

**Live/Work/Play:
Rethinking the Home for Contemporary Families in North America Through
Urban Housing Designed for the Family Life Cycle**

by

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ABSTRACT

Responding to the diversified family typologies of today and the cultural shift leading young families to prefer urban living, Live/Work/Play seeks to create a viable urban alternative to the suburban home as the 'ideal family housing form'.

Through an analysis of the current North American family housing model and the current urban housing model, this thesis proposes to facilitate long-term family living in dense, urban areas through design for the entirety of the family life cycle at three scales; the neighbourhood, the building, and the unit. The theories comprising this methodology will then be tested in a design project based in Halifax, Nova Scotia; a city currently undergoing increased urban housing development, though thoroughly lacking in family-friendly design.

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CHAPTER 1: INTRODUCTION

For over a century, the place for the North American family has been the suburb. The single-family detached suburban house is a typology that evolved around the single-earner, two-parent household, with male breadwinners and female housewives. Today, the family model of working father and stay-at-home mother encompasses less than twenty-seven percent of two-parent households in Canada (Statistics Canada 2016). Two alternative family typologies have emerged: the dual-earner household, caused by the societal restructuring of gender roles towards equality leading to women entering the workforce along with their partners, and the single-parent household, attributed to both falling marriage rates and rising divorce rates. Their needs differ from the old typology, yet the majority remain in the single-family, detached suburban home. In 2011, fifty-five percent of all Canadian households were single-family detached houses (Statistics Canada 2013). Though the typological family has evolved and diversified, the typological family housing form has remained stagnant. Housing designed for 'family use' remains almost exclusively as the single-family, detached suburban model while urban housing model practices largely ignore family designs altogether, focusing instead on targeting young professionals, childless couples, and retirees.

During the last two decades, a significant cultural shift has occurred; there has been a noticeable increase in young families choosing to live in cities rather than suburbs. These families are choosing to prioritize proximity and access to work, services, and recreation, however, they are often forced to compromise on housing by living in buildings that were not designed to suit family needs. With limited land resources for suburban sprawl and the increasing influx of families choosing to live in the city, how must North American housing change in order to support today's urban families?

This thesis aims to integrate live, work, and play into the everyday by locating an alternative family housing model in the heart of urban neighbourhoods. While the suburban housing model makes every effort to separate the facets of everyday life, a housing model that ingrains them could support both male and female participation in the workforce, reduce commuter time, reduce environmental concerns over sprawl and overuse of the private automobile, increase socialization of both parents and children, generate diversity

and safety in city streets, and create neighbourhoods with population diversity in age and income.

Family dynamics are constantly changing. If a family is going to have the option to age in place, the family home must be able to shift as their spatial priorities do. A family will go through many events across the family life cycle that require spatial changes, including periods of expansion and contraction. The neighbourhood, the building, and the unit must each respond to the needs of the individual while the individuals are each at different stages in the family life cycle. How can North American urban housing be designed to support the family throughout the family life cycle?

CHAPTER 2: THE FAMILIES OF TODAY

Prior to forming an argument as to how urban housing strategies must change in order to suit today's families, it is imperative to understand the families that these strategies are addressing. Who are today's families? How do their needs differ from the needs of the single-earner, two-parent household? Since the post-World War II shift to suburban housing, two alternative family typologies have emerged: the dual-earner household and the single-parent household.

2.1 The Dual-Earner Household

At the time the suburban home rose to epitomize 'the American Dream', the wage-earning wife and mother was virtually non-existent. There was heavy segregation between what was considered 'man's work' and 'woman's work'. Man's work was out in the public sphere and he was to provide financial support for his wife and children. Woman's work was in the private sphere and she was to provide emotional support for her husband and children by maintaining the home (Hayden 1984, 207). The initial success of the suburban model actually relied on women as housewives; its location created heavily car-dependent communities and families typically only had one car used by men to commute.

The societal restructuring of gender roles that has been advancing towards gender equality over the last one hundred years has meant reshaping the structure and everyday life of the family. The early stages of the restructuring of gender roles manifested three different approaches to how the home should respond to the new role of women, discussed by Dolores Hayden in her book *Redesigning the American Dream: the future of housing, work, and family life*. Each was manifested to some extent in various designs, although, being developed so early in the movement to gender equality, none move to truly abolish the division between 'woman's work' and 'man's work'. These three predominant models: the haven strategy, the industrial strategy, and the neighbourhood strategy, even accepted "gender stereotypes so strong that not one of these models incorporated any substantial male responsibility for household and child care" (Hayden 1984, 74).

Today, the restructuring of gender roles has led to higher educational attainment and higher participation in the labour market by females than ever before. In 2014, female

employment for those between twenty-five and fifty-four years old reached over eighty-one percent in Canada, having risen from only twenty-four percent six decades earlier, in 1954 (Statistics Canada 2017d). Male participation in the workforce, although still higher than women, actually decreased between 1954 and 2014, from ninety-six percent to ninety percent (Statistics Canada 2017d). As of 2014, women account for nearly half of the Canadian workforce at forty-seven percent (Statistics Canada 2017d). The steady increase in women's employment has nearly doubled the amount of dual-earner households between 1976 and 2015, from thirty-six percent to sixty-nine percent (Statistics Canada 2016). Not only has the amount of women in the labour force increased over the last forty years, but the amount of hours they work has increased as well. The proportion of dual-earner families where both parents were considered full-time employees increased from sixty-six percent in 1976 to seventy-five percent in 2015 (Statistics Canada 2016).

2.2 The Single-Parent Household

The second alternative family typology that has emerged since North American suburbanization grew is the single-parent household. The increase in single-parent households can be attributed to both falling marriage rates and rising divorce rates in North America and abroad (OECD 2011, 23). At the beginning of the twentieth century, individuals remaining unmarried as well as individuals who underwent a divorce were highly stigmatized and therefore remained uncommon. Societal acceptance of these practices has risen throughout the century and today, single-parent households form a significant portion of families. Twenty-two percent of children in Canada and almost twenty-six percent of children in the United States were living with one parent in 2007 (OECD 2011, 28). The vast majority of single-parent households are led by females; approximately eighty percent in Canada in 2011 (Statistics Canada 2015). Though the majority are led by females, there has been an increasing number of male led single-parent households, increasing over sixteen percent from 2006 to 2011 (Statistics Canada 2015). Housing for single-parent families has remained a challenge as the typical suburban and urban housing models do not typically meet their needs for privacy as well as support (Hayden 1984, 184):

The one type of new housing construction that the United States can probably justify in the next few decades is housing programmed and designed to meet the special needs of the elderly, single parents, battered wives, and, possible, single people. [...] For each of

these groups, the route to more autonomy and independent living will require rethinking the standard apartment. This means integrating it with support services, such as meals on wheels, part-time employment, day care, or counselling, all spatially integrated into the building or neighbourhood setting, but not produced in such a way as to make residents feel that they are unusual or abnormal for needing them. (Hayden 1984, 197)

Although single-parent families are dependent on one salary rather than two, the average income is *less than half* of the two-parent family. With a median income of \$45,700 in Canada in 2015, single-parent households have higher rates of low-income (Statistics Canada 2017a). While the national average of children living in low-income households in 2015 was under sixteen percent, over thirty-eight percent of children living in single-parent families led by females lived in low-income households (Statistics Canada 2017a). In order to combat lower income and satisfy family needs, single-parents “may live with their parents to pool resources and gain better access to childcare” (OECD 2011, 30).

Gwendolyn Wright, in her book *Building the Dream: a Social History of Housing in America*, writes that “though there is not one kind of housing that meets the needs of all working mothers, single or married, several recent studies have found that these women tend to prefer condominiums and apartments to suburban houses” (Wright 1983, 274). The needs of both the dual-earner household and the single-parent household focus on efficiency, ideally situated in proximity to child-care services, socializing facilities, and employment opportunities resulting in less time spent commuting. This increased focus on efficiency also means a desired decrease in home maintenance, both indoors and outdoors. These qualities are difficult, if impossible, to find in the suburban housing model. A heavy distinction between work life and home life exists in the suburban housing model and even urban housing models, due to long distances creating physical separation between spheres. Hayden argues that a reintegration of work and home is necessary to satisfy the needs of dual-earner and single-parent households: “to recognize the desire of women and men to be both paid workers and parents is to search for a way to overcome the physical separation of paid jobs and parenting inherent in many urban settings” (Hayden 1984, 163).

2.3 The Current North American Family Housing Model

The suburbs, once seen as the answer to the problems of North American housing, have since become a problem themselves. Though much of the suburbs were developed

with a prescriptive housing form, family typologies have diversified. The suburbs, because of their innate characteristics, have refused to shift along with the changing population: “we have not merely a housing shortage, but a broader set of unmet needs caused by the efforts of the entire society to fit itself into a housing pattern that reflects the dreams of the mid-nineteenth century better than the realities of the late twentieth century” (Hayden 1984, 14).

In a little over a decade, the suburban population grew to encompass one-third of the population in the United States (Kutler 2003). Promising a single-family, detached house with private front and back yards surrounded by families of similar age and class, the suburban home became idolized as ‘the American Dream’: “the single-family dwelling became the paragon of middle-class housing, the most visible symbol of having arrived at a fixed place in society, the goal to which every descent family aspired” (Jackson 1985, 50). Particularly attracting families, the suburban home perpetuated a relatively new cultural attitude towards childrearing, a “culture of mothering which demanded intense attention to children at every stage of their development” (Hayden 1984, 77). Wright states that “the appeal of the suburbs has a great deal to do with anxiety about child-rearing, about giving one’s children the space they need yet controlling the people they met and what they did outside the home... The calibre of neighbourhood provided social status and limited children’s associates to certain desirable groups” (Wright 1983, 210). Clare Cooper describes the detached suburban home as fulfilling “what seems to be a universal need for a house form in which the self and family unit can be seen as separate, unique, private, and protected” (Cooper 1974, 133).

Entire suburban neighbourhoods filled with basically identical houses created an overwhelming sense of homogeneity in North American suburbs. The home became prescriptive of the people who could live there and homogenous housing created homogenous populations. Dolores Hayden writes: “every family is expected to consist of male breadwinner, female housewife, and their children. Energy conservation is not a design issue, nor is low maintenance, nor is public transportation, nor is child care” (Hayden 1984, 6). For many suburbanites, this uniformity across neighbourhoods was actually a draw: “most middle-class Americans wanted to know that they lived with other people who were like them, who shared the same values and might become friends”

(Wright 1983, 175). Entire social classes, ages, and even races were excluded from their piece of the American Dream. Though discrimination and exclusion was not unusual at the time, the suburbs now created a palpable, physical separation between classes:

The Levitt organization, which was no more culpable in this regard than any other urban or suburban firm, publically and officially refused to sell to blacks for two decades after the war. Nor did resellers deal with minorities. As William Levitt explained, “we can solve a housing problem, or we can try to solve a racial problem. But we cannot combine the two.” Not surprisingly, in 1960 not a single one of the Long Island Levittown’s 82,000 residents were black. (Jackson 1985, 241)



Figure 1: Suburban sprawl. Source: David W. Harrison Ltd. ‘The Cost of Suburban Sprawl’, 2014

The single-family home on its own private lot provided families with a perceived amount of privacy unheard of in the crowded cities. Maintaining a physical separation between the home and the home of surrounding neighbours, the detached house could open up to the yard, creating an integration of the indoors and outdoors, while allowing for ample natural light and ventilation throughout. The average suburban lot size, suburbanites soon discovered, did not provide families with the level of seclusion and isolation they had been expecting. Large openings providing views to the outdoors also provided views inwards, should neighbours or pedestrians be curious. They “permitted

residents to observe each other's behaviour and general lifestyle far more easily than the central city dweller" (Macy & Bonnemaïson 2003, 256). Anxieties over appearances and behaviours grew, as families felt their private lives were on display. Suburbanites, especially mothers, also discovered that the private lots creating perceived privacy also created a sobering isolation. The yard forces suburbs to sprawl outwards, creating low-density neighbourhoods with few services and amenities in walking distance from the average home. With their husbands commuting, women were left in isolation confined to the home.

The innate characteristics of the suburbs are also characteristics of sprawl: suburban developments are low-density, with separation of uses, leapfrog development, high dependence on the automobile and located on the fringe (Thompson 2013, 2). The single-family suburban home with large lots separating neighbours forces sprawl, perpetuated by the infrastructure necessary for the automobile. The low-density sprawl of the suburbs makes efficient public transit systems nearly impossible, so even today suburban homeowners are highly dependent on their personal vehicles: transportation is Canada's leading contributor to greenhouse gas emissions (Thompson 2013, 7). Spreading further distances, the cost of infrastructure across such low-density areas, including sewers, roads, sidewalks, water mains, fire and police stations, and electrical cables, as well as the operating costs, including transit, refuse collection, snow clearing, drainage, and police and fire protection have led to new suburban developments actually causing a net financial loss and many municipalities going bankrupt (Thompson 2013, 5). In 2005, the Halifax Regional Municipality (HRM) "found that on a per-household basis, the costs of the lowest-density development were more than three times higher than high-density urban development" (Thompson 2013, 5)

For many, the privately owned single-family home becomes an expression of those who live there. The front yard and facade are a crafted expression to the public while the interior remains an intimate representation. As a result of the privatized nature of the suburbs, what was first used as a tool for self-expression actually becomes a status symbol. Clare Cooper writes that "in a recent study of how contemporary California suburbanites chose their homes, Berkeley sociologist Carl Werthman concluded that many people bought houses to bolster their image of self - both as an individual and as a person in a

certain status position in society” (Cooper 1974, 132). The individualistic display of the single-family house creates a medium which encourages competition among neighbours and distinguishes social classes (Wright 1973, 176).

For many families, the suburban home was their chance at ownership, and both the pride and security that accompany it. But as the suburbs grew, so did their prices and homeownership, even in the suburbs, grew out of reach for many. In 1984, Hayden wrote that “never before has the single-family house been so expensive. Never before has owning a house been so precarious, because of high prices, high interest rates and taxes” (1984, 174). The inherent dependence on the automobile meant high costs in the purchase, maintenance, and gas for multiple family vehicles. The mass production of houses, with disregard for vernacular building techniques and lack of energy efficient design, meant high costs in energy to heat or cool to home (Hayden 1984, 45). The privatization of housing in the suburban housing model also meant increased consumerism as homeowners bought not only the house, but all of the appliances and accessories which it needed to function. These hidden costs, on top of home values rising faster than incomes (Gudell 2015), make suburban homeownership increasingly unaffordable to the average family.

CURRENT SUBURBAN HOUSING MODEL

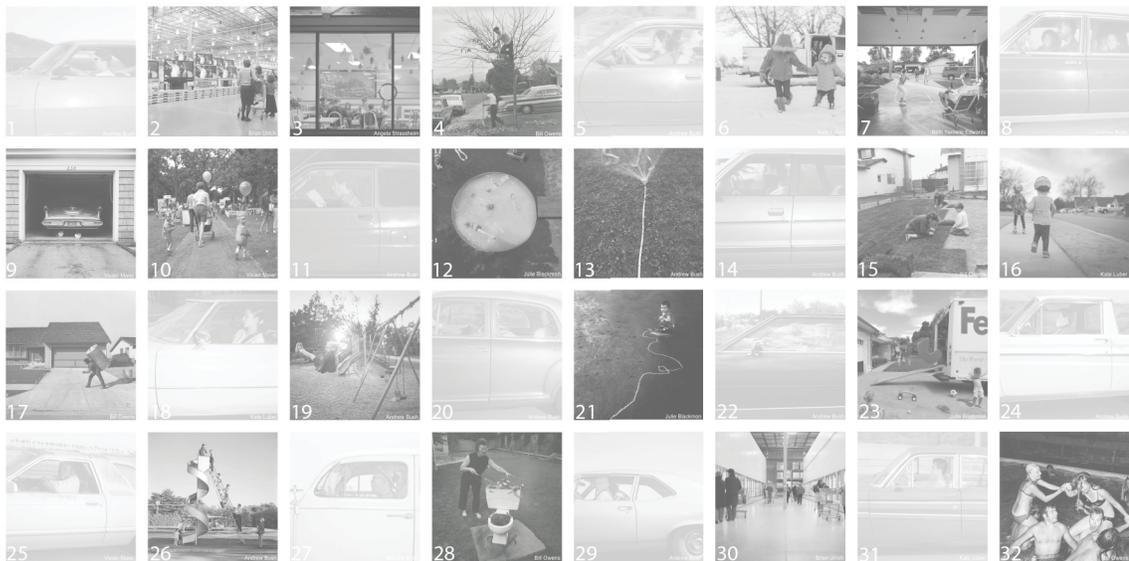
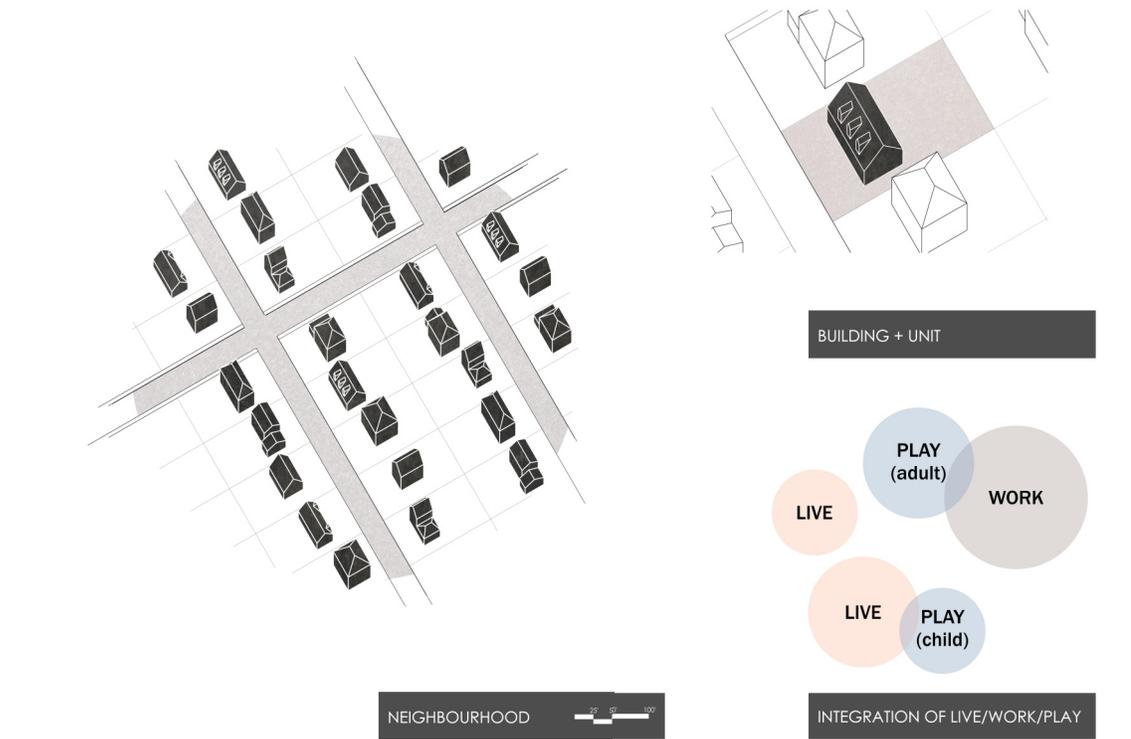


Figure 2: The Current Suburban Housing Model at three scales (neighbourhood, yard, house). Photographs 1, 5, 8, 11, 13, 14, 18, 20, 22, 24, 25, 27, 29, and 31 by Andrew Bush, photograph 2 and 30 by Brian Ulrich, photograph 3 by Angela Strassheim, photograph 4, 15, 17, 28, and 32 by Bill Owens, photograph 6, 16, and 19 by Kate Luber, photograph 7 by Beth Yarnelle Edwards, photograph 9, 10, and 26 by Vivian Maier, photograph 12, 21, and 23 by Julie Blackmon

2.4 Young Families of Today

North America is currently undergoing a distinct shift in how we live. For the last century, the growth of the suburbs has outpaced the growth of the cities. But over the last two decades, the rate of population growth as well as building activity have dropped in the suburbs and spiked in the cities. By 2011, the growth trend had reversed, and the growth of cities was larger than the growth of the suburbs for the first time in over one hundred years (Gallagher 2013, 6).

Today's young families are increasingly choosing to remain in urban settings after becoming parents rather than make the previously typical move to the suburbs. This distinct shift in housing preferences contributing to today's increased city growth and development can be attributed to many social factors. The average number of persons per household is shrinking as couples choose to live alone. In 1941, a few years before North American suburbs expanded, the average number of persons per household was 4.3 persons. By 2011, the average number of persons per household had fallen to 2.5 persons (Statistics Canada 2017c). With fewer members, many of today's families simply don't need the excessive square footage offered by single-family suburban homes. In addition, today's families not only have fewer persons on average, they also have fewer material possessions. Influencing the shift from the suburbs to the city is a global increasing concern for the environment. In her book *The End of the Suburbs: Where the American Dream is Moving*, Leigh Gallagher writes "a newfound hyperawareness of environmental issues has shaken up and reordered our priorities in ways that stand in direct conflict to the suburban way of life" (2013, 5). The environmental issues associated with the suburbs are causing families to rethink their environmental footprint and leading many to move to more sustainable housing models in the city. This concern over the environment not only led to a population with less interest in material possessions than the previous generation and the preference for smaller homes, it also led to an increased interest in limiting daily car usage and participation in collaborative consumption practices for anything from clothes to cars. Most significantly, young families of today increasingly prefer to remain in urban areas because they hope to integrate live, work, and play into their everyday lives. The increased density and multi-use zoning strategies of urban neighbourhoods allow a wide range of activities and services to take place within an easily accessible distance from the

home.

