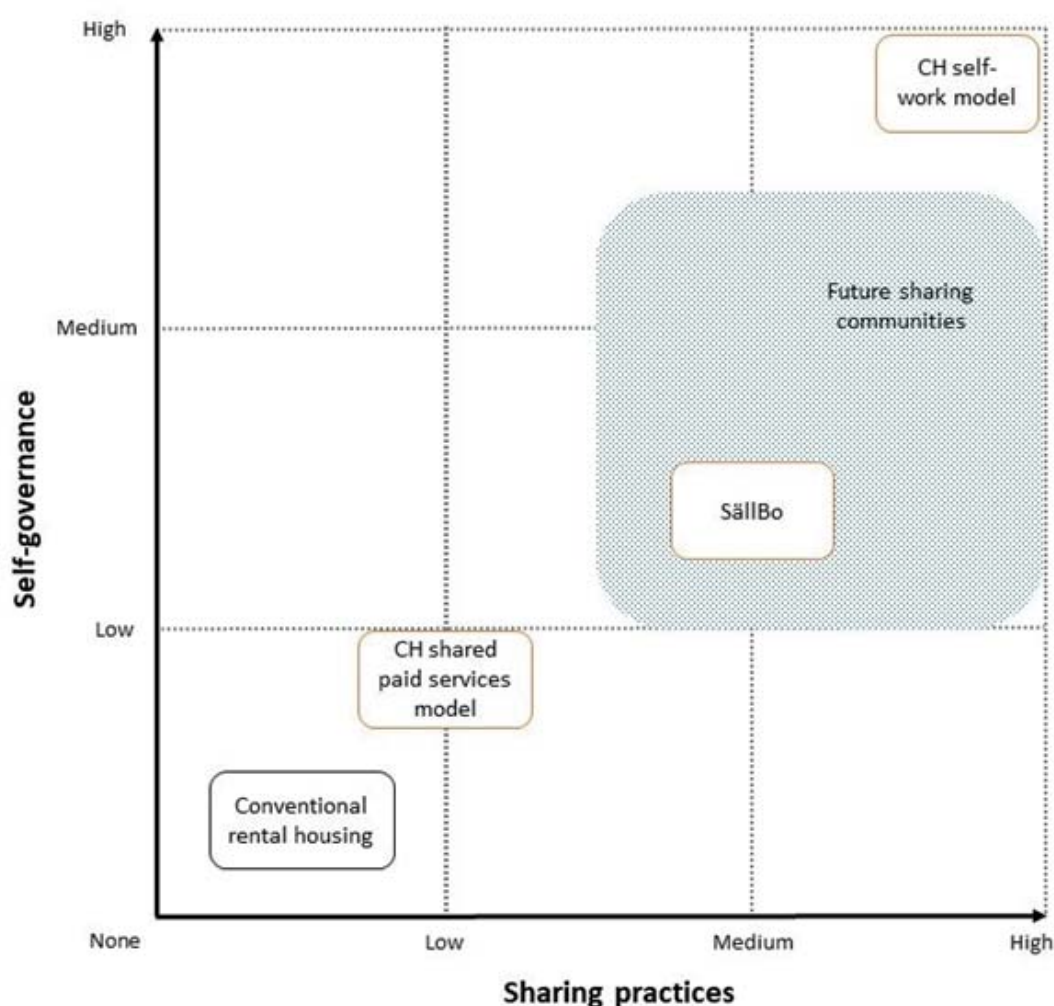


Figure 9 Degrees of resident involvement in future sharing communities based on the levels of self-governance and sharing practices. CH = Collaborative housing. Elaborated by I. Arroyo

ing in socio-cultural activities, swapping clothing-furniture-other, sharing equipment-machines, sharing fixing tools and other things, among others.

Figure 9 shows that residents in different types of housing forms are involved according to the level of self-governance and sharing practices. In conventional rental housing, residents have a very low level of self-governance and sharing practices. They have no influence over their living environment and share spaces such as the laundry room and corridors. Residents that used to live in collaborative housing based on *the shared paid services model* had a low level of self-governance because the property owner provided the catering, cleaning and other services and made decisions over the living environment. However, these residents shared common spaces where the services were provided to them. Residents living in collaborative housing based on *the self-work model* have a high level of self-governance and sharing practices. In these communities, residents are expected to be involved in many of the self-governance activities mentioned above in exchange for rent reduction in the case of communities that have rental tenure. Residents of projects based on the self-work model have a high level of sharing practices because they share common spaces, cook for neighbours and eat with them on a regular basis, participate in socio-cultural activities, swap clothing-furniture-other as well as share equipment, fixing tools and other things, among other sharing practices

The area of Figure 9 marked with blue corresponds to the range of levels of self-governance and sharing practices where sharing communities could be placed. An example is *SällBo* where residents are shifting from low self-governance to medium because they self-organized themselves during the COVID-19 pandemic, although some services such as cleaning of common spaces and corridors are outsourced by Helsingborgshem. Conversely, residents of *SällBo* have a medium level of sharing practices because they share common spaces, cook for neighbours on a voluntary basis, eat with neighbours occasionally, participate in socio-cultural activities, as well as share equipment, fixing tools and other things. Future sharing communities should diversify the possibilities for residents to choose the level of self-governance that suits their living situation better – from low to medium – to appeal to a wider type of people. It is recommended that future sharing communities encourage more sharing practices among residents as well as between residents and the neighbourhood, which will benefit both social and environmental sustainability over time.

