Designing for Life Inside: Flexible interiors for Post-War Housing in La Cité Versailles

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Abstract

Post-war social housing in Belgium was built using standardized construction methods, which enabled the rapid delivery of affordable housing but lacked long-term adaptability. Over time, these estates have faced spatial rigidity, underutilized areas, and a lack of community infrastructure. Issues such as material deterioration, outdated facilities, and social fragmentation further diminish the liveability of these spaces. La Cité Versailles in Neder-Over-Heembeek exemplifies these challenges, where safety concerns, disconnected spaces, and limited amenities contribute to a declining quality of life, highlighting the need for a more adaptable and responsive approach to the design of post-war housing.

This research takes La Cité Versailles as a case study to explore how flexible spatial strategies can improve adaptability, support a stronger sense of community, and allow residents to reclaim ownership of their living spaces in post-war housing. The methodology is based on the architectural analysis of three reference projects that reflect the ideas I aim to apply at La Cité Versailles. These case studies serve as a foundation for identifying relevant design principles. In addition, the study introduces a classification of flexibility through five strategies, which can be adapted or reinterpreted on the site. Together, these elements offer a framework for rethinking standardized housing as more adaptable and community focused.

The aim of this research is to reposition standardized post-war housing as a flexible and adaptable framework for collective living. By integrating community-driven design strategies and viewing dwellings as living organisms that evolve with life cycles, the study proposes a renewed approach in which standardized architecture becomes a tool for social cohesion and long-term adaptability. Proposed interventions include modular spatial adaptations, the introduction of flexible housing typologies, and the creation of shared spaces that foster community engagement and respond to residents' changing needs over time. Ultimately, the research seeks to redefine post-war housing not as a constraint, but as an opportunity for transformation, where spaces continuously adapt to support the lives of their inhabitants and communities.

Acknowledgments

I sincerely thank the individuals whose support and guidance have been essential throughout the course of my thesis:

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Last but not least, to my friends from the International Master, thank you for being part of this adventure with me.

Contents

Introduction

Since 2020, the Bouwmeester Maître Architecte (BMA) has launched the Social Housing Call, emphasizing the urgent need for a comprehensive and forward-thinking approach to social housing development. As part of this initiative, the BMA, Brussels' regional body responsible for ensuring the quality of urban and architectural design, organized over 30 design competitions centred on addressing key challenges in the sector. To support this process, the BMA commissioned several feasibility studies focused on critical issues such as improving housing quality, upgrading insulation of building envelopes, enhancing fire safety, encouraging material reuse, promoting local energy production, and increasing the greening of outdoor spaces.

One of the central strategies is the Brussels Climate Plan, which focuses on energy efficiency and improvements on an urban scale in order to address the social and economic challenges experienced in these areas. It has been applied to various housing estates in Brussels. However, the interiors of the dwellings fall outside the scope of the sustainable neighborhood contracts, creating a gap in addressing current resident needs, particularly the lack of space and flexibility in their homes.

This gap has sparked an interest in focusing on the interiors of housing estates. As an architect, I recognize the importance of addressing urban-scale challenges to help dismantle the negative reputation that social housing complexes have acquired, as well as the necessity of improving energy efficiency in aging buildings. However, I have chosen to concentrate on what the Climate Plan overlooks: the everyday reality of the dwelling. Since homes are where we spend much of our lives, they should respond to our life cycles, foster a sense of ownership, and uphold the right to dwell with dignity.

This thesis will use La Cité Versailles housing complex as a case study, which is currently undergoing renovation aligned with the Brussels Climate Plan. By applying strategies rooted in a flexible and adaptable framework for collective living, this research aims to complement ongoing urban-scale interventions with a focus on interior transformation, demonstrating the value of a comprehensive, multi-scalar approach.

1

Problem identification and analysis

The first chapter of this thesis outlines the current challenges faced by post-war social housing in the Brussels Capital Region. While efforts are underway to improve sustainability through renovations, interior spaces remain largely neglected, creating a gap in meeting residents' needs. This context shaped the objective and research question guiding the master project proposal.

1.1 Problem statement

> The heritage of many social housing in Brussels has reached a tipping point: the life cycle of various materials is coming to an end, the integration of housing in the urban fabric needs reviewing, the habitability and functionality of buildings deserve broader reflection (Bouwmeester Maitre Architecte, 2021).

The post-war public housing managed by service real estate companies (SISP) is at a critical juncture. Many buildings and materials are reaching the end of their lifespan, and there is a growing need to reassess how these homes integrate into the urban landscape. To address these challenges, the Société du Logement de la Région de Bruxelles-Capitale (SLRB), the public institution overseeing public housing development in the Brussels Capital Region, is initiating several feasibility studies focused on renovating this housing stock. The main priorities include improving living conditions, enhancing insulation, ensuring fire safety, promoting material reuse, developing local energy solutions, and increasing green spaces (Bouwmeester Maitre Architecte, 2020).

Built as a rapid response to a severe housing shortage, post-war social housing provided affordable homes but lacked long-term adaptability. Today, adapting this architectural legacy presents a significant challenge in an ever-evolving context. Many of these buildings suffer from technical obsolescence, failing to meet contemporary standards, while shifting sociocultural, political, and economic conditions further complicate their relevance. Moreover, their original design largely overlooked long-term liveability and the evolving needs of residents, making their transformation even more essential (Tostöes, 2021).

A lack of maintenance has made these buildings particularly vulnerable to malfunctions, and many are already outdated due to the low-cost construction methods used at the time. Unlike demolition and reconstruction projects, these buildings come with existing residents , adding another layer of complexity. One of the greatest challenges in such estates is the sheer number of inhabitants. Large-scale renovations often require temporary relocation or force residents to endure difficult living conditions. (Serroen & Vandepaer, 2024). This raises a crucial question: how should the renovation and transformation of 20th-century social housing be approached?

Wherever possible, renovations should take place while the building remains occupied. However, this often means renovations focus on external upgrades, like insulation, while interior living conditions remain largely unchanged. A truly effective renovation must extend beyond technical upgrades to meaningfully enhance habitability and comfort.

A study conducted in the Brussels-Capital Region (Monchy, 2021) examined the current state of social housing complexes, with a particular focus on their interiors. Residents from two sites, 5 Blocks and La Cité Versailles, were interviewed to gain insight into their living conditions and how they perceive the spaces they inhabit. The inclusion of the following statements serve to highlight that while interventions at the urban scale may help reduce the area's stigmatization, they often overlook the architectural and human scales. This gap compromises the residents' needs and the overall liveability of the apartments. Below are testimonies from residents of these social housing estates in Brussels.

Figure 1: Urban. Brussels. (2022). Current condition of tower phase 1. [Photograph].https://info/diagnostic_versailles_fr_nl.pdf

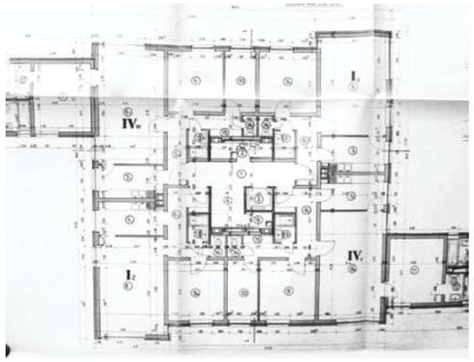


Figure 2: Monchy,M. (2021). Ground-floor typology. [Architectural plan].https://urbanstudies.brussels/sites/default/files/2021-09/2021_De%20Monchy.pdf

"The other day she watched advertisements that encourage people to stay at home: "Stay safe". The people on the screen enjoyed a barbeque and trampoline in their backyard. They make her laugh. No one came to look at the life in these towers when they made these rules."(2021, p.33)

"Four types of apartments, studio, one-bedroom, two-bedroom, three-bedroom, repeated eighty times. Whether you live on the edge of the site or in the centre, on the ground floor or on the upper floors, on the north side of the block or on the south side, it is the same." (2021, p.59)

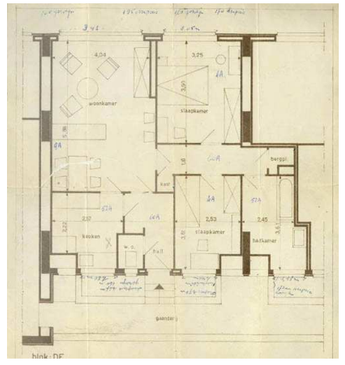


Figure 3: Two-bedroom apartment typology.[Architectural plan]. (1934). https://journals.openedition.org

Figure 4: Monchy,M. (2021). Surrounding areas of 5 Blocks complex. [Photograph].https://urbanstudies.brussels/sites/default/files/2021-09/2021_De%20Monchy.pdf

"5 children and 2 parents confined in a 3-bedroom apartment, the violence. They are forced to spend the whole day in the house on top of each other. It is simply not possible." (2021, p.49)

"We wonder whether they are improving the streets for us or for themselves. They make new infrastructures to mask the true problems within. What they should do is renovate the social housing and the schools."(2021, p.65)

Figure 5: Monchy,M. (2021). Window conditions. [Photograph].https://urbanstudies.brussels/sites/default/files/2021-09/2021_De%20Monchy.pdf

Figure 6: Urban. Brussels. (2022). Balcony conditions. [Photograph].https://info/diagnostic_versailles_fr_nl.pdf

"Yes, we pay a lot, but we are always cold the window is broken, the heat leaves on all sides, and still at the end of the year we have to pay more."(2021, p.51)

"The actual condition of some buildings is very poor, inhuman in some cases. A few apartments are unoccupied because of the inappropriate humidity level" (2021, p.58)

Actions are taking place in Brussels Capital Region, Urban.brussels (2022) is the public administration responsible for urban planning, cultural heritage, and urban renewal. It plays a key role in promoting high-quality architecture, preserving regional heritage, and enhancing the quality of life in neighbourhoods across the city. One of its main initiatives is the Sustainable Neighbourhood Contracts (SNCs), designed to revitalize Brussels' most vulnerable areas through community-driven urban projects.

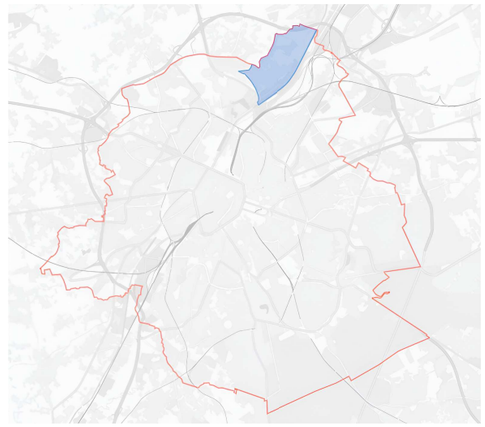
In 2020, the Brussels-Capital Region expanded the Urban Renewal Area (SVG), making the DWC tool available for renovating larger social housing complexes in the second ring, provided they meet the region's eligibility criteria. This is particularly the case for La Cité Versailles in Neder-Over-Heembeek, Brussels. Figure 7 shows the mapping of the site.

The new initiatives made it possible to carry out a diagnostic phase on La Cité Versailles, allowing for a comprehensive understanding of the reality of the Versailles neighbourhood. As a result, numerous proposals were made for the future of the site. The methodology focused on three central themes that reflect the unique conditions of Versailles (Figure 8).

- Living: Addressing the reality of high-density social housing and its impact on the community.
- Landscape: Exploring the relationship between open spaces and built environments, often characterized by tension.
- Solidarity: Overcoming the barriers and isolation that disconnect the neighbourhood from the broader city.

Through this methodology, and in alignment with the current Climate Plan of Brussels (urban.brussels, 2022), the proposed solutions and strategies for La Cite Versailles are as follows:

- Inclusion & Integration: Strengthen the connections between La Cité Versailles and Neder-Over-Heembeek, as well as improve public transport and pedestrian pathways to better integrate the neighbourhood.
- Built Environment & Housing: Focus on insulation renovations for the buildings and introduce mixed-use developments to bring commercial activities and services to the area.



Brussels Capital Region

Neder-Over-Heembeek

La Cité Versailles

Figure 7: By author. (2025). Mapping La Cité Versailles.[Scheme].

- Public Space & Green Areas: Develop a network of connected green spaces and pedestrian-friendly areas, preserving and enhancing existing parks while creating new public spaces.

- Social & Economic Development: Support local employment initiatives and vocational training. Encourage community participation in the planning process to foster a stronger sense of belonging.

- Scenario 0- Existing Projects & Opportunities: Review ongoing projects in and around the area and identify strategic opportunities for public-private partnerships in urban renewal.

The current plan addresses the issues by prioritizing an urban scale. However, the interior renovation of the homes owned by public housing corporations (OVMs) falls outside the scope of a sustainable neighbourhood contract, leaving a gap in meeting the current needs of residents.

1.2 Research question

Based on the problem statement, the proposal is to focus on the dwellings, as they are integral to our daily lives and accompany us through all stages of life. A home should be able to adapt to the evolving needs of its residents over their entire lifespan. This perspective led me to the following research question:

- How can flexible design strategies enhance long-term adaptability and foster a sense of community in La Cité Versailles?

1.3 Objective

This research aims to integrate flexible design strategies in La Cité Versailles through the concept of the living house, envisioning dwellings as dynamic spaces that evolve with their inhabitants. Living spaces should be adaptable, allowing for functional changes as lifestyles, family structures, and personal needs shift. Proposed interventions include modular spatial adaptations, flexible housing typologies, and shared spaces that foster community engagement. Ultimately, this research redefines post-war housing not as a limitation, but as an opportunity for transformation where existing interior structures adapt to the changing needs of residents and their communities.

