

Affordable Housing for the Future

by
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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis.
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ABSTRACT

Affordable housing is currently a hot topic amongst communities across Canada. The housing crisis commenced shortly after 1993 when the government withheld funding for new projects. Since 2001, a new Canada-provincial affordable housing program has been put in place. The provision of affordable housing not only offers shelter to a household but can act as a catalyst for the city, downtown or neighbourhood to revitalize and fix its existing conditions. This thesis explores many aspects of affordable housing from the evolution and typologies to perceptions and opportunities. This topic is complex because there is no one right answer. Parts of the equation, exterior forces, are always changing like family formations and lifestyles. The biggest challenge is the perceptions formed around the topic, some of which are not even true. Case studies of projects from around the world to the recent affordable housing projects located in St. Catharines help inform the design principles and strategies. The principles and strategies can encourage designers to create better affordable housing that will benefit everyone involved. The design principles incorporate all scales, ranging from the city to the individual unit, necessary to provide successful affordable housing. Although this thesis application is located in downtown St. Catharines, the design principles can be applied universally to provide affordable housing for everyone. I hope this thesis also acts as an educational tool to help inform the population about affordable housing and the people who live there.

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A big thank you to office 3021. You were fabulous.

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INTRODUCTION

The general public primarily has a negative perception of social or affordable housing. This sort of housing is often mis-represented in the public eye. It is embarrassing, for example, to hear some people's thoughts on the subject, which are filled with ignorance, and generally avoid any factual evidence. I often find myself defending affordable housing in conversations with such people.

Growing up in the north end of St. Catharines, Ontario there was virtually no social housing. Sometime during my childhood, I learned that single parents usually lived in social housing and I discovered that the kids at my school in this situation all lived in these particular townhouses up the street from the school. I recently found out that the townhouses in question are actually not social housing at all.

“The term “housing crisis”, as it is currently understood, essentially stands for nothing other than the worsening of the already miserable housing conditions, caused by the influx of people into the cities... [and] increases in rent..., a calamity that is not confined only to the working class, but one that is also starting to affect the small bourgeoisie as well.” - Engels, On the Housing Question, 1872¹

Many Canadians hold housing as an integral component to ensuring a decent standard of living. To ensure this standard, society provides not only availability to good health care but also access to affordable housing, employment sufficient for the cost of living, and support services for all in need. Affordable housing, however, is a continuous issue. Everyone needs affordable housing - not just people with lower income. Housing and housing-related items represent the single major expenditure for a typical household. These expenditures are even more pronounced when looking at a low-income family's budget whereby the house is first followed closely by food.²

“Housing is as essential as food. When income is too low, or income goes down, food expenditures get cut before rent.”³

Housing programs were created to address households that lack the means to buy or rent adequate, suitable housing. As the programs evolved, so did the terminology referring to Public Housing Program projects such as ‘public’ or

'government' housing. Along the way 'social housing' entered into the vocabulary. Essentially, all of these three terms fall under the following same definition: subsidized housing with reduced rent to 25-30% of the households' income. During the 1970's, the popular term was introduced called 'community housing' whereas today, the politically correct term is 'affordable housing'. For the purpose of this research, I will use the term 'social housing' when referring to the past and 'affordable housing' for the present. Social housing is considered affordable but affordable does not mean social housing.

Hulchanski writes that the government's role in providing low-income housing can be divided into four periods. The first period is from 1938 to 1963 when legislation was enabled to produce public housing. Unfortunately, it was never implemented. In 1949, the National Housing Act (NHA) was amended and launched a public housing program. Between 1949 and 1963, 12,000 units were built. Although the program had a relatively low profile, it nevertheless made the government look good in its support and participation. The second period, 1964 to 1984, included multiple amendments of the NHA that committed the government to build non-market social housing. During the 1970's, there was a push for inclusionary policies and programs. The third period, between 1984 and 1993, is marked by ongoing budget reduction that forced the continuous decline until its full withdrawal in 1993. The final period is from 1994 to 2001 that was quite similar to the first period. One change though was the devolution from the federal government to the provinces (and now municipalities).⁴ (See figure 1.1)

Currently, Canada is dealing with a housing crisis and a shortage of available affordable housing. If Canadians are considered to be one of the best-housed people in the world, what does shortage mean? In the 1980s, Hans Blumenfeld believed that "shortage can only refer to higher levels of demand."⁵ Blumenfeld further suggested other components rest behind the housing issue such as inadequate income, poor building maintenance and lack of interest in the environment.⁶ All of these factors contributed to the beginning of the maldistribution of housing; larger families in smaller housing and smaller families in larger housing. Everything mentioned thus far still exists today:

"The developing affordable housing "crisis" was said to be created by several factors including collective decisions by government not to build any new social housing since the early 1990's, a lack of private sector interest in private rental investment, and rent control deregulation



INCIDENCE OF CORE HOUSING NEED BY PROVINCE AND TERRITORY, 2001 AND 2006

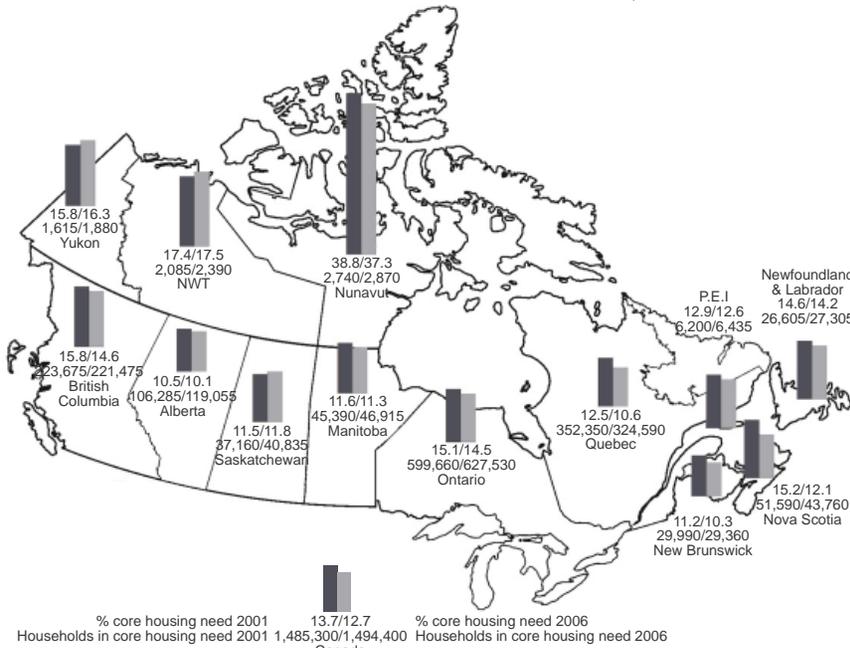
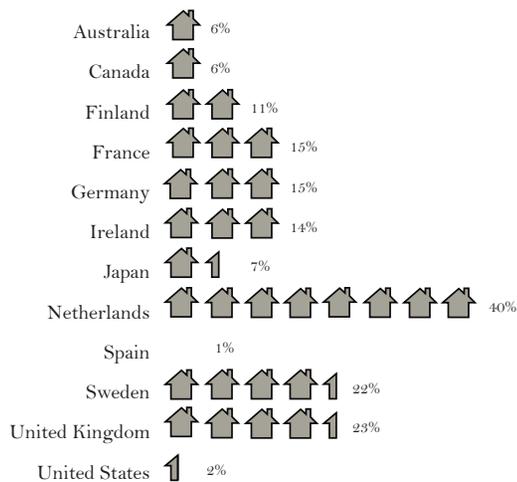


Fig. 1.2 Canada's core housing need statistics

Fig. 1.3 Provision of affordable housing by country



and cuts to welfare programs (particularly in Ontario).”

Housing conditions, however, in Canada have been improving. As of 2006, core housing need is at 12.7% of the total households down from 13.7% in 2001. Yet, the number of households in core needs has risen from 1,485,000 in 2001 to 1,494,000 in 2006.⁸ This percentage drop indicates that the population has grown and has built more housing but not necessarily affordable housing to those in need. (See figure 1.2) For the 12.7% of Canadians, obtaining affordable housing is either out of reach financially or attainable only if they cut-back on other necessities such as food.⁹ Of the 12.7%, 11.4% of the households failed to meet at least the housing affordability standard. The other 1.3% is either unsuitable and/or inadequate.¹⁰

Canada supplies 6% of Canadian households with non-market social housing. This is clearly not enough. In comparison, our European counterparts average around 20%. The Netherlands have 40% of their population living in social housing. We are just slightly above the USA who is at 2%.¹¹ (See figure 1.3)

The more populated provinces have higher numbers of families in core housing need such as Ontario, Quebec and British Columbia. When looked at the percentage of households to houses though, they are all on par with all other provinces except for the territories which average around 24%. Ontario's core housing need is at 14.5% in 2006 down from 15.1% in 2001. The actual numbers of households need have risen. In 2001, for example, Ontario had 599,660 households in core housing need and in 2006 they are at 627,530 households.¹² At the end of 2008, there were approximately 260,000 social housing units in Ontario consisting of 100,000 of public housing and 160,000 or non-profit or co-operatives.¹³ A rough calculation suggests 367,530 households are in need of affordable housing.

Again, the more populated cities or census metropolitan areas (CMA)ⁱ have more households in need of housing. Of course the metropolises are leading in the number of households in core housing need. Once you take away the metropolises (large cities) such as Toronto and Vancouver, the St. Catharines-Niagara region stands at 3rd from the top (under London, Ontario and Halifax,

ⁱ A Census Metropolitan Area (CMA) is an area consisting of one or more adjacent municipalities situated around a major urban core and which has a population of at least 100,000. A metropolis is a big city with a population over one million in habitants.

Nova Scotia) of the mid-sized cities when looking at the actual number of households in need. Although, over the last decade the number of households in need have been dropping, St. Catharines-Niagara still has 18,425 households in core housing need as of 2006.¹⁴ (See figure 1.4)

Low-income households face the hardest challenge in accessing affordable or acceptable housing. Households with the lowest incomes inhabit housing that is crowded, in poorer conditions and less affordable (core housing need). In 2006, 80.3% of those in core housing need had incomes in the lowest quintile, up to \$27,607.¹⁵ (See figure 1.5) These households are concentrated (56.3%) in the rental sector of housing. With less rental units being built and existing rentals aging and/or needing repair, lower income households may face an increase in housing costs.¹⁶ Renters tend to have lower incomes than homeowners, and therefore less choice of housing and narrower choice of neighbourhoods.¹⁷ Renters, single parents, non-family (mostly one-person) and seniors have a high risk of falling into core housing need.¹⁸

11,766,100 Households * in Canada	
1,494,395 Households in Core Housing Need	12.7%
4,319,100 Households* in Ontario	
627,530 Households in Core Housing Need	
260,000 Social Housing Units (approximately)	14.5%
141,635 Households on the Waiting List	
151,000 Households* in St.Catharines-Niagara Region (approx.)	
18,425 Households in Core Housing Need	
7,000+ Social Housing Units	
4,506 Households on the Waiting list	12.2%

* These data, from the Census of Canada, apply to all non-farm, non-band, non-reserve private households reporting positive incomes and shelter cost-to-income ratios less than 100 per cent.

Fig.1.4 Affordable housing statistics

CORE HOUSING NEED BY INCOME GROUPS (QUINTILES), CANADA, 2006 *

Income group	Income range	Number of households (thousands)	Incidence of core housing need (%)	Share of total households in core housing need (%)	Average household income before taxes (\$)	Average shelter costs (\$)
High	\$100,576 and up	2,353	0.0	0.0	168,498	15,604
Upper	\$67,848 to \$100,575	2,355	0.0	0.1	82,640	12,574
Middle	\$45,653 to \$67,847	2,352	1.3	2.0	56,292	10,513
Moderate	\$27,608 to \$45,652	2,353	11.2	17.6	36,464	8,849
Low	up to \$27,607	2,354	51.0	80.3	18,064	6,685
All households	NA	11,766	12.7	100.0	72,391	10,855

* Includes only private non-farm, non-band, non-reserve households with incomes greater than zero and shelter cost-to-income ratios (STIRs) less than 100 per cent.

Fig.1.5 Core housing need by income groups



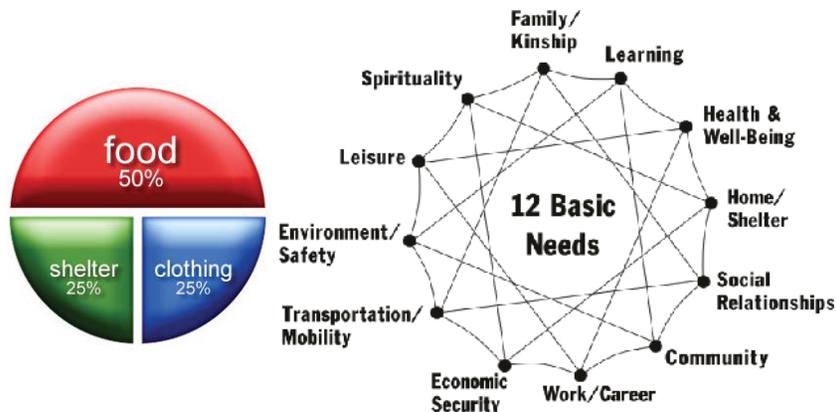
Fig.1.6 Homeownership

“It may be easier to argue that investment in social services and education will help such families reach a critical turning point. But housing is a critical, indispensable part of the equation; where people live is immensely important; to ignore the quality of their shelter is to undercut every other possible investment we make in them, for the federal low-income tax credit to local recreational programs.”¹⁹

Housing has evolved in the social realm of today. It is considered to not only be about protection and safety from the elements but now include homeownership as well. Homeownership is highly valued as a symbol of security, status, wealth, and general well-being.²⁰ “People invest much of their identity in their dwelling, and the individuality of their house reinforces their own self worth.”²¹ Our society places much weight put on people today to buy houses. Unfortunately, homeownership is not possible for everyone. Some people have a greater need for decent shelter rather than the pride of homeownership.²²

In policy terms, housing that is considered affordable means that either tenants or owners are not paying more than 30% of their income before taxes towards rent or mortgage (30% includes utilities but not furnishings or cable). For the purpose of this thesis, affordable housing is housing that is reasonably priced for the size and quality of space. Housing that is affordable means that all other basic needs like food and clothing are also affordable. All housing should be adequate in that it protects the inhabitants from the external elements and be structurally sound. Having access to affordable, adequate housing is essential to a healthy life.

Fig.1.7 Basic needs diagrams



“Housing is not only a necessity of life; it has a pervasive impact on all aspects of our existence. Housing – if it is adequate – provides privacy and security against intrusions, both physical and emotional. It is the principal locus of personal and family life. It defines our community and determines our access to jobs, to services, to stores, and to significant other people in our lives. It contains not only our material possessions, but our dreams and our despair.”²³

While it is recognized that affordable housing has many facets and outlets for exploration, some limitations to this research are recognized. Moreover,

this thesis will touch upon these micro topics but will not discuss them in depth: current recession or economy as it pertains to the housing situation; health topics related to housing; financing and purchasing or becoming a homeowner. This thesis investigates the past and current affordable housing conditions, the outcome it has on the people living in it and around it. The goal of this thesis is to provide universal design principles that can be used to provide quality affordable housing that reflects the people's needs and betters the community around them. Everyone can relate to housing which is another reason why it can be difficult to design and execute. The first memorable architecture, as a child, is the house or home. As a general statement, everything begins with the home. Architects should care about all the building forms, big or small. Rich people or businesses are not the only ones that need good architecture. A well designed house can foster good people. Like a cyclical reaction, well rounded people contribute to the vitality of their community, obtain jobs, live a healthy life, and give cause for architects to design more buildings.

This thesis is divided into three components. The first part discusses affordable housing from the beginning of its creation to its provision today. It also includes a discussion about the impact of affordable housing to the development of downtowns as well as the flow/connection of people and buildings; affordable housing typologies, perceptions, challenges and opportunities; and the role that such housing can play in becoming a catalyst in helping to revitalize mid-sized cities downtowns. The second part of this thesis contains a variety of case examples/precedents from which affordable housing projects is evaluated that are represented from various locations around the world and in St. Catharines (where newer examples are found). From these case studies and previous research, a set of design guidelines is produced. The third part is the design proposition/application of affordable housing units most appropriate for the downtown St. Catharines, Ontario. The final chapter concludes providing highlights of the research finding, personal reflections, and areas for further research.

“Adequate, affordable housing impacts individual’s disposable income, their ability to access employment, their health and their inclusion in society.”²⁴

ENDNOTES

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AFFORDABLE HOUSING

EVOLUTION

The average Canadian in 1945 was well housed; adequate with working plumbing. Canadians today are among the best housed people but it is on an unequal ground. Affordability has been a recurring problem throughout the years. The housing policy objectives continue to ensure that all Canadians are decently housed and that housing is affordable and available.¹ Social housing is needed for two reasons. First, the housing conditions for the low-income people are substandard. Secondly, it was believed that the private market was incapable of providing adequate housing at an affordable cost.² The 1938 National Housing Act (NHA) provided subsidized joint mortgage loans for the construction of public housing by local housing agencies.³ NHA amendments in 1944 introduced urban renewal programs and rents geared to income. Urban renewal was supposed to help the housing situation. Instead it displaced many families or provided families with equal or worse living conditions by poor design decisions. In 1949, public housing became a strong component of the overall housing production when they enacted the Federal/Provincial Public Housing Program. Subsidies were offered for new construction of private rental units by both governments during the 1970s and 1980s. The two principal components of the rental housing stock are public rental housing and private market housing.

Third-sector housing, non-profit and cooperative housing, emerged through a process of experimentation in the 1960s and 1970s. The third-sector contributed to the growing proportion of rental stock. Non-profit and co-ops have had some advantages over the other sectors because it is more carefully designed for the needs of its clientele. Moreover, they offer local community involvement in its financing, design, construction and operation.⁴ The 1980s introduced new terms and new cultural value such as 'core housing need' in 1985. Through housing research, CHMC developed the following set of factors to determine whether a household was in need of better housing: paying more than 30% of household income, person to room ratio according to the national standard (ie. overcrowding), and adequacy standard. If a person lives in any one of these conditions they are considered to be in 'core housing need'. Unfortunately, the fear of a housing shortage came to fruition. This decade brought homelessness to the public conscious and it has never left since. The new century brought on a wave of programs aimed at helping people with low-income to find adequate and affordable housing.



Fig. 2.1 Benny Farm, Montreal, Quebec - first social housing project in Canada

Fig. 2.2 Jeanne Mance, Montreal, Quebec circa 1950s



The Jeanne Mance public housing project in Montreal was typical of the early 1950s: large scale "slum" clearance, followed by the erection of a structure which bore little relationship to its surroundings, and lots of open green space.

In 2001, the Affordable Housing Initiative (AHI) was introduced through CHMC whereby the federal government provides contributions to the supply of affordable housing. The provinces and territories must match the federal investment that is stated in the Affordable Housing Programs Agreements.⁵

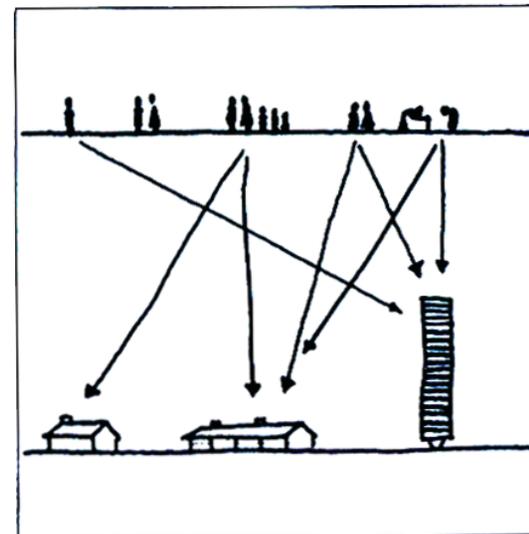
In 2003, the federal government’s budget included additional funds over the next five years for affordable housing through agreements with provinces and territories. The federal-provincial Affordable Housing Programs (AHP) marked a change in the funding and provisions for housing in Canada. This process has been a slow endeavour. New changes take time and a concern was noted about creating “a small “affordable housing” program that seems to produce more press releases than housing units.”⁶ Housing developments under the AHP still viewed the income as an eligibility to live in the units but they are no longer subsidized monthly. Funding is given out at the start to balance the construction cost. The AHP allows for market and affordable (80% of average market rent) units. Municipalities are responsible for applying for funds from their province and/or territory from the AHP. Today, the governments are providing the funds for private and third-sector developers to build affordable projects through the AHP.

The rental housing stock is important because households with the greatest affordability problems are mostly renters. Among all household types, there are more renters in core housing need than owners.⁷ As of 2006, this need increased to 65.7%.⁸ In the 1980s and 1990s, the demographic and social fabric of Canada’s population changed the way we studied the flow at which people move through stages of life and dwellings called this the “housing career model”.⁹ The standard model being that “young couples are thought to start with a small rented dwelling, save toward homeownership, eventually move to a modest owned home, and then later on to move or renovate to adjust housing space first to the flow and subsequently the ebb in family size.”¹⁰ (See figure 2.4) This standard has been changing since the 1980’s and today hand-in-hand with family formations. The five principal changes in the demographic and social fabric affecting the rental market are the aging of the post war baby boomers, decline of nuptiality, declining fertility, increasing longevity and substantial immigration.¹¹ Single parents and widowed elderly usually are renters who have lower incomes and often need housing assistance. These people are either stuck or forced to stay in the rental stage of life. Thus, rental units must be diverse enough to meet the needs of people at all stages of life and is an important component of the housing spectrum. That being said, we are continuously losing rental units to redevelopment and condominium



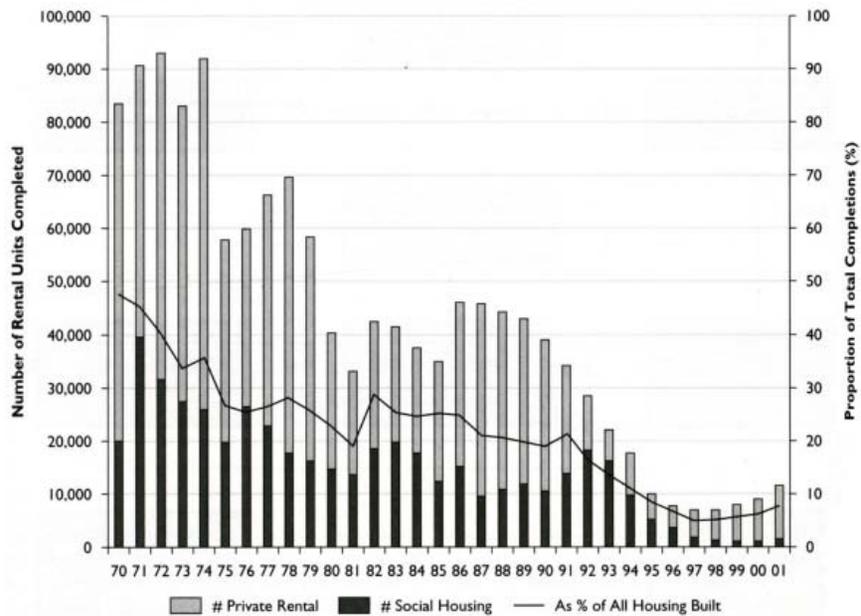
Fig. 2.3 Renters protest in Vancouver

Fig. 2.4 Stages of housing through life



We are born, grow up, grow old and the correct physical structure of the community must accommodate this inevitable process.

Annual Number and Proportion, Social and Private Rental Housing Units Built in Canada, 1970–2001



Note: Social housing includes all units funded under federal and provincial social housing programs, federal-provincial joint non-profit, co-operative, and provincial non-profit and co-operative housing programs. Data for completions of social housing over the years 1970 to 1981 are lacking, so data for social housing starts begun in the previous year have been substituted in their place. Source: CMHC, *Canadian Housing Statistics*, various years; CMHC (1999).

Fig. 2.5 Private versus social rental units built in Canada

conversions. Market developers do not receive big returns for building rentals, therefore are reluctant to engage in the rental sector. (See figure 2.5)

DOWNTOWNS

Some cities just happen to “get it right” be it the form, scale, structure, diversity of activities or any combination of these.¹²

Since the 1940’s, Canada’s population has become increasingly urbanized with people shifting to the larger cities.¹³ After the Second World War, a baby boom occurred with newly formed families of returning veterans who had a desire to live in the city. This trend triggered a housing shortage in the city and prompted families to seek out better home environments. Suburban living became the popular solution.

