# Planting Old-Growth Cities:
# A Dynamic Approach to a Modern Paradigm

by

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Dalhousie University is located in Mi'kmaq'i,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

# Contents

# Abstract

This thesis proposes a groundbreaking modular, metabolistic architecture framework near Halifax's waterfront in Nova Scotia, Canada. It addresses the crisis of commodified housing by challenging conventional ownership notions through an inclusive infrastructure framework. The envisioned housing exhibits dynamic growth and adaptability, resembling living organisms within the urban landscape.

By advocating for innovative ownership models, the thesis establishes a symbiotic relationship between municipalities and residents. Municipalities provide essential groundwork and infrastructure, while residents actively contribute to the evolving community. This collaboration fosters long-term sustainability, resilience, and vitality.

Acknowledging the absence of a one-size-fits-all solution, the thesis presents transformative ideas that, when combined with other innovative approaches, hold the potential to revolutionize the housing sector. Guided by an organic and responsive design philosophy, the framework aims to enhance the sustainability and adaptability of the built environment, shaping a more resilient future.

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Logan, your love, patience, and understanding have been a constant source of motivation for me. I am forever grateful for your unwavering support.

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# Chapter 1: Introduction

## Housing: An Ecosystem in the Urban Landscape

One commonly heard argument is, What's the harm in cutting down old growth forests if we replant the trees? For each tree we cut down, we can plant three more. This notion may seem like an ideal solution in theory, but in practice it falls short. It's simply not a matter of replacing trees; it's an issue of preserving an entire ecosystem. The question is not whether new trees can grow after logging old growth forests, but whether the resulting second-growth tree plantations can effectively replicate the original old growth forests. And the answer is, they cannot.

Old-growth forests and second-growth forests differ significantly in terms of their age, composition, and ecological characteristics. Old-growth forests are ancient, mature forests that have experienced minimal human interference. They are characterized by their diverse array of tree species, diverse, layered canopies, and abundant biodiversity. These forests have reached a state of ecological equilibrium, with intricate ecosystems and complex interactions between flora and fauna.

In contrast, second-growth forests emerge after disturbances such as logging, or fire have cleared the original forest. They are composed of younger trees and lack the structural complexity and biodiversity of old growth forests (Maloof 2016, 7). While they still play a vital role in the ecosystem, second-growth forests require time to develop similar levels of ecological richness and stability.
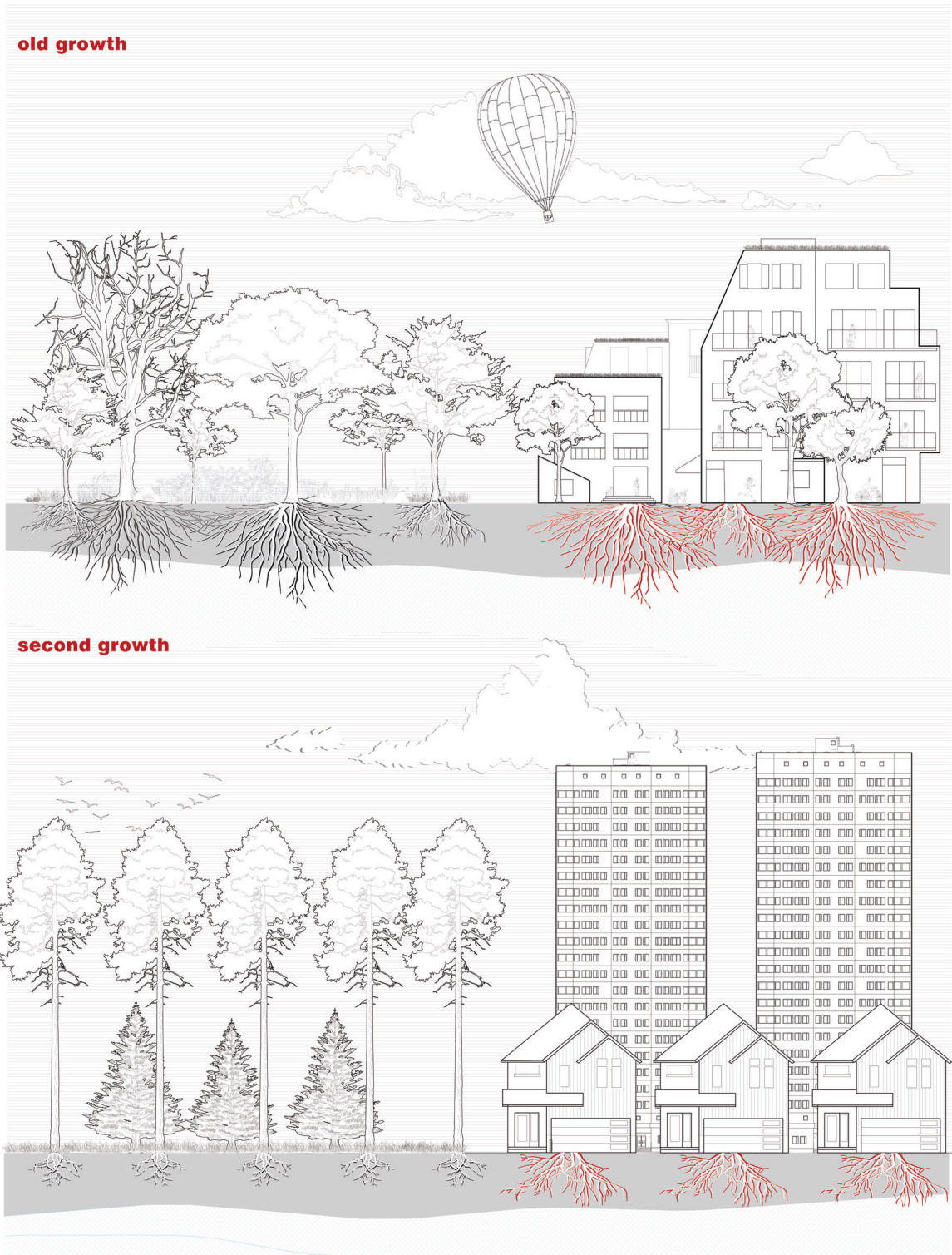
Figure 1: Old growth forests and neighbourhoods vs. second growth forests and neighbourhoods

In a parallel comparison, the current housing market increasingly treats housing as a financial commodity, rather than a fundamental human need. The focus has shifted from providing an inclusive, attainable, and accessible housing ecosystem for all to maximizing profits for investors. This shift has resulted in rising housing prices, gentrification, displacement, and the growth of speculative housing markets that primarily benefit a small ground of investors, rather than ordinary people.

The prevailing trend in housing construction heavily favours single-family, detached homes, or multi-storey residential buildings populated almost exclusively with 1 bedroom units, limiting housing options and rendering them unattainable for many while lacking adaptability to diverse needs. Similar to second-growth forests, this housing landscape lacks the richness, diversity, and self sufficiency required to cater to the varying demands of individuals and communities.

Just as old growth forests adapt to their environments and fulfil various needs, we need to propose a new model of housing that can also adapt to and cater to residential needs. By providing the necessary infrastructure and support we can foster the growth of healthy and vibrant "old growth" cities. Like a tree, we cannot dictate how this new model of housing grows, we can plant the seeds that allow it to develop naturally into something beautiful.

## Motivation: The Growing Housing Divide

The increased commodification of housing has resulted in a widening housing divide that demands immediate action. The prevailing housing market is increasingly driven by financialization, as investors view housing as a commodity to be bought and sold, rather than recognized

as a fundamental human need (Rolnik 2019, 5). This prioritization of profits over the well-being of individuals has significantly compounded the challenges faced by ordinary people in securing adaptable and inclusive housing, exacerbating inequality and social fragmentation.

This issue is particularly prominent in North America, in contrast to Europe, where cities boast centuries-old buildings, representing literal "old-growth" cities that have serves as anchors for communities. These cities have organically adapted over time to meet the evolving needs of their inhabitants, functioning as stable ecosystems that support vibrant social fabrics and cohesive neighbourhoods. Vienna (Forster and Menking 2006, 45), in particular stands as an exemplary case study of a thriving European city with a well-managed housing market, offering valuable insight into how a diverse range of inclusive housing options and well-structured public infrastructure can contribute to societal well-being.

Emphasizing Vienna as a prime example, it becomes evident that housing is treated as a public service, akin to education, health care, and public transportation, acknowledging that it cannot be fully subjected to market forces (Forster and Menking 2006, 7). Recognizing housing as a fundamental human right necessitates a holistic approach that transcends its commodification, urging a shifting perspective. By adopting this approach in North America, we can effectively confront the housing crisis and cultivate a society where accessible and inclusive housing is seen as an pivotal element of a well-functioning public infrastructure.

The de-commodification of housing and the prioritization of individuals' needs are indispensable for nurturing cities that

embody abundance, diversity, and inclusivity. Achieving this goal necessitates the establishment of publicly funded urban infrastructure that places emphasis on supporting and prioritizing the well-being of public spaces, fostering inclusivity, and facilitating adaptability to cater to the evolving needs of individuals. By creating self-sustainable ecosystems within the urban landscape, these initiatives can effectively bridge the housing divide and cultivate neighbourhoods that are characterised by equity and inclusivity, ultimately benefiting the entire population.

Effecting meaningful change in addressing the housing crisis and building more equitable and livable cities necessitates a transformation in our mindset and intentions concerning housing. It entails redirecting investments towards publicly supported urban infrastructure that fosters adaptability and inclusivity. By prioritizing the needs of individuals over the interests of investors, we can conceive and implement inclusive housing solutions that cater to the diverse members of society, ultimately fostering a more equitable and inclusive housing paradigm.

## An Obligation

The housing crisis presents itself as a multifaceted challenge, permeating various aspects of individual lives, communities, and society as a whole. Its complex nature necessitates a collaborative effort among professionals from diverse disciplines, pooling their skills and expertise to develop comprehensive solutions. Yet, as architects and students of architecture, we find ourselves uniquely positioned as frontline contributors to housing design and development.

It is paramount for us to acknowledge our distinct responsibility in ensuring equitable access to housing for all

individuals. This recognition calls for a genuine willingness to venture into uncharted territories and embrace innovative approaches that transcend conventional boundaries. Architects as well as developers bear a collective obligation to design projects that dismantle the barriers entrenched in the prevailing commodified housing model, demanding a fundamental paradigm shift in current housing practices.

By metaphorically sowing the seeds of "old-growth" cities, we can bear witness to the flourishing of self-sustaining and adaptable communities that foster sustainability and vibrancy. These cities will stand as beacons of resilience and longevity, embodying a comprehensive approach to housing design and urban development. This approach transcends viewing housing as a mere commodity and recognizes its inherent significance as a fundamental human need and right. Consequently, it underscores society's profound responsibility to acknowledge the imperative to de-commodify housing and strive for universal accessibility for all individuals, without exception.

## Organizational Overview

This thesis is organized into three main components, with the final chapter dedicated to a theoretical project that applies and tests the concepts discussed.

The first component critically examines the significance of transforming attitudes towards ownership and redefining housing as a fundamental human right rather than a mere commodity. It emphasizes the need for a paradigm shift in how we perceive the spaces we inhabit and how architects can contribute to the creation of inclusive and adaptable infrastructure. This shift is crucial for fostering vibrant and self-sustaining urban ecosystems within the city fabric.

