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# Architectural development of urban social capital : cohousing in downtown Toronto

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# ARCHITECTURAL DEVELOPMENT OF URBAN SOCIAL CAPITAL: COHOUSING IN DOWNTOWN TORONTO

**by**

**Robert Coelho, B.Tech. (Toronto 1997)**

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## ABSTACT

This thesis is an investigation into the opportunities to create multi-family housing developments in an urban centre, namely downtown Toronto, Ontario, Canada, that facilitate the development of social capital.

Social capital refers to the connection that unifies a community, and creates a sense of belonging. A comparative study of social capital creation was undertaken using two typical Toronto housing models, condominiums and cooperatives and a third form of housing not yet found in Toronto, cohousing.

Through this comparison, cohousing was determined to have the greatest opportunity for creating social capital. To determine an appropriate design methodology for urban cohousing, the principles of social capital that inspired cohousing design were exposed and used to reinterpret cohousing to include urban conditions.

An exploration of the reinterpreted cohousing design methodology through the hypothetical redevelopment of an industrial urban five storey complex for a diverse client concludes the design thesis.

# ACKNOWLEDGEMENTS

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This work is dedicated to Scarlett Maria Coelho, my daughter who came into the world at just the right time.

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# Part 1: Introduction

To live as a community in order to share resources and create a supportive environment goes back to the earliest of human settlements, and begins to address what it is to be human. Modern cities have degenerated our social condition creating isolation, where not knowing the names of your neighbors has become commonplace (Bothwell, 1998). Cohousing, a housing typology developed as a response to urban isolation in Denmark in the 1960's is an alternative to the housing types we currently find in Toronto. This thesis will attempt to determine if cohousing can offer a better housing model to facilitate or influence the development of community in Toronto or, if a current housing model is found to be best suited to the development of community, are there any design principals that could expand on the quality or level of community development.

## 1.1 Methodology

Toronto's current multi-unit housing typologies include condominiums, co-operatives, and apartments. Development over the past 20 years has been dominated by condominiums: in 2008 condominium development accounted for over 90% of new housing starts in Toronto. Jane Jacobs with her seminal book, *The Death and Life of Great American Cities* (1961), sparked an examination of the way we dwell in a City, but we continue to create cold, harsh environments devoid of human scale and human interaction. Mega developments of condominium housing are cost effective for developers and may appeal to the average buyer, but their ability to create communities that work and add to the social fabric of the city is questioned.

In order to effectively determine the best housing model for the development of community we must first identify what 'scale of community' housing developments can influence, and determine a means to evaluate the perceived strength of this influence on social cohesion created by various forms of housing.

Communities by definition are, "a group of people having common ties or interests and living in the same locality or district and subject to the same laws." (Gage, 2008). The idea of common interests, common locality, and common laws applies to various scales and sizes of communities. National, provincial, municipal, districts, neighbourhoods and even housing developments could all be called communities. The smaller the scale or size of a community, the stronger the communal ties, but for a community to function well it must be large enough and diverse enough to adapt and continue to function with the removal of key the individuals (Williams, 2005).

The strength of the ties between individuals is the measure of the strength of a community, this is what social scientists call social capital. It is impossible to measure or quantify social capital scientifically, but it is tangible. In order to evaluate how the different housing typologies identified earlier address social capital, typical developments will be evaluated to determine the level of consideration given to social capital and social connectivity in general. The comparison will attempt to evaluate whether design decisions are being used to connect individuals and the community and if the design is directed at strengthening the bonds between individuals? The purpose of the comparison of housing types will be to compile design concepts and principles, on the development and unit level, and determine the most effective typology for the creation of social capital in an urban environment.

With a housing typology determined, preliminary information leading to a design exercise including case studies of existing developments and a determination of the elements which directly impact social capital development will be explored. The information gathered from the case studies process will be used to influence the selection of a typical client, site selection and finally the design process. The end conclusion of this thesis will be a housing development design infused with the intent of influencing the creation of social capital in order to create a community in urban Toronto.

## 1.2 Research Question

Can the built environment facilitate or influence the development of social capital in an urban environment?

Sub question:

What is the best housing development typology for the hypothetical creation of social capital in urban Toronto?

## 1.3 Outline of Thesis

The thesis is broken into 3 parts. Part 1 is an introduction to subject of the research, the methodology used to develop the research, the statement of the research question and the literature review.

Part 2 is the body of the research, it includes; definitions and pertinent descriptions of social capital, cohousing, condominium, cooperative, the methodology and definition of design for social capital and a comparison of the case studies based on the objectives of design for social capital.

The design process is part 3 of this thesis, the evolution of the final design, site selection, description of the client and a summary of the final design through the objectives of design for social capital. A conclusive analysis ends part 3.