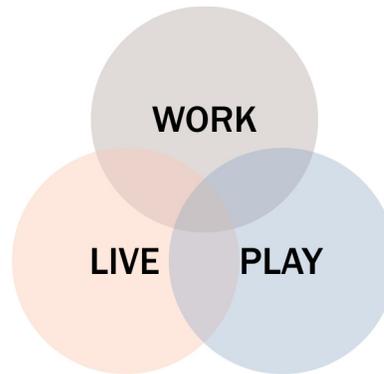


Figure 3: Ideal balance of live, work, play

2.5 The Families of Tomorrow

Though the suburban single-family home may not be considered ideal for today's typological households, it was once considered ideal for the single-earner, dual parent household which composed the majority of families. What the suburban single-family home failed to do was adapt to changing family typologies. This forces families who have outgrown the traditional suburban model to conform to a house that does not suit their needs. Suburbanization occurred at such a grandiose rate and scale, consuming devastating amounts of material and land resources that altogether abandoning them for contemporary practices is not possible. For its massive scale of development designed for one fleeting family typology, the suburbs have created an immense issue which many architectural professionals and urban planners are currently combating. It is imperative that new housing forms do not make this mistake again.

Understanding current trends and designing to allow for adaptability in the future based on possible predictions utilizing trends would create housing that can adapt to multiple family typologies rather than multiple family typologies adapting themselves to one form of housing. The OECD (Organization for Economic Co-operation and Development) also states that "the way family and household structures are likely to evolve in the future is important for forward planning in policy areas including childcare, education, housing, and elderly care" (OECD 2011, 29). In what ways are families predicted to change in the future? What predictions as to how society as a whole may change influence future family housing?

Predicting a continuing decrease in marriage rates and increase in divorce rates, single-parent families are expected to increase on average between twenty-two and twenty-nine percent across the OECD countries before 2030 (OECD 2011, 29). For North America, single-parent families are expected to increase but at a lower rate, between eight and ten percent for the United States (OECD 2011, 29).

Fertility rates have long been in decline across the continent. In 1851, there was an estimated total fertility rate of 6.56 children per woman (Statistics Canada 2017b). At this time, the population remained largely rural and larger families meant more labourers. Though fertility rates remained comparatively high to today, they were already in decline by the beginning of the twentieth century. The Great Depression, followed soon after by World War II, caused further falls in fertility rates throughout the 1930s and into the 1940s. In 1937, the total fertility rate in Canada had fallen to an average of only 2.64 children per woman (Statistics Canada 2017b). Following World War II, fertility rates took a turn. Reunited families benefitting from a strong post-war economy meant a sharp increase in fertility rates, creating a baby boom that lasted from 1946 to 1965. Total fertility rates peaked in 1959, at an average of 3.94 children per woman in Canada (Statistics Canada 2017b).

Social changes in gender roles and religious views, as well as advances in contraceptives had reverted total fertility rates by the 1970s: “the influence of religion on daily life was in decline, contraception was now more effective and readily available than ever and the participation of women in higher education and in the paid labour force was on the rise. Fertility levels fell rapidly” (Statistics Canada 2017b). Total fertility rates fell below the 2.1 replacement level and today, Canada’s total fertility rate is 1.6 children per woman (National Post 2017). The changes in gender roles that led to dual-earner families also led to smaller families, as women pursuing higher education and careers not only choose to have fewer children, but choose to start having children later in life.

The total fertility rate in Canada being below 2.1 children per woman since 1971 means that, excluding immigration, the Canadian population is not renewing itself. As the baby boomers born between 1946 and 1965 enter retirement, the Canadian population is finding it increasingly difficult to fulfill their vacant positions. The OECD’s 2011 report

titled *Doing Better for Families* states that “informal support networks will come under increasing pressure as the declining number of children will lead to a reduction of future informal carers for the elderly population” (OECD 2011, 20). Housing for the elderly with fewer caretakers becomes increasingly difficult as human resources are stretched. Dolores Hayden notes that “many sociologists have observed that the elderly do not choose to move from their homes, even when their health or financial situation becomes precarious: many elderly cannot bear the psychological losses associated with losing ties to their dwellings and communities” (Hayden 1984, 183).

The social factors that led to dual-earner households and single-parent households have led to the rise of other family typologies as well. As marriage rates decreased, cohabitation, where a couple lives together but remains unmarried or not common-law, has increased. Rising divorce rates also led to a large amount of ‘reconstituted families’, or families consisting of parents with children from previous relationships. Reconstituted households not consist of almost ten percent of all child households (OECD 2011, 8).

CHAPTER 3: URBAN FAMILY HOUSING

3.1 Housing and the Family Life Cycle

Housing designed for 'family use' is designing space that facilitates the everyday life of the family across the family life cycle. Adapted from the family life cycle stages as defined by Lodl, Gabb, and Combs in their article "The Importance of Selected Housing Features at Various Stages of the Life Cycle", the family life cycle can be broken down into six stages (represented by significant common milestones rather than age groups): childhood, young adult, parenting, empty nesters, retirees, and seniors. The daily activities and subsequent needs common to families vary greatly across each stage and family housing should be located and designed to adapt to each one. Lodl, Gabb, and Combs explore the changing relationships between age and housing needs based off of previous research approaches:

Though spatial needs have been extensively researched at various life cycle stages, there has been little work done in the area of specific housing features that contribute to the space use. In Michelson's (1977) examination of specific housing-related satisfactions, emphasis has been placed on distance between the home and outside activities (i.e. distance to shopping, friends, recreation) as well as size within the home (i.e. number of bedrooms, number of baths, amount of storage). The work of Csikszentmihalyi and Rochberg-Halton (1981) has centered around the importance of objects within the home (i.e. stereo, clothes, furniture). A gap has existed relating to the examination of specific housing features which support this larger category of space and distance, or make possible the use of objects within the home. (Lodl, Gabb, & Combs 1990, 385)

A 1987 study in Nebraska showed that there were five features that had a significant change in importance at different family life cycle stages, including a house that featured Space for Children's Play, a house that had Space for a Computer Center, a house that had adequate Space for Entertaining Small Groups, a house that can be used by those with Limited Mobility, and a house to which Additions may easily be made if space is needed (Lodl, Gabb, & Combs 1990, 389). If a family is going to have the option to age in place, the family home must be able to shift as their spatial priorities do. A family will go through many events across the family life cycle that require spatial changes, but of most significance are the periods of expansion and contraction of number of persons per household. These periods typically occur during childbearing years (expansion) and as the children later leave the home (contraction). Each period itself remains in a state of fluctuation that can span across multiple years, typically around two to six, depending

on the number of children. As noted earlier, the suburban housing model adapts easily to the expanding family period, which contributes to why the suburbs were so popular among young families in the last century. However, the suburban model fails to adapt to the contracting family period, leaving parents whose children have moved out with an overly large, underutilized home and yard requiring regular maintenance. As parents try to age in place in order to remain in their beloved community, maintenance often becomes overwhelming and increasingly difficult as mobility decreases. The typical home in the suburban housing model also becomes problematic as mobility decreases since the majority have different living areas across multiple levels.

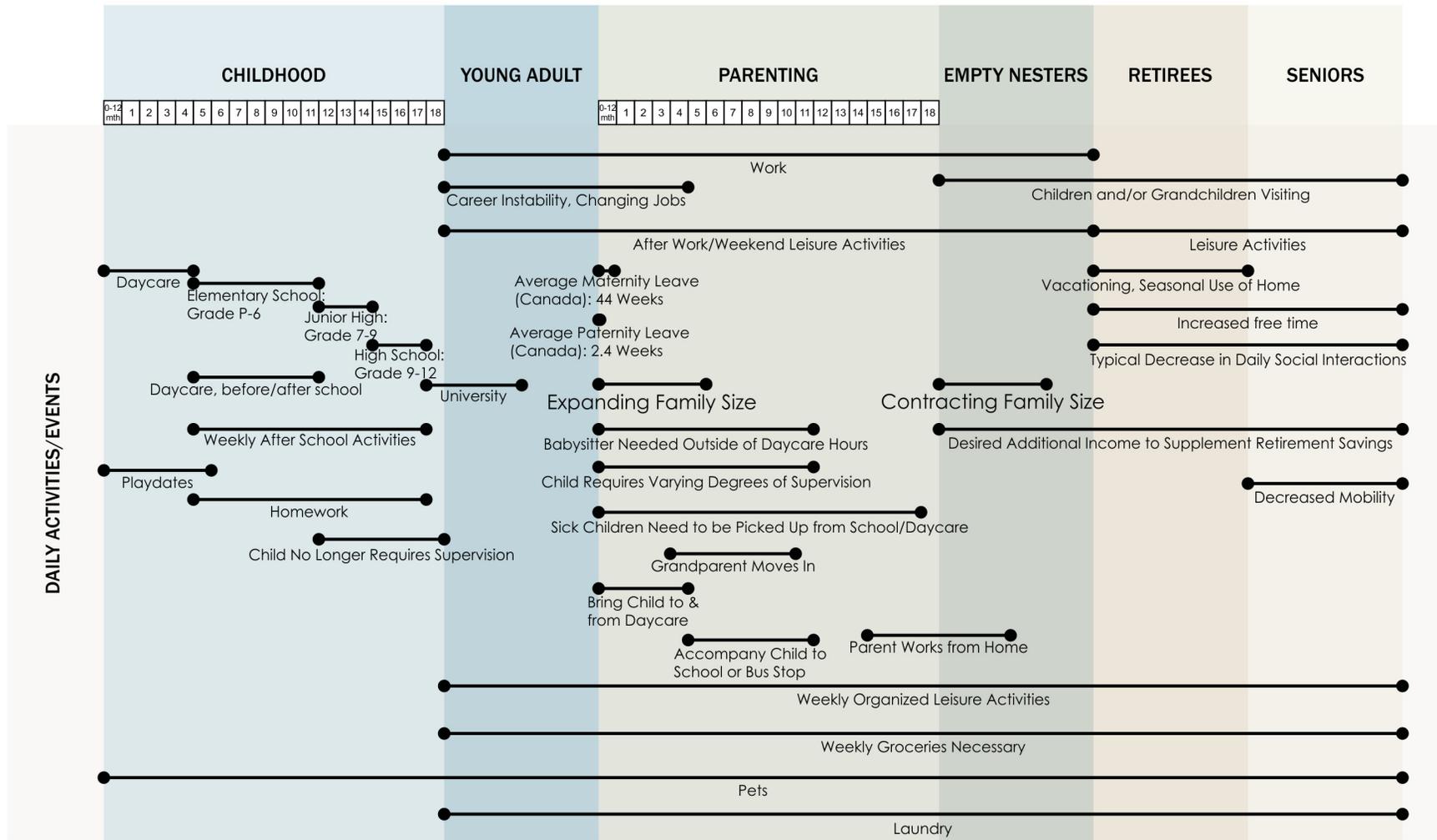


Figure 4: Daily Activities/Significant Events common to the various stages of the Family Life Cycle

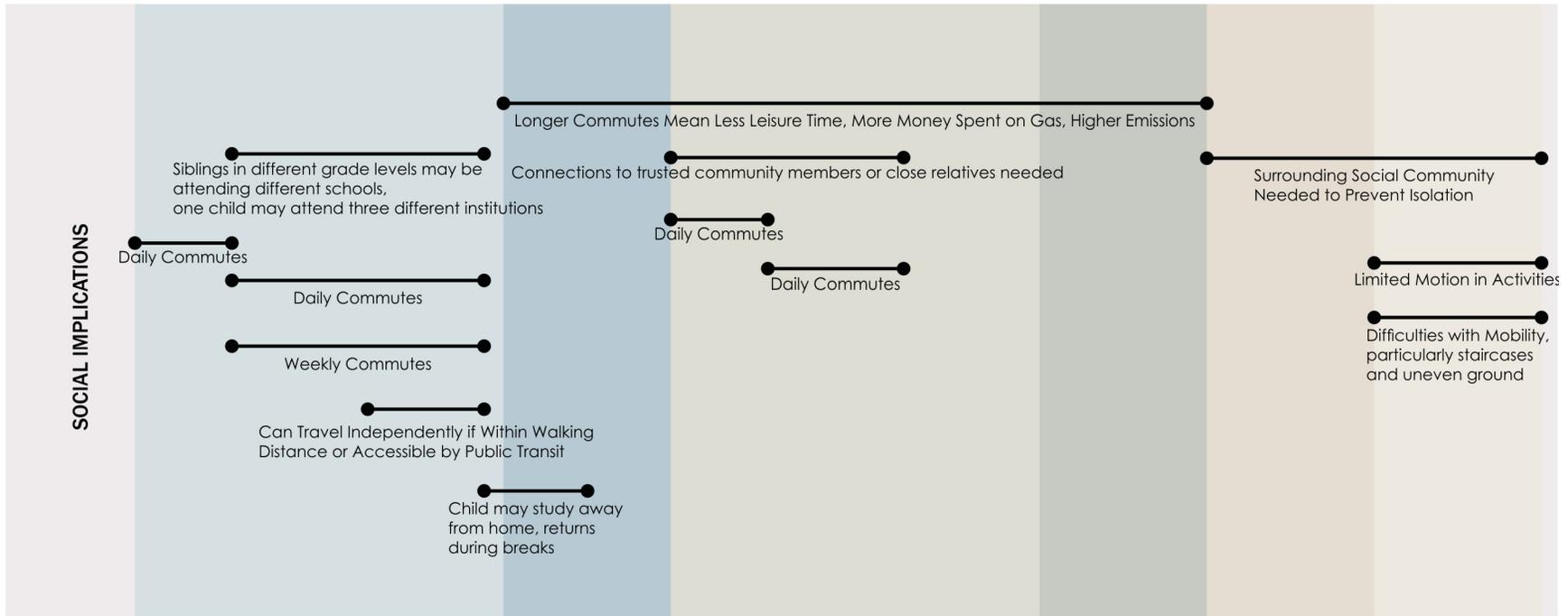


Figure 5: Social Implications of the Daily Activities/Significant Events common to the various stages of the Family Life Cycle

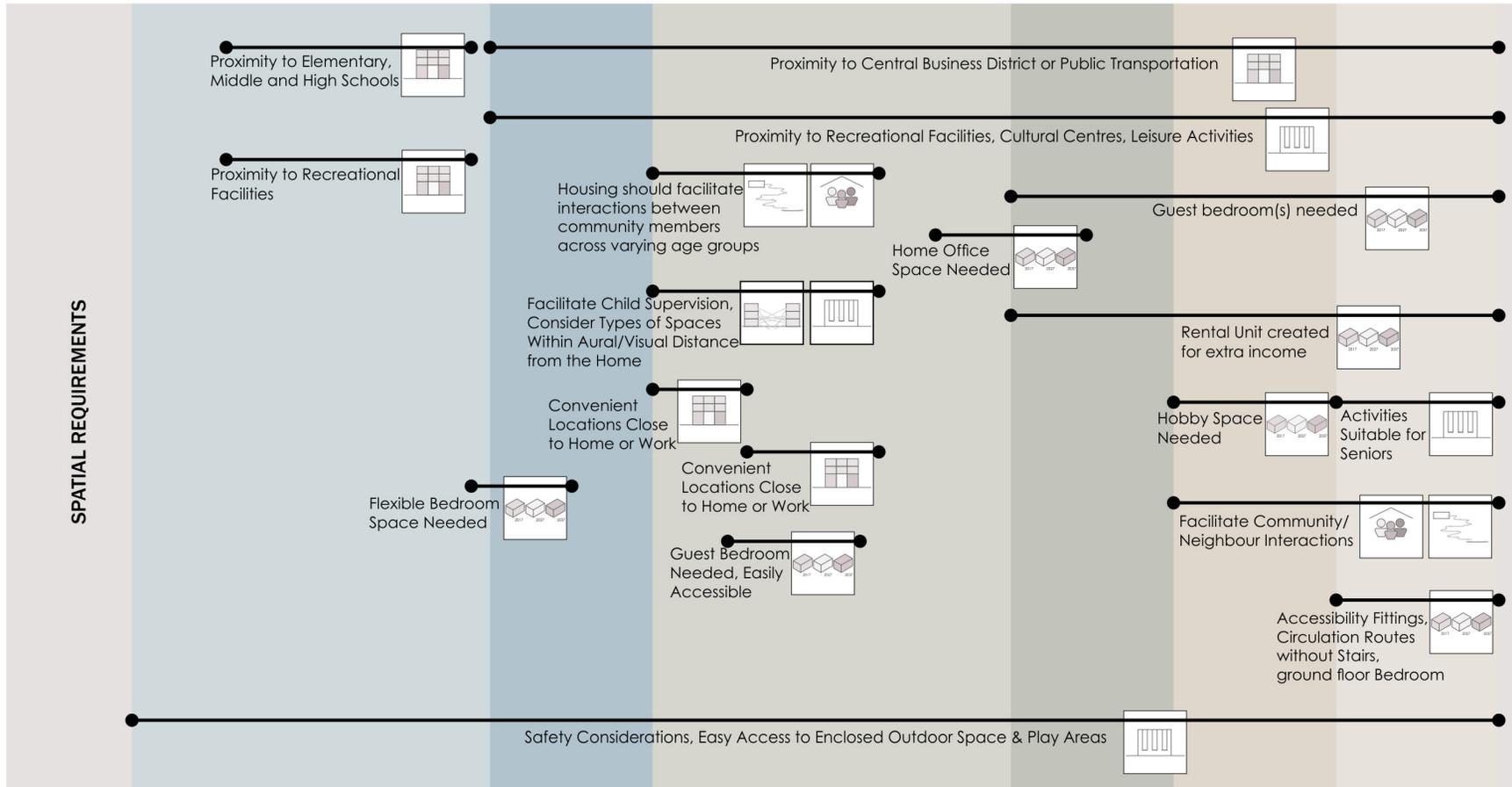


Figure 6: Spatial Requirements of the Daily Activities/Significant Events common to the various stages of the Family Life Cycle

3.2 The Un/Met Needs of Urban Housing

Since the growth of the suburbs, North American cities have had a hard time housing families. Unaffordable prices, small living spaces, and social stigmas have all contributed to a low proportion of families raising children in dense, urban areas. However, our cities as well as our families are changing, and a growing proportion are choosing the city over the suburbs.

As detached homes on their own private land became available and affordable to the average family, social opinions on the 'appropriate' setting, city or suburb, to raise one's children flared. Stigmas condemning apartments as inadequate family housing were widespread, prominent in advertising, organizations, and opinions of public figures. At the 1921 National Conference on Housing, James Ford reported that "a child's sense of individuality, moral character, and intellectual efficiency could only develop in a private, detached dwelling" (Wright 1983, 150). In 1928, a resolution passed by the Chicago Public School Association and the Cook County Federation of Women's Organizations publicly stated that "all parents living in kitchenette apartments, presumably for economic reasons, but in reality because of the inconvenience of homemaking in a cottage home or bungalow, thus lessening the free hours that the woman who is an apartment dweller devotes to club life, *be urged to become home owners* for the sake of the younger generation" (Wright 1983, 151). Parents were bombarded with unjust public opinion and shaming. With an accessible alternative in the suburbs, the disadvantages of city tenements became difficult to justify. Units were old, in need of repair, and cramped, especially for families. Thin walls and floor assemblies meant inadequate privacy, with a constant uncomfortable awareness of neighbours. City housing units could rarely be customized to the individual family; their restricted areas were absolute. The flight from the city ensued.

The density inherent in cities allows for a great variety of programs to exist within short distances from one another. Built at a more human scale than their suburban counterparts, city street networks and development ingrain housing with other uses. The density and diversity of urban populations also means the possibility in sustaining many smaller, more specialized locales in retail trade, cultural facilities and entertainment options (Jacobs 1961, 146). However, this density has often led to a sense of lack of privacy, as poorly designed urban housing projects have been unable to create a truly

private unit within the public realm of the city. Thin walls and floors remind tenants of the constant presence of neighbours and windows are often overlooked by the building across the street or alleyway.

Due to their locations, families choosing urban living are inevitably paying more money for less space and the average family cannot afford a two or three bedroom condo in today's top housing markets in Canada. The average price of a condominium in Canada has reached an all-time high in 2017, at \$411,000 in July (Last 2017). At the same time, the average size of new condos has dropped. In 2013, the average size of a condo unit in Toronto was 739 square feet, down 9.4% from 2009 (Devenyi 2013).

Compared to the suburban housing model, urban housing gives little opportunity to become a true expression of the self. These units are standardized and their limited, absolute floor areas tend to restrict personalization to a purely aesthetic level rather than also functional. Many urban housing units are also not available for ownership and, as rental units, their modification by tenants are prohibited by the building's owner. Clare Cooper argues that "the high-rise apartment building is rejected by most Americans as a family home because, I would suggest, it gives one no territory on the ground, violates the archaic image of what a house is, and is perceived unconsciously as a threat to one's self-image as a separate and unique personality" (1974, 134). Additionally, while the interior can at least be personalized on an aesthetic level, the unit exteriors offer hardly any form of self-expression. Undistinguishable from the mass of identical windows on the building's façade and the identical doors in the hallway, the "house form in which people are being asked to live is not a symbol-of-self, but the symbol of a stereotyped, anonymous filing-cabinet collection of selves, which people fear they are becoming" (Cooper 1974, 134).

As mentioned above, the density inherent in urban neighbourhoods allow for a great variety of programs to exist within short distances from one another. Built at a more human scale than their suburban counterparts, city street networks and development integrate housing with other uses. Live, work, and play opportunities in the urban housing model can all exist within an easily accessible distance from one another, ideal for the preferences of today's young families. This growing number of young families choosing to live in the city are often forced to compromise on housing by living in buildings that were

not designed to suit family needs. Targeting an entirely different demographic of young professionals, childless couples, and retirees, urban housing often fails to provide enough space for the family while at its largest, fails to provide play space for children within a safe distance from the home and fails to create a building community.