The subsequent section of this thesis highlights the importance of public spaces in housing developments. Often housing projects that received additional funding or social assistance face negative associations. Therefore, it is essential for projects to embrace and enhance public spaces within the cityscape to harvest the vibrancy they create and welcome it as a central feature required to sustain vibrant old-growth cities.

The third section of this thesis provides a comprehensive synthesis of the previously discussed components, illustrating the intricate interplay between transforming attitudes towards ownership and the integration of public space in housing developments. Through this integrated approach, inclusive housing in the public realm is fostered, underpinned by an infrastructure model that promotes adaptability and facilitates expression of identity, individuality, and new sense of ownership.

This thesis asserts that the achievement of inclusive housing in the public realm relies on a multifaceted approach that places emphasis on community engagement and the deliberate integration of public space. Furthermore, it aims to challenge the deeply entrenched attitudes of ownership perpetuated by the dominant commodified housing model. Through a comprehensive exploration, this project seeks to demonstrate how the proposed ideas can be effectively translated into practical applications, thereby presenting an example of the viability and effectiveness inclusive infrastructure can have. By fostering adaptability, self-sustainability, and vibrancy, such infrastructure has the capacity to cultivate thriving communities.

**Thesis Question**

The question becomes: can we transition to a housing model that prioritizes the well-being of individuals within our communities, fosters their individuality and identity, and fosters a sense of place through active ownership and participation, while simultaneously challenging the prevailing for-profit housing paradigm?

# Chapter 2: Redefining Ownership

## Commodified Ownership

Commodified ownership has profound detrimental impacts on various domains of society, exacerbating inequality, undermining social cohesion, and hindering sustainable developments.  One significant consequence is the concentration of wealth and power in the hands of a few, perpetuating socioeconomic disparities.  As Alexander (1977, 394) asserts, the encouragement of speculation in land and the commodification of housing lead individuals to view homes as mere commodities, built for resale rather than to meet their actual needs.  This profit-driven approach to housing exacerbates the housing affordability crisis and further widens the gap between the privileged few and the marginalised many.

Moreover, commodified ownership undermines sustainable development by promoting short-term profit-oriented decisions at the expense of long-term social considerations.  The emphasis on speculation and financial gain frequently results in a disconnect between new developments and social connections, impeding efforts to foster sustainable and resilient communities.  This disregard for the broader social impact of development hampers progress towards achieving a more sustainable and inclusive society.

It is crucial to recognize that housing is a fundamental human right (Forster and Menking 2006, 7).  However, the commodification of ownership regulated housing to a market-driven commodity, placing it beyond reach of many individuals and communities.  This undermines efforts to ensure equitable access to adequate housing and



Figure 2: Housing to profit a select few, rather than a home for people.

perpetuates systematic inequalities. By prioritising profit over people's needs, commodified ownership creates a housing system that fails to serve the broader interests of society and violates the basic principles of human rights.

The detrimental impacts of commodified ownership are evident across multiple domains of society. It perpetuates inequalities, erodes social cohesion, and hinders sustainable development. Recognizing housing as a public service and human right, rather than a mere commodity, is essential for addressing these negative effects. Alternative approaches that prioritise the needs of individuals and communities, while challenging the dominance of profit-driven models, can pave the way for more inclusive, equitable, and sustainable urban ecosystems.

## A New Definition

The detrimental effects of commodified ownership on housing extend beyond mere economic considerations and have profound implications for people's health, dignity, and overall well-being. As Alexander (1977, 393) argues, all forms of rental, whether from private landlords or public housing agencies, hinder the natural process of forming stable and self-healing communities. When individuals lack a sense of ownership and control over their homes, it becomes challenging to establish a sense of comfort and belonging, impeding the development of strong and supportive communities.

Housing is not merely a shelter; it should bestow a sense of dignity upon its inhabitants (Davis 1995, 3). Unfortunately, the profit-driven nature of commodified ownership often leads to neglect and despair. Landlords have little incentive to invest in maintenance and improvements, while residents



Figure 3: Housing has become increasingly out of reach for the average person.

lack the motivation to care for a property they do not truly own, perpetuating the degradation of rental properties over time and further diminishing resident's dignity and well-being (Alexander et al. 1977, 394).

The concept of ownership goes beyond mere possession, as Buber (1969, 93) expresses, "the house is the winning throw of the dice which man has wrested from the uncanniness of the universe." It is a deep human desire to have a place one's own, where one feels safe and protected. This highlights the importance of redefining ownership as a personal connection to a place, fostering a sense of connection, respect, and responsibility.  By empowering individuals to have control over their housing and spaces, we can create communities driven by collective ownership and shared responsibility .

By shifting the paradigm from commodified ownership to a more inclusive and empowering approach, we can build thriving communities that prioritise people's well being, foster a sense of dignity, and provide a foundation for collective ownership and shared responsibility in housing.

## The Power of Ownership

The misconception that affordable housing should only meet basic standards and not exceed minimum requirements fails to recognize the importance of creating a sense of ownership and pride among residents.  As Davis (1995, 3) highlights, affordable housing should not be limited to basic, safe, and clean conditions, devoid of cultural and psychological  needs.  Neglecting these aspects, especially in subsidised housing, undermines the potential of creating successful, inclusive, and attainable communities.

A sense of ownership motivates individuals to take responsibility for maintaining their living environment. When people feel a personal stake in their homes, they become more actively involved in its upkeep. Additionally, a sense of ownership fosters positive relationships with neighbours, a sense of purpose, and mutual support. Looking out for one another and actively ensuring neighbourhood safety creates trust and cohesion within the community, deterring crime and establishing more secure living environments (Jacobs 1992, 54).

At the community level, a sense of ownership cultivates social connection and engagement. Residents who feel ownership for their place are more likely to advocate for the community's needs, leading to increased investment and resources. By interacting with neighbours, organising events, and collectively addressing concerns, strong and cohesive communities emerge, enhancing the social fabric and resilience of the neighbourhood.

Taking a broader view, housing is part of the public realm, defining the visual panorama and contributing to the unique character of cities. High-quality and affordable housing benefits everyone, turning occupants into integral community members instead of unwanted intruders. Recognizing housing as a component of infrastructure, its cost should be shared collectively, benefiting all residents (Davis 1995, 81).

At the urban scale, a strong sense of ownership contributes to the vitality and vibrancy of cities. Residents' pride and engagement in their communities create more attractive and desirable living environments, leading to economic development and increased value. A sense of community, fostered by ownership, enhances civic engagement,

participation, and dignity, ultimately strengthening the city as a whole.

Instilling  a sense of ownership among residents fosters responsibility and accountability, resulting in cleaner, safer, and more vibrant living environments.  This contributes to community pride, a stronger sense of belonging, and ultimately creates cohesive, inclusive, and resilient communities and cities.  By recognizing the importance of ownership beyond basic standards, we can unlock the transformative potential of housing for individuals and society as a whole.

## Old-Growth Europe and the New-Growth Americas

Evidence shows that a sense of ownership can be as powerful (Forster and Menking 2006, 48), if not more so, than traditional ownership based on legal rights and financial investment.  It is rooted in emotional connection, responsibility, and care for a place.  By creating opportunities for individuals to develop a sense of ownership and responsibility for their living environment, we can foster a culture of empowerment and engagement that benefits everyone.

The Vienna public housing model exemplifies successful implementation of this approach.  It offers affordable and high-quality housing to a large portion of the city's population, emphasising social integration and sustainability. The model combines public and private funding and enforces regulations on rents and tenant protection to ensure board access to affordable housing regardless of income or social status.  Notably, the Vienna model promotes a community-based approach to housing development and management, actively involving tenants in decision-making processes

related to their housing and neighbourhoods. (Forster and Menking 2006, 12).

In contrast, North American NIMBYism, or Not In My Backyard, is a phenomenon where residents oppose new development, particularly affordable housing in their neighbourhoods. This resistance is often driven by concerns about property values, traffic, and perceived negative impacts on the neighbourhood's character. However, such opposition hinders inclusivity, particularly for those unable to afford market-rate housing.



Figure 4: Novel approached to housing are often challenged by fierce NIMBY opposition.

NIMBYism reflects deeply rooted values of self-determination, independence, and self-reliance in American society. The housing patterns in the United States reinforce these values by promoting single-family ownership. Homeownership has been ingrained as an aspiration through government incentives, tax breaks, and financing, creating a subtle but persistent message that renters and those in need of subsidies are seen as second class citizens (Davis 1995, 51).

Furthermore, NIMBYism contributes to the dominance of single-family home ownership and resistance to higher-density housing options like apartments or condos. This preference for single-family homes perpetuates the idealised form of housing, while rental and subsidised housing are stigmatised as inferior. Stereotypes about renters and low-income residents further reinforce the perception that they are less invested in their communities and more likely to engage in disruptive behaviours. This perpetuates cycles or inequality and limited access to stable, inclusive, and attainable housing for those who need it most.

To address these challenges, a paradigm shift is necessary in our approach to housing, prioritising building types that foster a sense of ownership for place. This entails promoting community involvement, empowering residents to participate in decision-making processes, and challenging negative perceptions associated with affordable and rental housing. By embracing diverse housing options and promoting a sense of ownership among residents, we can create inclusive, resilient, and thriving communities.

# Chapter 3: Inhabiting the Public Realm

## Fostering Community Through Defined Space

The extensive size and vague nature of public spaces in older housing developments presents a pressing issue. These spaces often lack well-defined boundaries, resembling a "no-man's-land" (Gehl 2011, 61), which hinders the formation of cohesive and vibrant communities. To overcome this challenge, it is crucial to establish more defined public spaces that foster community ownership and social interactions. This can be achieved through subdividing the vast areas into smaller, more manageable areas or implementing design strategies that encourage residents to utilise and take ownership of these spaces. By addressing the issues of imprecise public spaces, public housing areas can become welcoming and engaging environments that nurture strong, more cohesive, and inclusive communities.

Moreover, the creation of smaller spaces within larger developments play a pivotal role in enhancing the sense of community and mutual support among residents. By dividing the project into manageable, human-scale places, residents can more easily come together, organise themselves, and engage in various group activities and decision-making processes. This hierarchical system allows for more effective coordination and collaboration, fostering a stronger bond among community members.

The presence of smaller spaces also serves as a countermeasure against the feeling of overwhelming scale when it comes to larger housing developments. When a project is too vast and undefined it can be challenging for

residents to establish connections and develop a sense of belonging. However, by breaking down the development into smaller spaces, each with its own distinct identity and shared spaces, a sense of ownership and pride in the neighbourhood is cultivated. Residents feel a greater sense of responsibility for their immediate surroundings, resulting in a more well maintained and functional community.

In essence, the creation of smaller spaces within a larger development establishes a hierarchical system that enhances the community dynamic. It enables residents to organise themselves more effectively, amplifying they're collective voice and enabling them to shape the community according to their needs and aspirations. This hierarchical organisation not only prevents the development from feeling overwhelming but also cultivates a shared responsibility, inclusivity, and neighbourhood pride, contributing to the development of a vibrant and harmonious community.