Table 2 General information about SällBo

City	Helsingborg
Year of construction/renovation	Renovated in 2019
Tenure form	Rental
Date of moving in	December 2019
Type of residents	50% older adults (70+ years old), 25% young Swedes and 25% young refugees (18-25 years old)
Number of residents	72 (first group of selected tenants)
Number of apartments	51
Sizes of apartments (m ²)	36 and 49
Area of indoor common space (m ²)	580
Proportion of indoor common space (%)	27 (due to adapting a former care facility for older adults to a sharing community)
Area of indoor common space per resident (m ²)	8

4 Studied collaborative housing projects

Case studies in Sweden

SällBo

SällBo¹⁵ – companion housing – is an example of a sharing community initiated by a municipal housing company after renovating a former care facility for older adults. The project initiator is Helsingborgshem, the municipal housing company of Helsingborg Municipality, which found out that older adults (70+ years) were living isolated in the neighbourhood of Fredriksdal. Helsingborgshem also realized the difficulties that young refugees and young Swedes had to access affordable housing. SällBo consists of two connected buildings, a one storey building where several common spaces are located and a four-storey building with 51 apartments. There is an outdoor terrace connected to the entrance lobby and a common outdoor garden. Apartments have two rooms, own kitchen and bathroom and vary in size between 36 m² and 49 m². Rents vary from SEK 4,620 to SEK 5,850 (Arroyo et al., 2021b). Table 2 shows more information about SällBo.

Purpose and residents

The purpose of SällBo is to tackle societal challenges such as unwanted isolation and through offering an affordable living environment whilst fostering social integration between three types of residents, older adults, young Swedes and former unaccompanied minors. SällBo combines two housing forms in one building, namely municipal rental housing (*hyresrätt*) and secure apartments (*trygghetsboende*) for older adults over 70 years old.

Recruitment and preparation of residents

Helsingborgshem advertised SällBo as a new living concept to people registered in their housing queue, through their institutional website and the media. People interested in moving to SällBo who fit in any of the three categories mentioned above made an application, some of them were interviewed and selected as tenants.

Organization of the residents and management of the buildings

SällBo is organized by Helsingborgshem in collaboration with the residents. The cleaning of common spaces and corridors is done by an external company once a week. Residents and the project coordinator have monthly house-meetings to make collective decisions through direct democracy regarding the management of the building and the community. There is no housing board in SällBo as it is common in collaborative housing projects based on the self-work model. Residents have started some working groups, such as the garden group that takes care of the maintenance of it. Social activities are self-organized and carried out by the residents.

Use of common spaces

Tenants of SällBo are required to socialize with neighbours in the common spaces at least two hours a week. They decide the type of activity as well as when and with whom to socialize. This is easily done through spontaneous encounters in the lobby that is the most popular meeting spot. “The lobby, the common living room and common dining room seem to be the most preferred and used common spaces according to the interviews. All of these spaces are located in the larger common area on the ground floor” (Arroyo et al., 2021b, p.89).

Sharing practices

In SällBo, residents share common spaces, cook for neighbours on a voluntary basis, eat with neighbours occasionally, participate in social activities, as well as share equipment, fixing tools and other things. Young residents help older adults with computers, the TV and cutting the hedge. Sharing practices include doing repairs, assembling furniture, cooking common dinners or lunches. The three groups of residents living at SällBo also exchange knowledge and life experiences leading to intergenerational integration and social bridges between people with different backgrounds. Self-organization during the corona pandemic. Residents have built social bonds and social bridges through socializing and supporting each other, even during the COVID-19 pandemic¹⁶.

¹⁵ The name SällBo is the combination of the Swedish words for companionship “sällskap” and living “bo”.

¹⁶ For detailed information on how residents of SällBo coped during the pandemic see (Arroyo et al., 2021b, available at <http://dx.doi.org/10.1108/ARCH-10-2020-0236>).

Lagnö Bo

Lagnö Bo is a cooperative tenancy association that runs small-scale collaborative housing for all ages based on community, participation and environmental awareness. The building is located by the sea, 6 km outside Trosa, about 70 km south of Stockholm. It consists of 19 apartments in different sizes, with common spaces and a central glazed courtyard that can be used during different weather conditions all year round (Figure 10). The common spaces include entrance/reception, common kitchen, dining room, laundry room and courtyard. The dining room can also be used as a multifunctional space for different activities such as for children, music, hobbies, sewing, etc. A guest apartment is also considered in the layout. More information about the building is shown in Table 3.

A spatial analysis of Lagnö Bo shows that the courtyard is an important space regarding the ability to connect other spaces in the building due to its central location. The courtyard therefore acts as a central hub that connects most facilities on the ground floor. As for accessibility or integration levels in Lagnö Bo, which

can be used to predict the potential of meetings in the space, the investigation illustrates that the courtyard has the highest share of accessibility in the building. The greater the accessibility/integration of a specific space, the more people will appear in that space (theoretically). This means that there is a high potential that more residents will appear and meet in the courtyard. The fact that the courtyard is protected against bad weather conditions will increase the space availability meaning that the space is available in different seasons and during longer periods. As a conclusion, by considering accessibility and availability in the courtyard, the chance for the residents to meet each other becomes higher even in different times and different weather conditions.