Since the introduction of the automobile, sprawling living arrangements and the American dream became more readily achievable. The ideal dwelling, a suburban detached house, created distances between home and work, school, shopping, and recreational facilities. Downtowns are left void of human activity during non-working hours and weekends – creating the perception of higher crime rates and unsafe spaces.¹⁴ Mixed use development can help bring back pedestrian-based activity throughout the day. A popular notion is that the safest streets are the ones filled with people walking.¹⁵ Residential developments in city centres are essential to populate the streets. They allow for living, working and playing to be easily accessible and within a manageable distance from one another. By having a close knit community, a feeling/sense of ownership and belonging by local residents helps decrease the number of crime incidents. Residents have pride for their neighbourhood and all contribute to ‘eyes on the street’.¹⁶

The issue of suburban development and subsequent core area decline also led to a refocus on business, institution, and manufacturing rather than residential development. In North American cities, it was not common for the above to intermingle as a result of zoning regulations and policy that separate uses.

Cities with reputations as being attractive and liveable utilize multi-land use patterns in their downtowns. Single land use zoning, unfortunately, interrupts the flow of the fabric. Layering programs in a building helps create advantageous mixed use development. For example, buildings at street level having shops, restaurants (commercial) followed by offices and topped off with residential. The residential portion on the top enjoys more sunshine, fresher air and less noise from the streets below. This strategy is popular in European cities such as Paris which has increased pedestrian traffic and encouraged more use of the public transit.¹⁷ Zoning should help encourage and shape new developments and promote change.



Fig. 2.6 Suburbs - Mississauga, Ontario

Fig. 2.7 Downtown shops - France





Bain Ave. apartments (first urban renewal?) 1920?

#3106

City of Toronto Archives, Fonds 1244, f1244_1t3106

Fig. 2.8 Bain Avenue apartments - Toronto, Ontario

Higher densities are better for city life and public transit. Public transit becomes inefficient when less people utilize its services. For low-income families, public transit is used for all life travels which mean it is important to their lives.¹⁸ Zoning can be part of the exclusionary problem increasing homogeneous or boring appearances to developments.¹⁹

“A central location also makes sense for single parents, since inner areas are better served by transit and the community services (notably daycare) that such households need.”²⁰

The 1960s brought “Urban Renewal” to rejuvenate cities through slum clearance, whereby residents were housed in high-rise apartments. Unfortunately, this movement damaged the existing social conditions. Gentrification, at this point, caused a rift in the long-standing social fabric displacing many low-income tenants within the city. There is a direct relationship between inner city gentrification, tenant displacement and the erosion of affordable housing.²¹

“Low-income projects that become worse centers of delinquency, vandalism and general social hopelessness than the slums they were supposed to replace.”²² - Jane Jacobs

Providing affordable housing in downtowns offers positive spin-offs for the city and for the residents. Affordable housing helps not only the city to thrive but the residents to not feel so isolated as well.²³ When a choice is available to residents, location becomes the major factor. Downtown locations can offer a variety of amenities and services in close proximity. If services are not readily available, bringing people in could speed up the process of providing services and be a catalyst for revitalization. A downtown with vibrancy, diversity and density is a great amenity onto itself.²⁴

TYOLOGIES

During the early twentieth century, Karel Teige was studying the small apartment (minimal dwelling); the basic housing option for family households. Teige participated in the Third International Congress of Modern Architecture that was held in Brussels and discussed the subject of high, medium or low-rise houses with small apartments.²⁵ No single solution was offered from the congress and Teige concluded that “...until it has been established which social class a given housing type is to serve, it will not be possible to provide a correct answer...”²⁶

There is no one type of affordable housing. It comes in all forms such as townhouses, apartments, single and semi-detached houses. These housing forms can be provided by all sectors: private, public and non-for-profit. The tenure for these buildings can vary from rental to co-operative ownership to ownership. Affordable housing can refer to any part of the housing continuum from temporary to permanent housing.²⁷ (See figure 2.9)

Town Houses

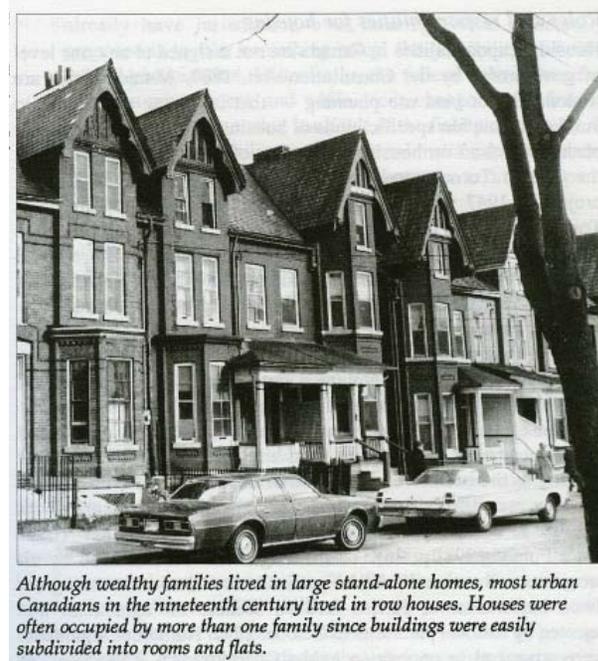
Even though there is no one type of affordable housing, there are some building typologies that are mainly associated with either social or affordable housing. While these perceptions may be fading, they nevertheless are still hard to shake. Row houses and town houses were primarily built during the Industrial Revolution. At that time, they were also called “by-law” houses that were considered to be minimum shelters with few small rooms distributed on two floors. Postwar row houses in North America had under-sized rooms and no redeeming features to make them comparable to the detached house.²⁸ The term ‘row house’ brought this image to mind and not the fashionable Georgian town houses in England. It is what they knew, learned, and understood as a row house. Thus, the general public did not want to live in squalid row houses because they were only considered appropriate for low-income families. Eventually, the spatial standards of a detached house were applied to row houses, upgrading their housing type to ‘town houses’ and in the process becoming more acceptable.²⁹ However, in mid-size cities, single detached houses dominate. Most town houses are usually associated with poorly constructed government housing projects that often leave residents with a misperception on this housing type.

Town houses are an appropriate housing type for affordable housing projects for many reasons. While being similar to the single family detached



Fig. 2.9 Housing continuum

Fig. 2.10 Row houses



Although wealthy families lived in large stand-alone homes, most urban Canadians in the nineteenth century lived in row houses. Houses were often occupied by more than one family since buildings were easily subdivided into rooms and flats.



Fig. 2.11 Pruitt-Igoe housing project - St. Louis, Missouri

Fig. 2.12 Pruitt-Igoe housing project - demolition 1970s



house, they use less land per unit and are more energy efficient, which in monetary terms, make them cheaper to live in.³⁰ Town houses provide clear boundaries, have direct street access and usually have a private backyard albeit smaller. One major issue with town houses is the uniformity of the exterior.³¹ People want their homes to represent their identity and individuality from the street. A little variety to the front facade, either constructed or through colours, could add an acceptable quality to the development.

High-rise Apartments

“There is abundant evidence to show that high buildings make people crazy.”³² - Christopher Alexander

Another popular housing type for affordable housing is high-rise apartment buildings. During their time of introduction, 1957 to 1984, they were the ‘in style’ and everyone approved of ‘modern’ buildings. (See figure 2.11) Therefore, the wide acceptance from the public began even though high-rise structures do not fulfill basic preconditions for good housing.³³ Low-income high-rises were termed high-rise tenements which lent to their negative perception. High-rise apartment buildings used to be for the middle to upper income families, with lavish appearances and luxury amenities. High-rise structures offer higher densities on less land and if the design is repetitious, the construction cost is less and faster to build. These aspects were viewed positively for the construction of high-rise tenements for low-income families. High-rise tenements lacked proper security and had poor maintenance contributing to their disastrous state of well-being and the negative impact it brought to a community.³⁴ These high-rise buildings failed to provide residents with adequate, safe housing. Security and safety was taken to be an amenity for the higher income groups. Oscar Newman has proven that crime rates are higher in high-rise buildings.³⁵ Design cannot prevent all crimes but it can help minimize the crime rates. Newman also criticized high-rise housing “as inappropriate for poor families” and his research contributed to the end for this use of housing type.³⁶ Some architects were convinced that apartments had a sense of community, a benefit unavailable in single detached houses.³⁷ High-rise tenements were stopped and in a lot of cases demolished in the 1970’s with the understanding that they caused more harm than good to the social makeup of low-income families.

“As for durables, the home should be designed to display ‘cars, caravans or motorboats’, a manifest impossibility in high density and high-rise projects where in any case opportunities for personalization of any kind are drastically reduced.”³⁸

Point Block

The point block concept, an early experimental housing type, is multi-family units (usually 4) around a centralized core. Some housing authorities in other countries, mostly in Europe, used this type for public housing. It had an advantage over the traditional high-rise because there were less people per floor. It allowed residents to ‘know’ their neighbours; slimmer structure causing less obstruction and shadow for the community.³⁹ Point blocks did not favour as well in North America due to the strict building code. The core became too bulky with two sets of stairs and at least two elevators. This added construction also made the building more costly so developers were inclined to double the amount of units per floor.

Mid-rise Buildings

Mid-rise buildings have been around for a long time. Before elevators were invented, people did not have a huge issue with walking up six flights of stairs. Parisian apartments are great examples of mid-rises with shops below on the street. Mid-rises, like most other housing types, can provide either larger or smaller units depending on the client. The height of the building means fewer occupants and can allow some recognition of your neighbours for safety and security issues. Construction costs can be lowered if built properly; stacking same unit layouts for simpler structural and utility arrangements.⁴⁰ The important factor is how the mid-rises are arranged in groups. They can be very effective with perimeter planning by defining and engaging the street edge while providing semi-private outdoor space for the residents.⁴¹

Affordable housing is considered temporary until the residents are capable of entering or re-entering the market rate housing. This motivation behind the construction of the projects has to change. People move in, settle and become a part of the community achieving a sense of belonging. Poor construction and cheap materials leave projects looking rundown in no time and diminish their shelf lives, soon to be abandoned. Affordable housing, in any form, has to be built to last and durable for long stays.⁴²



Fig. 2.13 Right - Le Biarritz (point block) - Montreal, Quebec

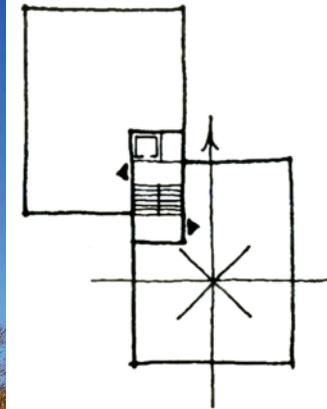
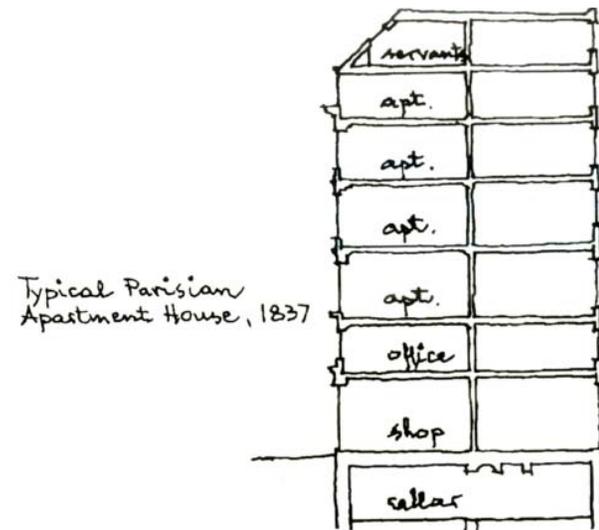


Fig. 2.14 Left - Point Block plan diagram

Fig. 2.15 Typical Parisian Apartment House circa 1873



PERCEPTIONS

“The optimistic view is that the new generation of social housing will be different, that in decades to come much of it will have been knitted comfortably into the texture of American life.”⁴³

Residents

Canadians are a diverse group of people. There is not one specific type of person that represents “core housing need”. A key point is people having access to affordable housing. People who need affordable housing are equally diverse in nature. Immigrants, urban migrants, the elderly, special groups from deinstitutionalisation, and different household types due to changes in society, all can be considered in need of affordable housing.⁴⁴

The perception of a house and its functions are limitless. Housing is product that contains multiple layers of meanings to different people. At its most basic level, it is a shelter.⁴⁵ The review of literature thus far points to the fact that housing is a complicated, multifaceted issue. “The quality and the perceived quality of one’s housing greatly affects one’s sense of self: housing in America is usually a family’s greatest asset, and can be a great source of pride.”⁴⁶ On the flip side, living in poor quality housing (also known as social housing) can bring a source of shame to many residents. Most people who live in social housing are not proud of it, especially ones that are sub-standard in quality of design and materials used.

NIMBY

When it comes to social mixing in housing communities, local residents have concerns of loss of property values and personal safety.⁴⁷ This perception has remained a myth. Residents also fear change in community ambience, more congested streets and the need for new infrastructure such as schools due to higher density structures.⁴⁸ “Non-needy” households resist intrusion into their neighbourhoods. Residents are concerned about certain projects drawing in elements to their neighbourhood that they find undesirable such as low-income families, youth at risk, and people with disabilities.⁴⁹ This syndrome is referred to as NIMBY (Not In My Back Yard). The idolization of the single family home and failed images of subsidized housing contributed to the creation of NIMBY.⁵⁰ People who advocate NIMBY-ism could be opposed to specific types of housing,



Fig. 2.16 A diverse group of people

Fig. 2.17 Housing as an asset



changes to the character of the neighbourhood, population growth, or to any type of development. These concerns can mask deeper issues of economic, racial, and/or ethnic heterogeneity. NIMBY can sometimes be the driving force behind zoning and regulations policies that are put in place. Communities with organized neighbourhood groups can have great influence over local politics, enough so as to place restrictions on affordable housing in their area. That being said, institutional intervention is needed to overcome NIMBYism so that good affordable housing can be built.

“As a person sometimes ignores mysterious ailments in dread of an operation, so the public ignores the mounting social ills the lack of affordable shelter causes, simply to avoid the pain of its cure. No matter that the reaction is irrational. Emotions follow no logic, and the emotion behind NIMBY is fear.”⁵¹ - June Fletcher, Builder July 1990

Downtowns

People do not want to live in downtowns because they have concerns about personal safety. Downtowns have stigmas for being places of high crime rates. This perception prompts people to the suburbs and creates a challenge for revitalization plans.⁵² Many challenges and opportunities spiral off this one perception which has a long lasting effect. For example, people who are unable to move out of these areas have difficulties encouraging their children to play outside in these ‘unsafe’ neighbourhoods, allowing them to become physically inactive, which is unhealthy for children and the start of bad habits.⁵³

To help sway change to these perceptions, government and other key players must start promoting affordable housing by teaching communities the importance and benefits that come with providing affordable housing. Residents need to be shown that not all affordable housing units and/or buildings have to look like older social housing developments.

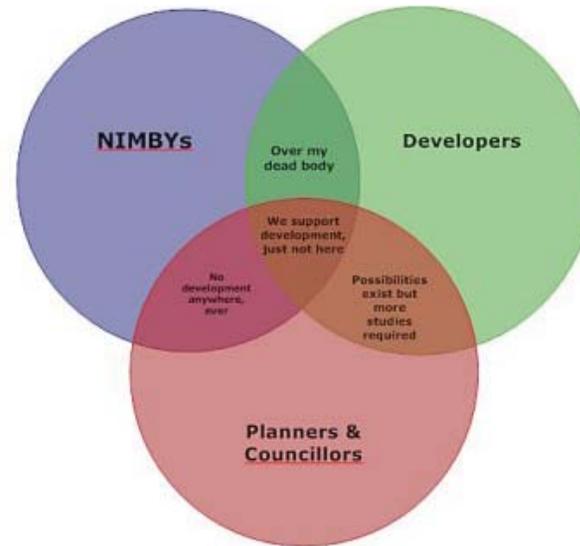
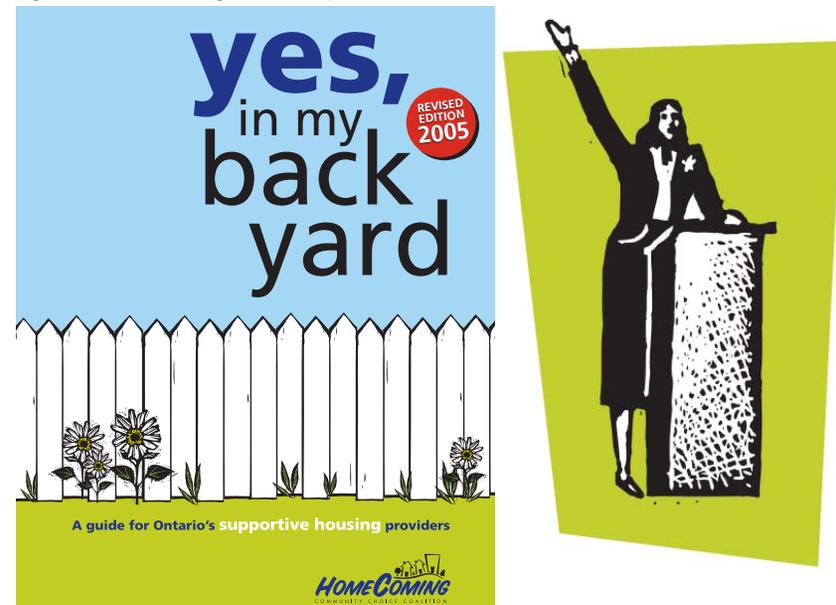


Fig. 2.18 NIMBY Venn diagram

Fig. 2.19 Home Coming: Community Choice Coalition



CHALLENGES

In August 2002, David Collette was appointed to be the senior federal housing minister and in his first speech to the Couching Conference he states, “The fact is, the private sector is not going to voluntarily build low-cost housing, which is what we need in communities in this country.”⁵⁴

Living Standards

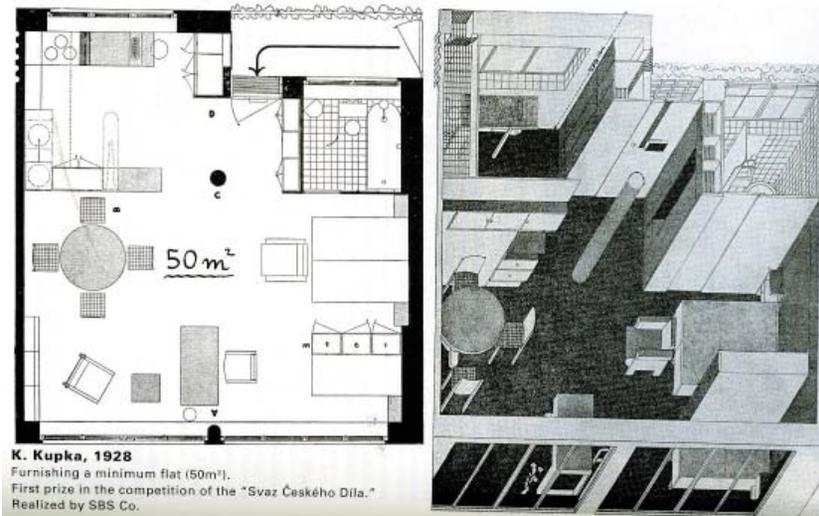
The housing industry was, and still is, linked to economic activity. “Emphasis on aggregate goals, economic activity and private market decisions also explain the sacrifice of quality for quantity.”⁵⁵ High-rise structures are popular for social housing because they offered quantity. However, they are not the best environments for families with young children. Housing had to be built to meet minimum standards for adequate air and light. However, less attention was given to the aesthetic qualities.⁵⁶ A change is needed to the tradition of providing low-income people with minimal standards. The factors (as mentioned above) contribute to a social norm that has been engraved into our society; single detached housing is the only option for families with children. For this reason, people do not entertain other housing options. However, not all families such as single parents can afford single-detached housing.⁵⁷ Therefore, past examples of social and/or affordable housing do not represent the best appearances/possibilities. Past housing options do not showcase viable alternatives: “Past government-funded affordable housing initiatives stigmatized developments by concentrating large numbers of low-income people in sad looking buildings.”⁵⁸ This challenge is attached to perceptions of what social housing should look like based on the client and past projects.

On the contrary, one can still apply aesthetic qualities to smaller spaces. Changing/modifying the ideals of the standard conventional room sizes is a big challenge. Costs can be saved by not conforming to the standards. A survivor of the mental health system lived in a non standard unit and found she had “housing ‘wants’ but no longer having housing ‘needs’.”⁵⁹ One size does not fit all and there is no one right solution. If consumers are willing to accept these living arrangements then providers should as well. Affordable housing could have separate standards from market rate housing. Other cultures live happily in smaller but serviceable dwellings with no suffering from health or psychological issues.⁶⁰ Anthony Downs believes North American cultural expectations raise housing costs by 50%. “As



Fig. 2.20 Aerial view of Regent Park - a concentrated number of low-income people

Fig. 2.21 Minimal dwelling



a result, Downs concludes, we have failed to serve many people who would welcome small but sturdy housing, and the remedy is simply to “reduce the quality standards such housing is legally required to meet.”⁶¹ A viable option, however, it could produce negative results such as further stigmatizing affordable housing.⁶² It could succeed if there is no signage and the building does not look cheap and/or such as older affordable projects. Such projects could incorporate mix income because individuals other than low-income households would be content with a smaller space.

Architect’s Role

Architects find it difficult to be involved with social housing. It is a “lose-lose” situation. If an innovative project is presented, it would be criticized and dismissed by the funding agencies. If the project is uninspiring, it would be easily criticized by the public.⁶³ As a result, developers have been left in charge. They propose one single design and apply it to whichever site becomes available. The designs, unfortunately, ignore community context making them stick out and further adding to the stigma. Today architects shy away from multi-family affordable housing projects because these projects start with a disadvantage before the pen even hits the paper: “They are creating a form that is perceived as second-rate and worse still, they are usually building rental housing.”⁶⁴ And there is no money in it.

Future Affordable Housing

“What we need instead are creative strategies to keep housing affordable within dense neighbourhoods that are served by amenities within walking distance, and by good public transit.”⁶⁵ - Daniella Fergusson M.A. Planning

Creating affordable housing is in itself a challenge as well as keeping it affordable in the future. Past social housing developments built prior to 2001 operate on federal subsidies. The subsidies are attached to the specific units and not the inhabitants. The federal subsidies on these existing units will expire over the next 25 years. A big concern here is how to keep the existing stock affordable over time once subsidies expire. The cost of new construction is rising because the cost of material is more expensive; government regulations and bureaucratic red-tape, approval processes, and zoning and land use policies. These factors have prompted stake holders to re-think how housing is produced – providing new possibilities



Fig. 2.22 McMansion - cultural expectations

Fig. 2.23 Expiring subsidies on rental housing





Fig. 2.24 Habitat for Humanity

and opportunities. All sectors have tried innovative approaches to help balance rising expenses. The private sector has tried things like leasing the land, renovating and/or converting existing buildings, developing infill sites, and being open to creative designs to achieve cost efficiencies. The not-for-profit sector has even tried new financing mechanisms by adopting policies to keep costs lower that combined efforts with different faith groups and charities (ie. Habitat for Humanity). The municipalities have tried multiple front-end approaches for affordable housing such as donating land, changing zoning regulations, accelerating the approval process and reducing or waiving municipal fees.⁶⁶ While the AHP is stimulating new affordable housing developments, the rent on some units is still too high for those individuals on the waiting lists.ⁱ

Most of the challenges mentioned are to do with money and costs of buildings. Finding solutions to these challenges is difficult as can be seen from the past. Ignoring the problems and/or affordable housing is not the answer. The continuous studies and research will push affordable housing further and provide homes for those less fortunate.

i The program provides initial funding for the construction whereby the owner has to then charge rent on specific units at 80% of the average market rent (AMR). Therefore, depending on the area and the market average rent, 80% of that could be too expensive for a low-income household. From the Niagara Regional Housing (NRH) Response to Provincial Consultation, it was suggested that blocking a percentage of units that are capped at the OW/Ontario Disability Support Program (ODSP) rate to provide affordable units to those individuals on the wait list. The Region of Waterloo has implemented that 60% of the units be at 80% of AMR and the remaining 40% be rented at 65% of AMR which is considered affordable for people whose primary income source is OW or ODSP. (Region of Waterloo. 2009. Request for Expressions of Interest for Affordable Rental & Supportive Housing. EOI-2009-04)

OPPORTUNITIES

In balance, affordable housing brings some opportunities. Whether it is in the design, individual and/or community needs, affordable housing has something to offer to everyone. Affordable housing brings stability to the lives of families and individuals, thereby enhancing the social environment of the entire community and providing a greater opportunity for these families and individuals to become productive members of the community.⁶⁷

Being well-housed can impact major life circumstances. Previous research has been undertaken that links the state of one's housing to their health and education. Providing more affordable housing at different locations benefits everyone in the low-income household. In the early stages of childhood, one house move for a single parent may result in a negative impact on their child's academic career.⁶⁸ "The researchers conclude that poor quality housing negatively influences a child's ability to focus at school, increasing stress and causing poor health and attendance..."⁶⁹

Living Units

There is now an opportunity to 'get it right' and house people in need of shelter. Although, people are ingrained with the ideals of a single detached house and what it looks like traditionally, they can change under the right circumstance. The clients need to be involved, and perhaps even enticed by design concepts. The architect needs to be fully invested in the project and have "dedicated concern with how people live, what they want, what they find desirable and attractive, and what they find troublesome and inconvenient."⁷⁰ If what the client needs can be housed in a different form, it might just take some educating about the positive aspects. Communication lines have to be open between the targeted client and the architect to provide a successful project.