CURRENT URBAN HOUSING MODEL

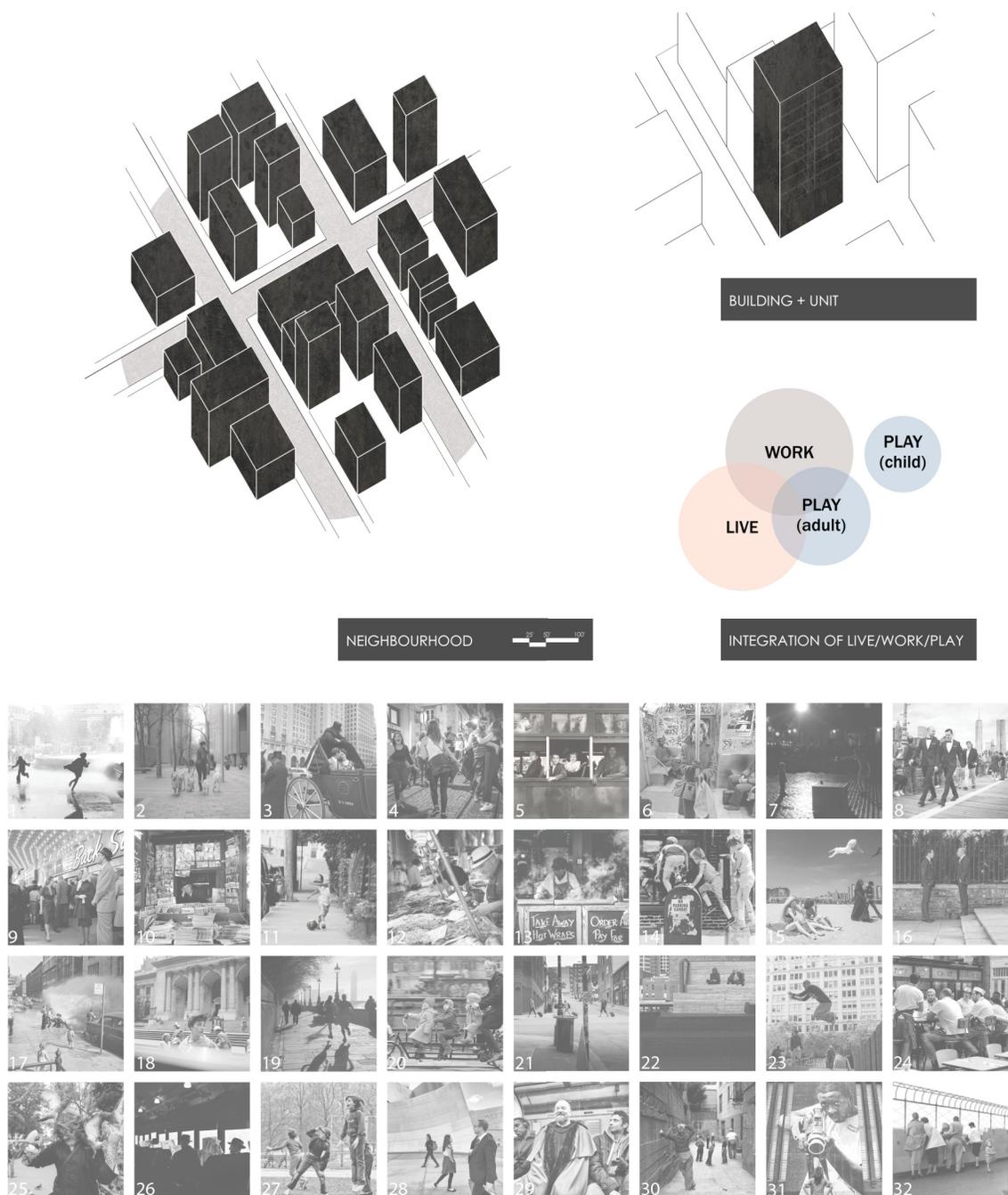


Figure 7: The Current Urban Housing Model at three scales (neighbourhood, building, unit). Photograph 1 by Walter Rothwell, photograph 2 by Jonathan Castellino, photograph 3, 9, 10, 18, 18, 26, 30, and 32 by Vivian Maier, photograph 4 by Rui Palha, photograph 5 by Robert Frank, photograph 6 by Robert Sandler, photograph 7, 19, and 31 by Ronya Galka, photograph 8 by Friso Kooijman, photograph 11 by Lisa Bagchi, photograph 12 by Miguel Estrella, photograph 13 by Sam Burton, photograph 14 and 27 by Jeff Rothstein, photograph 15 by Lauren Welles, photograph 16 by Stephen Flounders, photograph 20 by Marc van Woudenberg, photograph 21 by Gary Grout, photograph 22 by John Barbiaux, photograph 23 by Forest Bryant, photograph 24 by Lee Christiansen, photograph 25 by The Phoblographer, photograph 28 by Ted Covey, photograph 29 by Street Photographer London

CHAPTER 4: INTEGRATION OF THE YARD

The success of urban family housing is far from simply being a matter of square footage. Even as apartments or condos from the current urban housing model grow in size and number of bedrooms, they do not provide the needs and services allowing families to thrive in the area. The integration of the yard, which is present in suburban housing, can facilitate urban family living by performing a series of roles currently unmet in the urban housing model. But the urban yard cannot be thought of in the conventional, suburban sense, or else the same issues occurring in the suburbs are brought to the city. The integration of the yard must be in a broad, inclusive rethinking of what the yard can be; it is not merely green space, or even necessarily outdoors. The yard should comprise of private, semi-private, semi-public, and public spaces that can be used by families of different typologies and individuals of different age groups.

4.1 The Significance of the Yard in Suburban Housing

For decades, the American Dream was described as owning a single-family, detached house on a sprawling green lawn, a driveway for the car, a tire swing for the kids and a white picket fence closing it all in. The presence of the yard is integral to the function of the suburban home. Hayden writes: “the significant spatial convention most of us carry with us are not so much a function of square footages as they are a series of gradual spatial transitions from community to privacy” (Hayden 1984, 184). It is the yard within which the suburban home sits that provides the bulk of this series of gradual spatial transitions. This private lot is fully inhabited, becoming an extension of the home, and plays a variety of different roles that facilitate family living.

The yard provides privacy. In addition to creating spatial separation between a house and its neighbours, views are often further hindered by the landscaping. Trees are often concentrated closer to the street in the front yard and at the end of the lot in the back. Fencing or hedging often encloses the back yard completely.

The yard provides a clear private threshold. Urban housing models may suffer from a lack of responsibility for anything beyond their own private dwelling as ownership of these spaces typically belongs to a person not living on the premises. As the yard is private

property, the responsibility for maintaining it belongs clearly to the owners. Frequently used to define this border between two lots in the front yard are low-rise fences or hedges. Even the maintenance of these is clear as they typically belong to one neighbour or the other, but not both. This defined owner responsibility creates a sense of pride in its appeal and suburban home owners can spend hours maintaining the yard each week: mowing the lawn, trimming the hedge, pulling the weeds, planting the garden, and raking the leaves.

The yard provides playspace. As a direct extension of the home, children are safe to play outdoors with a degree of independence. Parents can continue indoor chores or activities while their children play outside. Families can invest in private ownership of large play structures: pools, trampolines, treehouses, swingsets, all of which are impossible to privately own in urban settings.

The yard is additional living space. Taking full advantage of opportune weather, the yard allows its owners to spread outdoors: cooking on the barbeque, dining at the patio table, hanging laundry on the line.

The yard is additional storage. The yard also provides an area outside of the home for large or dirty items. The garage and the garden shed become a 'catch-all' for anything the family does not want in their home.

The yard provides interaction with neighbours. The family's inhabitation of the yard means a presence outdoors alongside their neighbours. These interactions often occur across distinct thresholds: chatting over the fence or from the curbside to the street. This dialogue not only increases social interaction but increases safety as well. Neighbours may watch the house while it is vacant and they may babysit the children in the event of an emergency. They may also grow suspicious should anything out of the ordinary happen and react accordingly. This sort of neighbourly support is common in the suburbs but rare in urban housing where neighbours remain largely unknown.

The issue with the suburban housing model is that the yard operates only in the horizontal plane. This causes the suburbs to sprawl, creating issues of lack of proximity to services and amenities, isolation for those without access to an automobile, overuse of

the private automobile, and consumption of natural land resources.

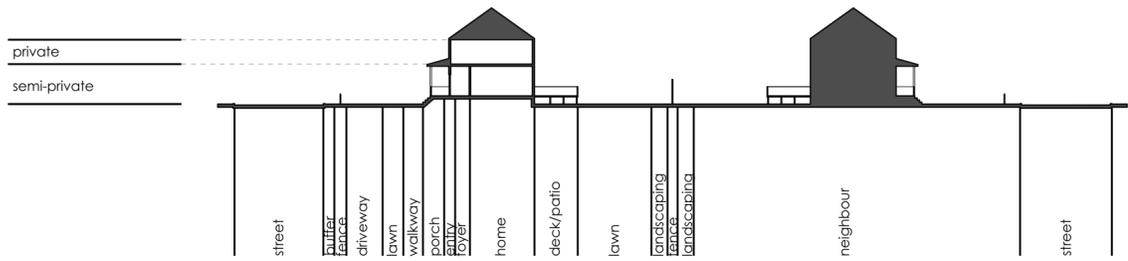


Figure 8: The current suburban housing model as a series of thresholds in the horizontal and vertical planes

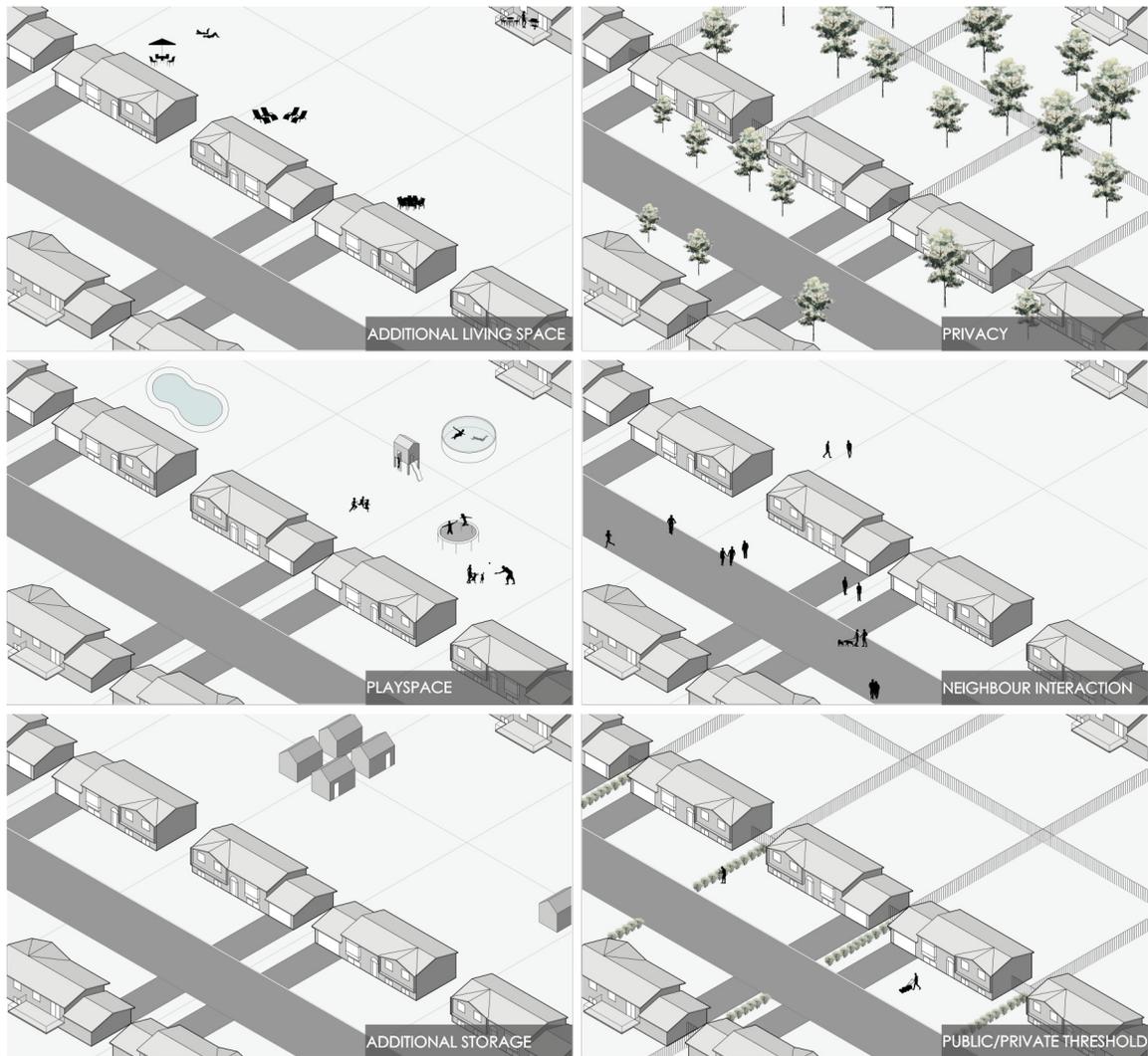
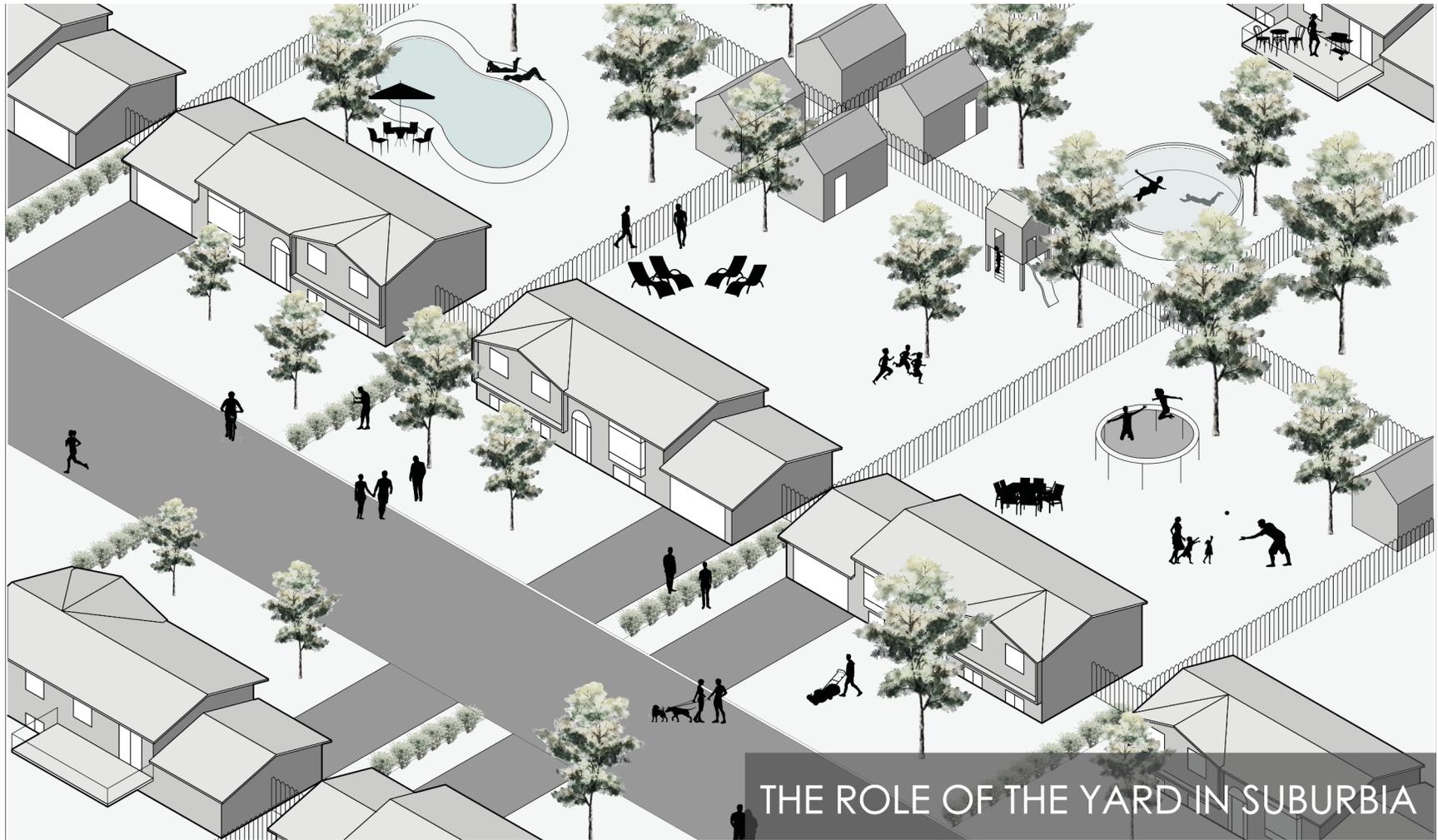


Figure 9: The different roles of the yard



THE ROLE OF THE YARD IN SUBURBIA

Figure 10: The different roles of the yard, shown together

4.2 The Absence of the Yard in Urban Housing

The procession from the city street to the interior of an urban home differs from the procession from the street to the interior of a suburban home in multiple ways. Firstly, the spatial transitions leading to the home are not privately owned by the tenant; they are shared spaces used by all building occupants. Secondly, the spatial transitions of the urban housing model are not inhabited. While the suburban front yard is an area of play, neighbour interaction and living, the procession from the city street to the private urban home is circulation space void of life. Tenants spend the minimal amount of time in these spaces and units turn their backs on the interior double-loaded corridor. The current urban housing model lacks integration of the yard altogether. There is little neighbour interaction, no additional living space outside of the unit, no additional storage (unless basement storage lockers are provided), no playspace and no spatial separation between the shared corridor and the unit front door. While cities are all about inhabiting the vertical, the current urban housing model does little to invigorate it, creating residential towers that have little connection to the ground, minimal outdoor space, and uninhabited circulation. Residential towers may integrate commercial activities into a plinth, normally extending to only the first storey unless the building is excessively tall. Anything above the commercial plinth is exclusively residential. As rooftops remain largely unused other than for mechanical purposes, the current urban housing model does not allow the public to inhabit anything above the first floor, despite its urban location relying on inhabiting the vertical.

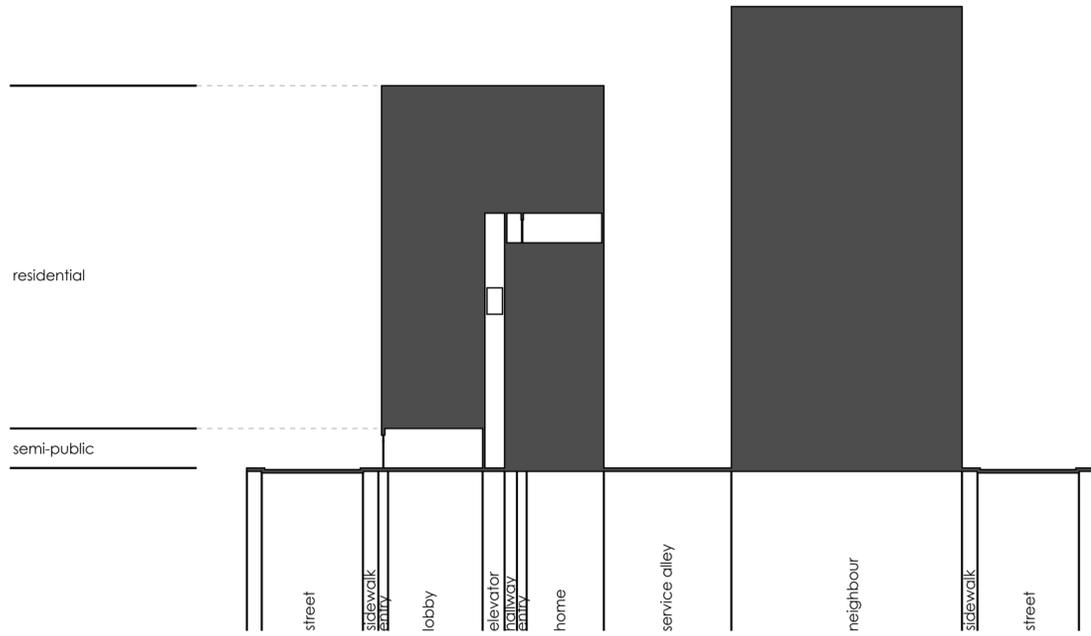


Figure 11: The current urban housing model as a series of thresholds in the horizontal and vertical planes

CHAPTER 5: DESIGN FOR URBAN FAMILY HOUSING

Although the strategies of mass-production were available world-wide, suburbanization outside of North America was not even remotely comparative in rate or scale. 'The American Dream' is just that: a dream belonging solely to North America. Europe, on the other hand, sought a denser solution to their housing shortage:

This low density pattern [of North American suburbanization] was in marked contrast with Europe. In war-ravaged countries east of the Rhine River, the concentration upon apartment buildings can be explained by the overriding necessity to provide shelter quickly for the masses of displaced and homeless people. But in comparatively unscathed France, Denmark, and Spain, the single-family house was also a rarity. In Sweden, Stockholm committed itself to a suburban pattern along subway lines, a decision that implied a high-density residential pattern. Nowhere in Europe was there the land, the money, or the tradition for single-family home construction. (Jackson 1985, 239)

Hayden states that "the dream house is a uniquely American form, because for the first time in history, a civilization has created a utopian ideal based on the house rather than on the city or the nation" (Hayden 1984, 18). While North American family housing concentrated largely on the autonomous individual unit in the suburb, European family housing continued to be an integral part of the urban fabric. The analysis of international case studies emphasizing urban family housing offers insight as to how North American urban housing must change in order to facilitate family living. These case studies often include some iteration of integration of the yard, whether public, private, or somewhere in between. Case studies will be used throughout the following chapter reinforcing the feasibility of urban family housing design principles.

In its own recent efforts to make the city more family friendly, the city of Toronto established a document of draft urban guidelines in 2017 titled "Growing Up: Planning for Children in New Vertical Communities". The guidelines were established following a study by the City Planning Division of local and international case studies and the personal experiences of multiple families currently residing in Toronto high-rises. These guidelines, though a positive step for urban family living, focus solely on families with young children rather than a broad look at the entirety of the family life cycle.