Studied European examples

There are several European examples of collaborative housing that have aimed for integrating young refugees and young local people. Here the experiences from three such examples, Startblok in the Netherlands and Tunet and Venligbolig Plus in Denmark, are described. The information presented here is based on five semi-

Table 3 General information about Lagnö Bo

City	Trosa
Tenure form	Cooperative tenancy
Period of construction	2016–
Date of moving in	January 2018
Type of residents	All ages
Number of residents	24 (in 2019)
Number of apartments	19
Size of apartments (m ²)	40–42 m ² (7 apartments), 51–53 m ² (8 apartments), 67–69 m ² (4 apartments)
Total floor area (m ²)	2000
Area of indoor common space (m ²)	645
Glazed courtyard floor area (m ²)	445
Proportion of indoor common space (%)	33
Area of glazed courtyard per resident (m ²)	18.5



Figure 10 Presentation of (a) the layout of Lagnö Bo and (b) the central glazed courtyard during a study visit in March 2019.

structured interviews with professionals involved in the two Danish projects, journal and conference articles about the projects and general information about the projects from reports and institutional websites. The Danish professionals that were interviewed work for a municipality, a public housing company and an architectural firm. In addition, one board/steering committee member (and resident) in one of the projects was interviewed.

The common purpose of the three projects has been addressing segregation and isolation through mixing young refugees and local young adults, mainly students. In Tunet there are also a small number of families. Furthermore, the aim has been to achieve cheap rents – through small efficient apartments, with more shared space. The three examples have also in common that they use self-management.

Startblok Riekershaven, the Netherlands

Startblok Riekershaven was initiated by the Municipality of Amsterdam and project partners included Amsterdam housing corporation (De Key) and Vluchtelingenwerk Nederland, an NGO that helps

integrate refugees into the Dutch society (Czischke and Huisman, 2018). Startblok, which is one of the first and most well-known projects of this kind, is located in the south of Amsterdam and consists of three storey apartment buildings positioned around two rectangular courtyards. The residents live in corridors with 16 or 32 studios (bedsits) and shared space. More information about the building can be found in Table 4.

The different types of housing units consist of 463 studios for one person (23 m²) as well as 48 apartments where two or three persons share a common living room and bathroom. In both the studios and the apartments, the individual rooms are 12–14 m². An example of a one-person studio is shown in Figure 11.

Residents

The residents of Startblok consist of Dutch youngsters and young refugees. The Dutch residents are 18 to 27 years old, low-income singles who are either students, employees or seeking employment. The refugees, who belong to the same age group as the Dutch, are mainly men. The number of refugees and Dutch are about the same and they are mixed in the corridors. (Czischke and

Table 4 General information about Startblok

City	Amsterdam
Tenure form	Rental
Date of moving in	July 2016
Type of residents	Young Dutch, young refugees
Number of residents	565
Number of apartments	511
Sizes of apartments (m ²)	23, 61, 76
Total floor area (m ²)	14200
Area of indoor common space (m ²)	530
Proportion of indoor common space (%)	3.7
Area of common space per resident (m ²)	0.9
Outdoor common areas (m ²)	9000
Outdoor area per resident (m ²)	16

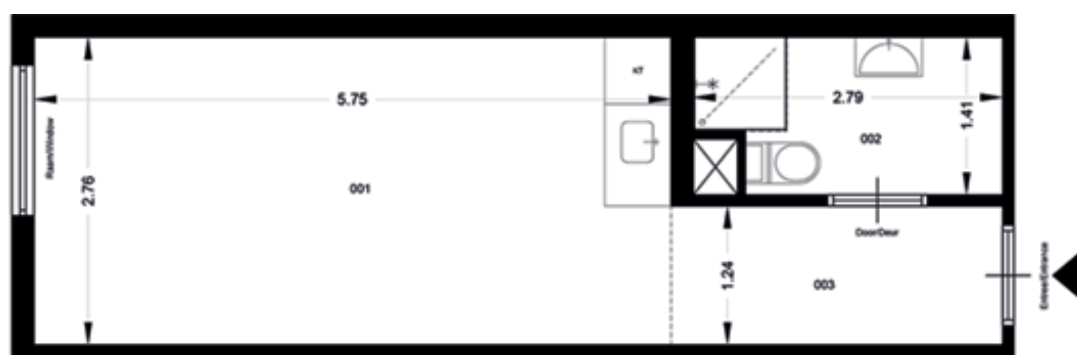


Figure 11 Example of a studio (23 m²) in Startblok. Source: Startblok Riekerhaven, 2021.

Huisman, 2018)

Recruitment and preparation of residents

In Startblok the selected residents are required to take part in information meetings when they move in. The refugees are selected by central government bodies. When the residents arrive, they must sign a manifesto which states how to behave and act in relation to the other residents (Czischke and Huisman, 2018).

Organization of the residents and self-management of the buildings

Startblok is built on a self-management system. In each corridor, two residents, one Dutch and one refugee, are responsible for the self-management. The task of these group managers is to solve any problems that

arise in the corridor. The residents are expected to meet each other weekly, for instance while sharing a meal. If residents do not comply with the house rules, they can be given a fine by the group managers. The practical management of the buildings and the surroundings is done by the grounds team and the maintenance team, each of which consists of five members. All managers receive a discount on their rents. The top level in the management is the project team, which consists of five residents employed on a part-time basis. They interact with the group managers and the grounds team to deal with issues that could not be solved at the corridor level (Czischke and Huisman, 2018).