*"If units are unpleasant, inefficient, or inappropriate for the occupants needs, the housing will be a failure."*⁷¹

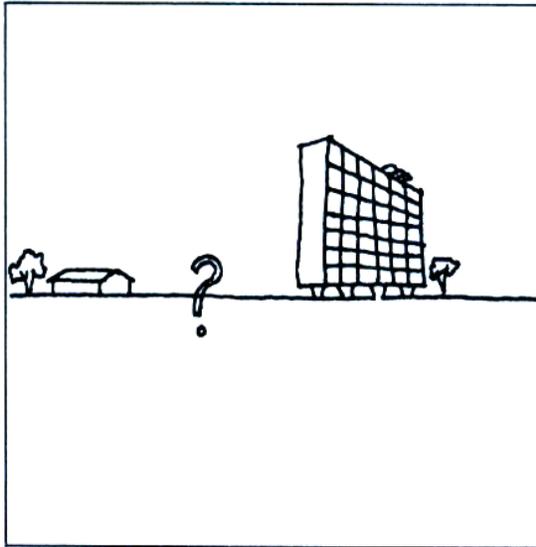
Rooms per dwellings have been increasing since 1941 yet persons per dwelling have been decreasing.⁷² There are increasing numbers of smaller households with childless couples, single parents, elderly widows and non-family households. Working class single people are one of the fastest growing household types.⁷³ The housing stock in Canada has been driven by the nuclear family which is declining.⁷⁴



Fig. 2.25 Housing impacts academic career

Fig. 2.26 Community design meeting





Between the two extremes, some new and relatively high density dwelling solutions might be developed.

Fig. 2.27 Between the two extremes

There has been a decline in real incomes which has generated consumer interest in smaller, more affordable housing.⁷⁵ As such a design opportunity is possible bringing the scale of the dwelling back down to the human scale, a manageable size and develops a new type. (See figure 2.27)

Affordable Communities

Having smaller pockets of affordable developments eliminates the “poor neighbourhood” status and allows for more diversity in new housing developments. The location of affordable housing can be important to the local work force or low income households, who would otherwise have to live outside of the community where they work. Having a variety of affordable housing spread out amongst a community allows needy households to stay close to family and supports and would not be required to leave their home municipality.

Canada is large and geographically diverse. National strategies or solutions are not flexible enough to accommodate every local situation. It leaves room for policies or programs to be more directed towards specific local housing needs.⁷⁶ However, the new Affordable Housing Program has been targeting different groups within Ontario. Therefore, one has a higher chance of receiving funding for a project if it provides housing for the specific target of choice. The recent extension to Affordable Housing Development put emphasis on senior housing. Because it is not needed in all cities across Ontario, some groups are experiencing longer wait lists for certain units (eg. One bedroom units).

REVITALIZATION

“Affordable housing is not just a social issue. It is a health issue and plays a pivotal role in reducing poverty. As many of Ontario’s corporate leaders have recognized, investing in affordable housing represents smart economic policy. The lack of housing that is affordable to the work force, particularly in many of Ontario’s urban centres, is a very serious roadblock to growth and investment.”⁷⁷

Revitalization does not happen overnight. Because all cities or downtowns are not the same, there is no perfected formula to start the process. Affordable housing alone will not fix the problem. A combination of factors is required to make a city attractive whereby housing, businesses, cultural facilities and amenities all need to work together with the common goal of revitalizing.⁷⁸

By repopulating the downtown, people will fill in the usual void hours with after work activities providing more eyes on the streets. By making cities safe, it will attract people to live there. Therefore, housing availability is key for these people who want to live in urban settings. By providing housing to bring people back, cultural amenities and related activities will be encouraged thereby attracting more people and businesses – it is a synergy effect.⁷⁹

The addition of affordable housing in downtowns gives back to the city and to the residents. The negative impact from unoccupied buildings and vacant lots can be reversed. Renovating existing buildings or building new ones can improve the appearance of the streetscape and boost civic pride.⁸⁰ For residents, it enhances the social capital and environment of the community. Having different housing and incomes types allows for healthier and more balanced interactions to take place that includes a diverse range of people such as office workers, shop keepers, and students.⁸¹

“Places that grow up and prosper in one era find it difficult and often times impossible to adopt new organizational and cultural patterns, regardless of how beneficial they might be.”⁸² - Mancur Olsen

It is not uncommon to see post-industrial cities change their focus from industry/manufacturing to brain-based companies or consumption-based industries such as cultural facilities, specialized boutiques and eateries, retail and



Fig. 2.28 Populated streetscape

Fig. 2.29 Infill project





Fig. 2.30 Sense of place

leisure complexes. Consumption-based industries tap into specific lifestyles of various groups with disposable income. City governments “see ‘non-traditional’ households with some disposable income as key to re-establishing a residential presence in city centres and as a means of reinforcing the clustering of ‘new economy’ jobs (artistic, cultural, and high-tech ‘niche’ sectors) at the fringes of the central business district”.⁸³ These industries attract people who need or demand housing who decide to set up their own business since they like the location and in turn brings people back to the downtown or city.

Most importantly, recreating a sense of place for the affordable residents to conduct their everyday lives is essential. The quality of local places is just as important as the living unit itself. Although superficial, people are attracted to beauty. If affordable housing not only looks good and feels good but is found in a good location, negative attitudes and/or perceptions will be hard to come by.

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CASE STUDIES + DESIGN PRINCIPLES

MATHIEU POITEVIN
ART'M ARCHITECTURE

DUNCAN LEWIS,
LEWIS, POTIN + BLOCK

LACATON & VASSAL

SHIGERU BAN
JEAN DE GASTINES



Fig. 3.1 Mulhouse Social Housing site plan



Fig. 3.2 Poitevin & Reynaud

Cité Manifesto, Mulhouse Social Housing Ilôt Schoettlé, Mulhouse, France, 2004-05

“Out with long low-rise blocks of flats and in with social housing that promotes quality of life.”

Cité Manifesto is located in the Quartier de la Cité district on the site of the former spinning-mills, a brownfield site, near the city center of Mulhouse. The Company Mulhouse housing estates (SOMCO), a house building company, built the first housing estate for factory workers in France in 1853. For the 150th anniversary, Cité Manifesto, an experimental housing development, was realized providing 61 new affordable units. The project is seen as an extension of the first housing estate.² Both developments had the same goal; provide affordable and comfortable accommodations.

*“This is an experimental city. For us it was challenging the traditional social housing.”*³ - Pierre Zemp, Director of SOMCO

The site is subdivided into five parcels of land, allowing the existing street grids to define the divisions. The following teams of architects designed the five projects (starting from the most northern block and ending with the wedge): Mathieu Poitevin & Pascal Reynaud, Duncan Lewis & Potin + Block Architects, Anne Lacaton & Jean Philippe Vassal, Shigeru Ban & Jean de Gastines and Jean Nouvel.⁴ The Manifesto site allowed architects free creative license - with the budget being the only condition. The streets dividing each project do not have sidewalks thereby allowing the housing, pedestrians, and automobiles to have a more intimate relationship. Moreover, the architects still provided a boundary between the public and private space. All projects have similar volumes to each other as well as to the existing neighbourhood. Some architects applied and updated similar concepts/ideas from the existing built housing. Also all units have direct access at ground level.

Poitevin & Reynaud

This project most resembles the design ideals associated with townhouses. The back of the building is a regular, straight plane. The front of the building undulates, mostly on the ground floor, creating movement and depth in the facade. The volumes that protrude at the ground level allow the units to have terraces on the second floor. The units have different roof profiles and different

coloured cladding. These elements add variety and individuality to the units. The interiors are fairly normal by today's housing standards. The ground floor consists of a garage, kitchen, and dining room that either opens or extends into the front garden. The second floor has either one or two bedrooms and a living room with a terrace for some units. The fronts of the houses have yards separating them from the street while the garage is in the rear.

Duncan Lewis & Block Architects

The plans are clusters - squares divided into quarters - with all the wet elements joining in the middle on a common wall. There are three cluster buildings with narrow alleyways between them. Although the exterior appears to be irregular, they all look visually the same due to the consistency of the material choice. The metal frames with caging contribute to the overall composition but can support vegetation and act as visual screens, protecting the windows in some instances. Over time this screening should change the exterior appearance of the project. The units are two storeys with a mix of two and three bedroom units. "The spaces of the apartments are articulated through the "assembly" of primary volumes."⁵ The living space is double height in the middle with bedrooms attached to it.

Lacaton & Vassal

The building is a concrete structure for the ground floor with a greenhouse structure on top creating a simple, two-storey rectangle leaving open space to be subdivided into units. The architects found this method to provide the most interior space for the least amount of money. In so doing, they have severed the relationship between the envelope and the interior. It has also given all units a unified appearance from the exterior - no individuality is apparent. The use of greenhouse materials does not speak to a residential architecture but allows for energy saving, passive solar design. The interiors are divided into L-shaped spaces over two storeys when long section is cut. All units have a winter garden that is not insulated. Depending which unit you are in, the main living space will engage with either the winter garden or the ground floor garden. Parking is included inside the building at the rear and the front has private yards to separate them from the street.



Fig. 3.3 Duncan Lewis & Block Architects

Fig. 3.4 Lacaton & Vassal front facade





Fig. 3.5 Shigeru Ban and Jean de Gastines

Shigeru Ban & Jean de Gastines

The housing units are arranged against a central longitudinal wall. Strips of land separate the units making them individual yet still connected by the wall. Along one side of the wall, each house has a slightly different plan then it is mirrored to the other side. The interiors are reversed with bedrooms on the ground floor and the main living space on the second floor. There is an entrance, by use of an exterior staircase, on the second floor. Each house has a private outdoor terrace. The ground floor outdoor space, while providing a mediation zone, is to be shared by the garden and the car. Although reversing the floors is an interesting idea, each unit having two staircases uses up a good amount of space and can be costly elements.

Jean Nouvel

The singular mass is a linear building cut at the ends to match the building lot. The shape and material are comparable to industrial architecture and, therefore, not perceived as residential at first glance. While the building acts as singular building, the colourful sheer walls protrude demarking where the individual units are located. The interior spaces are alternating trapezoids over two storeys. There is a hole in the second floor providing a double height space in the middle of the unit. There are long gardens in the front and small courts in the back. The project turns it back to the main street, Rue Lavoisier, on the other side of the development but does have other streets running through the building creating a connection.

Cité Manifesto raises some debates in the architectural field and the housing field. Young, fresh architects are itching to design bold and innovative projects. The problem is, in North America, there is such a long arduous approval process often associated with such projects. “Out of the box” projects have difficulty in being accepted. This act dissuades architects, even ‘starchitects’, from venturing into the affordable housing market. On the other hand, some people feel that residents of affordable housing should not be subjects of experimentation. An odd design has potential for further stigmatization. Low-income people already have fewer housing options and want to fit into the community.⁶ But what if this odd housing was designed by well known architects and received international praise? Does that make experimental housing okay? If it was no name architects, would the neighbourhood still be accepting of the extension of the new housing?

Fig. 3.6 Jean Nouvel



***Creighton/Gerrish Affordable Housing Initiative
Halifax, Nova Scotia, 2004-2008***

Architect: Savage Stewart Architecture and Niall Savage Architecture

The project site is located in the North End of Halifax, a once thriving neighbourhood that was severed by inappropriate projects during the urban renewal program from the 1950s to 1970s. These projects urban renewal perpetuated a population decline from 20,000 people to less than 10,000 people.⁷ The Creighton/Gerrish Development Association (C/GDA) formed in 1995 as a community development group comprised of four non-profit organizations. All organizations shared the same attitude and goal to provide affordable housing. C/GDA has “created a remarkable and somewhat unique model that has contributed to urban infill, affordable housing, and neighbourhood stability. Their initiative has been driven by sheer will, a sound business plan, good design based upon the premise that “poor does not mean cheap,” and collaboration with every level of government in forming community-based partnerships.”⁸

The overall strategy, to fill in the block, complete street edges and anchor the corners, resulted in four different projects. To maintain a consistent, tight building edge there is one laneway access to a shared parking lot for all projects. The laneway approach means that the frontages will not be consumed by driveways and garages. The four projects are mixed types of tenure and mixed income providing a variety of housing and unit types while allowing inclusion in the neighbourhood. All together, the final plan includes 85 new housing units to be built in phases.

Project 1: Metro Non-Profit Housing Association (MNPHA)

The building consists of 19 single bachelor units, a drop-in centre, a housing support centre, medical examination space, and a collective kitchen. Although it is one building, from the street the overall massing appears as five separate buildings because of the recessed entrances and circulation areas. This technique breaks up the facade and brings it back to the human scale. The sub-blocks are also a familiar size to that of a single-detached dwelling giving the acceptable appearance of what is clearly not a single detached dwelling. The exterior cladding, pre-finished cedar siding, refers to the material palette of the building that existed on this site previously.⁹ For safety and security, one design strategy is to have one main entrance and one secondary entrance that takes you through the building and into a shared, central courtyard where all units can be



Fig. 3.7 Creighton/Gerrish Affordable Housing Initiative - Masterplan

Fig. 3.8 Metro Non-Profit Housing Association





Fig. 3.9 The Creightons

Fig. 3.10 Harbour City Homes



accessed. The units are 290 square feet for economical reasons but this does not mean the housing is cheaply made. Small dwellings do not have to feel small if the design is good and allows cross views and ventilation (dual-aspect).

Project 2: The Creightons

The second phase of the project was six “freehold” semi-detached houses which were completed in October, 2004.¹⁰ The brightly coloured Hardie Board siding and the front stoops are characteristics of the vernacular. Each house is a different colour offering a variety while the occupants can express their identities through finishing details. Each semi is 1,000 square feet with three bedrooms and an unfinished plumbed basement with separate entrance. Therefore, the basement can become whatever the occupant needs whether it is an office space or a granny flat. The front facade provides “eyes on the street” with large windows and allows plenty of light to emphasize the open layout. All six units have their own private backyard with parking just beyond.

Project 3: Harbour City Homes

This corner lot houses 12 one bedroom rental units. Similar to Metro, this is constructed as one building that steps down with the existing slope appearing as five separate volumes. Each volume is a different colour of Hardie Panel with galvalume flashing to break up and add detail to the cladding. It is noted that “perhaps the massing could have included finer-scale detailing”¹¹ to fit in better and add more texture. The L-shaped courtyard typology addresses the corner and provides a common secure court for the residents. In each volume, there is a protected and well-lit common entrance. Each unit has a different plan and is dual-aspect. The corner building is three storeys high to add prominence and to anchor the corner. Overall it is blended right into the neighbourhood.

Project 4: Gottingen Terrace

The final phase started construction in 2010 and units should be available some time in 2011. Gottingen Terrace is to be 16 brick and metal four storey townhouses comprised of 48 condominiums. The break down is 16 two bedroom units at grade, 16 one bedroom units on the second floor and 16 three bedroom units covering the third and fourth floors.¹² The design establishes a rhythm, breaking up the facade, between houses and common access stairs. The ground floor units have front and rear terraces while upper units have balconies. The entry porches

and front balconies add depth and character to the project while holding the street edge. This last project will finish off the block spurring future development in the neighbourhood.



Fig. 3.11 Gottingen Terrace

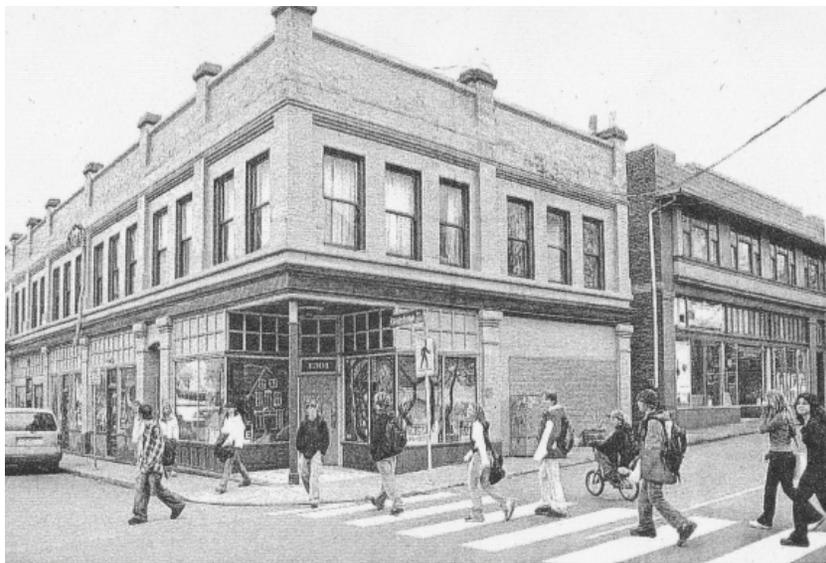


Fig. 3.12 Cornerstone Building before renovations

Fig. 3.13 Cornerstone Building after renovations



The Cornerstone Building Victoria, British Columbia, 2006

Fernwood is the oldest neighbourhood in Victoria and is home to students, young families, and established professionals. In 2005, the once thriving neighbourhood was falling to the waste side with abandoned buildings, an increasing crime rate and a growing homeless population. At the heart of the neighbourhood was a heritage property that had been boarded up for five years.¹³ Fernwood Neighbourhood Resource Group (NRG) purchased the derelict, two-storey, 1909 brick heritage building for \$1.4 million.¹⁴ Fernwood NRG is a registered non-profit society who provides community services and support programs. This society saw the potential to catalyze investment in the community by renovating the cornerstone and providing affordable housing and social enterprise. This project was also seen as a way to redevelop a sense of community and involve the neighbourhood.¹⁵ Most of the renovations were done by hundreds of volunteers who donated building and construction materials. The project created jobs and revitalized the Fernwood neighbourhood.

While restoring the exterior facades, the interior was gutted. A geothermal system was put in to provide 70% of the buildings hot water and heat. The second floor houses four, three-bedroom market-based affordable housing units for families with children. The ground floor is home to a collectively-run art gallery, Collective Works, featuring work of local artists; a tapas and wine bar, Stage Small Plates and Wine Bar; and a social enterprise that is owned and operated by Fernwood NRG, the Cornerstone Cafe.¹⁶ The Cafe has become a popular meeting spot and acts as the community hub with services and information about the neighbourhood. The profit from the Cornerstone Cafe goes back into the Fernwood NRG community services and support programs.

Oxley Woods – Design for Manufacture
Milton Keynes, UK, 2005 (90 Completed September 2008)
Architect: Rogers Stirk Harbour + Partners

Oxley Woods is a product of a competition, Design for Manufacture, in 2005. The focus of the competition was to encourage architects and house builders to work together to achieve high-quality homes at a construction cost of £60,000 (equivalent to approximately \$95,000 CAD today).¹⁷ Richard Rogers of Rogers Stirk Harbour + Partners comments on this relationship, “Our Partnership with George Wimpey has given us an opportunity to take a fresh look at housing design. By working closely together, we have been able to develop an approach that links construction closely with design, giving real value to the home owner. The scheme at Oxley Woods is highly flexible and sustainable and will, we hope, provide homes for a diverse community for many generations to come.”¹⁸

Oxley Woods is located in the residential district of Oxley Park, north of London and east of Milton Keynes. Oxley Woods “applies to a pre-established masterplan of a picturesque character an efficient and cheap system of construction capable of providing flexible, inexpensive housing with a low consumption of energy that can be built in a very short period of time.”¹⁹ The masterplan provides a local high street, new public transit links and a new primary school.²⁰ The site plan provides well-designed public and private spaces to encourage interactions.

There are 145 units, 43 that are Registered Social Landlord (RSL) Affordable Homes whereas 25-35 units are designated to first time buyers - an RSL paradigm. The housing types - 10 different designs - vary in sizes, storeys, and range from two to five bedroom houses, most with gardens. The generic house type can be adapted to suit any location and site constraint. The houses are able to have many variations in the cladding to adjust to the vernacular by appropriating colours and textures typical to the area.²¹

The standardized pieces and kit of parts enables future adaption and integration to suit the changing needs of the owners. The prefabricated components are to a large extent recycled materials and designed for compact transportation. Each house is split into blocks, one for services like staircases and bathrooms and a large open area with bedrooms and kitchen-dining rooms.²² The roof of every unit showcases an “eco-hat” which reduces the overall energy consumption of the dwelling.

For mass production of housing to be successful as a method, there



Fig. 3.14 Oxley Woods masterplan

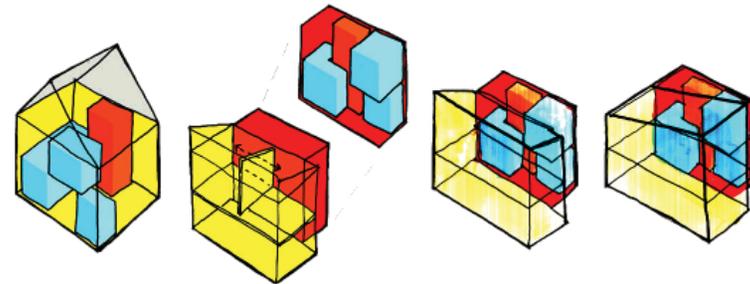


Fig. 3.15 Oxley Woods design concept with service block

Fig. 3.16 Oxley Woods front facade



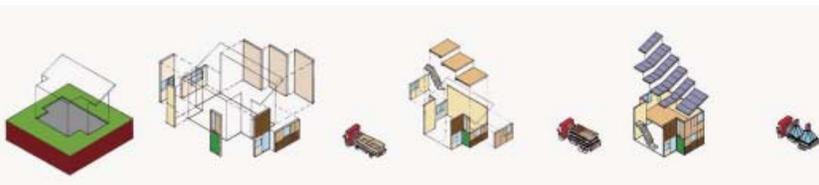
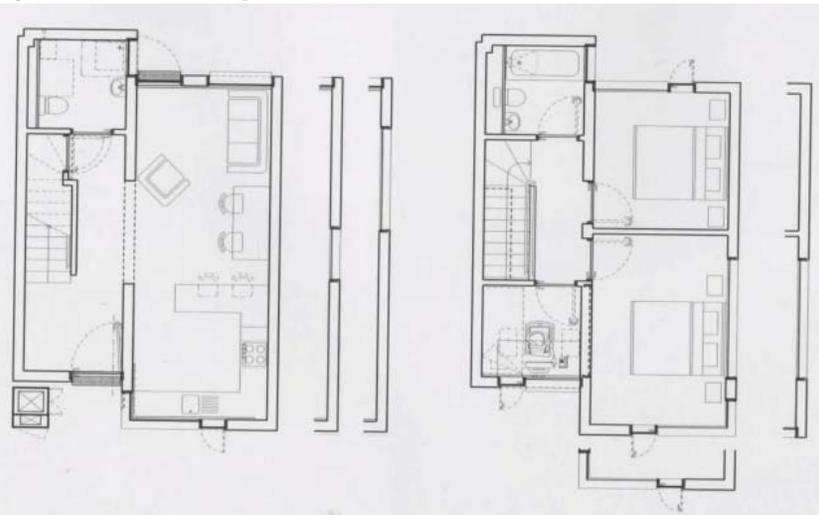


Fig. 3.17 Oxley Woods kit-of-parts



Fig. 3.18 Oxley Woods section

Fig. 3.19 Oxley Woods floor plans



needs to be high numbers being built to make it worthwhile for the factory. If not, the factory needs to be in a good location for shipping. In North America, mass production housing cannot be easily and efficiently built in one part of the country and shipped to another. Then there are code and restriction variations from place to place.²³

The mass production line for a specific housing development will most likely only be used for one development. Therefore more cost effective if there is a high number of units being built. Otherwise, multi unit developments will differ from each other according to site, local market, targeted occupants and physical environment.²⁴

Unlike Oxley Woods, some factory built housing ended-up with a monotonous exterior facade that is disliked by occupants and the surrounding neighbours. By adding variations and uniqueness to the designs, the factory production becomes less efficient.²⁵

Moshe Safdie estimates about one-third of the cost is enclosure where mass production is most effective, therefore yielding minor savings in the overall cost of housing. Land and financing were much larger components.²⁶

Exterior walls are expensive to build because they need several trades to build them. They can include windows, electrical outlets, plumbing, and interior and exterior finishes. Factory built and/or prefabrication panels do have some advantages when properly executed. They are usually used in highly populated and active multi-family housing construction.²⁷ Twenty-three percent of the United Kingdom's housing stock is affordable housing compared to Canada's 6%.²⁸ Oxley Woods also has more units since it has market rate as well. Some problems that can arise from using prefab panels are inspecting them for code purposes and the cost for transporting the panels to site. When projects are larger like Oxley Woods, the panel sizes can be adjusted or customized to the design. For smaller projects, the panels can cause design limitations. Construction is allowed a margin for error, slight inaccuracies before the panel installation may cause them not to fit and if this happens there is added cost to remedy the problem.²⁹



Fig. 3.23 20K Bridge House



for the occupants. In Greensboro specifically, front windows are barely open for air ventilation let alone natural light. So we placed our four windows carefully with hopes they get used to better the interior environment. The front porch speaks to the Alabama vernacular housing and to the social requirements of the occupants. We also felt that the resident should have some private outdoor space so we provided a back porch. This space could be screened or built in. It would not be uncommon if eventually a washer and dryer were placed there. Both porches act as an extension of the housing because the inside is smaller.

