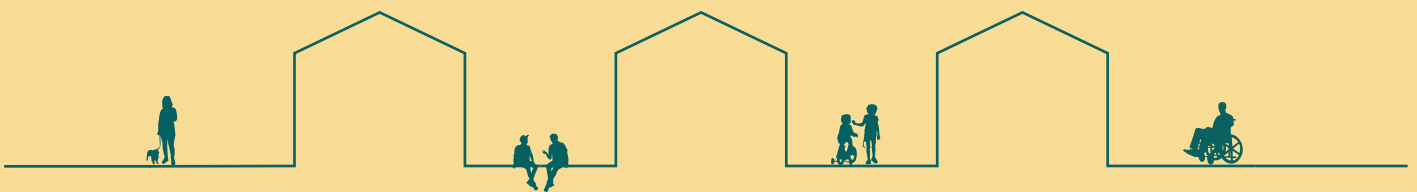


Where is my village?

Finding social resilience through adaptive reuse on a neighbourhood scale





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Authors

We found each other during the course Transformation projects and environmental care, sharing an interest for the transformation of existing built environment, but also the social aspects of architecture.



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Abstract

Resilience, in a broader context, has been explored in diverse academic fields and contexts. Apart from discussions on ecological and economic resilience, recent debates are also placing emphasis on the concept of social resilience (Larimian et al., 2020). Social resilience engages with questions of social practices and human agency and can be portrayed through three fundamental capacities: coping capacities, which are reactive and absorptive; adaptive capacities, which are proactive; and transformative capacities, which are participative (Keck & Sakdapolrak, 2013). To develop social resilience, these fundamental capacities need to be strengthened which requires improving co-existence and collaboration across various societal levels.

This thesis has delved into the examination of social resilience on a neighbourhood scale, exploring the interdependencies among the built environment, societal structure, housing forms and neighbourhood planning. In Gothenburg, the current societal challenges that counteract the vision of a socially resilient neighbourhood include loneliness amongst young adults, isolation of the elderly, shortage of affordable housing and increased segregation, especially among the newly arrived. This leads to an undesirable sorting of socio-economic groups within society and the generation of homogenous neighbourhoods. In addition to the insufficiency of affordable housing projects, the current recession has led to a decline in housing starts (Göteborg stad, 2023), leading to a further discrepancy between the need and what is being built.

Solutions to the above-mentioned societal challenges have been explored through the adaptive reuse of three institutional buildings in Fjällbo park, which has led to a proposal for alternative housing with sharing-based principles. The decision making for the transformation has been led by weighing the social, environmental and economic impacts against each other. We have worked on three scales; the building, the in-between outdoor spaces and the surrounding neighbourhood, with the aim to facilitate social interaction, which, in turn fosters social cohesion and thus makes way for the building of social resilience. This thesis further discusses the challenges with adaptive reuse to alternative housing within the framework of Swedish building regulations, as well as the opportunity for adaptive reuse to generate affordable housing within the current rental system.

Keywords: *Social resilience, adaptive reuse, alternative housing*



Figure 1 Concept collage

Glossary

Adaptive reuse

“Adaptive reuse is a process that converts heritage buildings” or other existing buildings “(...) to new use, maximising the economic and social benefits of [existing or other] heritage structures while restoring their value to a community” (Tsenkova, 2023, p. 124).

Affordable housing

“An expression of the social and material experiences of people, constituted as households, in relation to their individual housing situations” (Stone, 2006 p. 151). “A complex, and inter-related set of housing, social and economic issues” (...) “Affordable housing is more than housing prices or rents given income, it deals with the role of housing size, quality, location, neighbourhood effects and household size” (Leishman & Rowley, 2012, p. 381).

Built environment

“Human created and constructed space where people live and interact”. (Baldwin & King, 2018, p. 20)

Lifespan

The term has been used with either “expected” or “full” prior, where expected describes the average life or expected guaranteed lifespan of a specific product. The actual physical and functional service life is described as “full life span” often exceeding the expected lifespan and could

be prolonged with planned and unexpected maintenance and repairs. (Thiebat, 2019)

Neighbourhood

“A place-based area or district, especially one forming a section of a town or city, that generates neighbourly or identity-based feeling and behaviour, often leading to a sense of community” (Baldwin & King, 2018, p. 20)

New build standard

Of the standard equivalent to that of a newly built and in accordance with current building regulation.

Refurbishment

“...refurbishment does not involve any major changes to the loadbearing structure or interior layout. (...) the extent of refurbishment works can vary enormously” (Wong, 2016, p. 12).

Resource efficiency

In this project the term resource efficiency is based on the minimising of material waste by as much as possible by retaining, reusing and utilising the full lifespan of materials and products (European environment agency, 2024).

Social resilience

“The ability for a community to cope with social challenges such as segregation or loneliness” (Baldwin & King, 2018, p. 20)

Sense of belonging

An individual’s ‘naturalised emotional attachment’ (Yuval-Davis, 2006: 197; 199) to a group of people, organisation, biophysical or socio-cultural environment, formed psychologically through social interaction with and within groups, organisations and environments (cf. Hagerty et al., 1992: 173). People are more likely to become conscious of to whom, what and where they belong when their belonging is questioned or threatened.

Social Cohesion

When people from the same community or society get along, trust each other, and live peacefully together with or without social or ethnic differences. This is supported by economic equality and inclusion, democracy, people having their basic needs met, and social solidarity (Baldwin and King, 2018, p. 218: Definition based on the work of Berger-Schmitt, 2000; Forrest and Kearns, 2001; Ferroni, Mateo and Payne, 2008; Jenson, 2010).

Social Capital

The behavioural norms, trust, and reciprocity that help people to form social networks for the purpose of collective

cooperation and mutual benefits. (Baldwin & King, 2018, p. 20; based on the work of Bourdieu, 1985; Coleman, 1988a and b and 1990; Portes, 1998; Putnam, 1993 and 2000).

Social integration

“The ability of different groups in society to live together in productive and cooperative harmony and to accommodate differences within a framework of common interest to the benefit of all. Social integration implies justice for the individual and harmony among different social groups and countries. It means integration of disadvantaged and vulnerable groups by making all institutions of society more accessible to them” (Vanclay et al., 2015).

Utility value

The practical value viewed from the tenant’s point of view. These include adaptability, modernisation, soundproofing etc. (SOU 2008:38)

Table of contents

Chapter 1: Introduction

Background
Aim & purpose
Research questions
Delimitations
Method and tools

Chapter 2: Theoretical framework

Social resilience on neighbourhood scale
The need for sharing based housing forms
Alternative sharing-based housing forms
Comparison of housing forms
Our concept for alternative housing derived from theory

Chapter 3: The context

The Swedish system of housing
Conditions for adaptive reuse to housing
The site: Fjällbopark
Neighbourhood analysis
Building analysis

Chapter 4: Program for social resilience

The program for catalysing social resilience
Compass, criteria and values
Design implementation
The building scale
The in-between scale
The neighbourhood scale

Chapter 5: Discussion and reflection

Reflecting on the project through scenarios
Desirability & building limitations
Adaptive reuse -viable strategy for affordable rental housing?
Reflections on the process

Bibliography

1.

Introduction

Background

Aim & purpose

Research questions

Delimitations

Method & tools

Background

The construction industry in Sweden is among the sectors responsible for generating the highest material flow with the largest impact on the planetary boundaries (Hæggman et al., 2021). Moreover, the vast majority comes from the extraction of virgin sources (Circularity gap, 2022). While newer sustainable construction methods show promise in reducing emissions over time, a considerable portion of emissions occurs during initial construction phases, often following the linear take-make-dispose model (Arup & Ellen Macarthur Foundation, 2018). Therefore, there's a pressing need for the industry to transition towards a more circular approach. This entails not only reducing reliance on virgin materials but also optimizing the utilization of existing building stock. By doing so, the demand for new construction and the extraction of new materials can be minimized, aligning with principles of sustainable development (Naturvårdsverket, 2023).

Meanwhile, as urban populations continue to grow globally (Arup, Ellen Macarthur Foundation, 2018), the urgent demand for new construction, particularly in the housing sector, becomes increasingly evident. This need is also prevalent in Gothenburg, as many cities in Sweden are facing housing shortages (Göteborg Stad; Fastighetskontoret, 2022). The report on the state of housing 2022 by the Gothenburg city planning authority (2022) specifies that with the increasing population, at least 5000 new dwellings per year are needed before the year 2030 to meet the current housing need. However, this target has remained elusive, and in 2023 the trajectory halted even further due to the rise of inflation and the subsequent pause of several housing projects.

Furthermore, the greatest demand is for affordable housing (Boverket, 2024), impacting two primary groups: those entering the market, such as students, young adults, and newcomers, and those exiting it, namely the elderly who often struggle to find adequate housing to affordable cost. Newly built rental housing isn't affordable due to many aspects such as the increase in construction costs or a mismatch between demand and supply possibilities (Leishman & Rowley, 2012; Grundström & Molina, 2016) It is also rarely accessible to these groups, especially in more central areas since location also is a driver for increased housing costs (Leishman & Rowley, 2012).

Among these groups other societal challenges such as loneliness and segregation are prominent (Thelander, 2020; Andersson & Holmqvist, 2019). Among young adults, social isolation is an increasing issue (Schirmer and Michailakis, 2015; Thelander, 2020) and recent reports by the Swedish Union of Tenants show that 76% of young adults in Gothenburg continue living with their parents involuntarily. Unwanted social isolation and loneliness is also a significant issue among the elderly (Thelander, 2020). Moreover, in Gothenburg, housing segregation has become increasingly apparent (Andersson & Holmqvist, 2019). It promotes further challenges such as an undesirable grouping of societal groups, unfair life prospects and resource policy. The difference shows in numbers such as health, education, diversity, and employment (Hyresgästföreningen, 2024).

Aim & Purpose

The purpose of this thesis is to study the significance of socially resilient neighbourhoods and living, and further investigate how the built environment impacts the formation of social resilience on a neighbourhood scale. This has been tested on the neighbourhood Fjällbopark in Utby, and through the adaptive reuse of three vacant buildings formerly used for education and elderly care. Through adaptive reuse of the three existing buildings, this thesis tests the buildings' capacities for shared living. By weighing social, environmental, and economic impacts against each other throughout the design process, the proposal aims to promote ideas of social cohesion, community, and resource efficiency as well as advocate for affordable housing in Gothenburg.

Why	Who
<ul style="list-style-type: none"> • Utilise existing built environment • Shortage of affordable housing in Gothenburg • Societal issues of loneliness, isolation and residential segregation 	<ul style="list-style-type: none"> • Young adults • Elderly • Newly arrived people in Sweden
What	How
<ul style="list-style-type: none"> • Social resilience • Community • Adaptive reuse • Affordable housing • Reuse and resource efficiency 	<ul style="list-style-type: none"> • Shared housing form • Nudge rather than force • Building scale, surroundings and neighbourhood • Maximise reuse • Additions to facilitate social interaction • Improve social cohesion

Research question

In what ways can adaptive reuse of a cluster of vacant institutional buildings into alternative housing in the residential neighbourhood of Fjällbopark, Gothenburg catalyse social resilience?

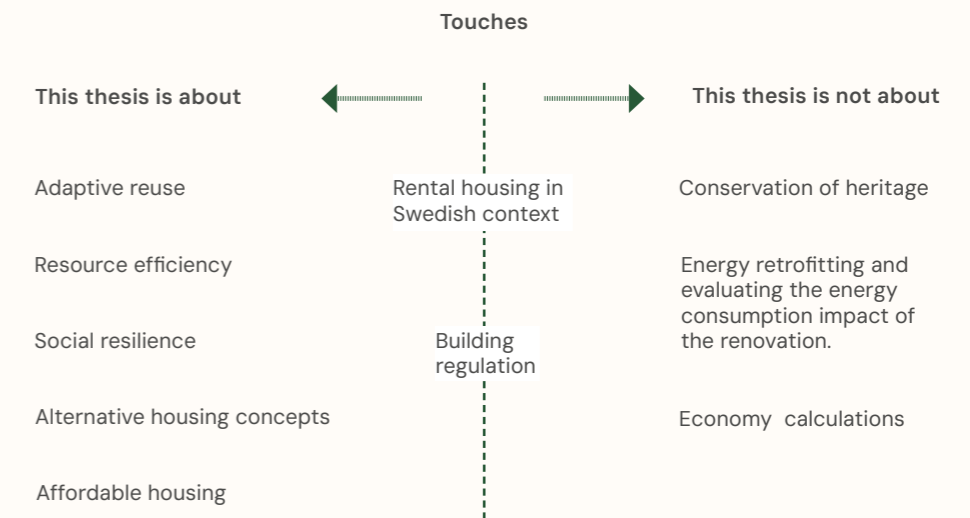
Guiding questions:

How can design of the built environment facilitate for planned and unplanned social interactions to create social bonds?

What are the challenges associated with adaptive reuse of existing buildings? And how can usability and desirability reconcile with factors such as resource efficiency, expected lifespan and structural limitations of the existing buildings in Fjällbopark?

Can strategies such as planning for increased social capital and resource efficiency in adaptive reuse argue for affordable rental housing in the context of Gothenburg?

Delimitations



The transformation focus has not been on technical improvement but rather on usability and resource efficiency in the material sense. This project is not an energy retrofitting transformation project and therefore, no calculations were made regarding how specific interventions may impact the energy consumption of the buildings.

The chosen site, Fjällbo park is included in the Gothenburg city's protective program "bevarandeprogram" for areas of cultural significance. The protection prevents the "distortion" of its cultural values, meaning anything that interferes with the historical expression must be preserved. This could delimit any larger interventions such as extensions, alteration of openings and facades or technical interventions. We chose to delimit this protection to fully explore the buildings opportunities for transformation.

The thesis discusses costs in terms of affordability and whether a specific intervention has an impact on the future tenants' rental cost rather than on cost calculations. Furthermore, it takes into account the possible cost of larger interventions, and cost in environmental impact of replacing materials, and weighs these with the other important focuses of the thesis such as its impacts on social capital.

We will discuss the challenges of adaptive reuse into housing in Sweden in the reflections but delimit the current regulations for the exploration and testing of the theoretical framework. By highlighting the exemptions, the thesis raises relevant questions about the outcomes of a project. For example, the current building standards allow exemptions based on technical limitations of the building but does not recognise environmental impact or social sustainability.

While research claims the importance of user participation in projects that aim for social resilience, we chose to delimit this part of the project due to the limitation of time.

Methods and tools

This thesis has developed through an iterative process, alternating between research for design, research by design and research on design. The structure of the thesis is laid out in four phases where each informs the next. The structure is flexible and the phases overlap, creating an iterative loop of research and design testing. The first phase can be explained as the analysis phase, the second as the design testing phase, the third as reiteration and development, and fourth as the discussions and reflections. The chosen methods, display a mixed methods approach by including both qualitative and quantitative strategies for inquiry.

The first and second phase of the project were dominated by research on the chosen topic of adaptive reuse in the chosen context, on social resilience and on the site itself. The research was conducted through site visits, interviews with the landowner, and through literary studies and field research. Early design testing led to new research questions such as concepts for shared living and further into neighbourhood effects and affordability, we discussed and tested how strategies for the creation of social bonds could be facilitated by the built environment. The later phase of the project focused on the design and bringing about the concepts found in theory and employing them as a compass. Through sketches and a thinking-out-loud practice as well as discussions and by weighing values such as affordability, resource efficiency and creation of social bonds the design was brought forward. During the design testing we also applied the method of modelmaking to get an understanding of the relationship between the different parts of the building and the effects of our design interventions in the neighbourhood at large. The reflection part of the project was influenced by the discoveries made throughout the project and informed through the tactic of imagining future scenarios of users of the buildings.

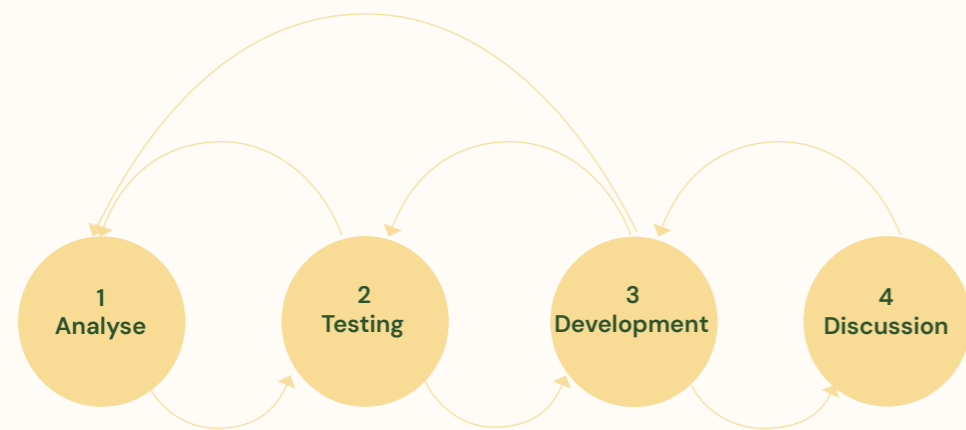
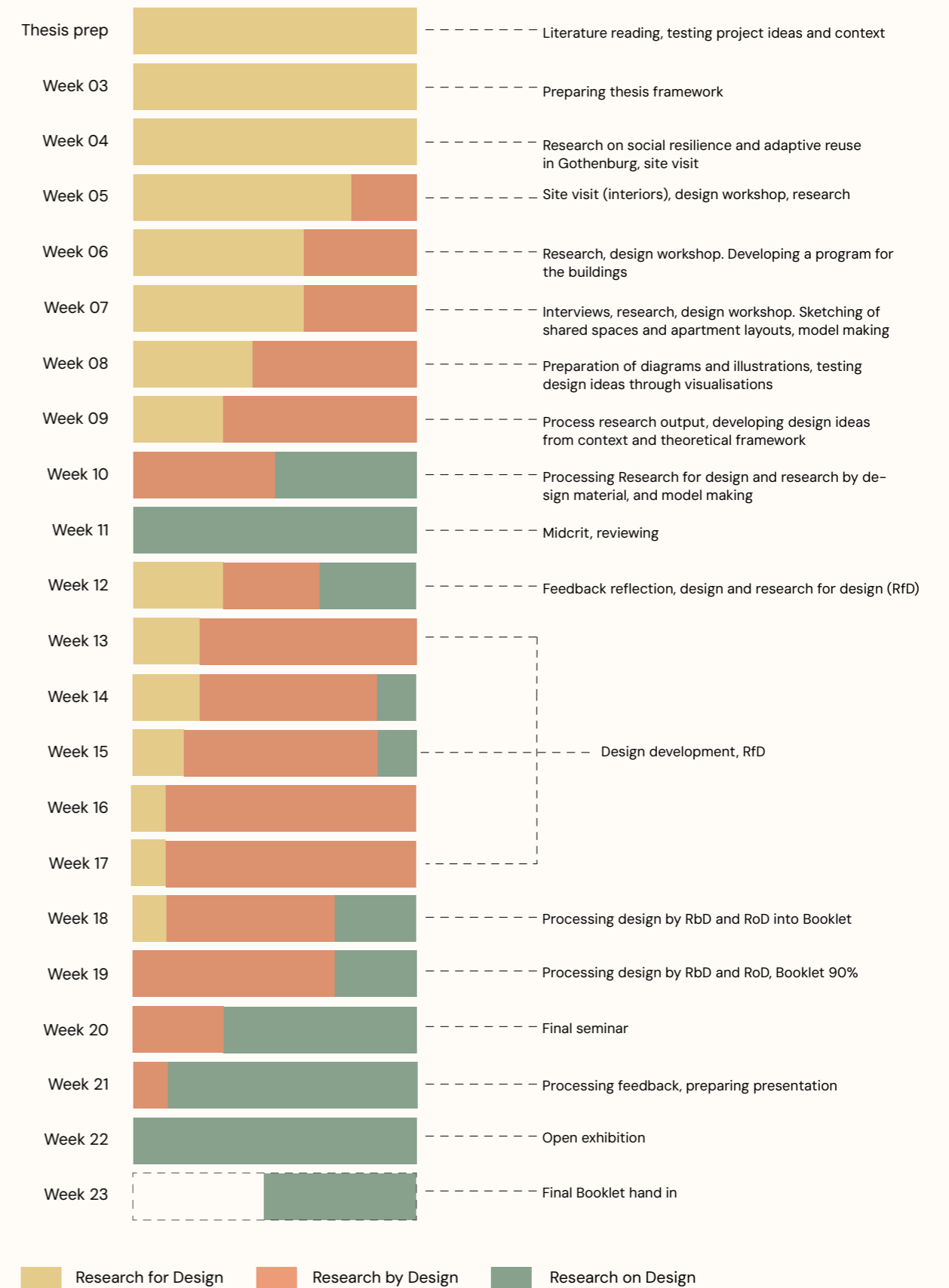


Figure 2: Diagram showing the iterative process with four phases



2.