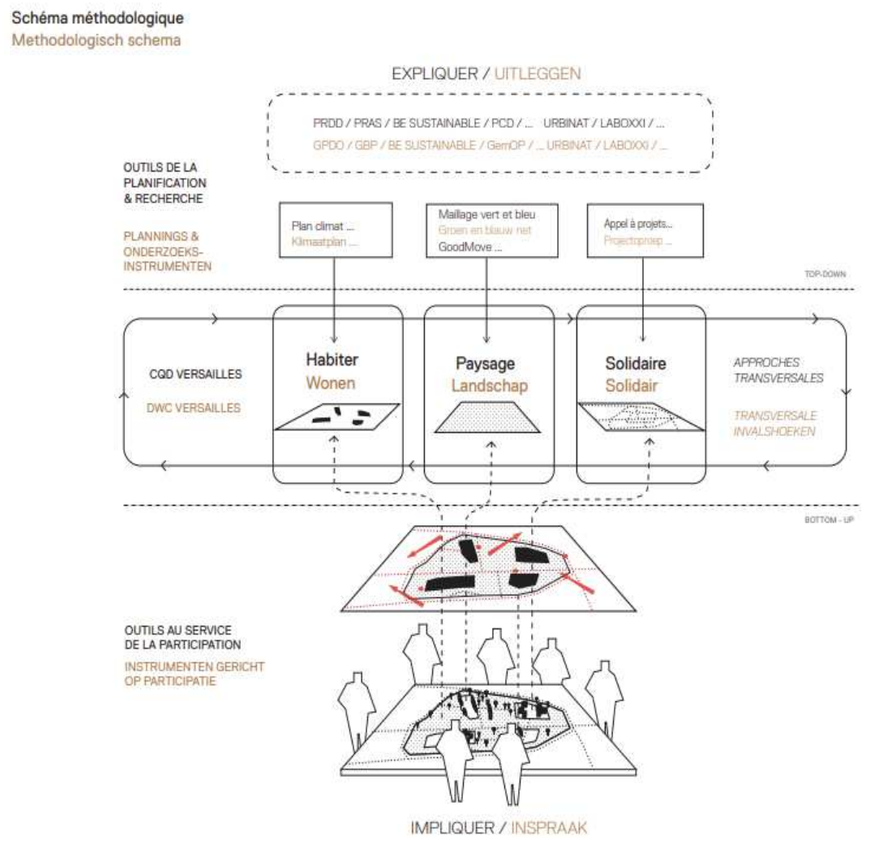


Figure 8: Karbon ´architects. (2022). Diagnostic methodology[Scheme].https://info/diagnostic_versailles_fr_nl.pdf

2

Historical framework of Post-War social housing in Belgium

The second chapter of this thesis was developed based on the historical analysis of the city of Brussels after the World War II, aiming to understand formal aspects that lead to the construction of large-scale social housing complexes. For this reason, the methodology implemented in this section was made by emphasizing the evolution of social housing in Brussels through the years with a timeline, followed by images to help identify the evolution of these complexes.

2.1 International context

Starting from a broader scenario in most European countries there was an enormous housing shortage, because of devastation during the war and a low production of housing during this period. For that reason, housing production in the mid-20´s was marked by the construction of mid-and-high rise apartment buildings. These large housing estates were identified for their modernist and functionalist ideas and often conceived as the solution for the shortage and to accommodate an increasing urban population (Van Kempen & Dekker, 2005).

However, these ideas had already been established a decade earlier. In 1928, during the interwar period, which was characterized by industrialization, economic planning, and the rationalization of the construction industry, the first Congrès Internationaux d'Architecture Moderne (CIAM) took place in La Sarraz. From 1888-1968, architects and urban planners from around the world (Figure 9) gathered, at the initiative of Siegfried Giedion and Le Corbusier, to address the urgent issue of housing. The focus was on the social role of architecture, with an emphasis on community building and providing housing for everyone (Moors, 2024).

The goal of this first meeting was to define the prevailing architectural challenges and present the modern architectural concept, which was based on technology, cost-effectiveness, aesthetics, and emphasizing elements such as light, air, and standardization. The CIAM went through 3 phases in which each of them was influenced by different criteria. The first phase from 1928-1933, spanning from CIAM I to CIAM III, was heavily influenced by the German-speaking architects of the New Objectivity movement, focusing on themes like the minimum dwelling standards and rational building methods.

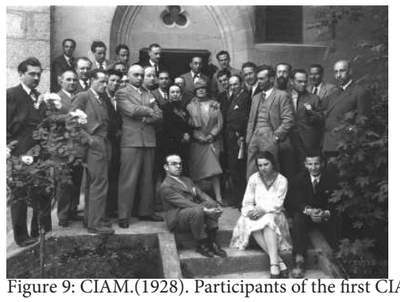


Figure 9: CIAM.(1928). Participants of the first CIAM Congress. [Photograph]. https://ciam.ir/en

The second phase from 1933-1947 was marked by Le Corbusier's influence and urban planning, culminating in the Athens Charter, which outlined five key themes: living, recreation, working, transport, and historic preservation, where the segmentation of the city was regarded as the most effective means to realize this utopian vision. The third phase, starting in 1947, saw a shift towards a more idealistic approach, with younger members of CIAM criticizing the "Functional City" and emphasizing the need for architecture to address human emotional and material needs (Frampton, 2002).

Respectively, after the conferences, the solution to the housing shortage was the proposal for minimum housing. This minimum living was counterbalanced by communal facilities for the neighbourhood.

The members supported the development of low-rise attached housing and high-rise apartment blocks set within large green spaces as a superior alternative to traditional single-family homes. Le Corbusier and Pierre Jeanneret further explored the challenges of minimal housing, emphasizing the importance of a structural framework and a plan libre with a non-load-bearing facade. Key principles of the "Functional City" emerged through strategies such as optimizing building orientation, separating pedestrian pathways from traffic routes, and elevating structures on pilotis to enhance openness and movement at ground level (Poerschke, 2016).

In the eyes of modernists, the aim was to build rationally and economically, by unifying air, light and nature with high-density living through the stimulation of standardisation and prefabrication. In the fifth congress, Le Corbusier was still focusing on dwellings and recreation. As a result, he outlined five key measures(Figure 10): developing a structural plan based on population needs, constructing high-rise housing blocks integrated with open green spaces, reorganizing land through expropriation, designing housing and recreational areas as extensions of public facilities, and adopting factory-based production for housing (Poerschke, 2016).

At CIAM VI (1947) in Bridgewater, the primary focus was the post-war housing and material shortages. This context led to Le Corbusier's Unité d'Habitation experiment in Marseille. On the other hand, the younger generation redefined CIAM's objectives, stating that their mission was to create environments that address both emotional and material needs while fostering spiritual growth. This shift became even more evident during CIAM VIII (1951) in Hoddesdon, where the theme The Heart of the City emphasized the role of urban centres in fostering community and collective identity (Frampton, 2002).

Figure 10: ADAGP. (1944). Le Corbusier's theories of the housing unit.[Sketch]. https://www.theguardian.com

The concept of Habitat was further explored in CIAM IX (1953) in France and CIAM X (1956) in Croatia, reinforcing the idea that housing should be seen as part of a broader community. The Doorn Mani- festo (1954) highlighted the importance of relationships over mere functionalist planning, arguing that housing should integrate with the existing landscape rather than stand as an isolated object. This perspective reached its peak in 1964 with Giancarlo De Carlo's plan for Urbino, which rejected Ville Radieuse ideals in favour of conservation and adaptive reuse of the historic urban fabric (Frampton, 2002).

According to Braeken (2020, as cited in Moors, 2024) despite the shift to a more human focus of the last CIAM 23 conferences, the reality in a period of crisis was completely different. The only way to address the housing shortage and improve the dire living conditions of thousands was through large-scale standardization of housing projects. Traditional construction methods were no longer sufficient, and the push for mass housing overshadowed the original, more human-centred values of collective living. Over time, CIAM's radical ideas were ultimately implemented more as a sanitary measure than as a vision for community-oriented living.

In Belgium, only a limited number of CIAM-inspired neighbourhoods were realized. A notable example is the Kiel estate in Antwerp, designed by Renaat Braem, who had the opportunity to bring social utopian ideals to life. At the time, the project was considered highly innovative within the Belgian context (Figure 11).

The lack of investment in high-rise social housing estates was largely due to the stance of the National Company for Cheap Housing and Living Arrangements, founded in 1919, which maintained that multi-family housing should be confined to cities, where high land costs required denser development. In contrast, individual houses were considered the ideal solution for rural areas.

Figure 11: Braem, R. (1934). View of a Kiel housing block. [Drawing]. https://journals.openedition.org

2.2 National context-Brussels city

The social housing stock in the Brussels Capital Region primarily consists of buildings constructed in three key periods: the 1920s, 1950s, and 1970s. The large-scale development of social housing estates took place mainly during the latter two periods.

In the 1920s, the National Company for Cheap Housing (SNHLBM) was founded to finance affordable housing projects, primarily promoting the garden city model (Figure 12). Developed by Ebenezer Howard, this model aimed to improve living conditions by reducing urban poverty, pollution, and lack of green spaces.

In Brussels, garden suburbs emerged as a key urban innovation, linking residential areas to workplaces via public transport. While some social housing was built in the city's first ring, the garden neighbourhood concept dominated, with notable examples like Le Logis-Floréal, Kapelleveld, and La Cité Moderne. Overall, about 14 such neighbourhoods were developed on the city's outskirts. However, the severe destruction caused by the war, along with poor urban living conditions and restrictions on public housing budgets, prompted the search for new approaches to social housing. As a result, large-scale social estates were introduced as a solution (Aernouts & et.al, 2020).

The Belgian government introduced a housing policy focused on rebuilding and boosting the economy. The objective was to offer affordable, practical, and sanitary living spaces to a large number of families within the emerging welfare state. This initiative was carried out through three key laws: the De Taeye Act-1948, which promoted private homeownership; the Brunfaut Act-1949, which facilitated the construction of rental housing (Figure 13); and the Slum Clearance Act-1953, which aimed at improving living conditions by removing substandard housing (Moors, 2024).

According to De Decker (2008) throughout the twentieth century, the government´s response was shaped by a strong promotion of homeownership, anti-urban attitudes and a lack of spatial planning policies. Homeownership was seen as the primary path to stability. A series of financial incentives, including the 1948 construction grant, low-interest social loans, and tax exemptions, encouraged individual families to build their own homes, while social housing remaineda minor sector, covering only 9.5% in the Brussels Capital Region.

As a result, the emerging middle class progressively left old dwellings in nineteenth-century neighbourhoods and moved to the

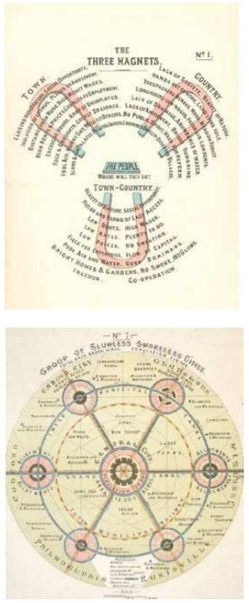


Figure 12: Howard, H. (1919), The garden city model. [Photograph]. http://rbdh-bbrow.be/

green outskirts. This process coincided with the arrival of international labour migrants from southern Europe, Turkey and Morocco from the late 1960s onwards. This urban migration intensified the demand for affordable housing, particularly for the working class and low-income families. Therefore, large housing estates emerged in cities such as Brussels, Antwerp and Liege in a context of population decline, urban sprawl, lack of spatial planning and heavy state promotion of homeownership (Costa & De Valk, 2018).

It was notable that public investment was not focus on social housing. Despite the Brunfaut Act of 1949 aiming to address the lack of social housing, investment in public housing remained limited compared to private production. Still, the act gave a boost to high-rises in the more urban areas and was part of the construction of the welfare state from the late 1950´s through the 1970´s (De Vos & et al, 2023) to be occupied by vulnerable households. Modernist principles and cost-efficient designs were introduced into housing development, often proposed by prominent architects like Renaat Braem and Willy Van Der Meeren. These estates were typically situated in vast and cheap lands on Brussels' peripheries and intended to function as autonomous neighbourhoods, though this ideal was never achieved (Sterken, 2013).

According to Grosjean (2010 as cited in Costa & De Valk, 2018) parallel to this, private contractors were also an important part for the construction of housing estates. Due to the 1953 act for slum clearance, private firms took advantage of flexible laws that permitted them to expropriate slums. The liberal legislation contributed to what became known as 'Brusselisation': a disorderly urban development driven by the speculation of private contractors . While much of the new construction in this period focused on transport infrastructure and the construction of office towers, some projects were aimed at providing housing.

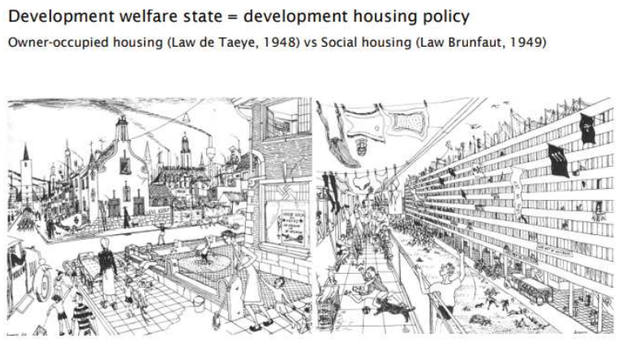


Figure 13:Braem,R. (1953). Law De Taeye as seen by socialists-Law Brunfaut as seen by Christian-Democrats. [Sketch]. http://rbdh-bbrow.be/

Private companies were focused on the mass production of high-rise apartment buildings, which were intended for homeownership by the lower social classes, offering standardised, affordable dwellings equipped with modern amenities. These apartment slabs were replicated in Brussels over the years, mostly located next to existing public estates to reduce costs in new infrastructure. Therefore, we find isolated slabs inside the city, as well as agglomerations of slabs in vaster areas in the peripheries (Broes & Dehaene, 2016).

All in all, the large housing estates in Brussels emerged from two parallel processes. On one hand, public modernist estates, some with significant architectural value, were designed for social housing in line with the Brunfaut Act. On the other hand, a larger number of private estates were developed by builders who took advantage of liberal laws, targeting homeownership for the lower middle class.

In the 1970´s and onwards, problems related with these large neighbourhoods started to arise, the human scale was lost creating asocial spaces, the relationship between the community and the city became lost too. Limited links with the city remained although often these neighbourhoods did not provide employment. The liveability of the community and the design of collective spaces were regularly excluded from the design (Hall & et al, 2005).

Social challenges contributed to the growing negative perception of high-rise apartment buildings. Initially, as social housing projects faced marginalization and residualization, those who remained were often people who could not afford to leave. This led to neighbourhoods with a high concentration of socio-economically disadvantaged families. Over time, this negative image became a powerful force in the decline of the urban fabric. The residents of social housing neighbourhoods became stigmatised just because they were living in a stigmatised area (Wassenberg, 2004).

Getting rid of the stigmatised public opinion can be done by image renewal. Wassenberg (2004) suggests several strategies, including housing-focused interventions such as refurbishment, modernization, demolition, and introducing new building typologies. Improvements to the immediate surroundings, such as upgrading open spaces and amenities can also help, along with initiatives that actively involve residents by promoting integration, reducing nuisances, and encouraging local participation. However, in practice, image renewal is difficult to achieve. In Belgium, the preferred approach remains the renovation of social housing rather than its demolition and reconstruction.

2.2.1 Timeline: public housing in Brussels

Interwar period

1919

Housing Act leads to the construction of the first public housing estates in Brussels.

Figure 15

1920

Development of large-scale projects like Cité Hellemans .