To fully integrate live, work, and play into the everyday lives of the family, the building location and its subsequent relationship with the surrounding community is

equally as important as the innermost functionings of the home itself, as “in vertical communities, planning for children is predicated on the understanding that the public realm and community amenities become extensions of the home” (City of Toronto 2017). Analyzing how North American urban housing must change to facilitate family living must therefore be subdivided into an analysis at three scales: the neighbourhood, the building, and the unit.

5.1 The Neighbourhood

This thesis aims to integrate live, work, and play into the everyday by relocating family housing from the suburbs to the city. While the suburban housing model makes every effort to separate the facets of everyday life, a housing model that integrates them could support both male and female participation in the workforce, reduce commuter time, reduce environmental concerns over sprawl and overuse of the private automobile, increase socialization of both parents and children, generate diversity and safety in city streets, and create neighbourhoods with population diversity in age and income.

Urban family housing should integrate family needs at the neighbourhood scale by responding to the activities and services that are or are not present within the area. It is fundamental that the project is within walking distance or a quick transit ride to a variety of programs, including schools, daycares, areas of employment, grocery stores, cultural facilities, and recreational facilities, and that a healthy mix of programs specific to different stages of family life are present. After assessing what is currently present in the area, urban family housing should contribute to further enliven and enrich the surrounding neighbourhood by providing activities and services that are currently lacking. These programs should be chosen by prioritizing those which will facilitate family living throughout the family life cycle. Any absent programs should be integrated into the project for use by not only unit owners but by the neighbourhood as a whole. By incorporating programs that can be used by the greater community, unit owners are not only exposed to possible interaction with a wider range of people but are likely to feel greater pride in their homes as there is belonging to the neighbourhood community. As Jane Jacobs writes: “differences, not duplications, make for cross-use and hence for a person’s identification with an area greater than his immediate street network” (Jacobs 1961, 130). With repetition of these principles in urban family housing projects across a city, the network of programs relating

to families can become incredibly rich and diverse. Recreational networks may include basketball, tennis, and volleyball courts, skating rinks, swimming pools, gymnasiums, and playgrounds. Cultural networks may include libraries, galleries, museums, restaurants, and bars. Despite being branded ‘family-related’ programs, the majority of these facilities appeal to all ages. It is through accessibility and use by those outside of one individual project that would make such networks sustainable, therefore urban family housing projects should not be treated as introvert communities independent from their surroundings.

Urban family housing at the neighbourhood scale should further incorporate mixed-use programming in order to contribute to a healthy density of work opportunities in the area. Integrating areas for retail, commercial, institutional, or cultural activity amongst housing ensures urban neighbourhoods retain their heterogeneous quality that drew today’s urban families to begin with. It is with mixed-use programming that community’s become vibrant spaces through the day and night.

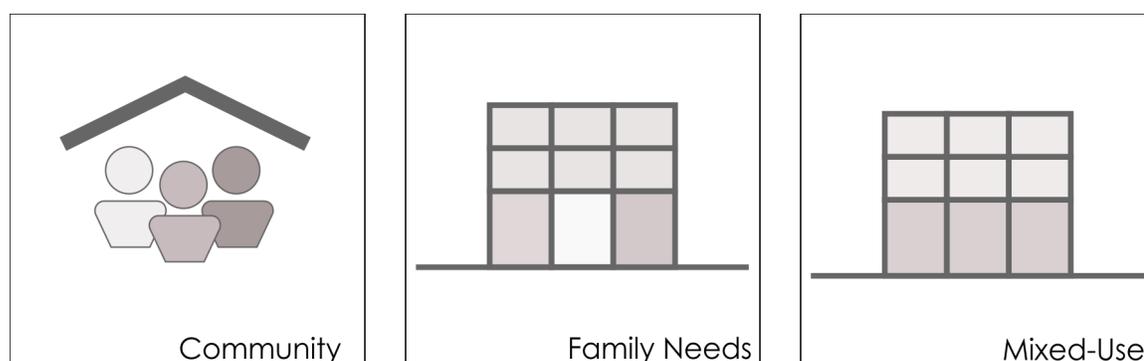


Figure 12: Urban Family Housing principle diagrams at the neighbourhood scale.

5.2 The Building

At the building scale, urban family housing should integrate social circulation, design for adaptability of the shared common spaces, design to promote community at the building scale, child and public safety, the use of child friendly materials, and the integration of play for all ages. Many of these principles can be associated to the integration of a broad, inclusive rethinking of the ‘yard’ and how it can contribute to facilitating family life in the city.

Circulation in housing projects takes up a significant portion of total floor space

and yet circulation space outside of the unit is often designed as uninhabitable. Current urban housing models treat hallways, staircases, and elevators only as a means to unit access. This essentially wasted space can be put to better use in urban family housing projects when considering circulation as a part of the yard. Circulation can become social circulation when it incorporates a variety of programs, both horizontally and vertically. Social circulation can create a yard that provides neighbour interaction, playspace, and additional living space.

When circulation space is inhabited as the yard, it also creates safety for its users. With the safety of children of particular concern, eyes on the yard are needed throughout the day. Views from circulation space, views from the units, and views from commercial spaces all contribute to public and tenant safety.

Also important to circulation in urban family housing are considerations in mobility of its users. The presence of strollers in family housing is inevitable and circulation with any steps between grades or even certain flooring materials can be unfavorable with a stroller. Design for circulation must also be considerate of those with limited mobility. Not only do portions of the younger population suffer from disabilities affecting their mobility, but the elders are also likely to be present in family housing as either tenants or visitors. As with any universally accessible design, alternative routes such as elevators or ramps should be provided.

To stimulate vertical inhabitation, urban family housing projects must encourage their users to vertically inhabit the building. A social circulation strategy can encourage tenants to inhabit multiple floors, rather than solely the one containing the access route to their individual unit. The use of this space encourages interaction amongst fellow tenants, promoting a sense of community at the building scale that the current urban housing model lacks. For tenants of all ages to want to use the circulation spaces for much more than just circulation, the programming should change in order to offer different activities at different levels. In efforts to contribute to the sense of community at the neighbourhood scale, this social circulation space should also be accessible to the public, acting as a public 'yard' for use by the community.

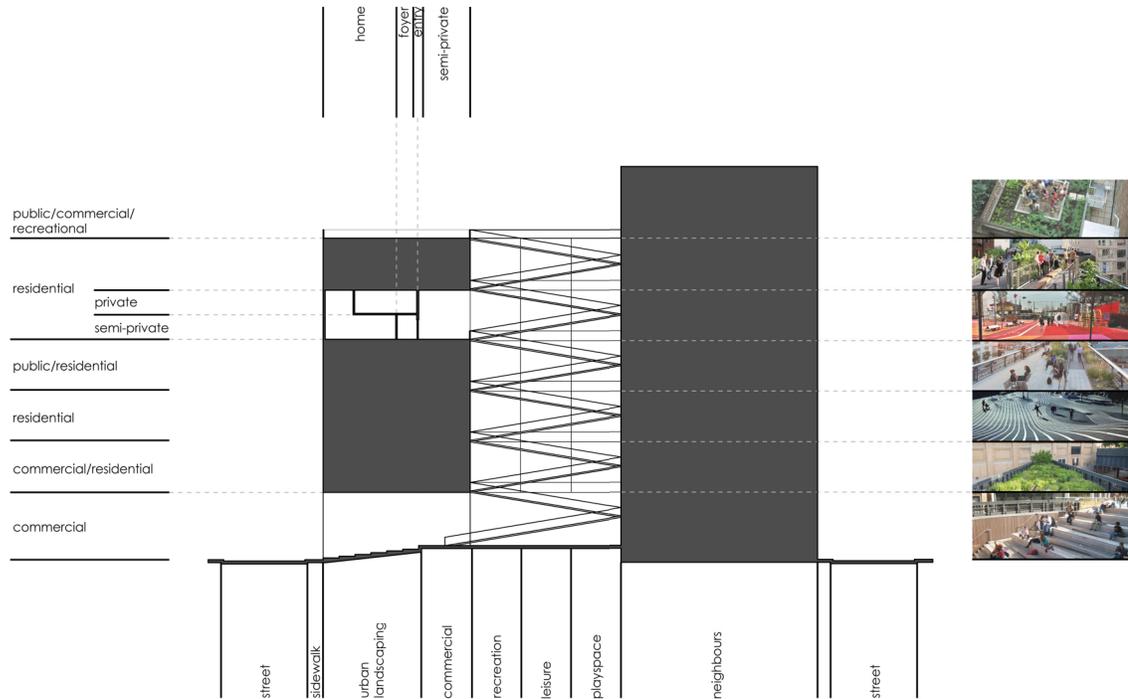


Figure 13: The Proposed Urban Family Housing Model as a series of thresholds in the vertical and horizontal planes.

Le Corbusier's *Unité d'Habitation* in Marseilles incorporates an interesting iteration of mixed-use, vertical programming, one with varied levels of success. Manifested with an idea that "focused on communal living for all the inhabitants to shop, play, live, and come together in a "vertical garden city"" (Kroll 2010), the project integrated interior mixed-use 'streets' with shops and medical facilities, and a communal rooftop with a kindergarten, gym, wading pool, club, and running track (Kroll 2010). The interior streets and outdoor rooftop effectively become the yard within a dense, urban setting, acting as additional living space for families, playspace for children, and facilitating neighbour interaction. The vertical varied programming encourages vertical inhabitation.

Crucial to successful urban family housing is a sense of public safety in the yard. The careful choice of mixed-use program can greatly impact safety in the yard. Programs which have peak user hours at different times, spanning throughout the day can produce eyes on the yard at all times, increasing safety to both the public and tenants using the space.

The use and combination of different materials can have a profound impact on

facilitating urban family living. Floor and wall assemblies designed for ideal acoustics can increase a family's privacy and comfort by aurally isolating their private home from their immediate neighbours and from the semi-private yard, as well as minimizing street noise, ideally creating a feeling of refuge within a populated city that few urban housing projects successfully create. Assemblies that allow for display of the individual personality outside of the home can create urban housing that, although modular, becomes a symbol of the self. The individualization of units identifiable from outside of themselves allows a tenant to feel part of a greater community at the building scale while maintaining their own individual personality. The individualization of units may also allow a child to recognize their own home, distinguishing it from their neighbours.

An urban housing project facilitating family living will also consider the presence of children in material selection. As the furniture and infrastructure of a certain space can help inform its intended users, so can the choice of materials. Hayden writes that "concern for building materials and interior finishes neither too fragile nor too rough helps define places that children can use" (1984, 214). Considering child behaviour should directly influence material finishes both inside and outside of the home. Warmth and smoothness of flooring and ground materials influence how comfortable a child is crawling or playing on the floor. Materials that are easily cleaned, resist stains, and highly durable will have longer lifespans before needing to be replaced.

Play is fundamental to childhood and takes up a large amount of time. What the yard provides so successfully in the suburban housing model is playspace for children while remaining connected to the home, so parents can often continue their daily at-home routines. Urban family housing must integrate playspace into the yard that is appropriate to varying age groups. Playspace that is appropriate to varying age groups includes not only considerations for the type of activities occurring in the yard but also considerations for their connectivity to the individual home. Playspace for a toddler requires activities and safety concerns far different to playspace for a teenager. Considerations for connectivity to the individual home include both visual and aural connections. As spatial distances increase, children can gain a healthy independence from the home as they age.

Van Bergen Kolpa's Family Scraper Cool is a project designed to facilitate child

playspace in an urban setting. Integrating intimate, vertically stacked courtyards shared by family units on a common floor, these semi-private spaces provide a safe place for young children to play that is directly connected to the home. As children age, wanting to gain an independence from the home and their recreational activities require more space, child playspace can move outdoors into the public park immediately adjacent to the project. Each family unit is oriented to maintain a visual and aural connection so parents can supervise their children from afar while remaining at home. In this case, both the interior courtyards and public park become the yard of each individual unit.

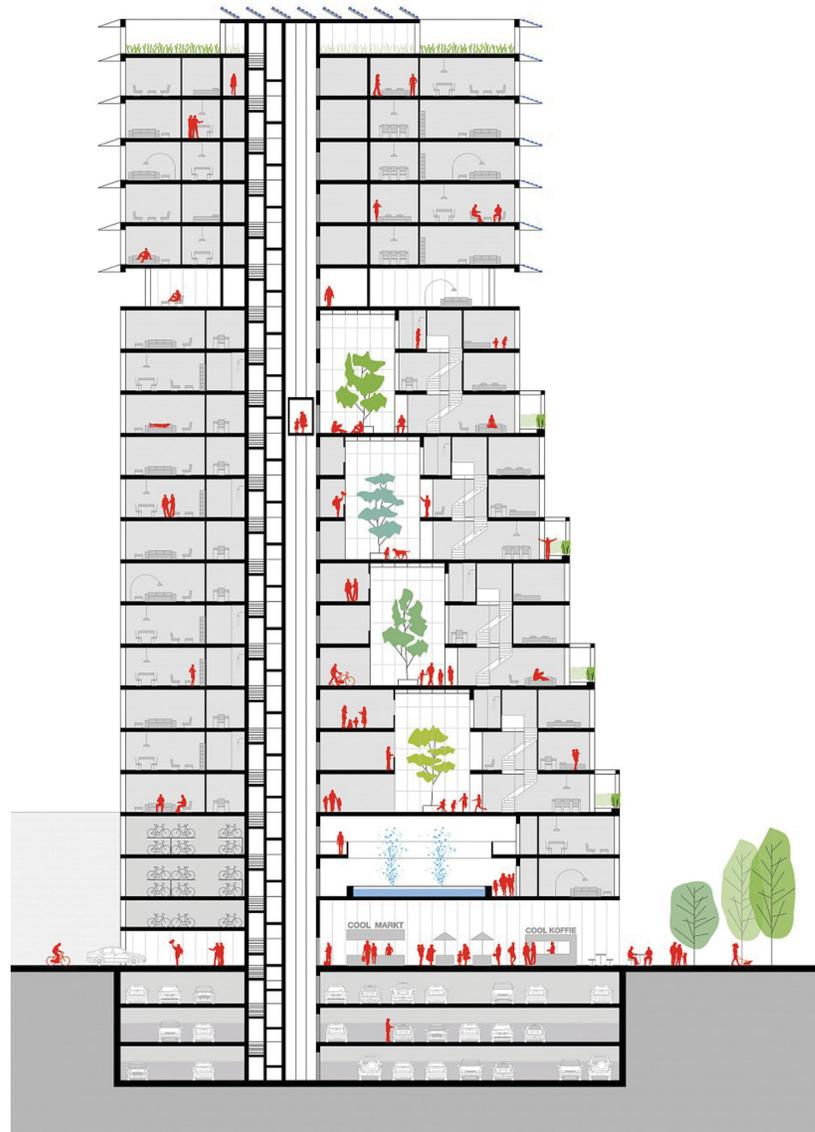


Figure 14: van Bergen Kolpa's Family Scraper Cool, showing terraced family housing with direct connections to interior courtyards and the adjacent park. Source: van Bergen Kolpa Architecten "Family Scraper Cool"

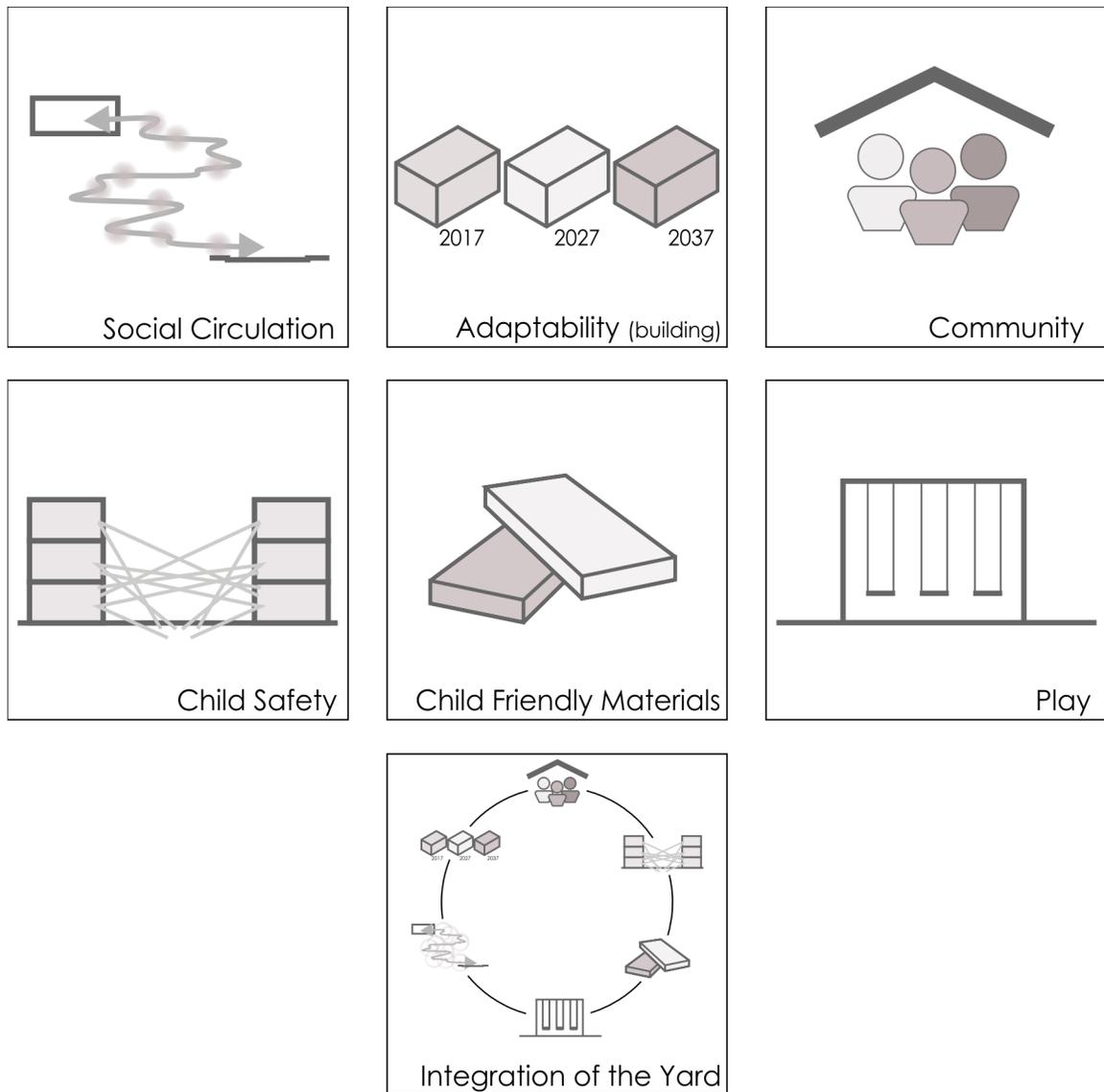


Figure 15: Urban Family Housing principle diagrams at the building scale.

5.3 The Unit

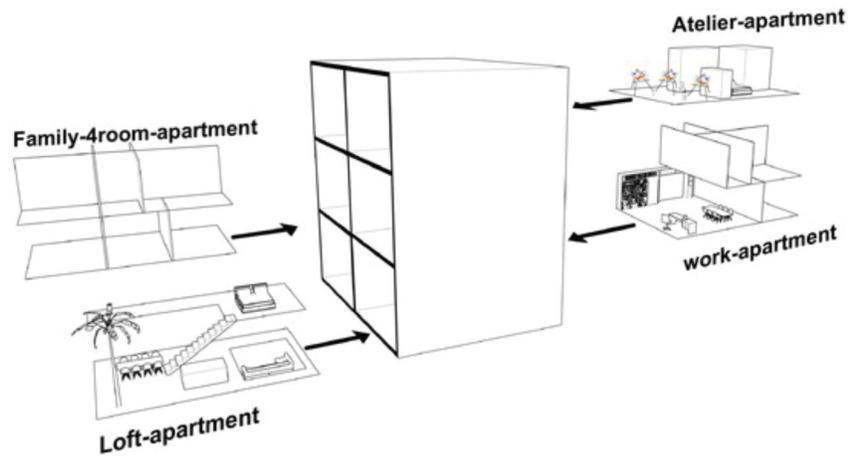
Principles facilitating urban family housing in North America at the scale of the unit include adaptability through the family life cycle, privacy, and affordability strategies.

Urban family housing units should be designed for adaptability. This includes adaptability from one family to another as units change hands as well as adaptability to the various stages of growth and decline the individual family experiences. Adaptability from one family to another ensures a longer building life span, as new families can change the

unit to suit their needs. Adaptability to the various stages of the family life cycle ensures families can stay in a home long-term, which increases their sense of responsibility for their unit as well as responsibility over the building's common spaces, creates stability for children, and allows families to create greater ties to their surrounding neighbourhood.

Different families have different spatial needs. Families may vary in typology, size, and income and have completely different interests which all affect how they may choose to inhabit a home. The design of an urban family housing project must incorporate diversity in housing units through adaptability. Families with one, two, three children or more, possibly living in multi-generational households, needing at home office space and/or hobby space, or interests in live/work housing should all have equal opportunity for living in dense, urban neighbourhoods.