Use of common spaces

In Startblok there are common living rooms and outside areas. Furthermore, there is an outdoor area

Table 5 General information about Tunet

City	Roskilde
Tenure form	Rental
Date of moving in	December 2018
Type of residents	Local students, young refugees, local families
Number of residents	102
Number of apartments	62
Sizes of apartments (m²)	31, 45, 87
Total floor area (m²)	2600
Area of indoor common space (m²)	80
Proportion of indoor common space (%)	3.1
Area of common space per resident (m²)	0.8
Outdoor common areas (m²)	4900
Outdoor area per resident (m²)	48



Figure 12 The smallest type of apartment (31 m²) in Tunet: one room with a loft. Source: Vandkunsten, 2018.

of around 9 000 m² with plenty of space for various activities, such as gardening, sports, etc.

Tunet, Denmark

Tunet is the result of an initiative from Roskilde municipality in collaboration with the municipal housing company Roskilde Nord Boligselskab and the regional public housing company KAB. This collaborative housing project, designed by Vandkunsten Arkitekter, is located in the outskirts of the city of Roskilde (Sollien and Bech-Danielsen, 2019). This low-rise suburban collaborative housing, a typology which is very common in Denmark (Hagbert et al, 2020), consists of six two-storey high apartment buildings around a square with a green house. There is a common outdoor space next to the buildings which includes a cultivation community. Apartments vary in size between 31 m² and 87 m². An example of the former is illustrated in Figure 12. More information about Tunet is shown in Table 5.

Residents

The residents in Tunet consist of students (about 2/3) and young refugees (about 1/3), but in Tunet there are also four family apartments. The four families are Danish, at the moment consisting of single women with children. Among the refugees there are more men than women.

Recruitment and preparation of residents

In Tunet the students come from a housing queue whereas the refugees, who have permanent contracts, were selected by Roskilde municipality. Only refugees speaking Danish to a sufficient level to communicate with other tenants were chosen. A workshop was arranged before moving in for those that had signed up early to live in Tunet. An “ambassador” group of ten people, facilitated by KAB, moved in before the others to formulate guidelines for the community.

Organization of the residents and management of the buildings

Tunet has a board consisting of seven people. The board is mainly responsible for the self-management of the building but also deals with solving conflicts. In the beginning, a representative from KAB was available on telephone since there was a need for this. Roskilde municipality had also a representative available during the first year.

Use of common spaces

There are a common laundry room and a greenhouse in Tunet. There is also plenty of common outdoor space of around 5000 m², including a cultivation place and a hen house that was erected by some of the residents on

their own initiative. There is however no real “common house” (fælleshus) with a common kitchen and dining room as is normally the case in collaborative housing in Denmark.

Sharing practices

Tenants of Tunet share tools with each other, for example garden tools. The residents are good at reusing stuff; second-hand things that people do not need any more are often given to a neighbour. It is also common to help each other with baby sitting and taking care of dogs. Moreover, there are examples of neighbours helping each other with technical issues. A Facebook group is used for both sharing and discussing about everyday life issues – such as complaining about noise, etc. Tenants contact to each other through a Messenger group.

Adaptation due to the corona pandemic

Several activities were affected by the COVID-19 pandemic in Tunet, e.g., the use of the green house, which even was closed during a short period. Moreover, the yearly summer party could not take place in 2020. It has also been difficult to carry out meetings; one of the two statutory yearly meetings had to be held outdoors in August 2020. The compulsory working days, where residents help with cleaning and maintenance, have also been affected. This work could take place only after the summer holidays in 2020.

Venligbolig Plus, Denmark

Venligbolig Plus was created on the initiative of Frederiksberg municipality, the municipal housing company Frederiksberg Forenede Boligselskaber, the regional public housing company KAB and the NGO We Are Democracy (Galster, 2018). It is located in the municipality Frederiksberg that is part of the metropolitan area of Copenhagen. Venligbolig Plus consists of three four-storey high apartment buildings designed by ONV Arkitekter. Two persons share an apartment of 33 m² with two bedrooms of 9 m² and common kitchen and bathroom, see Figure 13. More information about the building in Table 6.

Residents

In Venligbolig Plus the residents consist of students and young refugees being between 18 and 35 years old. Two students or two refugees share the apartments. However, on every floor there is a mixture of students and refugees. Among the refugees, 28 were men and 10 were women in 2020. On the other hand, among the students there were more women than men.

Recruitment and preparation of residents

The Danish students were selected from the housing queue after declaring interest in this type of housing. They needed to provide a list of personal interests and before moving into the shared apartment units, the two students met to see if they matched. The municipality picked out the refugees who were interviewed individually explaining the concept before moving in. They were categorized as different types of persons (whether you are an evening or morning person, your attitude towards cleaning, music taste etc). Well before moving in, a workshop was held among future residents, with the aim to get to know each other, learn about the “buddy” system, which means that each refugee has a Danish buddy, normally living on the same floor, who they can ask for help with different practical things (Galster, 2018).

Organization of the residents and management of the buildings

In Venligbolig Plus, a board/steering committee formed by some residents represents the tenants. There are common meetings for all residents twice a year. As regards the management of the buildings Frederiksberg municipality and KAB have joint responsibility. The residents participate through the board/steering committee. There is a caretaker from the housing company cutting the grass, doing maintenance etc. The residents themselves should clean the common kitchen.