Theoretical framework

Social resilience on neighbourhood scale

The need for alternative housing forms

Alternative sharing-based housing forms

Comparison of housing forms

Our concept for alternative housing

Social resilience on neighbourhood scale

Resilience, in a broader context, has been explored and discussed in diverse academic fields and contexts, encompassing not only academia but also policymaking domains. Apart from discussions on ecological and economic resilience, recent debates are also placing emphasis on the concept of social resilience (Larimian et al., 2020). Social resilience is shaped by perspectives from the social sciences and engages with questions of human agency, power dynamics, social practices, institutions, and other discourses that are often overlooked in ecological resilience studies. It is a multi-dimensional concept, and its definition can vary depending on the context, whether it be disaster-focused, community-focused, or based on scale of exploration (Keck & Sakdapolrak, 2013).

What is a neighbourhood?

"[Neighbourhood is] the connecting spaces between individual dwellings, other structures and to the wider city system and are arenas of casual interaction as well as being a key site of the routines of everyday life." (Saville-Smith, 2021, pg. 04)

“ A socially resilient neighbourhood is one where residents are confident in their ability to proactively develop their individual and collective social strengths and have the capacity to respond effectively to and bounce forward from actual and potential adversities.(Larimian et al., 2020, pg. 14)

”

Neighbourhood scale social resilience can be understood and measured qualitatively through few different methods. It can be conceptualised into 8 dimensions, namely sense of belonging and place attachment; participation and influence; social network, trust, and reciprocity; residential stability; local community support; social equity; safety and security; and neighbourhood tolerance and adaptive capacity (Larimian et al., 2020; Baldwin & King, 2018). Furthermore, social resilience can be portrayed through three fundamental capacities: coping capacities, which are reactive and absorptive; adaptive capacities, which are proactive; and transformative capacities, which are participative (Keck & Sakdapolrak, 2013). This suggests that the key in developing social resilience lies in improving co-existence and collaborative capacities across various societal levels.

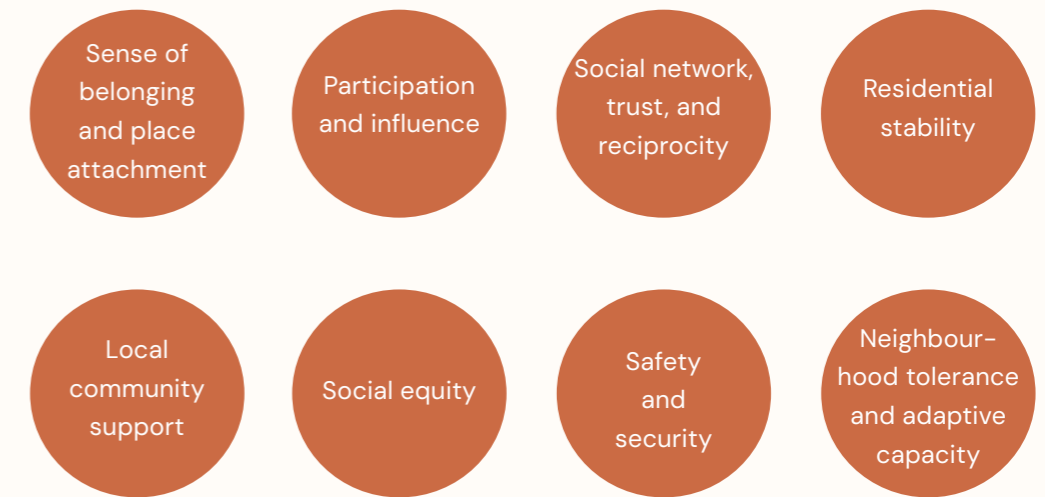


Figure 3: 8 dimensions to measure neighbourhood scale social resilience

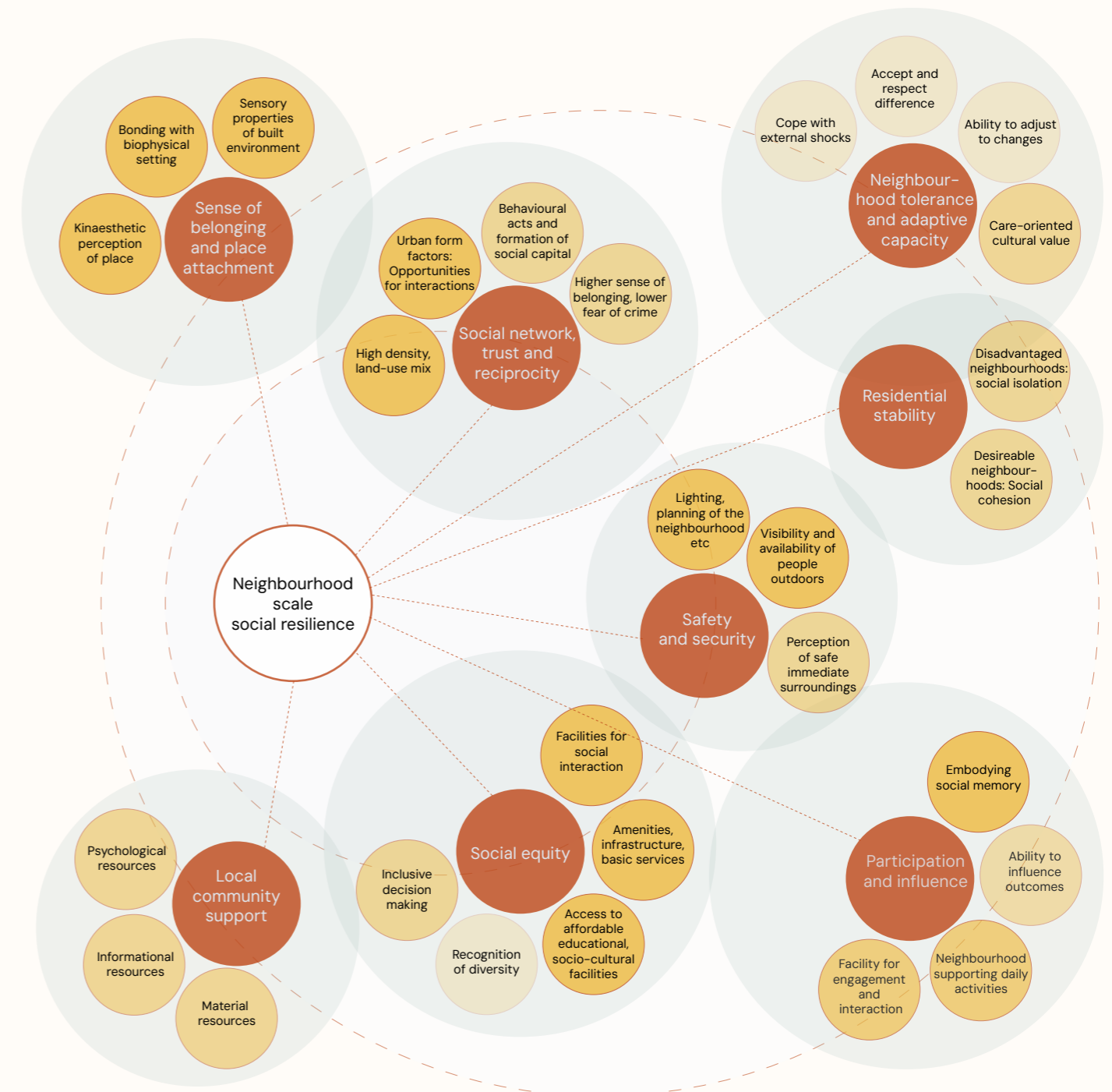
Neighbourhood effect and social mixing

Within society, geographical as well as policy distribution factors affect a person's future prospect in either in a positive or negative way, this concept within academia is called the neighbourhood effect (Anderson & Holmqvist, 2019). The research points to that where a person grows up is strongly linked to their social equity, such as their ability to find employment, or their access to schools, healthcare and other services. In the same way these can have a negative effect it can also have the opposite effect and further delves into the effects of social mixing within neighbourhoods. Social mixing is considered to be positive in more than one regard including positive effects on social capital and cohesion of an area and thus mutually benefit different socioeconomic and ethnic groups (Holmqvist & Bergsten, 2009). The research and practice on social mixing have, however, often focused on interventions in poorer or socio economically vulnerable areas in Sweden, but also internationally (Anderson & Holmqvist, 2019). These interventions have therefore been criticised by the international society of researchers; focusing only on these areas has been rather problematic and rarely led to an increase in social mixing but rather increased stigmatization of the area (Anderson & Holmqvist, 2019). The Tenant Association (2024) argues that the pattern observed in Gothenburg is that when people's resources increase, they move away from "poorer" areas to more affluent ones, which further drives the gap between people of different socio economics further apart, again leading to less mixed neighbourhoods.

Importance of input from residents

The concept of social resilience is dynamic, relying heavily on the cognitive and structural resources of the neighbourhood. Baldwin & King (2018) in the book 'Social Sustainability, Climate Resilience and Community Based Urban Development; What about the people?' has analysed the fundamentals of neighbourhood resilience through case studies from India, Indonesia, USA, New Zealand and Bangladesh. The result of the analysis demonstrates that aspects of urban form like mixed land use and mixed housing developments, availability of public and semi-public open spaces, street layouts, cluster housing, flexible spaces, visibility and also outdoor weather protection elements promote pro-community behaviours, which in-turn enhances social capital and social cohesion in a neighbourhood.

The research further depicts that socio-demographic diversity, mixed neighbourhoods, civic commitment, well-established community organisations and collaborations, self-reliance, and mutual trust are general social aspects that contribute to social resilience of the neighbourhood. However, comprehending social resilience at a specific neighbourhood is not complete without the insights and viewpoints of its residents (Larimian et al., 2020). While planning and designing for socially resilient neighbourhoods, it is essential to prioritise the social dimension; the existing social fabric and social needs from the very inception of the program conception. A context-based multi-disciplinary research and community participation is crucial to developing a holistic evidence base to inform the design process. Further, in the design and implementation, places and infrastructure that satisfy the social and cultural needs of the residents are to be prioritised over utilitarian design (Baldwin & King, 2018).



We imagine that residents of a socially resilient neighbourhood will be able to recognise and demonstrate strong social networks and sense of belonging, which in turn facilitates collaboration and support towards realising shared common goals and collectively improving neighbourhood level safety and well-being.

Legend

- Dimensions to measure social resilience
- Built environment has direct impact
- Built environment has indirect impact
- Built environment does not impact

Figure 4: Diagram showing relation between the 8 dimensions of neighbourhood scale social resilience and the built environment

The need for sharing based housing forms

Collaborative housing practices are not new and have traditionally existed among many societies from different parts of the world (Houdoux, 2020). Currently, there is a global shortage of affordable rental housing, which directly affects low-income groups (Hagbert et al., 2019). In Sweden, apart from the shortage of affordable rental housing, other prevalent societal challenges include loneliness among young adults and the undesired isolation of the elderly. Furthermore, residential segregation of migrants has also been an increasing concern (Arroyo et al., 2022).

With the aim of addressing the housing crisis along with other economic, social, and ecological crises, collaborative housing concepts have reemerged in Europe since the 2000s (Arroyo et al., 2022). However, as of today, the most common form of housing remains to be conventional multi-residential housing that by itself provides insignificant opportunities to share or interact with neighbours. Therefore, a rather pragmatic change in housing forms that can be widely applied is necessary to collectively address these challenges. The availability of common spaces has the potential to boost social interaction and bonding among people of different backgrounds, ages, and living conditions (Arroyo et al., 2022), which in turn can be the foundation for the formation of social capital. Moreover, shared practices reduce consumption and, therefore, also reduce the pressure on planetary boundaries. However, the pressure of taking part in compulsory chores and activities can also repel people from choosing to live in such communities. Therefore, it is important to make sharing-based communities also appealing for those who do not share such collectivist practices, either because of lack of interest or time (Arroyo et al., 2022). This, in turn, will enhance the potential for social integration to become a more normalised behaviour in neighbourhoods, rather than being exclusive to certain communities.

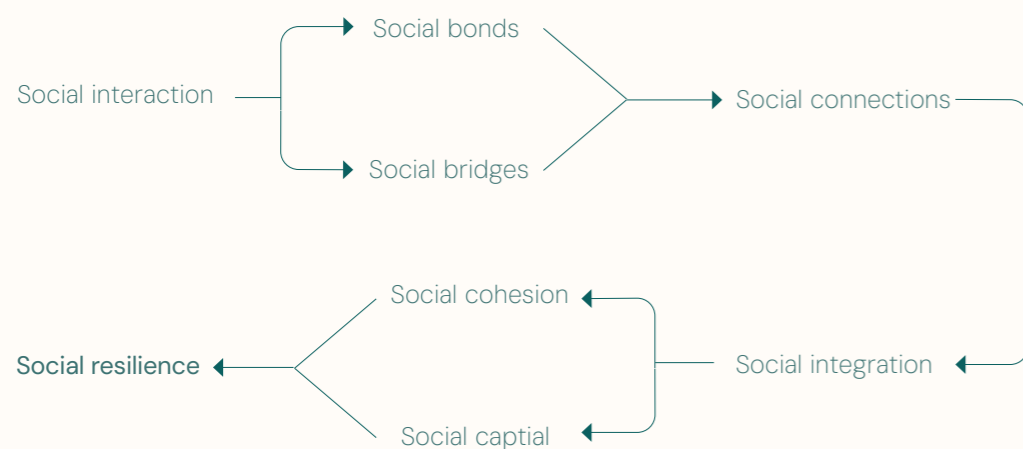


Figure 5: Social connection flow chart from interaction to resilience.

Alternative sharing-based housing forms

Co-living

“Co-living is a shared housing alternative where underutilised assets as kitchens, recreational spaces, amenities, and goods and recourses can be shared by a group of people that live together” (McDannel, 2018, p. 6).

The fundamental strategies of co-living are private accommodation, shared amenities and communal engagement. Co-living models around the world addresses loneliness and isolation and often promote diversity and shared learning opportunities within the intended target groups. (Houdoux,2020) This model promotes shared amenities, thereby promoting resource efficiency and reducing per capita carbon emissions. Co-living models also encourage shared economies. Shared economies imply transitioning from an ‘owning’ to a ‘sharing’ based model through actions like lending and borrowing, thereby using a resource more efficiently as compared to every individual owning everything separately. Shared economies are thus a form of collaborative consumption developed on local trust-based relationships (Botsman & Rogers, 2010) and co-living, is fundamentally an alternative housing form where the concepts of a shared economy are practiced at a physical location (Andersson, 2022). To understand through case studies, two co-living models, ‘Co-live’ and ‘K-9’ located in Gothenburg and Stockholm were analysed. The organisational model of both these co-living facilities are based on resource sharing and community living; private rooms for accommodation complimented with shared kitchens, dining, living rooms, toilets, recreational rooms etc. Both these facilities are aimed at young adults, aged between 20–35, usually with similar interests and high academic background (Andersson, 2022). The average rent per person per square meter to live in a facility like ‘Co-live’ or ‘K-9’ is much higher as compared to the average per square meter rent in conventional housing intended for one person. Therefore, it can be argued that the economic model of Co-live does not support affordability, but instead promotes social life by providing opportunities for sharing and co-responsibility. It is business model based on community and shared resources rather than individual affordability.

Collective housing

While the term collective housing is often used interchangeably with other shared housing models, in this research, we delineate collective housing by defining it as characterized by joint domestic areas and shared daily chores and responsibilities (Törnqvist, 2020). Collective housing has gained traction in many western societies and has been further motivated by escalating housing prices and eco-political awareness (Törnqvist, 2020). It typically operates through self-organization and self-management. In Sweden, there are three legal tenure forms for collaborative housing: rental housing, housing cooperatives, and cooperative tenancy.

In collective rental housing, where a housing company owns the property, rents are often reduced as compensation for residents managing the building (Arroyo et al., 2022). Housing cooperative tenancy involves residents owning a share in the cooperative association, and the association owning the building. This requires an initial high investment from the residents. The association members have control over who can purchase apartments, thereby influencing future residents. The third form, cooperative tenancy involves renting the entire building from a housing company and subletting to tenants. The association members select its tenants (Arroyo et al., 2022). Generally, in collective housing, residents are required to be highly motivated to participate in compulsory shared activities. Due to the shared responsibilities, households in collective housing often adopt more formalised behaviours that resemble formal organizations. Balancing functional demands while maintaining personal integrity within a social context of individuals who may have been strangers before necessitates clear decisions and equitable distribution of responsibilities. This requires a high level of organization and social order, shaped by decisive actions and obligatory rules (Törnqvist, 2020).

In summary, common motivators for collective housing initiatives include affordability, ecological concerns, and community. However, a drawback of collective housing is that its members may sometimes lack the necessary skills and time to fulfil shared chores and duties. Our inference is that collective housing can be somewhat exclusive due to high initial costs, association preferences, and the commitment required for formalized shared responsibilities.

Collaborative housing

“Collaborative housing is 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.” (Grip et al., 2015, p.5, translation by the authors).

Collaborating housing can be developed through bottom-up or top-down approaches, the former being the most frequent approach. In a top-down approach, the project is initiated by a private developer, a municipal housing company, or a non-profit organisation (Arroyo et al., 2022). Collaborative housing, apart from addressing the housing crisis can also create opportunities for social integration in its shared common spaces. Collaborative housing projects in Sweden are mostly realised through three tenure forms; rental housing, housing cooperative and cooperative tenancy (Arroyo et al., 2022). In Sweden, collaborative housing projects with rental tenure form mostly are managed by municipal housing companies. Rental housing in general is more accessible to low-income groups, moreover in collaborative housing, rents are often reduced as a compensation for the self-management of the buildings. Arroyo (2022) in the research article ‘Collaborative Housing: A tool for social integration and increased sustainability’ illustrates an example of rent reduction by 8.42% for the self-management of collaborative rental housing owned by a municipal housing company. The main goals of collaborative housing is to create small-scale community based on participation of people from different ages.