WE Architecten's 'Amstelloft' is an interesting example of urban housing designed for adaptability. The project was "inspired by dwellings in old schools, churches, and warehouses: flexible spaces created in ample dimensions, capable of housing everything from artists' studios to family homes" (Corboy 2016). With adaptability at its core, the project was designed with a structural concrete frame independent from individual unit layouts, with the intention of inserting wood frame floors and walls specific to the needs of the individual tenant. These wood frame floors and walls can be easily added and removed, modifying the unit as family needs change and as the unit changes owner. Each unit has a ceiling height of eighteen feet, allowing tenants to increase floor area by adding a partial or full second storey. This allows a modular unit frame to suit the needs of nearly any tenant typology, from a single professional to a family with four children. 'Amstelloft' is particularly interesting because it can easily adapt to shifting family typologies in the future. If the number of couples remaining childless skyrockets, or if total fertility rates take a dramatic upswing, while other urban housing developments may have real difficulties with high vacancy rates, 'Amstelloft' units remain fit for use.



high spaces create the opportunity to realise different types of apartments



....and the possibility to stay longer in the same apartment

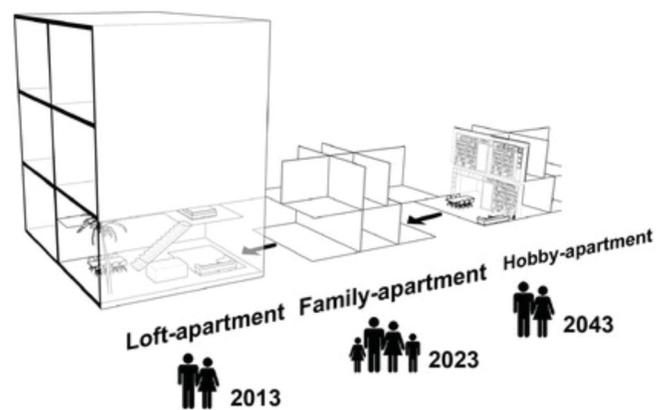


Figure 16: Amstelloft adaptability strategy for changing family households. Source: Designboom "Amstelloft' DIY Apartments by WE Architecten are Designed to Adapt', 2016

Privacy in any urban housing project is important to its overall livability, including privacy between the unit and the public as well as privacy between units. Although integrating the public into the common spaces of a project is overall beneficial for the community and the building tenants, it is important to maintain a distinct public/semi-private threshold, one clearly meant to defined public areas from tenant only areas. The semi-private,

tenant only areas can then transition into the fully private units. This public/semi-private threshold, whether implied (such as pinch-point access) or absolute (such as locked door access), allows control over who is or is not meant to inhabit the space directly adjacent to the fully private unit. Privacy can further be influenced by material choices (as mentioned above), design strategies such as an acoustic barrier between the street and a balcony or façades that can be adjusted to increase or reduce privacy as each unit desires.

One significant aspect drawing families to the suburbs is its affordability over urban housing. The higher land prices of urban areas often draw larger development projects, ones intending to gain high profits from the rental or sales of units. As developers can make higher profits per square foot by building a larger number of smaller units as opposed to fewer larger units, an insufficient amount of units meant for households of more than two people are built (Roberts 2017). Larger units that *are* built become more unaffordable. Included in Toronto's Draft Urban Guidelines is a brief statement on housing affordability, recognizing that "livability depends on the ability of households to afford to rent or own larger units" and that "where possible, securing the affordability of larger units will be encouraged" (City of Toronto 2017, 11). Though the affordability of urban housing for the average family may "depend on investment from all three orders of government" (City of Toronto 2017, 11), design strategies as well as alternative housing financial models can contribute to their overall affordability. Modular, pre-fabricated units at the scale of one building project can create significant savings through bulk purchasing, less on-site labour costs, and construction efficiency. Integrating public space into urban housing projects, as described above, may also help the project financially. Not for profit financial housing strategies such as a non-profit co-op would also create more affordable options for urban family housing.



Figure 17: Urban Family Housing principle diagrams at the unit scale.

CHAPTER 6: APPLIED DESIGN METHODOLOGY

In order to demonstrate the feasibility of designing housing for the family life cycle and its ability to facilitate family living in dense, urban areas in North America, the design principles described in Chapter 5 have been applied to a theoretical design project based in Halifax, Nova Scotia.

6.1 Halifax Urban Family Housing

Over recent years, Halifax, Nova Scotia, has witnessed a staggering increase in urban housing development projects. The city has been benefitting from the strength of multiple factors, including “thriving manufacturing and construction sectors, healthy employment and income gains, strong housing and retail markets, [and] off-the-charts population gains” (Bundale 2017). According to recent statistics, Halifax’s 2016 per capita population growth exceeded that of Montreal, Vancouver, Ottawa, and even that of Toronto (Bundale 2017). As populations increase, so does the demand for housing and many urban housing development projects are underway. In 2011, when Halifax’s growth was fairly minimal, the city issued permits for 96 new residential units. Only five years later in 2016, Halifax issued permits for 1,040 new residential units (Bundale 2017).

In Halifax’s downtown core, nine housing development projects are currently under construction or have recently been completed. Of these nine projects, all include a portion of two bedroom units, but only three designs include any three bedroom units. Though all nine projects incorporate mixed-use programming, few designs bring the public anywhere above the ground floor. In efforts to increase building amenities, most projects include social space to be shared by building tenants. In most cases, this social space includes a fitness center, lounge, and outdoor terrace. These social spaces, though concentrated only on one floor and exclusive to building tenants, at least begin to introduce vertical inhabitation by encouraging tenants to inhabit one floor other than their own.



Figure 18: Current housing projects in Halifax's downtown core (green) and the chosen project site (red)

When comparing Halifax housing typologies to Canada’s three most populous cities, Toronto, Montreal, and Vancouver, Halifax falls behind on the proportion of families with children living in the city. Halifax households with children account for twenty-six percent of all households, while Vancouver consists of thirty-two percent, Montreal consists of thirty-three percent, and Toronto households with children account for forty-one percent of all households. As previously mentioned, Toronto has recently taken an interesting step forward when it comes to ensuring families with children have their own place in the housing market. In 2015, the City Planning Division of Toronto initiated a study which would lead to guidelines directing how new development can better function for family households (City of Toronto 2017). This study includes an analysis of how families are currently adapting units to suit their needs, what is successful and what is still lacking as well as an analysis of case studies successfully addressing families. While Toronto’s City Planning had previously included policy requirements for three bedroom units, this new initiative aims to fully facilitate urban family living by addressing three scales: the neighbourhood, the building, and the unit.

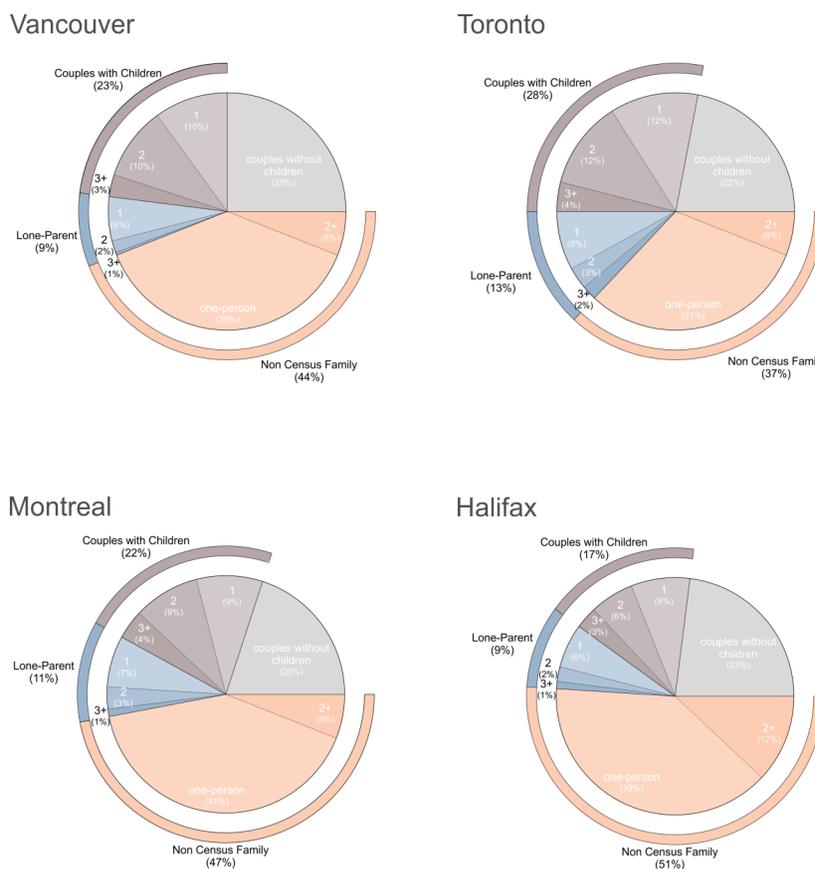


Figure 19: Percentage of households by type, by city, 2016

6.2 The Neighbourhood

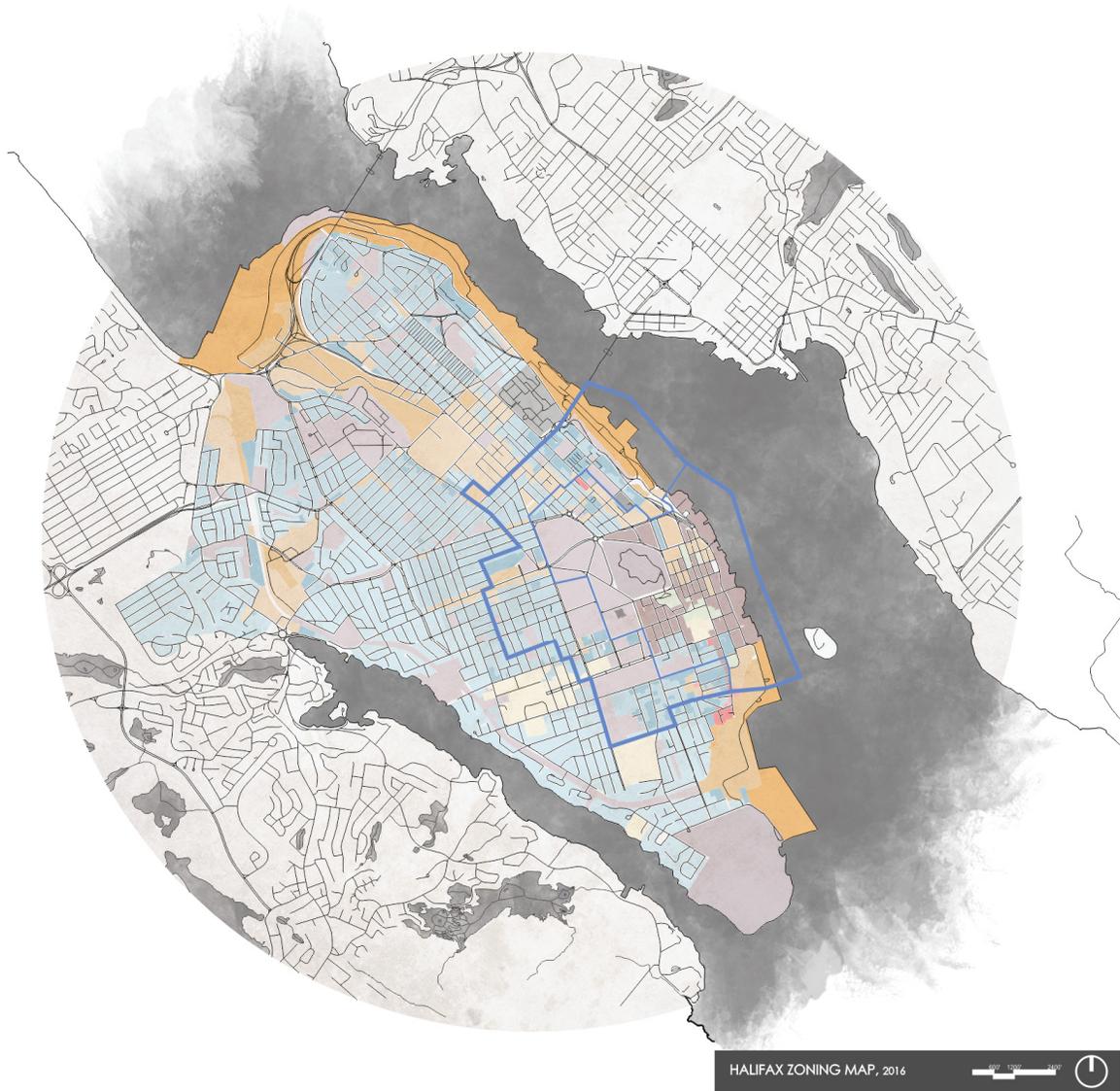
Crucial to the integration of live, work, and play into the everyday lives of the family is the presence of various services and activities, easily accessed in the surrounding neighbourhood. In order to determine an area of interest for possible site locations, a variety of services and activities pertaining to families is mapped across the Halifax peninsula, onto the mainland towards the east and across the water in Dartmouth towards the west. Mapped services include daycare facilities, grocery stores, elementary, middle, and high schools, and health clinics. Recreational and/or cultural activities shown include libraries, museums, cinemas, playgrounds, arenas, various sporting facilities, amongst others. To demonstrate the opportunities of work in different areas, Halifax's Central Business District, as well as the location of Nova Scotia's largest employers (each with over one thousand employees) are also noted. Highlighting the area of interest for possible sites suitable for urban family housing, Figure 20 outlines the area with the highest clustering of activities and services, slightly expanded to incorporate essential services. This area largely circles Citadel Hill. It is important to map these individual services and activities as it is difficult and misleading to rely simply on zoning or density maps. Figure 21, a map of Halifax zoning boundaries, shows a high level of mixed-use occurring in the downtown core circling Citadel Hill and branching off towards the north. Figure 22, a map of Halifax's population density, shows the highest concentration is in a largely residential census tract in the South End. Downtown Halifax is largely concentrated around two major axes: Barrington Street, running north to south, and Spring Garden Road, running east to west. The area of interest concentrating largely on Halifax's downtown core and its surroundings shows the presence of cultural spaces, including museums, galleries, libraries, and community centers dispersed throughout and the presence of many recreational facilities, including baseball, cricket, and soccer fields, tennis and basketball courts, swimming pools, a skating rink, a skate park, and playgrounds, largely concentrated in the Commons. Fundamental for families, the analysis also shows the presence of schools, elementary, middle, and high schools, both public and private as well as multiple daycares dispersed in the surrounding area. Two large grocery stores and a fine foods market are within walking distance and, additional to numerous bus routes, transportation nodes include an inter-city railway station and a ferry terminal servicing across the harbour.



HALIFAX SERVICES & FACILITIES, 2016

- | | | |
|-------------------------------|-----------------------------------|--|
| D Daycare | FM Farmers Market | BC Basketball Court |
| G Grocery Store | Th Theatre | BV Beach Volleyball |
| ES Elementary School | Ca Casino | SP Skate Park |
| MS Middle School | EC Event Centre | GC Gof Course |
| HS High School | HPG Halifax Public Gardens | P Public Pool |
| S School (multi-level) | PG Playground | E Equestrian Club |
| HC Health Clinic | A Arena | HT Hiking Trail |
| L Public Library | SF Soccer Field | B Beach |
| M Museum | BF Baseball Field | ■ Nova Scotia's Largest Employers (1000+) |
| Ga Gallery | FF Football Field | — Halifax CBD |
| Ci Cinema | TC Tennis Court | |

Figure 20: Halifax Services and Activities



- | | |
|--|---|
| ■ Residential | ■ Regional Park Zone |
| ■ Minor Commercial | ■ University |
| ■ Business/Commercial | ■ Canadian Forces Base |
| ■ Industrial | ■ Downtown - Institutional, cultural, open space |
| ■ Park/Institutional | ■ Downtown - Mixed Use |

Figure 21: Halifax Zoning Map



Figure 22: Halifax Population Density, average dwelling value and dwelling value per room, 2016

As a prototype for urban family living, though the design principles discussed in Chapter 5 are scale-less, the project site had to be a size and shape typically common to other cities to best demonstrate its application. While urban family housing units in the past were designed with a ‘tower in the park’ approach, today’s “new development is predominantly infill on sites less than one hectare” (City of Toronto 2017, 7). Acknowledging that easy access to daycares (Figure 23), grocery stores (Figure 24), and schools (Figure 25) are defined locations used by all families at some point in the family life cycle (as opposed to varying locations of work and recreational interests), possible site locations

were analyzed based on the accessibility coverage (a ten-minute walking radius) of these three facilities. Many possible sites located between the waterfront and Barrington Street, though centrally located in the cluster of activities and within range of daycares and grocery stores, find themselves sparsely covered by schools (in range of one elementary school only).



Figure 23: Daycare centers in Halifax, with a ten-minute walk radius and possible project sites



Figure 24: Grocery Stores in Halifax, with a ten-minute walk radius and possible project sites

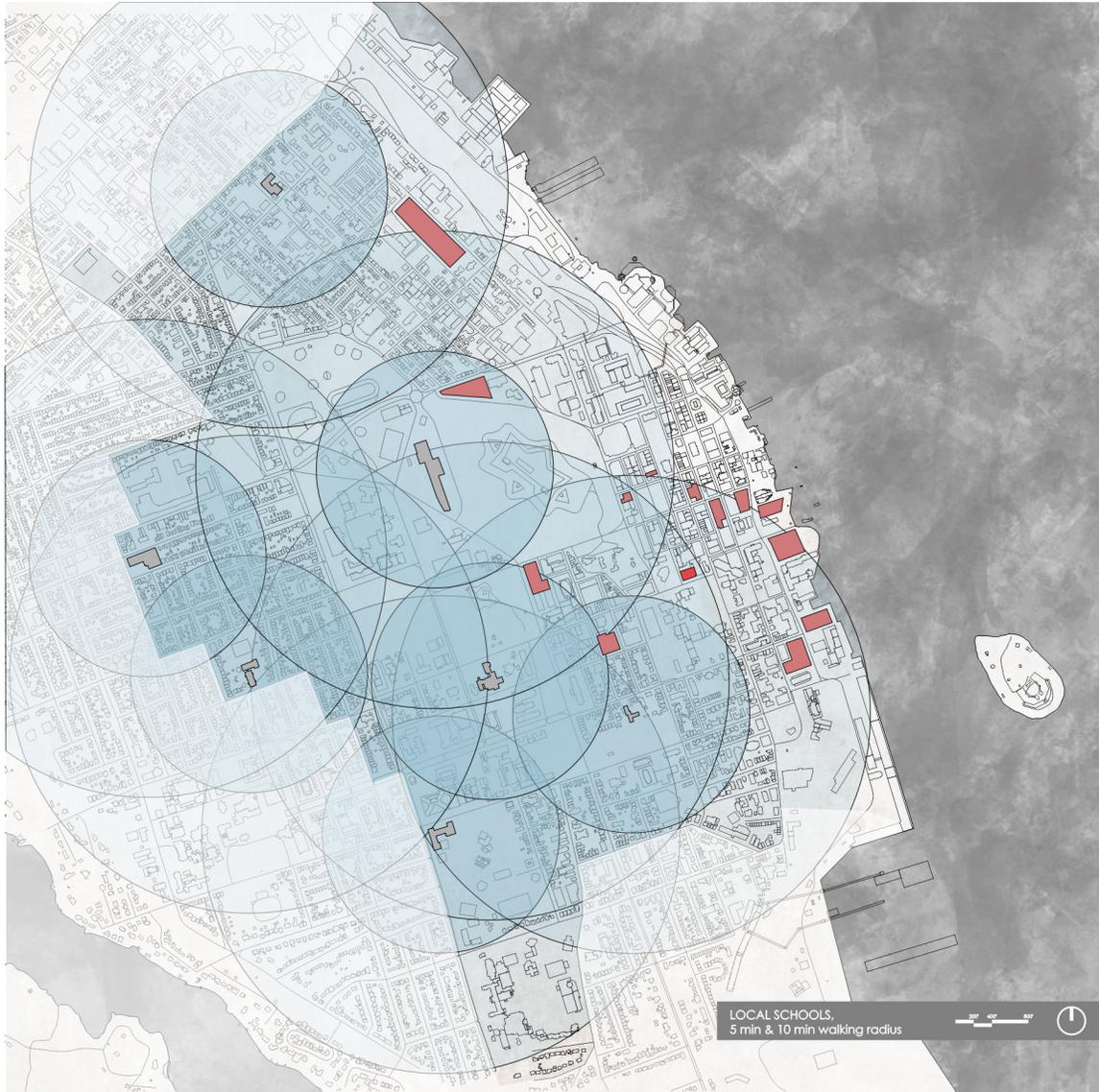


Figure 25: Schools in Halifax, with a ten-minute walk radius and possible project sites

The project's chosen site is located on the corner of Spring Garden Road and Grafton Street and is currently a parking lot of just under fifty spaces. Immediately adjacent on Grafton Street is a row of two to four storey red-brick buildings with retail, institutional, and residential programs. Two of these buildings, including the project site's immediate neighbour to the north, are heritage properties built in the early 1900s. Across Grafton Street is a grassy plaza leading to the entrance of the (currently unused) Halifax Memorial Library. The project site's immediate neighbour to the east on Spring Garden Road is St. Mary's Basilica, a Gothic Revival cathedral of granite and ironstone, originally built between 1820 and 1829 (Historic Places 2007). The church's western facade of near-

black local ironstone and comprising eleven pointed-arch stained glass windows encloses the project site to the east. Key services to integrate everyday live, work, and play within a ten minute walking radius of the project site include three grocery stores, two daycare centers, the Halifax Public Library, the harbour boardwalk, three playgrounds, and two schools (offering elementary, middle, and high school levels).

Framing a public yard at the rear with the existing commercial space and the basilica, the building completes the street face on both Grafton Street and Spring Garden Road with two points of entry to the public yard. With direct access to the outdoor space, the ground floor (Figure 26) consists of a restaurant, with kitchen and services at the rear, and a daycare. The second floor (Figure 27) consists of a gym, complete with lobby, changing/wash rooms, and an enclosed class space, two live/work opportunities capable of being used as small offices, stores, or workshops, and a lobby space for the leasable commercial floors above with both stair and elevator access. Each of these are accessed directly off of Grafton Street with the live/work spaces and gym having direct views to the rear public yard below. The third and fourth floors (Figure 28) consist of housing units and commercial office space while the fifth floor (Figure 29) contains housing units and a public rooftop. There are sixteen units in all, each with views of both the street and the yard.