## Private and Public Spaces

Having a well-defined transition from public to semi-public to private spaces in housing developments is essential for fostering feelings of inclusion among residents. This transition provides a sense of progression and control over personal space, while also encouraging social interaction and community engagement.

Public spaces serve as gathering areas for residents, where they can interact, socialise, and participate in communal activities. These spaces promote a sense of belonging and connectedness within the community. Semi-public spaces provide a gradual transition from the public realm to a more intimate setting. These spaces allow for social interactions among neighbours, while still preserving a

sense of privacy. Residents have the opportunity to choose to form closer relationships and develop a stronger sense of community within these semi-public areas (Gehl 2011, 59). They provide a sense of ownership and pride in the shared environment, leading to a greater commitment to maintaining and enhancing the community's physical and social infrastructure. Private spaces, such as individual units, allow residents to retreat and have personal sanctuaries. These private spaces offer a sense of security and comfort over personal space.

By providing a clear transition between all these types of spaces, housing developments create a sense of inclusivity and belonging. Residents have the opportunity to engage in social interaction as public and semi-public spaces, fostering a sense of community and shared experience. At the same time, the availability of private spaces allow individuals to have personal retreats and maintain a sense of autonomy. This balanced approach to space allocation promotes social cohesion, encourages interaction among residents and contributes to the overall well-being and satisfaction of residents within the housing development

## Living in Shared Space

Emphasizing the significance of communal spaces, the design and planning of this housing infrastructure prioritize the creation of environments that actively encourage social interaction and facilitate community engagement. In order to challenge the negative stigmas associated with living in public places and redefine their desirability and inclusivity, the project aims to inhabit areas along the Halifax boardwalk, a highly visible and public location.

By embracing public spaces within the infrastructure design and labeling it as "inhabiting the public realm," several important goals are achieved. Firstly, public places provide opportunities for shared experiences and interactions. Actively incorporating these spaces into the design fosters a sense of belonging to a larger community. Regular engagement with public areas, such as parks, boardwalks, and communal spaces, creates opportunities for spontaneous encounters and social connections, fostering a sense of camaraderie and shared identity among residents.

Secondly, public places act as catalysts for community engagement and participation. By embracing these spaces, residents are encouraged to actively contribute to shaping their surroundings. Opening avenues for dialogue, collaboration, and collective decision-making empowers individuals to have a voice in the development and management of their shared environment. This involvement promotes a sense of ownership and investment in the well-being of the community.

Lastly, embracing public places enhances the vitality and vibrancy of communities. These spaces transform into dynamic hubs that accommodate diverse activities, interests, and cultural expressions. By actively embracing and investing in public spaces, residents challenge negative stigmas and redefine them as thriving centers of community life. This not only enriches the quality of life for residents but also encourages a broader understanding and appreciation of the benefits public places bring to society.

By reimagining public spaces as desirable and inclusive realms, individuals can challenge negative stigmas and reshape the perception of public space. The project's focus

**boardwalk section**

Figure 5: Extending the public activity through proposed public infrastructure.

on inhabiting the public realm along the Halifax boardwalk demonstrates the potential for public spaces to foster a sense of belonging, community engagement, and vibrancy. By actively embracing and investing in these spaces, individuals can transform them into valuable communal assets that promote social integration, well-being, and pride in public projects.

## The Power of Public Place

Public spaces play a crucial role in fostering a sense of belonging and building strong communities within housing developments, especially those funded or partially funded through social assistance.  These spaces provide an opportunity for residents to come together, engage in various activities, and connect with one another.  As Jan Gehl (2011, 15) states, "The presence of other people, activities, events, inspirations, and stimulations comprise one of the most important qualities of public space altogether." By embracing and enhancing public spaces, we can create inclusive environments that contribute to a positive community identity.

Public spaces in housing developments have the potential to cultivate a shared identity with the surrounding community. When residents take pride in the places they share, it fosters a positive image of the community and attracts new residents, businesses, and visitors.  This influx of activity and interest strengthens the overall community, showcasing the benefits of alternative approaches to housing.  Well-designed public spaces can serve as catalysts for positive change, demonstrating the potential of inclusive and active environments.

Furthermore, public spaces in housing developments contribute to the development of social capital. These spaces facilitate connections, relationships, and trust among residents, fostering social cohesion and shared commitment to the well being of the community. By investing in public spaces, we create opportunities for increased social interaction, collaboration, and reciprocity. Residents become more engaged, empowered, and invested in their surroundings, leading to a stronger sense of community and collective action.

The presence of people in public spaces attracts more people, creating a vibrant and inclusive environment. Merely being around others or observing their activities is often more appealing than other attractions offered in public spaces. This highlights the integral role of social interaction and human connection in creating a sense of community and belonging. As individuals spend more time in public places, they become more receptive to the spontaneity of the surroundings, allowing activities to unfold organically. People can spontaneously engage in activities such as enjoying the sunshine, having a cup of coffee, or striking up a conversation with neighbours (Gehl 2011, 17). This spontaneity adds to the liveliness and inclusivity of public spaces, creating a dynamic environment that attracts people and fosters a strong sense of community.

A vibrant and inclusive public space serves as a symbol of dynamic, engaged, and valued community. It represents a place where individuals feel connected, respected, and valued. Such spaces not only enhance the physical environment by also creating opportunities for social and cultural interactions. They become gathering points for

Figure 6: Inhabiting the public realm through inclusive infrastructure.

various activities, celebrations, and shared experiences, fostering a sense of pride and belonging among residents.

The importance of public space in housing developments, particularly those supported by social assistance, cannot be overstated. Embracing and enhancing existing public spaces not only strengthens community identity, but also promotes social capital and a sense of belonging. By creating inclusive and active environments, we empower residents, foster connections, and build stronger, more vibrant communities. Investing in public spaces is an investment in the well-being and cohesion of the entire community, reaping long-term benefits for all.

## The Importance of Chance Encounters

Public spaces in housing developments play a vital role in fostering a sense of community and belonging. Beyond their physical benefits or providing spaces for activity and relaxation, public spaces also facilitate social interactions that can lead to meaningful relationships and are crucial in nurturing social connections.

Frequent chance encounters in public spaces increase the opportunities for developing connections with neighbours, leading to more meaningful relationships and a stronger sense of community and belonging. As Jan Gehl emphasises, "life between buildings offers an opportunity to be with others in a relaxed and undemanding way" (2011, 17). These spontaneous interactions provide a low-pressure environment where people can engage with each other without the formality of a planned meeting. Moreover, chance encounters are instrumental in maintaining relationships. When people frequently meet in the context of daily activities, it becomes easier to sustain these connections. Regular

interactions increase the likelihood of running into each other again, fostering familiarity and shared experience. Public spaces facilitate these chance encounters, as people are more likely to cross paths with their neighbours, leading to conversations and social interactions that contribute to a sense of community and belonging.

Promoting social connections, in addition to chance encounters in public spaces, enhances the overall livability of the community.. When people spend time in public spaces, they are more likely to develop a sense of ownership and responsibility for these areas, leading to increased community engagement and investment. Overall, creating avenues for chance encounters in public spaces has significant social benefits and is an essential component of self-sustaining community development strategies.

## Increasing the Probability of Chance Encounters

Creating public spaces that encourage chance encounters is recognized as a way to foster community and a sense of belonging. However, it is crucial to go beyond simply creating these spaces and consider strategies to lengthen and enhance the frequency of chance encounters. When individuals have more opportunities to interact with each other over extended periods, they are more likely to form deeper and more meaningful connections, strengthening their sense of belonging.

To foster genuine neighbourly interactions and establish communal activities that transcend surface-level conversations, it is important to identify and cultivate shared connections among community members. These shared connections can be based on common backgrounds, interests, or challenges and are vital for building meaningful

relationships within a community. When individuals find common ground they are more likely to form connections based on shared experiences, values, or goals, leading to the development of trust, empathy, and a sense of belonging.

The physical design of public spaces plays a critical role in facilitating chance encounters and fostering meaningful connections among people and the community. By intentionally designing public spaces with features that encourage interaction, such as inviting seating areas, comfortable walkways, and safe and active gathering places, the built environment can promote social interaction and strengthen community ties. Public spaces should be designed with the human experience in mind, incorporating attractive and interesting features such as shaded seating areas, greenery that connects with the natural environment, and architectural details that spark intrigue and curiosity. When public places are design this way, people are more likely to feel a sense of connection to their surroundings, leading to a stronger sense of community and a more enjoyable urban environment.

Recognizing the significance of designing public space in housing developments that encourage individuals to pause, observe, and interact with their surroundings and each other is essential. By purposefully and thoughtfully designing these public elements, we can transform public spaces into welcoming and appealing areas that foster community interaction and socialisation. By embracing the concepts of public spaces as catalysts for connection and actively encouraging encounters, we sow the seeds for more sustainable and vibrant cities.

# Chapter 4: Theory in Practice

## The Halifax Harbour Front

This chapter delves deeper into the examination of the thesis concept of inclusive public infrastructure by employing a case study approach that specifically focuses on the Halifax waterfront. The site of interest is located between the Westin Nova Scotia Hotel and the Halifax Seaport, an area currently occupied by a mundane parking lot. The primary objective of this study is to explore the transformative potential that lies dormant within this underutilized space, envisioning it as a dynamic and vibrant extension of the renowned Halifax waterfront boardwalk. The chosen site, although situated in a prime waterfront location, remains devoid of vibrancy and fails to make a significant contribution to the surrounding urban fabric. However, this presents a remarkable opportunity to reimagine the purpose of the site and showcase the power and impact of inclusive public infrastructure. Through this project, the aim is to unlock the latent potential of the site and exemplify how the principles of inclusive design, coupled with active public engagement, can breathe new life into neglected spaces. By demonstrating the transformative possibilities of this case study, the research aspires to inspire and catalyze similar projects throughout the city. The goal is to rejuvenate and activate other underutilized areas, creating a more vibrant, inclusive, and engaging urban environment. This chapter lays the foundation for envisioning a future where neglected spaces can be transformed into thriving hubs of community interaction, fostering social cohesion, and enhancing the overall quality of life for residents and visitors alike.