Figure 14

Figure 16

1930

Development of large-scale projects like Cité Moderne.

Post-War period

Figure 17

1945

The National Housing Fund (Fonds National du Logement) was created to provide subsidized loans for social housing construction.

The De Taeye Act prioritizes private housing, but some large public projects proceed.

1948

Figure 18

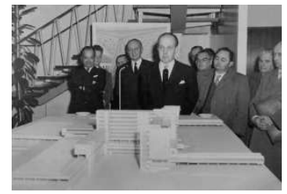


Figure 19

1949

The Brunfaut Act, which facilitated the construction of rental housing

Figure 21

1950

The Marolles district, saw initial plans for slum clearance and social housing development.

Figure 20

1958

Cité Modèle (Laeken): Built for Expo 58, showcasing futuristic urban planning but later facing decline.

1965

Tour Brunfaut (Molenbeek): An emblematic social housing tower in Brussels.

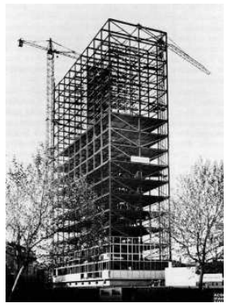


Figure 22

Figure 23

1968

Peterbos Park (Anderlecht): One of the largest public housing estates in the region, still controversial today.

La Cité Versailles (Neder-Over-Heembeek): Constructed during this period as part of the post-war housing expansion, following modernist principles with standardized apartment blocks.

Figure 24

1970

Many social housing estates face poor maintenance, economic decline, and social exclusion.

Crisis and urban decline

Figure 25

1970

Figure 27

1975

Brussels halts the construction of large-scale social housing estates, shifting to urban renewal strategies.

1980

La Cité Versailles begins to experience social and economic challenges, leading to later renovation discussions.

Figure 26

1980

Focus shifts towards renovating existing estates rather than constructing new ones.

Figure 28

2.2.1.1 List of figures -Timeline

Figure 14: De Monchy (1953). Brussels demolitions. [Photograph]. http://rbdh-bbrow.be/

Figure 15: Urban. Brussels (1980). Cite Hellemans. [Photograph]. https://monument.heritage.brussels/fr/buildings/30828#&gid=null&pid=11

Figure 16 : Urban. Brussels (1980). Cite Moderne. [Photograph]. https://monument.heritage.brussels/fr/buildings/30828#&gid=null&pid=11

Figure 17: Groupe Structures (1957) Bungalow prototype. [Photograph: Bouwen en Wonen 4/5.

Figure 18: Laroy, P. (2019). The Kleine Landeigedom [Photograph]. https://geschiedenisvanaalter.blogspot.com

Figure 19: The Bulletin (2013). Brunfaut family of architects. [Photograph]. https://www.thebulletin.be/building-character-brunfauts-progressive-architecture

Figure 20: Malaud, S.(2021) The Haute. [Photograph: https://bma.brussels/en/haute-ii/

Figure 21: Urban Planning Studio. (2019). Ensemble of blocks of the model city. [Photograph]. https://archiviris.be/fr/archives/3953

Figure 22: Foundation CIVA (2018). The emergence of housing estates. [Photograph]. https://link.springer.com/chapter/10.1007/978-3-319-92813-5_7

Figure 23: Urban Planning Studio. (2019).Peterbos Tower. [Photograph]. https://archiviris.be/fr/archives/3953

Figure 24:Urban. Brussels (1980). La Cite Versailles Masterplan [Photograph]. https://monument.heritage.brussels/fr/buildings/30828#&gid=null&pid=11

Figure 25: Realfonzo,U. (2022). Public housing in Brussels. [Photograph]. https://www.brusselstimes.com/307500/public-housing-tenants-in-city-of-brussels-can-now-also-claim-lower-rent

Figure 26: Urban Planning Studio. (2019). Montage phase. [Photograph]. https://archiviris.be/fr/archives/3953

Figure 27: BMA. (2022). Renovation of social housing [Photograph]. https://bma.brussels/en/renovation-of-social-housing/

Figure 28:Urban. Brussels (1980). La Cite Versailles [Photograph]. https://monument.heritage.brussels/fr/buildings/30828#&gid=null&pid=11

2.3 Architectural characteristics of Post-War social housing

In post WWII Belgium, a democracy situated in the heart of Europe, the Modernist ideas of Le Corbusier freely circulated. Belgian architects were founding members of CIAM. For that reason, post-war social housing combined modernist principles with subtle Art Deco influences. These developments prioritized functionality, featuring repetitive structures and the use of innovative materials such as prefabricated concrete and asbestos cement (Van de Voorde, 2025).

Figure 29:Claes,F. (1961). Overview of Luchtbal housing estate. [Photograph]. https://journals.openedition.org/cidades/298?lang=fr

Masterplans were designed according to CIAM principles, with an abundance of space for greenery, recreation and services.

Many projects featured repetitive building blocks or modules to streamline construction and reduce costs.

Figure30: De Vos,E. (2015). Six towers with a playground. [Photograph]. https://journals.openedition.org/cidades/298?lang=fr

Figure 31: Gysenbergs,J. (2015). Free floor plan. [Photograph]. https://journals.openedition.org/cidades/298?lang=fr

Use of modernist features, like horizontal windows and concrete pilotis, to free the ground floor for circulation and create a sense of openness.

Their modernity, monumentality, and high level of comfort, including fully equipped kitchens and bathrooms, central heating, and modern plumbing, were intended to retain middle-class residents in the city.

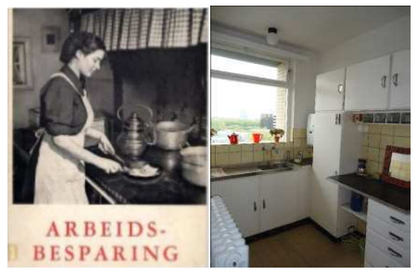


Figure 32: De Vos,E. (2015). Interior of flats. [Photograph]. https://journals.openedition.org/cidades/298?lang=fr

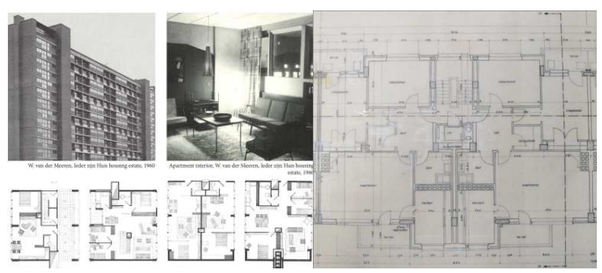


Figure 33: der Meeren (1960). Apartment typologies. [Architectural plan]. https://arquitectura.uc.cl/images/SOCIAL-HOUSING_Summer_School_Call.pdf

The apartments were designed to prioritized functionality and efficiency. Kitchens and bathrooms were kept minimal to prioritize a spacious living area that combined both dining and sitting functions.

Figure 34: Schlinzig,T (2022). Art-Deco details. [Photograph]. https://repository.uantwerpen.be/docman/irua/6e7ca3motoMba

Some projects like The Jan De Vaslei social housing blocks in Antwerpen, incorporated Art Deco elements alongside modernist features, creating a unique blend of styles, that break modern rigidity,such as porthole windows and streamlined shapes.

The popularity of lightweight concrete in the post-war period was due to several important benefits related to its inherent properties and characteristics.

Figure 35: Voorde,S (2015). Construction material flyers . [Photograph]. https://cris.vub.be/ws/portalfiles/portal/18209694/post_war_building_materials_VUB_Boek_web.pdf

Figure 36: Voorde,S (2015). Construction material flyers . [Photograph]. https://cris.vub.be/ws/portalfiles/portal/18209694/post_war_building_materials_VUB_Boek_web.pdf

Prefabricated concrete panels and systems were widely used for walls, floors, and facades, contributing to the speed and efficiency of construction.

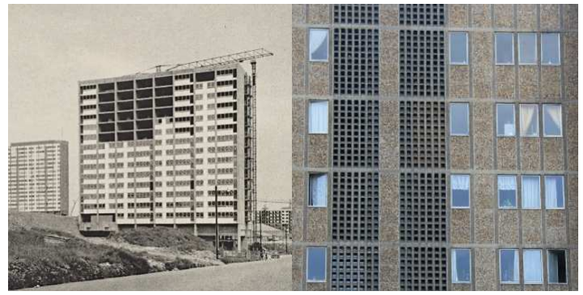


Figure 37: Voorde,S (2015). Building structure . [Photograph]. https://cris.vub.be/ws/portalfiles/portal/18209694/post_war_building_materials_VUB_Boek_web.pdf

Most of the apartment buildings had a skeleton structure in reinforced concrete. The skeleton was either left visible and articulated, with precast panels between the members, or the skeleton and the (lightweight concrete) walls between were covered with precast panel.

From the 1950s onwards, the insulating properties of building materials in general were developed and highlighted in product marketing. Thermal and Acoustical Insulation were used to improve the comfort and quality of the buildings.

Figure 38: Voorde,S (2015). Construction material flyers . [Photograph]. https://cris.vub.be/ws/portalfiles/portal/18209694/post_war_building_materials_VUB_Boek_web.pdf

3

Reinterpreting Post-War social housing

The aim of the following chapter is to explain how adaptability and flexibility are key tools for reinterpreting post-war social housing. These concepts are increasingly relevant in today's society, where changing social structures have created new demands in housing complexes. Although originally built to meet different needs, these buildings can be reimagined to better serve current residents.

3.1 Adaptable housing

Adaptable housing is not a new concept; its foundations can be traced back to modernist ideas, particularly Le Corbusier's Maison Domino (Figure 39), which proposed a structural system of concrete slabs and columns that allowed for a wide range of floor plan configurations. However, despite its potential for flexibility, this concept was not fully realized in practice (Beisi, 2020).

According to Schmidt and Austin (2016), adaptability refers to a building's ability to be passively or actively adjusted to new conditions. Over time, this concept has evolved. In 2020, (Pelsmakers & etal) expanded the definition to include variations over different timeframes, such as day-to-night uses, weekday versus weekend routines, or seasonal changes. This evolving understanding has brought housing adaptability to the forefront due to its importance in fostering a more sustainable society. Implementing adaptable design creates a resilient built environment that can respond to unforeseen changes. Moreover, the growing focus on reducing embodied carbon and avoiding demolition has brought adaptability into mainstream architectural discourse.

The foundational principles of housing adaptability, which are discussed later in the chapter, are structured around four key dimensions: environmental, spatial, social, and multi-use(r) (Pelsmakers & Warwick, 2022). Importantly, adaptability is not limited to the internal layout of an apartment or building, it also extends to external elements, such as balconies, and the relationships between indoor and outdoor spaces, particularly in response to changing environmental conditions. Furthermore, adaptability can emerge from the way residents engage with their homes through social practices, reconfiguring or repurposing the same space for different activities. In this sense, residents play an active role in implementing temporary adaptations that support their evolving needs.

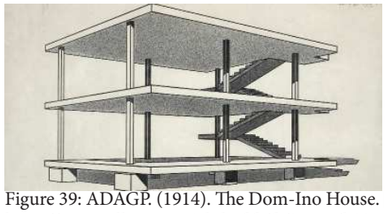


Figure 39: ADAGP. (1914). The Dom-Ino House. [Sketch]. https://passerelles.essentiels.bnf.fr/fr/image/b03cae4a-0816-41e7-b94c-4f1c825f1a5b-maison-dom-ino-1914

3.1.1 Environmental adaptability

Environmental adaptability refers to the capacity of housing to respond to a changing climate. It involves both mitigation strategies, such as low-energy retrofits, and enhancing connectivity between indoor and outdoor environments. Over time, the importance of access to private outdoor spaces, as well as the careful design of homes that consider environmental factors like sunlight and acoustics, has become increasingly evident for improving wellbeing and quality of life (Pelsmakers & Warwick, 2022).

For instance, Peters and Masoudinejad (2022) highlight how adaptable balconies can improve indoor–outdoor connectivity and enhance the overall functionality of apartments. They emphasize the value of treating external spaces as integral parts of the home, advocating for flexible thresholds and marginal areas that can be incorporated into living spaces, especially as a response to limited spatial standards. Today, various architecture studios are integrating the principles of environmental adaptability into their designs. Figure 40 illustrates a range of strategies that demonstrate how this concept can enhance spatial quality and user experience. These strategies provide the opportunity to increase the living area by adding self-supported structures to the original building, which also improve natural light.

3.1.2 Spatial adaptability

Spatial adaptability refers to the ability of both internal and external living environments to support various activities such as living, working, schooling, and socialising from home. This involves enabling a diversity of uses over the course of a resident's life, and being responsive to unpredictable circumstances, such as temporary or chronic disability or the spread of disease. Examples include simple adjustments like furniture rearrangement, reallocating room functions, movable walls, or even expanding the dwelling (Pelsmakers & Warwick, 2022).

This type of adaptability allows housing to accommodate life-course changes by providing a degree of independence and separation. For instance, it can support ageing in place by allowing older individuals to remain in their homes longer or enable the creation of a private space 'a room of one's own' for working or personal retreat, thus enhancing control over the domestic environment.

A study by Huuhka & Tarpio (2022) in Finland explored resi dents' experiences with adaptable flats. Participants expressed the value of anticipating future scenarios and how adaptability could improve daily life, such as staying in the same neighbourhood, adjusting as children grow up or move out, working from home, accommodating family carers or assistive equipment, and even ensuring financial flexibility by splitting the apartment.

Marco et al. (2022) highlight the growing importance of adaptability, connectivity, individuality, and communality in housing, calling for new design approaches. In a study conducted during the COVID-19 pandemic, they showed how homes transformed throughout the day to accommodate different functions (Figure 41).

Drawing from these studies and user experiences, it is evident that the demand for more adaptable spaces is crucial for future housing. Instead of rigidly labelling rooms by function, spaces should be interchangeable and reconfigurable according to the needs of each household. Adaptability, in this sense, is the capacity to repeatedly (re)appropriate spaces, whether by cleaning, decluttering, or changing the types of activities they support. This creates a sense of vibrancy, avoiding feelings of monotony or constraint, and ensures that spaces remain functional and meaningful over time.