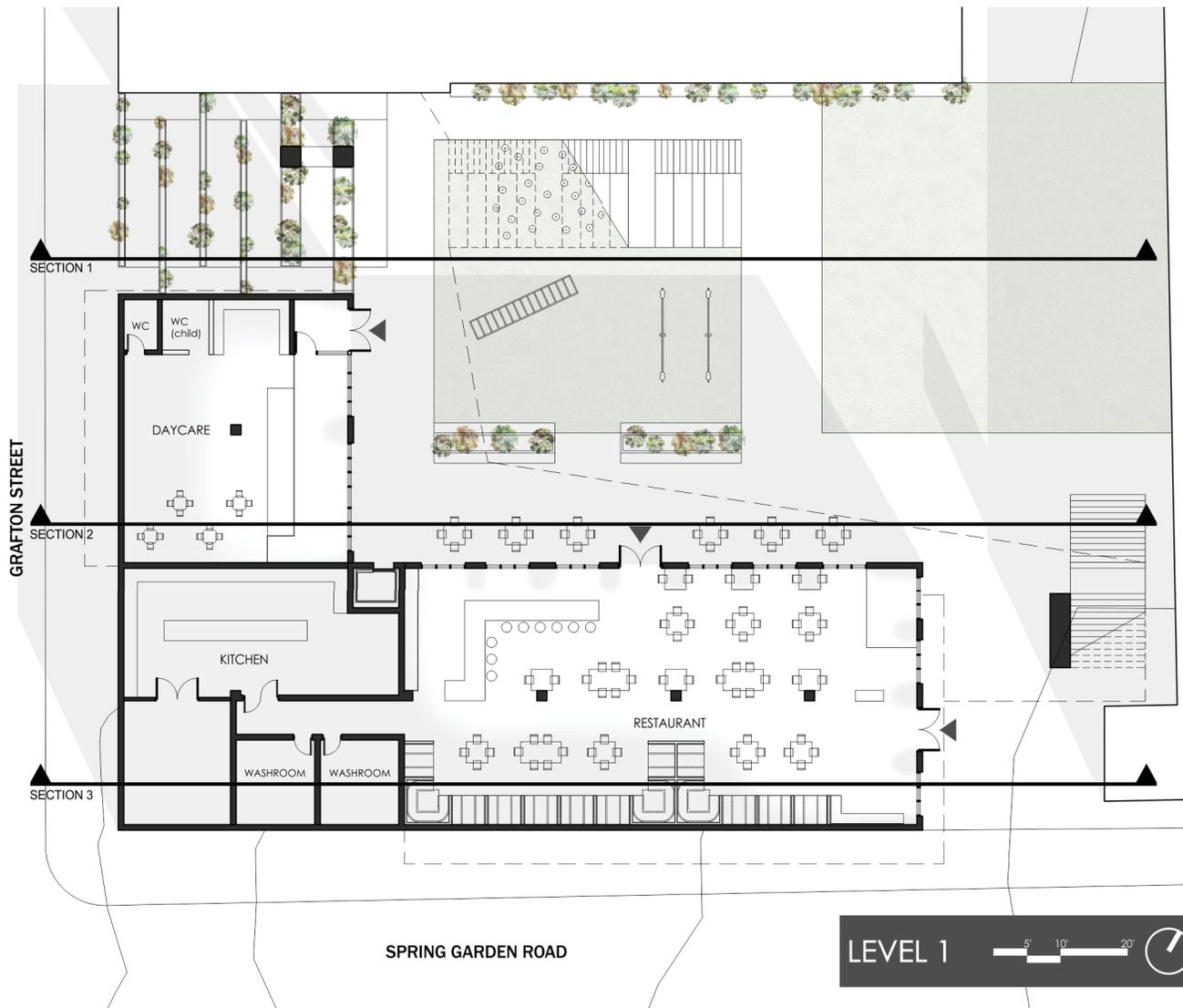


Figure 26: Building Floor Plan, level 1

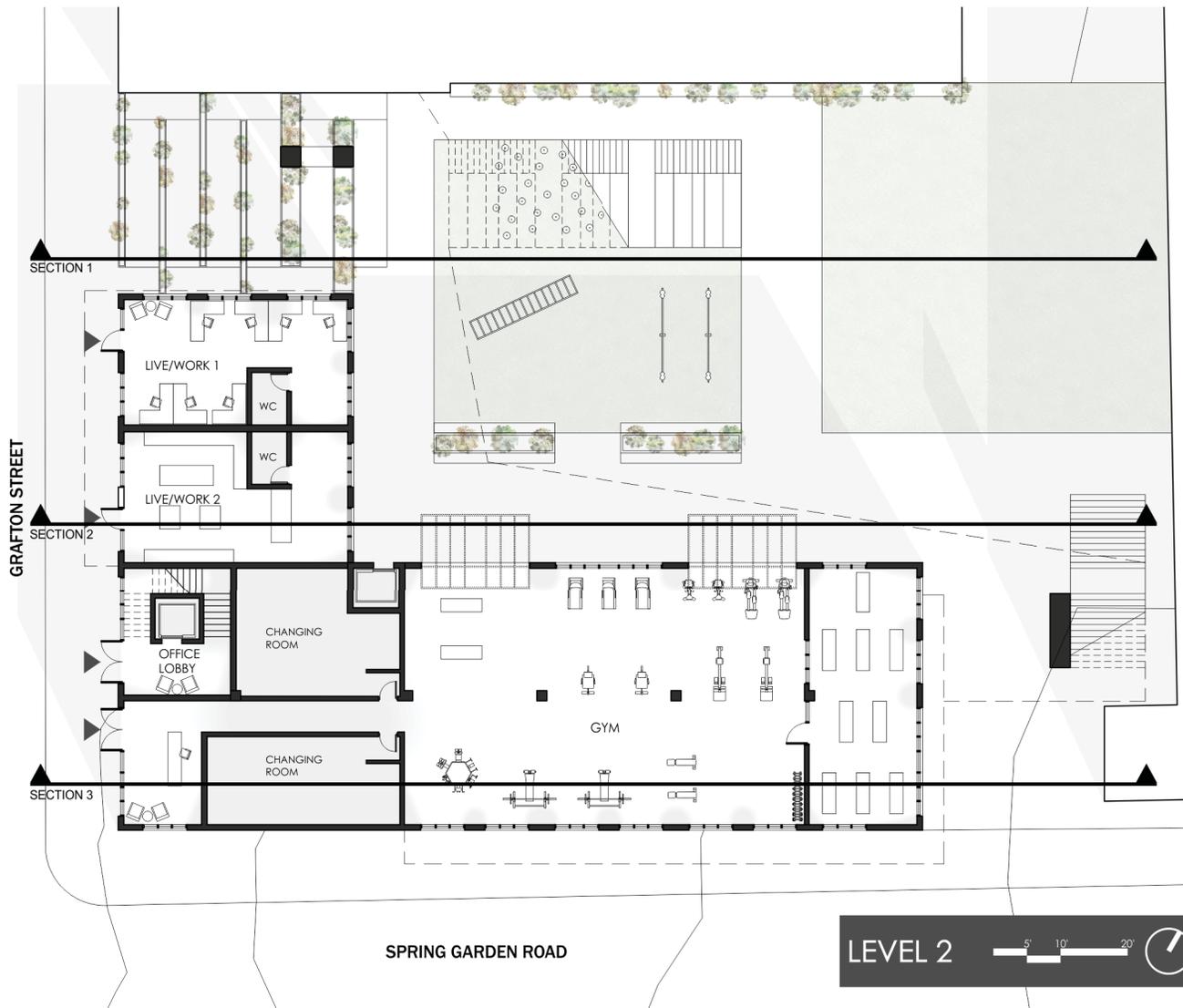


Figure 27: Building Floor Plan, level 2

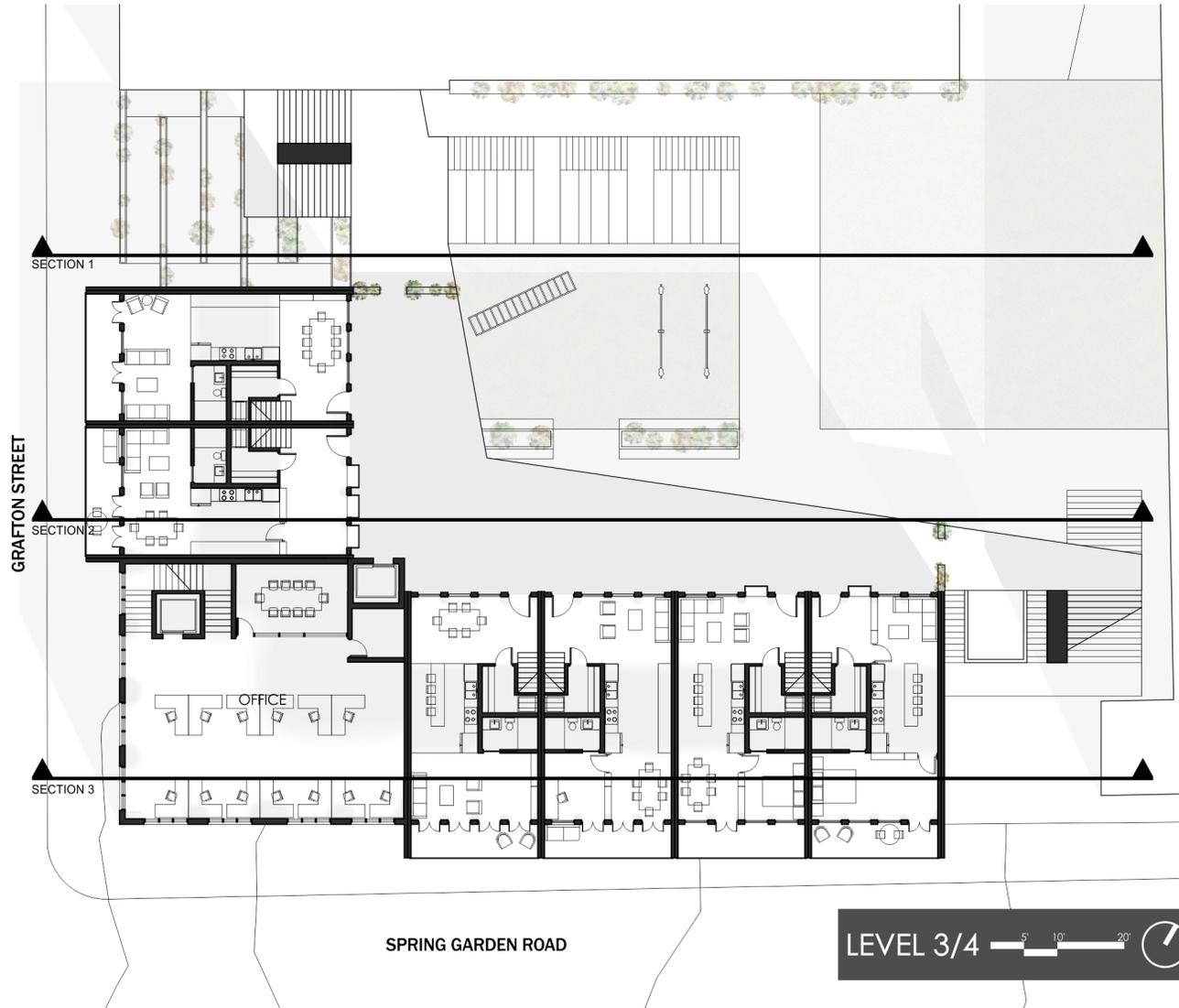


Figure 28: Building Floor Plan, level 3 & 4

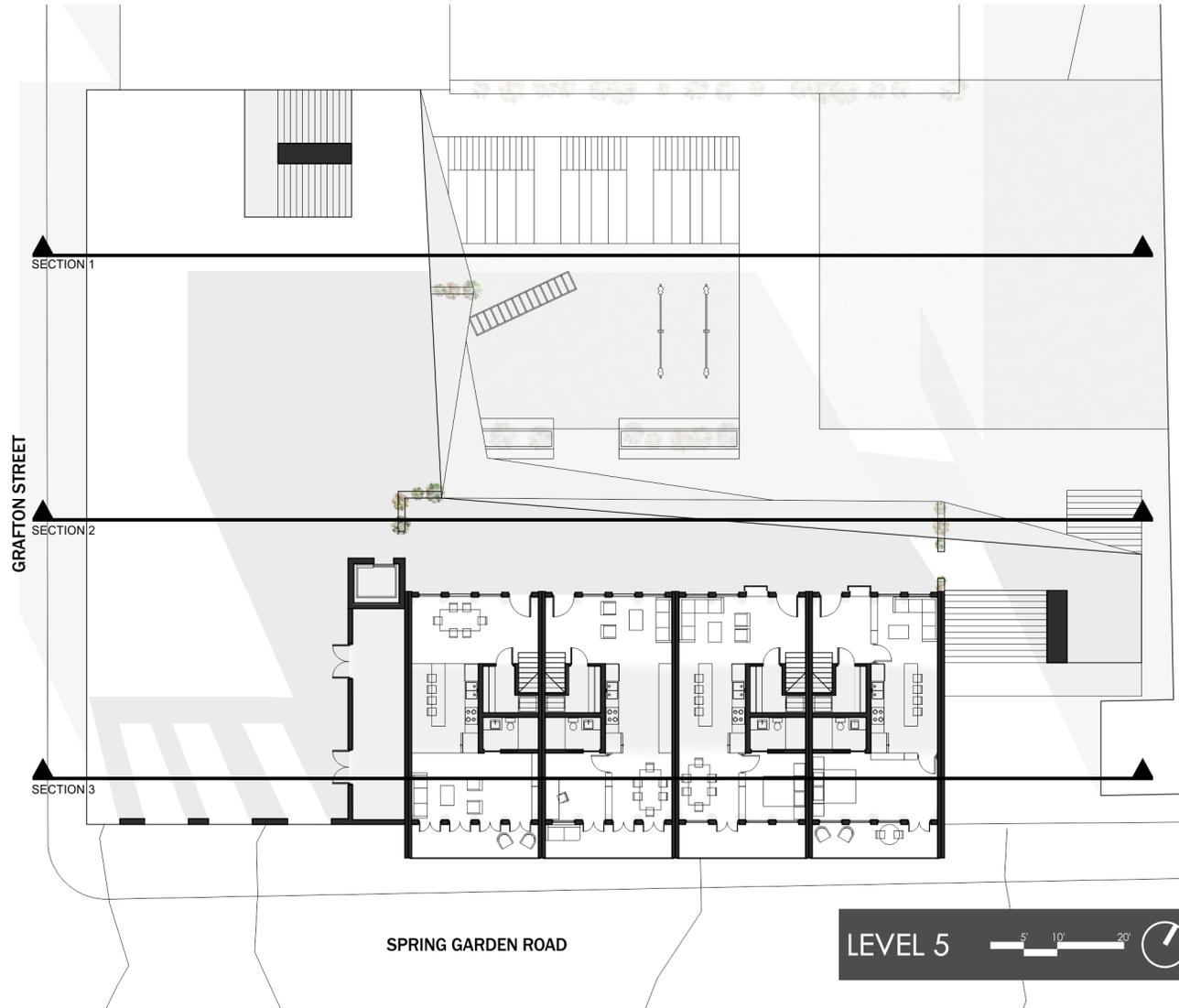


Figure 29: Building Floor Plan, level 5

For a rich immersion of live, work, and play, the everyday needs of the family are incorporated. The surrounding site analysis revealed that the tenant families could benefit from the integration of a daycare center, a playground, and a recreational activity space. Though the site is within a ten minute walk from two existing daycares, as a facility that will be accessed twice a day for a number of years by almost every family, incorporating a daycare facility would greatly improve efficiency and livability for tenants with a relatively small amount of designated interior floor space needed. Families using playgrounds have one young child or more. For families with young children, a five minute walk to the nearest playground where they may stay for multiple hours requires a fair amount of preparation and planning by parents. By incorporating a playground that is within both visual and aural range of the home, many of the preparation worries a parent may have, such as snacks, nearby washrooms, changing weather, injuries, etc, are limited. The incorporation of a recreational activity space has the potential to involve many of the tenants and many of the surrounding community members, typically reaching almost every stage of the family life cycle. Though many of the integrated programs, i.e. the daycare, restaurant, gym, and live/work spaces, already contribute to a healthy density of work opportunities in the area, two floors of leasable office space not only increase work opportunities but demonstrate principles of vertical inhabitation by existing at the same level as housing.

Fostering community at the neighbourhood scale means designing a building that contributes to its surroundings while its surroundings contribute to the overall livability of the building. By incorporating programs that are lacking in the surrounding area and allowing public access, the project becomes a necessity for the tenants as well as the surrounding neighbourhood community (Figure 30). Allowing the public the use of the restaurant, the playground, the yard space, the rooftop and access to the daycare facilities ensures these areas are well used and economically sustainable. Due to the mid-rise height of the building and that it consists of only sixteen units, it is possible that there may be years where there are fewer tenants within a particular stage. For example, should there be few young children present for a number of years, a daycare or playground may be difficult to maintain if limited to building tenants only. Public access allows these facilities to remain open and available for tenant use when needed.

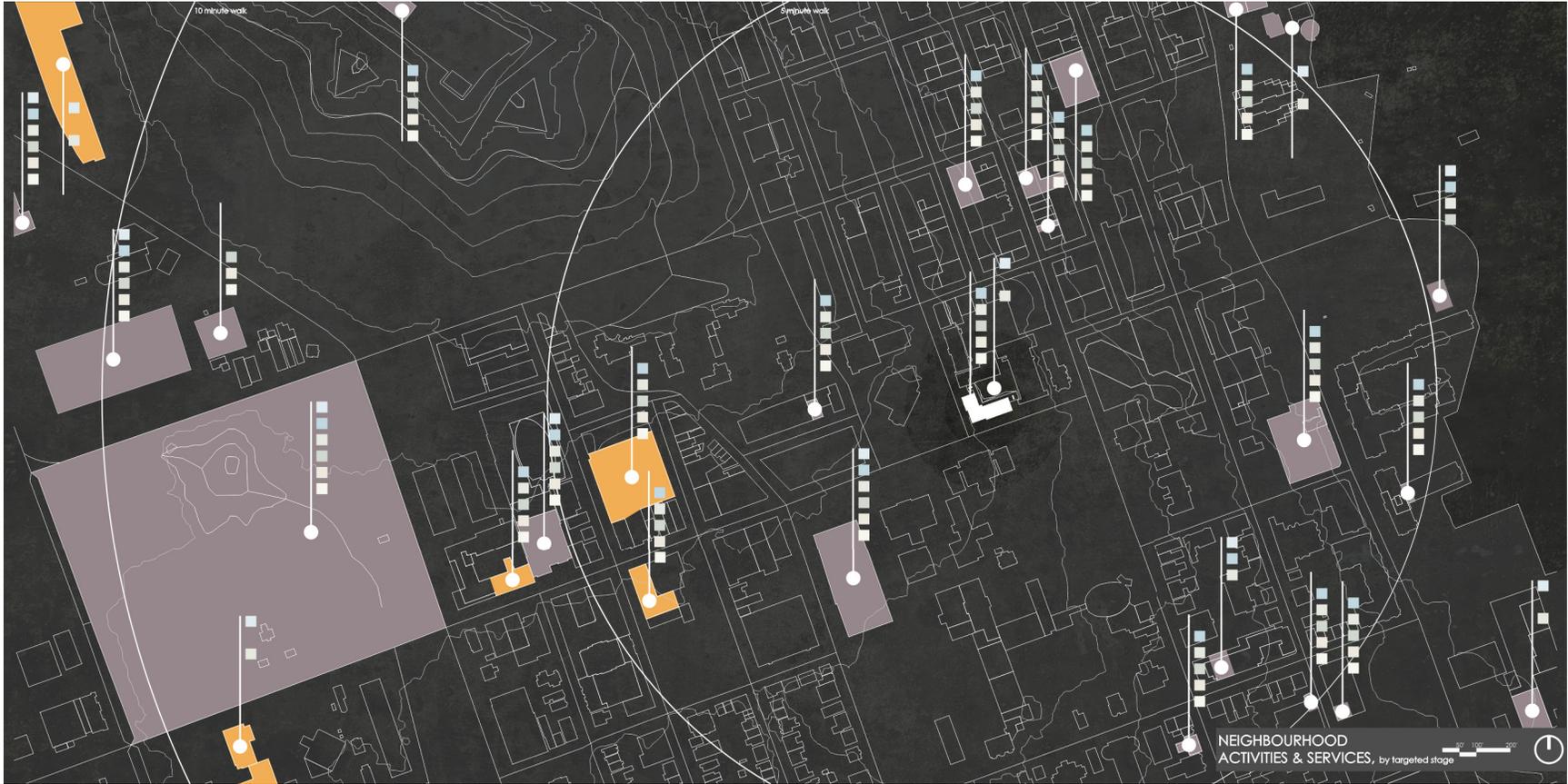


Figure 30: Neighbourhood site plan showing activities and services with their related life cycle stages. The project contributes to the (relatively scarce) programs relating to Childhood in the area.



Figure 31: Complete inhabited sections 1, 2, and 3



Figure 32: Inhabited section 1, partial



Figure 33: Inhabited section 2, partial



Figure 34: Inhabited section 3, partial

Social circulation is employed throughout the building by allowing various programs to occur alongside the circulation space. Vertically, the project's circulation consists of three objects; two social staircases and an elevator. These three elements connect the ground floor yard to the shared tenant corridors and the public rooftop. Creating seating for its users in the ground floor yard, the stairs begin by shifting into auditorium seating with dispersed planters. As a user travels vertically through either staircase, they circulate through spaces used for lounging, gardening, and play. Lounge spaces include seating for small groups around a firepit and individual seating cubbies nestled into the stair's structural core. Gardening spaces include horizontal planters alongside the stairs and vertical vine planters enclosing a landing. Play spaces include suspended netting and slides. The shared tenant spaces become social circulation through corridors that are of ample width to encourage inhabitation by the individual alongside their neighbours. Social circulation across vertical planes is created by alternating corridor widths, allowing a user to visually connect with the corridors above, below, or across.