The primary objectives of collaborative housing include co-creating small-scale communities centred on participation and sustainability for individuals from diverse age groups, and tackling undesirable isolation and segregation, while facilitating access to affordable housing for the groups most need for affordable housing and integration (Arroyo, 2022). The ideal size for a collaborative housing project will largely depend on what the common spaces are programmed for (Grip et al., 2015). A project designed to promote intergenerational integration will require apartment sizes ranging from single-room to up to six-room units. The apartment sizes in a collaborative housing project can be reduced by 10-15% and the saved area can be allocated for the shared spaces, without increasing building area and costs (Arroyo, 2022).

Case study of SällBo companion housing

SällBo, located in Helsingborg is an example of sharing community based collaborative housing initiated by a municipal housing company. The goal of SällBo is to address societal challenges liked unwanted isolation and lack of affordable housing while boosting social integration between the elderly, young adults and formerly unaccompanied new minors to Sweden who have reached the age of 18. There are two housing forms in Sällbo, the rental housing (hyresrätt) and secure housing for older adults over 70 (trgghetsboende). SällBo comprises of two interconnected structures, a one-storey building at the entrance with shared spaces and a four-storey building with 51 two-room apartments ranging from 36 sqm to 49 sqm. Rents vary from SEK 4,620 to SEK 5,850 (Arroyo et al., 2021).



Figure 6: The entrance block of Sällbo comprises of common spaces along with the four-storey residential block. (Linné & Helsingborgshem, 2019). Reprinted with permission.

Common spaces

The lobby at the entrance is the most popular meeting spot for spontaneous encounters. The residents plan for activities to socialise and it is a requirement to do so at least for two hours a week. Apart from the lobby, the common living room and dining room are the most preferred spaces for meetups as per the residents (Arroyo et al., 2021). In addition to the planned activities, the residents voluntarily cook for neighbours and dine with neighbours occasionally. They also share equipment, fixing tools etc. They do activities

like repairs and assembling furniture together which in turn creates a platform for inter-generational knowledge sharing and creating social bridges between people of different backgrounds.

Organisation

Sällbo is organised amongst Helsingborghem and its residents. Responsibilities are therefore shared. Chores like cleaning of common spaces are outsourced to an external cleaning agency while the residents have working groups like a gardening group that maintains the gardens. Social activities are self-organised and conducted by residents themselves and the residents are project coordinators have monthly meetings and make decisions regarding the management of the community and the building through direct democracy (Arroyo et al., 2022).

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“You do not understand that when you are 65 yourself and suddenly realize that: well now I belong to a group that includes all kinds of people within a wide age range and then you are treated; either you are not seen at all or you are treated as someone who does not really understand, as someone that has not been part of society and I think that. . . for me it was a shock, but I insisted on being the person I have always been. . . and I am a politician and journalist, interested in society and interested in theatre and music and books and I am never going to give it up. And there they should not come and think that playing accordion and offering cinnamon buns is enough.” (Resident interview 09, Arroyo et al., 2021, pg. 8)

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Social integration at Sällbo occurs through everyday life encounters in both indoor and outdoor common areas. However, Sällbo, being a pragmatic transformation project, faces certain constraints. Secondary research on resident interviews suggests that there is a notable desire for additional shared kitchens and communal spaces for group activities. Currently, one large dining area, a common room, and an entrance lobby are shared among 51 apartments. Our inference is that this ratio is insufficient, and the large size of shared spaces creates formal environments rather than relaxed informal ones. Additionally, residents have suggested that the furnishing of these common areas should take into account the preferences of the tenants themselves. Another drawback highlighted by residents is that the building retains lengthy corridors spanning on all the four floors, which are perceived as detracting from the residential experience.

Table 1 Table comparing different housing forms that were analysed through case studies

Type	Organisation	Tenure	Shared	Top motivation	People
Collective housing	Self-managed Bottom up	Housing cooperative Cooperative tenancy Owner occupied Rental	Chores, Kitchen, and amenities, Recreational spaces	Community Affordability Ecological	Exclusive Often initiated by previously known members
Collaborative housing	Top down Bottom up	Rental Housing cooperative Association owned	Additional kitchen and amenities, Recreational spaces	Community Privacy Affordability Shared resources	Intergenerational Diverse
Co-living	Top down	Rental Rental association	Kitchen, bathroom, amenities, Recreational spaces	Community Location Shared resources	Young professionals
Conventional multiresidential housing	Top down	Rental Tenant ownership Condominium	Amenities, Recreational spaces Non-obligation	Individualism Non-obligation	All ages Diverse

Our concept

To catalyse the formation of social resilience, our approach involves developing an alternative to conventional housing that inherently fosters opportunities for residents to connect and create social bonds with their neighbours, both indoors and outdoors rather than through organisational structure. Our concept for housing shares similarities with collaborative housing in the way that there is both formal and informal shared spaces along with adequately sized private spaces. The intention is to nudge rather than force the residents to indulge in social interaction and the use of the shared spaces. To achieve this, the idea is to make the placement of these spaces highly visible for the tenants and the programming attractive to encourage utilisation rather than expecting the tenants to be always highly social or behave extrovertedly. The tenancy form in this case being rental, through Familjebostäder, further lowers the threshold for the new tenants and opens it up for tenants with no previous experience of shared responsibilities and with limited purchasing power. As a result, this facilitates a smoother transition to shared living concepts.

3.

The Context

- The Swedish system of housing
- Conditions for adaptive reuse to housing
- The site: Fjällbopark
- Neighbourhood analysis
- Building analysis

Swedish system of housing

The project cannot be viewed in isolation; understanding the broader context is crucial for understanding the complexities of the rental housing system and the conditions for adaptive reuse in Gothenburg, as well as the specifics of the site itself.

In this regard, examining the larger context of Gothenburg is essential, as social resilience can vary significantly depending on factors such as location, tenure, and household composition within the area. Statistical data indicates that the region exhibits a high socioeconomic status, as evidenced by factors such as educational attainment, income levels, and reliance on governmental financial assistance. It's noteworthy that these statistics encompass the entire Utby area, including Fjällbo Park, as data does not delineate smaller subdivisions. Utby also is considered an attractive area within the city, and has a good reputation (Gabrielson, 2018). Examining how social resilience can be achieved in a neighbourhood perceived as prosperous within the city may initially seem counterintuitive. However, our analysis reveals minimal social mixing in the area and a lack of community spaces, suggesting potential challenges to social resilience. Additionally, research indicates that solely addressing issues in low socioeconomic areas risks further stigmatising the neighbourhood without necessarily enhancing its popularity or fostering increased social mixing (Leishman & Rowley, 2012). We believe another important aspect of choosing Fjällbo park is the importance of working within an existing neighbourhood rather than creating new idealistic ones. Understanding these contextual factors is paramount for a comprehensive analysis of the project's implications and potential outcomes.

Affordable rental housing market

This need for affordable rental housing is prevalent in Gothenburg (Göteborg Stad; Fastighetskontoret, 2022) and there is a growing housing shortage. The report on the state of housing 2022 by the Gothenburg city planning authority (2022) specifies a need for 5000 new dwellings annually. This target has remained elusive, and in 2023 the trajectory halted even further due to the rise of inflation and the subsequent pause of several housing projects. The lack of affordable housing is impacting two primary groups: those entering the market, such as students, young adults, and newcomers, and those exiting it, namely the elderly who often struggle to find adequate housing to affordable cost. Newly built rental housing is often not affordable due to many aspects such as the increase in construction costs or (Leishman & Rowley, 2012; Grundström & Molina, 2016) It is also rarely accessible to these groups, especially in more central areas since location also is a driver for increased housing costs (Leishman & Rowley, 2012).

The affordable housing shortage leads to further issues for these groups such as young adults in continuing to live with their parents involuntarily, people having to give up work or study opportunities as well as housing segregation becoming increasingly apparent (Hyresgästföreningen, 2024; Andersson & Holmqvist, 2019). Segregation promotes further challenges such as an undesirable grouping of societal groups, unfair life prospects and resource policy. (Andersson & Holmqvist, 2019).

History

In the early 1900s, Sweden conducted a state-led investigation into housing from a social perspective, laying the groundwork for the country's current housing policy (Grander, 2019). Unlike many other European nations, Sweden follows its unique model of public housing. This model revolves around a number of Social Rental Municipal Housing Companies (MHCs) that operate on a universal basis, devoid of income or status-based criteria, grounded in the principle of providing quality housing for all (Grander, 2019). These MHCs have their origins in the early 1900s but truly gained prominence in the 1940s when a universal housing policy was embraced, aligning them closely with government housing policy (Blackwell & Bengtsson, 2023). Their aim was not solely to assist low-income households but rather towards ensuring housing for all segments of society. The housing shortage in Sweden saw a significant improvement through the implementation of the Million Home Programme, spanning from 1965 to 1974, where a million new homes were built. For the first time there was a surplus of affordable rental housing. Notably, a substantial portion of the housing stock that has been built since the post war era, was built by MHCs. In present-day Gothenburg, half of the rental market is owned by MHCs in Gothenburg (Boverket 2024). However, shifts in regulation in the 1990' and 2000's has led to a more privatised orientation of the municipal housing companies (Grundström & Molina, 2016) where they need to act in a businesslike manner and compete with the remaining housing market. The new legislation has rendered stricter rental policies and limits the construction of new housing projects (Grander, 2019).

Rent control

Within the Swedish rental system there are three primary ways to establish rent. Private agreement between the Property owner and the tenant Tenant association and Property owner based on 'utility value'; Presumptive rent, a new established rent negotiated between the local tenants' association and the property owner for new construction and transformations (Boverket 2023); and rents privately negotiated between the property owner and the tenant. The Swedish system for rent control commonly referred to as the 'Utility value system' was introduced between 1959-1978 replacing the wartime Rental Act (Blackwell & Bengtsson, 2023; Karpestam, 2022). The annual rent is set in negotiation between the local Tenants' Association and the property owners (SOU 2008:38). The foundational principle is that the rent should be based on the assessed utility value. The utility value is evaluated from the tenants' perspective on aspects such as housing standards, that is size, building aesthetics, location etc. In practise the systems implementation in accordance with its original intent vary between different regions in Sweden (Karpestam, 2022).

Utility value is evaluated based on a number of factors and is meant to function as a rent control measure to stop unreasonable rent increases and ensure the security of tenure (SOU 2008:38). This evaluation considers various factors such as apartment size, modernity standards, floor plan layout, position within the building, overall condition, and soundproofing.

Conditions for adaptive reuse to housing

The construction industry in Sweden is among the sectors responsible for generating the highest material flow with the largest impact on the planetary boundaries (Hæggman et al., 2021). Moreover, the vast majority comes from the extraction of virgin sources (Circularity gap, 2022). While newer sustainable construction methods show promise in reducing emissions over time, a considerable portion of emissions occurs during initial construction phases, often following the linear take-make-dispose model (Arup & Ellen Macarthur Foundation, 2018). Therefore, there's a pressing need for the industry to transition towards a more circular approach. This entails not only reducing reliance on virgin materials but also optimising the utilisation of existing building stock. By doing so, the demand for new construction and the extraction of new materials can be minimised, aligning with principles of sustainable development (Naturvårdsverket, 2023).

To achieve the goal of net zero emissions by 2045, as outlined by the Swedish government (Finansdepartementet, 2022), there is a clear need for the building sector to transition towards a more circular built environment. Consequently, the Swedish National Board of Housing, Building, and Planning (Boverket) has been tasked with spearheading the development of a pathway towards a circular economy within the building sector. Boverket (2023) highlights the importance of resource efficiency, material reuse, and adaptive reuse within the built environment. Additionally, Gothenburg City's Climate Program 2021–2030 outlines a proactive strategy aimed at promoting innovative procurements to facilitate the development of a circular, non-toxic, and resource-efficient building sector (Gothenburg stad, 2024). Despite these policy advancements, statistics reveal that the number of conversions in the built environment each year in Gothenburg remains significantly lower than new construction projects (Göteborg stad, 2023).

Conditions for adaptive reuse

To understand the conditions for transformation of existing built environment to housing in the context of Gothenburg the research expands to the legal framework, as well as to the physical limitations of the building in question. The buildings limitation represents a large part of the potential obstacles for conversions and tend to require large interventions and always involve thorough preliminary work while still posing risks for unknown complications during the implementation stage (Boverket, 2021). These interventions include additional walls and windows, added or decreased number of elevators and stairs to be installed, new piping and updates to the electrical system as well as sound proofing. Sometimes older buildings require procedures to be decontaminated (Boverket, 2021). In light of this, the interventions needed could in some ways be equated to those of a new build. Consequently, cost and time are possible constraints on top of the building's inherent limitations.

In the planning phase, local plans can limit conversions of other space to housing by regulation that strictly prohibits such conversions. Additionally, modifications to existing or instigations of new local plans can be both costly and time consuming. As a result, smaller transformation projects may become infeasible when local plans impose restrictions, as the necessary modifications would require significant resources and time.

There is some ambiguity in Swedish building laws pertaining to conversions, particularly concerning the 'New build standard' compliance, but also for rent establishment regulations. In practice, there is some confusion to what extent the new building standard requirements apply to smaller transformation projects, or transformation projects that only apply to a part of a building. It has been put forward that transformation of one part of the building requires the entire building to meet the standard of a new build and such a demand would pose challenges for conversions (Boverket, 2021). Both new builds and conversions are in general expected to meet the "New Build Standard". There are exemptions to the New built standard for reasons such as compromise of sensitive heritage values and to some extent the physical limitations of the building itself (Boverket, 2021). These are assessed on an individual case basis and should not impose any safety risks for the future tenants.

The anticipated form of tenancy presents a potential obstacle for conversions, at least concerning conversions to affordable housing. Estimating project costs for such conversions can be challenging and may result in inaccurately established Presumptive rents (Boverket 2021). Governmental grants could however enable affordable rents as this was done during the years where the government issued grants for new production of rental housing (Mårtensson, 2023). Rental rates determined by Utility value might be inflated due to the regulations regarding the standard of the apartment, potentially elevating rents to a level comparable to newly constructed housing (Boverket 2021).

Current tax regulations provide incentives for new construction, thereby increasing the expenses associated with conversions (Boverket, 2021). One key distinction between constructing new housing and conversion of existing structures lies in property taxes. Newly constructed buildings are granted a 15-year exemption from property taxes. Conversions may also qualify for this exemption, but only if the renovations are extensive enough to align with those required for new construction. There are also the laws concerning the change of use. Property tax for housing is higher than for commercial space or care facilities (Boverket, 2021). Additionally, there are regulations governing changes in property use. Property taxes for residential spaces are typically higher than those for commercial or care facilities (Boverket, 2021). Moreover, when a building's purpose shifts from VAT-exempt activities to activities subject to VAT, such as converting commercial spaces into housing, developers may be required to settle VAT deductions. Furthermore, none of the construction expenses can be classified as business-related deductions (Boverket, 2021).

Additionally, amenities like elevator access, laundry facilities, storage space, building services, garage availability, and parking options influence utility value. Moreover, the geographical location, overall housing quality, and proximity to public transportation are crucial considerations, all to be assessed from the perspective of a hypothetical average tenant (SOU 2008:38). Notably, the age of the building and operational costs should not be factored into this assessment.

A more recently introduced way to establish rent is Presumptive rent. It was added with the aim of making the conditions for new production of new apartments easier. Presumptive rent is where the rent is established in negotiation between the local tenants' association and the property owner and based on the projects estimated cost. Presumptive rents can apply in cases of new production as well as transformation projects. It was a way of making predictions to ensure that the cost for the production should be covered by the rents. Also, to instate predictable incomes for the developer. The rents should however be deemed reasonable (SOU 2017:65). Presumptive rents have a binding time of 15 years. Usually, presumptive rents are higher than the rents based on Utility value but can also be lower if are support investments or grants (SOU 2017:65).

Government financial assistance

Production of affordable rental housing is possible and incentivised within the current system with financial aid from the government in the form of financial grants. In the case of establishing rents based on the Presumptive rent system, a financial grant has the potential to significantly lower the rents. For example, a government initiated financial grant in 2018 led to a housing boom between 2018–2022. Specifically for the Gothenburg region, 3400 new rental apartments were built utilising the grant (Hyresgästföreningen, 2024). However, due to inflation and the discontinuation of the grant, this number of new housing projects significantly declined in 2023 (Göteborg stad, 2023). Despite the decrease, this investment support proved effective in generating more affordable housing, as one of its stipulations required the properties to be rented out and imposed a cap on rental costs (Hyresgästföreningen, 2024). The grant was available for both new production and transformation projects (Boverket, 2021).

Governmental subsidies for individuals for housing costs is available. Individuals aged between 18–28 and households with children are eligible (Försäkringskassan, n.d.). The system can however be argued has fallen behind since its introductory days. Rents have increased with 80% since 1996, and the national average salary by 125% however the subsidy cap for individuals from the state, as well as the maximum amount of earning for households being eligible to apply has not. Presently, the maximum payout is capped at 5900 SEK, notably lower than the average monthly rent for a typical four-room apartment, which stands at 10,000 SEK. Additionally, if renovations lead to rent increases, there is no corresponding adjustment in the housing subsidy, as it remains capped. Comparatively, in 1996, the number of individuals granted housing assistance was twice that of 2023 (Hyresgästföreningen, 2024).

The site Fjällbo park

Fjällbopark is a neighbourhood located in Utby, an area situated in the east of central Gothenburg, approximately 6,5 km north-east of the city centre. The area's close proximity to nature and central location within the city is attractive to many. The area has a school, preschools and a few local businesses. Within Gothenburg Fjällbopark and Utby is known for its climbing spots and beautiful nature.

The area consists of a number of buildings built in 1939 originally belonging to Fjällbohemmet, a rural institution for the welfare of the poor. Today, the buildings are owned by Familjebostäder and has various types of occupancies such as a middle school, an elderly home and special accommodation, however majority have been converted to rental housing (Stadsmuseet, 1999). The area is considered to have significant social and architectural historic value and is covered by the municipalities local conservation program (Bevarandeprogram).

In Fjällbopark there has been recent developments. Additional housing was added in 2004 by the privately owned housing company Västerstaden, the buildings consist mostly of rental apartments. In 2021, the municipally owned building company Familjebostäder completed 3 new tower blocks with 75 new dwellings, these being rental apartments. Shortly after, in 2022 another municipal housing company named Egnahemsbolaget completed 5 new residential buildings consisting of 90 new dwellings, all condominiums. Future plans for in the area include further densification with housing developments ca 800 meter from the project site as well as a new preschool south-west of the project site. Nearby areas with services such as health care centre, library and shops are Gamlestaden, Munkebackstorget, Bergsjön and Partille.

Recently three of the buildings from 1939 in the neighbourhood have become vacant. The owner Familjebostäder's plans for the buildings be converted into housing and include 15-25 new rentable dwellings. This thesis delves into the adaptive reuse of these buildings into alternative housing and uses the neighbourhood of Fjällbopark to test the design application based of the theory of social resilience.