“A small, quality floor plan, carefully thought out to the last detail, can provide more comfort and liveability than an irrational plan in an older, traditional large apartment.”³³

The interior may be seen as experimental or changing the occupants lifestyle within their home. With only 336 square feet, efficiency and creativity is needed. The aim is to have a smaller living space with an acceptable level of comfort.³⁴ Comfort is provided by making the space appear larger than it is through different design elements.³⁵ A shelf wall separates the bedroom from the living space to keep the space feeling open and appear larger. The shed roof profile allowed for a partial, higher ceiling to contribute to the interior feeling of openness. The 20K Bridge House is smaller than the acceptable area for a bachelor apartment yet still attractive, safe and liveable. (See figure 3.21)

Fig. 3.24 20K Bridge House interiors

Regent Park
Toronto, Ontario 1949 – present
Architect: various

Regent Park is Canada’s oldest and largest publicly funded housing community located in east downtown Toronto bordered by Parliament, Gerrard, River and Shuter streets. The project is a result of slum clearance from the urban renewal in the 1950s. Regent Park North was conceived as a ‘garden city’ with walkways and parks similar to the ‘tower in the park’ concept. The ‘garden city’ super-blocks are sprinkled with three and six storey brick, homogenous structures and townhouses housing more than 7,500 residents.³⁶ Providing an abundance of open space is seen as being beneficial to the health of the residents. Too much open, undesignated space becomes no-man’s land and leads to the ambiguity about who has control which causes concern for personal safety.³⁷ These super-block developments have no street access making the area inaccessible to traffic vehicles creating isolation for the residents. The exclusion of traffic is seen as safety precautions for children playing. However, the lack of streets “has been regarded as a security problem, limiting both the availability of “eyes on the street” and the frequency of police patrols.”³⁸

Regent Park South was built in the later 1950s consisting of five fourteen storey towers mixed with some townhouses. These towers in the park were located to provide a large court or open space in the middle. Although these towers won a Massey Medal of Architecture for their innovative design with skip-stop elevator allowing through floor units, they did not meet the needs of the residents. High-rise apartments are not ideal for households with children and the maintenance is difficult.³⁹ Unfortunately, there was a lack of research done on the future occupants which leads to a “mismatch between the designers’ intentions and the everyday lives of the residents.”⁴⁰

The buildings and surrounding area designs are partially to blame for the neighbourhood decline. The other half of the blame is pointed towards housing authority policies. Even if marginal, there was income diversity throughout the community. “The “working poor” have been largely eliminated as priority waiting lists have favoured those most in need.”⁴¹ Now the majority of residents are receiving social assistance and there are a high proportion of single parent households.

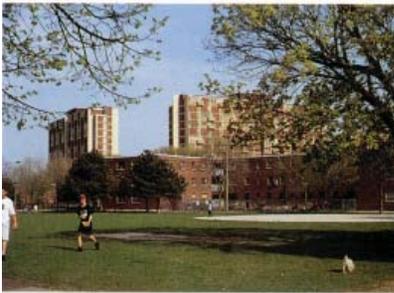
The Regent Park redevelopment plan calls for mixed everything: “mixed



Fig. 3.25 Regent Park circa: 1959

Fig. 3.26 Regent Park redevelopment master plan circa: 2005





use and mixed rise, for people with mixed incomes and mixed social ambitions, from diverse races and diverse educational, social and cultural backgrounds.”⁴² The redevelopment started in 2006 and will progress through phases for the next 10-12 years. The project design was assisted by the community through meetings, consultations, workshops and receiving future tenant feedback. For the first time in 50 years, Regent Park will have commercial space for amenities such as grocery stores, banks and services. These enterprises will bring people and money into the neighbourhood and provide jobs for residents. Community facilities are also provided such as a learning centre, an aquatic center and a daycare center. The master plan breaks up the super-blocks and provides new north-south streets allowing the community to physically be integrated into the existing fabric.⁴³ By having more streets, it offers “a greater number of neighbourhood residents a distinct address and a front door.”⁴⁴ The new Regent Park will create pedestrian-friendly streets, large park spaces for recreation and landscaped walkways, even after the re-introduction of vehicle traffic through the area.

Since the redevelopment is providing market rate with affordable housing which was once just affordable, more affordable housing will be needed. To avoid affordable ghettos, part of the plan is to relocate some affordable units around the city creating smaller pockets of affordable housing.⁴⁵ Some of these projects are already built with residents.

“But will the newfangled thinking currently fashionable among politicians, architects and city planners – note the key word “mix” – deliver any better results than those designed by middlebrow progressives in the 1950s?”⁴⁶

Fig. 3.27 Right Column: Regent Park

Fig. 3.28 Left Column: Phase 1 Regent Park

NEW AFFORDABLE HOUSING PROGRAM PROJECTS IN ST.CATHARINES

Stokes Community Village - Goodwill Industries Niagara
36-38 Page Street
32 units – seniors

This affordable housing project is the first-ever brownfield redevelopment by a non-for-profit agency in Niagara. The abandoned Stokes Seeds industrial building is located in an older neighbourhood in need of rejuvenation. The redevelopment of this historic building includes 32 units, a seniors' activity centre and a youth learning centre. The community services provided in the facilities will make this building the new heart of the neighbourhood.

St. Catharines Mainstream Non Profit Housing Project, Gateway Residential and Community Support Services of Niagara
160 Ontario Street
9 units - supportive
Opened June 2010

The government provided \$630,000 to support a nine-unit project sponsored by St. Catharines Mainstream Non Profit Housing Project and Gateway Residential and Community Support Services. The units will be occupied by low-income individuals, including people with disabilities.⁴⁷ This project is quite stylish and fits in well with the new townhouse development a couple sites over from its location. The project is across the street from a Niagara Health System Care Centre and down the street from Montebello Park. It is neither the worst, nor the best location. The overall form of the building is reminiscent of a single detached house and has human scale details. There is a common back deck that floats above a few parking spaces behind the building.



Fig. 3.29 Stokes Community Village - Goodwill Industries Niagara



Fig. 3.30 Stokes Community Village - parking lot



Fig. 3.31 St. Catharines Mainstream Non Profit Housing Project, Gateway Residential and Community Support Services of Niagara - front and side



Fig. 3.32 Genesis Court

***Genesis Court -The Bethlehem Projects of Niagara
151 James Street
40 units – integrated/family/supportive
Opened June 2007***

“Our goal was to create an attractive and accessible apartment building that will blend into the neighbourhood, providing a safe, affordable and pleasant environment for tenants.”⁴⁸ - Julie Dennis, the multi-service organization’s executive director.

Genesis Court has 40 units ranging from one to three bedrooms including a few accessible one bedroom units to be occupied by families and individuals. They provide support services and a community room for tenant programs and other non-profit group meetings. The support services range from support groups such as relationships to life skills workshops. Niagara Regional Council sees this building as a “valuable component of the revitalization of downtown.”⁴⁹ It was designed to help improve the life of the tenants and enhance the character and diversity of the downtown. The three-storey, brick building integrates into the existing fabric. Like its neighbours, it is build right up to the street edge. The front facade has a three dimensional quality to provide variety and texture to the streetscape. The building is located in a transitional zone, between retail/ business and single detached housing where its larger size should not disrupt the neighbourhood. The chosen materials could replicate a single detached dwelling which appeals to the average person. Are 40 units too many for creating a healthy community?

***1456418 Ontario Ltd.
44 Queenston Street
2 units – integrated***

This building is mostly market rate units with only two affordable ones. The building type has an urban appearance but does not fit in with its surroundings. Strictly talking about the building, the design allows it to engage with the street while maintaining the street edge. It takes advantage of necessary foundation walls to provide sunken units. The multiple layers of the front facade address the human scale and breaks up the mass. There is no outdoor space for the occupants except for the shared walkway and the site is lacking soft landscaping.

Fig. 3.33 1456418 Ontario Ltd.



***Meie Management
11-19 King Street
19 units – integrated/seniors
Opened May 2006***

The ground floor is commercial space and the two upper floors were converted and renovated from offices to apartment units. The exterior still very much looks like an office building but the location is great for being downtown. There are no documents published on this project.

***21 King Inc.
21 King Street
21 units – integrated/supportive
Opened September 2009***

“As we move forward with plans to revitalize our city’s core, we must ensure a variety of housing options are available for all residents wishing to live downtown.”⁵⁰ - Brian McMullan, Mayor of St. Catharines.

21 King Street was vacant squash courts for 10 years. The prolonged vacancy was due to the challenges of the conversion to residential. One challenge being splitting the courts horizontally and adding windows. The development received \$1.47 million from the Canada-Ontario Affordable Housing Program. This money provided for 21 affordable units out of 25 for rent. Five of the 21 units are reserved for gear-rent-to-income clients. The affordable units will be occupied by low-income families and individuals, including people with disabilities. The remaining four units are market rate 2 bedroom units and one 5 bedroom unit.⁵¹

The building is not in line with its neighbours but the court space in front acts as a threshold between the city and the units. If every downtown residential building did this, there would be a loss of a defined street edge. Since the building already existed, this court is a bonus feature from site selection. There is an awning that runs up to the street edge to keep its street presence. Without signage, it is hard to decipher the use of the building. Again, this being a conversion project with budget constraints, the interiors had high priority.



Fig. 3.34 Meie Management - front facade

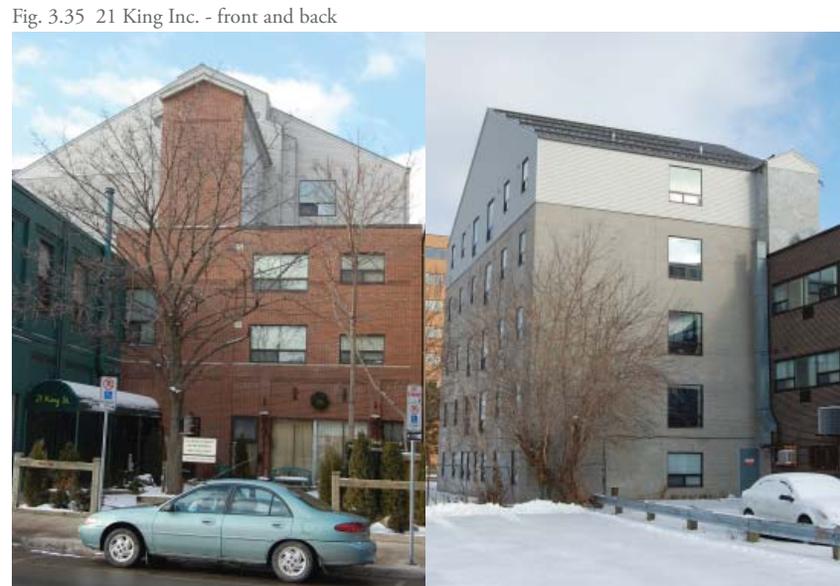


Fig. 3.35 21 King Inc. - front and back



Abbott Mews - Oakdale Landing Inc.

2 Abbott Street

34 units – integrated

The project is sponsored by Oakdale Landing Inc., and the units will be occupied by low-income individuals. The brownfield site is located in an industrial neighbourhood; rendering the site undesirable for market rate housing. When building on inexpensive land, careful considerations should be paid to the design itself.⁵² The site plan offers poorly laid out, low density housing with a lot of asphalt parking. There are about 40 units with 34 of them being affordable with a handful of market rate. Facing Abbott Street are two denser building that define the street while giving those occupants a street address but the rest of the units are monotonous. A long line of units have their backs to the main thorough fair. The units look cheap and can be easily identified, fitting the stereo-type, as affordable housing. Since they are single storeys, they take up more land and make the development look larger. This type of housing should have fewer units. Of course, to spike new development, someone has to be the first builder but this development would deter me from building next to it. At the moment, these poor design decisions are over looked by the fact that the city has provided more affordable housing.

*Integrated refers to one bedroom units for adults who are 16 years and older

*Supportive units are reserved for tenants for have mental health diagnosis and/or developmentally delayed diagnosis

*Seniors units are for individuals without dependants who are 55 years and older

*Family units are for adults with dependants who are 16 years and younger

Fig. 3.36 Abbott Mews

DESIGN PRINCIPLES

This thesis develops a set of design principles and strategies to facilitate future affordable housing designs. The purpose of these principles is to set up a framework to achieve the best solution for any proposed site. These design principles are formed by using two methods: through research of affordable housing and through examining case studies of high and low status previously discussed. Affordable housing developments should complement the private market and their surroundings.⁵³ It should then provide a variety of housing to choose from to suit different needs. There is no such thing as “one size fits all” when it comes to affordable housing.

Revitalization

Affordable housing has the ability to help revitalize downtowns or neighbourhoods. The housing can regenerate the city by being integrated into the existing fabric as an infill project.⁵⁴ The architect can still care for the singular unit and the form of the collective units but the overarching objective is “to make buildings that belong to the street and the neighbourhood.”⁵⁵ The new affordable housing should reinforce the continuity of the street, existing scale and fabric.⁵⁶ For example, the Creighton/Gerrish Affordable Housing Initiative in Halifax respects the existing neighbourhood, embraces the existing materials and colours, all while infilling a residential block and reinforcing the street edge.

Another strategy for revitalizing is to reuse and/or renovate unoccupied/abandoned buildings. This strategy is a win-win situation. The streetscape and/or neighbourhood is made safer and improved with an increase of affordable housing. Furthermore, the cost of the project is lowered because rehabilitation is faster and cheaper than new construction.⁵⁷ For example, the Stokes Community Village in St. Catharines was an old industrial building. Now it offers housing and a community centre to help rejuvenate the deteriorating neighbourhood.

Combining an enterprise with housing is a bonus feature that can be added to the design depending on the site context and location. An enterprise can be both social and economical and offer opportunities to the city and the residents.⁵⁸ The Cornerstone Building in Victoria has a cafe which acts as a community hub and provides space for social gatherings. It provides jobs for the upstairs residents and the profits help pay for the operational costs of the building.



Fig. 3.37 One size does not fit all

Fig. 3.38 Stokes Community Village - Goodwill Industries Niagara



Fig. 3.39 Cornerstone Cafe





Fig. 3.40 160 Ontario Street front facade

Fig. 3.41 Mulhouse Social Housing aerial view



Human Scale

Larger multi-unit buildings are great at housing many people but do not always act at a human scale. For residents to feel comfortable and feel like they are not in a big building there needs to be architectural features to bring the building back down to human scale.⁵⁹ The general public are more familiar with single detached houses and can relate to them better than other building types. Therefore, designs features and/or elements that relate to the single detached house will visually and mentally be more acceptable and appear to be smaller in scale. Building pattern and scale encourages pedestrian activity which makes the street better, safer and more vital.⁶⁰ Multi-unit buildings need to be at an approachable scale that can be achieved through objects and forms in front of or attached to buildings. This element also enlivens the housing both visually and functionally.⁶¹ Details such as awnings and shading devices can break up taller facades. They are seen as extra costs and unnecessary expenses but awnings can add that little bit of human scale to make the project amicable. Plus, they can also make the building more affordable to the residents by reducing future energy costs.⁶² Even just designing a building with fewer units will physically bring down the scale which means it would not need as many other elements to provide human scale. Gensis Court in St. Catharines is a larger building but does not feel intrusive. The facade is three dimensional visually breaking up the length of the building. The changing of the materials also brings down the scale of the building. 160 Ontario Street in St. Catharines has the icon shape of a single detached house yet provides nine units within it. (See figure 3.40) The Creighton/Gerrish Affordable Housing Initiative in Halifax, specifically projects one and three, break up the buildings to appear as different masses and providing front entry stoops similar to that of the neighbouring single detached housing.

Variety

Variety is an important design principle. Good housing makes families feel comfortable. The key to good housing is choice. Choice is provided when there is a variety to choose from. When there is enough choice, people can find housing to suit their needs. This concludes why vacancy rates matter in the housing system. Bad housing is housing that families are forced to live in. Bad housing is vacant when everyone has a choice. Therefore, reasonable variety of housing should be available and provided.⁶³

Planners have attempted to encourage social mixing, incomes and age groups, at neighbourhood or community levels. It is thought to create benefits such as improved social justice, equality of opportunity, compassion, diversity and a sense of community although there is little evidence to support these benefits.⁶⁴ An essential part of mixed, integrated communities is affordable housing for low and modest income households.⁶⁵ Cities achieve these communities by setting rules and regulations that for new developments a percentage of the units have to be affordable. Having market rate housing weaved with affordable housing starts the social and income mixes. Oxley Woods in the UK, for example is approximately 2/3 market rate and 1/3 affordable housing.

Variety and social mixing can also be achieved by providing different unit sizes for different household types.⁶⁶ Oxley Woods has 10 different designs with units having two to five bedrooms. This variety means couples of any age without children, families with children, single parents, can all find suitable arrangements. The Creighton/Gerrish Affordable Housing Initiative in Halifax provides townhouses, bachelor units, one and two bedroom units. They go even further by providing varying tenures from rentals to condominiums. The Mulhouse Social Housing in France offers five different styles of townhouses, essentially. By allowing the residents choice means there is a variety to choose from.

Identity

“Housing that lacks spirit, dignity and intellect, that caters only to regulation and production, saps the vitality and degrades the values of its inhabitants.”⁶⁷

Identity is an important feature of housing. The lines get blurred when discussing variety and identity or individuality. Aspects of variety can add to the identity of a unit. Identity can be created by allowing for personalization on the interiors and exteriors. Offering occupants the ability to choose elements is one way of personalizing but can be unfeasible in an affordable housing project. Therefore, the architects initiate the expression of identity through design, presenting a variety of units. Variation of doors, window sizes, projecting elements and permutation of colour and materials are simple gestures that can distinguish one unit from the next.⁶⁸ Oxley Woods in the UK has varying heights, different coloured doors and exterior panels giving each unit its own identity while providing a variety of housing options. The second and third projects from Creighton/Gerrish Affordable Housing Initiative in Halifax use different, brightly coloured Hardi panels or



Fig. 3.42 Oxley Woods variety

Fig. 3.43 Housing elements that can create identity





Fig. 3.44 Mulhouse Social Housing, Poitevin & Reynaud project - identity through roof profile and colour

Fig. 3.45 20K Bridge House back porch



boards giving the overall building an identity and divides the building scale giving groups of units an identity within it. The Mulhouse Social Housing in France has five unique designs within the development. However, Poitevin & Reynaud and Jean Nouvel's projects better attempt at identifying the singular units within their housing blocks.

Semi-private/private outdoor space

Outdoor spaces around the home form important thresholds, separating the private spaces from the public spaces. This buffer zone not only offers an area for outdoor activities but it gives a feeling of safety.⁶⁹ Outdoor spaces can become an extension of the home, offers the residents another space to spend their time and contribute to the well being of the residents.⁷⁰ Providing outdoor space can be done in a couple of ways. Units with direct access to outside can have small, private yard space. Multi-unit buildings may provide shared, semi-private outdoor spaces by use of courtyards.⁷¹ Even though shared spaces provide better cost benefits, private outdoor space is preferred by most.⁷² Now popular shared spaces are rooftop patios or gardens. For all units not on the ground floor, a relatively easy architectural feature, which can also add character to the exterior facade, is the balcony or patio. Balconies and patios increase the liveability of units, specifically smaller ones, while providing private outdoor space. "...private patios are not luxuries but necessities in affordable housing."⁷³ They can provide variety to daily living patterns when more time is spent at home. Balconies also offer a second layer of surveillance, being at a higher elevation to watch over the common grounds.⁷⁴

The Mulhouse Social Housing in France made sure all the units had direct ground floor access. For this particular project, this was an important design feature. The size of the sites allowed for all units to have private yards. Although the privacy between neighbours has been questionable, vegetation has been used mostly to act as privacy screens. Some units have second floor balconies which look over their own yard and have street visibility. The Creighton/Gerrish Affordable Housing Initiative in Halifax provides private back yards for the townhouses and the ground floor condominiums, and shared outdoor courtyard spaces for the apartments. The first project, MNPHA, placed all entrances, stairs and balconies in the courtyard. The upper condominiums in the fourth project have balconies as well. The 20K Bridge House offers a semi-private front porch and a private back porch. 160 Ontario Street provided the best they could on a small site that needed

to accommodate parking. They provided a shared, raised deck in the back partially over some parking. It may not be the best but it provides outdoor, semi-private space for the residents.

Community/Occupant Involvement

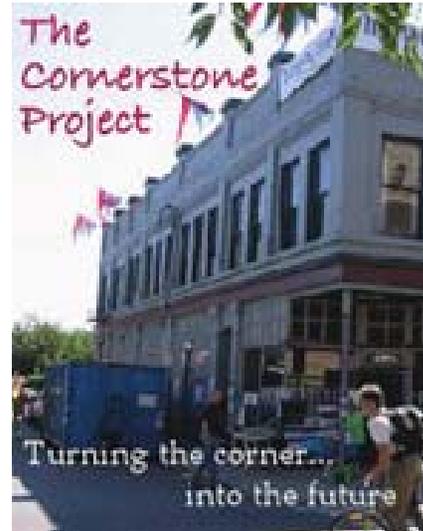
One way to lessen the effects of NIMBYism is to talk to the community or neighbourhood. Holding public meetings is a good way for the community to communicate their issues and for the architects to be able to respond and answer questions. The architects can also explain their designs and the reasoning behind their decisions. This process educates the community about affordable housing and will hopefully change some perspectives on the subject.⁷⁵ By having community involvement in the project, it allows them to be a part of the process and decisions about where they live.⁷⁶ The 20K Bridge Houses' site is inside the city limits of Greensboro, Alabama. The city was not pleased with our location. We held several public meetings to show our intentions and to get design approval. We were able to educate them about the need for the housing, the misconceptions about whom the clients were and that the design would not degrade the neighbourhood.

Occupant involvement is essential for getting the design right, for them. Meeting early in the process allows the architect to understand the future occupants design values, priorities, image, desired amenities and absolute necessities. The architect must be open minded and be responsible to interpret, orchestrate, and note take.⁷⁷ Then the architect must take all this information and produce buildings and spaces that would satisfy their needs.⁷⁸ Some argue that this process can not generate distinguishable architecture but is legit to benefit the occupants. The Cornerstone Building in Victoria became a reality because of the community and occupant involvement. The Fernwood NRG held public meetings where decisions were made about what to do with the building. The Regent Park redevelopment found that community engagement was vital to the process by giving feedback which informed planning principles for the entire project.⁷⁹ The Mulhouse Social Housing in France allowed the occupants to choose which of the five projects that they wanted to live in. Following the move in, regular meetings have been held between the occupants and the architects to give feedback about their quality of life in their new homes.⁸⁰ This information will better inform future developments.



Fig. 3.46 St. Catharines Mainstream Non Profit Housing Project, Gateway Residential and Community Support Services of Niagara back deck

Fig. 3.47 The Cornerstone Building - volunteer involvement



Cornerstone wins award

>> BY TRISH RICHARDS

Congratulations Fernwood! Victoria's Hallmark Society has acknowledged your volunteer efforts. The Fernwood Neighbourhood Resource Group recently received the Hallmark President's Award for the "Rescue and Adaptive Reuse of the Cornerstone Building in the Heart of Fernwood."