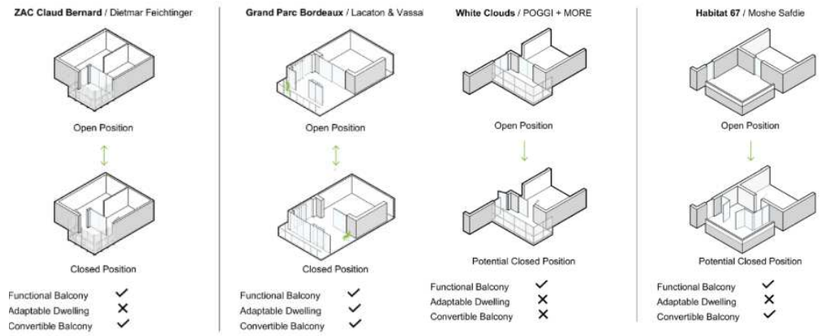


Figure 40: Peters, T. (2022). Balconies as adaptable spaces in apartment housing. [Scheme]. https://www.researchgate.net/figure/Examples-of-passive-balconies-illustrating-their-limitations-for-convertibility_fig3_360067709

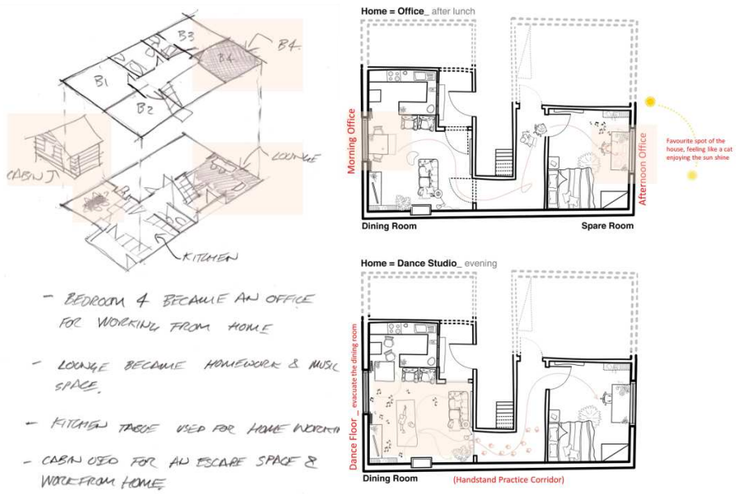


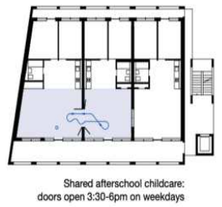
Figure 41: Participant of study. (2022). Roles of the house. [Sketch]. https://journal-buildingscities.org/articles/10.5334/bc.189

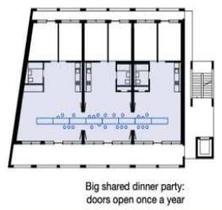
3.1.3 Social adaptability

Adaptability goes beyond just physical modifications; it also encompasses a sense of ownership. Social adaptability plays a key role in enabling spatial flexibility and the emergence of innovative housing models. It involves the shared responsibilities, trust, rules, and collective attitudes that support new ways of living, such as co-housing or the communal use of amenities (Pelsmakers & Warwick, 2022). These arrangements offer alternatives to the traditional nuclear family structure by accommodating a wider range of living situations, including individuals living alone, multigenerational households, flat-sharing, or extended families with changing compositions over time.

At the neighbourhood level, particularly in social housing, when there is a lack of social infrastructure and high-quality public facilities, it becomes harder to build trust and foster connections among residents. This lack weakens the community's resilience and its ability to adapt socially over time (Villa & et al, 2022).

This is particularly the case of La Cite Versailles, where the lack of social infraestructure is hindering interactions among residents. For this reason , implementing social adaptability within the towers will help foster a stonger sense of community, enabling people of all ages to interact.





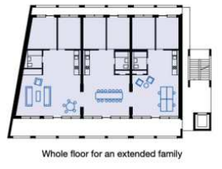


Figure 42: Apparata Architects. (2021). Multi-use floor. [Archiotectural plans]. https://apparata.ch/

3.1.4 Multi-use and multi-user adaptability

Multi-use and multi-user adaptability focus on making better use of non-residential spaces by allowing them to serve different functions at various times, such as evenings, weekends, or across seasons. This approach is central to emerging hybrid or mixed-use building models, where activities are layered within the same space to optimize usage across the day and throughout the year. It also involves the flexible sharing of indoor and outdoor spaces that blur public and private boundaries, often by different groups of people at different times (Pelsmakers & Warwick, 2022).

Co-housing or communal living models can support this adaptability by offering shared spaces, a common space, that serve multiple purposes, such as communal kitchens for group meals, playrooms, guest rooms, laundry areas, or spaces for workshops and gatherings. One example of this is the project House for Artists by Apparata Architects in the UK, where floors can easily accommodate varied shared activities or scenarios for different households (Figure 42).

Applying this type of adaptability in La Cité Versailles can offer insights into how to integreate spaces within the floors that function as both public and domestic areas, serving as a potential example of new hybrid building models rooted in multi-use and multi-user adaptability.

3.2 Flexible housing

Flexible housing can be understood as a space that adapts to a wide range of users and evolves over time alongside the age and changing needs of its inhabitants. It allows for different floor plan configurations that respond to shifts in culture, lifestyle, demographics, or even economic circumstances. A key characteristic is the ease with which a housing layout can be modified to suit these changing conditions (Lutolli, 2023).

In the context of this research, flexibility refers to a building's capacity to support various physical arrangements. This can be achieved by modifying the structure, such as connecting or expanding rooms or units, or through the use of sliding or folding walls and adaptable furniture.

Applying this concept to older housing estates, such as La Cité Versailles, empowers residents by giving them the ability to shape their living environments according to their personal needs and preferences. Flexibility becomes a tool for user agency, allowing for the ap-

propriation of space in ways that better reflect individual or household identities. It also offers a strategic advantage in responding to the wide range of social transformations currently shaping society.

Cultural identity and diversity further highlight the importance of flexible design. Contemporary housing production is often guided by quantitative goals, prioritizing the number of units over how people actually inhabit and experience those spaces. As a result, users are often forced to conform to predefined layouts, rather than being provided with spaces that adapt to their unique preferences and needs. This is particularly evident in the case of La Cité Versailles, which was initially built to meet a basic need for shelter. Today, however, the needs of its residents have evolved, and the housing must now respond to a more complex set of demands. The multicultural nature of its residents, with a wide range of lifestyles and cultural backgrounds, makes it increasingly difficult to predict how people will use their spaces in the long term.

Lifestyle changes also underscore the necessity of flexibility. Over recent decades, lifestyles have undergone significant shifts, and the ability to accommodate emerging patterns of living and working has become a crucial design consideration. Flexible housing offers a way to integrate these evolving needs, creating living environments that can support both current and future patterns of use.

In parallel, the rapid demographic changes in the Brussels Capital Region highlight the urgency of adaptable housing models. The increase in single-person households, declining birth rates, an aging population, and rising immigration have all created new social and political challenges (Lutolli, 2023). These shifts demand more responsive floor plan designs that can adjust over time. In this context, flexibility becomes essential to creating housing that can accommodate demographic diversity.

Economic factors are also central to the discussion. A household's financial situation is rarely static; fluctuations in income can affect housing choices and stability. Flexible housing allows residents to expand or reduce their living spaces based on changing financial circumstances, offering a form of spatial and economic resilience.

3.2.1 Personalization and user needs

> The designs generally have fewer elements that can be personalised, show less opportunity for change – fewer surfaces which can be repainted; fewer forms which can be modified; fewer parts which can be changed – than in the average spec-built house . . . Often there are no spare bedrooms for visitors, and where they exist, they are not large enough for other activities (Rapoport 1968, as cited in French, 2016).

Recognizing the role of users in shaping their living environments is, in essence, a recognition of their individual needs and identities. Habraken (2011) argues that housing is deeply tied to the human desire for ownership, which can only be truly fulfilled when users have the final say in the configuration of their living space. By modifying their homes, residents articulate a sense of belonging and identity. Therefore, instead of offering a fixed end-product, housing should provide a system that enables people to house themselves.

This concept also reflects how family structures have evolved. Despite significant changes in social configurations over recent decades, and the ongoing decline of the traditional nuclear family, the standard apartment floor plan remains largely tailored to that outdated model. This is particularly evident in post-war social housing, where a repetitive pattern of identical, typically two-storey, three-bedroom apartments still dominates. These layouts were designed with the "ideal" nuclear family in mind,failing to respond to the shifting realities of contemporary households.

According to the exhibition This is where I want to live! Cooperative living dreams in Flanders (2025), today's Flemish housing market remains dominated by single-family homes and two-bedroom flats. However, contemporary society increasingly demands more diverse housing forms that can better accommodate singles, young starters, seniors, newly composed families, and people with disabilities. Some progress is being made through projects that incorporate a mix of housing types, as within the Le Bled project in Lausanne (Figure 43). These not only foster diversity among residents but also encourage residential mobility between smaller and larger units over time.

Nonetheless, many developers continue to treat the family as a fixed and unchanging unit. In reality, every household, regardless of its composition, will inevitably change over time. As people age, their needs evolve, and so do the ways they inhabit space. In addition to changes in the size of families, ways of life in the home

will also change during the family cycle. It is, therefore, both logical and necessary to design homes that are flexible enough to accommodate such transformations throughout the life course.

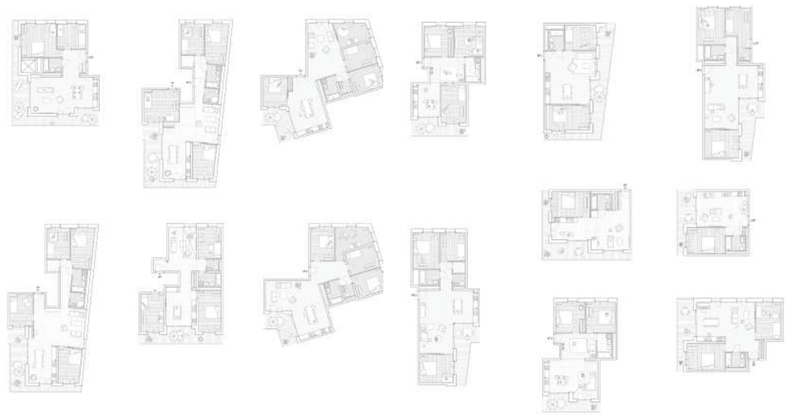


Figure 43: The Bled. (2019). Typologies. [Architectural plans].https://tribu-architecture.ch/projets/99/le-bled/#project-images-slide-1082

3.2.2 Fixed room arrangements as a limitation

> …the specification of standards of space by reference to individual rooms with specific labels – bedrooms, working and dining kitchens, and so on – tends to assume a conventional arrangement of the dwelling and the particular way in which a given room will be used. This inhibits flexibility…… (Morris, 1961).

This conventional labelling restricts flexibility by prescribing specific functions to each area, leaving little room for diverse or changing needs. In response, several housing projects have challenged this model by embracing indeterminate space, also known as 'raw' or 'free plan' space, which allows for greater user agency. These spaces typically fix only essential infrastructural elements, entrances, bathrooms, and kitchens, to minimize installation costs while allowing the rest of the plan to remain open to interpretation.

Leon Wohlhage Wernik's Schlesischestrasse scheme in Berlin (1994)exemplifies this approach by avoiding the constraints of minimum space standards and introducing flexible internal layouts. The rooms are minimally differentiated in size or function,

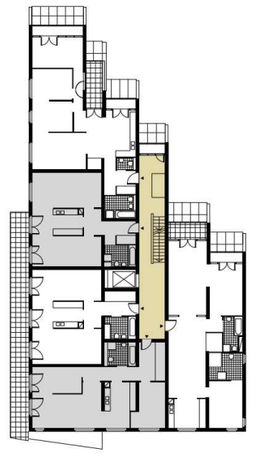


Figure 44: Wernik Architekten. (1994). Typical floor plan. [Architectural plan]. https://cris.brighton.ac.uk/ws/portalfiles/portal/4752385/FRENCH%20H%20PhD.pdf

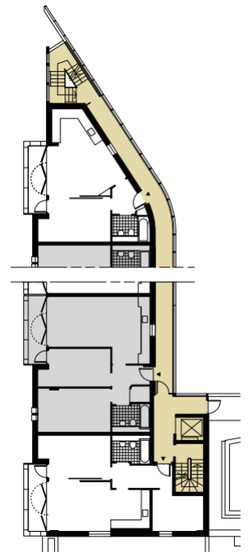


Figure 45: Typical flats with winter gardens and sliding partitions. (2007). [Architectural plan]. https://cris.brighton.ac.uk/ws/portalfiles/portal/4752385/FRENCH%20H%20PhD.pdf

and wide sliding doors allow residents to interconnect or separate spaces depending on their preferences, supporting either a conventional arrangement or a more open-plan lifestyle (Figure 44).

Similarly, Walter Menteth's Consort Road housing in London (2007) offers residents freedom in how to use their rooms. Identical-sized rooms on the first floor could serve as a second living room, study, or playroom, while large sliding doors between the living and sleeping areas allow these zones to merge or divide. Moreover, winter gardens on the façade can be left open or enclosed, adding to this spatial versatility (Figure 45).

In a more externalized interpretation, Jørn Utzon's courtyard housing in Fredensborg, Denmark, introduces a multipurpose space at the heart of the home. Conceived as a neutral zone for everyday life, the courtyard can function as a dining area, workshop, garden, or children's playground, without altering the overall structure of the dwelling (Figure 46).

Moreover, in contemporary housing projects, encouraging future extensions or additions has become an important strategy to invite residents to actively engage with and adapt their living spaces over time. Beyond long-term renovation possibilities for building owners, flexibility within the apartment's interior offers residents a sense of autonomy in how they use their space. It allows them to arrange furniture, store belongings, and configure rooms in ways that reflect their personal needs and preferences, ultimately serving as a form of self-expression. These approaches highlight how embracing indeterminate space breaks away from rigid, predefined layouts and instead empowers individuals to reshape and personalize their homes as their lives evolve.

3.2.3 Classification of flexibility

An essential step in analyzing the case studies and developing the master project proposal was defining the various strategies of flexibility that could be applied to La Cité Versailles. To support this, a theoretical framework was established to identify different types and degrees of flexibility. This framework draws from Lutolli's (2023) research on Flexibility in Realization and Use (Figure 47), which outlines six types of flexibility categorized into two main groups. The first group, internal flexibility, includes Neutral and Circulation Flexibility (NCF), Folded Flexibility (FF), Open Plan Flexibility (OF), and Internal Slack Space Flexibility (ISF). The second group, external flexibility, comprises External Slack Space Flexibility (ESF) and Exchangeable Flexibility (EF).

These six types reflect varying levels of flexibility, which are mainly defined by the approach taken in their implementation, specifically, the degree of user control over the space. In this framework, flexibility is categorized into three main approaches: determined, semi-determined, and undetermined. Each of these corresponds to a specific level of flexibility: low, medium, and high, respectively.