Use of common spaces

There is one common laundry room for all three buildings as well as one kitchen and one roof terrace on the third floor of each building in Venligbolig Plus. There are also outdoor terraces on the ground floor. The com-

Table 6 General information about Venligbolig Plus

City	Copenhagen (Frederiksberg)
Form of tenure	Rental
Date of moving in	November 2019
Type of residents	Local students, young refugees
Number of residents	74
Number of apartments	37
Sizes of apartments (m ²)	33
Total floor area (m ²)	1300
Area of indoor common space (m ²)	120
Proportion of indoor common space (%)	9.2
Area of common space per resident (m ²)	2
Outdoor common areas (m ²)	1700
Outdoor area per resident (m ²)	22



Figure 13

A floor with four apartments (33 m²) of two rooms, kitchen and bathroom in Venligbolig Plus. Source: ONV Architects, 2019.

mon kitchens are the most used spaces. Booking of the kitchens are often done via Facebook but can also be spontaneous.

Sharing practices

Tenants can borrow a few tools kept in a common cupboard. Residents borrow things from each other communicating through the Facebook groups; there is one group for the whole complex as well as separate groups for each of the three buildings.

Adaptation due to the corona pandemic

No changes in the housing rules were necessary due to the COVID-19 virus pandemic but the residents had to follow the national rules implemented, e.g., gathering in groups of maximum 10 or 15 persons. In the common kitchens, those rules were followed, and some ate outdoors on the terrace after preparing the meal. Social activities were organized less frequently and the regular monthly meetings were not possible to carry out. On the other hand, new activities like “walk and talk” in the nearby park were initiated.

5 Sharing Communities as a process: Checklist

This checklist is intended for starter groups of future residents, municipal housing companies or private developers interested in planning, designing and developing sharing communities. The checklist also addresses sharing practices as well as plausible conditions for inhabiting and being involved in everyday life. The checklist is a guide that should be completed and adapted to the local conditions as well as to the changing needs of residents over time. It can also be useful for funding organizations, authorities, professionals and civil society organizations working with the intersection of housing and integration.

“Sharing communities based on social practices of inhabiting, sharing and being involved in everyday life can tackle current societal challenges – housing affordability, unwanted isolation and segregation – and are resilient even in times of crisis because they renovate social ties among the members of the community... []... When aiming for socially and economically integrated and resilient sharing communities a number of issues to consider have been identified. They relate to design, organizational and legal frameworks, and affordability, stemming from the need of, and desire for, affordable, safe and secure housing in a sustainable sharing community” (Arroyo et al., 2021a, p.3 and 17).

1. Define who will be the initiator(s) of the project

- ☐ Municipal housing company
- ☐ Starter group of residents
- ☐ Private developer
- ☐ Housing cooperatives (HSB, Riksborgen, etc.)
- ☐ Other (NGOs, foundations, etc.)
- ☐ Other _____

2. Agree on the purpose(s) for the project

- ☐ Integration residents with different backgrounds
- ☐ Affordable housing
- ☐ Intergenerational integration
- ☐ Efficient use of energy and resources
- ☐ Mutual support in everyday life
- ☐ Aging in place in community

3. Seek for technical assistance or consultants for the following steps

- ☐ Conceptual design with starter group
- ☐ Co-design
- ☐ Financing
- ☐ Construction
- ☐ Self-construction
- ☐ Operation & self-management

4. Seek for funding for developing the project

- ☐ Financing from municipal housing company
- ☐ Loan from a bank to the starter group
- ☐ Funding from private developer
- ☐ Government grant to starter group through Boverket
- ☐ Down Payment by residents + bank loan
- ☐ Crowdfunding
- ☐ Rental housing revolving funds for non-profit actors
- ☐ Renovation revolving funds for municipal housing companies
- ☐ Community Land Trust

5. Agree on the types of residents that the project targets

- ☐ Young people (18-27 years old)
- ☐ Adults 40+ without children at home
- ☐ Older adults 70+ years
- ☐ People with low income
- ☐ Newly arrived migrants or refugees
- ☐ Structural homeless
- ☐ People of all ages
- ☐ People with middle-income
- ☐ Families with children

6. Decide together on tenure form(s) to be included in the project

- ☐ Rental apartments
- ☐ Cooperative tenancy
- ☐ Housing cooperative

7. Decide together the sizes of apartment units to be included in the project

- ☐ One room
- ☐ Two rooms
- ☐ Three rooms
- ☐ Four rooms
- ☐ Five rooms
- ☐ Six rooms

8. Identify the types of functions to be carried out in the common spaces

- ☐ Cooking and eating together
- ☐ Store common equipment and tools
- ☐ Store common food
- ☐ Overnighting space for guests
- ☐ Repairing things and sewing
- ☐ Co-working from home
- ☐ Casual encounters
- ☐ Children playing indoors
- ☐ Watching TV & videogaming
- ☐ Gardening
- ☐ Growing food
- ☐ Sitting and resting outdoors

9. Identify which indoor common spaces are needed to be included in the project according to the previous functions.

- ☐ Restaurant quality kitchen
- ☐ Large dining room
- ☐ Flexible multi-purpose room with kitchenette
- ☐ Guest rooms
- ☐ Laundry room
- ☐ Lobby with sitting space
- ☐ Storing space for each household
- ☐ Indoor parking for bicycles
- ☐ Several utility rooms
- ☐ Playroom for kids
- ☐ TV and video room
- ☐ Other_____