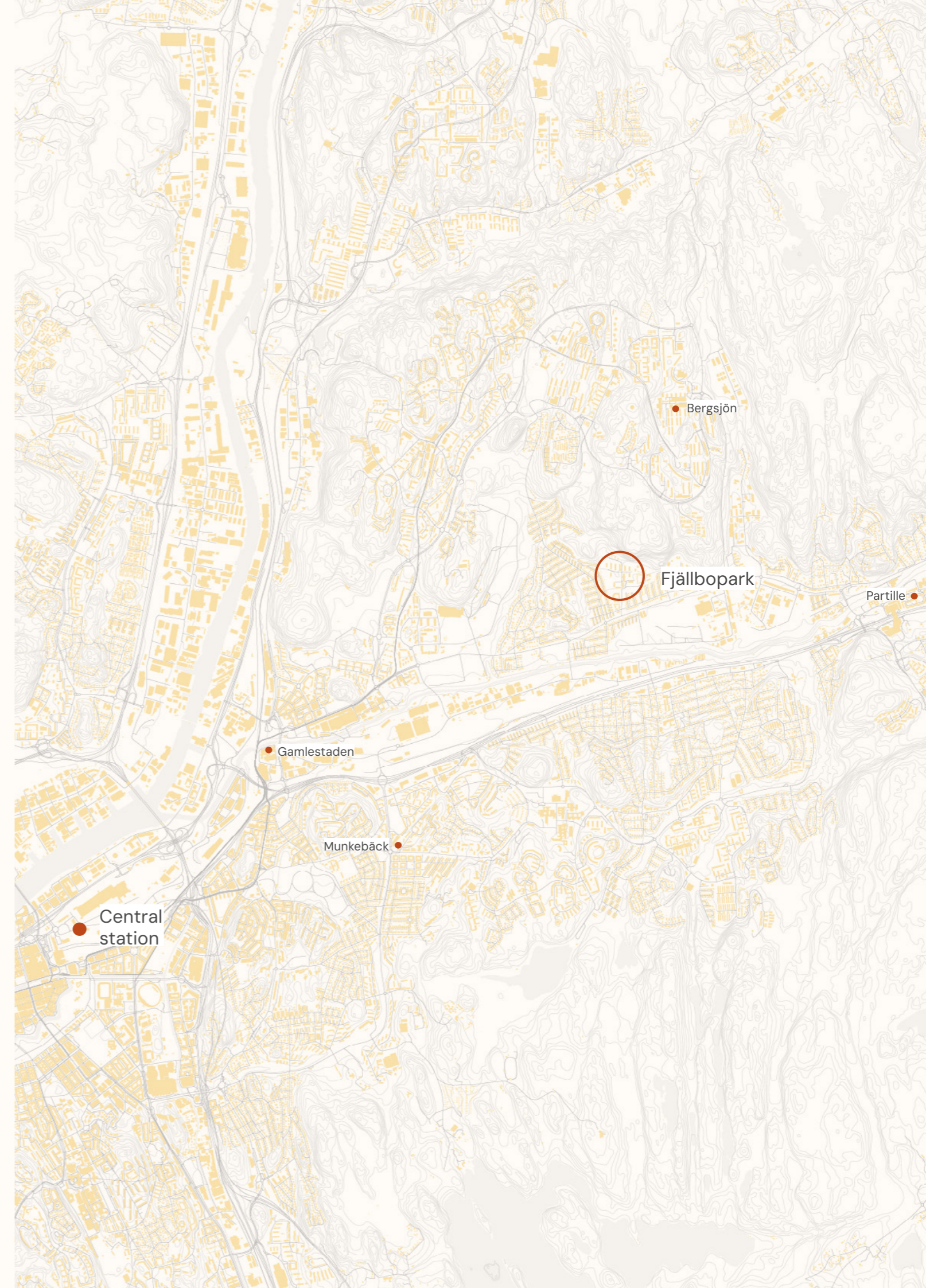


Figure 7 on the right: Site location in Gothenburg

History

Rationality → Humanity

Authority → Equality

Care Home → Home Care

Institution → Home

In 1870 Utby was divided into multiple estates, and where Fjällbo park is located today was part of farmland belonging to an estate called Mellby Rotegården. 1870 the land was bought by a baron who built an estate by the foot of the hill and named it Fjällbo, based on the words "fjäll" meaning mountain, and "bo" referring to dwelling (Andréasson, 89). In the area there are some remains from the estate still present today. About 200 meters east of Fjällbo park there is an alley of linden trees and a red wood two story building from the old estate. The land was later bought by the state and was utilised for farming carried out by inmates from the city's poverty care institutions.

The poverty care in Gothenburg city has a long history, already in the 1700s the government provided help to the poor. In 1856, the state established one of the first poverty care facilities, initially located in the city centre (Andréasson, 89). The same institution later moved south to Landala, but later to its final location in northeast Gothenburg, Utby. The institution grounds were built on farmlands in the 1930's and opened its doors in 1939. The facilities were considered modern for its time and had capacity to care for 563 patients, then referred to as inmates (Andréasson, 89).

While initially intended for elderly individuals unable to care for themselves, the institution primarily served those grappling with addiction and mental illness. Less than half of the patients were over 65 years of age (Andréasson, 89). Moreover, the facility often exceeded its capacity, admitting homeless and stray individuals during harsh winters.

The Fjällbo home was the last of its kind, it functioned in a similar way throughout its time in Landala and Utby until the 1960's when structural changes were made. In the 1960's the organisation underwent significant changes reflecting society's evolving perspective on care. Subsequent modernization efforts in the 1970s included extensive facility refurbishment (Andréasson, 89). Between 1976-1991 the care home changed their clientele to exclusively cater to elderly with addictions who required assistance.

Although quite unknown, Fjällbo embodies a significant chapter in Swedish social care history. It's no longer "care of the poor", but care operating within the framework of the broader term social care. The work has moved from rationality towards humanity, authority to equality, care home to home care and from institution to home.

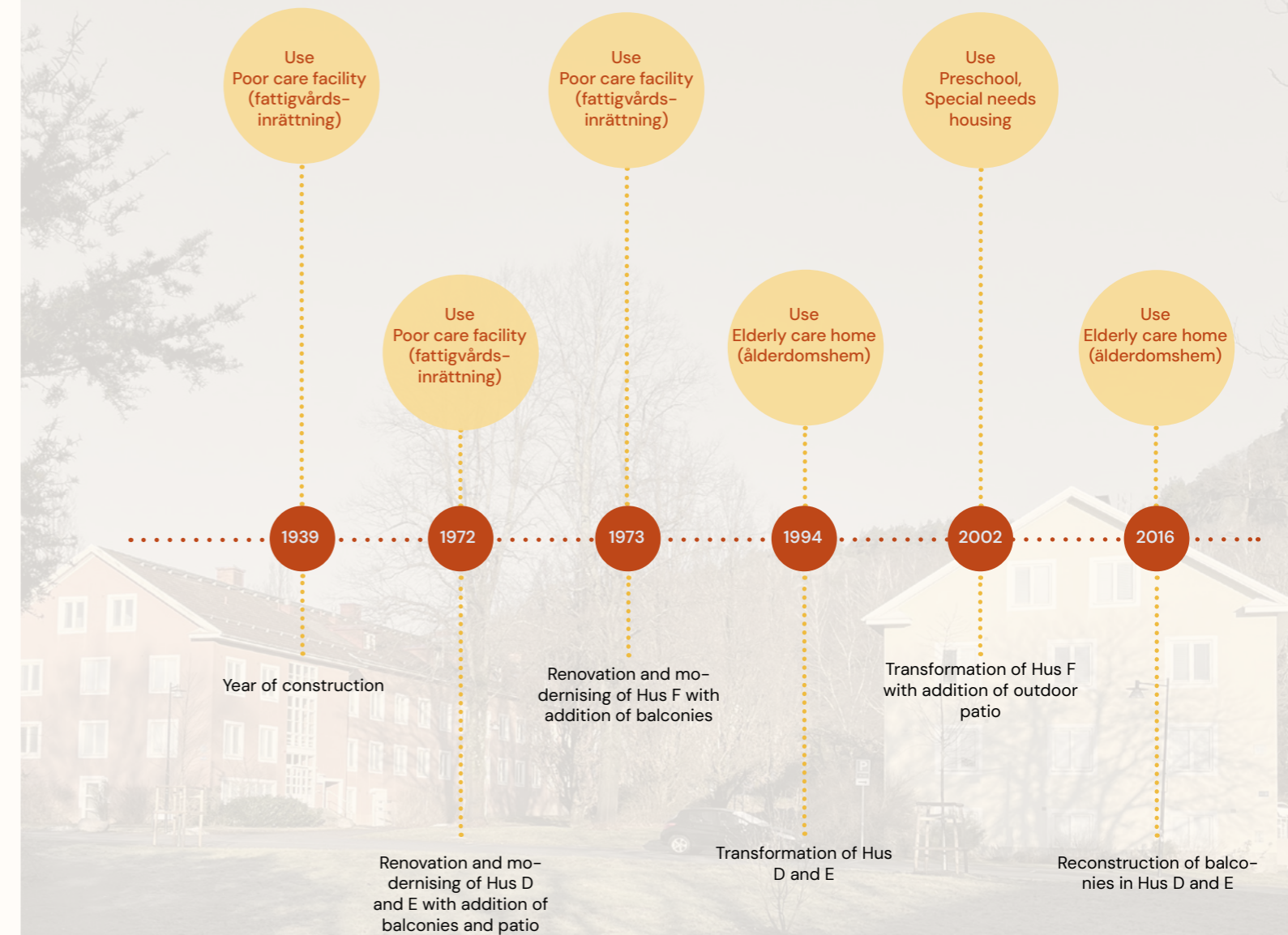


Figure 8 on the right: Timeline of the transformations in use and architecture of buildings D, E and F

Neighbourhood analysis

The neighbourhood of Fjällbopark has a well defined boundary with the hills to the north, wider road and parking in the south, and a green valley marking the transition to the single family home area to the west. The scale of the buildings and its park like qualities creates a pleasant pedestrian-friendly atmosphere. The tall trees cast long shadows on the plastered facades in soft yellow, blue and peachy tones and the quiet hum from the distant road mixes with the sounds of children's laughter echoing from the nearby schoolyard.

Basing the analysis on the theory around the eight dimensions for social resilience we used the different categories while exploring the areas strengths and weaknesses. We also carried out our analysis on two levels, first looking at the neighbourhood scale and secondly at the three buildings and their immediate surroundings.



From left to right Figure 9-17:
Top row: Nature crossing, and path west of the area functioning as a neighbourhood boundary. Park in neighbourhood with planting.
Middle row: Community garden. Entrance to the forest park. Existing playground in front of Building F.
Bottom row: Building E and F view from west, bench in front of Building D. Grass area between Building E and D view from north.

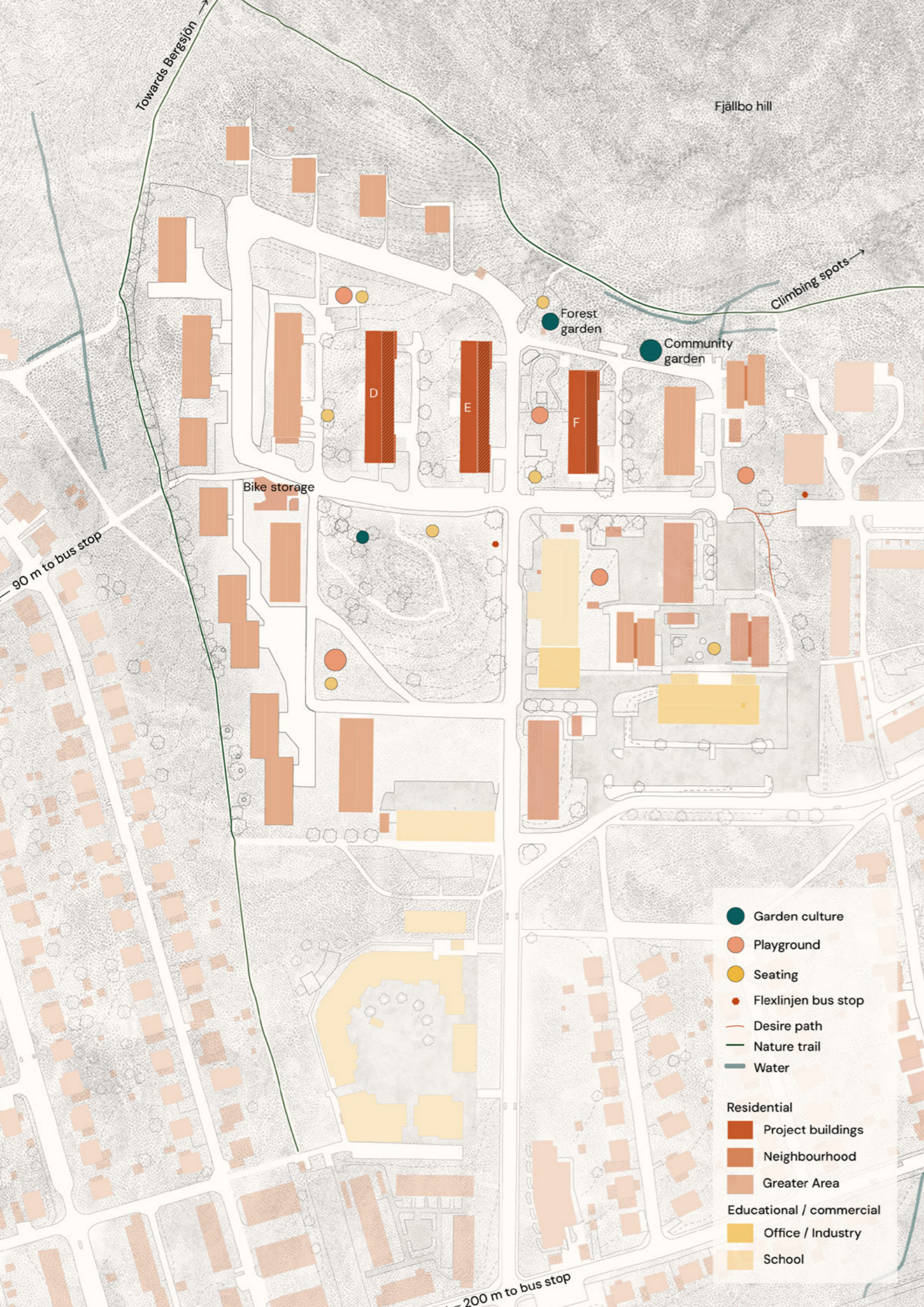


Table 2 Analysis of the neighbourhood based on the 8 dimensions for Social Resilience

Dimension	Observation
Social and cultural meeting places	North of the site there is a walking trail connecting to larger nature area and surrounding neighbourhoods. There are many experiential qualities, such as sounds of trickling water, large stone blocks and impressive trees along the trail. Between the trail and the neighbourhood street north of the buildings is a community and forest garden with both communal and private cultivation. The forest garden was an initiative made in conjunction with new development in the area by the landowner Familjebostäder. The garden has a large art installation, a BBQ spot, seating and growing fruit trees.
Potential meeting and common places	In the middle of the neighbourhood there is a central park area with a playground for kids of different ages, some open green space, a cluster of trees and shrubs as well as a few seating areas. Spread out in the neighbourhood are a few informal meeting spaces such as BBQs and outdoor chairs placed by a facade or in semi-private spaces close to residential buildings. Through research we found out that there is a local group of elderly meeting up for regular walks.
Street furniture	There are quite a few available benches and seats available in the area however often only single benches placed out. In the central green area, there are a few with tables, but some of them are weathered and uninviting.
Pedestrian routes	<p>In general, the area can be considered pedestrian friendly, despite the lack of designated walking paths. There aren't any busy roads with heavy traffic and the central green area also presents a feeling of openness in the area, allowing the pedestrians a good overview.</p> <p>We noticed that there are quite a few desire paths, through the central area as well as between the immediate neighbourhood and area to the east. This is likely due to the closest bus stop is located in the west, meaning the people living in the eastern area needing to walk through the neighbourhood. The second closest bus stop is located south of the area however to reach the bus stop the pedestrian has to cross the school area, which is a busy area and more trafficked especially during pick up and drop of times.</p>
Places of social encounters	We noticed quite many parents around the front of the school during pick up times and identified this as a place where social encounters are likely, however today there is no designated spot and quite a large area meaning people aren't necessarily running into each other. Other likely spots for social encounters are the walking trail, the bike and waste room, and the path to the bus stop.
Places of planned meetings	The area doesn't have any obvious landmarks or meeting spots, perhaps the most obvious is the bike room with its unusual shape and green colour which could make it a place for planned meetings. Another could be the playground in the central green area, or by the school.
Transitional spaces (semi-public)	Most transitional spaces are unprogrammed and constitutes of green lawns next to the buildings. The transitional spaces function in a parklike manner and gives privacy to the first floors of the residential buildings. This becomes obvious since this type of semi-private space doesn't exist next to the new development giving a much denser feeling and many shut blinds at the ground level of these buildings. The lawns however don't invite to interaction and there are no sheltered spaces. In few places there are some appropriations to the lawns such as planter boxes bikes or randomly placed outdoor furniture.

Figure 18 on the left: Site analysis 1:2000 ©
Background image Figure 19: Grey texture drawing (Richards & Elander, 2024) Adapted with permission.

Building analysis

The buildings are an example of 1940s functionalism and institutional character of the time. When it comes to transformation, it has both qualities and limitations for being converted into housing. All three buildings share the same characteristics, but building F is slightly shorter in length. The buildings' load bearing structure is made up of brickwork, wood and concrete. They all consist of a basement, two floors and an attic. The buildings are widely spread apart in the landscape which gives the rooms good daylight qualities as well as privacy, moreover the scale and proportion of the buildings are calm and pleasing to be in and fits well in with its residential surroundings.

13 meters wide, and repeating windows, spaced less than 4 meters apart on each side, creates a natural rhythm in the otherwise minimal facade. The buildings' positioning and the placement of windows provide

de good daylight qualities for the interiors. However, the central long corridor divides the building into two longitudinal sections and is devoid of natural light since its last big renovation. The buildings primarily consist of studio rooms with attached toilet and pantry. The best views and spatial qualities is found at both ends of the buildings. The buildings have a central room with a kitchen, which worked as a shared facility for the either the elderly home or the special needs accom, both has an adjacent outdoor patio.

Through observations it is evident that a lot of interior material is in usable condition, however the interiors of Building F is more worn down. Building E and D have bathrooms that are in good condition, including tiling and fixtures, though still has an institutional aesthetic. Similarly, many of the kitchen units are still useable, but does not satisfy housing requirements in their present state.

Constraints for adaptive reuse

Since Fjällbo park has recognised heritage values in the form of a "conservation program" which entails certain regulation and require additional development applications for interventions. Changes can be made but should ensure existing character traits and qualities are respected and safeguarded. The main constraints for adaptive reuse to housing in Fjällbo park includes building regulations, technical constraints of the buildings as well as the economy of the project and its relation to the affordability of the new apartments. The constraints usually relating to the local plan is not affecting the project and there is no need to apply for a change of use since the plan permits the buildings conversion to housing. The plan also permits attic apartments that are not accessible. There are however some constraints to the immediate space around the buildings, the local plan doesn't allow for any extension or built structure which can limit programming of these areas.



From left to right Figure 20-28:
 Top row: Elevation of Building E towards the Fjällbo neighbourhood, view from attic window, Existing kitchen in usable condition.
 Middle row: Daylight in existing toilets, Typical building entrance with separate entry to staircase and lift, Wooden slab and beam ceiling.
 Bottom row: Entrance door at each floor from the staircase, Outdoor patio and building of building E, long and wide corridor space.