public and
private places

inclusive
infrastructure

site utilities

circulation

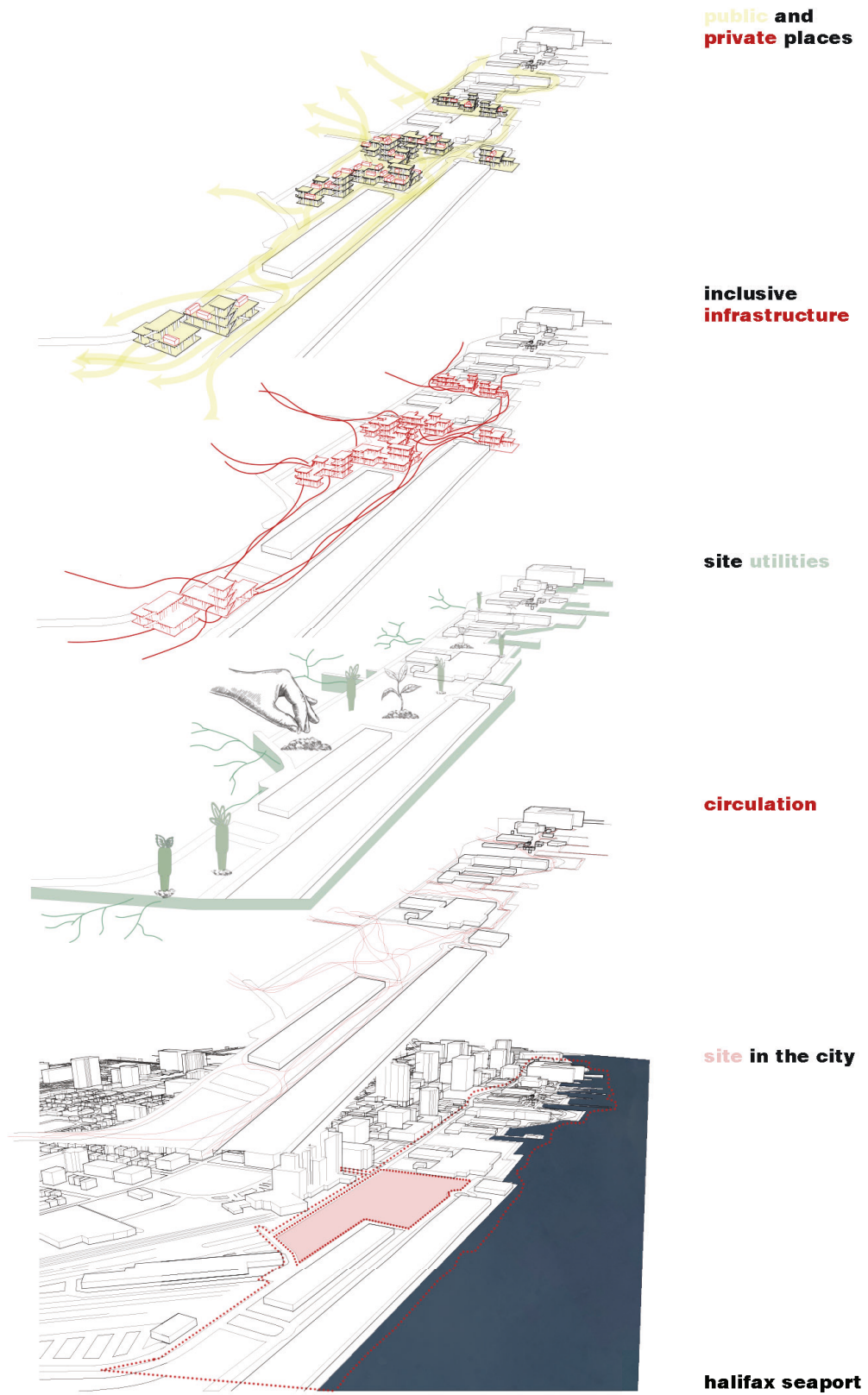site in the city

halifax seaport

Figure 7: Site plan and development

This research endeavors to translate the conceptual framework proposed in the thesis into tangible action on an underutilized site, thereby serving as a prototype for future initiatives throughout the city. The intention is to establish a network of interconnected and adaptable roots that can organically extend and thrive within the urban landscape. This metaphorical network represents a cohesive system of inclusive public infrastructure that is flexible, responsive, and able to provide accessible housing solutions where they are most needed. By implementing this prototype, the research aims to demonstrate the viability and effectiveness of this approach in addressing housing challenges and revitalizing underutilized spaces. The interconnected roots symbolize the interconnectedness of communities and the ability of the infrastructure to respond to the changing needs of the population. Through an organic growth process, the network of interconnected roots will strategically expand and adapt, aligning with the evolving dynamics of the urban landscape. This adaptive nature allows for the provision of accessible housing solutions, catering to diverse demographics and income levels. The aim is to create a resilient and inclusive urban fabric that fosters social integration, promotes equitable access to housing, and enhances the overall livability of the city. By establishing this network of adaptable roots as a prototype, the research seeks to inspire and guide similar initiatives across the city. Through knowledge sharing, collaboration, and learning from the outcomes of this project, it is envisaged that other underutilized sites can be transformed into vibrant and inclusive spaces, contributing to the overall well-being and sustainability of the urban environment.
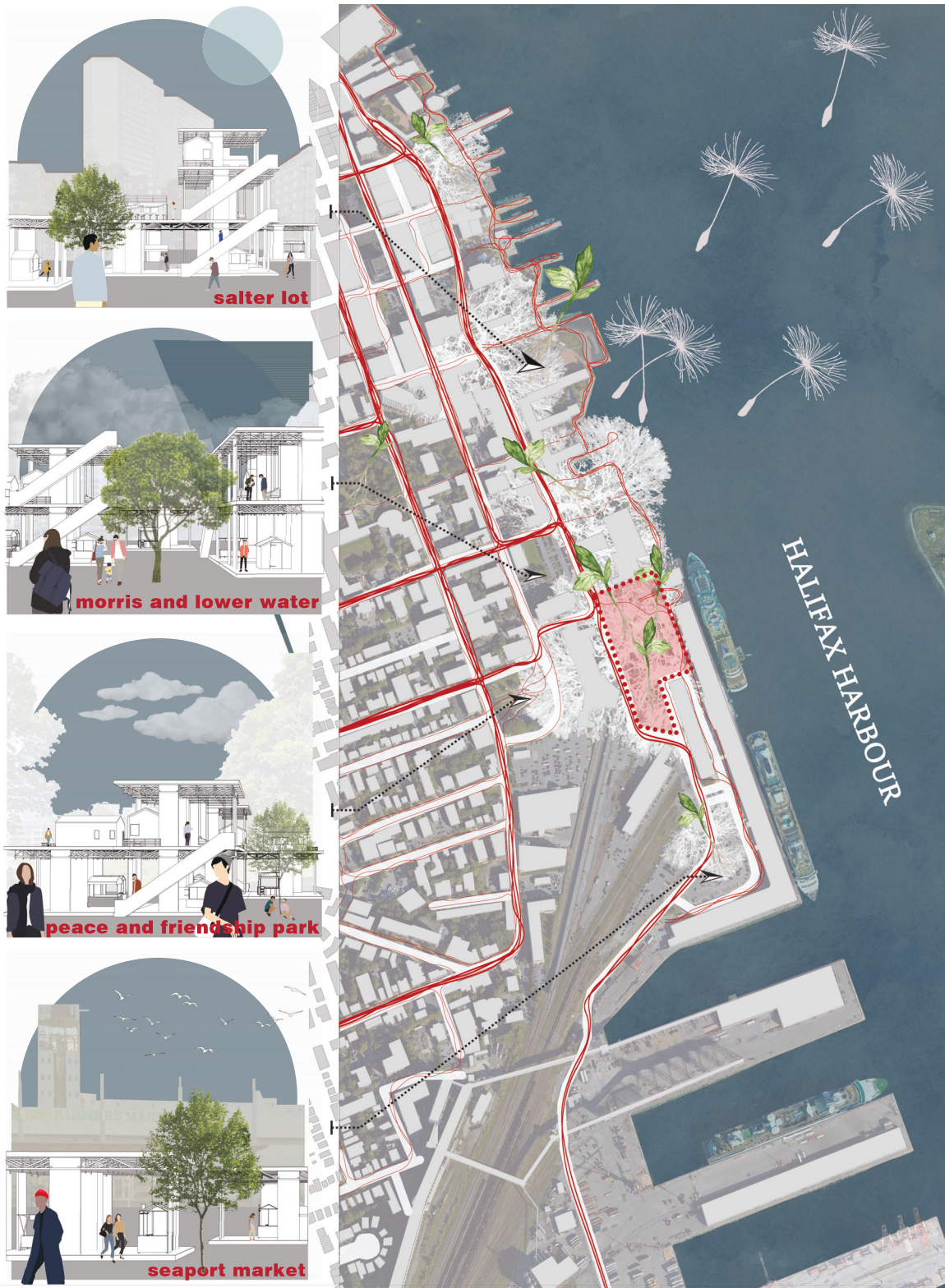
Figure 8: A public infrastructure model "rooting" itself along the waterfront, responding in formation and scale to each unique site condition.

Furthermore, the strategic selection of the site in close proximity to the Halifax waterfront boardwalk serves as a key factor in its significance. The boardwalk holds a revered status as a highly frequented and iconic public space, attracting a diverse range of individuals, both residents and tourists alike. By implementing the concept of inclusive public infrastructure on the chosen site, the project not only captures attention but also establishes a direct and tangible link between the transformed space and the well-established public landmark. The proximity of the site to the boardwalk creates a unique opportunity to leverage the popularity and visibility of the waterfront boardwalk to draw attention to the transformative efforts taking place. The presence of the inclusive public infrastructure in such close proximity to the boardwalk enhances its visibility, making it more accessible and familiar to a larger audience. This heightened visibility encourages greater engagement and interaction with the project, thereby challenging stigmas associated with inhabiting the public realm. By showcasing the successful integration of inclusive public infrastructure within such a prominent and well-regarded public space, the project aims to challenge preconceived notions and misconceptions about public spaces. It seeks to redefine the perception of public realm inhabitation as something desirable, inclusive, and beneficial to the community at large. This chapter highlights the strategic significance of the site's proximity to the Halifax waterfront boardwalk, emphasizing its role in garnering attention, fostering engagement, and reshaping perceptions surrounding the use of public spaces for housing and community development.

In stark contrast to the prevalent pattern of luxury developments dominating the Halifax waterfront, the selected

site stands as a bold contradiction. Numerous projects in the vicinity cater exclusively to high-end housing, perpetuating an exclusionary trend that restricts access for a substantial portion of the population. However, the transformation of the underutilized parking lot into an inclusive public space with integrated affordable housing disrupts this status quo, heralding a departure from the prevailing narrative. By challenging the traditional approach to development, this project embraces a progressive vision that promotes social equity and inclusivity. By incorporating affordable housing within a highly coveted waterfront location, it endeavors to create a more balanced and diverse urban fabric. This alternative model aims to bridge the gap between luxury developments and the housing needs of a broader demographic, offering opportunities for individuals who may otherwise find such locations financially out of reach. This chapter illuminates the significance of the chosen site's transformation as it challenges the prevailing paradigm of luxury-centric waterfront development. By reimagining the space as an inclusive public domain that combines affordable housing with other amenities, the project disrupts the existing inequities and fosters a more egalitarian urban landscape. Through this transformative approach, the chapter underscores the potential to create a community that is not only vibrant and diverse but also promotes greater accessibility and opportunity for all residents, regardless of their socioeconomic backgrounds.

## A Collaborative Ownership Model

At the heart of the thesis project lies a profound concern for the individuals who have borne the brunt of the housing crisis, where the pursuit of a secure and sustainable home has become a daunting challenge. Recognizing the

urgency of this issue, the project puts forth a compelling argument for a transformative approach to ownership— one that fosters collaboration and reshapes the dynamic between municipalities and residents. Central to this innovative model is the notion of collaborative ownership, which envisions a departure from the traditional paradigm of individual homeownership. Instead, the project proposes a framework that emphasizes a symbiotic relationship between municipalities and residents, harnessing their combined efforts to tackle the housing crisis. In this reimagined landscape, the municipality assumes a pivotal role as a facilitator, working in harmony with residents to lay the groundwork and establish the necessary infrastructure for housing.