10. Identify outdoor common spaces to be included in the project.

- ☐ Common garden
- ☐ Roof garden and terrace
- ☐ Balconies
- ☐ Semi covered outdoor terraces
- ☐ Outdoor parking for bicycles
- ☐ Utility space for garden tools
- ☐ Playing areas for children
- ☐ Glazed courtyard
- ☐ Other _____

11. Relation of the project to its surroundings and neighborhood.

- ☐ Shared space for coworking
- ☐ Shared space for carpentry and fixings
- ☐ Shared space for swapping used clothing and things
- ☐ Shared outdoor space with neighborhood
- ☐ Shared semi-covered meeting place
- ☐ Nursery, kindergarten or other facility
- ☐ Shared garden: urban agriculture
- ☐ Other _____
- ☐ Other _____

12. Important architectural design considerations

- ☐ Accessibility
- ☐ Systemic positioning of common spaces
- ☐ Transitional spaces
- ☐ Visual contact and social control
- ☐ Variety of common outdoor spaces
- ☐ Adaptable & flexible common spaces
- ☐ Unfinished common spaces
- ☐ Multiple entrances to the building & apartment units
- ☐ Connection to the neighbourhood

13. Conditions for inhabiting and being involved in everyday life

- ☐ Residents can appropriate or adapt space when needed
- ☐ Compulsory cleaning of common areas with rent reduction
- ☐ Voluntary cleaning of common areas, no rent reduction
- ☐ Housing board is elected every year
- ☐ Direct democracy (no housing board)
- ☐ Annual housing meeting (assembly)
- ☐ Functions of common spaces evaluated regularly by residents
- ☐ Decision making at regular meetings
- ☐ Interest groups and working groups
- ☐ Self-determination and self-governance
- ☐ Cooperation with local associations for sharing common spaces
- ☐ External members to the housing association

14. Sharing practices

- ☐ Cooking and eating together on a weekly basis
- ☐ Cooking and eating together at least twice per semester
- ☐ Planned activities according to interest
- ☐ Sharing things, tools, car-pooling, etc.
- ☐ Follow housing rules and traditions
- ☐ Community cleaning days & eating together
- ☐ Sharing responsibility regarding self-management
- ☐ Swapping second-hand things
- ☐ Sharing fixing room & tools with neighbourhood

15. Degrees of involvement

- ☐ On an everyday basis
- ☐ Two hours per week
- ☐ 8 hours per month
- ☐ For cooking and eating together
- ☐ In almost all planned activities
- ☐ Only for certain planned activities
- ☐ Other _____
- ☐ Other _____
- ☐ Other _____

6 References

Publications and Working Papers by the research team

Arroyo, I. (2021). Residents' experiences from collaborative housing during the COVID-19 pandemic in Sweden. Towards post-pandemic sharing communities for resilient cities? – Preliminary findings based on interviews with residents, Housing Development & Management, Lund University (Unpublished).

Arroyo, I., Liuke, L. and Johansson, E. (2021a). Sharing Communities: An Alternative Post-Pandemic Residential Logic. *Nordic Journal of Architectural Research*, 3, Theme issue: The Housing Question of Tomorrow.

Arroyo, I., Montesino, N., Johansson, E., and Yahia, M. W. (2021b). Social integration through social connection in everyday life. Residents' experiences during the COVID-19 pandemic in SällBo collaborative housing, Sweden. *International Journal of Architectural Research*, 15(1).

Johansson, E. (2021). European examples of collaborative housing with focus on integration – Preliminary findings based on interviews with professionals, Housing Development & Management, Lund University (Unpublished).

Kilani, E. (2021). Refugees' experience of housing and integration – Preliminary findings, Housing Development & Management, Lund University (Unpublished).

Montesino, N., and Arroyo, I. (2021). Case Study SällBo: Social integration through social connection in everyday life.

Yahia, M.W. (2021a). Spatial analysis of different collaborative housing units – Preliminary findings, Housing Development & Management, Lund University (Unpublished).

Yahia, M.W. (2021b). Spatial analysis of different collaborative housing typologies (Manuscript).

References used in the report

Assarson, B. and Kärnekull, K. (2021). Kollektivhus och tanter. Stockholm: Arena Idé. Retrieved from www.arenaide.se/rapporter

Berg, E. and BIG-gruppen (1982). Det lilla kollektivhuset. En modell för praktisk tillämpning. Stockholm: The Swedish Building Research Council, Report T14.

Blomberg, I. and Kärnekull, K. (2019). Do-it-yourself: The stony road to cohousing in Sweden. *Built Environment*, 45(3), 280-295.

Blomberg, I. and Persson, E. (2019). Typ-program för kollektivhus. Retrieved from www.kollektivhus.nu

Boverket (2020). Regionala byggbehovsberäkningar 2018–2027. Retrieved from <https://www.boverket.se/sv/samhallsplanering/bostadsmarknad/bostadsmarknaden/behov-av-bostadsbyggande/byggbehovsberakningar/>

Boverket (2021). Byggemenskaper. Retrieved from <https://www.boverket.se/sv/bidrag--garantier/byggemenskaper>

Bresson, S. and Labit, A. (2020), "How does collaborative housing address the issue of social inclusion? A French perspective", *Housing, Theory and Society*, Vol. 37 No. 1, pp. 118-138. Bunker S, Coates C, Field M, How, J (2011). *Cohousing in Britain*. London: Diggers and Dreamers.