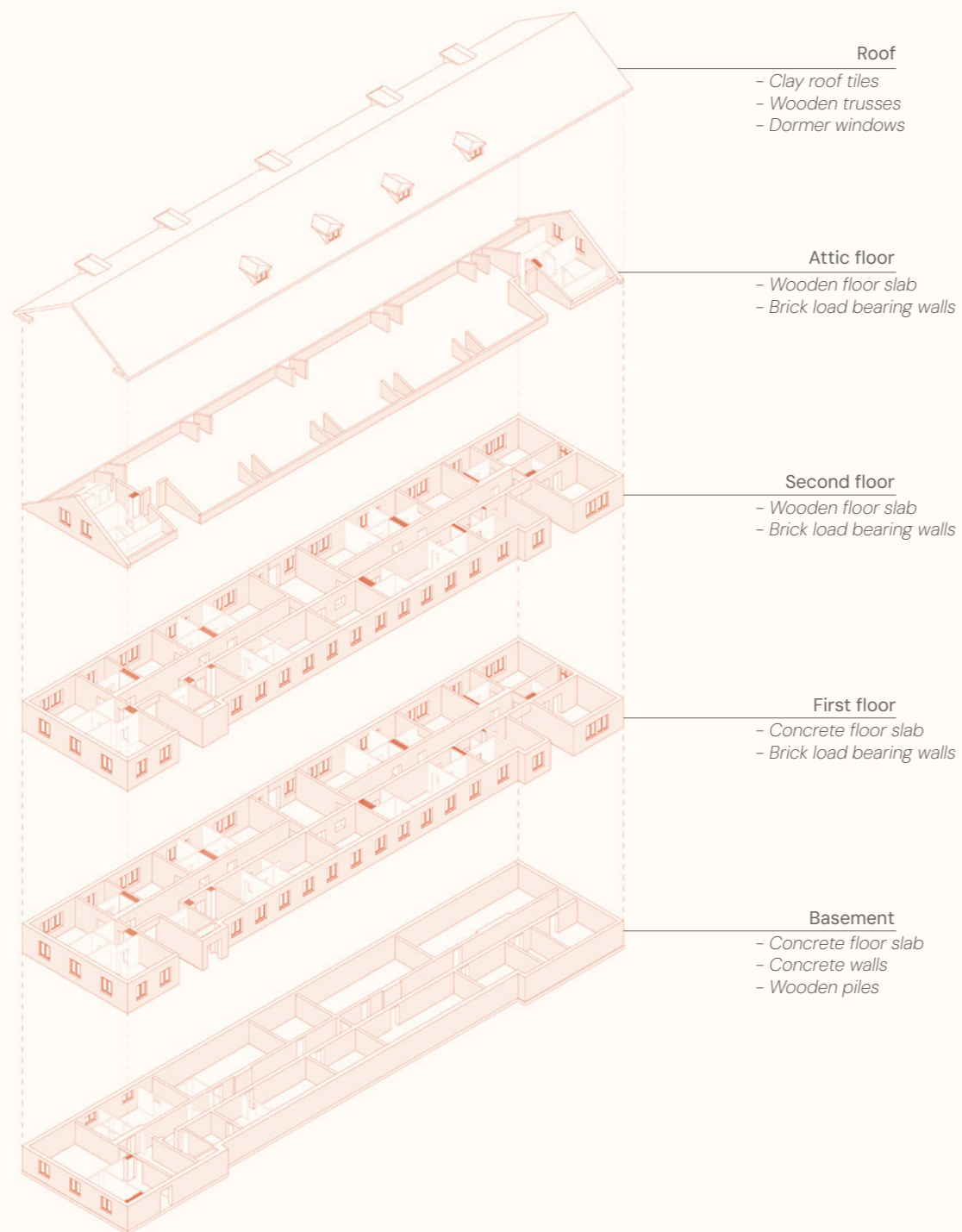


Figure 29: Axionometry of existing layout and loadbearing structure.

Technical conditions

The buildings have wooden piles and concrete ground beams. The basement and ground level slabs are also concrete. The slabs of the upper floors and the roof trusses are in wood. The exterior and interior load bearing walls are in brick. The buildings underwent large renovations in 1990's where windows were changed, the exterior walls were mended and painted, and the plans in building D and E were adapted to fit the use of elderly homes with accessible bathrooms and shared spaces. The ventilation and the piping were also updated. The use of hasn't had any largely negative impacts on building E and D, they are in good condition. Building F was first adapted to housing for special needs and was transformed slightly earlier than the other two. The first floor later became adapted to house a preschool. The use being special accommodation in the form of group housing means that a larger adjustment to the plan layout is needed for the new use. The first floor that was used for school activities has had more of an impact on the materials in terms of wear and tear. Thus, building F is in much greater need for a larger intervention than the other two buildings. The three buildings have good documentation of its construction and is therefore well known. However, making structural changes pose some risk of finding unexpected deteriorations of materials, or to the structure itself, and may require additional repairs. There are minor damages to the interior cladding such as moisture and mould in some areas which would need to be seen to and building F needs additional drainage work. From the property owners own investigation, the current structure is in good condition and indicates that it will hold for at least 30 years, and likely even longer (Filip Elfström, Personal communication March 14th 2024). There is some slight building settlement, but not enough to require structural reinforcement. The owners also assess the piping, ventilation, and electrical systems to be in satisfactory condition, with only specific areas requiring attention and repair.

Compliance with building regulations

The buildings have some inherent physical limitations in terms of its accessibility, in some respects such as for example placement of doors in some rooms. Conversely, in some aspects, accessibility exceeds housing requirements; for instance, many existing bathrooms exceed the size permitted by the Swedish Standard Institute (SIS) regulations (SIS, 2006). It will be necessary to assess the levels of fire safety, soundproofing, daylight qualities, water and waste management to ensure compliance with current standards. Additionally, addressing thermal performance and the need for electric car charging infrastructure would likely be required.

Economy

Depending on the chosen way to establish rents the affordability of the future apartments may be at risk. Rents based on the Utility value will benefit from the least possible interventions to the desirability of the apartments including floors, wall finishes and fixtures. If the rents are established based on project cost, they will likely become equivalent to those of newly constructed rental apartments.

4.

Program for Social Resilience

The program for catalysing
social resilience

Compass, criteria and values
Design implementation

The building scale

The in-between scale

The neighbourhood scale

The program for catalysing social resilience

The program plan caters to several functions that together can initiate the formation of a cohesive social capital in the neighbourhood of Fjällbo park. The program will entail the adaptive reuse of the three vacant buildings to create an alternative shared housing model. Additionally, it will include the design of the immediate surroundings between these buildings, as well as a neighbourhood scale overview. Working on these three scales is crucial as the newly formed sharing-based community is expected to function in collaboration with its neighbourhood, complementing it rather than competing with it.

The building scale

Private spaces

The apartments in the buildings remain private to a person/family with a majority of them being accessible with exceptions in the attic floor. The apartments are of varying sizes, ranging from 1 room to 4 room apartments. The varying apartment sizes and types will naturally invite a diverse target group that includes elderly, young adults and newly arrived migrant families.

Shared spaces

Through our program we want to nudge rather than force the residents to create social bonds. Our objective is to establish shared spaces of different scales and purposes to facilitate physical space for different levels of familiarity and social behaviour. These include shared facilities within the specific building, shared facilities for the entire alternative shared housing community, and bookable/rentable facilities for the broader Fjällbo park community.

Shared spaces can feel overwhelming to many, particularly when one feels like a stranger among others. To make the transition from private to social gradual, our program advocates for shared spaces of diverse scales, accommodating both spontaneous and planned interactions. By encouraging spontaneous interactions, the aim is to create familiarity amongst the residents.

Table 3: Table for spaces for interactions

	Spontaneous interactions	Designated shared spaces
Scale 1	Entrance lobby, corridors	Shared living area: approx. 20 persons, half of the building
Scale 2	Transitional backyard space, laundry and bicycle room	Gym, hobby room and workshop room, indoor games room,
Scale 3	Weather shelter, walking trails, outdoor central gym, children's play area	Library, community hall, sauna, community garden, outdoor central gym

The first scale, shared facilities for the building includes two shared living areas, each designated for one part of the building, alongside a common social laundry and a bicycle room equipped with shared tools and workshop space. The shared living area is multi-functional, comprises of a shared kitchen and dining area, that can also serve as a workspace, along with a comfortable living area inclusive of a children's play zone which can also be utilised as an activity space. Each of this space is shared by different apartment sizes and types, to encourage interaction between our different target groups. We calculate that approximately 20 persons will share one such space.

The second scale, shared facilities for the entire shared-living community includes a hobby and workshop room, a small-scale gym/yoga facility, a sauna, and an indoor games room distributed amongst the three buildings. These facilities are formulated with the aim of fostering interaction through leisure activities, promoting casual interaction among residents. It prioritises facilitating interaction rather than mandating it.

The third scale, facilities for the whole of Fjällbo park includes a community hall, and rentable space suitable for a pop-up library, cafe or boutique. The community hall can be booked for a range of different events including birthday parties, community workshops and decision-making meetings.

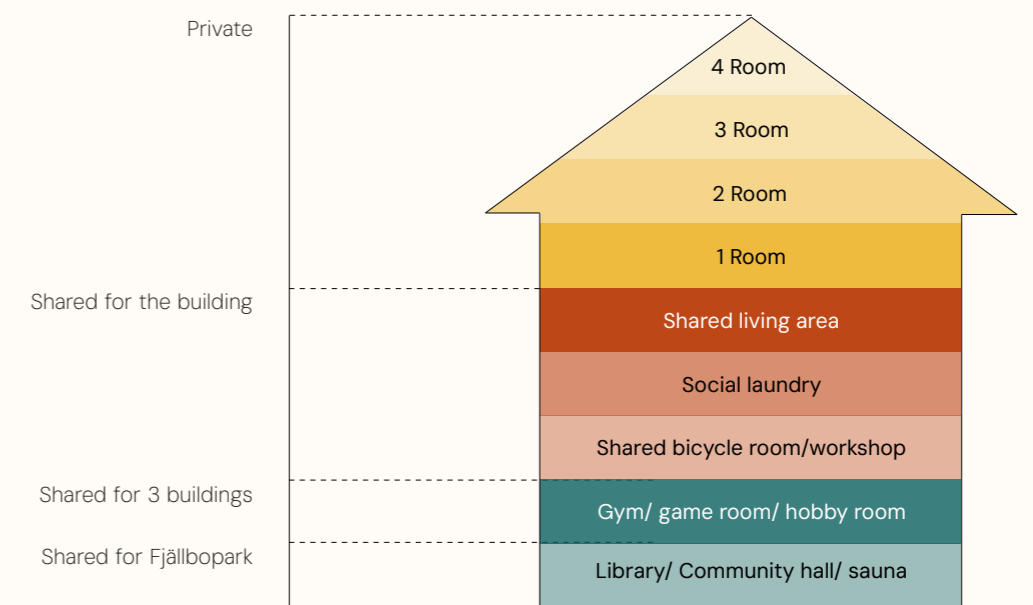


Figure 30: Schematic representation of various functions in each building

Compass, criteria and values

The development of design strategies has been guided by three main key values; serving as a social catalyst, promoting reuse and resource efficiency, and thirdly, striving for affordability for the tenants. With “designing for social resilience” as our compass for decision making, the strongest focus has been placed on catalysing social interaction. Balancing the constraints of the existing built structure with the ideals of shared living and social cohesion derived from theoretical studies, the design concepts have evolved through a careful balancing act between these values.

Zoning for promoting social capital

The building

The zoning of the building is in itself a balancing act between these values. To encourage maximum use and desirability of the shared living area, they are placed in the most attractive spots of the building with best daylight and spatial qualities. Moreover, these spaces are placed such that it is highly visible, accessible and permeable in the spatial configuration so that everyone who shares it, sees it more often and thereby use it more often. As a guiding principle, shared facilities are placed shallower in the system, while private apartments are placed deeper in the system. The wide corridors spaces on each floor double up as transitional spaces from the private apartments to the shared living area. In our specific building, therefore the shared living areas are placed on the first floor closer to the entrance and vertical circulation. The facilities that are to be shared among the three 3 buildings are placed centrally on the first floor of each building with existing exterior doors for convenient access. Likewise, the shared spaces for the whole of Fjällbo park are located at the most publicly accessible areas of the buildings, which is also fairly central within the neighbourhood.

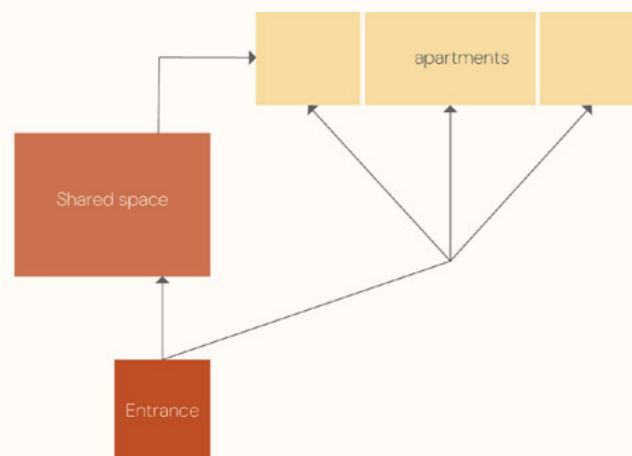


Figure 31: Zoning for the building

The surroundings

Currently, there are no transitional zones from the interior to the exterior of the buildings. The immediate exterior of the buildings is designed to be semi-private with backyards shared among its tenants. The area further beyond is intended to be public and inviting, serving as a comfortable space for residents from neighbouring buildings to gather. However, this area also encompasses pedestrian paths that connect to the larger neighbourhood.



Figure 32: Zoning for the surroundings

Reuse and resource efficiency

The concepts for fostering social capital have been applied to already existing buildings, which makes it crucial to plan for reuse and resource efficiency. The primary goal is to reuse as much as possible and therefore the design decisions leans towards the principles of sufficiency as to efficiency. These measures can also advocate for affordability as it avoids unnecessary costs in the transformation project, therefore includes the economic angle of social resilience.

Kitchens

Similarly, the existing kitchens, though not complying to current building standards are retained in the one-room apartments where the interior layout does not change. Having access to a shared kitchen, these existing kitchens are sufficient for a single-occupant one-room apartment. However, in new one-room apartments and larger apartments, new kitchens are designed that comply to SIS.

Windows

The windows, which are double-glazed and were installed during the building transformation in the 1990s, have an expected lifespan of at least 30 more years, although it can be assumed that their full lifespan is typically much longer. While there have been discussions about updating the windows for improved efficiency, life cycle cost (LCC), and aesthetic appearance to resemble the original windows from 1939 within the housing company, our proposal is to retain the existing windows. We suggest low-key interventions such as repairing them and making them more airtight by adding additional beadings, tapes etc will be more sustainable from a holistic angle and to reduce wastage.

Apartment sizes

The apartment layouts try to follow the existing building layout wherever possible to minimise environmental and economic impacts. The apartment layout also makes it flexible to up-size or down-size. Case studies on shared living show that reducing apartment sizes by 10–15% can advocate for providing more shared spaces without overall increase in area, thus keeping the costs low. This may also imply lower rents. While this principle has been generally followed, quite a few exceptions have been made due to the adaptive reuse nature of the project, which emphasizes retaining as much of the existing structure as possible. Therefore, for the new program, one-room apartments have been retained where possible. Existing walls have been moved to comply to SIS and/or to reduce apartment sizes. However, the relocation of walls resulting in a gain of less than 10 square meters has been avoided, in order to maintain the project's focus on utilising the existing for sustainability. The electrical and piping shafts have also been retained and the new layout has been designed to work around it.

Bathrooms

The expected lifespan of the bathrooms has been estimated for at least an additional 10 years (Filip Elfström, personal communication, March 14, 2024). Nevertheless, with proper maintenance, the full lifespan could potentially be further extended. This implies that we refurbish and use the existing bathrooms as much as possible rather than redoing it to reach a 'new built standard'. The ideas for refurbishment are to improve the desirability of the bathrooms by improving their functionality and visual appearance from institutional to residential. For example, removing additional supports previously installed for high-level accessibility, adding a vanity cabinet below the wash basin, adding shower partitions and replacing selective tiles where needed instead of re-tiling the entire bathroom. In later years, individual bathrooms can be upgraded when they reach the end of their lifespan.



Figure 33: Existing bathrooms



Figure 34: Proposed refurbishments

In the proposed building layout, to accommodate a range of apartment sizes, new bathrooms are also designed. Here fixtures from demolished bathrooms are planned for reuse. layout, to accommodate a range of apartment sizes, new bathrooms are also designed. Here fixtures from demolished bathrooms are planned for reuse.

Corridors

The institutional character of the building has left behind long 1.8m corridors. The additional space in the corridors have been repurposed to double up as functional transitional spaces to promote spontaneous interactions among tenants of the corridor with the addition of sit benches and storage shelves.

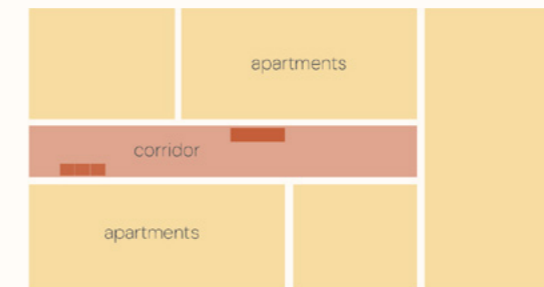


Figure 35: Transition semi-private corridors

Additions for usability and promoting social interaction

Elevators

The current configuration of these elongated buildings consists of two staircase units at opposite ends, but only one elevator located at one end. To address the issue of lengthy corridors and to assign each primary shared living area to a half of the total apartments, the new building layout divides the building into two segments. As part of this plan, we propose installing an elevator to the other side to improve accessibility and, as a result, enhance the overall desirability of the building.

Attic apartments and dormer windows

The attic level has been redesigned to accommodate one-room and two-room apartments. Wherever existing dormer windows were present, they have been utilised, and additional dormers have been installed to bring in natural light within the attic units. The arrangement and spacing of these dormers have been coordinated with the existing dormers and windows on the lower floors to create harmony between the original structure and the new additions.

Entrance lobby

Currently, the buildings have abrupt entrance situations, as both the elevator and staircase doors are located directly at the outer edge of the building. The elevator entrance lacks sufficient sheltered area, leaving it vulnerable to weather conditions. This impacts both its desirability and usability. In our design proposal, introducing an entrance lobby serves multiple purposes. It not only establishes a more integrated entrance situation for the building but also acts as a transition zone, reducing energy losses and providing a buffer between the outdoor public space and indoor private areas. Furthermore, the entrance lobby facilitates additional functions such as housing post boxes and notice boards. This creates opportunities for tenants to interact spontaneously while attending to their tasks, fostering familiarity and encouraging interaction with minimal planning and effort.