The adoption of a collaborative ownership model opens up a range of innovative possibilities, including rent-to-ownership arrangements and the implementation of land trusts. Rent-to-ownership operates on the principle of building equity over time. As tenants meet their monthly rental obligations, a portion of their payments is allocated towards a future down payment or a credit that can be used to secure ownership of the property. This gradual accumulation of equity allows tenants to establish a vested interest in their homes, fostering a sense of investment and commitment. One of the primary advantages of the rent-to-ownership model is its ability to address the financial barriers that often hinder individuals from accessing traditional homeownership. By enabling tenants to accumulate equity gradually, this approach reduces the burden of a substantial down payment and eases the financial strain associated with purchasing a home outright. It provides an inclusive

pathway for individuals who face challenges in securing conventional mortgage financing.

Moreover, this collaborative ownership model also embraces the concept of modular housing units that can grow and adapt to the changing needs of residents. By offering flexibility and scalability, these modular units ensure that individuals can make investments in their homes with the confidence that their efforts will not be taken away at the end of their time in public infrastructure. This sense of security and ownership encourages residents to become more invested in their living spaces, fostering stronger communities and promoting a greater sense of pride and belonging. Incorporating modular housing units into the collaborative ownership model not only addresses the immediate housing needs of individuals but also offers a sustainable solution that can accommodate changing circumstances and demographics. The ability to adapt and expand housing units provides a practical and cost-effective approach to meeting the evolving needs of residents, ensuring long-term satisfaction and reducing the likelihood of displacement.

Alongside the rent-to-ownership approach, the incorporation of land trusts in the collaborative ownership model presents a transformative alternative to conventional land and property ownership practices. Land trusts acquire and hold land in perpetuity, typically by municipalities or nonprofit organizations, with the objective of preserving its long-term affordability and accessibility for residents. By establishing land trusts, communities gain greater control over their land resources, mitigating the risks associated with market speculation and escalating property values. The enduring nature of land trust ownership ensures that the land remains affordable and available for present and future generations,

promoting stability and preventing displacement caused by rapidly rising housing costs. Land trusts facilitate the creation of permanently affordable housing options by separating the ownership of land from the ownership of structures or homes built on that land.

In this model, residents have the opportunity to own or occupy the structures while the land itself remains under the trust's ownership. This arrangement significantly reduces the upfront costs associated with homeownership, as residents only need to finance the building or structure rather than purchasing the land as well. The permanence and affordability provided by land trusts contribute to the preservation of diverse and inclusive communities. They enable individuals and families from various income levels to access housing in desirable locations, fostering social cohesion and preventing the displacement of marginalized populations. By safeguarding land for affordable housing purposes, land trusts contribute to the long-term stability and sustainability of communities, countering the negative impacts of gentrification and uncontrolled real estate speculation. Moreover, land trusts empower residents and communities by involving them in the decision-making processes related to land use and development. Through collaborative governance structures, stakeholders have the opportunity to participate in shaping the future of their neighborhoods, ensuring that their voices are heard, and their needs are met.

By advocating for a collaborative ownership model, the thesis project aims to reshape the narrative surrounding housing. It challenges the prevailing notion of housing as a mere commodity or financial investment and reframes it as a fundamental public good. This transformative approach

fosters a sense of shared responsibility, empowerment, and community engagement among residents and municipalities alike. By working together, this model has the potential to create sustainable, inclusive, and equitable communities where housing is recognized as a right for all rather than a privilege. Placing a strong emphasis on the municipality's role as a provider of vital infrastructure, this framework goes beyond viewing housing solely as a financial investment or a commodity. It recognizes housing as an indispensable public good, promoting a broader perspective that encourages collaboration, participation, and shared responsibility between residents and the municipality. This approach fosters a deeper sense of community and collective ownership. The framework acknowledges the municipality's crucial role in ensuring that safe, affordable, and accessible housing is available to all residents, moving away from the profit-driven nature of the real estate market. By actively engaging residents in decision-making processes related to housing through participatory initiatives, the framework recognizes the community's input as vital for developing effective housing policies and strategies that address diverse needs and aspirations. Shared responsibility is another key aspect, as both residents and the municipality have a stake in creating and maintaining a thriving community. By promoting a sense of shared ownership, residents are encouraged to actively participate in the upkeep and improvement of their neighborhoods, fostering a stronger sense of belonging and pride among residents.

## Servicing Public Infrastructure

In the context of the public infrastructure housing model presented in this thesis, ensuring the provision of essential services such as power, water, and sanitation is a crucial

aspect to address. These services are vital for the functioning and livability of the building. Within a building, multiple infrastructure components, including electrical wiring, plumbing, and sewage systems, collaborate to facilitate the seamless supply of electricity, water, and sanitation throughout the entire structure. Typically, these services are brought into the building through the ground, akin to a root system, with the city responsible for providing the necessary connections and utilities. In this thesis, the infrastructure is securely anchored to the ground, and the services are then delivered upward through a central core. Efficiently distributing these services to individual units within the building requires a discreet and streamlined approach. The services are carefully routed through a double joist floor system, ensuring that each unit is connected to the essential utilities without compromising the overall aesthetics and functionality of the building. This discreet integration allows for a smooth and uninterrupted provision of services while preserving the integrity and design of the housing structure. By emphasizing the integration of essential services within the infrastructure of the public housing model, the thesis underscores the significance of establishing a robust foundation to support the well-being and operational efficiency of the building. The efficient delivery of power, water, and sanitation services ensures that residents can thrive in a safe and comfortable living environment, thereby contributing to the overall success and sustainability of the public infrastructure housing model presented in the thesis.

In the long run, the project has the potential to achieve self-sustainability by incorporating alternative power sources such as solar and wind generation devices into the public infrastructure. This strategic integration allows the project

to reduce reliance on conventional power sources and enhance self-sufficiency and resilience. Self-sustainable infrastructure focuses on developing systems that can function independently or with reduced dependence on external resources. One key aspect of self-sustainable infrastructure is the integration of renewable energy sources like solar power or wind power directly into the structure itself. By installing solar panels or wind turbines, the infrastructure can generate its own energy, thereby reducing or even eliminating the need for traditional power grids. This transition toward self-sufficiency enables the structure to operate off the grid, promoting greater sustainability in terms of energy consumption and reducing environmental impact. Moreover, self-sustainable infrastructure encompasses the incorporation of technologies and design features that enhance resource efficiency. For example, rainwater harvesting systems and advanced water treatment methods can be implemented to minimize water consumption and promote water conservation. By adopting these measures, the infrastructure reduces its reliance on external water supplies and ensures more sustainable water management practices within its own systems. In summary, the concept of infrastructure accommodating additional infrastructure involves integrating essential services such as power, water, and sanitation within the system or structure. Furthermore, it entails the incorporation of renewable energy sources and resource-efficient technologies to create self-sustainable infrastructure capable of operating independently or with minimal reliance on external resources. By pursuing these approaches, the project can achieve long-term sustainability, contribute to environmental conservation, and promote resilience within the community.

## Instilling Resiliency in the Public Infrastructure

The public infrastructure housing model presented in this thesis goes beyond self-sufficiency and delves into the realm of adaptability, recognizing the urgent need to respond to the challenges posed by climate change. Situated on the Halifax waterfront, where sea-level rise and other environmental changes are of particular concern, the model is designed to withstand and adapt to these evolving conditions.

One of the key strengths of this infrastructure lies in its structural flexibility. The modular nature of the components allows for easy disassembly and reassembly, offering the flexibility to relocate the infrastructure to more suitable areas as needed. This adaptability not only ensures the longevity of the project but also minimizes the risks associated with climate change impacts. By being able to relocate, the infrastructure can respond effectively to changing conditions, including rising water levels, increased flood risks, or other environmental stressors.

To address specific challenges related to climate change, the infrastructure model incorporates design adaptations that enhance its resilience. For example, if water levels rise, the structure can be built with the capacity to accommodate higher flood levels. This may involve incorporating floating docks or utilizing elevated foundations that can mitigate the risk of water damage and maintain the integrity of the infrastructure. By proactively considering the potential effects of climate change, the model can integrate appropriate design elements that support long-term resilience and adaptation.

Moreover, the self-sufficiency aspect of the infrastructure, achieved through the integration of green energy sources,

contributes to its ability to adapt to changing environments. By relying on renewable energy such as solar and wind power, the infrastructure is less vulnerable to disruptions in the conventional power grid, which can occur during extreme weather events. This self-sufficiency ensures that essential services, including power, water, and sanitation, can continue to be provided even in challenging circumstances, thereby enhancing the overall resilience of the infrastructure to climate change impacts.
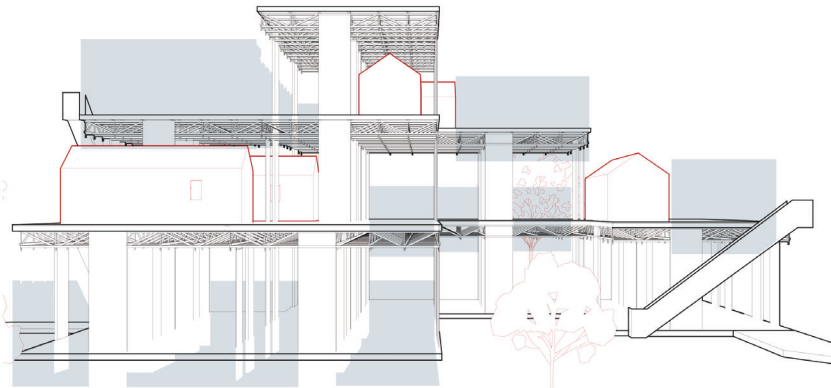
In summary, the public infrastructure housing model not only prioritizes self-sufficiency through green energy integration but also places strong emphasis on adaptability to changing environments. Through structural flexibility and the ability to relocate, the infrastructure can respond effectively to evolving conditions and minimize risks associated with climate change. Design adaptations, such as accommodating higher flood levels, further enhance the infrastructure's resilience. Additionally, the self-sufficiency achieved through renewable energy sources ensures the continuity of essential services, even during extreme weather events. By combining these elements, the infrastructure model presents a holistic approach to addressing the challenges of climate change and ensuring the long-term sustainability and well-being of its residents.
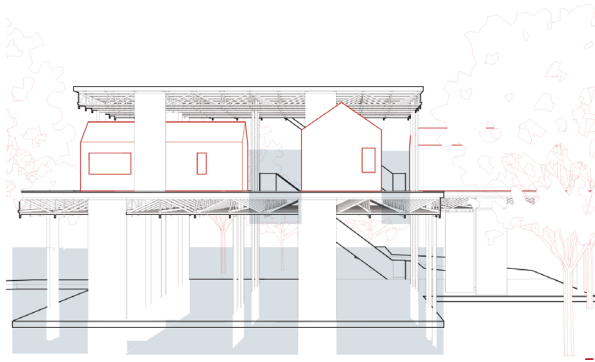
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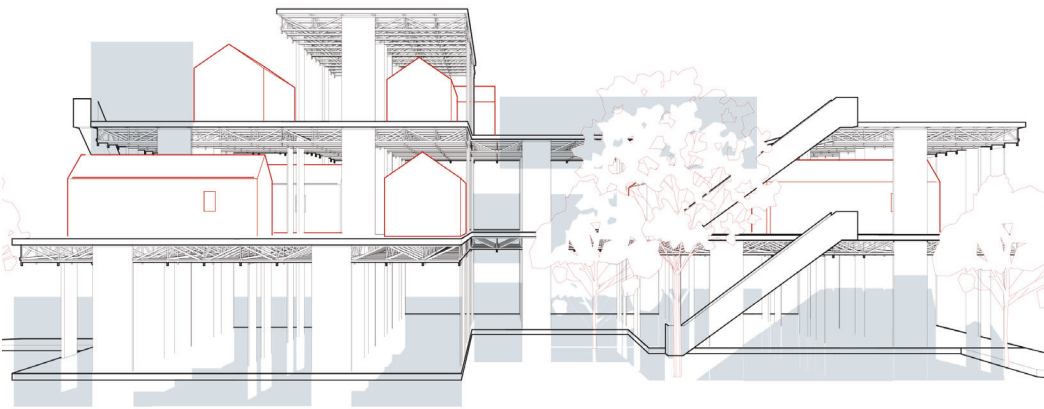
**year 10**

**year 50**

Figure 9: Infrastructure adapting to conditions through time.