George Wimpey – one of the UK’s leading housebuilders – has teamed up with internationally renowned architect, Rogers Stirk Harbour + Partners (RSHP – formerly Richard Rogers Partnership), to challenge modern housebuilding and deliver the homes of the future.



Fig. 3.48 Oxley Woods under construction

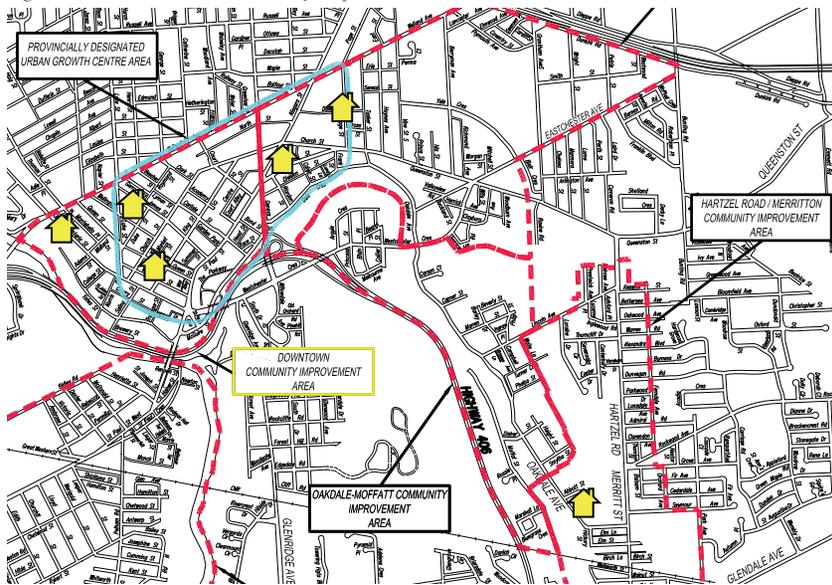
Integrated design team

Integrated design teams are becoming more popular. Collaborative teamwork has the ability to save time and money on projects. In today’s world, time is money and everyone’s time has a price. Time and money can be saved when a project finishes ahead of schedule. For this to happen, everyone has to have a collective vision and work together.⁸¹ For example, when architects and engineers work simultaneously on a project problems are revealed sooner and solutions are proposed for fast remedies. Communication is essential for the success of an integrated design team. Another example is bringing the contractor or builder on board earlier as they can be a useful resource for material and labour.⁸² This was the situation for Oxley Woods in the UK. The home builder was meeting with the architect from the beginning. The home builder’s knowledge on modern methods of construction paired with the architects knowledge of design, the team was able to produce a kit of parts to be swiftly assembled. They also worked closely with the engineers to produce a compact service block.

Location

Besides the actual unit, location is the next major factor to determine the experience of the household’s quality of life.⁸³ A poor site selection can take a good design and make it a failure. Site choice needs extra consideration when dealing with affordable housing. Low-income households have to budget their money accordingly and do not have a surplus of extra spending. When selecting a site, it needs to be evaluated based on its cost saving advantages and disadvantages. Downtown, urban sites are optimal for affordable housing because they can offer an abundance of services in a smaller radius. Having daily or weekly destinations within walking or biking distance is good for everyone but especially good for affordable housing.⁸⁴ Downtown locations offer convenience by being central and accessible.⁸⁵ When destinations are not as close, public transit needs to be close by to get them there. If not located near a transit hub, at least choose a site close to a transit stop. Public transit is cheaper than a vehicle and not everyone has the luxury of owning a vehicle.⁸⁶ Larger populations of people in denser developments or neighbourhoods make public transit more economical.⁸⁷ By using these good attributes of downtowns it should be easy to convince people to want to live there. Downtown or urban sites have higher land value. To make it more feasible for developers, some cities have added perks to save money. For example, St. Catharines has a Community Improvement Program (CIP) with designated areas.

Fig. 3.49 St. Catharines Community Improvement Plan



(See figure 3.49) All of the St. Catharines case studies are located in the downtown CIP area except for Abbott Mews. Therefore, they all have an excellent location. The Mulhouse Social Housing in France has a transit route along the main street behind Jean Nouvel’s project that is highlighted as a selling point. Oxley Woods has a transit route connecting this new development to the existing city.

Community background research

Community background research should be the first course of action for any project. If a site has not been chosen yet, the information collected can help with the site selection. This research will inform the “who” and “what” questions. Who needs housing and what form is needed to accomplish this? The “who” can be determined by researching the city’s profile and statistics. Finding out who has longer wait times for affordable housing and the number of specific units available help define as well. Another research method is talking to the community to ask them what is needed and where. Once the site is selected, research on the site, context and character is needed to inform the building mass. It is important to understand the local vernacular so that the design can integrate into the existing fabric.⁸⁸ The varying household types have different needs and priorities when it comes to their living arrangements. When the chosen clientele have been determined, asking them what they want and need will aid with the design of the building.

“...form of housing is influenced by multiple elements such as politics, regulations, desires of the client, user needs and community expectations.”⁸⁹

The Fernwood NRG held meetings to discuss what to do with the Cornerstone Building in Victoria and what the community wanted and needed. These meetings and research sessions began because the neighbourhood was beginning to become run down and it needed a catalyst project to keep residents from leaving. There was housing issues as well which prompted the Fernwood NRG to provide some affordable housing. When designing the 20K Bridge House, we studied the vernacular architecture and the previously built 20K houses. Our meetings with the city informed us what was and what was not acceptable for our site.



Fig. 3.50 Mulhouse Social Housing site plan

Fig. 3.51 Vernacular housing research for 20K Bridge House

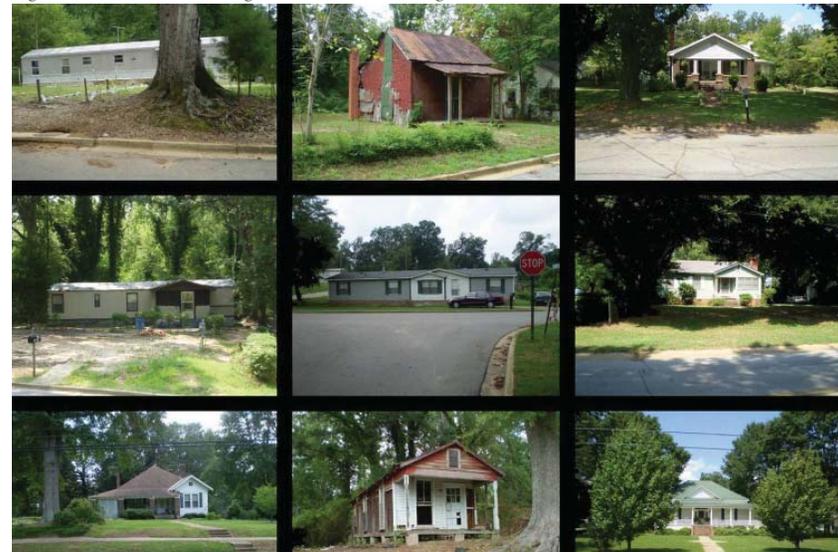




Fig. 3.52 Left - Oxley Woods front entrance with large windows

Fig. 3.53 Right - Informal surveillance from balcony

Fig. 3.54 Genesis Court front entrance and parking lot



Safety design features

Safety has to be considered for the neighbourhood, the street and the home. Providing and designing safety features help to make a house feel like 'home'. The building and place should provide a sense of security. Designing a place which encourages social interactions and neighbourliness promotes a safe environment.⁹⁰ There is some evidence to show that the form housing takes – in terms of physical characteristics of the dwelling, its match with household needs, its affordability, and neighbourhood characteristics including access – are important in some specific ways to social well-being and safety.⁹¹ Some design safety features are adequate lighting, inside and out, windows and balconies for 'eyes on the street', one secure entrance with fewer units and, if possible, an intermediate space between the building and the street. Providing a reasonable amount of units within the whole building and per floor allow people to know their neighbours even just visually.⁹² A sense of safety and privacy can be achieved by not placing liveable units at street level of a major street. The location of the units will be more attractive by providing safe parking spots for resident's vehicles.

Oxley Woods is a good example of having high visibility. The units have large windows looking onto the entrances and have large windows on the second floor overlooking the streets allowing for informal surveillance.⁹³ Thus, making the units feel safer for the occupants. Genesis Court in St. Catharines provides one main, secure entrance into the building. This design move should be able to detect unwanted people in the building. Also, their parking lot is right beside the main entrance although not pleasant from the street but it makes the occupants feel safer about their vehicles.

Affordability

It costs money to build. How do you make housing affordable? Overall savings will occur as a result of measures taken throughout the entire process; from site selection to the finished units.⁹⁴ The following suggestions are directed at the building and unit designs. The act of repetition brings down the overall cost of construction. Repetition can improve construction efficiency, resulting in a shorter building period and lower the cost for purchasing materials.⁹⁵ This strategy does not mean that every single unit has to be the exact same, producing a boring monotonous building. It would be acceptable for a 30 unit building to have up to 3 or 4 unit types.⁹⁶ For example, Oxley Woods, as mentioned earlier, has 10 different designs spread over 145 units. Although the 20K Bridge House is just one unit, one of the goals was to design a house that could be easily replicable, thus being able to produce multiples quick and inexpensively. An example of boring monotonous buildings is the Abbott Mews project in St. Catharines but it is affordable.

Higher densities help achieve affordability by housing more people on less land but we have learned that this cannot be the only strategy used by example of the tower typology. More units on shared land can decrease infrastructure expenses, potentially lowering the cost per unit.⁹⁷ Medium density is still better than low density and can create smaller buildings with fewer units which create healthier living environments. Smaller developments may be more costly to build but they can stop 'ghettos' from forming and can blend easier into the existing community as to not evoke NIMBY. However, there is power in numbers and less units result in a loss of economies of scale.⁹⁸ The Creighton/Gerrish Affordable Housing Initiative in Halifax built multiple smaller buildings instead of one massive building. This spread out the affordable housing throughout the block but still provided medium density buildings.

Construction cost is part of the affordable equation. Designing smaller, efficient units reduce construction costs.⁹⁹ It is also important for the maintenance and operation costs to be affordable. Joining and stacking units' results in less energy consumption, since there are less exterior walls and roof for heat loss.¹⁰⁰ Overall designs should not have left over confused, wasted space. Undefined spaces that no one cares for quickly become deteriorated.¹⁰¹ Resulting with someone having to pay for it to be taken care of. When it comes to housing, space is used more when it has a purpose or a program. Efficient designs are key for keeping



Fig. 3.55 Abbott Mews monotonous facade

Fig. 3.56 20K Bridge House efficient floor plan





Fig. 3.57 Oxley Woods Eco Hat

down the construction costs. The 20K Bridge House has a smaller efficient plan that cost just that; \$20,000 for labour and materials.

Once the housing is built affordably, the next step is keeping it affordable. Sometimes residents can pay their rent but fall short for their utility bills. Strategic planning and designing can help. Energy saving systems such as geothermal heating is expensive up front but saves money in the long term. Low density in a compact form benefits multiple sectors. It can limit the use of vehicles by making cycling, walking, and public transit more feasible; reduce land usage allowing natural habitats to remain; infrastructure costs are lower, ranging from water treatment to garbage and recycle collection; and reduced energy consumption in comparison to single detached housing.¹⁰² Social enterprise is useful for revitalization and can aid in making the building more affordable. It can employ the residents and contribute to the buildings' operational costs like the Cornerstone Building in Victoria.

PRINCIPLES	STRATEGIES	SOURCE	PROJECT EXAMPLES	IMAGES
1. Revitalization	<ul style="list-style-type: none"> - Integrate building into existing fabric and respect context. - Provide social enterprise. - Respect existing scale of surrounding buildings. - Renovate an underutilized or abandoned building or infill a site to complete the street edge. 	<p>Lewis, Sally. 2005. P. 11,12, 58 Friedman, Avi. 2005. P. 25, 152 Davis, Sam. 1995. P. 101 Cliff, Ursula. 1971. P. 57 Heath, Tim. 2001. P. 465</p>	<p>Creighton/Gerrish Affordable Housing Initiative The Cornerstone Building Stokes Community Village Regent Park</p>	
2. Variety	<ul style="list-style-type: none"> - Provide different sizes of units for different household types. - Provide multiple room units (ie. 2 bedroom units) - Allow for social mixing and an inclusive community. 	<p>Lewis, Sally. 2005. P. 43 Sewell, John. 1994. P. 47 Lewis, Sally. 2005. P. 12 Chisholm, Sharon. 2003. P. 13</p>	<p>Oxley Woods Creighton/Gerrish Affordable Housing Initiative Mulhouse Social Housing Regent Park</p>	
3. Identity	<ul style="list-style-type: none"> - Allow for personalization within the individual units. - Design a varying exterior with interesting features. - A smaller scale building houses less people to meet each other. 	<p>Sewell, John. 1994. P. 46 Davis, Sam. 1995. P. 93, 94 Phillips, Patricia. 1982. 73:81 Murray, John A. 1970. Friedman, Avi. 2005, P. 185, 214</p>	<p>Oxley Woods Creighton/Gerrish Affordable Housing Initiative</p>	
4. Community/ Occupant involvement	<ul style="list-style-type: none"> - Hold public meetings in the community. - Include future occupants in the design phase. - Educate community about affordable housing. 	<p>Davis, Sam. 1995. P. 40, 47 Friedman, Avi. 2005. P. 29, 212 Cliff, Ursula. 1971. P. 50 Lewis, Sally. 2005. P. 37</p>	<p>The Cornerstone Building Mulhouse Social Housing 20K Bridge House Regent Park</p>	
5. Human scale	<ul style="list-style-type: none"> - Design features similar to single detached houses. - Fewer units equal a smaller building. - Awnings/overhangs project out, dividing the facade, giving the appearance of a shorter building. 	<p>Davis, Sam. 1995. P. 93, 65, 94 Sewell, John. 1994. P. 46 Friedman, Avi. 2005, P. 145, 214 Murray, John A. 1970.</p>	<p>Genesis Court 160 Ontario Street Creighton/Gerrish Affordable Housing Initiative</p>	

6. Integrated design team	<ul style="list-style-type: none"> - All parties are involved in the design. - Ensure all members have the same goals in mind. 	<p>Davis, Sam. 1995. P. 71, 127 Lewis, Sally. 2005. P. 12</p>	Oxley Woods	
7. Semi-private/private outdoor space	<ul style="list-style-type: none"> - Provide ground floor access where possible. - Balconies/patios offer private outdoor space. - Rooftop gardens provide larger shared spaces. 	<p>Coleman, Alice. 1990. P. 180 Davis, Sam. 1995. P. 64 Sewell, John. 1994. P. 46 Lewis, Sally. 2005. P. 68 Friedman, Avi. 2005. P. 192, 196 Murray, John A. 1970.</p>	Mulhouse Social Housing Creighton/Gerrish Affordable Housing Initiative 20K Bridge House 160 Ontario Street	
8. Location	<ul style="list-style-type: none"> - Locate building close to public transportation. - Locate building close to amenities. 	<p>Lewis, Sally. 2005. P. 12, 40 Heath, Tim. 2001. P. 466 Friedman, Avi. 2005. P. 25</p>	Mulhouse Social Housing Oxley Woods Regent Park	
9. Community background research	<ul style="list-style-type: none"> - Assess community profile/population. - Provide housing for most needy group in the community. - Confirm city plan/image for designing purposes. 	<p>Lewis, Sally. 2005. P. 11 Friedman, Avi. 2005. P. 30, 214</p>	20K Bridge House The Cornerstone Building Regent Park	
10. Safety design features	<ul style="list-style-type: none"> - One highly visible main entry and fewer units per entry allows for informal surveillance. - Fewer units per building and per floor equal less residents who can be recognized. - Provide areas for 'eyes on the street'. 	<p>Coleman, Alice. 1990. P. 182 Sewell, John. 1994. P. 47 Coleman, Alice. 1990. P.177,179 Lewis, Sally. 2005. P. 41,42</p>	Oxley Woods Genesis Court	
11. Affordable	<ul style="list-style-type: none"> - Design repetitive units (ie. stacking). - Eliminate wasted exterior space. - Design for appropriate density for the site and for building cost. - Provide social enterprise. - Integrate energy saving systems into the design. 	<p>Davis, Sam. 1995. P. 71, 65 Coleman, Alice. 1990. P. 179 Friedman, Avi. 2005.</p>	Oxley Woods 20K House Creighton/Gerrish Affordable Housing Initiative The Cornerstone Building	

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DESIGN APPLICATION

COMMUNITY PROFILE

Location

St. Catharines, also known as the Garden City, is located in south-central Ontario and part of the Niagara Region. The Niagara Region is surrounded by Hamilton to the west, Lake Ontario to the north, the United States border and Niagara River to the east and Lake Erie to the south. The Niagara Peninsula is a major land bridge between Canada and the United States. St. Catharines is sandwiched between Lake Ontario and the Niagara Escarpment to the south. It is the largest city in the region with a population of 131,989 people and has a total area of 95 square kilometres. Its location provides easy access to major urban centres located within a 160km radius such as Toronto, Hamilton, Buffalo and Rochester. Other cities such as Windsor, London, Syracuse, Cleveland, Detroit and Pittsburgh are all less than 460 kilometres away.¹ St. Catharines and surrounding cities are easily accessible by plane, train and automobiles. (See figure 4.1)

St. Catharines enjoys a unique micro-climate created by Lake Ontario to the north and Lake Erie to the south while being sheltered by the Niagara Escarpment. The escarpment runs from the Niagara Region north to Tobermory in the Bruce Peninsula. The escarpment rises about 50m and has been a major factor in the region's development. The micro-climate of Niagara enables grape productions and tender fruits which is how Niagara became known as the Fruit Basket of Canada.²

History

St. Catharines started as an agricultural community in the late 1700's, then known as "The Twelve". Later to be called Shipman's Corners after Paul Shipman who opened a tavern at an important stagecoach transfer point along the Twelve Mile Creek. Increasing amounts of grain and lumber produced by settlers in the surrounding area led to the establishment of many saw and grist mills along the Twelve Mile Creek. The growing industry attracted business and businessmen alike. In 1815, leading businessman William Hamilton Merritt relocated his wharf at Shipman's Corners and started up several lumber and grist mills along the creek. By this time, St. Catharines was the official name of the village.

Merritt devised a canal scheme connecting Lake Erie and Lake Ontario

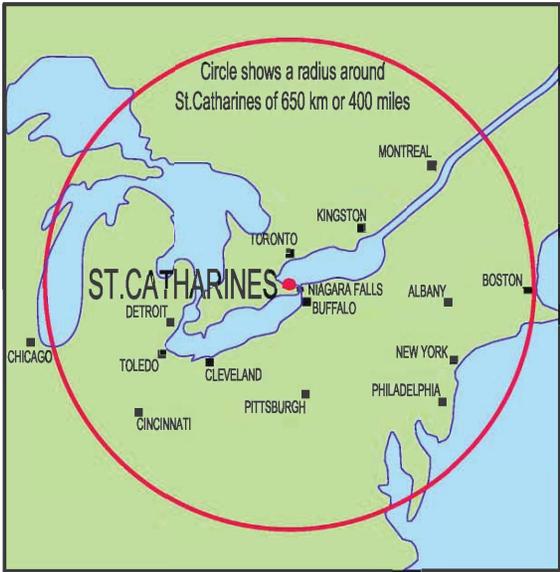
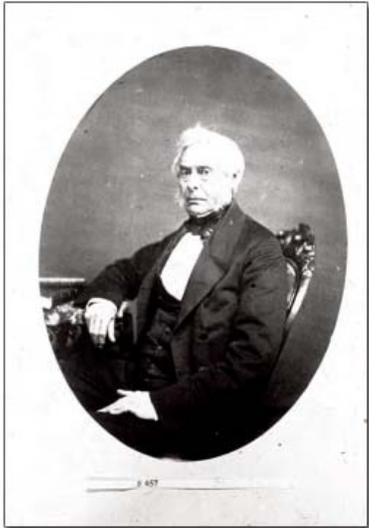


Fig. 4.1 Southern Ontario map with St.Catharines location

Fig. 4.2 William Hamilton Merritt



to move Canadian exports wholly through Canada. It would also provide a more reliable water supply for the mills. The first Welland Canal was completed in 1829. The canal and the mills marked St. Catharines as the most industrial centre in Niagara. In 1845, St. Catharines was incorporated as a town. Soon after came the railroad which ran through the town making further inland connections. Throughout this time, the town continuously attracted additional population.

The larger ships and milling industry started to interfere with each other as the canal could not accommodate both activities. Milling started to decline and move to places such as Port Colborne on Lake Erie. The Welland Canal was rebuilt another three times after the first. In the early 1900s, St. Catharines manufacturing became increasingly important. In 1932, the Fourth Welland Canal was opened in a new location moving the canal to the east running on the edge of St. Catharines and Niagara-on-the-Lake. This move resulted in the loss of the water related industries and was the start of the decline of the downtown.³

The post war years brought the automobile and related industry to St. Catharines. Great change to the urban form as suburbanization occurred and the standard of living has improved. St. Catharines became a GM city. All good things must come to an end. The last couple of decades have brought a downfall to the city's manufacturing industry. Today the city's economy is transitioning out of a traditional manufacturing base.

Mid-size City and the Decline

Mid-size cities in Canada are defined by having a population between 50,000 and 500,000. Approximately, 35% of Canada's total population live in mid-sized cities.⁴ St. Catharines is one of the eighty-five mid-sized cities in Canada. Mid-size cities across Canada are struggling with deindustrialization and decentralized suburban development. These issues particularly affect the cities' downtowns and contribute to their decline.

St. Catharines first major industry was milling. As the city grew in population so did the industry to a point whereby it became too big for the allotted waterways. When the canal moved, so did the industry. The residents were both blessed and cursed with the automobile industry. GM Motors located to the city and the birth of a manufacturing city was in the making. They provided an abundance of employment opportunities and became the leading employer for a long time. The personal automobile, in general, started to produce infrastructural

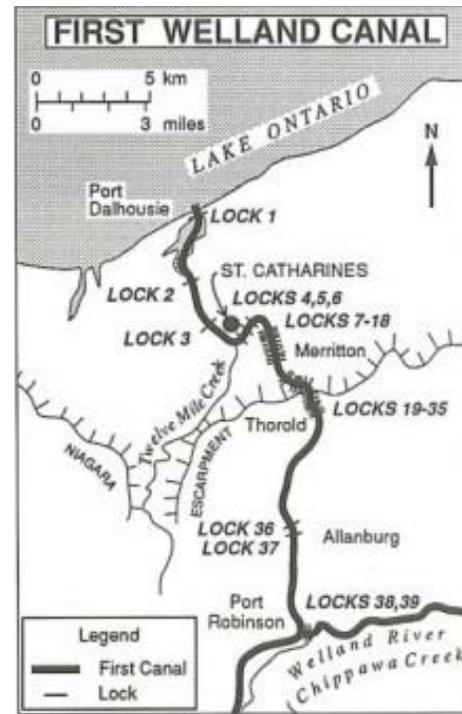


Fig. 4.3 First Welland Canal and existing (fourth) Welland Canal

Fig. 4.4 Canada Hair Cloth - located along the first Welland Canal





Fig. 4.5 General Motors Plant, St. Catharines, ON

Fig. 4.6 St. Catharines Farmers Market interiors



development across the country. St. Catharines was situated in the right location to have proximity to major markets on both sides of the border attracting additional manufacturing businesses.

Because the automobile allowed people personal freedom to private transportation, they had the freedom to live in one place and work in another. People did not need to live next door to their employment anymore. As more people starting commuting to work, there was more pressure for highways to be built. Land was also cheaper on the periphery of the city as were the houses built there. As a negative consequence, land-use became dispersed. Thus, the pattern of uniform, low-density decentralized residential and commercial development became very popular. Many cities today are still facing this challenge including St. Catharines.

Combined, these two issues result in the decline downtowns. St. Catharines is no stranger to this phenomenon. Many residents who lived in the downtown area had the ‘American Dream’ within reach. They wanted affordable, large homes backyards. As such, they moved out (with the help from their cars) to the suburbs leaving the downtown empty. The lack of people induced a perception that the downtown was unsafe and was riddled with crime. The people who fled from the downtown left a stigma in their place. The “undesirable” downtown now has to compete with cookie-cutter suburbs for residents, suburban shopping malls, and big box stores for business.