Figure 35, 36, 37: Vertical programming of the social staircases

An urban family housing project must be able to adapt to the needs of each family as their individuals concurrently shift between life cycle stages. In the public spaces, while the playground and the programs integrated throughout the social staircases are fixed, a large portion of the ground floor yard and the rooftop remain flexible. This flexible, open space allows both tenants and the community to use the areas as they like. In this way, not only can a space change long-term, should the building's focus shift in the future, but a space can change from day-to-day or even hour-to-hour. The same space can be catered for an activity pertaining to those in the childhood stage as to those in the seniors stage, or anywhere in between. The same approach is used for the semi-private, shared

tenant corridors leading to each individual unit. Other than the planters creating pinch-points enclosing the tenant only areas, tenants are able to use the shared outdoor space as they see fit. This includes the possibility of inhabiting the space with individually owned furniture and can range in individual uses from child playspace to lounging areas to dining areas. A project that also adapts to seasonal changes facilitates family living by creating playspaces for all seasons while encouraging building and neighbourhood community throughout the often isolating winter months. This project includes the possibility of the seating area of the main public stair (off of Grafton Street) to be retrofitted during the winter to become a toboggan run for children and the rooftop to be transformed into a skating rink for people of all ages.

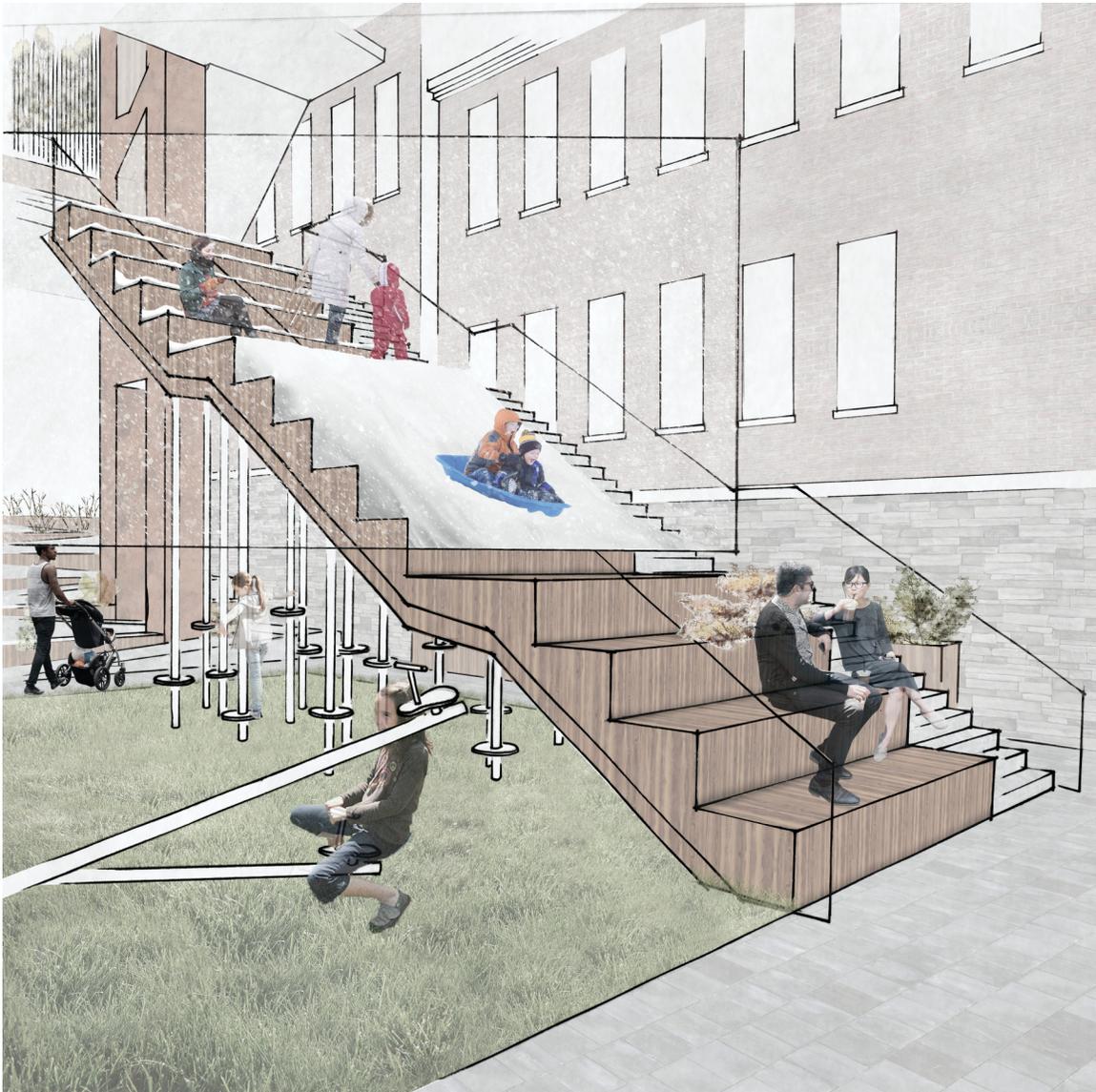


Figure 38: Seasonal adaptability of the social staircase



Figure 39: Seasonal adaptability of the rooftop

A community at the building scale facilitates family living by acting as a form of support network. Interaction among tenant owners is encouraged through their mutual use of the public spaces (the ground floor yard, the staircases and the rooftop) and the mutual inhabitation of the tenant only, shared corridors.



Figure 40: Community atmosphere of the public yard

The safety of its users is fundamental to the livability of a building. Having a direct impact on safety and atmosphere, the integrated programs have users dispersed throughout the day while using common spaces. The early morning is occupied by tenant families and gym users before work. Children in the daycare center and professionals occupying the commercial areas inhabit the building during the late morning and afternoon, typically occupying outdoor yard space at different times as children go outdoors to play and indoors for lunch while the working man or woman goes on lunchbreak. The evening is occupied by tenant families as children play in the yard while supper is being prepared. The yard at night is occupied by adults, perhaps simply relaxing or getting in a

workout before bed or enjoying a drink with neighbours on the roof, all within range of the baby monitor. These various programs allow a constant presence of ‘eyes on the yard’, ensuring continual safety of the shared common spaces through visual connections. The restaurant, daycare, live/work spaces and gym include large window openings in their façades towards the street, the rear yard and the access alleys. The social staircases are flanked by the populated street on one side and the populated yard on the other and remain in view of the shared tenant corridors and from the interiors of multiple units. The public rooftop is in close connection to housing, occupying the same level as four of the building units. The rooftop being unisolated ensures that, although public, it remains a safe area throughout the night.



Figure 41: Diversity in users of the yard through program

Moments of play pertaining to each of the six stages of the family life cycle are integrated throughout the design. The playground and toboggan run provide playspace for children and the skating rink provides playspace for all ages, except seniors with limited mobility. Playspaces for adults are incorporated in the form of the gym and the restaurant, both remaining open to the public as well as various different lounging experiences and gardening opportunities.

6.4 The Unit

The units are designed for adaptability throughout the family life cycle. The modular, pre-cast concrete units, in a 'U' shape, have a service core containing the stairs, a storage closet with washer and dryer, washrooms on both the lower and upper level, and a utility wall with kitchen plumbing and electricals (Figure 42). This service core is the only fixed element in the floor plans; the units can then further be divided by movable storage walls, as the distance from the service core to each of the three opposite outer walls is ten feet. Using an approach similar to the Amstelloft case study, the second floor is only partially complete in the base model. A second storey can be incrementally added with wood-framing or removed based on individual family needs and available funds. These modular units are capable of suiting a family with one, two, three, or more children and its supporting services make it suitable for single-parent or dual-earner families. Capable of adapting from a four bedroom unit to a one bedroom unit, as children age and move away from the home, parents are allowed to age-in-place in their beloved home and neighbourhood.

For tenants in the Young Adult stage, the unit may consist of a one bedroom, second floor loft, totalling an interior floor space of 886 square feet (Figure 43). For tenants in the Childhood or Parenting stage, the unit may consist of three bedrooms on the second floor and a possible office or fourth bedroom on the first floor (Figure 44). This unit configuration maximizes total interior floor space at 1,266 square feet. Tenants in the Empty Nesters stage may require flexible bedroom spaces, capable of adjusting to an inconsistently changing family size. Children may be periodically returning from university for multiple weeks, but leaving rooms vacant for the majority of the year. For Empty Nesters, the unit may consist of one bedroom and a flex space on the second floor, with a possible first floor office (Figure 45). The second floor flex space, of 190 square feet, can be used as a hobby room and intermittently divided into two bedrooms by the movable storage walls

when needed. Tenants in the Retirees stage may chose a unit configuration of one or two bedrooms (for guests) or they may chose to use the excess square footage as an extra source of income. The unit may consist of one bedroom on the first floor, with the second floor converting into a two bedroom rental unit (Figure 46). This floor plan creates a shared entryway with access to the unit's storage and laundry facilities. For tenants in the Seniors stage, concerns over mobility means limited access to the second floor. The unit may therefore consist of one bedroom on the first floor with a flex space on the second floor for visitors, possibly children or grandchildren (Figure 47).

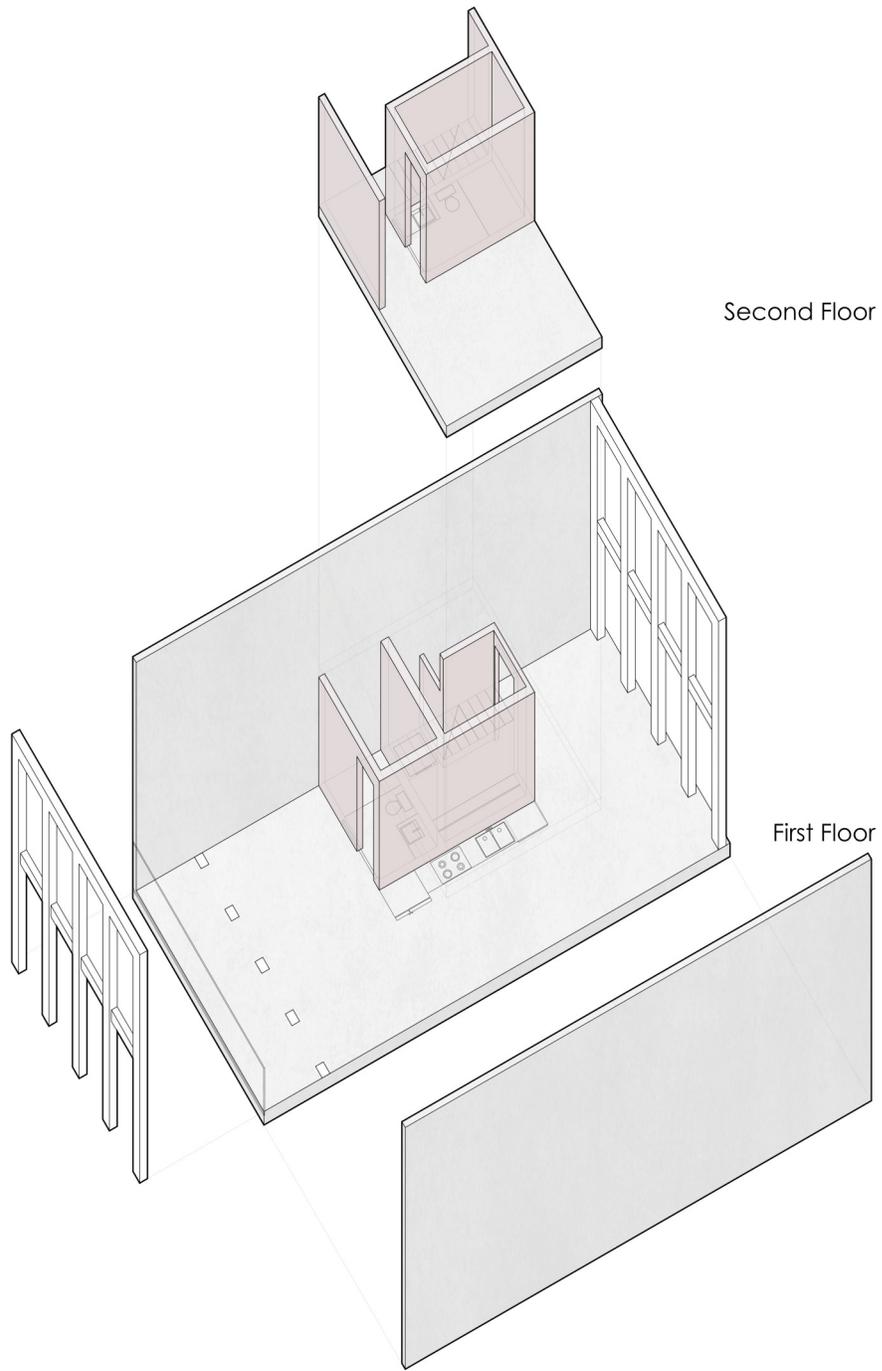
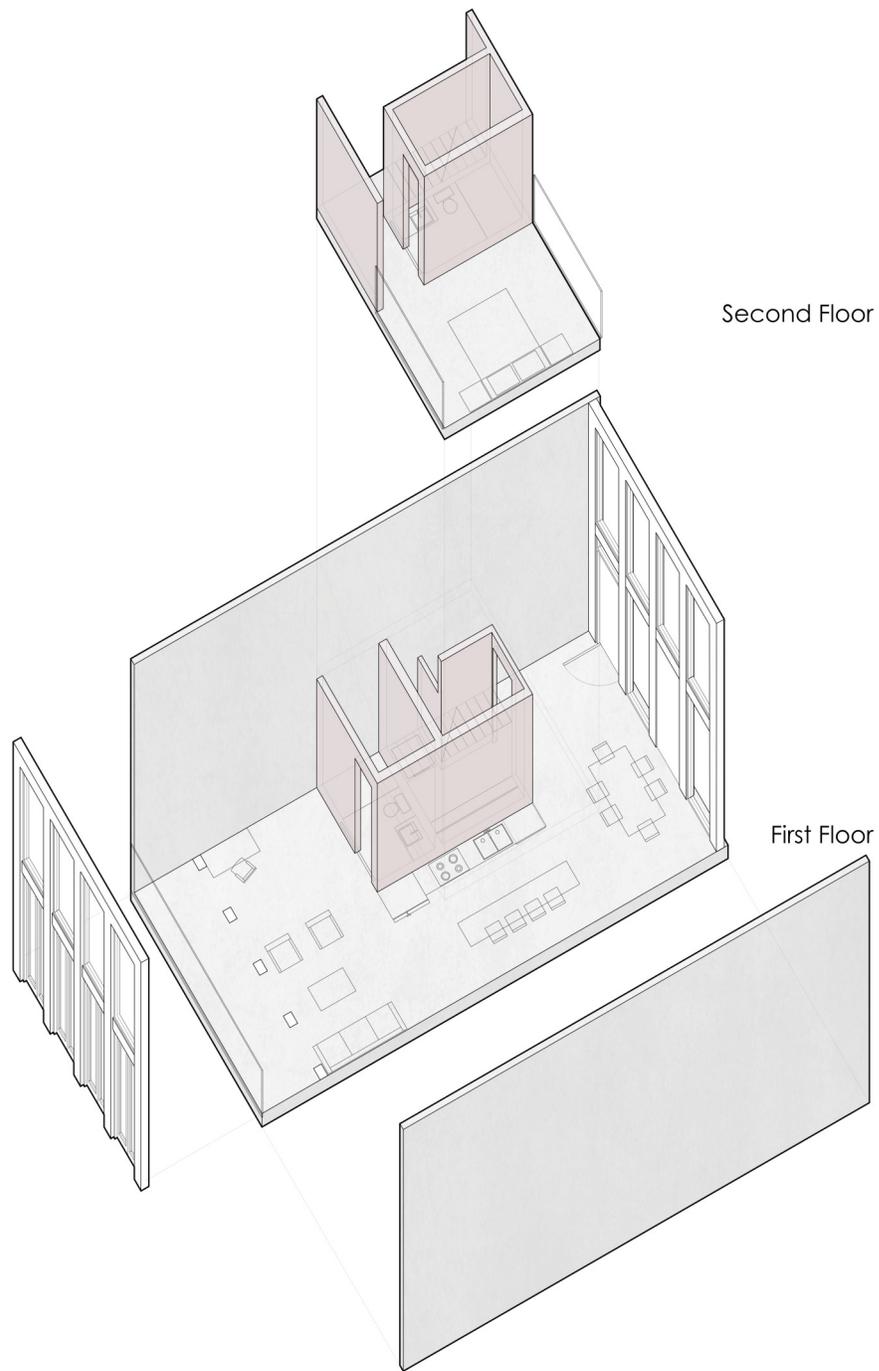


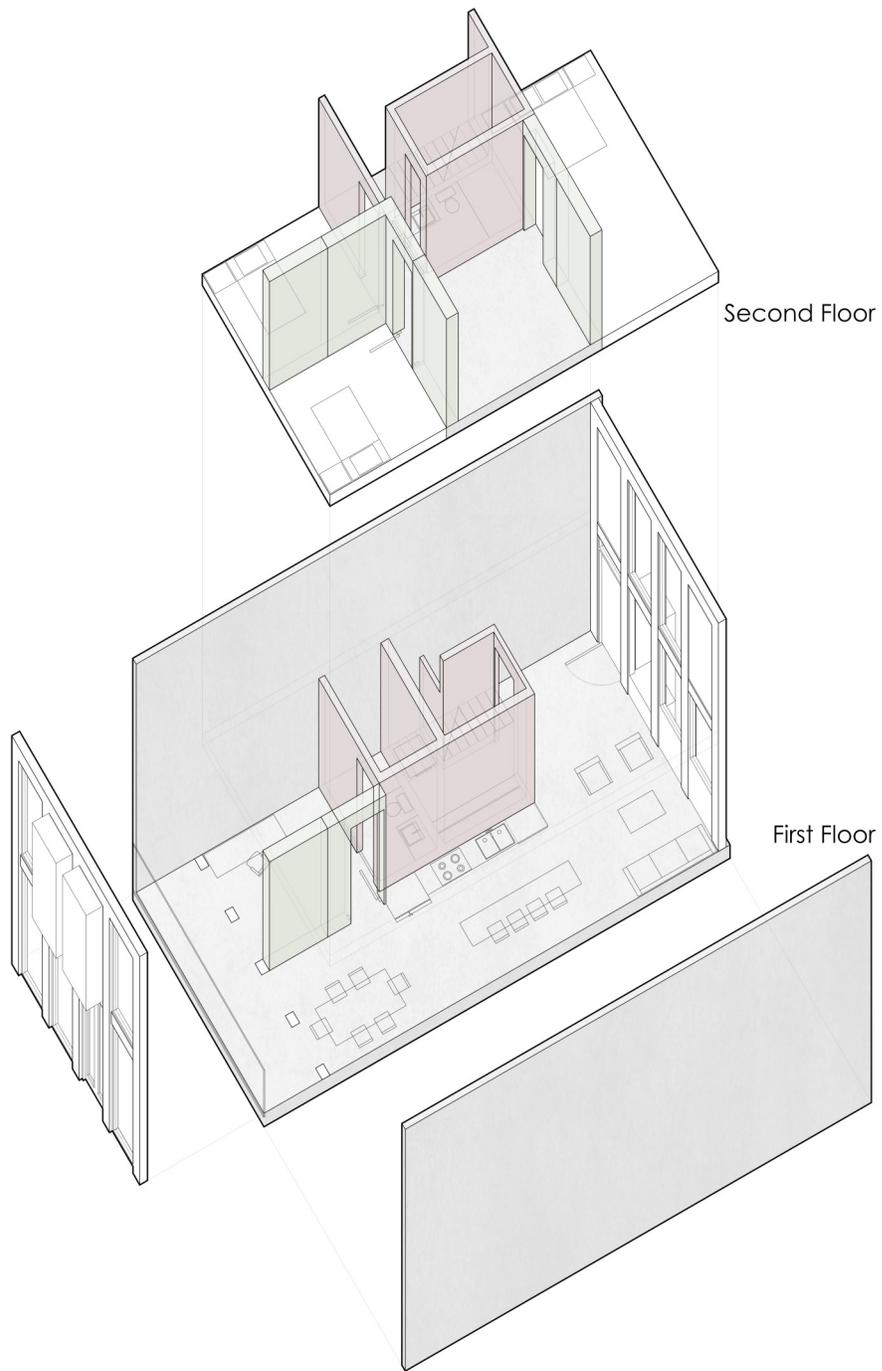
Figure 42: Base Unit floor plan



1 Bedroom Loft



Figure 43: Possible floor plan configuration for the Young Adult stage

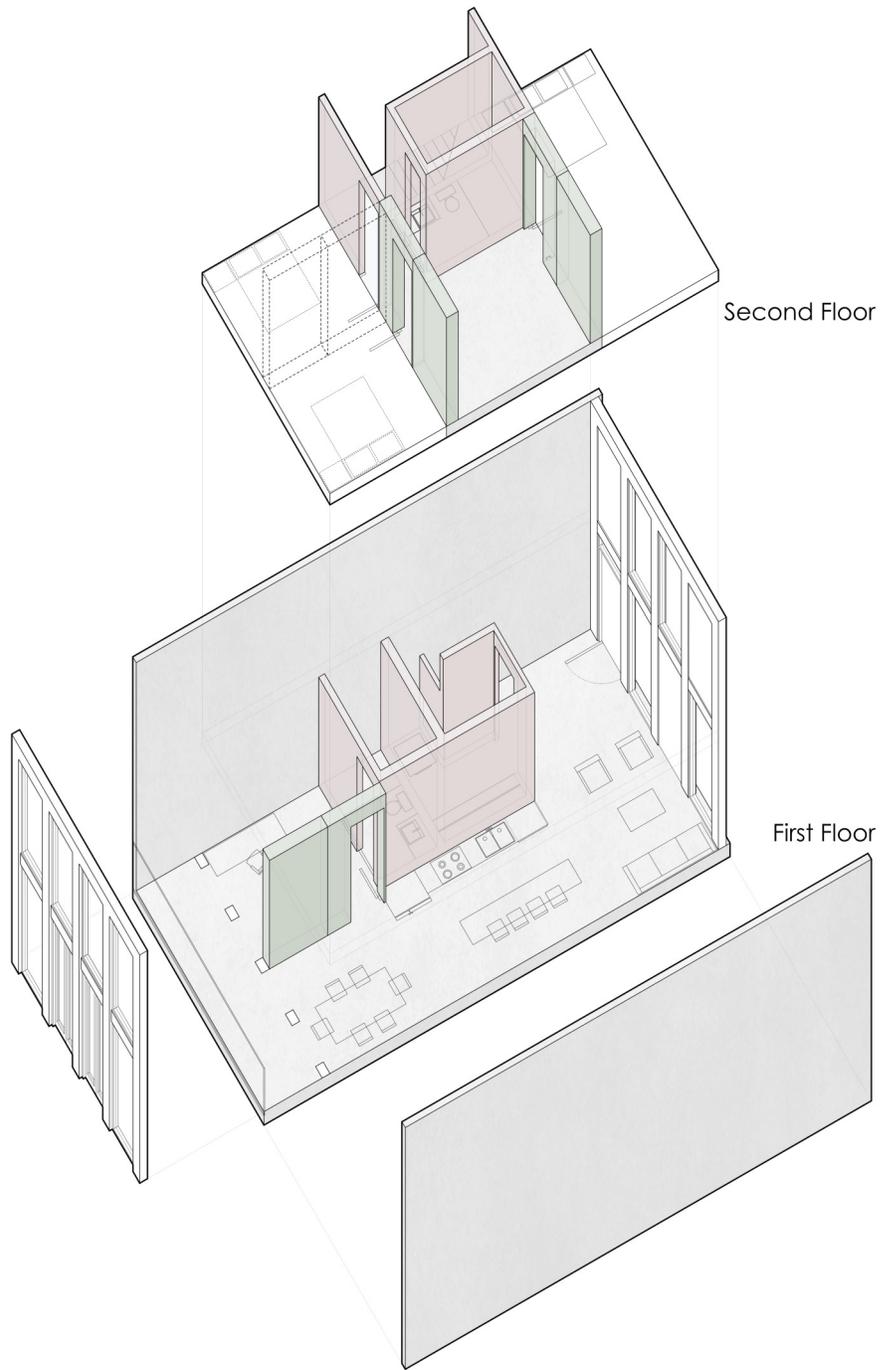


3 Bedroom + Home Office

CHILDHOOD/
PARENTING

A scale bar with markings for 2, 5, and 10 feet.