# Chapter 5: An Inclusive Infrastructure

## Housing Infrastructure as Public Amenity

The project presented in this document represents a tangible manifestation of the concepts outlined in this thesis, pushing the boundaries of conventional ownership models and advocating for an innovative and unique framework that establishes a symbiotic relationship between municipalities and residents. It challenges the prevailing model of commodified housing, where the development of new residential buildings is primarily driven by profit rather than fulfilling the fundamental human right of providing people with homes to live in. Instead, this project delves into a comprehensive framework that places the municipality in a pivotal role, responsible for laying the groundwork and establishing the necessary housing infrastructure, while residents actively participate in shaping and contributing to the evolution of their community.

Through this pioneering approach, our perception of housing undergoes a profound shift, transcending its traditional identity as a mere public development and recognizing it as an integral part of public infrastructure. Housing transforms into a system that people actively inhabit, akin to how traditional infrastructure occupies and defines public space. Just as roads, bridges, and utilities form the foundations of our cities, this reimagined housing infrastructure becomes an essential component of the public realm, designed to meet the diverse needs of residents while promoting inclusivity and accessibility

## A New Perspective: Housing Beyond Shelter

By treating housing as infrastructure, we acknowledge its pivotal role in community functioning and well being. It goes beyond shelter, woven into the fabric of our communities, fostering social interaction, shared experiences, and a profound sense of belonging. This transformative approach revolutionised our perception of residential development, creating a dynamic system that fosters community engagement and well-being. Through innovative design, sustainability, and inclusivity, we can shape vibrant, resilient, and livable cities that reflect diverse needs.

Housing as public infrastructure extends its impact beyond the immediate development. It becomes a catalyst for community connections and collective experiences. For example, well designed housing infrastructure can create opportunities for residents to engage in activities such as cultural events, recreational programs, and neighbourhood initiatives. It can facilitate the formation of neighbourhood associations that work together to address common issues, promote safety, and enhance the overall quality of life.

The ultimate goal is to reach a point where housing is seamlessly integrated into the public realm, community, and individual identities, leaving no room for questioning its existence. Housing, as a crucial component of public infrastructure, in this thesis exploration, is purposely designed to fulfil the diverse needs of the community while promoting inclusivity and accessibility.

## Flexible, Modular Infrastructure

The construction of housing as public infrastructure needs to embody the principles of flexibility, adaptability, and

inclusivity, providing a foundation for creating more inclusive and attainable housing options. Modular construction stands out as a promising approach in achieving these objectives, as it empowers residents to actively participate in the design and customization of their living spaces. By prioritising the development of communal areas that promote social interaction and community engagement, the design fosters connections among residents, nurturing a deep sense of belonging, as highlighted by Alexander et al. (1977, 394).

The integration of flexible, modular wall members into the infrastructure design establishes a distinct language of public space, cultivating a strong community spirit and empowering residents to take ownership of their living environments. The versatility of these spaces enables adaptation and expansion to cater to the unique needs of residents, opening avenues for their involvement in decision-making processes and contributing to the overall governance of their community.

The design incorporates systems that enable easy assembly using conventional dimensioned timber, forming
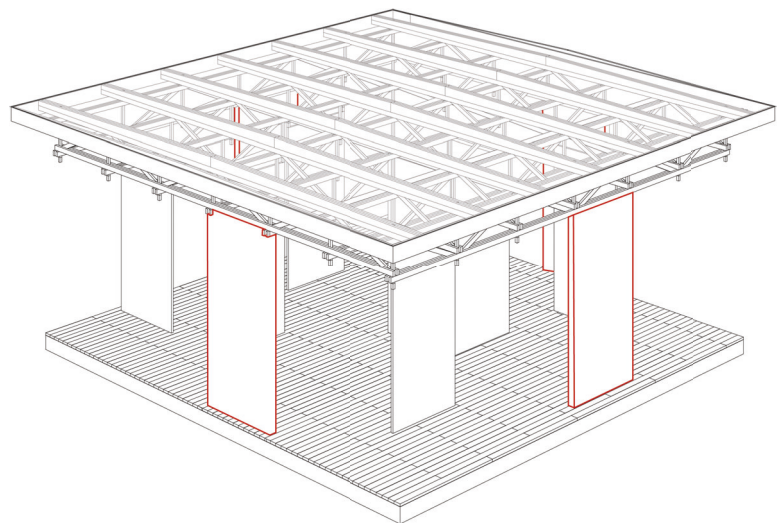


Figure 10: Structural walls highlighted in red, with remaining walls as part of flexible public framework.
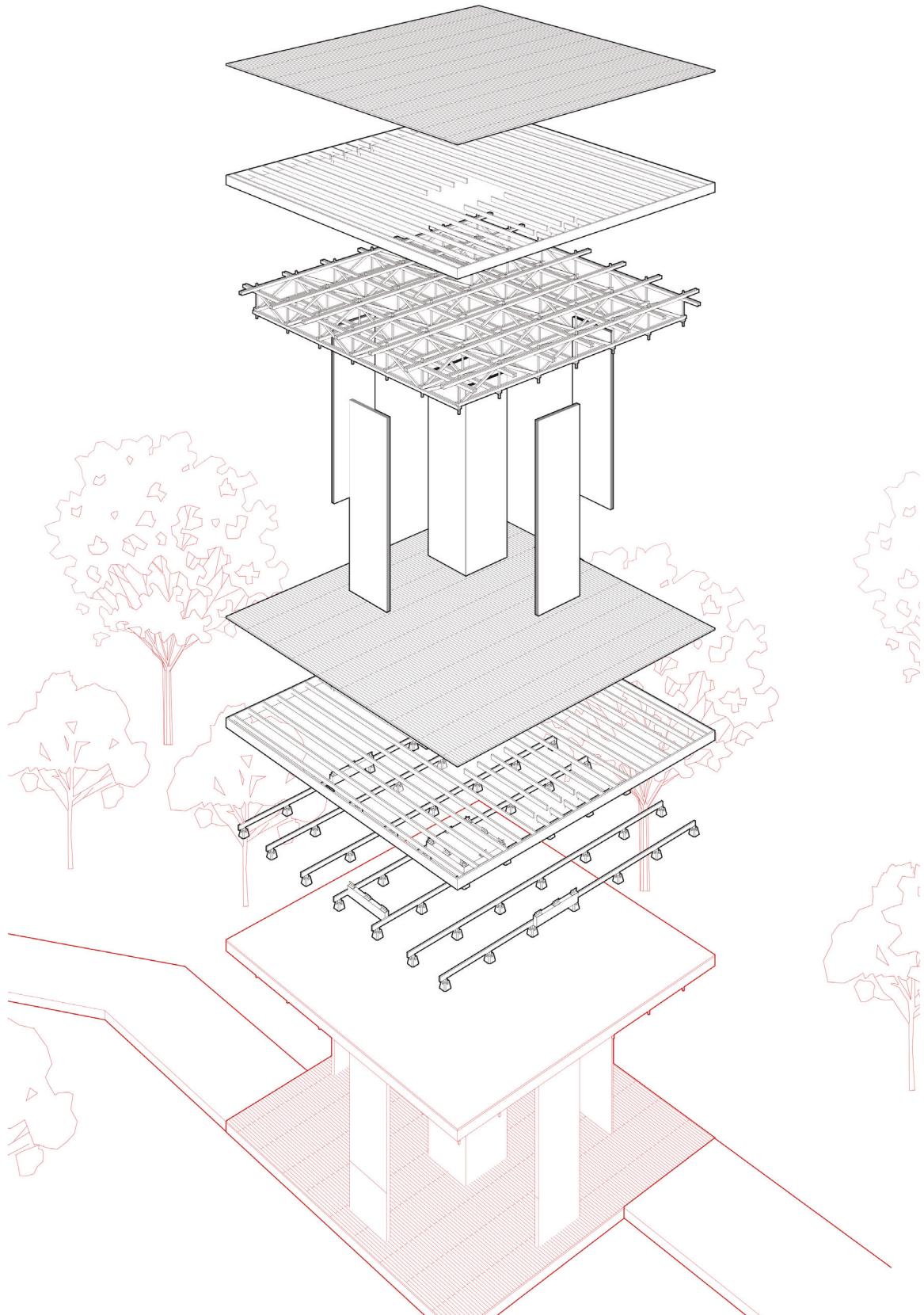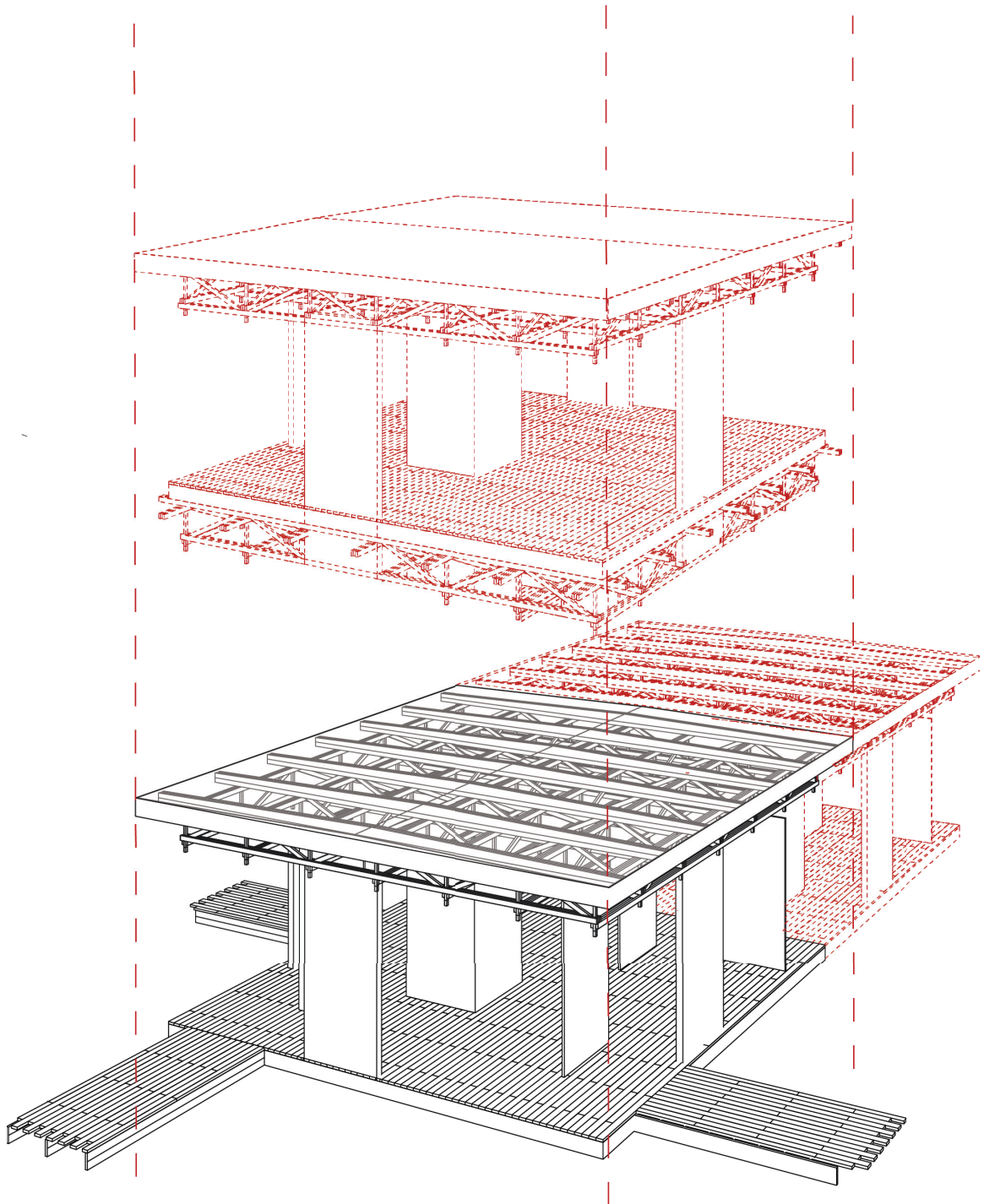
Figure 11: Base infrastructure framework