In the determined flexibility approach, the user receives a completed housing unit, often with a limited set of predefined options that allow minor adjustments. As such, the flexibility offered is minimal and largely fixed in advance. In contrast, semi-determined flexibility involves a design process that engages users directly, shaping the layout according to their specific needs. This collaborative method allows for a moderate level of flexibility. Lastly, undetermined flexibility provides users with a neutral, open-ended space that they can adapt entirely to their preferences. In this scenario, the architect serves more as a guide than a designer, enabling the highest degree of adaptability and user agency.

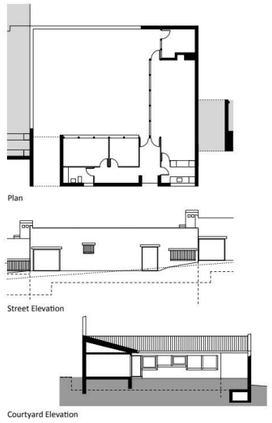


Figure 46: Utzon´s, J.Courtyard housing focused on external space. (1963). [Plan]. https://cris.brighton.ac.uk/ws/portalfiles/portal/4752385/FRENCH%20H%20PhD.pdf

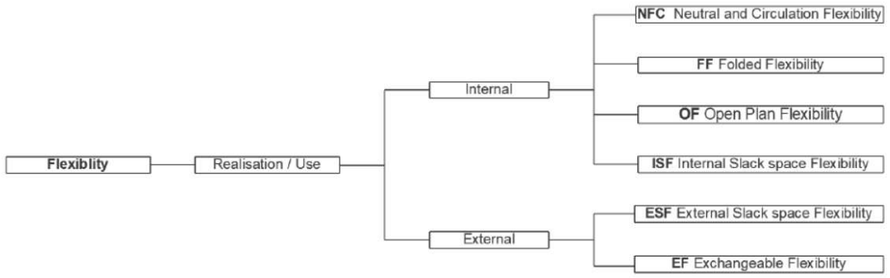


Figure 47: Lutolli, B. Categorization of flexibility. (2023). [Scheme]. https://www.db-thueringen.de/servlets/MCRFileNodeServlet/dbt_derivate_00062692/lutolli_a_view_of_flexible_housing_in_germany.pdf

1. Neutral and Circulation Flexibility (NCF): This form of flexibility maintains a fixed floor plan, yet the spaces within it are intentionally non-hierarchical and undefined. All rooms are similar in size and adequate for various uses, giving occupants freedom to decide where to sleep, eat, work, or relax. The ability to circulate freely between rooms encourages users to interpret and inhabit the space in personalized ways, without being constrained by rigid functional labels (Figure 48).

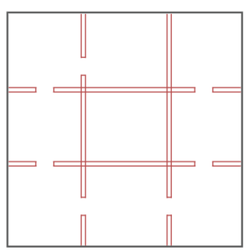


Figure 48: By author. (2025). NCF. [Scheme].

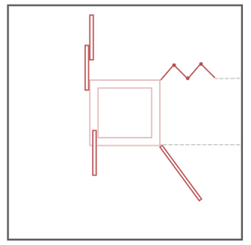


Figure 49: By author. (2025). FF. [Scheme].

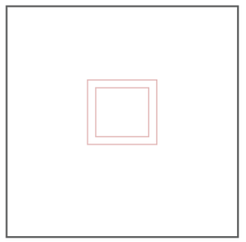


Figure 50: By author. (2025). OF. [Scheme].

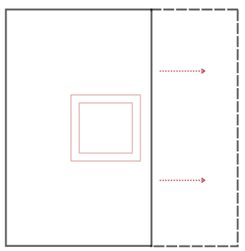


Figure 51: By author. (2025). ESF. [Scheme].

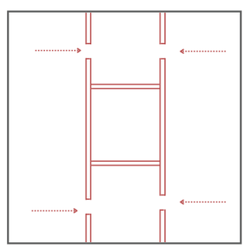


Figure 52: By author. (2025). NCF. [Scheme].

2. Folded Flexibility (FF): Folded flexibility refers to adaptable elements within a space that can serve multiple functions, typically through movable walls or foldable furniture. For instance, a folding wall may merge two rooms into one larger space, or a bed that folds into a wall can transform a bedroom into a living area. While this type of flexibility allows for functional variation, it usually offers a limited range of predefined configurations (Figure 49).

3. Open Flexibility (OF): In this approach, the layout avoids traditional room divisions, resulting in an open and neutral space. Users are encouraged to define their own spatial arrangements according to their evolving needs. This high level of adaptability relies heavily on user input and imagination, making it suitable for dynamic and non-conventional ways of living (Figure 50).

4. Slack Space Flexibility – Internal and External (ISF and ESF): Slack space refers to surplus, initially unused areas that can be adapted over time. This can take the form of an empty internal room (ISF) or an external extension area (ESF), reserved for future transformations. Though the presence of slack space is predetermined, it offers occupants the potential for long-term customization as their needs change (Figure 51).

5. Exchangeable Flexibility (EF): This model allows parts of an apartment, or even whole units, to be connected to neighboring dwellings. A key example is the Schaltzimmer, a shared, neutral room accessible from more than one unit. It acts as a transitional space that can be appropriated by different residents depending on changing circumstances, thereby encouraging a flexible relationship between adjacent homes (Figure 52).

4

Social housing-La Cité Versailles

The fourth chapter of this thesis builds on the history and architectural heritage of the master project site, based on the dossier published by Urban.Brussels (2022) tracing its evolution to its present state. Moreover, it includes an photographic report to develop a deeper understanding of the site and identify the specific needs of its users. This analysis serves as the foundation for an architectural proposal aimed at addressing these needs effectively.

4.1 History of the neighbourhood and architectural heritage

La Cité Versailles was built in the 1970s as part of Belgium's post-war reconstruction efforts to address the urgent housing shortage caused by World War II. Entrusted to the architects Robert Courtois, a modernist trained by one of the leading figures of the movement in Belgium, and Victor Bourgeois, were driven by the goal to provide equal comfort for all residents. The project was part of an official initiative by the City of Brussels, which allocated land to public real estate companies to rehouse people displaced by urban renewal efforts and the fight against decay, particularly in the Northern Quarter.

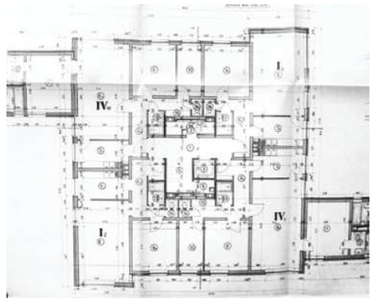


Figure 53: Urban. Brussels. (2022). Phase 1-plan type. [Architectural plan].https://info/diagnostic_versailles_fr_nl.pdf

This vision took shape in Neder-Over-Heembeek, an area with a diverse urban landscape typical of a fragmented city, a common feature of 20th-century urbanization. While its different parts are internally cohesive and connected, they lack a clear and easily readable structure. In this context, the Versailles neighbourhood stands out as a particularly remarkable area, where morphological divisions align with social fragmentation.

In the initial design, developed between 1965 and 1966, a six-story building typology was generally planned for both sides of Versailleslaan. It was balanced by six twelve-story apartment towers located along Laskouterstraat and to the east of Beizegemstraat, near Kasteel Beyardstraat. The connection between the main volumes through secondary links remained a defining characteristic of the project throughout its various phases.

The first phase (Figure 53), designed in 1965, and the second phase, from 1969, include 145 and 135 housing units, respectively. These units are arranged around expansive terraces that follow the slope from Versailleslaan to Beizegemstraat in a strict orthogonal pattern. The smallest units, studios and one-bedroom apartments, are grouped into two separate stepped buildings, designed to provide equal comfort for all residents. In this case, each unit features an open terrace facing south (Figure 54).

Figure 54: Urban. Brussels. (2022). Model phase 1 and 2. [Model].https://info/diagnostic_versailles_fr_nl.pdf

The third phase, studied in 1972 and initiated in 1974, followed a slightly different concept on both sides of Versailleslaan. The orthogonal pattern was adjusted to a 3.4-meter module, creating more interlocking yet flexible volumes within a predominantly green landscape.

The underground parking structures were designed as entirely separate volumes, emerging from the lawn. This formal autonomy could be advantageous for future repurposing. The residential program for each plot includes a twelve-story tower and a low-rise apartment building ranging from four to six floors, featuring duplex apartments with terraces. These buildings incorporate four distinct typologies(Figure 55).

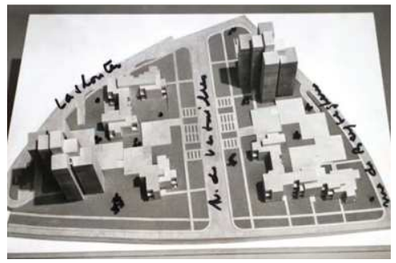


Figure 55: Urban. Brussels. (2022). Model phase 3.[Model].https://info/diagnostic_versailles_fr_nl.pdf

The fourth phase was initially planned to include 300 housing units, but only two-thirds of that number were ultimately built. For this phase, Courtois collaborated with Marc Vanden Bossche, a more postmodern architect. While the plans draw inspiration from the previous phase, the architecture takes on a calmer character, featuring dark red brick that contrasts with the lush greenery. The parking structures are fully concealed underground, allowing for a spacious, uninterrupted green zone (Figure 56).

The initial design for the Versailles neighbourhood did not include significant facilities, which surprised local councilors when the project was presented in 1966 especially given its large scale. The municipal council suggested that the nearby Pagoden School could serve as the closest facility. Courtois had originally planned for each apartment building to have a common room, intended as a meeting space or a shared television room. However, since tenants already had their own televisions, there was little interest in communal TV rooms, and these spaces remained largely unused.

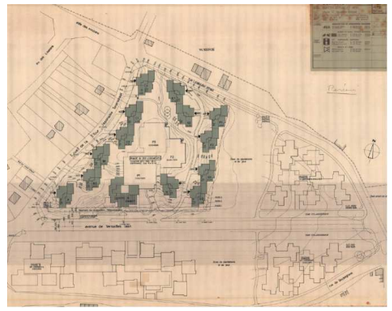


Figure 56: Urban. Brussels. (2022). Masterplan phase 4. [Architectural plan].https://info/diagnostic_versailles_fr_nl.pdf

In 1971, the city launched a policy to establish playgrounds, which also benefited the Versailles neighborhood. The following year, discussions began about constructing a swimming pool on the green space that runs through the area. This pool appears in a study model along with open sports fields and a pedestrian bridge over Versailleslaan (Figure 57). However, the plan was ultimately realized in 1985, a few hundred meters outside the neighborhood.

A few years later, in 1974, plans emerged for a Contact Centre, a multi-purpose meeting and service hub connected to the OCMW (Public Center for Social Welfare). This facility was incorporated into the phase 4 study, but by the time the 1976 building permit application was submitted, it had been removed. The idea resurfaced in 1979 and again in the 2000s, this time with the goal of housing all administrative and technical services of the housing company, which had since been renamed GEBRUWO. This move freed up space in other buildings, allowing them to be repurposed for housing.

Figure 57: Urban. Brussels. (2022). Masterplan with sport facilities. [Model].https://info/diagnostic_versailles_fr_nl.pdf

Completed in 2005, the administrative building (Figure 58) stands out with its distinctly postmodern architecture, featuring a wavy

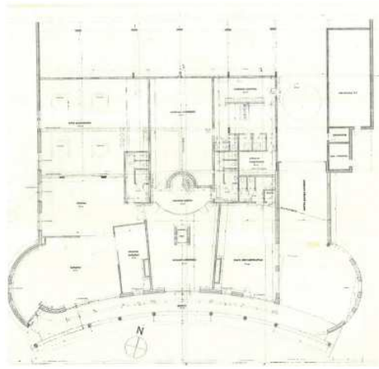


Figure 58: Urban. Brussels. (2022). Administrative plan. [Architectural plan].https://info/diagnostic_versailles_fr_nl.pdf

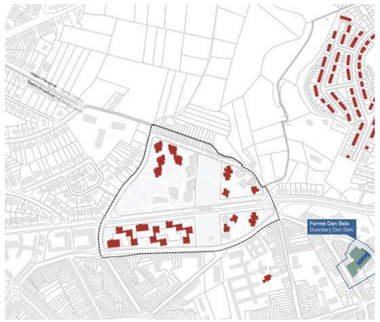


Figure 59: Urban. Brussels. (2022). Architectural heritage. [Scheme].https://info/diagnostic_versailles_fr_nl.pdf

façade that contrasts sharply with the rest of the neighborhood.

Most buildings in the Versailles neighborhood are listed in the Irismonument inventory (Figure 59), which documents Brussels' architectural heritage. The architectural history of Versailles reflects the work of dedicated architects striving to create accessible housing.

4.2 Site Analysis

Based on a site visit and information from the Urban.Brussels brochure (2022), a site analysis was carried out to identify areas for improvement within La Cité Versailles. The first step involved defining two perimeters at different scales. Perimeter A focuses on the immediate context of Versailles, encompassing the adjacent plots and surrounding urban fabric, and examines how the neighbourhood interacts with its surroundings. Perimeter B concentrates on the proposed intervention zone, enabling a more detailed study of the existing housing stock.

To better understand the Versailles neighbourhood, its immediate context was analysed through the lens of statistical sectors. The Versailles perimeter corresponds with the sector known as 'Kersenhoek' and is adjacent to several nearby sectors, including 'Pagodenlaan', 'Kasteel Beyaerdstraat', 'Versailleslaan', and 'Mariëndaal' (Figure 60).

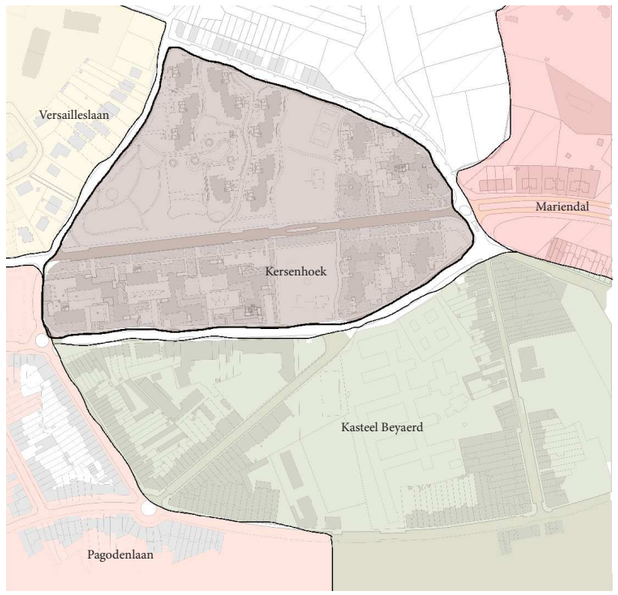


Figure 60: By author. (2025). Sectors La Cité Versailles [Masterplan].