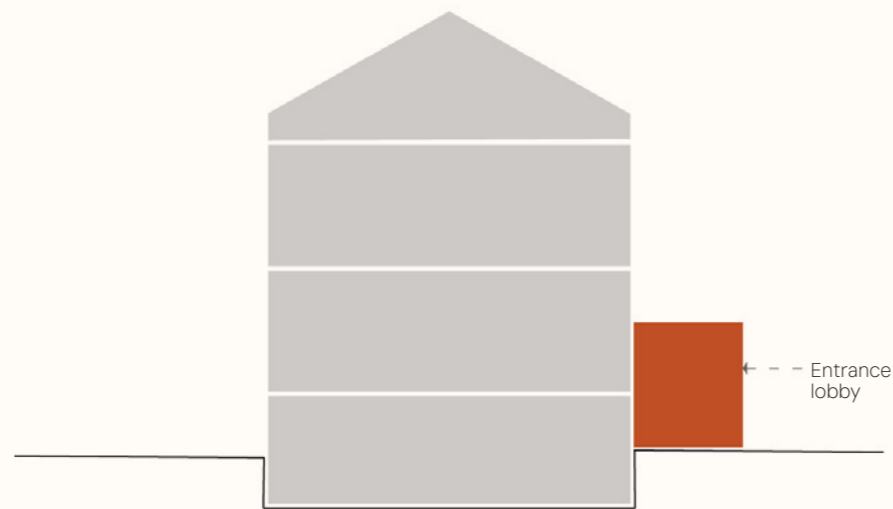


Figure 36: Extensions and additions creating transitional qualities

Patios from shared areas

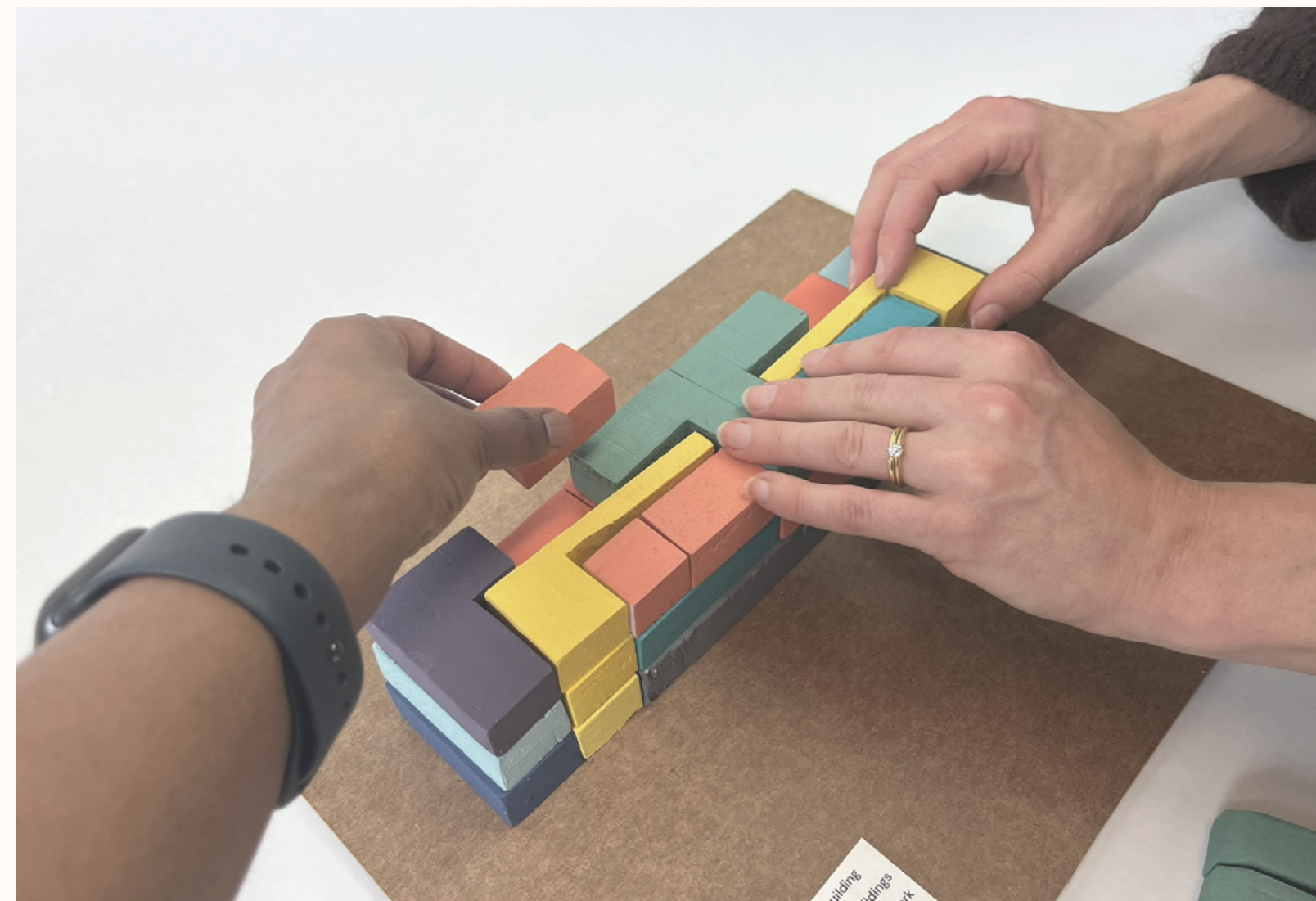
Patios extending from shared living areas enhances its qualities and usability, thus creating a more spacious and desirable environment for tenants to spend time. Additionally, these patios serve as entrance points to the outdoor shared backyard spaces. Except for the two four-room apartments where there was an existing one, the building's apartments do not have private balconies; instead, they have the shared patios and backyards.

Working model for zoning

Zoning of different functions in the building was carried out through sketch brainstorming and block model testing. Working with a model, was a similar experience as to exploring with 'legos' to understand the massing and distribution possibilities of different spaces both horizontally and vertically. Giving colours to different functions helped us see how diverse each iteration was and what impact it implied in terms for vertical and horizontal connections.



Figure 37: Zoning model, floor by floor. Scale 1:200



Design implementation



Figure 38: Perspective of the new entrance and patio.

The building scale

Since all the three vacant buildings are very similar, further design development has been carried out on one of the buildings, Building E. The development of the design resulted in a total of 23 apartments comprising of 12 one-room apartments, 7 two-room apartments, 2 three-room apartments and 2 four-room apartments. The one-room apartments range from approx. 26 – 38 sqm. The two-room apartments range from approx. 36 sqm – 59 sqm. The three-room apartments are approx. 76 sqm each and the four-room apartments are approx. 94 sqm each. The goal of having a variety of apartment sizes is to make it feasible for our target tenants' groups to prefer and afford the rents as we foresee that this mixing along with pro-community behaviours is essential for the formation of social resilience. The legend below describes the zoning of the building, the private apartments and the shared spaces, and the following pages shows the new floor plans.



Figure 39: Perspective of 1-room attic apartment



Figure 40: Perspective of the 2-room attic apartment depicting movement between rooms

Legend

Private spaces

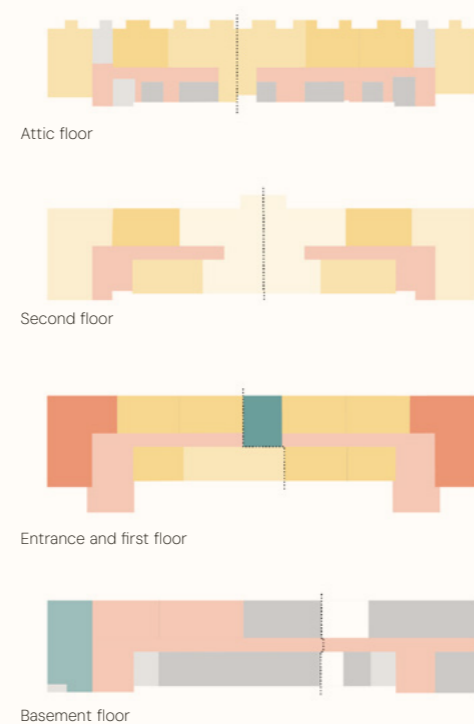
- 1 room apartments
- 2 room apartments
- 3 room apartments
- 4 room apartments

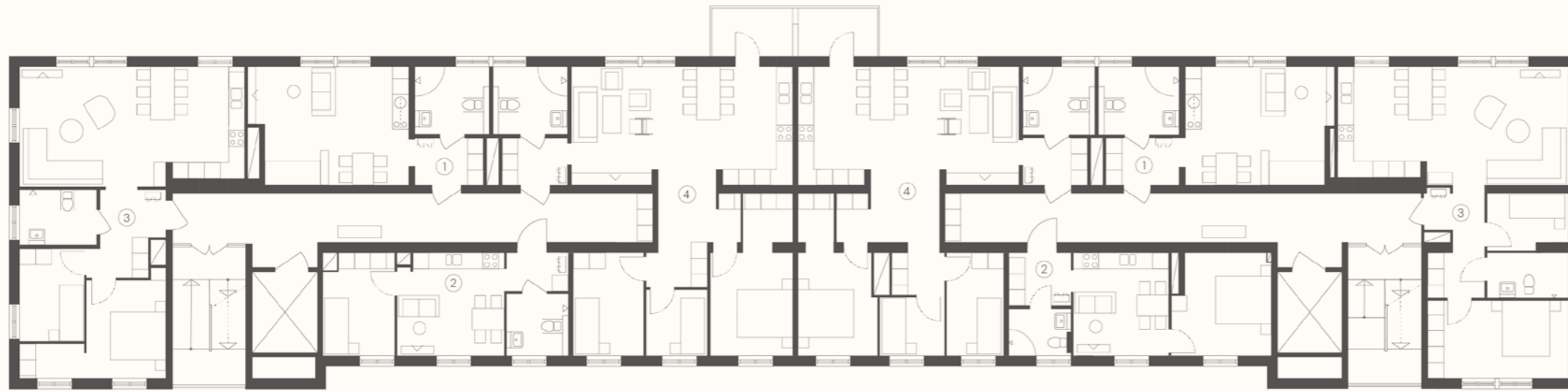
Shared spaces

- Shared living area in the building
- Shared spaces for spontaneous interactions
- Shared activity space for 3 buildings
- Shared activity space for Fjällbopark

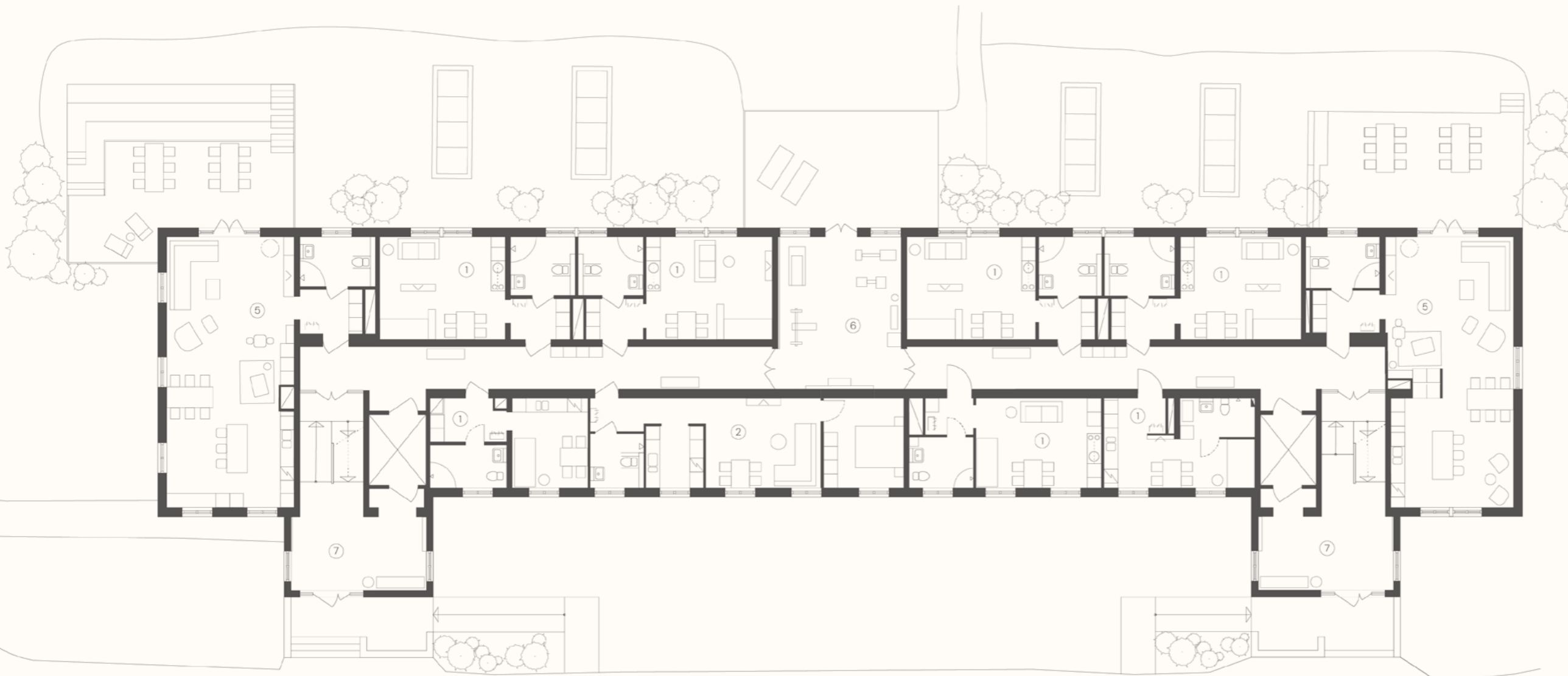
Others

- Storage
- Technical





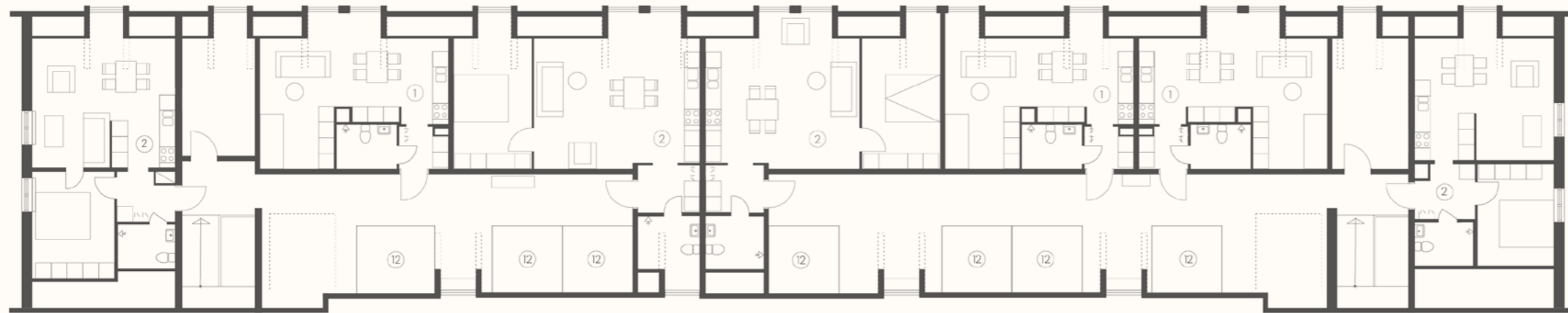
Second floor 1:200



First floor and entrance lobby 1:200

Legend

- ① 1 room apartments
- ② 2 room apartments
- ③ 3 room apartments
- ④ 4 room apartments
- ⑤ Shared living room
- ⑥ Shared gym
- ⑦ Entrance lobby
- ⑧ Neighbourhood library
- ⑨ Social laundry
- ⑩ Shared bicycle room/workshop
- ⑪ Stroller room
- ⑫ Storage



Attic 1:200



Basement 1:200

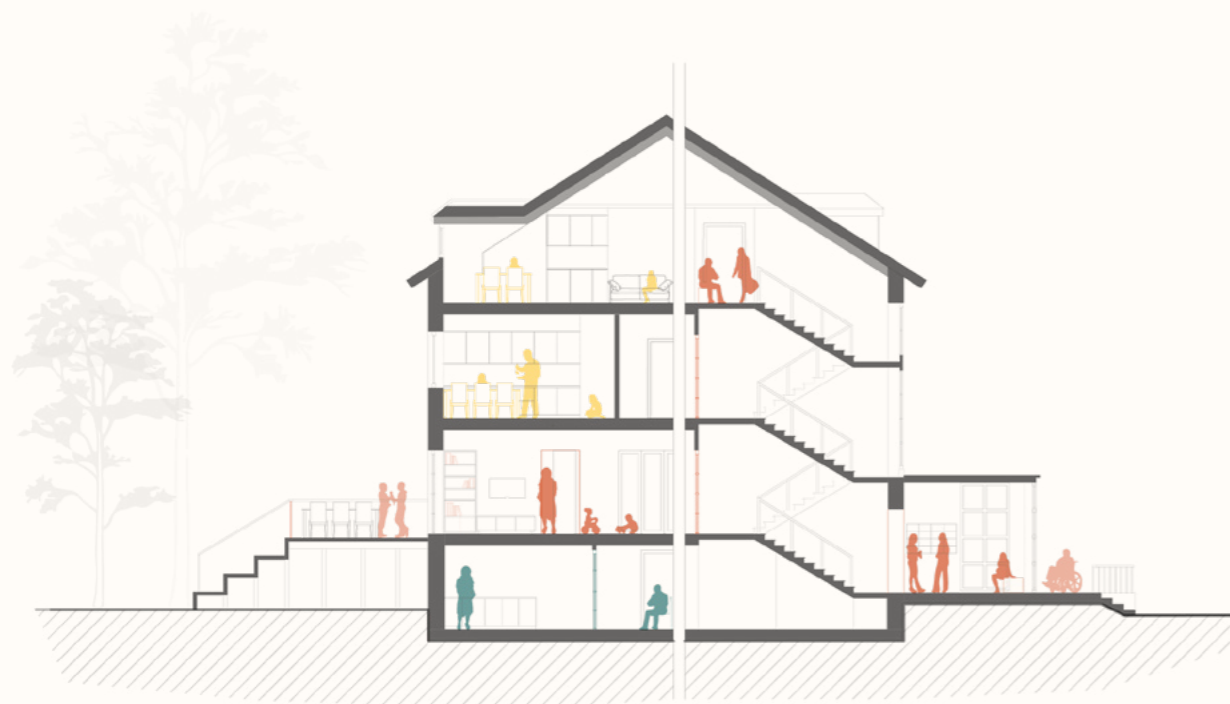
Legend

- ① 1 room apartments
- ② 2 room apartments
- ③ 3 room apartments
- ④ 4 room apartments
- ⑤ Shared living room
- ⑥ Shared gym
- ⑦ Entrance lobby
- ⑧ Neighbourhood library
- ⑨ Social laundry
- ⑩ Shared bicycle room/workshop
- ⑪ Stroller room
- ⑫ Storage

Transformation plans

By optimising the use and reuse of existing elements while integrating new components for improved functionality and safety, we were able to achieve the following results. Location of walls and fixtures have been changed to either meet SIS or to accommodate the new functions.

With this approach, 91% of windows are retained, and a total of 15 new windows are added, including 5 in the basement to improve safety and daylight, 6 dormers for the attic apartments and 4 for the new entrance lobbies. Similarly, 43% of the doors are kept as is, with 95% of the demounted doors reused in the new layout. New doors are proposed where the function demands it for the social or safety factor. Examples are the patio doors, exterior doors for the gym and library, new entrance doors and glass doors for the shared laundry and bicycle room. Regarding toilets, 58% of toilets are retained with minor refurbishments like adding shower partitions, vanity cabinets and replacing few tiles where needed. The demounted fixtures from the demolished toilets are proposed to be reused in the new layouts. This implies that all the new toilets have reused wash basins, water closets and showers. However, the kitchen units are exceptions, with only 32% retained, i.e., in the one-room apartments that have not been redesigned. The larger apartments and the newly designed one-room apartment layouts receive new kitchen units as per SIS. However, certain parts like drawers, cabinets, hinges, knobs etc can be reused from the demounted kitchens, especially the ones from the old common kitchen. Moreover, appliances meeting expected standards are proposed to be reused. The washing machines and dryers, and white goods like the stove, dishwasher and oven from the common kitchen can be reused in the new shared laundry and shared kitchen spaces. These approaches not only optimize resource usage but also carry forward the history of the building into the present and future, ensuring sustainability and continuity.