“Most people consider living within mid-size city centre as inconvenient. What was once valued as the city’s economic and political centre is now deemed out of the way, inconvenient and no longer viable.”²⁵

Downtown

The downtown today stands spreading out from where the First Welland Canal was built. St. Paul Street is the backbone and main street of downtown named after Paul Shipman. The downtown is home to a variety of specialty shops, ethnic and contemporary restaurants, cafes, clubs, and the Farmer’s Market. The “Garden City” is renowned for its parks, gardens and trails such as Montebello Park, designed by Fredrick Law Olmsted, which is centrally located in the downtown.

Many city events are held their yearly such as Niagara Grape and Wine Festival, Ribfest, and other charity fundraisers. One of the major trails, the Merritt Trail, runs through the downtown.

People

From 2001 to 2006, the population of St. Catharines has grown by 2.2%. At 131,989, the population of St. Catharines accounts for more than 30% of the Niagara Region's population. There has been a rise in the number of seniors living in the city. At the same time, St. Catharines has been losing their younger working population aged 25-44. The number of children has dropped which is no surprise with household sizes shrinking and women waiting longer to have babies.⁶ The unemployment rate has risen within the last two years to 11%. When compared to other cities in southern Ontario, St. Catharines has the second highest unemployment rate below Windsor at 12.2%.⁷ General Motors was once the number one employer in the city. It is now the third largest employer under District School Board of Niagara and Niagara Health System. Following not much lower than GM is Seaway Marine Transport Inc. and Brock University.

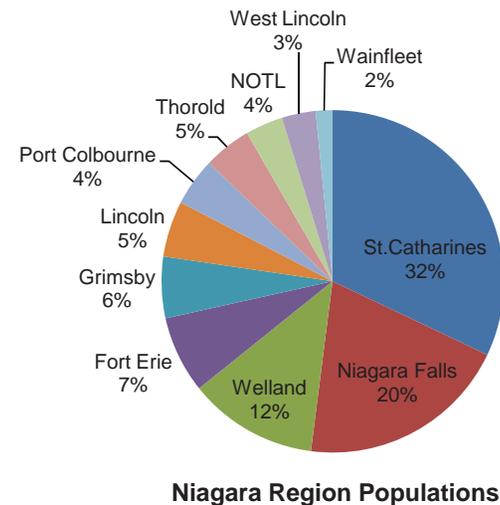
Affordable Housing

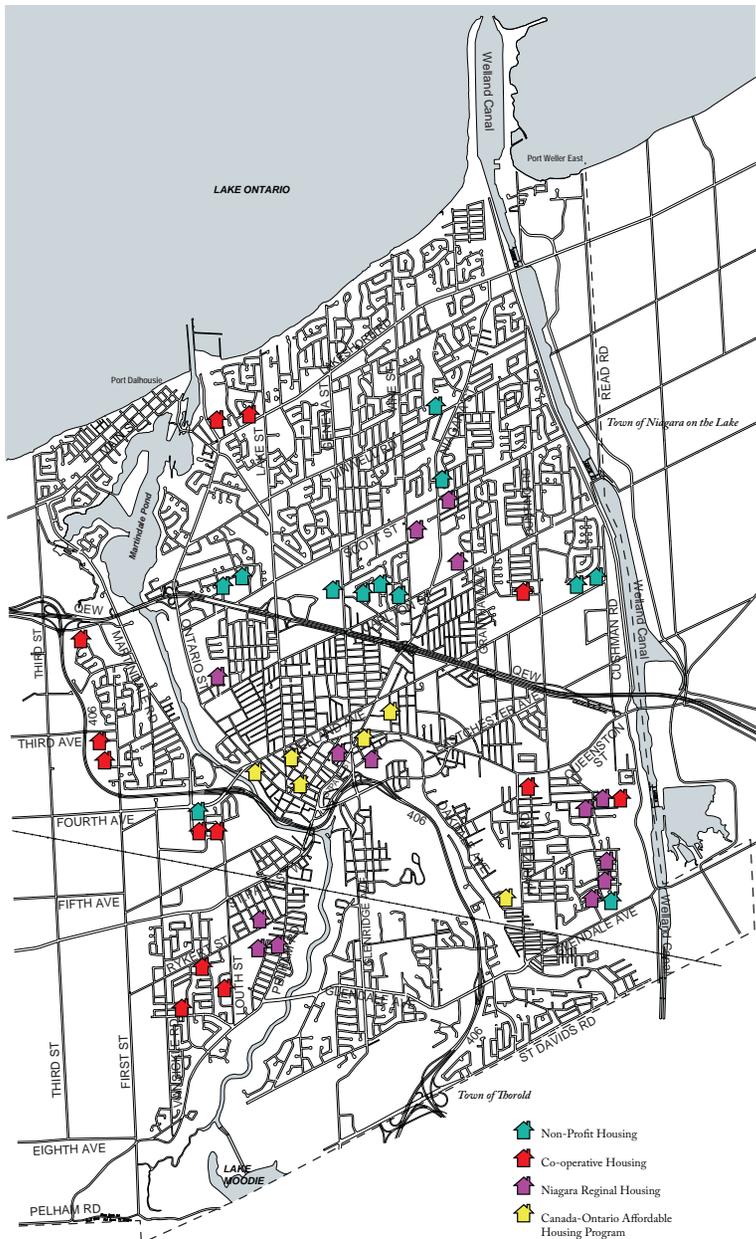
The Niagara Region has been faced with long wait lists for affordable housing. St. Catharines longest wait times are 5 years for a bachelor and 4.5 years for a 1 bedroom unit (single non-senior). Seniors can wait for up to 2.5 years for a 1 bedroom unit.⁸ There is limited new affordable housing being developed under the new federal-provincial Affordable Housing Programs, unfortunately, the existing affordable housing is aging, and becoming inadequate. These factors contribute to the longer wait lists as well as the nation-wide recession. In the first quarter of 2009, applications for affordable housing increased by 19%. A 2004 housing analysis revealed that close to more than 450 units will be required annually to accommodate Niagara households with incomes below \$30,000. In 2006, 46.1% of tenants spent more than 30% of their income on housing, while 19% of them spent over 50%.⁹ At the end of the 2009 year, 4,506 households were on the affordable housing wait list. Being on a wait list makes a household vulnerable to instability: "The instability makes it difficult to find or maintain



Fig. 4.7 St. Catharines Ribfest

Fig. 4.8 Niagara Region Populations





employment, integrate into school, establish social connections and become a part of the community.”¹⁰

Households on the wait list can be hard to place depending on their income. Rents have been increasing due to the lack of new supply combined with increased demand. This factor may place some units out of reach for the lower incomes.

Scattered throughout St.Catharines, there are 53 affordable housing developments. After mapping out the development locations, little clusters are found in certain neighbourhoods and a few are located in the north end of the city. The clusters represent man-built ‘poor neighbourhoods’ stigmatizing those areas of the city as ‘ghettos’. (See figure 4.9) Since the new Federal-Provincial Affordable Housing agreements in 2001, there have been 7 new affordable housing projects. These projects have added 157 affordable units to the already existing 2589 affordable units. Most of the newer projects are located in the downtown because of the city of St.Catharines Community Improvement Program (CIP). This program identifies neighbourhoods that need improvements. If one builds in these areas, the city offers perks that usually benefit the construction costs such as development fee waivers. These projects are smaller, fewer units, and appear to be evenly distributed, integrated throughout the downtown.

Fig. 4.9 Affordable housing developments in St. Catharines



1 - Genesis Court



K - St. Catharines City Hall



L - Robert S. K. Welch Courthouse



A - Public Library



C - Police Station



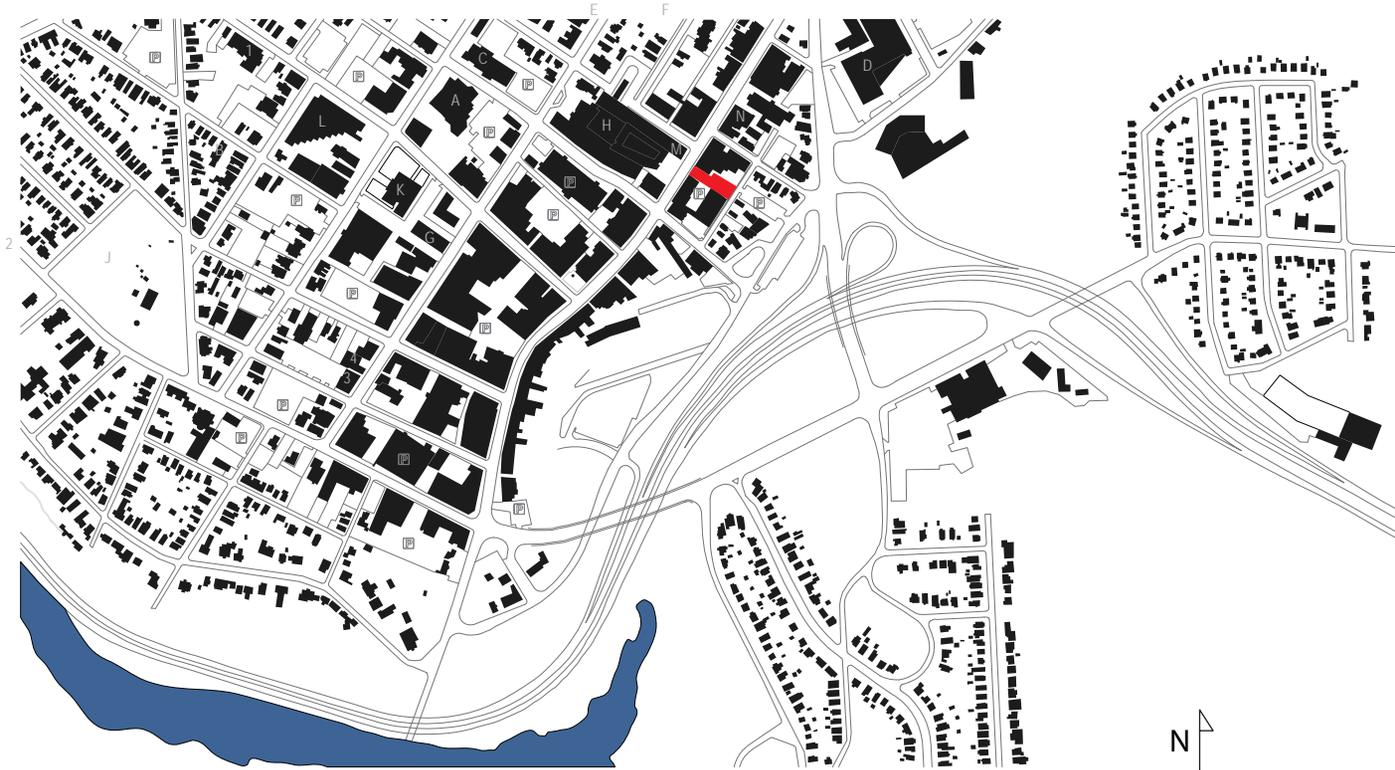
2 - St. Catharines Mainstream Non Profit Housing Project



3 - Meie Management



4 - 21 King Inc.



- 1 - Genesis Court
- 2 - St. Catharines Mainstream Non Profit Housing Project
- 3 - Meie Management
- 4 - 21 King Inc.

- A - Public Library
- B - Canadian Mental Health Association
- C - Police Station
- D - Garden City Complex Arenas
- E - YWCA
- F - The Raft (youth homeless shelter)
- G - Market Square
- H - Bus Terminal
- J - Montebello Park
- K - St. Catharines City Hall
- L - Robert S. K. Welch Courthouse
- M - Information Centre
- N - Learning Disabilities Association of Niagara and Niagara Artists Centre

- Parking Lots/garages
- Proposed Site



J - Montebello Park - pavilion



J - Montebello Park - rose garden



G - Market Square



D - Garden City Complex Arenas

APPLICATION

I chose to apply these design principles to a site located in St. Catharines because it is my home town and it has a deteriorating downtown that still has potential to become a great place once again. From researching the housing situation, I have concluded that single non-elderly affordable housing has the longest wait times (ie. bachelor or one bedroom units). (See appendix A1) The ultimate goal for this building is to not only provide quality affordable housing but become a catalyst for revitalizing the downtown. (See figure 4.10)

This design proposal incorporates the following principles listed in the previous chapter: revitalization, human scale, variety, identity, semi-private/private outdoor space, location, safety design features, affordable and community background research. Although integrated design teams and community/occupant involvement are not visual elements, I also envision these principles being potentially applied.

When investigating site options, I had a specific agenda in mind. The site needed to be situated on a main street (or be situated closely to commercial/retail) so that social enterprise could be easily incorporated, sustainable, and compatible to its surrounding. The site had to be located in a higher density area because higher density projects increase the affordability.¹¹ I noticed that there are several parking lots (gravelled sites) around my site area. They appear to be excessive, underutilized, and poorly designed. The site location also has to consider the potential for revitalizing the neighbourhood (ie. Respecting context and building heights, infill, and potential social enterprise). (See figure 4.11)

The chosen site is a parking lot located on the main street of the downtown, St. Paul Street. According to the Official City Plan, this site is designated for mixed medium high density residential/commercial. (See appendix A2) To the left of the parking lot is a two storey building with Miki Wireless (cell phone retailer) on the ground floor. To the right is a three storey building with a tattoo/piercing parlour, a hair salon and a noodle house on the ground floor. (See figure 4.12) Beside this building is the entrance to a movie theatre, used for rentals (which is 'L' shaped touching the back end of my site). The three storey building and theatre help create a 'U' forming a courtyard. (See figure 4.14) It is presently used as a parking lot allowing for fire exits. My design concept supports the existing parking lot with

Fig. 4.10 Downtown site plan and images (Opposite page)

Fig. 4.11 Site Plan 1:2000

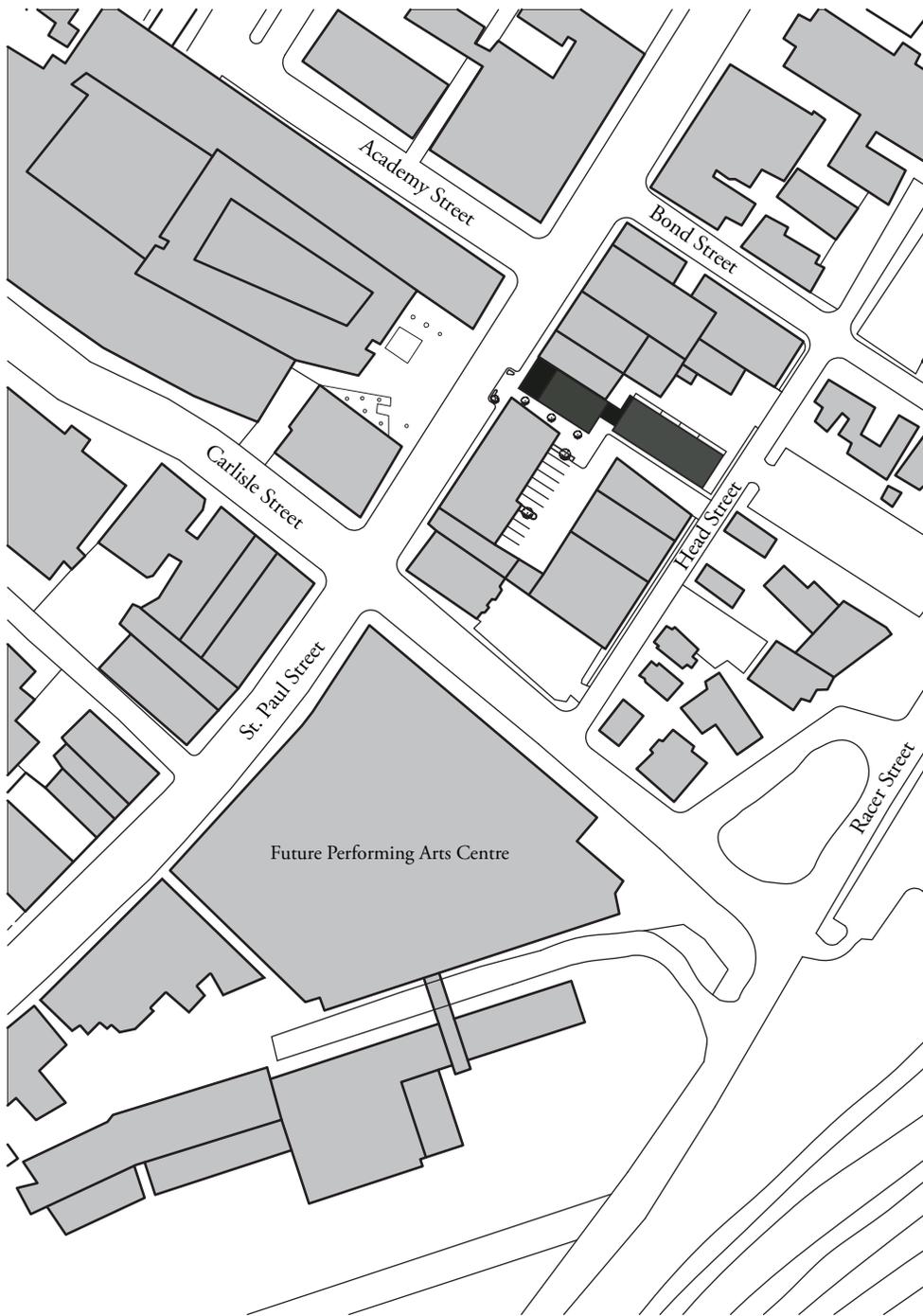


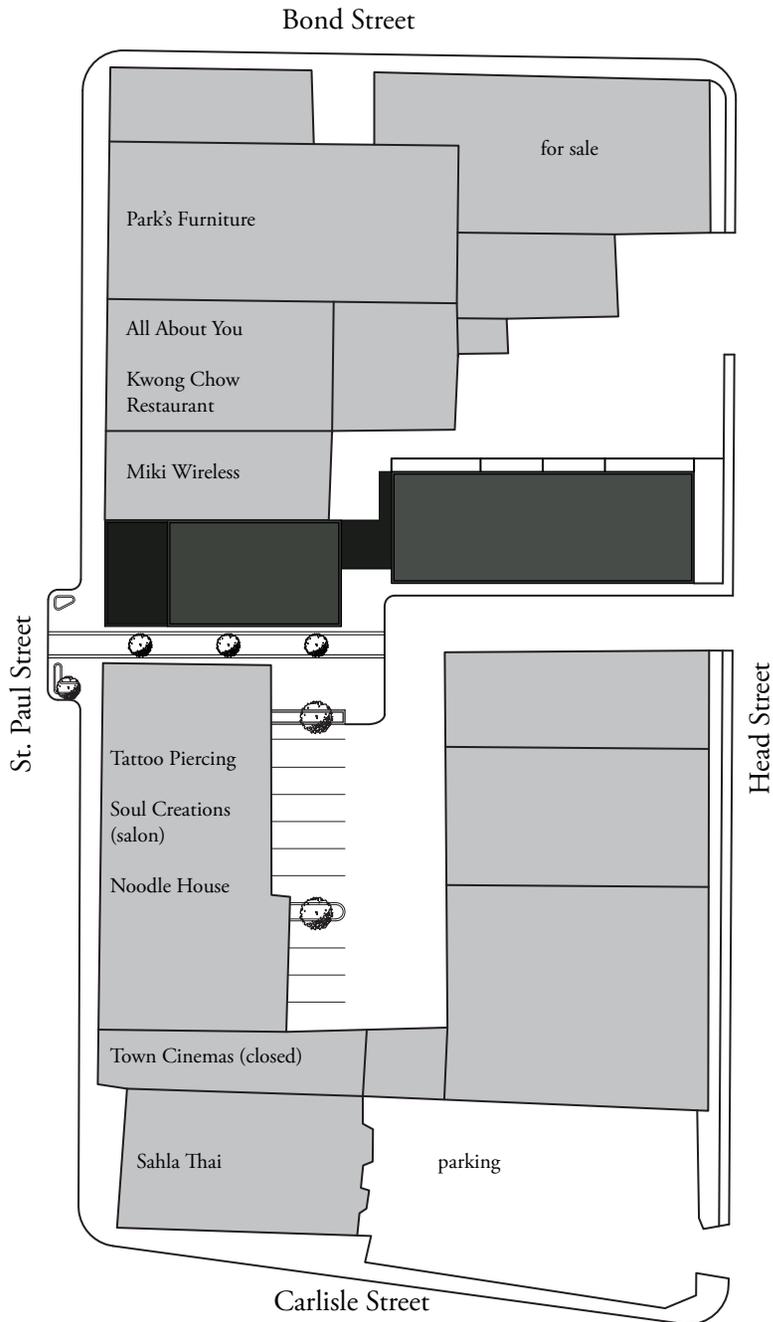


Fig. 4.12 St. Paul Street existing elevation



Fig. 4.13 Head Street existing elevation

Fig. 4.14 Site Plan 1:750 (Opposite page)



Site Plan 1:750

the assumption that occupants in my building proposal could park there. Even though I provided some aesthetics for the parking, it is still hidden - preferred by occupants in not having the parking overly visible.¹² Zoning regulations also require more parking spaces than I have provided. However, my arguments for fewer parking spaces are based on the premise that “more parking space is needed by mature families with children at driving age than senior citizens or singles”.¹³ The site is centrally located with access to transit. It is also located within the boundaries for the CIP which would reduce construction costs.

The massing of the building has to integrate with the existing fabric. The building is two volumes connected by walkways. The front volume on the main street is three stories and steps back to four stories. The three storey height is determined by the existing buildings. The second volume behind is five stories. There are no height restrictions for this site written in the city regulations. The two volumes are jagged to allow for the parking drive to remain and for those units to receive more natural light. Instead of filling in the entire street edge, a walkway has been put in place. This allows for through access for people living in the back units and it allow for another two units in the front volume. (See figure 4.15)

The exterior cladding needs to be cost effective, durable, and easily maintainable. The cladding is a combination of fibre cement panels and glass. The panels bring more colour and vibrancy to the street. The window systems act as a second layer in the facade where the wall is inset. The fibre cement panels and the window systems work together to add variety to the facade. (See figures 4.20 and 4.21) The treatment for the commercial on the ground floor differs from the living units above as to indicate the different occupancy and to integrate with the existing buildings. There are awnings along the store fronts for shelter and to bring the building down to human scale.