Perimeter A defines Versailles as a residential area intersected by a large public green space that runs through the neighbourhood, featuring several open-air facilities. The immediate surroundings are predominantly residential, with some public utility facilities located on adjacent plots.

The park area continues beyond the southern edge of the perimeter, further integrating the neighbourhood into a broader green network. Notable green spaces include a zone at the intersection of Kersenhoek and an ecologically valuable green corridor along Mariëndaal. On the Flemish side, the regional plan designates areas for parks and nature reserves, highlighting the ecological significance of the wider context (Figure 61).

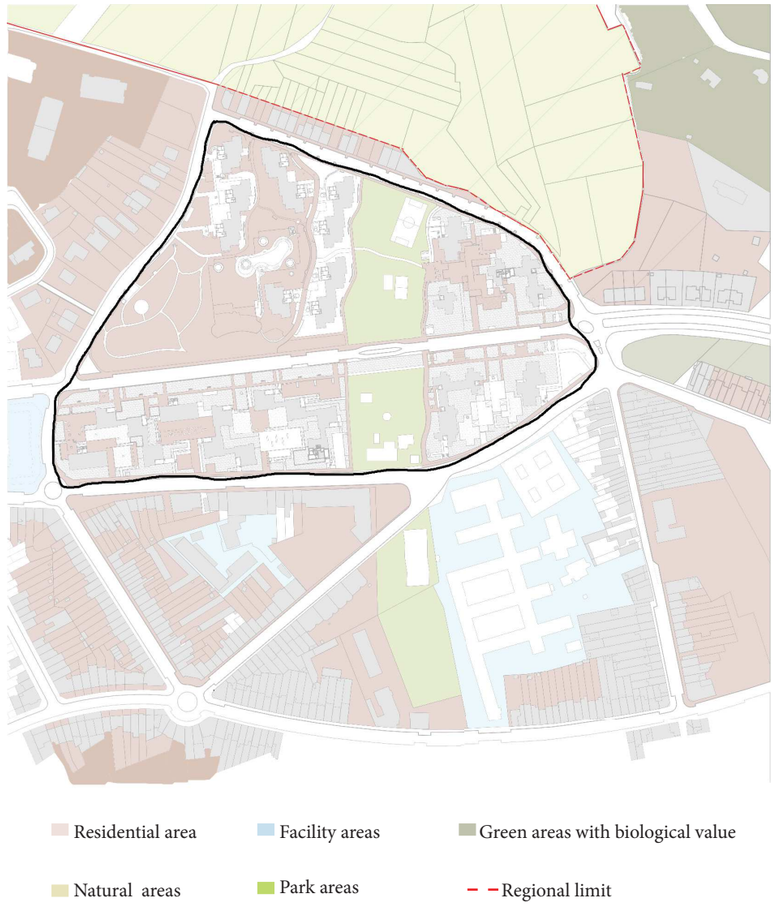


Figure 61: By author. (2025). Sectors La Cité Versailles [Masterplan].

Perimeter B focuses on the housing stock. The architecture presents a broad variety of forms, reflecting the historical pursuit of an ideal model for social housing characteristic of its time. Today, the area is defined by apartment blocks, terrace buildings, and residential towers, all arranged in an open layout that contrasts sharply with the surrounding urban fabric. This distinctive configuration has contributed to a sense of spatial and social isolation, which has, in turn, led to the stigmatization of the neighbourhood. This situation raises a critical question: how can architectural interventions contribute to transforming and reintegrating La Cité Versailles into its broader context?

As part of the analysis, the current condition of the buildings was assessed through external observation. Most of the structures were classified as being in moderately poor to poor condition, with the exception of more recently constructed buildings (Urban.Brussels, 2022). The following scheme (Figure 66-74) illustrates the building typologies and the unfortunate state of the residential blocks.

Considering the current condition of the buildings and the Climate Plan of Brussels for La Cité Versailles, this thesis aims to focus on the interior spaces, which have been largely overlooked in previous renovation efforts. For this reason, the architectural analysis that follows will concentrate on one of the buildings from Phase 4, which has been classified as being in poor condition.

The building analysed is Block C, located at Japanse Torenstraat 9/11 and Laskouter (Figure 75). A site visit was conducted to assess the current condition of the building through a photopraphic report, and to observe the ongoing renovations. (Figure 76-84).

Figure 75: By author. (2025). Building C location. [Scheme].

Figure 66: Karbon ´architects. (2022). Residential building with terraces -phase 2 .[Photograph].https://info/diagnostic_versailles_fr_nl.pdf

Figure 67: Karbon ´architects. (2022). Building facilities. [Photograph]. https://info/diagnostic_versailles_fr_nl.pdf

Figure 68: Karbon ´architects. (2022). Apartment block type -phase 1 & 2. [Photograph]. https://info/diagnostic_versailles_fr_nl.pdf

Figure 69: Karbon ´architects. (2022). State of the buildings. [Photograph]. info/diagnostic_versailles_fr_nl.pdf

Figure 70: Karbon ´architects. (2022). State of the buildings. [Photograph]. https://info/diagnostic_versailles_fr_nl.pdf

Figure 71: Karbon ´architects. (2022). State of the buildings. [Photograph].https://info/diagnostic_versailles_fr_nl.pdf

Figure 72: Karbon ´architects. (2022). State of the buildings. [Photograph].https://info/diagnostic_versailles_fr_nl.pdf

Figure 73: Karbon ´architects. (2022). Residential building type -phase 4 [Photograph].https://info/diagnostic_versailles_fr_nl.pdf

Figure 74: Karbon ´architects. (2022). Residential building towers -phase 3[Photograph].https://info/diagnostic_versailles_fr_nl.pdf

Figure 76: By author. (2025). Lask-outer street. [Photograph].

Figure 77: By author. (2025). Japanse Torenstraat. [Photograph].

Figure 78: By author. (2025). Park facility. [Photograph].

Figure 79: By author. (2025). Inter-mediate street. [Photograph].

Figure 80: By author. (2025). En-trance building C. [Photograph].

Figure 81: By author. (2025). En-trance building C. [Photograph].

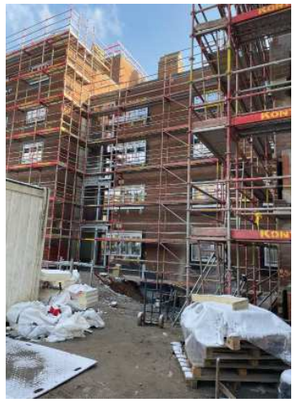


Figure 82: By author. (2025). Current situation building C. [Photograph].

Figure 83: By author. (2025). Current situation building C. [Photograph].

Figure 84: By author. (2025). Park area. [Photograph].

5

Reference projects

In this chapter, three reference projects are explored: The Abakus by Stereo Architektur, La Balma Housing Cooperative, and Peterbos, a renovation of 165 social housing units by the firm Multiple. While the first two highlight approaches to flexibility and adaptability in new housing design, Peterbos provides insight into strategies for upgrading existing social housing stock. The analysis of each case focuses on their strengths, limitations, and design strategies that can be reinterpreted or adapted. This comparative study contributed to a deeper understanding of spatial organization, community-oriented features, and user-centered flexibility. Several of these insights, such as the role of shared spaces, interior spatial connections, and functional adaptability, were integrated into the architectural proposal for La Cité Versailles, which will be further elaborated in the design proposal section of this thesis.

5.1 The Abakus

Design: Stereo Architektur
Location: Basel, Switzerland
Project year: 2021
Category: Housing

Figure 85: : Hirabayashi, D. (2023). Wohnhaus Abakus in Basel. [Photograph]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

As part of my research on flexibility in housing design, I chose The Abakus as a reference due to its thoughtful and innovative approach. What stood out to me was the way it combines two ways of living and how simple architectural decisions, like identical floor layouts and an external staircase, enabled that flexibility. Designed by Stereo Architektur in collaboration with the cooperative Mietshäuser Syndikat Basel and future residents. Initiated in 2017 through an open call by the Habitat Foundation, this project stands out for its non-profit, cooperative approach, an increasingly relevant model in Switzerland's housing sector.

What particularly interested me about this case is how it merges two distinct housing typologies within one structure: horizontally expandable core flats and a vertically organised flat-share community. This hybrid model responds to a range of user needs and timeframes. For example, core flats are designed to evolve with residents over time, making them ideal for long-term users such as families or couples. In contrast, the flat-share units accommodate more transient residents like students or refugees. This dual system allows for reconfiguration, for instance, a 3.5-room flat can be extended to 5.5 rooms as needs evolve. The layout is designed so that boundaries between private and shared spaces are fluid rather than fixed, allowing rooms to shift functionally across time and users.

The architectural organisation reinforces this flexibility. The upper floors are identically structured, each containing a core unit and shared rooms that can be connected or separated by simply adjusting doorways. On the ground floor, communal facilities like the kitchen and living room are positioned adjacent to the inner courtyard, encouraging interaction among residents. An external staircase links the courtyard to balconies and a rooftop terrace, creating a continuous outdoor corridor that fosters casual encounters and collective use of space.

This project helped me understand how spatial strategies can accommodate changing demographics and encourage user participation over time. The concept of adaptable core flats, combined with integrated shared spaces, became a key reference for the development of my master project proposal for La Cité Versailles. It offers a valuable precedent in terms of both physical flexibility and community-building potential, which are essential in the rethinking of post-war housing environments.

Figure 86: Hirabayashi, D. (2023). Flat interiors. [Photograph]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

Figure 87: Hirabayashi, D. (2023). Terrace area. [Photograph]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

Figure 88: Hirabayashi, D. (2023). Living room. [Photograph]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

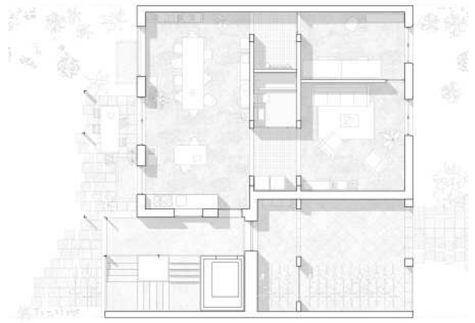


Figure 89: Stereo Architektur.(2021). Common areas. [Architectural plan]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

Figure 90: Stereo Architektur.(2021). Flat with possibility to attached two rooms. [Architectural plan]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

Figure 91: Stereo Architektur.(2021). Section. [Architectural plan]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

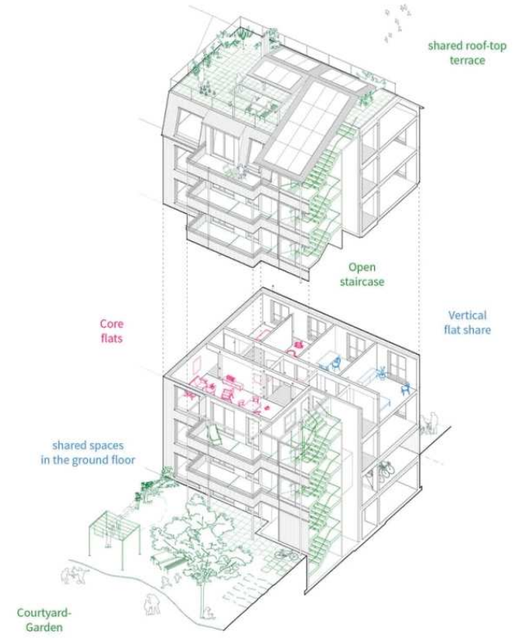
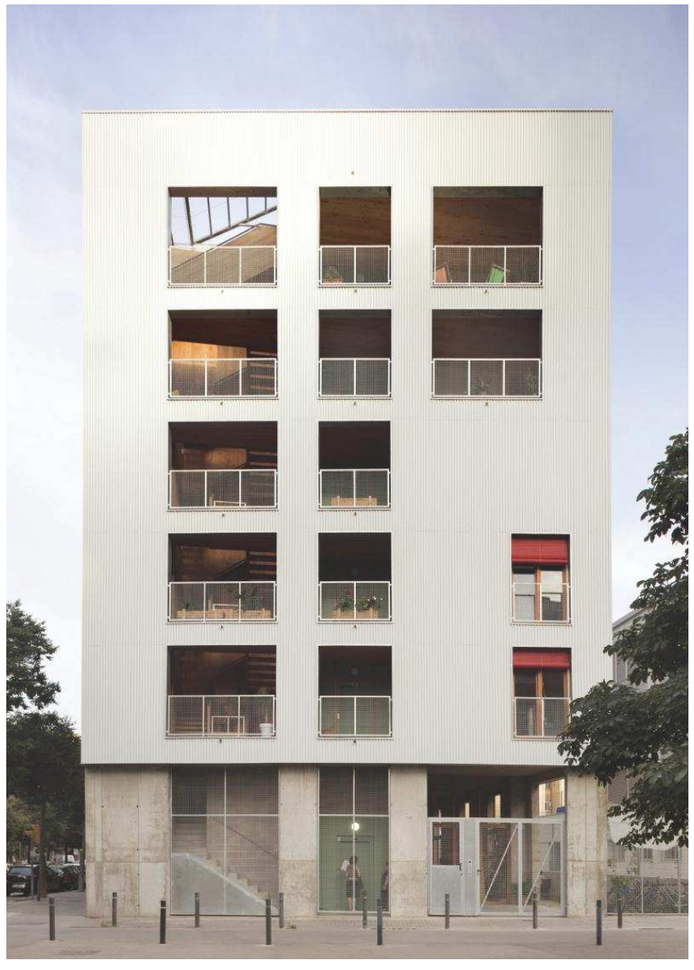


Figure 92: Stereo Architektur.(2021). Axonometric. [Scheme]. https://www.architectural-review.com/buildings/wohnhaus-abakus-in-basel-switzerland-by-stereo-architektur

Strenghts	Limitations	Strategies that can be reinterpreted
Combines different ways of living and takes into consideration changes in life.	New construction project which doesn´t correspond with the existing structure of La Cité Versailles.	Concept of core flats and shared flats.
Modular floor plans allow flexibility and adaptability.	Long design process and development timeline due to co-creation process.	Ground-floor as an opportunity for common/shared spaces.
Based on a community-driven design.	Flexibility may still be limited by structural constraints in existing buildings such as the study case.	Neutral rooms with no fixed function to allow flexible appropriation.
Flexibility through minimal architectural interventions (opening/closing doors).		Introduce varied occupancy models within one building to foster inclusion.