Figure 12: Infrastructure Growth

a robust double joist system supported by structural LVL wall members. This integration allows for the seamless integration of movable and flexible walls, facilitating the adjustment of public spaces in response to the ever-changing needs of the community. By consistently applying principles of flexibility and adaptability throughout the structure, a dynamic and responsive environment is created, ensuring that the infrastructure remains relevant over time.

The deliberate choice of wood as the primary construction material aligns with the project's ecological considerations. Wood possesses a lower embodied carbon factor compared to conventional building materials and also acts as a carbon sink, sequestering and storing carbon, making it an environmentally sustainable option. By utilising wood, the project effectively minimises its carbon footprint and contributes to the preservation of the environment.

Moreover, the infrastructure is designed with the capacity to grow and adapt based on the specific requirements of different areas. The base structure's ability to attach to itself along the sides and on top allows for expansion and addition, catering to the evolving demands of the surrounding environment. This scalable nature ensures that the infrastructure can evolve in sync with the changing needs of the community it serves.

In conclusion, the construction of housing as public infrastructure embraces the values of flexibility, adaptability, and inclusivity. Through modular design, community engagement, and sustainable practices, it creates a living environment that fosters a strong sense of community, ownership, and responsiveness to the needs of its residents.
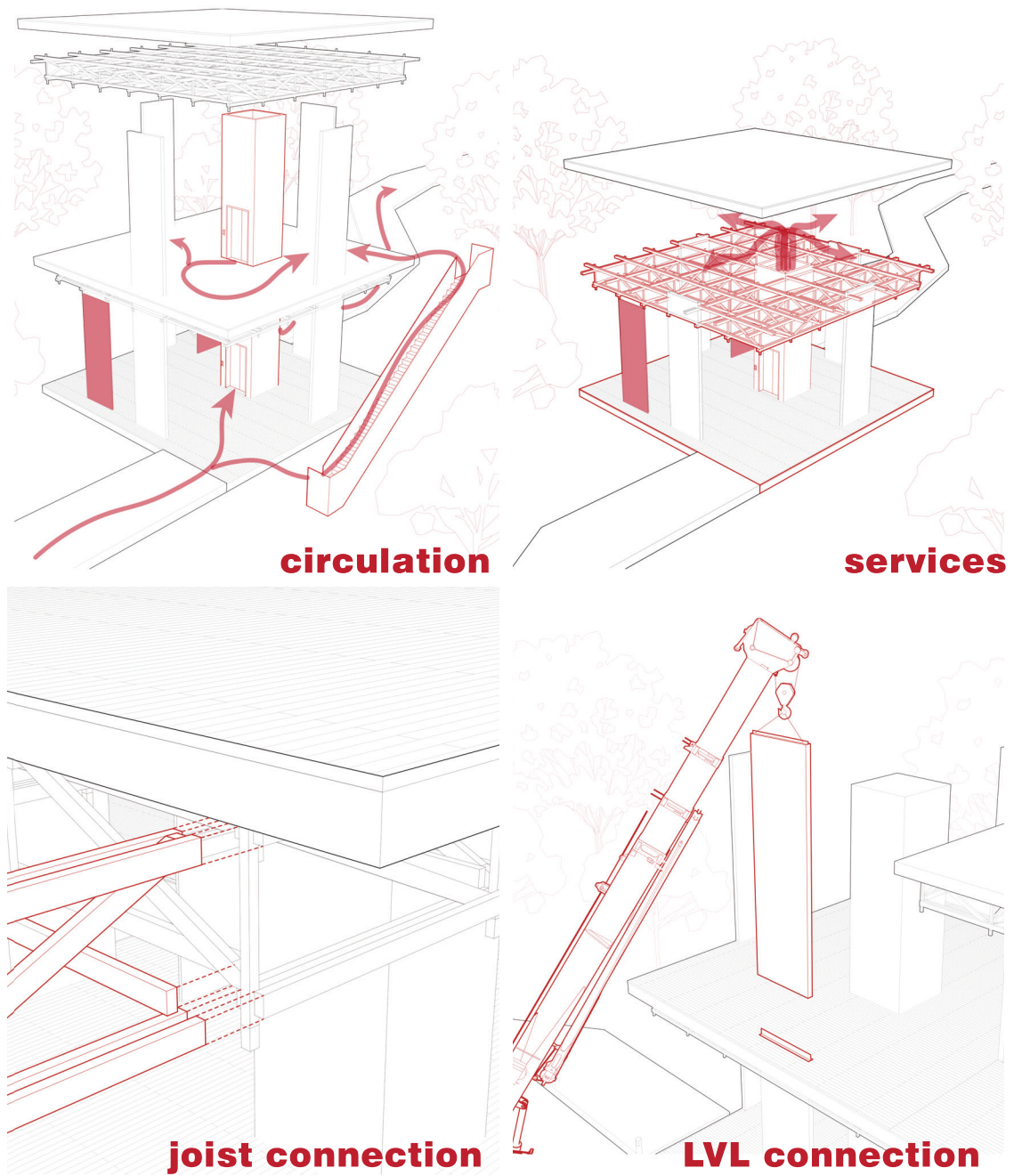
**circulation**

**services**

**joist connection**

**LVL connection**

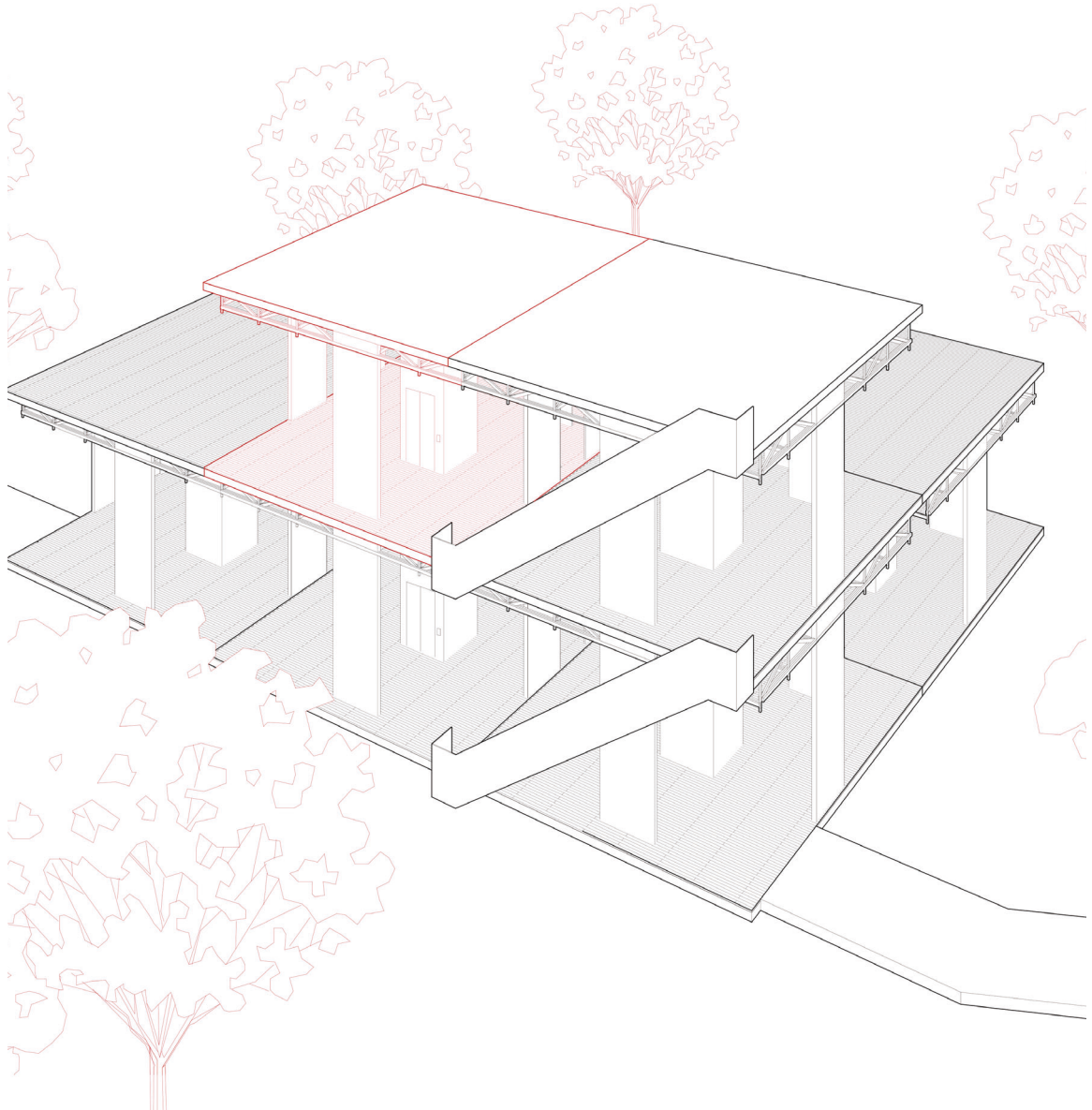Figure 13: Details of proposed infrastructure.