Czischke D and Huisman CJ (2018) Integration through Collaborative Housing? Dutch Starters and Refugees Forming Self-Managing Communities in Amsterdam, *Urban Planning* 3: 156–165.

Czischke, D., Carriou, C. and Lang, R. (2020). Collaborative housing in Europe: Conceptualizing the field, *Housing, Theory and Society*, 37 (1), 1-9.

Dawes M.J. and Ostwald M.J. (2018) Space Syntax: Mathematics and the Social Logic of Architecture. In: Sriraman B. (eds) *Handbook of the Mathematics of the Arts and Sciences*. Springer, Cham.

Field, M. (2004). Thinking about cohousing. The creation of intentional neighborhoods. London: Diggers and Dreamers.

Fromm, D. (2012), Seeding community: collaborative housing as a strategy for social and neighbourhood repair, *Built Environment*, Vol. 38 No. 3, pp. 364-394.

Galster J (Ed.) (2018) Integrationskoncept Venlig-bolig PLUS. Frederiksberg Kommune, Frederiksberg Forenede Boligselskaber, ONV Arkitekter & WE DO DEMOCRACY.

Gerards, S., R. De Ridder, and S. De Bleeckere (2015). Designing Multigenerational Dwelling: A Workshop with Four Flemish Architecture Firms. *International Journal of Architectural Research: ArchNet-IJAR*, 9(2): 20-30.

Goodwin, B. and Taylor, K. (1982). *The Politics of Utopia: A Study in Theory and Practice*. New York: St. Martin's Press.

- Grip, E., Kärnekull, K., and Sillén, I. (2015). *Gemenskap och samarbete i kollektivhus och bostadsgemenskap* (2nd ed.). Lithuania: Migra förlag-Bulls Graphics.
- Grundström, K. and Molina, I. (2016), From Folkhem to lifestyle housing in Sweden: segregation and urban form, 1930s-2010s, *International Journal of Housing Policy*, Vol. 16 No. 3, 316-336.
- Hagbert, P., Larsen, H.G., Thörn, H., and Wasshede, C. (Eds.). (2020). Contemporary Co-housing in Europe: Towards Sustainable Cities? (1st ed.). Routledge.
- Hedman, E. (2008). A history of the Swedish system of non-profit municipal housing. Karlskrona: Swedish Board of Housing, Building and Planning (Boverket)
- Hillier, B. (1996). Space is the machine: A configurational theory of architecture. Cambridge University Press
- Hillier, B. and Hanson, J. (1984). The Social Logic of Space. Cambridge Univ. Press, Cambridge.
- Hillier, B. and Lida S. (2005). Network effects and psychological effects: A theory of urban movement. The 5th Int. Symposium on Space Syntax, Delft
- Hu H, Luo, Z, Chen Y, Bian Q, Tong Z (2017). Integration of space syntax into agent-based pedestrian simulation in urban open space. The 22nd Conference on Computer-Aided Architectural Design Research in Asia, China
- Karise Permatopia (2021). Karise Permatopia webpage, Retrieved from <https://permatopia.dk/>
- Kollektivhusföreningen Stolplyckan (2005). Kollektivhuset Stolplyckan. 1 - 6 rum och kök med 2000 m2 vardagsrum. Retrieved from <http://www.stolplyckan.nu/filer/info.pdf>
- Lagnö Bo Kooperativ Hyresrättsförening. (2020). Lagnö bo – huset & blogg. Retrieved from <https://lagnobo.wordpress.com/>
- Lang, R., Carriou, C. and Czischke, D. (2018), Collaborative housing research (1990–2017): a systematic review and thematic analysis of the field, *Housing, Theory and Society*, Vol. 37 No. 1
- Larsen, H.G. (2019). Three phases of Danish cohousing: tenure and the development of an alternative housing form, *Housing Studies*, Vol. 34, No. 8, pp. 1349–1371
- Lawrence, R.J. (2004). Futures of Transdisciplinarity. *Futures*, 36(4), 397-405
- Li, Z. (2011). Visual Perception of Traditional Garden Space in Suzhou, China: A Case Study with Space Syntax Techniques. The 19th Int. Conference on Geoinformatics, Shanghai
- Lietaert, M (2010). Cohousing's Relevance to Degrowth Theories. *Journal of Cleaner Production* 18 (6): 576–580
- Listerborn, C., Molina, I., and Richard, Å. (2020). Claiming to the right to dignity: New organizations for housing justice in neoliberal Sweden. *Radical Housing Journal*, 2(1), p. 119-137.
- Malmberg, B., Nielsen, M., Anderson, E. and Hannandrikman, K. (2016), “Residential segregation of european and non-european migrants in Sweden: 1990-2012”, ResSegr Working Paper 2016:1, Stockholm University, Stockholm.
- McCamant, K. and Durrett, C (1988): Cohousing – A Contemporary Approach to Housing Ourselves, Berkeley, California: Habitat Press/Ten Speed Press
- McCamant, K. and Durrett, C (2011). Creating cohousing. Building sustainable community. Canada: New Society Publishers.
- Meadows, D.H. (2008). Thinking in Systems. A Primer. London: Earthscan
- ONV Architects (2019). Friendly Housing Plus. Integration and student housing. Retrieved from <https://onv.dk/projekt/venligbolig-plus>
- Östlund, H. (2016). *Sharing is caring – how to design a sharing community*. Retrieved from <https://odr.chalmers.se/handle/20.500.12380/248670>.
- Palm Lindén, K (1992). Kollektivhuset och mellanzonen. Om rumslig struktur och socialt liv (Collective housing and intermediary space. About spatial structure and social life), Lund University (PhD thesis).
- Pohl, C. (2011). What is progress in transdisciplinary research? *Futures*, 43, 618-626.
- Sanoff, H (2008). Multiple Views of Participatory Design. ArchNet – IJAR: International Journal of Architectural Research, 2(1), 57-69
- Schirmer, W. and Michailakis, D. (2015). The lost Gemeinschaft: how people working with the elderly explain loneliness. *Journal of Aging Studies*, Vol. 33, pp. 1-10.
- Sollien SE, Bech-Danielsen C (2019) Reinventing cohousing in Denmark after the neoliberal turn. Paper for the ENHR conference Athens.
- Startblok Riekerhaven (2021). Housing Units. Retrieved from <https://startblokriekerhaven.nl/en/living-startblok/housing-units/>
- Steinfeld E. and Maisel, J. (2012). Universal Design: Creating Inclusive Environments. Hoboken, New Jersey : John Wiley & Sons, Inc.