Section AA



Section BB

Legend

- Private apartments
- Shared for the building
- Shared by the community

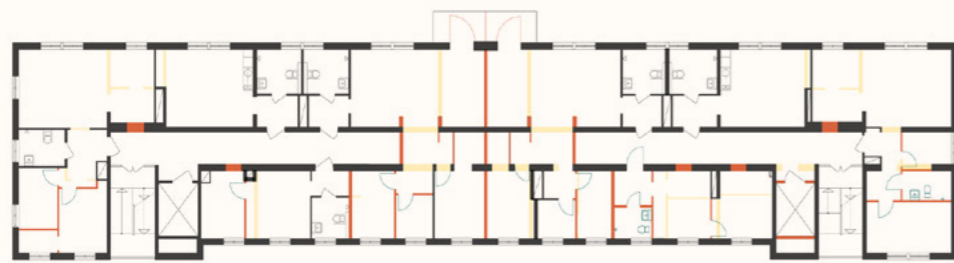
Building section depicting different functions and uses 1:200

Table 4: Reuse information of elements and components in Building E

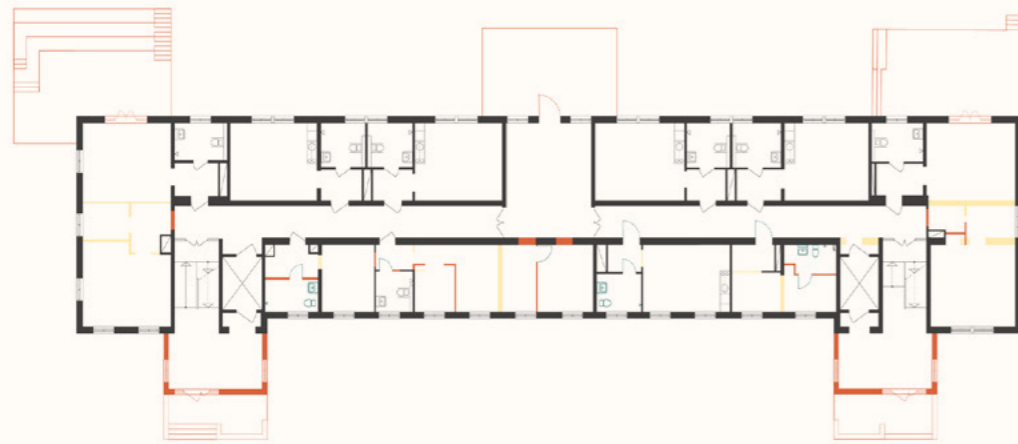
	Existing	Kept as is	Demounted	Reused	New	Surplus
Wash basin	38	16	22	10	0	+12
WC	29	14	15	12	0	+3
Shower	20	13	7	7	5	0
Kitchen cabinets	22	7	15	1	18	+13
Window	80	73	7	1	10	+6
Door	83	36	47	45	11	+2



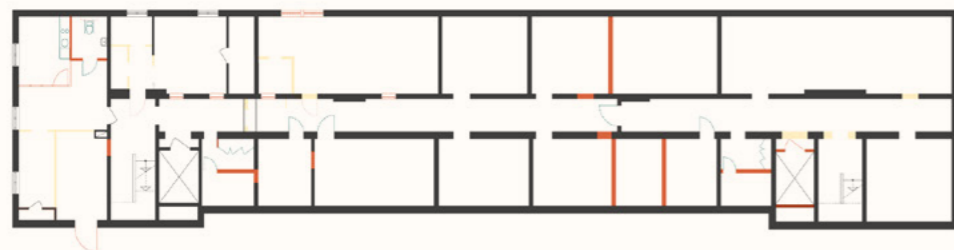
Attic floor



Second floor



Entrance level and first floor

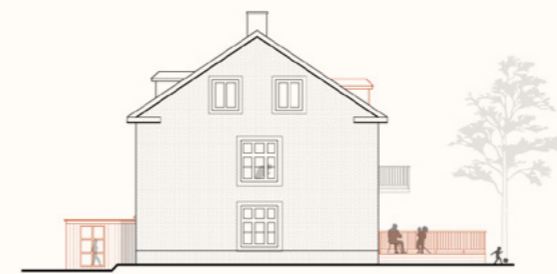


Basement floor

Legend

- Kept as is
- Added
- Removed
- Reused

Transformation information plans 1:400 ©



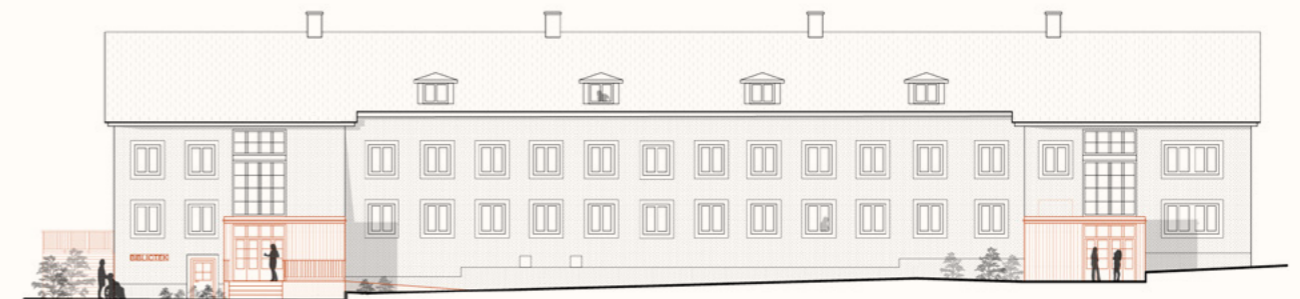
New north facade



New south facade



New west facade

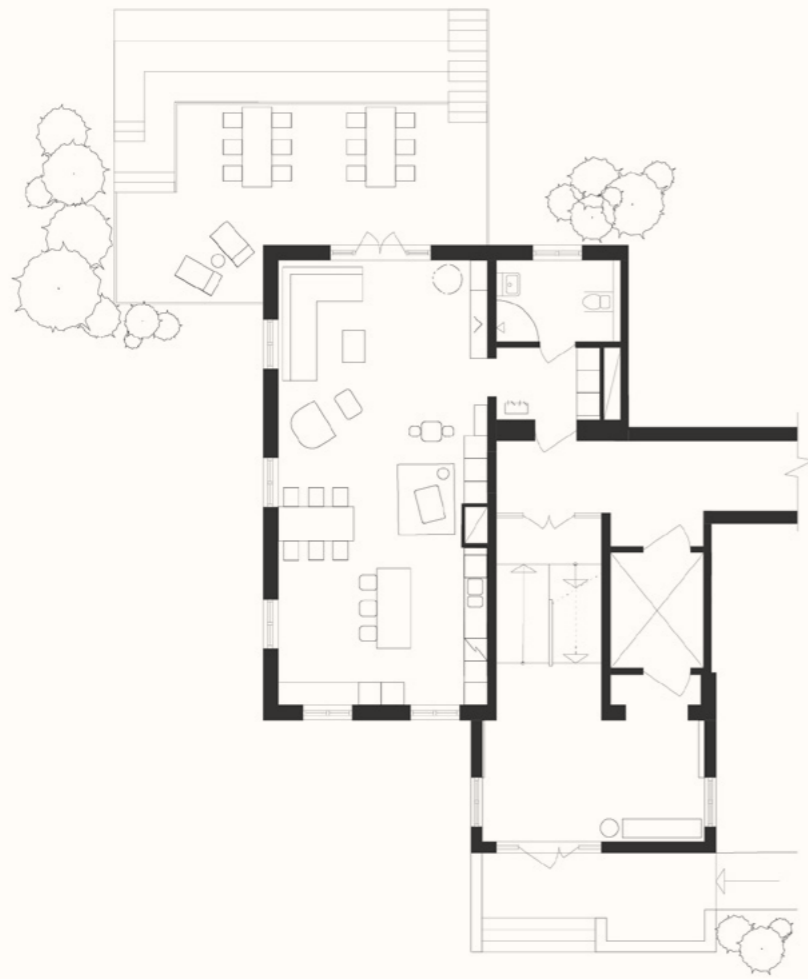


New east facade

Transformed building facades with additions in red 1:400

Fomalised shared spaces

The primary formalised shared facility in each half of the building is the shared living area of 80 sqm, which includes a shared kitchen, shared living room, and a common toilet. The patio connected to the shared living area extends activities outdoors into the shared backyard space. The open layout of the design encourages interaction and visual connectivity between these different functions. The shared kitchen consists of an island and built-in seating by the window sill, while the living area offers various types of loose furniture seating to accommodate different preferences, along with a bookshelf and TV unit. Situated between the kitchen and the living area is the children's play area. Given that most of the interior layout is suggested through loose furniture, tenants are encouraged to modify and furnish their shared living space according to their specific needs. Building E also houses the shared gym of 36 sqm for the alternative shared housing community located at the centre of the first floor. This space also extends out to a patio/entrance.



Formalised Shared living area 1: 200 ©



Figure 41-42 on the right:
Above: Shared living area
Below: Shared kitchen

Opportunities for spontaneous encounters

A formalised shared area only may necessarily not attract all tenants to use the space. As mentioned earlier, it could feel intimidating to many when you don't know your neighbours. To promote the concept of gradually getting acquainted with neighbours, the building has a few non-formalised shared spaces to encourage spontaneous interactions. These spaces include the addition of the entrance lobby, where tenants can exchange a smile or a short conversation while collecting their posts, looking at the notice board or simply waiting for someone. Another potential space is the corridors on each floor. The 1.8m wide corridors double as a transition between to private apartments to the shared living area and accommodates benches and shared cupboards. The basement contains shared spaces for chores like laundry and bicycle storage/workshop. Today, the dark basement corridors are unwelcoming and feel unsafe, discouraging people from spending time there. With minimal interventions, the design goal was to improve the desirability and safety aspect of the basement. While the laundry space has an existing basement window, new basement window has been added in the bicycle room to bring in some natural light. In the proposal we have opened up the corridor walls with glass partitions. This brings in visual connectivity and also some amount of light from the basement windows into the corridor space. The south side of the basement that already is well-lit with windows and an entrance door from outside houses the neighbourhood library for the whole of Fjällbopark.



Figure 43: Entrance lobby



Shared spaces in the basement showing opportunities for spontaneous interactions 1: 200 ©



Figure 44: Corridors on apartment floors



Figure 45: Basement corridor with new wall openings

Compass, criteria and compromises



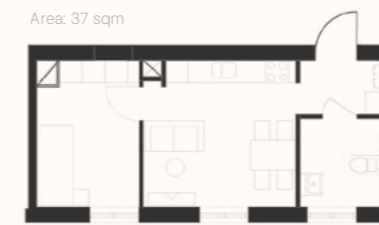
3 room apartment layout on south, 1: 200



3 room apartment layout on north, 1: 200

The layout transformation, aimed at retaining as much of the building structure and elements as possible, presented new challenges at every turn. All existing shafts have been retained, and room layouts have been planned around them. However, unique situations arose, leading to compromises on the general design criteria followed throughout the planning process. An example of this can be seen in the layouts of the two 3-room apartments. The 3-room apartment located at the south end retains the existing bathroom in its original position, with the room configurations planned around it. However, despite the building's overall symmetry, the facade at the north end has fewer windows compared to the south facade. In the original layout, it was the bathroom that occupied the north window space. In this case, while the initial aim was to preserve the bathroom layout as much as possible, a compromise was made. The location of the bathroom was swapped with one of the bedrooms, allowing the bedroom to benefit from the existing window space without the need to add additional windows to the facade.

This compromise required demolishing and rebuilding a toilet to accommodate the change. However, it was deemed a more economically and environmentally sound solution than adding extra windows to the north facade.



2-room apartment layout 1, 1: 200



2-room apartment layout 2, 1:200



Existing 1-room apartment layout, 1: 200



Attic 1-room apartment layout, 1: 200

Similarly, the design of the 1-room and 2-room apartments required addressing unique situations and occasional deviations from the general layout criteria. Despite the initial intention to create smaller-sized apartments for shared living, the building limitations resulted in different sizes of 1-room and 2-room apartments instead. For example, Figure 1 illustrates a 38 sqm 1-room apartment layout that maintains the existing configuration, including the old kitchen unit and bathroom layouts. In contrast, the attic apartment of similar area, shown in Figure 2, has a new kitchen and toilet compliant with SIS standards. Figure 3 depicts a very compact 2-room apartment of 37 sqm, while Figure 4 showcases a more spacious 2-room apartment spanning 53 sqm.

Here, the sizes of the apartments, although aimed to be smaller than standard by approximately 10%, were rather determined by the positioning of existing walls, shafts, toilets, and SIS requirements. This, in turn, results in a range of sizes and types of 1-room and 2-room apartments, which may in fact appeal further to diverse tenants due to considerations of affordability and utility.

The in-between scale

The immediate surroundings of the buildings in Fjällbo park follow the modernistic ideals of "light" and "air" from the time they were planned and constructed (Andréasson, 1989). This also stretches to their placement in the landscape, in relation to each other, and the green in between space. While the current programming is ideal for health care environment, some intervention is needed to better suit the new purpose of housing. Currently, the distinction between the buildings and the immediate surroundings is stark, lacking transitional or semi-public qualities. Introducing shared backyards for the tenants will smoothen the transition to the larger open area between the buildings and at the same time extend the concept of shared spaces to the outdoors as well. This can foster a sense of ownership among the residents for the exterior spaces. Furthermore, the open areas will need to be more than mere lawn surfaces to promote community engagement. The proposal outlines a similar concept of shared space also for the exterior, there are more private areas and more public with shrubbery making the boundaries distinct. The immediate access from the in-door shared space leads to an outdoor terrace providing quality for the residents sharing the spaces, as well as extends the room in the warmer months. The terrace has steps down to a shared garden, shared among the same group of people. This can be a place for BBQs, playing, sitting by the fire in the winter and gardening or tanning in the summer.

The area beyond is the semi-public space for community between the tree buildings, but also for the whole of Fjällbo park. Between Building E and F there is a playground and a half basketball court as well as a hard surfaced biking track, all reused playground space from the previous pre-school function. To this, a larger BBQ spot with semi sheltered seating and some more sheltered private seating has been added. On the other side of the building, between D and E, the path is connected to the community forest garden to the north of the buildings, making the green space more accessible for pedestrians. The green space in between becomes an extended lawn area for the residents and larger community. North of building D, a Boule course that is connected with the new path has also been added.

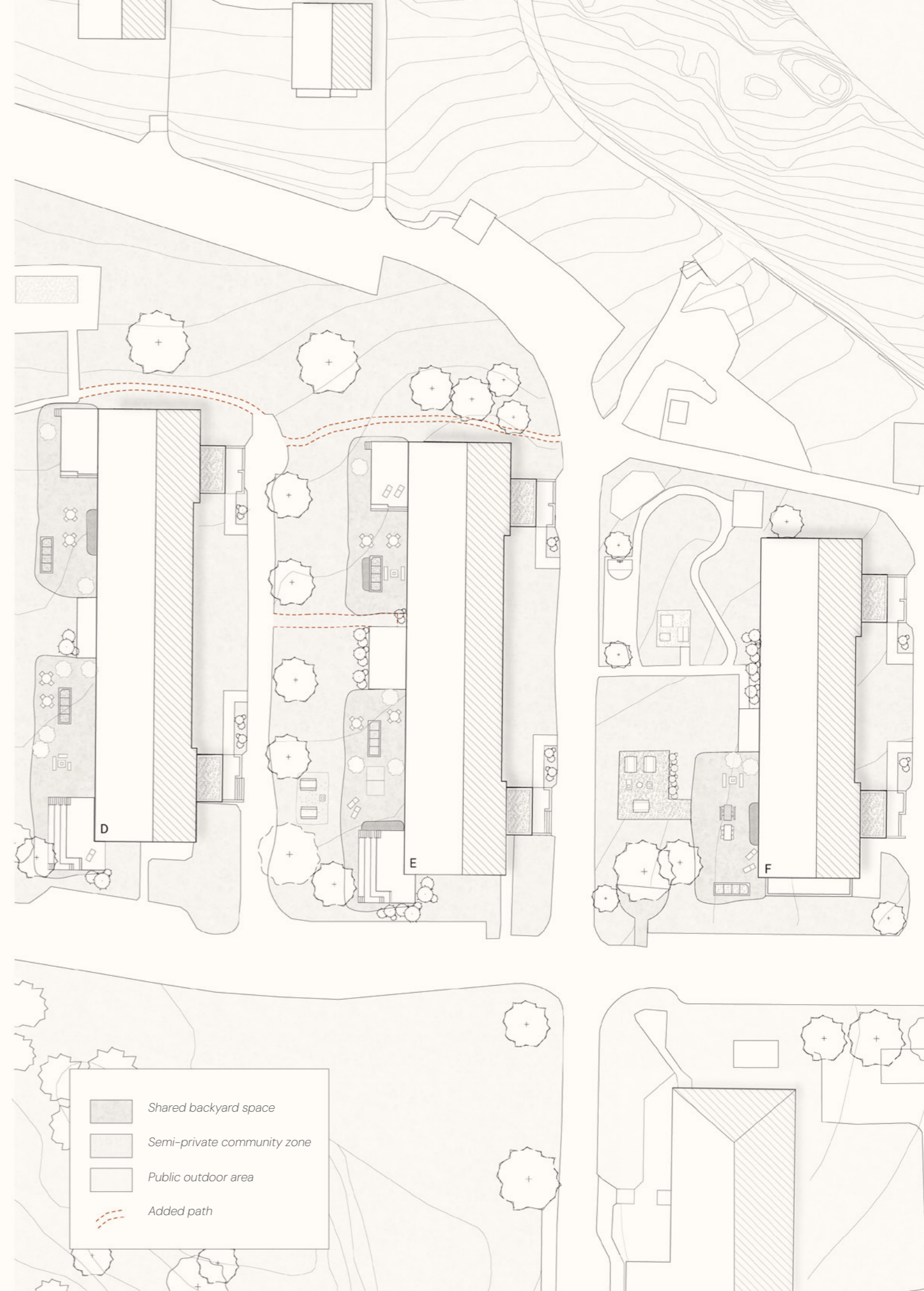


Figure 46: Layout plan showing the in-between spaces 1:600 ©



Figure 47: South-west perspective of the building showing transitional yard spaces

The neighbourhood scale

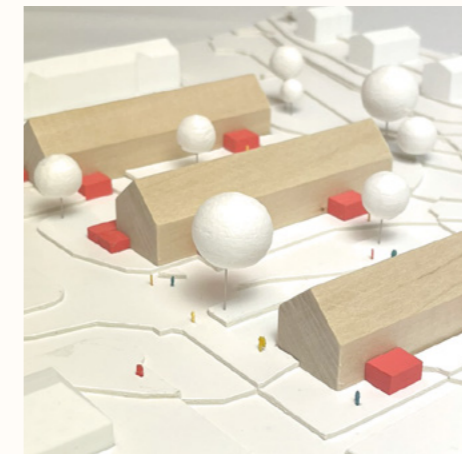
In this scale, the emphasis is to plug-in conceptual planning measures aimed at improving social forms of movement like walkability to facilitate spontaneous interactions, and development of outdoor meeting spots for spontaneous, casual and planned meetings like weather shelters, jogging tracks, and an outdoor gym. The area already had some of these qualities but had scope for additions to complement the existing and outline how the three buildings also can benefit the neighbourhood at large.