5.2 La Balma Housing Cooperative



Design: LaBoqueria+Lacol
Location: Barcelona,Spain
Project year: 2021
Category: Housing

Figure 93: Villalba, M. (2021). La Balma in Barcelona. [Photograph]. https://archello.com/pt/project/la-balma-housing-cooperative

As part of the reference project analysis, I investigated La Balma, a cooperative housing project in Barcelona developed in response to the urgent demand for affordable housing. The project emerged through a participatory process where both the future residents and the surrounding community played a central role. Rather than designing a finished product, the architects envisioned the building as an infrastructure framework that could evolve over time based on changing needs across three key social spheres: the neighborhood, the collective, and the individual household (DIVISARE JOURNAL, 2021).

A key element that stood out in this project was the integration of shared spaces, which were not just located at the ground level but distributed vertically across all floors. These communal areas were directly tied to circulation routes, creating naturally ventilated and sunlit spaces that encourage informal social encounters, collaboration, and a sense of collective life within the building. These include a communal kitchen and dining room, bicycle storage and workshop space open to the neighborhood, and smaller shared rooms on upper floors such as a multipurpose room, reading area, guest rooms, a care room, and laundry facilities. The rooftop is fully accessible and designed to serve as the cooperative's outdoor communal space.

Another aspect that informed my analysis was how flexible typologies were developed. The building contains 20 units, one of which is used as a transitional space for families undergoing social reintegration. The apartments are designed based on a modular system of 16m² open units, forming a base of 50m² (type S). Depending on evolving needs, these base units can be extended with additional modules to form medium or large apartments. This flexibility is managed internally by the cooperative, allowing units to be reconfigured over time according to the residents' circumstances. This approach offers valuable insights into how adaptability can be embedded not just in design, but also in the organizational structure of housing cooperatives.

What makes La Balma particularly relevant for my own proposal is how it combines spatial flexibility with social engagement, reinforcing the idea that housing can act as a living system, one that grows with its users while maintaining strong community bonds.

Figure 94: Villalba, M. (2021). Common areas. [Photograph]. https://archello.com/pt/project/la-balma-housing-cooperative

Figure 95: Villalba, M. (2021). Balconies. [Photograph]. https://archello.com/pt/project/la-balma-housing-cooperative

Figure 96: Villalba, M. (2021). Flat interiors. [Photograph]. https://archello.com/pt/project/la-balma-housing-cooperative

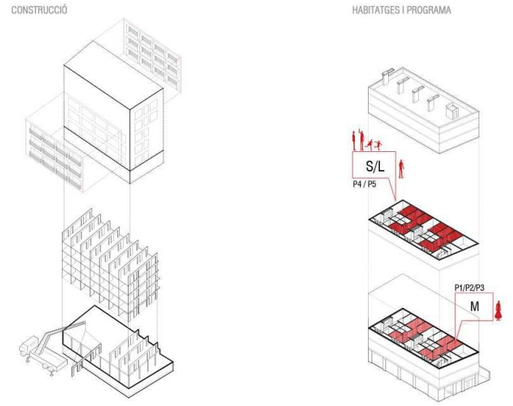


Figure 97: LaBoqueria+Lacol. (2021).Flat typologies. [Scheme]. https://archello.com/pt/project/la-balma-housing-cooperative

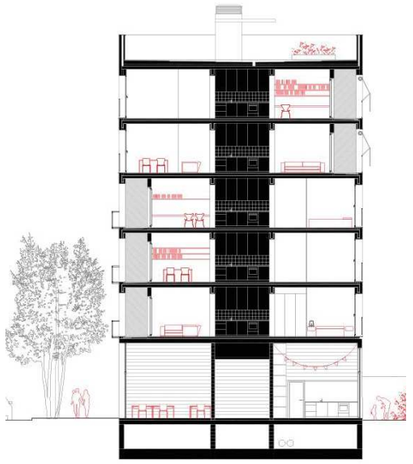


Figure 98: LaBoqueria+Lacol. (2021).Section. [Architectural plan]. https://archello.com/pt/project/la-balma-housing-cooperative

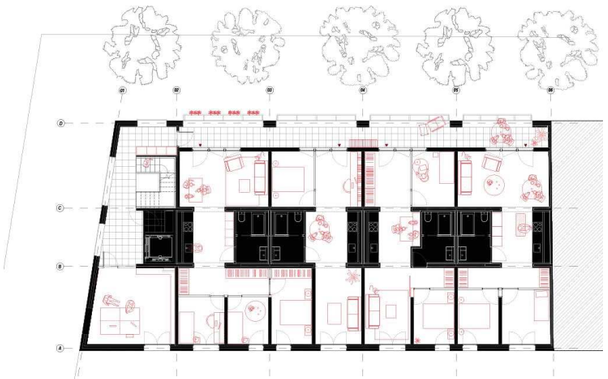


Figure 99: LaBoqueria+Lacol. (2021).Floor plan typologies. [Architectural plan]. https://archello.com/pt/project/la-balma-housing-cooperative

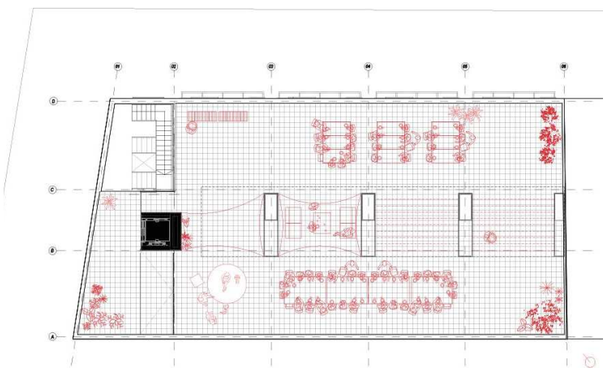


Figure 100: LaBoqueria+Lacol. (2021).Terrace floor plan. [Architectural plan]. https://archello.com/pt/project/la-balma-housing-cooperative

Strenghts	Limitations	Strategies that can be reinterpretede
Integration of shared spaces across all levels.	May not be directly transferable to heritage/social housing renovation without significant structural changes.	Vertical distribution of community spaces to enhance interaction throughout the building.
Modular typologies that facilitate changes based on user needs.	Not possible to apply the participatory process in the study case.	Modular unit system that allows flexible expansion or contraction of living spaces.
Encourages interaction between residents and the neighbourhood.		Viewing housing as an evolving system rather than a fixed object.

5.3 Peterbos Renovation

Design: Collaboration
Location: Brussels, Belgium
Project year: 2019
Category: Housing

Figure 101: Halliday,G. (2024). Peterbo project in Anderlecht. [Photograph]. https://fp-architecture.com/165-logements-peterbos/

As part of my analysis of reference projects, I explored the renovation of 165 social housing units at Peterbos in Brussels. This project stood out to me due to its careful and contextual approach to renovation, especially given the fragility of the social environment surrounding the site. Rather than opting for the easier route of relocating residents, the renovation was carried out while the buildings remained occupied, a choice that demonstrates both social sensitivity and architectural responsibility. It was important for me to examine how this decision influenced every aspect of the design process.

Figure 102: Malaud,S. (2021). Peterbo previous situation. [Photograph]. https://fp-architecture.com/165-logements-peterbos/

One of the key aspects I observed is how the project redefines the relationship between the building and its surroundings. Through a new building envelope and revised openings, the architects managed to significantly enhance both the spatial quality and energy performance of the units. Larger window frames now bring in more natural light, and every apartment benefits from added terraces, generous outdoor spaces of about 8.5m² that are not just extensions, but true additional rooms. Their orientation (east-west) maximizes sunlight and encourages interaction with the landscape, while also improving the living conditions of the residents.

Figure 103: Halliday,G. (2024). Addition of balconies. [Render]. https://fp-architecture.com/165-logements-peterbos/

Another element I found particularly striking is the expressive form of the emergency staircase. Its curvilinear shape contrasts with the linear terraces, acting as a spatial buffer while also becoming a recognizable architectural feature within the neighborhood. For me, this reveals how even functional components can contribute to a project's identity and social impact.

The renovation strategy itself operates on two levels. First, it upgrades the building's infrastructure and common spaces, improving the interior quality without disrupting the structure. Second, it introduces new volumes: an independent framework on both long façades, with winter gardens on the upper floors and new social spaces on the ground floor. These interventions redefine the daily experience of the building, connecting kitchens and living areas to outdoor extensions, creating visual and physical links with the neighborhood, and activating the ground floor for collective use. The addition of a second entrance hall and a double-height corner space further support this openness.

Figure 104: Multiple. (n.d).Re-design of facades. [Scheme]. https://fp-architecture.com/165-logements-peterbos/

Overall, I found this project to be a valuable example of how architectural strategies, when aligned with social and technical awareness, can create meaningful improvements in social housing. The Peterbos renovation offers inspiration for my own proposal for La Cité Versailles, especially in terms of layered façade design, multifunctional extensions, and the role of community in defining spatial needs.

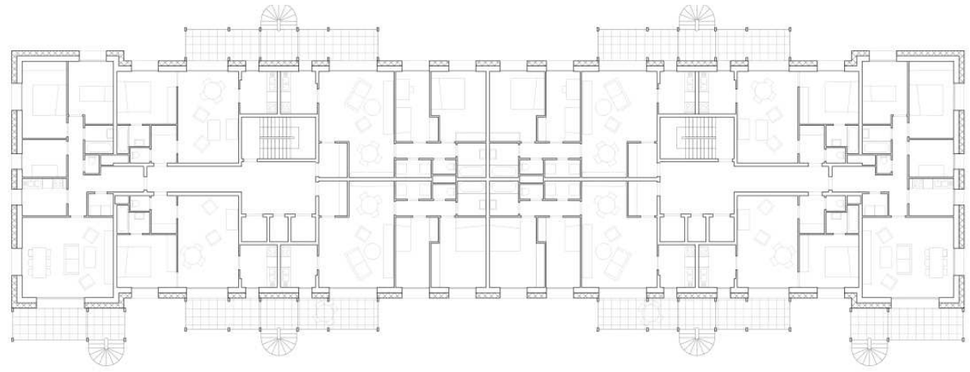


Figure 105: Multiple. (n.d).Addition of living space. [Scheme]. https://fp-architecture.com/165-logements-peterbos/

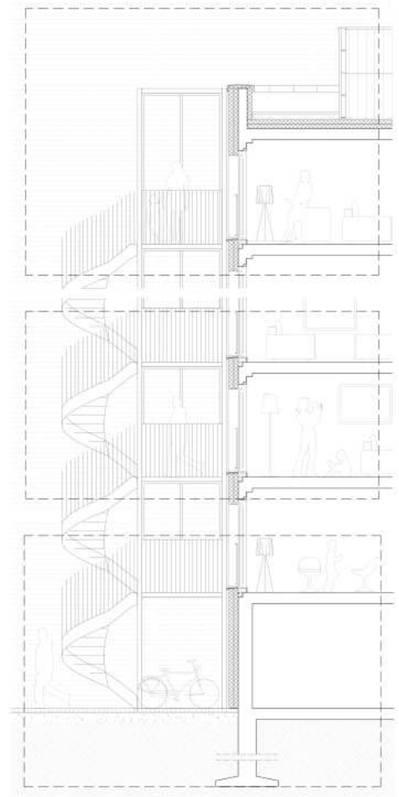


Figure 106: Multiple. (n.d).Addition of staircases and balconies. [Scheme]. https://fp-architecture.com/165-logements-peterbos/

Figure 107: FP. (n.d).Before and after of flats. [Scheme]. https://fp-architecture.com/165-logements-peterbos/

Strenghts	Limitations	Strategies that can be reinterpreted
Sensitive approach by renovating while residents remained in place.	Renovations were mostly made in the facades; internal apartments were not redefined.	Integration of terraces as transitional spaces between private interior and public exterior.
Prioritization of spatial quality through openings and natural light.	Lack of user participation compared to previous study cases.	Use of winter gardens and extensions as flexible buffers that offer both climatic and social functions.
Addition of square meters.	Does not integrate adaptable housing.	Multifunctional ground floors that integrate neighbourhood activities and entrances.
Social activation of ground floor spaces.		

6

Master project proposal

To date, the thesis has examined various aspects that support the revitalization of La Cité Versailles, highlighting how post-war social housing can be reimagined to meet contemporary needs. This has been approached through a historical overview, urban analysis of the site, and theoretical and architectural research focused on strategies for flexibility and adaptability. As the work transitions into its final section, this chapter presents the master project, offering a design perspective that reflects the application of these concepts in the architectural proposal.

6.1 Programme definition

The original housing program is maintained in the master project proposal. As mentioned in previous chapters, the Brussels Capital Region is experiencing a growing need for affordable housing. For this reason, the project aims to revitalize the existing spaces rather than replace them. This revitalization focuses on enhancing spatial flexibility, improving circulation, and introducing shared spaces that foster a stronger sense of community. By adapting the existing structure to contemporary living needs, such as lifecycle-based layouts, social adaptability, and modular interventions, the project seeks to transform Post-War housing into a more resilient and inclusive environment.

As previously mentioned, the focus is on Tower C, Phase 4, located at Japanse Torenstraat and Laskouter. The floorplans were examined to identify the various apartment typologies with a focus on 2-3 room prototype, as well as the intermediate spaces such as entrances, elevators, and stairwells. According to interviews conducted by Urban.Brussels (2022) with residents, these transitional spaces are not conducive to social interaction. The ground floors are described as narrow and uninviting, leading to entrance halls that are frequently vandalised. Additionally, the elevators are often out of order, and the escape stairwells are perceived as cold and unsafe.

The detailed study of Block C, Phase 4, provided insights into current conditions and key areas for improvement that are consider for the master project proposal. By analyzing apartment types and vertical circulation, the project identifies opportunities to enhance flexibility, long-term adaptability, and foster a stronger sense of community within the tower.

The basement floor plan includes three types of flats: studio, twoo-room and three-room units, distinguished by different colors in the scheme (Figure 108). Most of the space on this floor is allocated to maintenance facilities.

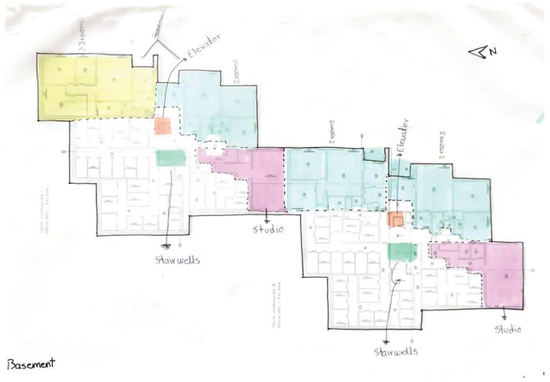


Figure 108: By author. (2025). Apartment typologies basement. [Architectural plan].

The ground floor plan includes three types of flats: one-room, two-room, and three-room units. The tower can be considered as divided into two blocks, as the circulation is interrupted where the flats meet. The staircases and elevator serve as the only shared common spaces (Figure 109).