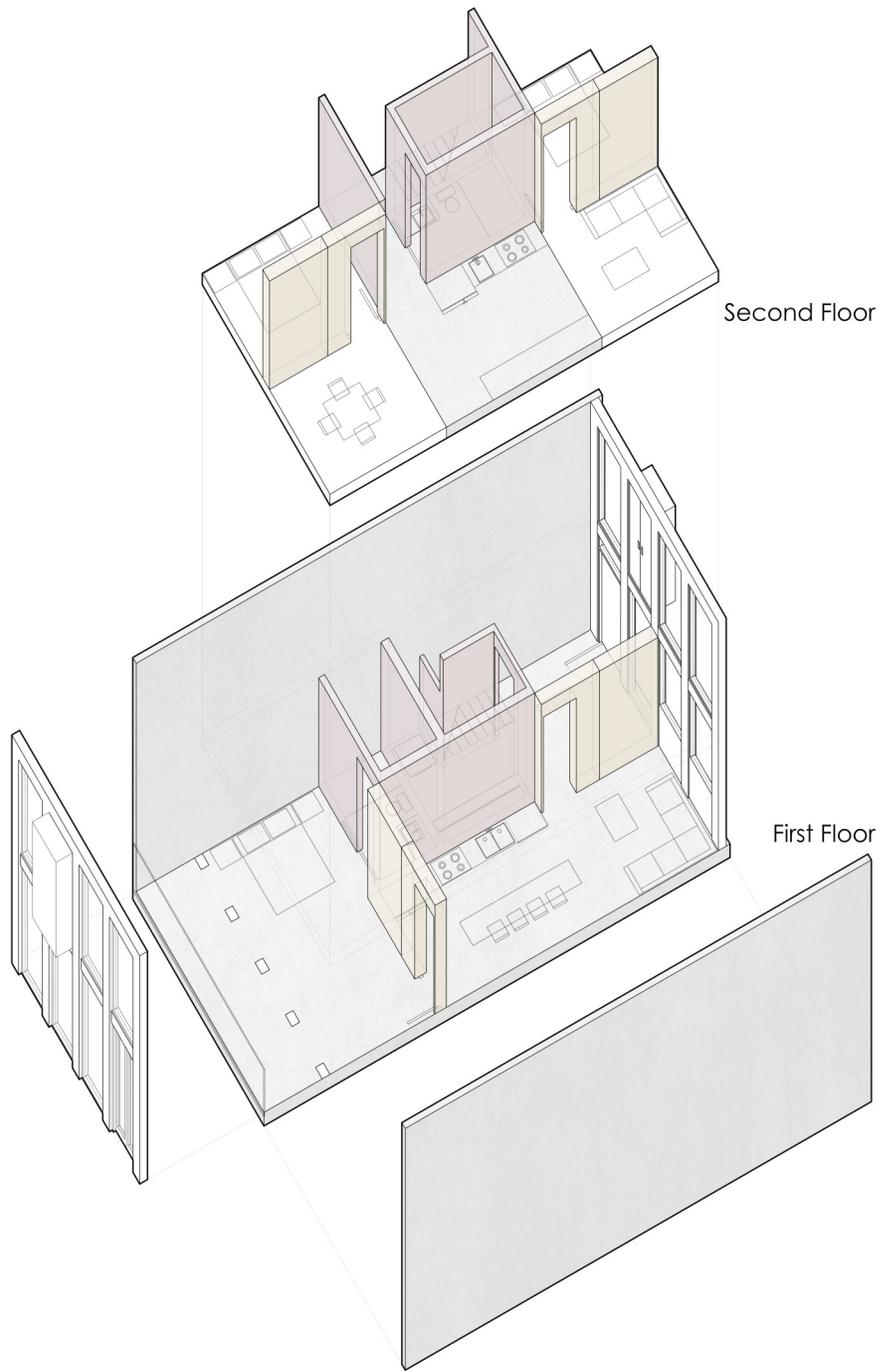
Figure 44: Possible floor plan configuration for the Childhood/Parenting stage



1 Bedroom + Flex Space +
Home Office



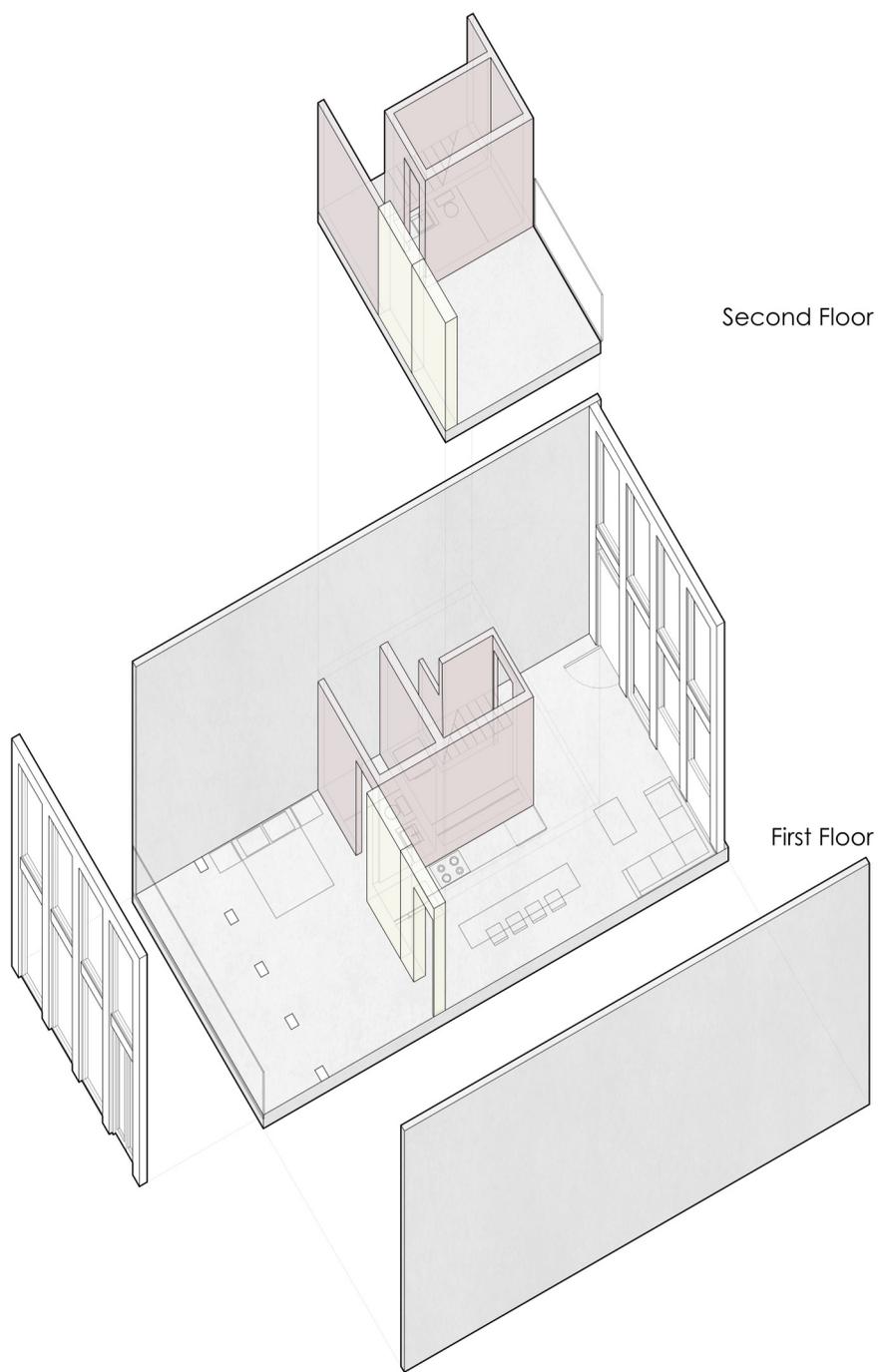
Figure 45: Possible floor plan configuration for the Empty Nesters stage



1 Bedroom +
2 Bedroom Rental Unit (second floor)

RETIREES

Figure 46: Possible floor plan configuration for the Retirees stage



1 Bedroom (first floor) +
Flex Space

SENIORS

A scale bar with markings for 2, 5, and 10 feet.

Figure 47: Possible floor plan configuration for the Seniors stage

The two modular, exterior facades can react to the individual family's layout by customizing with easily removed 'plug-in pieces', each measuring three feet six inches wide by eight feet high. The options for these modular 'plug-in pieces' include a full transparent window, a half window, an opaque panel, the front door, french doors, a bay window (acting as a lookout post into the shared yard), or even additional storage space. This adaptable strategy for the unit facades allows a family to customize privacy to their own individual comfort, limiting any unwanted views from the shared tenant corridor or from the public street below (Figure 48). Creating additional privacy that, as opposed to the facades, can be adjusted on a daily basis, is a set of retractable panels enclosing the unit's private balcony, each facing the public street (Figure 49). These horizontally sliding panels allow light and air flow to enter the balcony, while limiting views from passing cars and pedestrians. Additionally, the panel system, with its locking mechanism, can be used as a safety measure while young children or pets are present, preventing possible falls.



Figure 48: Adaptability of the unit façades in creating the desired level of privacy



Figure 49: Adaptability of the unit balcony in creating the desired level of privacy and safety

Figures 50 and 51 show possible building configurations, focusing on studying the relationship of each unit to the yard, the street, and neighbouring units. To facilitate urban family living, the building's configuration (Figure 52) emphasizes the need for each unit to have an experience of both the street and the yard, much as it would in a suburban setting. Each unit has a direct and similar relationship to the elevated yard spaces: the shared tenant corridors. Important to user safety and comfort, the shared tenant corridors avoid any dead-ends; the 'L' shapes terminate with the social staircases. Due to the two glazed facades in each modular unit, the building configuration also avoids any two units meeting end-to-end, in order to preserve privacy.



Figure 50: Programmatic Building Axonometrics showing unit relationships to the yard



Figure 51: Programmatic Building Axonometrics showing unit relationships to the yard

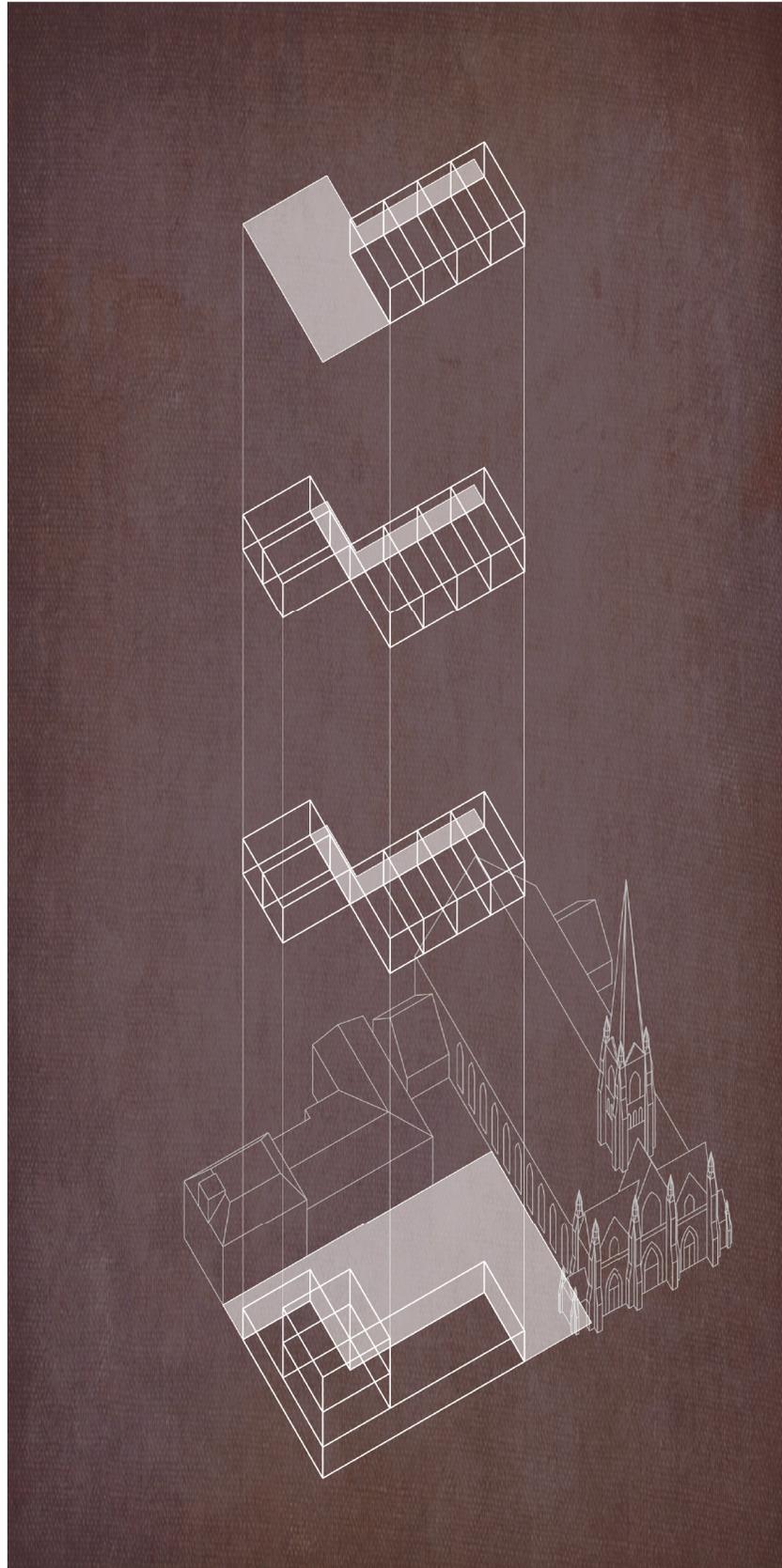


Figure 52: Programmatic Building Axonometric showing unit relationships to the yard

To further increase both privacy and safety, the building's design creates a series of thresholds, moving from the public street to the interior of the private home. Each individual unit is accessed through a circulation system moving from the public, ground-floor yard, to the public social staircases, through the implied threshold created by a narrowed access, to the semi-private, tenant-shared corridors, and reaching the private home. This gradual transition from community to privacy allows for spatial separation from the public sphere, creating a greater sense of refuge and safety in the unit.

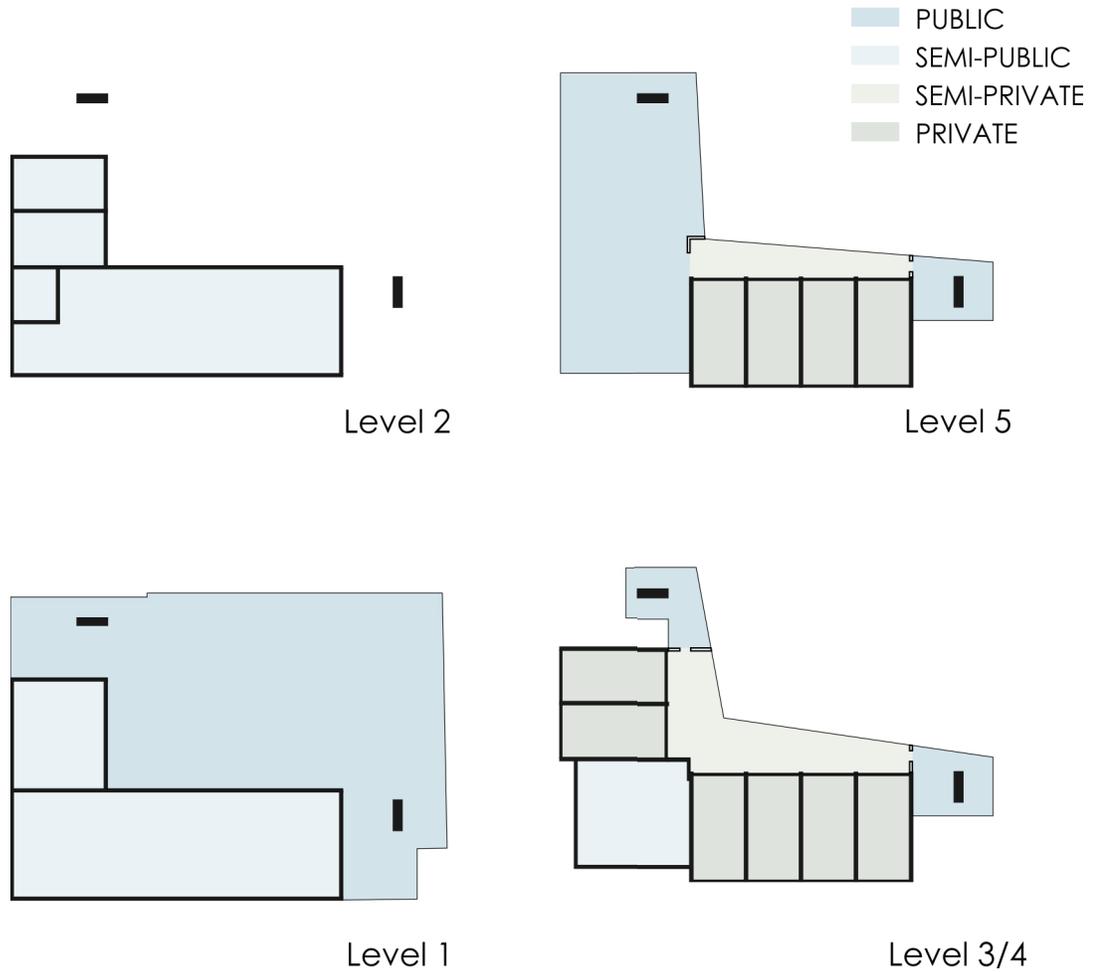


Figure 53: Programmatic accessibility

CHAPTER 3: CONCLUSION

North America's current family housing model, the suburban home, is becoming increasingly unappealing to its young families. Catering to parents prioritizing a certain lifestyle for their young children, the suburban housing model is a long-term commitment to a housing solution appropriate for a very narrow window of time in the family life cycle. While families refuse to make the formerly traditional move to the suburbs, urban housing is facing increased pressures in providing family-appropriate living that can adapt to changing family dynamics over time. So, how can North American urban housing be designed to support the family throughout the family life cycle?

Family housing, whether urban or suburban, requires much more than simply an increased number of bedrooms. For housing to facilitate urban family living, it requires design addressing the three scales: the neighbourhood, the building, and the unit. It also requires designing for the six stages of the family life cycle simultaneously. While current suburban and urban housing models often force inhabitants to move after entering a certain stage, designing for all of the family life cycle stages allows the environment to continuously fulfill the needs of its users as they age.

It is the integration of the public that allows the design to implement many of the outlined principles necessary to facilitate urban family living. Through the integration of the public, the tenant families benefit from building ties with the surrounding community, increased safety created by additional eyes on the yard, and the incorporation of greater activities and services.

Much as in the suburban housing model, it is the integration of the yard that creates the opportunity for a strong sense of community at both the neighbourhood and building scales throughout the design. Unlike the suburban housing model, the integration of the yard in an urban setting requires a broad, inclusive approach that includes public, semi-public, semi-private, and private space. With this approach, the urban yard can fulfill the same roles as in the suburbs that are so often lacking in traditional urban housing design.

Due to its carefully chosen location, this project is fully functional in facilitating family living as a stand-alone venture. This demonstrates the feasibility of urban family

housing and the capability of a city, developer, or group to begin its implementation in any North American city, without the need for a masterplan. The overall idea of the thesis in providing urban housing to families looking to integrate live, work, and play into the everyday, however, would result in a network of urban family housing concentrated in these areas of high activity and services. With repetition of the principles discussed in urban family housing projects across a city, the network of programs relating to people in each stage of the family life cycle can become incredibly rich and diverse. Since the family life cycle considers the needs of inhabitants from childhood to seniority, designing housing for the family life cycle is essentially designing for people of all ages. Therefore, despite being branded 'family-related', the incorporated programs greatly benefit the tenants as well as the surrounding community. This thesis approach gives the North American family a place in the city, where they can live long-term, and where the integration of live, work, and play is possible for the entirety of the family life cycle.

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