- Stonor, T., (2011). Spatial Layout Efficiency, National Capital Planning Commission. Online lecture. URL: [http:// https://www.youtube.com/watch?v=_MBZh-NAaZL4](http://https://www.youtube.com/watch?v=_MBZh-NAaZL4)
- Thelander, K. (2020). Ensamhet dödar – ofrivillig ensamhet i Sverige (Loneliness kills – involuntary loneliness in Sweden). Arena Idé, Stockholm, available at: <https://arenaide.se/rapporter/ensamhet-dodar/> (accessed 15 October 2020).
- Turner, J., and Fichter, R. (Eds.) (1972). Freedom to Build: Dweller Control of the Housing Process. New York: Collier- Macmillan.
- Turner, J.F.C (1976). Housing by People: Towards Autonomy in Building Environments, Pantheon Books
- Vandkunsten, (2018). Tunet Trekroner. URL: <https://www.kab-bolig.dk/Files/Files/KAB-BOLIG.DK-dokumenter/Boligs%C3%B8gende/Pjecer/Udlejning-spjecer/Tunet-udlejningspjece.pdf>
- Vestbro, D. U. (2012). Saving by Sharing – Collective Housing for Sustainable Lifestyles in the Swedish Context. In Paper for the 3rd International Conference on Degrowth for Ecological Sustainability and Social Equity, Venice, 19th – 23rd September 2012 (pp. 1–13).
- Vestbro, D. U., ed. (2010). Living Together – Cohousing Ideas and Realities Around the World. Proceedings from the international collaborative housing conference in Stockholm 5-9 May 2010. Stockholm: Royal Institute of Technology and Kollektivhus NU.
- Westerholm, B (2010). A Good Home All Your Life. Ed. Vestbro, D. U. (2010). Living Together – Cohousing Ideas and Realities Around the World. Proceedings from the international collaborative housing conference in Stockholm 5-9 May 2010. Stockholm: Royal Institute of Technology.
- Westholm, H. (2019). *De byggde gemenskap. Erfarenheter från tio bygg- och bostadsgemenskaper i sverige*. Gothenburg: Chalmers University Press.

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SUMMARY

All over the world there is a shortage of adequate, affordable housing that enables social integration and sustainability. Many individuals and households have access to housing but live in different kinds of involuntary isolation with respect to age, gender, income, culture and ethnic background. There is a lack of housing forms that can contribute to solving these societal challenges through different forms of tenure such as rental and housing cooperative. In Sweden, there is an urgent need to solve societal challenges and increase housing provision due to unwanted isolation, segregation and a housing backlog of more than 600,000 units. The production of new housing offers an opportunity for innovative housing solutions and a more connected society.

There is an increasing interest in learning from recent experience of collaborative housing as a tool for social integration and increased sustainability. Collaborative housing in Europe seems to reappear during economic, social, cultural or ecological crises. This report is based on the research project *Sustainable living in community: a step towards integration and reduced climate impact* conducted by the authors. Collaborative housing projects in Sweden have been studied using systematic literature review, space syntax analysis, observations, questionnaire surveys, online diary, interviews with residents and professionals. In addition, recent examples of collaborative housing in Denmark and the Netherlands have been studied. A concluding workshop with different stakeholders in order to receive feedback to the preliminary findings has been conducted.

This *Building Issue* highlights the concept of collaborative housing, as a housing form where residents collaborate within different stages of the project – from design to daily self-management of the building, agree on a common purpose and have social interaction among themselves. Collaborative housing can contribute to addressing several aspects related to social sustainability and social integration. Common spaces in a building can be designed to favour social integration of people with different backgrounds, ages and living conditions. Collaborative housing can embrace different forms of tenure and collaboration with external actors and enables residents to exert their individual and collective effort to make decisions concerning their living environments.

The aim of this study is to contribute with practical knowledge regarding collaborative housing as a system and as a process to achieve adequate and affordable housing as well as for building bridges between people with different backgrounds and living conditions. The aim is also to show how the design of collaborative housing can encourage social interaction among residents as well as sharing practices. This report offers recommendations to different actors within the housing sector and civil society such as starter groups for new projects and professionals from the private and public sectors.

Affordability
Co-design
Collaborative housing
COVID-19 pandemic
Housing policy
Social connection
Social integration
Socio-spatial dimensions
Sharing communities
Spatial analysis
Systems thinking