The ground floor of the front volume contains a laundry mat, a retail space and a cafe (250 meters squared). These programmed spaces will help activate the new pedestrian walkway by bringing people into the space, which in turn makes it safer. The walkway provides seating and trees for shaded areas. There is space designated for the cafe to spill out and have an outdoor patio. (See figure 4.17) Instead of using prime ground floor area for access and circulation, the main entrance to the units is located indirectly off this new walkway. The next two floors are living units. Having residents living above the commercial can increase the sense of security.¹⁴ The second volume is all high density living units to help lower building costs, capital and operational. The ground floor has four, two-

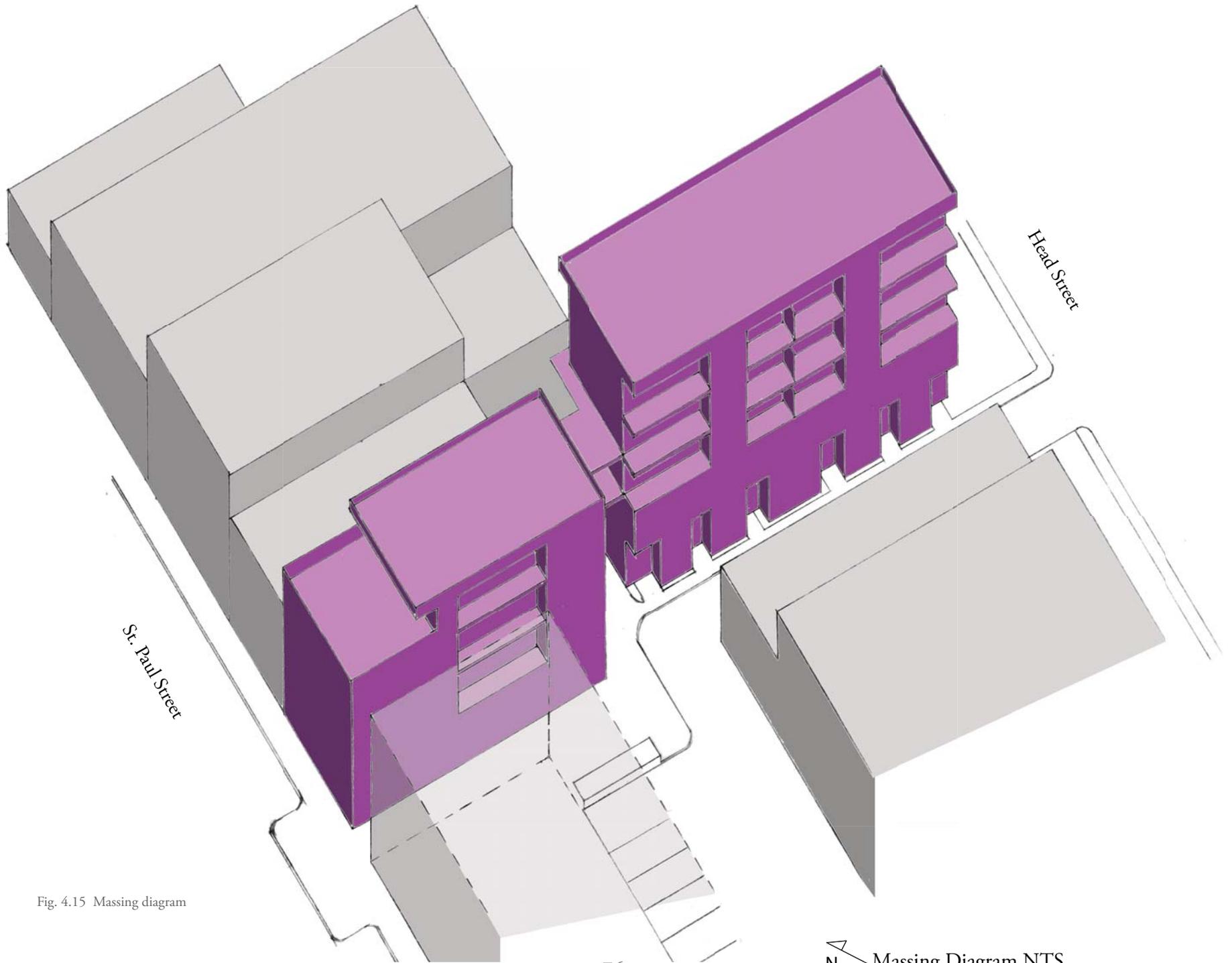


Fig. 4.15 Massing diagram

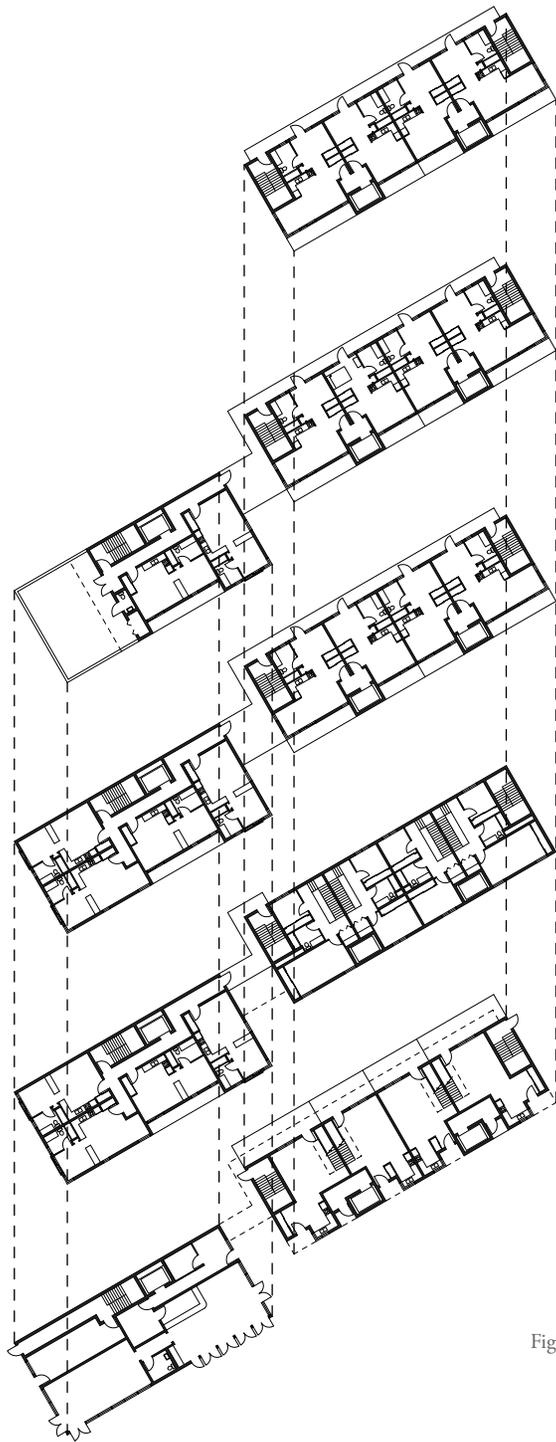


Fig. 4.16 Floor plate diagram

storey two bedroom units (92 and 110 meters squared). They have direct access from the street and are provided with a small private backyard. The front and back doors have overhangs created by the structure above offering shelter as well as brings the building down to human scale. The entrances are setback creating a threshold. The ground floor is devoted to public spaces such as the kitchen and living rooms. The second floor has a bathroom and two bedrooms. Upon entry, the view extends across the interior and opens up into the open living space giving a sense of spaciousness.¹⁵ (See figure 4.18 and 4.19)

The rest of the building is accessible, one bedroom units (ranging from 40-63 meters squared). They are accessed by elevators through a small vestibule; two units per elevator. The spaces in the one bedroom units are quite similar to the 20K Bridge House, except they are a little bigger. The entrance is placed to one side as to not divide the space, allowing for one big room and increasing the efficiency of the space.¹⁶ A front closet is added to designate this space as the entrance. It can be used formally for everyday use or for storage space. The units in the front building have an open closet/shelving wall dividing the bedroom from the living space allowing light to filter though into the whole unit. The units in the back building have larger openings between the bedroom and living spaces giving a sense of openness and lightness. These units have doors in the bedroom for fire exits which utilize an open air walkway to the stairwells. By using this design feature, the open air walkway, the units are able to have windows on two facades allowing for more light and cross air ventilation.

The provision of outdoor space is done in a couple of ways. As mentioned before, the ground floor units have private backyards. Most of the units have their own personal balcony, providing a variety of units and adding character to the facade. They offer “eyes on the street” for informal surveillance and safety. (See figure 4.22 and 4.23) The units on St. Paul Street and three on the alley way are given French balconies. Lastly, there are two, shared spaces between the buildings as part of the walkway system and one rooftop patio located on the third floor.

The preliminary cost estimate for this design proposal is 2.5 million dollars. The estimate was calculated by using Hanscomb Yardsticks for Costing. Section D – Composite Unit Rates – is used for quick estimates as it breaks down the building into sections and provides general costs for prescribed construction components such as a 2x6 wood framed partition wall which includes all pieces and parts of the built wall. Therefore, all the wall surface areas were calculated, added up, and multiplied by the applicable given costs. All the major components were

covered: floor slabs, roof, concrete shear walls, fire exit stairs, elevators, exterior walls, windows and doors, railings, plumbing fixtures and interior partitions. The total cost divided by the floor area of the entire building worked out the cost per meter squared to be \$930. When using \$930/m.sq. the two bedroom units cost \$85,800 and \$102,600 and the single bedroom units range from \$40,000 - \$58,000.

Although this preliminary cost estimate may seem low, it is still almost certain that a developer cannot build without help from outside sources. To make affordable housing be affordable to the residents, there need to be some subsidies and/or funding. Funding can come from non-profit organizations or religious groups. For this proposal to be realized, government subsidies would be required.

The Federal and Provincial governments allot a sum of money within their budget to be put towards providing affordable housing. They distribute this money throughout Ontario by use of the Canada – Ontario Affordable Housing Program (AHP). The program outlines requirements and regulations that eligible projects must abide by for consideration for funding. The first step is filing an application with the city or municipality where the project proposal is located. This design proposal would apply to the Niagara Regional Housing (NRH) with proper application documents outlined in the NRH Requests for Proposals. Once applied, there is a competitive selection process where a committee reviews and determines which proposals best meet the requirements of the Canada – Ontario AHP. When these proposals are approved by the NRH Board of Directors, they are then sent to the Regional council for approval and then forwarded to the Ministry of Municipal Affairs and Housing (MMAH), the Ontario provincial government, for final approval.¹⁷ Similar procedures are followed by all cities in Ontario. Once the proposal is approved by all, an agreement is signed stating rules and regulations. The AHP will provide up to a maximum of \$150,000 per unit although the average is \$120,000 per unit, essentially providing capital funding for the development. The money is triggered and distributed upon completion of construction milestones as a safeguard. If the money is not used in a timely fashion, it is lost. The capital funding is provided so that the rents for the units can be lowered to 80% of the average market rent (AMR) in the area. They must be rented out at 80% AMR for 20 years which is stated in the agreement.

DESIGN PRINCIPLES

PRINCIPLES	STRATEGIES	SOURCE	PROJECT EXAMPLES	APPLICATION
1. Revitalization	<ul style="list-style-type: none"> - Integrate building into existing fabric and respect context. - Provide social enterprise. - Respect existing scale of surrounding buildings. - Renovate an underutilized or abandoned building or infill a site to complete the street edge. 	<p>Lewis, Sally. 2005. Friedman, Avi. 2005. Davis, Sam. 1995. Cliff, Ursula. 1971. Heath, Tim. 2001.</p>	<p>Creighton/Gerrish Affordable Housing Initiative The Cornerstone Building Stokes Community Village Regent Park</p>	<ul style="list-style-type: none"> -The building provides laundry facilities, retail and cafe at ground floor. -The height of the building respects the neighbouring building heights. -The project infills a parking lot to complete street edge.
2. Variety	<ul style="list-style-type: none"> - Provide different sizes of units for different household types. - Provide multiple room units (ie. 2 bedroom units) - Allow for social mixing and an inclusive community. 	<p>Lewis, Sally. 2005. Sewell, John. 1994. Chisholm, Sharon. 2003.</p>	<p>Oxley Woods Creighton/Gerrish Affordable Housing Initiative Mulhouse Social Housing Regent Park</p>	<ul style="list-style-type: none"> -The building provides 1 and 2 bedroom units. -There are 2 types of single units. -I foresee different tenures and some market rate units.
3. Identity	<ul style="list-style-type: none"> - Allow for personalization within the individual units. - Design a varying exterior with interesting features. - A smaller scale building houses less people to meet each other. 	<p>Sewell, John. 1994. Davis, Sam. 1995. Phillips, Patricia. 1982. Murray, John A. 1970. Friedman, Avi. 2005.</p>	<p>Oxley Woods Creighton/Gerrish Affordable Housing Initiative</p>	<ul style="list-style-type: none"> -Personalization would happen with the interiors finishes. -The exterior varies. -The building is composed of 26 units.
4. Community/ Occupant involvement	<ul style="list-style-type: none"> - Hold public meetings in the community. - Include future occupants in the design phase. - Educate community about affordable housing. 	<p>Davis, Sam. 1995. Friedman, Avi. 2005. Cliff, Ursula. 1971. Lewis, Sally. 2005.</p>	<p>The Cornerstone Building Mulhouse Social Housing 20K Bridge House Regent Park</p>	<ul style="list-style-type: none"> -I would insist on community/occupant involvement as it is highly important to the process.
5. Human scale	<ul style="list-style-type: none"> - Design features similar to single detached houses. - Fewer units equal a smaller building. - Awnings/overhangs project out, dividing the facade, giving the appearance of a shorter building. 	<p>Davis, Sam. 1995. Sewell, John. 1994. Friedman, Avi. 2005. Murray, John A. 1970.</p>	<p>Genesis Court 160 Ontario Street Creighton/Gerrish Affordable Housing Initiative</p>	<ul style="list-style-type: none"> - The building is composed of 26 units. -There are awnings and overhangs at ground floor.

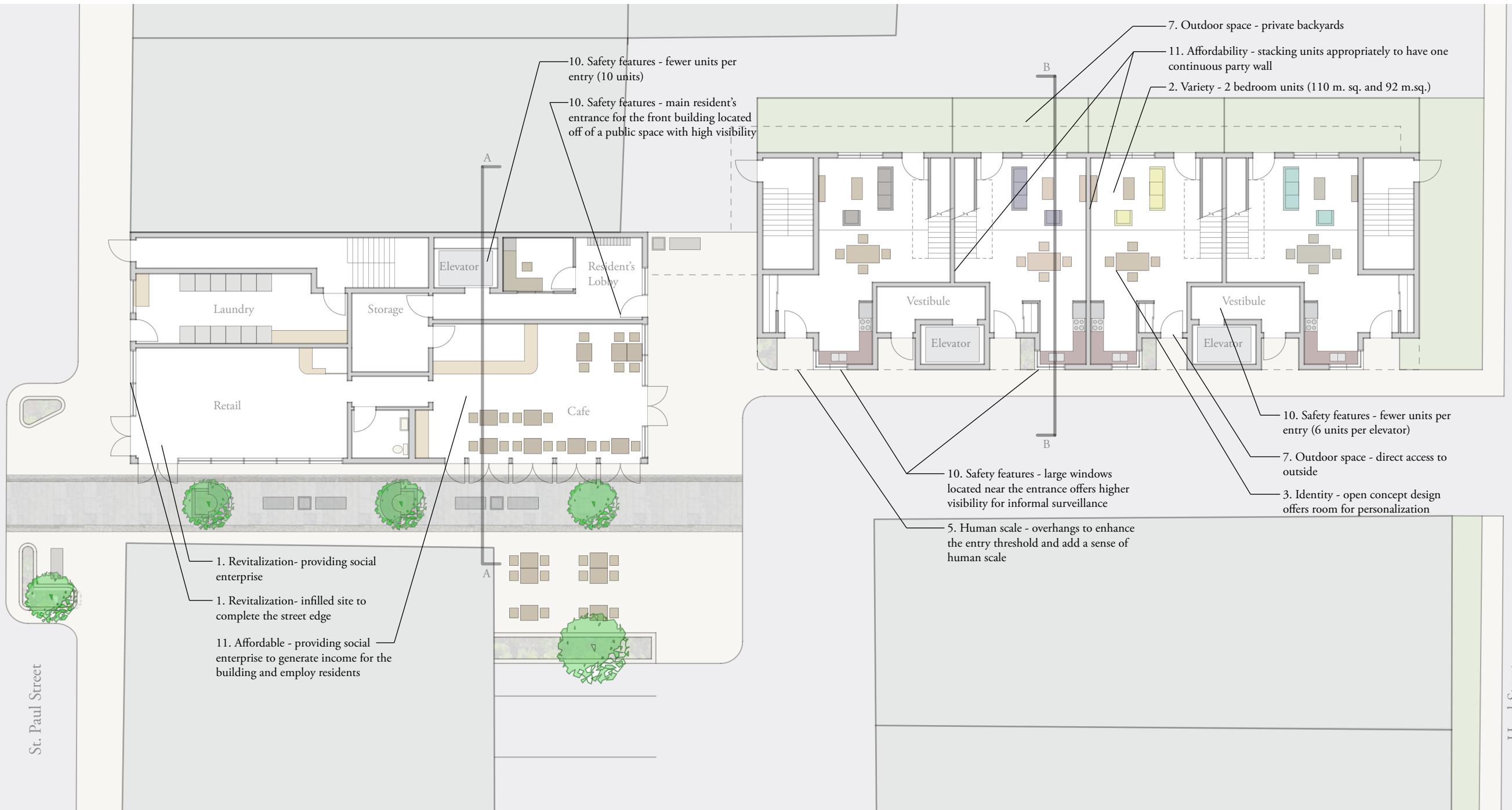
6. Integrated design team	<ul style="list-style-type: none"> - All parties are involved in the design. - Ensure all members have the same goals in mind. 	<p>Davis, Sam. 1995. Lewis, Sally. 2005.</p>	Oxley Woods	-I would advocate for an integrated design team.
7. Semi-private/private outdoor space	<ul style="list-style-type: none"> - Provide ground floor access where possible. - Balconies/patios offer private outdoor space. - Rooftop gardens provide larger shared spaces. 	<p>Coleman, Alice. 1990. Davis, Sam. 1995. Sewell, John. 1994. Lewis, Sally. 2005. Friedman, Avi. 2005. Murray, John A. 1970.</p>	<p>Mulhouse Social Housing Creighton/Gerrish Affordable Housing Initiative 20K Bridge House 160 Ontario Street</p>	<ul style="list-style-type: none"> -The ground units have direct access and private yards. -15 units are with balconies. -There is 1 rooftop patio. - There are 2 walkway patios.
8. Location	<ul style="list-style-type: none"> - Locate building close to public transportation. - Locate building close to amenities. 	<p>Lewis, Sally. 2005. Heath, Tim. 2001. Friedman, Avi. 2005.</p>	<p>Mulhouse Social Housing Oxley Woods Regent Park</p>	-The site is located downtown by the bus terminal.
9. Community background research	<ul style="list-style-type: none"> - Assess community profile/population. - Provide housing for most needy group in the community. - Confirm city plan/image for designing purposes. 	<p>Lewis, Sally. 2005. Friedman, Avi. 2005.</p>	<p>20K Bridge House The Cornerstone Building Regent Park</p>	<ul style="list-style-type: none"> -I performed community background research to determine 'needy group'. -I checked recent city plan to ensure the possibility.
10. Safety design features	<ul style="list-style-type: none"> - One highly visible main entry and fewer units per entry allows for informal surveillance. - Fewer units per building and per floor equal less residents who can be recognized. - Provide areas for 'eyes on the street'. 	<p>Coleman, Alice. 1990. Sewell, John. 1994. Lewis, Sally. 2005.</p>	<p>Oxley Woods Genesis Court</p>	<ul style="list-style-type: none"> -There are fewer units per entry with visibility. -At most there are 8 units to a floor with 26 units in the building. -Balconies and well placed windows offer 'eyes on the street'.
11. Affordable	<ul style="list-style-type: none"> - Design repetitive units (ie. stacking). - Eliminate wasted exterior space. - Design for appropriate density for the site and for building cost. - Provide social enterprise. - Integrate energy saving systems into the design. 	<p>Davis, Sam. 1995. Coleman, Alice. 1990. Friedman, Avi. 2005.</p>	<p>Oxley Woods 20K House Creighton/Gerrish Affordable Housing Initiative The Cornerstone Building</p>	<ul style="list-style-type: none"> -The units are repetitive allowing for continuous, vertical party walls. -There is no 'confused', leftover space. -Social enterprise is provided.

*Note: The design principle numbers correspond with the design drawings.