In the proposal places for leisure are marked with the slanted line hatch and symbolise playgrounds, outdoor gym area, and forest garden, either existing in yellow or added in red. The dashed version shows the semi-public spaces which here is the added space between the three buildings pointing out a playground, a pedestrian path and community outdoor furniture. A few suggestions for weather shelters have been marked out as red squares on the map at strategic locations. These do not indicate a shape of these proposed weather shelters but only their position. We imagine that these could become meeting spots, for example for parents waiting to pick up their children from the school in the area, for people waiting to catch the flex bus, or climbers taking a break in between sessions. We imagine these could be temporary lighter structures without full walls, simply directing people to a specific spot allowing for spontaneous interactions within the neighbourhood. Lastly, the new program in the three building adds new facilities to the neighbourhood in the form of indoor community space. There is the small community library in building E, a bookable community hall in Building D, providing space for parties or community organised events; we imagine that it for example could provide a space in support of the annual Utby second hand walk or for the local historical Self builders' association. Third, there is a sauna in building F, primarily for the shared community, but also available for booking for residents in the neighbourhood, or visitors. We imagine this could encompass the climbing community, making Fjällbo park more of a destination with additional services available.



Figure 48: Neighbourhood scale schematic layout [Rendered CAD drawing] 1:2000 ©
Background texture Figure 19 Grey texture drawing (Richard & Elander, 2024) Adapted with permission.

Neighbourhood model



The neighbourhood model depicts in a distinct but schematic way the new additions to the buildings, and their position and relationship to other buildings.

The people in the model represents different people in the neighbourhood; yellow is people of one building, and red signifies people living in the either of the three. The green people represents people living in the neighbourhood.

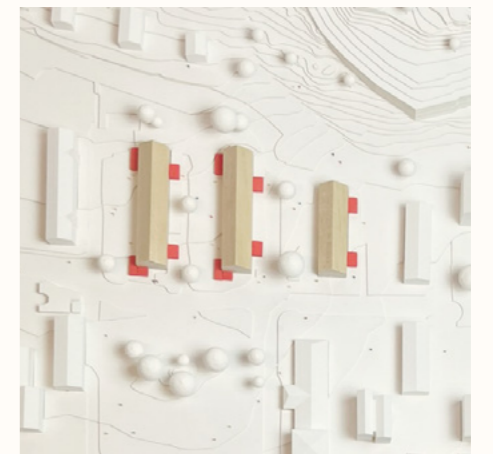
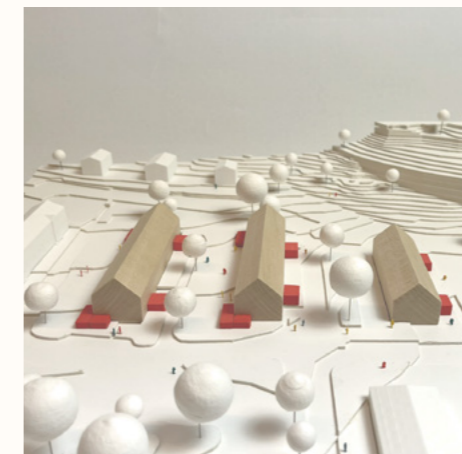


Figure 49: Presentation model of the neighbourhood scale 1:500

5.

Reflection and discussion

Reflecting on the project through scenarios

Desirability & building limitations

Adaptive reuse - viable strategy for affordable rental housing?

Reflections on the process

Reflecting on the project through scenarios

Speculation of future tenants and their experiences has been a way to reflect on the project. These hypothetical stories help immerse the reader (and designer) into the design, testing it through potential positive and negative scenarios that could occur, providing a basis for evaluation and discussion.

Scenario 1: A woman walks home from school with her son

A woman is walking down the street from the bus stop. She's on her way to pick up her son from school, which is only a short 100 meters from where they live in Fjällbo Park. She walks towards the weather shelter that doubles as a designated parental pick-up spot. The light wooden structure is a welcome addition to the otherwise empty lot, especially on days when it's raining, and she forgot to wear the right coat. She sits down on the bench, and her gaze lands on the community notice board. The senior group announces their weekly Tuesday morning walks, and the small library invites families with children for a story time reading.

Her son shows up with his kick bike and begins to tell her about the new game his friend got and that they decided to continue playing tomorrow. They begin walking—riding in his case—and reach the edge of the grassed area where the son drops the bike and runs up to the gym equipment. The mom joins in and after some time, they continue walking towards the yellow building. Inside the entrance lobby, while she's checking the mailbox, the son is already halfway up the stairs to the shared space to see who's already there. They almost have the routine figured out by now. She gets a head start on dinner while he plays with the other kids or the shared toys in the shared living room. She then goes down to get him once she has the food prepped and usually stays around to catch up with whoever is there at the time. She enjoys having so many people around; it's like having a big family. Sometimes she even cooks their dinner in the joint kitchen, and often neighbors join in on the food. She always thought it was fun to cook for more people either way.

Scenario 2: Taylor's Friday afternoon

It's a Friday afternoon and Taylor is in the shared bike storage at the basement. The tire of their bike is stuck between two other bikes in the shared bike storage. With some force, it comes free, they pump air into the wheels using the common air pump and back out towards the door into the corridor. The afternoon sun is shining through the window, and looking out, they can see the shared garden and the silhouette of one of the old trees from the facility's earlier days. They love walking between the buildings and admiring the lush green trees and bushes around the neighborhood. One of the advantages of living in this older area with tall trees and three-story buildings is the park-like atmosphere, which contrasts with today's demand for every square inch to be profitable.

In the corridor, they hear the laundry door close and, as they pass the window, see Elsa, elderly, cheerful lady who always wants to talk. They nod and smile at her but then focus their gaze forward to avoid inviting more interaction. It's not that they dislike talking to neighbors, but sometimes this one tends to keep the conversation going for too long.

They reach the elevator just as it arrives on the basement floor and step out of the way as Olivia shuffles to open the elevator door and get the pram out. They grab the door and hold it open for her. They smile and share a short conversation, then make their way into the elevator with the bike and press the button. They like knowing all their neighbors on a first-name basis and feel safe knowing that if there's ever an issue, they could knock on any door in the house. They just prefer not to join in often on the social activities in the shared space. They appreciate the balance this living arrangement offers, allowing them to be part of a community while still maintaining their personal space but also living fairly centrally and at an affordable price.

Scenario 3: Oscar, the older but energetic person

Oscar, 68, lives in a one-room apartment on the first floor in building D. He used to be a landscaper, but that was many years ago. He had learned most of it in his home country and had to learn everything about the cold seasons when he moved, now more than 20 years ago. Nowadays, his landscaping was confined to a small lot outside the building, and it was shared with 17 other people. Of course, he wasn't as able-bodied as he used to be; in those days, he was working up to ten times the size, and multiple in one day. He was quick with the tools and enjoyed the rewarding sensation of appreciating the work quickly, making the sweat and aching muscles worth it.

He had this idea that perhaps he would be allowed to look after the grounds surrounding the three co-housing buildings. Make some extra money or be allowed to deduct it from the rent. But instead, the housing company employed contractors. Perhaps they thought he was too old. "Camarón que se duerme, se lo lleva la corriente," he thought to himself, which means simply that he couldn't afford to stay idle or else he'd be left behind, even at his age.

Most of the afternoons were spent in the shared space; they had become a bit of a crew of regulars. Him and Alex, and Ellis from building E. Technically, the spaces were only meant for your specific group of apartments, but no one had ever confronted them about it. They never felt that they took up too much space; it rather felt as though most people found it comforting that there was always someone talking and laughing around the table or on the terrace. Especially the parents seemed grateful for their presence when they came in, often half-chasing their young ones who couldn't wait to continue their games with the other kids. They had so much energy, these kids.

Scenario 4: The teenager and her story

A 13-year-old teenager lives in building F. She has been living there for five years now but recently started attending a school further away. Every morning, she walks to the bus stop, thinking it's too far, especially with her heavy backpack filled with a laptop and books. She often feels awkward about her living arrangements, wanting to be "normal", unlike anyone else she knows. When she was younger, she appreciated the big family feel of shared living. Now, as a teenager, she feels less excited about it. The constant presence of neighbors feels overwhelming, and she's hesitant to invite friends over. Her dad always tells her she can bring friends since they have all the shared space to use, but she hasn't done it yet.

One day after school, she walks home slowly from the bus stop, weighed down by her backpack. She sees kids playing in the shared garden and feels a pang of guilt mixed with nostalgia. Inside, she heads straight to her room, dropping her backpack with a thud. She thinks about her dad's words for a second as she lays on the bed and gets distracted by her phone. The next day, she decides to ask her closest friend to come over after school. Her friend agrees, and they take the bus and this time she forgets about the long walk between the bus stop and her home. She talks about the garden, the shared kitchen, and the play area. Her friend seems curious, and for the first time in a while, she feels a spark of excitement about her home. They spend the afternoon exploring, and she realises that maybe her living arrangement isn't so strange after all.

Conclusions

These scenarios show that people will eventually use spaces, programmed or not, in a way that suits their purposes and their life stage. Whether it's a person seeking solitude or a teenager navigating social dynamics, shared living arrangements can be flexible enough to cater to various needs. The idea behind the concept supports this. Shared living concepts offer sustainability benefits by maximising resource efficiency and promoting communal living. Additionally, it has the potential to address social issues such as loneliness by fostering a sense of belonging and community cohesion. But the project has aimed at encouraging people in a way that is not too far removed from how most people live today. By nudging people towards shared housing by showcasing the benefits.

In the case of the elderly man by the name of Oscar, he would like to be more involved in the chores and organisation. This is more common in other forms of shared housing such as collective housing, however in most conventional housing today people are used to services such as cleaning and landscaping of shared spaces being contracted out to a business, and the same is speculated to apply here since this is rental form shared housing by a municipal housing company. It is an interesting idea to perhaps create more avenues for affordable housing by internal hire, and this is something that came up in our design process, but it would need to be further researched.

While designing for social resilience, it is crucial to also design for affordability to bridge distance between people of different backgrounds and living conditions, and thereby diversify the area. Therefore, the social factor and economic factor complement each other rather than it being an either/or question. By reusing as much as possible and carrying out minimal interventions to facilitate better social interaction, the design also has tried to address questions regarding environmental sustainability. In short, this thesis highlights how the social, economic and environmental components of sustainability can work and moreover needs to work together to address the challenges of sustainability holistically.

Various factors like existing structure, resources and building limitations have been balanced with factors like desirability, useability and optimal functionality while transforming the existing layout to create the new program. This resulted in the formation of general guidelines and criteria for the transformation of the layouts. Few general guidelines were to retain all existing shafts, retain existing bathrooms wherever possible and minimal intervention to existing load bearing walls. However, guided by research on collaborative housing projects and space efficient housing qualities, the aim was to reduce apartment sizes by 10-15% from standard practice. In the design implementation, however, the existing building structure influenced the decision making and thereby affected the desire for reduced area. It was difficult to achieve this reduction in area in many of the apartments, which could have easily been done if this was a new construction.

A few examples of deviations from general principles have been discussed in the section compromises in Chapter 4. Similarly, we had many discussions on the existing bathrooms that were planned for high accessibility requirements, which were not required as per the scope of the new program. Furthermore, although the bathrooms had an expected life expectancy of over 10 years, they looked quite institutional. Hence, not generally desirable aesthetics for residential tenants. There were many questions. Should we renovate the bathrooms completely? Should we renovate and reuse existing components? Should we retain them as is, as they are in usable condition? Balancing the need for resource efficiency and desirability, our final approach was to retain the bathrooms wherever possible but with minor refurbishments to improve the desirability factor.

Our inference is that while working with the adaptive reuse of existing structures, it is important to have a clear compass and criteria for the project's scope. At the same time, deviations and compromises will be necessary if we aim to be resource-efficient and reuse as much as possible. Rather than seeking perfect solutions, it is more about making the best use of what is available.

Adaptive reuse –viable strategy for affordable rental housing?

Evaluation of the project against current conditions for adaptive reuse

Working with the 8 dimensions of social resilience and the translation of these into built environment, or rather an existing built environment, promotes both challenges and opportunities. What is there is what you have to work with. The existing qualities to build on and the limitations to grapple with. In Fjällbo park, the buildings had potential for adaptive reuse to housing, as well as the reuse of existing material. However, the buildings themselves lacked some qualities for social interaction. The project has been highlighting some of the conditions for adaptive reuse within the current system by both existing within and sometimes going outside what would be permitted/feasible in reality.

Affordability is a challenging ambition as well as the aim of promoting social qualities. Social aspects are soft values and can be but are seldom a profitable approach for the developer. Therefore, one could argue that a project such as this is not in line with the standards and practises of today's mandate for the municipal companies to act in a businesslike manner (SFS 2010:879). As it is acting in a way that is quite different than profitability, and this mandate could be a constraint for the projects' realisation. However, our focus was on increasing social qualities, and putting the social values at the centre, the logic followed to also put the social facilities at the forefront architecturally. One example of this is the location of the shared living spaces. These were places in what could be deemed as the best location in the building, with light from three directions and thus claiming highly attractive rentable space. This however was a conscious choice based on the premise of making these shared spaces attractive but also highly visible in the room configuration. Despite this, the layout is flexible, and it wouldn't be a sizable intervention to adapt the space to become an apartment in the future, but this would go against the aim of the project. However, in reality, profitability is weighed against the social values that are created, and the cost of the shared spaces will be included in the rents, and that this would still make more space available to the tenants since they would only be paying for a small part but have access to the full space.

We chose to delimit the local plan program. While the plan allowed for the change of use to housing the plan prohibits any structure over 1,7 meters to be built in the surrounding area of the buildings, as well as any extension. This was too big of a constraint to fully realise the potential of the buildings. In reality, the modification of a detail plan is both time consuming and costly. Another obstacle we delimited was the conservation classification of the buildings, not allowing any distortion of heritage values, since an addition could be viewed as distorting. Although most spatial adaptations the project follow regulation as well as SIS requirements, we argue that the entrance space was a too crucial intervention not carry through. Furthermore, the detail plan would also be an obstacle for any built structure in the wider neighbourhood too, removing the ability for weather shelters. Possibly, since these could be temporary in nature, in that case perhaps a temporary grant could be issued.

The proposed changes to the layout and the reuse of existing components would be challenging due to the regulatory framework that stipulates that a project large as this should follow the standard of a new build, which for example puts pressure on the buildings' energy performance, and sound proofing, meaning certain choices, for example, to reuse existing windows could become problematic. Sound proofing requirements could for instance imply reconstruction of entire floor slabs. Despite the embodied energy and extended life of the materials, there is no exemption to these regulations based on resource efficiency for environmental reasons, nor for social sustainability, and this thesis perhaps highlights this by showing the opportunities if they were.

In conclusion, adaptive reuse as a strategy for affordable rental housing is viable but is dependent on the utility value or the projects estimated cost. Also, if the building is in usable condition and the use of the building can be changed to housing without the need for a development application. This because our laws concerning rent control is based on factors such as the conditions of the apartment and if these could be kept and only refurbished or reused perhaps the affordability of the future apartments could be kept to a lower level. These aspects further need to be balanced with desirability and usability of the space. Where the rents are based on the estimated cost of the project, the likelihood of them being affordable is only if the project cost is low or if there is financial assistance with conditions of resulting in affordable rents. To further encourage the adaptive reuse to affordable housing that is done in a resource efficient way we believe that there needs to be more flexibility in the regulation surrounding adaptive reuse to housing. Furthermore, for more grants to be directed towards adaptive reuse as this has real potential of generating affordable rents. This could lead to many new central housing opportunities as well as a utilisation of the already built environment in cities creating more value for people as well as for property owners within the city with minimal extraction of new resources.

Reflections on the process

The worldview of this thesis lies between idealism and pragmatism. Working with an existing space has allowed us to evaluate what is there and to formalise, build upon, change, and add to what is available. It would have been a very different project if we had imagined creating an ideal, socially resilient neighborhood from scratch instead of working with an existing one. However, working with an existing neighborhood provides opportunities to test how these areas can become socially resilient and how central areas can be more open to diversification. The questions that this thesis addresses are challenging to evaluate; therefore, in an actual project, participatory design and decision-making are essential throughout various stages. With the limited time and resources of a thesis project, although we ideally would have preferred it, we have not been able to implement a participatory process.

The program for the three buildings was formed but in the design implementation, the primary focus was on the adaptive reuse of the building itself and, secondarily, on the surrounding area. The proposal for the neighborhood scale was schematic, showing potential rather than an actual design. However, developing the in-between and neighborhood scales further would have provided more insights into the topic of social resilience.

Working with social resilience encompasses more than the built environment can impact, and architecture alone cannot foster social resilience in a neighborhood, however, the built environment plays an important part and also indirectly impacts the behaviors and practices of its users. In this thesis, we have focused on these factors.

Next steps

As a thesis, this project has had its limitations and therefore also suggested directions for next steps and future research. At Fjällbopark, surveys through questionnaires can be conducted to measure the eight different dimensions of social resilience, providing empirical data on the current situation of social resilience in Fjällbopark. This will offer more insights into what exists and what more is needed at the neighborhood level. Additionally, this can nudge the residents of Fjällbopark to reflect on the aspects of social resilience discussed in the theoretical framework. We had also planned to conduct workshops with our target groups—young adults, older people, and newly arrived families in Gothenburg. These workshops were aimed to identify their specific needs and desires through direct interactions and to co-create the program/scheme for design development. However, due to time constraints, we had to limit this aspect of the thesis. Instead, we relied on secondary research of various case studies and casual interactions with people from our contact networks.

Therefore, the next steps for this project would involve conducting workshops and participatory design discussions with both the residents of Fjällbopark and the target groups. Also, quantitative cataloging and inspection of the different elements and components

described for retaining/reuse can be done in the buildings to quantify the consequences of the design implementation.

The research on social resilience, shared housing, and social practices has been limited by the timeframe of this project. However, throughout the process, we realised there is much more to explore in depth. The theoretical framework can be tested in different contexts and neighborhoods facing similar or different societal challenges. In this thesis, we have not quantified the affordability of rents, rather speculations-based cost-effectiveness, area and condition of apartments. Further research can be conducted on quantifying the actual costs and impact on affordability of such interventions and further on alternative, non-conventional methods for producing affordable rental housing in Gothenburg.

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Where is my village?

*This may not be my homeland,
This may not be your hometown,
This may not be our first homes,
But, here we are now, together.*

*Here we are together,
Confined in our own little bubbles,
Sailing through our own little battles,
You have yours and I have mine.*

*But some battles are ours,
Not yours nor mine, but ours.
Together we can sail, but can we?
When I don't even know your name?*

*Maybe this battle is not just ours,
Maybe this battle takes a village.
But standing here together, yet alone,
I ask to you, where is our village?*

The proverb "It takes a village to raise a child" originates from African cultures and means that it requires an involved community to provide for and interact positively with children so that they can grow and thrive in a safe and healthy environment. To us, this serves as a metaphor for how every individual needs a supportive community to collectively cope with move forward from the current and future societal and environmental challenges.

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