Figure 14: Duplication of base model to create an infrastructure that various on scale and formation based on site requirements.

## Private Inhabitation in the Public Realm

Modular housing holds the potential to instil a profound sense of ownership among its residents by granting them the opportunity to actively participate in the design and customization of their living spaces. Unlike traditional housing with fixed designs and layouts, modular construction offers a remarkable degree of flexibility and customization. This allows residents to exert influence over their units, selecting features and layouts that align with their individual needs and preferences, thereby fostering inclusivity and attainability. The involvement of residents in the design process cultivates a sense of investment and pride, leading to a stronger sense of ownership.

According to Alexander et al. (1977, 394), "People will only be able to feel comfortable in their own houses, if they can change their house to suit themselves, add on whatever they need, rearrange the garden as they like it... so this requires then, that every house is owned, in some fashion, by the people that live in it." By embracing the principles outlined by Alexander et al., modular housing can nurture a sense of ownership and pride among residents, thereby promoting a vibrant and cohesive community.

In contrast, the private spaces within the project undergo a distinct change in structural language. The units follow a plug-and-play model of construction, seamlessly connecting to the public infrastructure while offering flexibility and adaptability through modular components. The archetypal gable roof design further reinforces the notion of privacy and personal space. This differentiation plays a crucial role within a project situated in the public realm as it establishes a sense of safety and ownership over individual designated

**modular growth**

**inhabiting infrastructure**

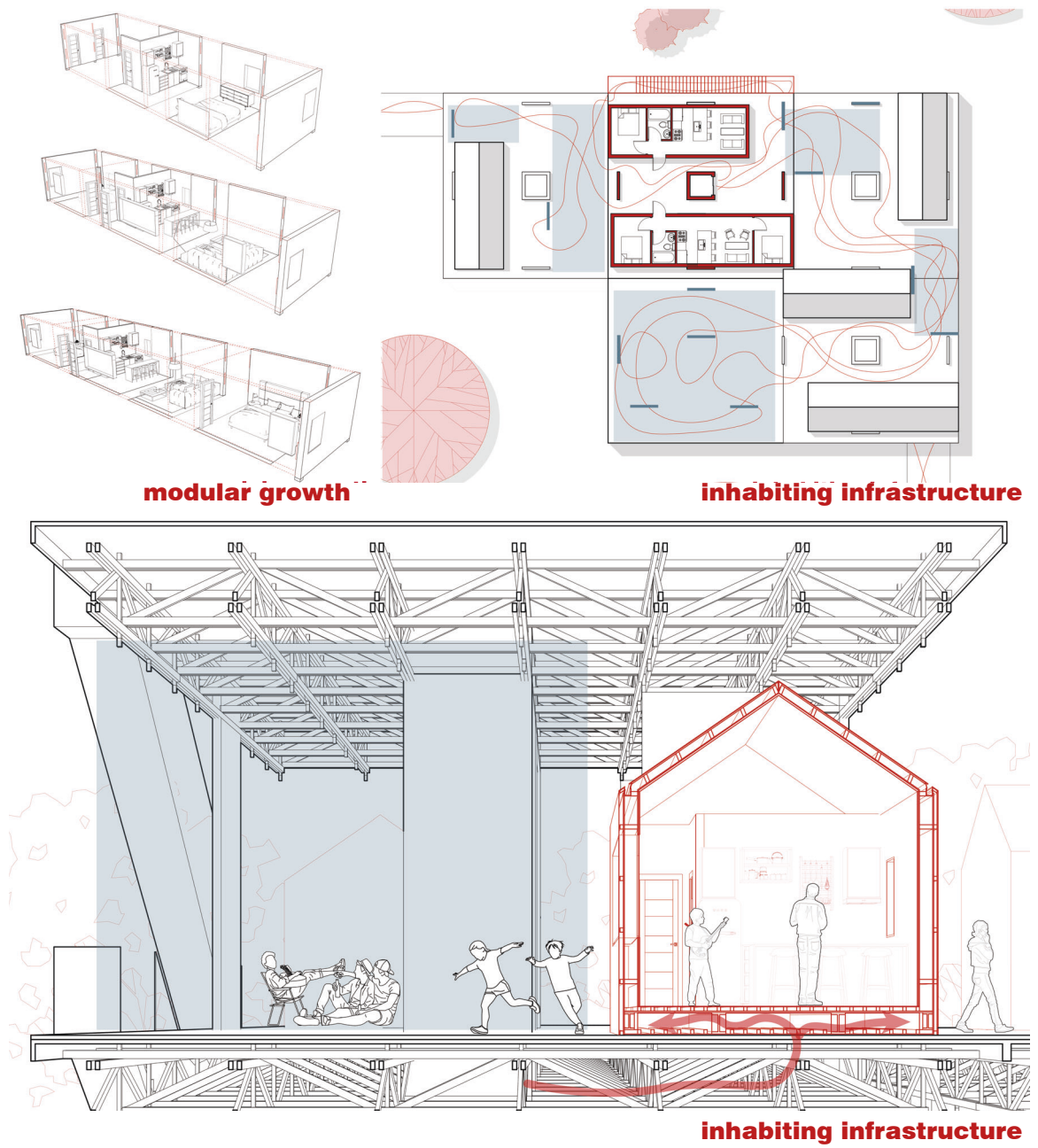**inhabiting infrastructure**

Figure 15: Details of private spaces (red) and public spaces (blue) in proposed infrastructure model.

areas, granting residents a space of their own within the larger public environment.

By combining the flexible components of the infrastructure model with the private areas for residents, the project achieves a harmonious coexistence of public and private realms. This integration fosters inclusivity and accessibility, catering to the needs and desires of both individuals and the community as a whole. The balance between flexibility, adaptability, and the delineation of public and private spaces creates an environment where individuals feel a sense of ownership, safety, and belonging within the larger context of the public realm.

Moreover, the versatility and adaptability of housing enable customization and modification over time, accommodating the changing needs of residents. This flexibility allows for aging in place and ensures that residents can remain in the community, fostering a sense of control and attachment to their homes. The distinct structural language of private spaces reinforces the notion of safety and privacy, providing residents with a secure and intimate environment.

In conclusion, the flexibility and modularity of modular housing empower residents to customise and modify their living spaces, promoting a stronger sense of ownership and pride. The integration of private spaces with the overall project design fosters inclusivity and accessibility, while the differentiation in structural language ensures a sense of safety and privacy. By accommodating the changing needs of residents and embracing diverse social and economic backgrounds, modular housing contributes to the creation of a dynamic and inclusive community.

Figure 16: Areas of public inhabitation at base (top) and throughout all levels of infrastructure (bottom).

Figure 17: Infrastructure from boardwalk (top), and areas of more private inhabitation in the infrastructure model (bottom).

This project represents an exceptional manifestation of the concepts outlined in the thesis, pushing the boundaries of conventional ownership models and advocating for an innovative framework that establishes a symbiotic relationship between municipalities and residents. By recognizing housing as an essential part of public infrastructure, we embark on a transformative journey that redefines the purpose and potential of residential development. Through a holistic and inclusive approach, we create housing systems that go beyond shelter, fostering social connections, community engagement, and a profound sense of belonging. By embracing innovative design, sustainability, and inclusivity, we lay the foundation for vibrant, resilient, and livable cities that cater to the diverse needs and aspirations of their inhabitants.

# Chapter 6: Conclusion

In conclusion, this thesis has proposed a novel approach to tackling the ongoing housing crisis through a modular, metabolistic architecture framework that challenges traditional notions of ownership. By prioritizing adaptability, community, and the creation of vibrant public spaces, this approach seeks to address the shortcomings of the commodified and capitalist housing system.

The concept of "metabolism" in architecture has been emphasized, envisioning projects that can dynamically grow and adapt like living organisms within the urban landscape. This organic and responsive design philosophy aims to enhance the long-term sustainability, resilience, and vitality of the built environment, contributing to the overall well-being of residents.

Furthermore, the thesis challenges the traditional understanding of ownership by advocating for innovative ownership models that foster a relationship between municipalities and residents. The proposed framework involves municipalities establishing the infrastructure while residents contribute to and inhabit the evolving community. By prioritizing the enhancement of the public realm, negative associations often associated with publicly funded projects are challenged, creating opportunities for a more inclusive and vibrant living environment.

While recognizing that there is no singular solution to the complex housing crisis, this thesis makes a valuable contribution to the broader discourse. By presenting ideas that can be combined with other innovative approaches, it offers the potential for transformative change in the

housing sector. The redefined concept of ownership and the promotion of public-private partnerships provide valuable insights and recommendations that can inform policy decisions, inspire architectural innovations, and contribute to ongoing efforts to address the multifaceted challenges of the housing crisis.

By embracing the modular, metabolistic framework and exploring alternative ownership models, society can move closer to creating housing solutions that are adaptable, community-oriented, and capable of fostering a sense of belonging and well-being among residents. It is through such interdisciplinary and forward-thinking approaches that progress can be made towards alleviating the housing crisis and building a more equitable and sustainable future for all.

# References

Alexander, Christopher. 1977. *A Pattern Language*. New York: Oxford University Press.

Borges, Sofia, R. Scott Mitchell, and Eric Garcetti. 2018. *Give Me Shelter: Architecture Takes on the Homeless Crisis.* Novato, California: Oro Editions.

Buber, Martin. 1969. *A Believing Humanism*. Gleanings: Simon and Schuster.

Davis, Sam. 1995. *The Architecture of Affordable Housing*. Los Angeles: University of California Press.

Engels, Friedrich, and Karl Marx. 1888. *The Communist Manifesto*. Bolton: Amazon.

Förster, W, and William Menking. 2018. *The Vienna Model 2. Housing for the City of the 21st Century*. Berlin: Jovis Verlag Gmbh.

Gehl, Jan. 2011. *Life between buildings: Using Public Space*. Washington, DC: Island Press.

Jacobs, Jane. 1992. *The Death and Life of Great American Cities*. New York: Knopf Doubleday Publishing Group.

Jacobs, Jane. 2005. *Dark Age Ahead*. Toronto: Random House Canada.

Maloof, Joan. 2016. *Nature's Temples: The Complex World of Old-Growth Forests*. Portland: Timber Press.

Newman, Oscar. 1977. *Defensible Space: People and Design in the Violent City*. London: Architectural Press.

Pocius, Gerald. 2000. *A Place to Belong: Community Order and Everyday Space in Calvert, Newfoundland*. Montréal: Mcgill-Queen's University Press.

Ratti, Carlo, and Matthew Claudel. 2015. *Open Source Architecture*. London: Thames & Hudson, Cop.

Rolnik, Raquel. 2019. *Urban Warfare: Housing under the Empire of Finance*. Brooklyn: Verso.

Sim, David. 2019. *Soft City: Building Density for Everyday Life*. Washington, DC: Island Press.

Steinfeld, Edward, and Jonathan Robert White. 2010. *Inclusive Housing: A Pattern Book*. New York: W.W. Norton & Company Inc.