Ground Floor Plan 1:200

Fig. 4.17 Ground Floor plan 1:200



10. Safety features - fewer units per entry (10 units)

10. Safety features - main resident's entrance for the front building located off of a public space with high visibility

7. Outdoor space - private backyards

11. Affordability - stacking units appropriately to have one continuous party wall

2. Variety - 2 bedroom units (110 m. sq. and 92 m.sq.)

1. Revitalization- providing social enterprise

1. Revitalization- infilled site to complete the street edge

11. Affordable - providing social enterprise to generate income for the building and employ residents

10. Safety features - fewer units per entry (6 units per elevator)

7. Outdoor space - direct access to outside

3. Identity - open concept design offers room for personalization

10. Safety features - large windows located near the entrance offers higher visibility for informal surveillance

5. Human scale - overhangs to enhance the entry threshold and add a sense of human scale

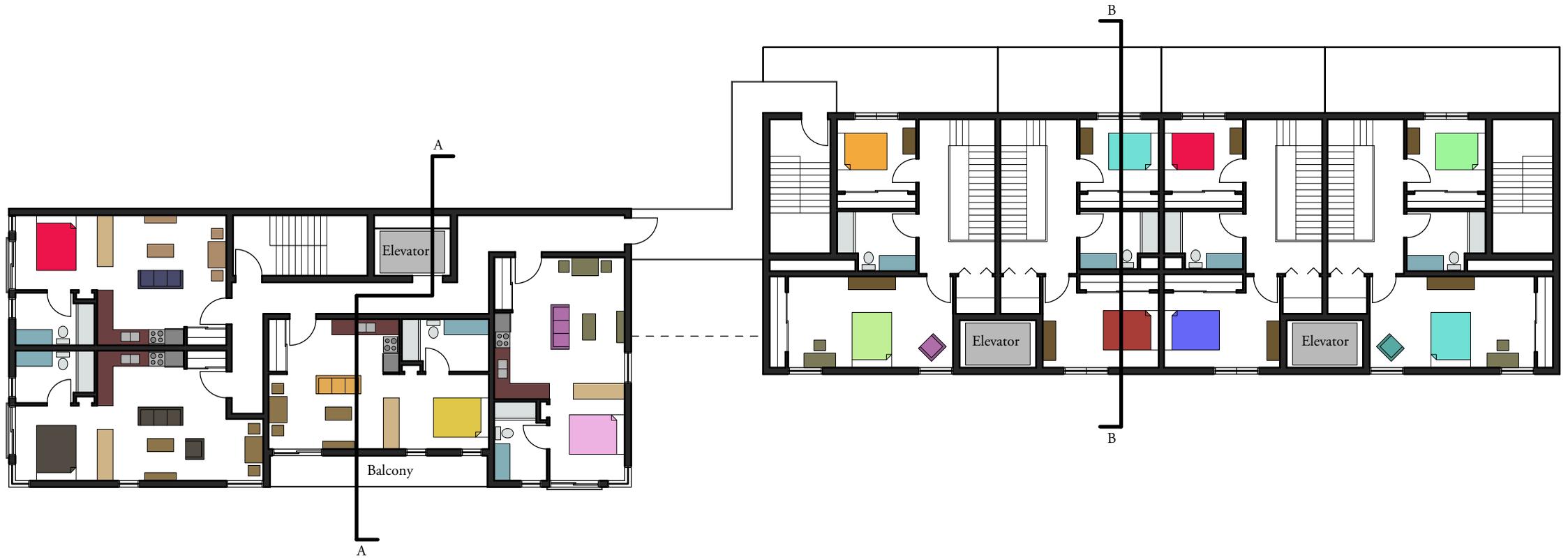
St. Paul Street

Head Street



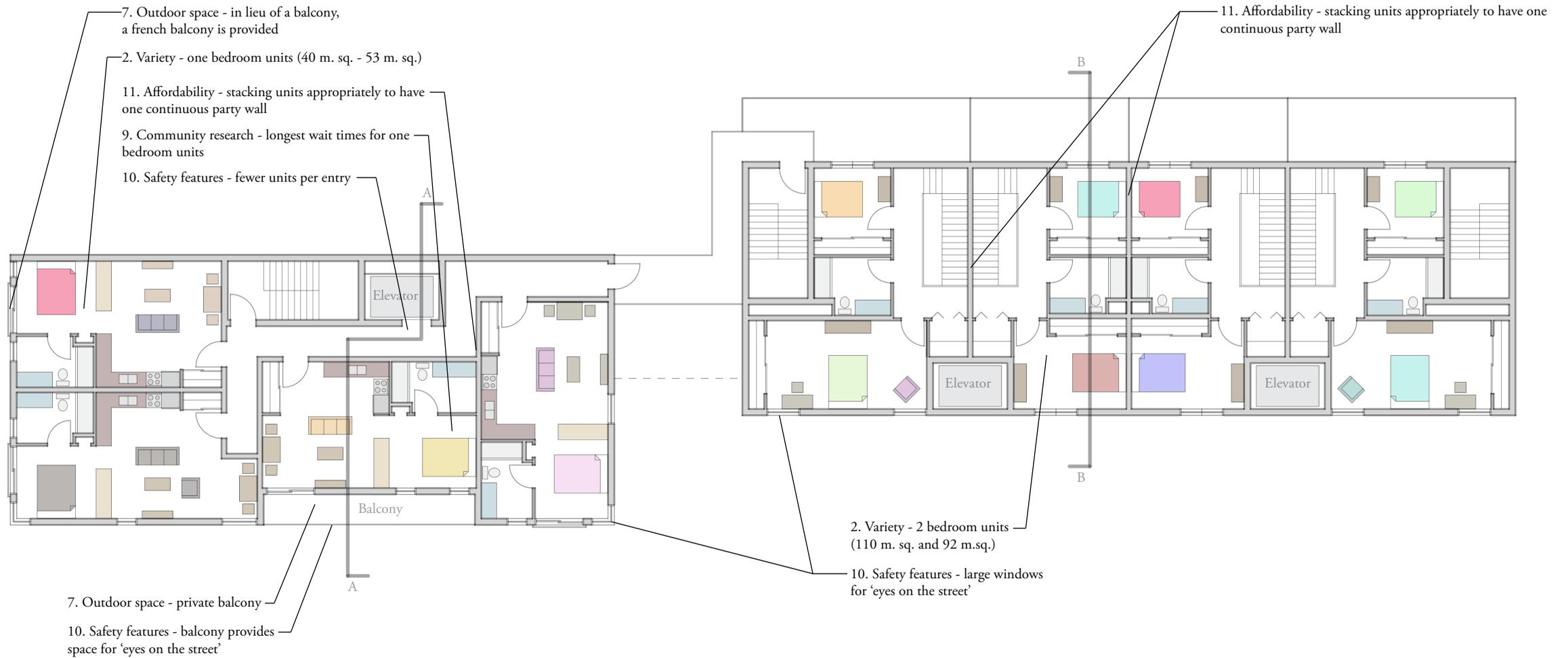
Ground Floor Plan 1:200

Fig. 4.18 Ground Floor plan with application notes

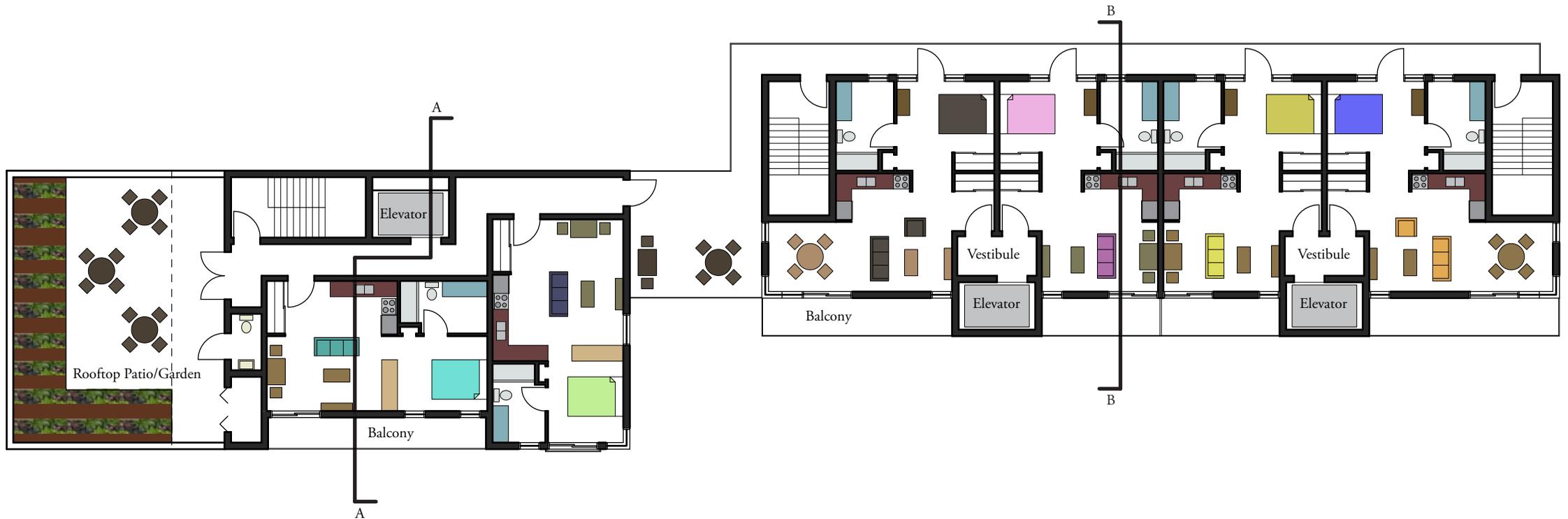


Second Floor Plan 1:200

Fig. 4.19 Second Floor plan 1:200

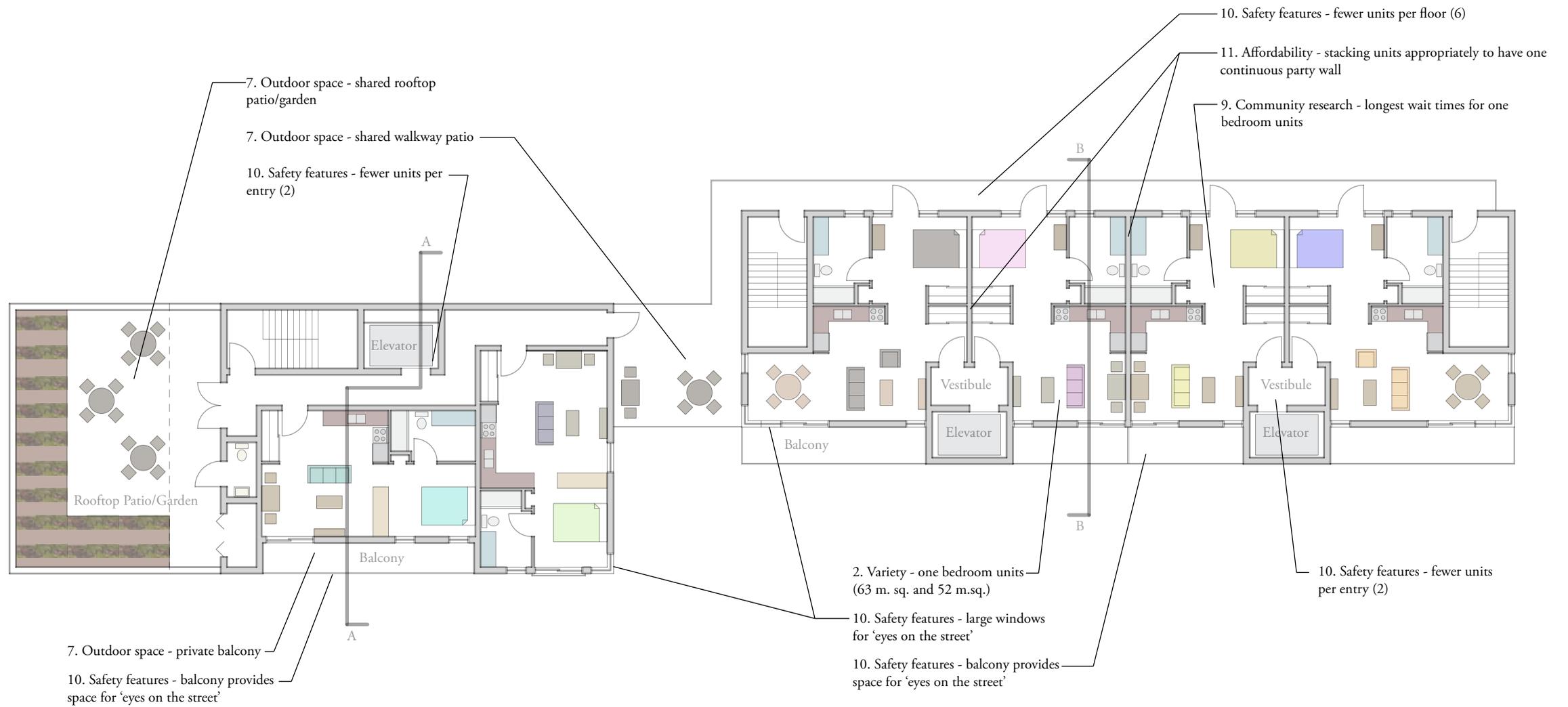


Second Floor Plan 1:200



N
Fourth Floor Plan 1:200

Fig. 4.21 Fourth Floor plan 1:200



Fourth Floor Plan 1:200



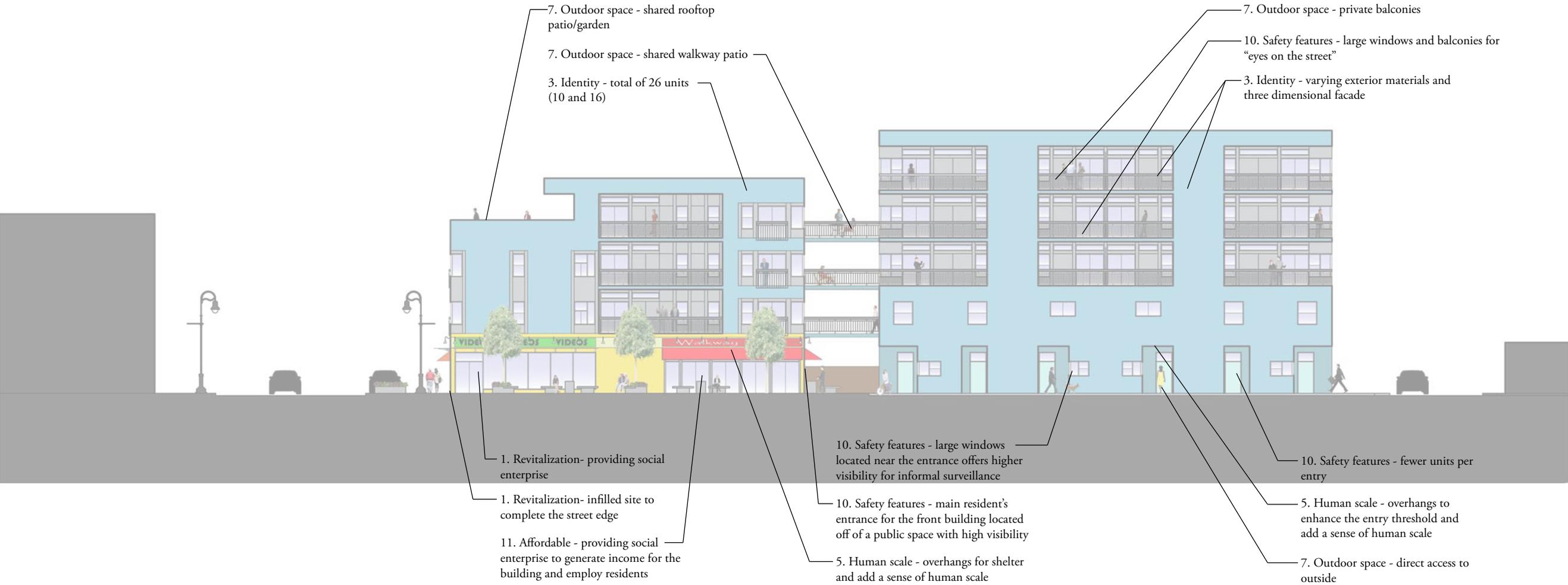
St. Paul Street Elevation 1:300



St. Paul Street Elevation 1:300



Alley Elevation 1:300



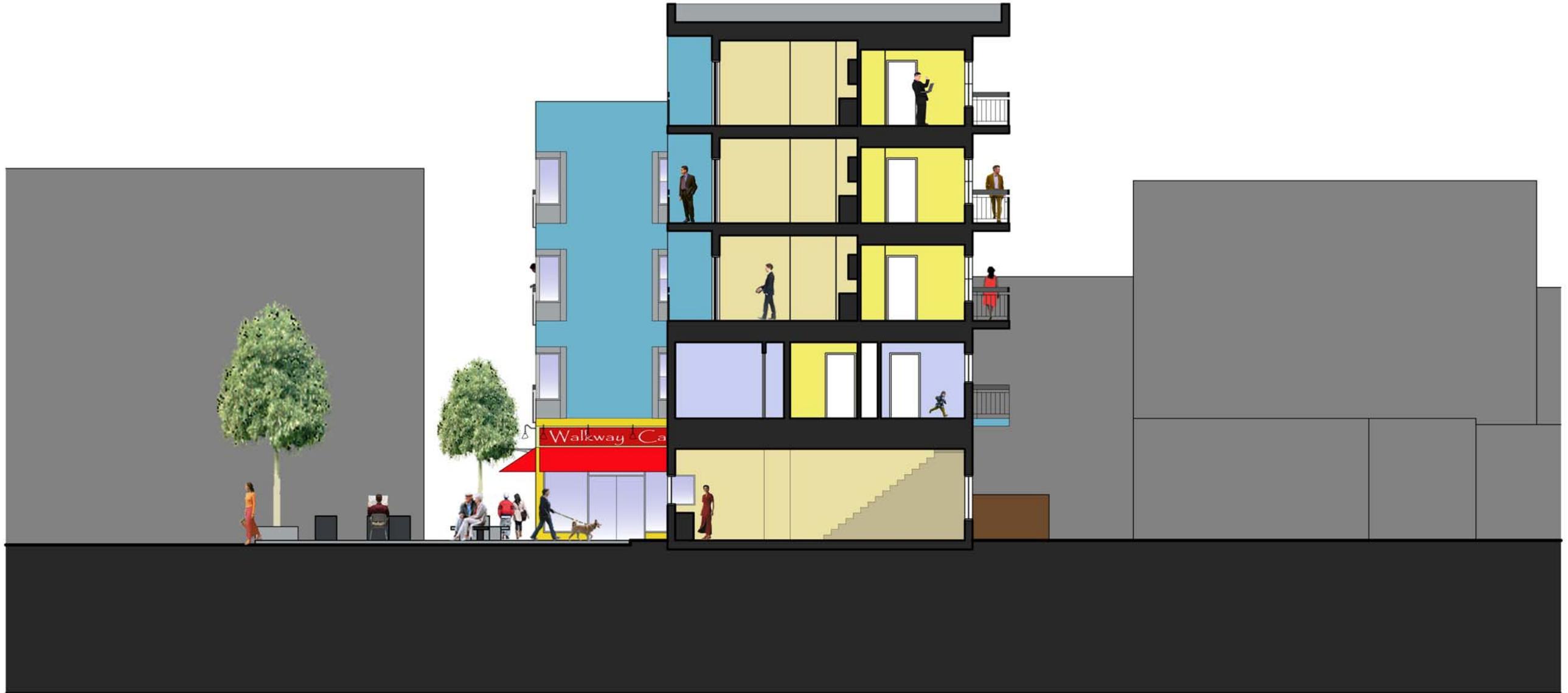
Alley Elevation 1:300



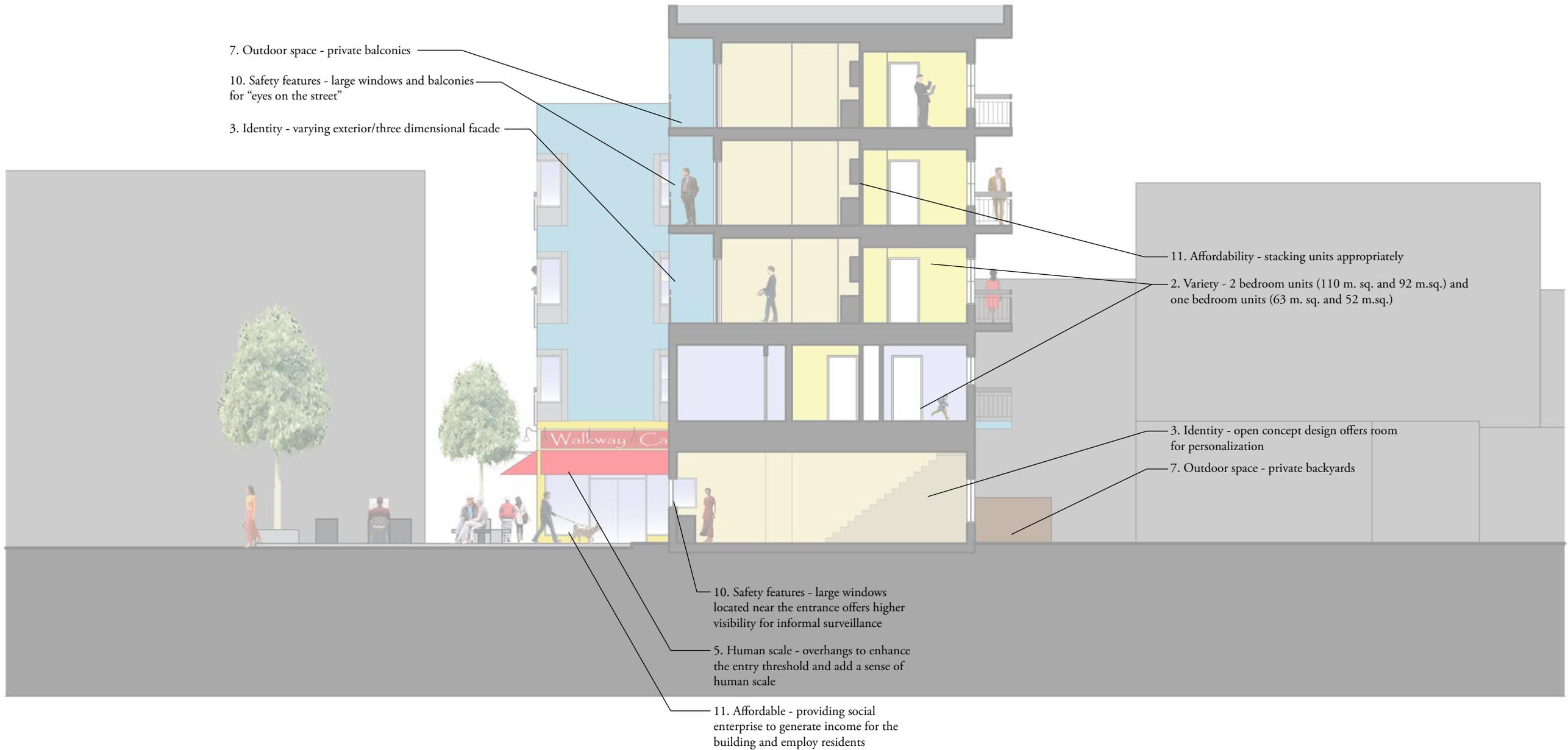
Section AA 1:150



Section AA 1:150



Section BB 1:150



Section BB 1:150

ENDNOTES

1 City of St. Catharines. <http://www.stcatharines.ca>. Copyright © 2010 The Corporation of the City of St. Catharines.

2 Ibid., *Community_Profile_2010.pdf*, 11.

3 Ibid., 12-14.

4 Trussell, Michael Ryan. 2010. *St. Catharines terroir*. Waterloo, Ont.: University of Waterloo, 3.

5 Bowman, Katherine. 2007. *New role for student housing : Revitalizing a mid-sized city core*. Waterloo, Ont.: University of Waterloo, 11.

6 City of St. Catharines, *Community_Profile_2010.pdf*, 27.

7 Ibid., 28.

8 Niagara Regional Housing. www.nrh.ca.

9 Niagara Regional Housing. <http://www.nrh.ca/pdf/NRH-ReporttoProvince.pdf>, 2.

10 Ibid., 3.

11 Friedman, Avi. 2005. *Homes within reach : A guide to the planning, design and construction of affordable homes and communities*. Hoboken, NJ: J. Wiley, 215.

12 Ibid., 149.

13 Ibid., 168.

14 Ibid., 226.

15 Ibid., 83.

16 Ibid., 83.

17 Niagara Regional Housing. www.nrh.ca.

CONCLUSION & REFLECTIONS

Affordable housing is a complex and diverse topic of study that incorporates a multiple of viewing lenses on perception and perspective. This thesis aims to educate and change the misperceptions of affordable housing by providing an affordable housing design proposal that would act as a catalyst for the community. Through research and case studies, a synthesis of design principles were developed that could be applied to similar housing proposals universally. When these principles are implemented, the provision of quality affordable housing that reflects the people's needs and better the community around them will be better articulated.

The history and evolution of affordable housing showcase our nation's ability to make changes and improve the housing situation. Bad decisions in the past prompt and demand new solutions for improvement. Change takes time as with the development of new housing programs. There is no designated type of building for affordable housing. The following factors determine the type of housing to be provided: location and size of site, density, height restrictions, and existing context. However, some typologies are more popular and have distinct advantages such as the townhouse. Just as there is no one type of building, there is no one type of individual who need affordable housing. Unfortunately, the stereotypes associated with such individuals lead to NIMBYism. The public's perceptions need to change surrounding the entire topic of affordable housing. By promoting affordable housing through teaching mechanisms, communities can learn of the benefits from providing affordable housing.

Affordable housing offers opportunities to the people in need, the community in which it is built, and to the architects to make a difference. The provision of affordable housing in downtowns can act as a catalyst for revitalization. Quality housing in an accessible location will attract people that brings business and encourage more cultural amenities and events to the downtown.

The case studies provided insight and demonstrated a promising outlook for the future. They range in size; large developments to single unit developments. They used a variety of building materials and techniques, as well as promoted and celebrated affordable housing development. The case studies of the recent affordable housing projects in St. Catharines illustrated that they are trying to provide better housing standards. But it also proves that this area still has room for improvement.

The set of design principles established from the research are as follows: revitalization, variety, identity, community/occupant involvement, human scale,

integrated design team, semi-private/private outdoor space, location, community background research, safety design features and affordable. By using the design principles outlined in this thesis, the provision of quality affordable housing will help foster a positive community outlook. All situations will not be able to utilize every design principle. However, I feel the following are essential ingredients to a successful recipe of community housing: affordable, variety, location and community/occupant involvement. Some principles are closely linked to each other and may go hand in hand. Affordable is the umbrella to all principles developed - although there are certain design elements that take part in the affordability. Variety offers more choices to the people and factors into the identity of the place. Location can contribute to affordability and can determine the possibilities of revitalization. Community/occupant involvement has potential for keeping costs lower by allowing for a smooth construction process. It will also add to the variety and identity.

My design proposal is just one option for the chosen site. There are many possible sites (abandoned buildings and parking lots) in the downtown. It encompasses most of the design principles. This proposal is intended to be the start of new affordable housing to be designed and built and act as a precedent to future projects. Thus, being a part of the larger solution for providing more quality, affordable housing. It acts as a catalyst for the revitalization of St. Catharines downtown by infilling the street, whereby enhancing the appearance, providing more population to fill the streets, and by providing affordable housing which residents can be proud of. The location is optimal for easy public transportation and close to amenities. The design proposal would enhance the residents' lives and the surrounding community.

For this design proposal to become reality, there would need to be funding from an organization and/or subsidies from the government. All the case studies here within have received some form of funding in one way or another, allowing for the housing of low-income families. For future affordable housing proposals to be feasible, they will need funding and/or subsidies due to the current North American housing market.

Due to location and time, this thesis does not optimize on the advantages from community/occupant involvement. Further development of this thesis could involve community meetings and input on the design. Including the community would enhance the design, reflect more closely the user's needs and create a sense of belonging, thus an identity within the community.

Architects should take more interest and be more involved in affordable housing as signs of improvement, at this time, are low. If more architects became involved with affordable housing, it could help mitigate the poor perceptions by the general public. Construction costs are continuing to rise and you never know when you or someone close to you will need affordable housing. Theoretically, all houses should be affordable.

Further research could happen past the design stage. Is this design proposal affordable? If not, how can it be made more affordable? If it is, then how can it proceed to realization? The act of making buildings is a long process and study areas can happen during every phase.

I was once a part of the stereotyping problem, feeding the negative perceptions. Through my education, I have learned the ins and outs of affordable housing and have hopefully taught some people along the way.

Imagine if people were more informed and educated on the subject by ways of public meetings or social gatherings. In turn, the community participating in the designing and planning of affordable housing. If more projects like mine were proposed in St. Catharines, the overall acceptance and vitality of the community could be heightened, bringing back a sense of place to be proud of.

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APPENDIX



**HOW LONG WILL IT TAKE FOR ME TO BE
HOUSED?**

*The following chart will give you an idea of the estimated wait
(in years) for affordable housing*

CITY	Seniors (55 and over)	Seniors (55 and over)	Bachelor, 1, 2, 3, 4, 5 bedrooms					
	1 bedroom	Bachelor (Bedsitting Room)	Bachelor (Bedsitting Room)	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	5 Bedroom
Lincoln	1.75	-	-	9.75	5	5	-	-
Fort Erie	2.53	-	1.25	5	1.25	1.25	3	-
Grimsby	2.75	-	-	-	-	-	-	-
Niagara Falls	2	1.25	-	8	2.5	2.25	5.5	5
Niagara on the Lake	1.5	-	-	-	-	-	-	-
Pelham	3	-	-	-	-	-	-	-
Port Colborne	1	-	-	9	1	1.25	1.5	-
West Lincoln	2.75	-	-	-	4	3	-	-
St. Catharines	4	-	6	8	2.5	2.5	1.25	7.5
Thorold	3.25	-	-	-	7	2.5	-	-
Welland	4.5	-	2	8.75	2.50	2.5	1.25	4

- There are no units of this size available in this community.

Dec 2010

The Garden City Plan

Downtown Planning District Schedule E10



Land Use Designations

- Low Density Residential (20 to 32 units / ha)
- Low Medium Density Residential (up to 99 units / ha)
- Medium High Density Residential (33 to 198 units / ha)
- Mixed Medium High Density Residential / Commercial (33 to 198 units / ha)
- Mixed High Density Residential / Commercial (100 units / ha or greater)
- Commercial Core
- Parkland & Open Space
- Natural Areas
- T Downtown Transit Terminus
- Civic Square Area

LAND USE DESIGNATIONS - REFER TO PART D 'LAND USE POLICIES'.
 REFERENCE SHOULD ALSO BE MADE TO SCHEDULE F4 FOR
 NATURAL AREA SCREENING MAPPING AND POSSIBLE ADDITIONAL REGULATIONS

CITY OF ST. CATHARINES
 PLANNING SERVICES DEPARTMENT
 FINAL DRAFT OFFICIAL PLAN APRIL 2010