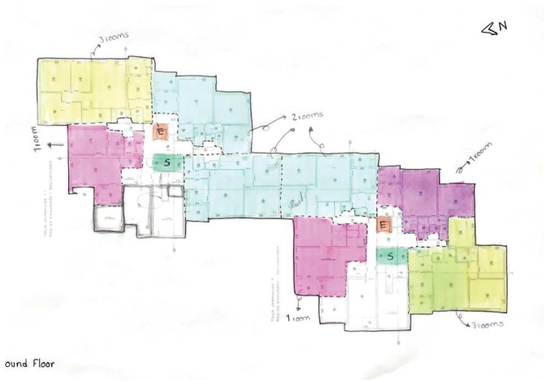


Figure 109: By author. (2025). Apartment typologies ground floor. [Architectural plan].

The same floor plan is repeated from the first to the third level, where all the space is occupied by three types of flats: one-room, two-room, and three-room units. The layout prioritizes two-room units. As on the level below, the staircases and elevator remain the only spaces that allow for social interaction (Figure 110).

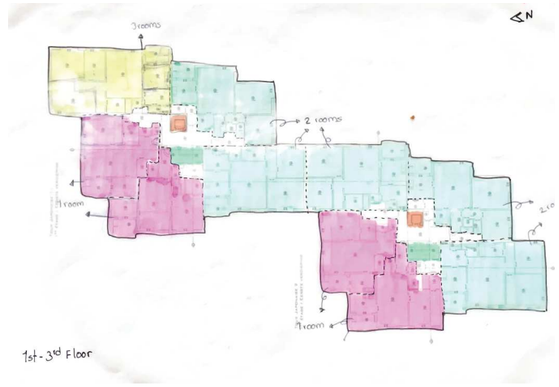


Figure 110: By author. (2025). Apartment typologies 1st-3rd floor. [Architectural plan].

The fourth floor contains two types of flats: one-room and two-room units. The remaining space is unoccupied, offering significant potential to be transformed into a terrace that encourages gathering and promotes the social interaction currently lacking in the tower (Figure 111).

Figure 111: By author. (2025). Apartment typologies 4th floor. [Architectural plan].

6.2 Design strategy

Based on the theory of flexibility and adaptability, the design strategy focused on applying various flexibility principles to the tower at La Cité Versailles to explore how they could transform the existing structure. The first step was to identify the different potentials within the complex, particularly the unused terrace, which holds significant promise as a communal space for gatherings and the development of a shared garden. This intervention could help establish a meaningful relationship between private and public realms, especially for the top-floor flats, by encouraging social interaction while preserving a sense of intimacy (Figure 112).

Another proposed intervention involves the introduction of duplex apartments to diversify the housing typologies within the tower. This aims to enhance adaptability and better respond to the diverse and evolving needs of residents.

The process began by identifying fixed structural elements, such as vertical circulation cores, load-bearing walls, and areas containing kitchen and bathroom installations, since relocating these would entail substantial financial investment. Once these constraints were defined, different flexibility strategies were combined and applied.

The first proposal merges neutral and circulation flexibility with folded flexibility. The tower is conceived as a structural shell, "a hold", where only the previously identified rigid elements remain fixed. Within this framework, new division walls were introduced to generate adaptable interior layouts. After establishing neutral zones, four layout options were developed to demonstrate how flats can expand or contract based on family needs. By introducing sliding and regular doors, these options allow for flexible spatial arrangements and the creation of new interconnections (Figure 113).

The second proposal combines open flexibility with folded flexibility. Here, structural columns define a free plan, enabling varied configurations of internal partition walls. This approach offers greater freedom for residents to shape their dwellings. Three alternative layouts illustrate different arrangements, using color-coding to show the potential number of flats. This spatial liberty also integrates elements of exchangeable flexibility, where a room can be shared between two flats depending on residents' needs, whether to accommodate a growing family or to enable casual encounters between neighbors (Figure 114).

The external flexibility strategy is integrated into all proposals, emphasizing communal balconies that foster a sense of community. Two variations are explored. In the first, shared terraces on the east and west façades enable horizontal circulation across the flats, with privacy maintained via adjustable curtains that control interaction. The second offers a more intimate solution, where shared terraces connect only neighboring flats, allowing spontaneous but more private exchanges (Figure 115).

The goal of all these proposals is to enhance the quality of life at La Cité Versailles and offer a renewed perspective on how post-war buildings can be reimagined to meet contemporary living standards. The proposals are visually represented in a Mondrian-inspired style to clearly communicate the diversity of possible spatial arrangements.

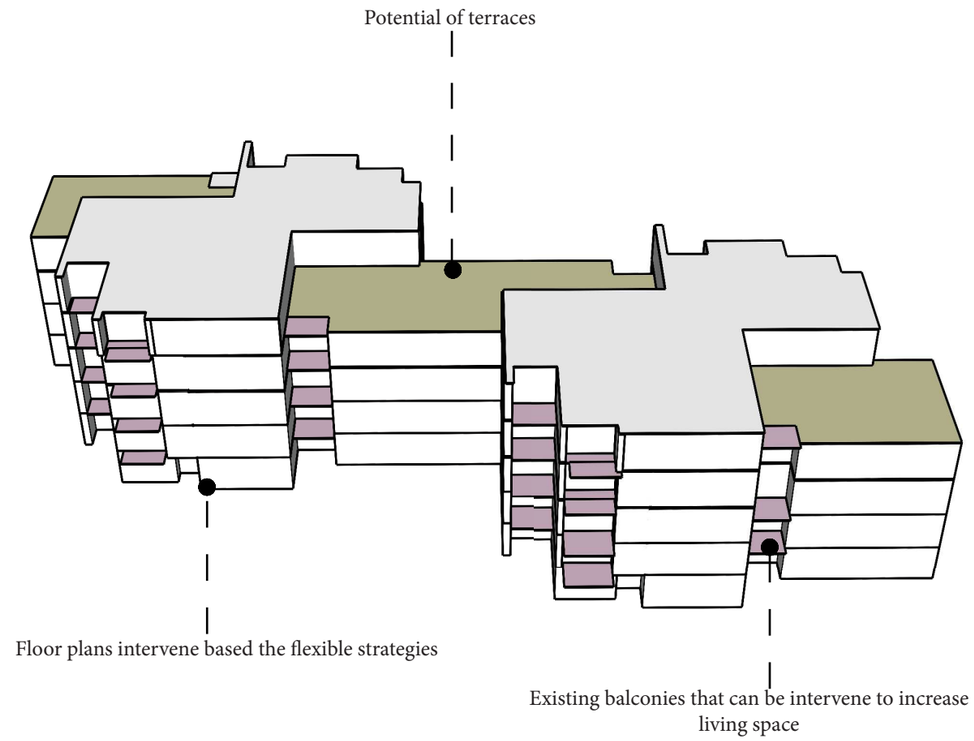
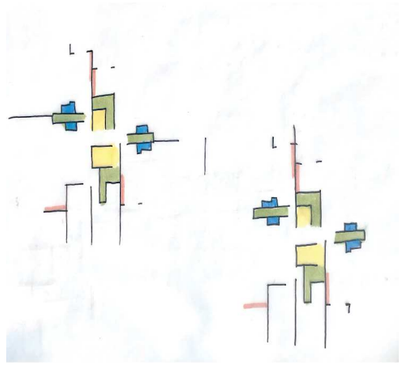
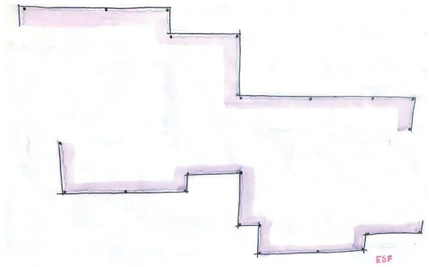


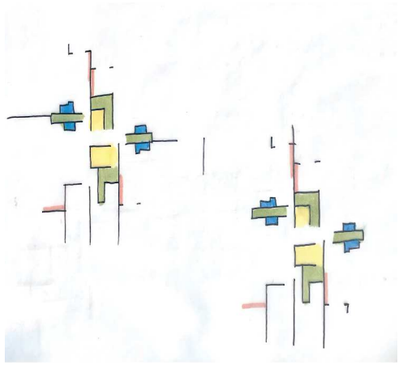
Figure 112: By author. (2025). Tower axonometric. [Scheme].



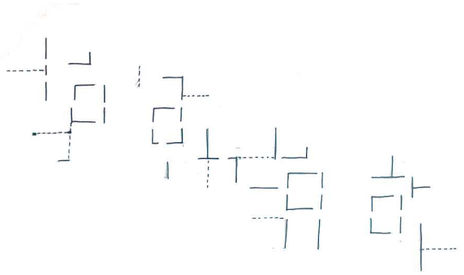
Rigid elements



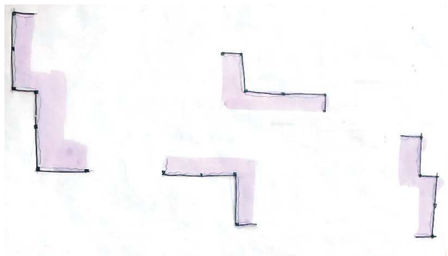
Communal balconies



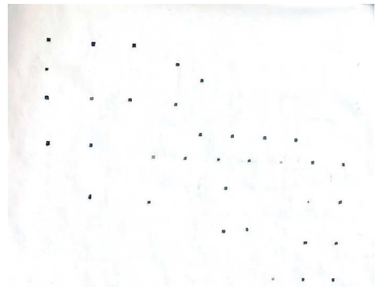
Rigid elements



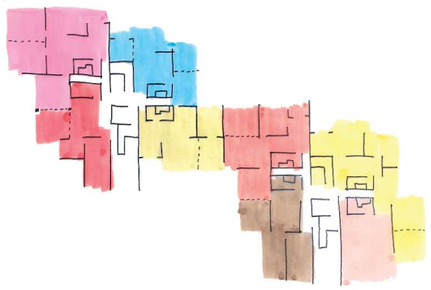
Creation of neutral spaces



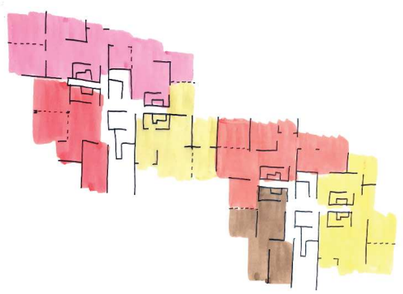
Shared balconies- neighbouring flats



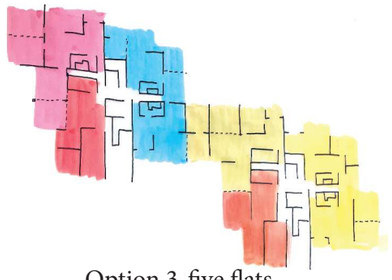
Open floor plan



Option 1-eight flats



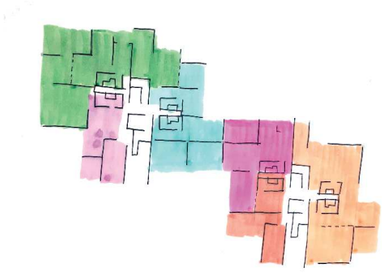
Option 2-six flats



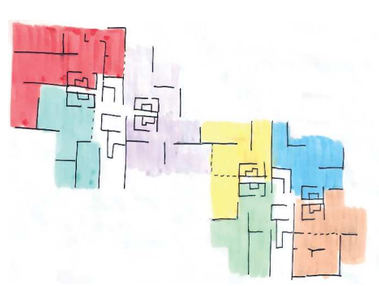
Option 3-five flats

Option 4-eight flats

Figure 113: By author. (2025). First proposal. [Scheme].



Option 1-division walls



Option 2-division walls

Option 3-division walls

Option 4-division walls

Figure 114: By author. (2025). Second proposal. [Scheme].

7

Conclusion

7.1 Reflection

This research has examined the historical evolution and current condition of social housing in Brussels, with a particular focus on La Cité Versailles. Through a combination of resident interviews, site analysis, and international case studies, it becomes clear that contemporary housing demands call for a renewed focus on adaptability and flexibility. Countries like Germany and Switzerland have pioneered this shift, primarily through new developments that respond to evolving social dynamics such as migration and changing household structures. Meanwhile, growing interest is emerging around the adaptive reuse of existing buildings. In Belgium, the Flemish government is beginning to experiment with cooperative housing models and revitalization strategies, yet conventional notions of the nuclear family still dominate design and construction practices, often overlooking the diversity of life cycles.

While the five flexibility strategies explored in this thesis offer a valuable framework, they alone cannot resolve the stigma or social disconnect often associated with post-war housing. Pilot projects like The Warren in Amsterdam demonstrate that even well-designed shared spaces may be underused if they lack meaningful engagement from residents. Nevertheless, these strategies carry strong potential to improve long-term adaptability, granting inhabitants a greater sense of spatial agency and enhancing their quality of life. The ability to adapt one's living environment to life changes fosters a stronger sense of control and belonging.

This thesis proposes applying flexible design principles to La Cité Versailles through the concept of the living house, dwellings envisioned as dynamic environments that evolve alongside their users. This vision aligns with broader European efforts to address the pressing need for affordable and adaptable housing in major cities like Brussels. The design proposal, though focused on a single tower within the larger complex, aims to demonstrate how combining flexibility strategies can produce multiple floor plan configurations tailored to residents' needs. Here, the tower is reimagined as a whole, fluid structure with movable or openable elements that allow for the creation of new spaces without rigid boundaries.

The two strategies presented reflect different levels of intervention. The first is a more fixed approach, introducing neutral zones across the tower that can accommodate a flexible number

of flats per floor based on household size. The second is a looser, user-led model, in which families are given open structural frameworks defined by columns. Within these, they can freely organize dividing walls and share a neutral zone with neighboring units, space that can be appropriated in diverse ways.

To understand how such proposals might be received in reality, further research involving participatory design is essential. Engaging residents directly will be key to assessing the acceptance, or rejection, of these ideas. One limitation of this study is that it did not explore the logistics of working with existing residents during renovation. More investigation is needed to develop strategies that offer flexibility without displacement. Precedents like those of Lacaton & Vassal highlight the value of non-disruptive interventions, though they rarely push toward radical transformations such as introducing independent structures.

In conclusion, for flexibility to become a truly effective design strategy, future architectural approaches must prioritize the lived experiences of current residents. Only then can post-war housing shift from being perceived as outdated infrastructure to a resilient, socially vibrant environment capable of supporting the complexities of contemporary life.

8

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