## 1.4 Literature Review

The concept of social capital is the basis for this thesis. The idea of focusing an architectural thesis on social capital came from the author's personal experience living in the City of Toronto. Living in condominiums was similar to living in the suburbs, it lacked sufficient social interaction. Initial research opened the door to what looked to be a solid consensus as described in the essay, *Mobilizing Minority Communities: Social Capital and Participation in Urban Neighborhoods, "* ...we are living in splendid isolation, relating to friends but paying little attention to our community." (Kent, Berry, 2005). The question of what social capital is and what effect it has in urban centres been written about extensively regarding sociology, economics and political science, but not in architecture or design.

> "Dimensions of social capital such as networks and information channels, the trustworthiness of relations between actors and institutions, and norms and effective sanctions are of fundamental importance in shaping political, social, and economic life." (Maloney, Smith, Stoker, 2005)

It was determined that the term social capital could be transferred to architecture. It is a good fit for expressing an element of architecture that had been the concern of architects since the beginning of time but had never been clearly identified. Williams, in *Designing Neighbourhoods for Social Interaction: The Case of Cohousing*, defines Social Capital as:

> "…the 'glue' which binds people together in a neighbourhood and encourages them to cooperate with each other. It is the local networks together with the shared norms, values and understandings that facilitate cooperation within or amoung groups in a neighbourhood. Without social capital individuals feel isolated and are untrusting, which reduces levels of cooperation within a neighbourhood." (Williams, 2008)

The focus of Williams' paper is cohousing, a form of dwelling developed, it seems, for the creation of social capital in Denmark. The question of whether cohousing was a better alternative to the condominiums and cooperatives common in Toronto became a secondary question of this thesis. In order to compare typologies not only would cohousing need to be researched, so would condominiums and cooperatives. All three are extensively written about, but no direct relationship between design and social capital, or it's broader meaning, could be found regarding cooperatives or condominiums. All documentation in this thesis analyzing both of these housing types with respect to social capital is derived from evaluation using personal information or extrapolated from research regarding cohousing.

Although cohousing as a term is relatively new, the concept itself is much older. To live as a community in order to share resources and create a supportive environment goes back to the earliest of human settlements, and begins to address what it is to be human.

Started in Denmark in the 1960's, cohousing was begun by groups of people who wanted to recreate a sense of community. After WWII, migration from rural villages to urban centres for work in Denmark became common. Many of the people who grew up within a tight knit community found themselves in modern urban cities devoid of communal connection. In trying to recreate a sense of community these people created cohousing (McCamant, Durrett, 1994).

In the 1980's cohousing was transplanted into North America where, for many, it was seen as an evolution of the commune of the 1960's. North American cohousing was first adapted by people looking to establish a connection to the community and the land. Many dreamt of large common gardens and "being part of something we care about and that cares about us" (Scott-Hanson, Scott-Hanson, 2005).

Few considered cohousing as a template for urban living in North America. Urban and city are terms with varying definitions and when referred to by experts in cohousing, urban and rural seem to be very broad in scope.

> "Most people we talk to about cohousing imagine buying 40 acres together and building homes with a comfortable common house, gardens, and lots of room for all. This may still be possible in some parts of the world, but it is unlikely today… Open space is becoming more and more precious to all of us, so rural areas are being down-zoned to protect them from developers, and cohousing groups like you. Keep in mind that urban growth areas are not necessarily within the city." (Scott-Hanson, Scott-Hanson, 2005)

Urban growth outside of cities is not the intent of this thesis. For the purposes of this thesis, urban will refer to a major urban centre, downtown Toronto, and specifically wards 19, 20, 27, 28 and 30 commonly known as the south district. The reasons for choosing an urban site are many, Bothwell, Gindroz and Lang identify some of the reasons New Urbanists have argued for urban development as;

> "…greater transportation efficiency, lower infrastructure costs, more social equity between city and suburb, and environmental protection through the preservation of open space (Bank of America 1995; Burchell et al. 1998; Calthrope 1993). We now add to the list an extra dimension: an improved sense of community leading to stable neighbourhoods." (Bothwell, Gindroz, Lang, 1998)

Urban densification is also a likely to be a response to the problem of peak oil and the increasing costs of energy. The efficiency of the urban fabric with respect to infrastructure, social and commercial amenities will make it the preferred habitat as our fossil energy resources run out.

The urban context is rarely discussed in cohousing literature, but there are a few exceptions. McCamant and Durrett, acknowledged experts in cohousing, approach it from the perspective of case studies of Scandinavian Cohousing (McCamant, Durrett, 1994). Urban Cohousing is explored from the European context but little is discussed or explored in terms of design or transferring the European examples into a North American context. Scott-Hanson and Scott-Hanson touch on the topic of an urban site in their book, *The Cohousing Handbook* (Scott-Hanson, Scott-Hanson, 2005), but they dismiss urbanity as being anywhere there is infrastructure.

In Canada, throughout North America and in Europe many cohousing developments have taken place in sub-urban areas or within low-density cities. Two good examples from within Canada are Terra Firma in Ottawa, Ontario and Quayside Village in North Vancouver. The article *Our Sustainable Acre in the City* (Rios, 2005), explores sustainability in cohousing in a low density "urban" site in Eugene, Oregon, a city of about 150,000 that is typical of the definition of urban cohousing common in the literature currently available. These developments, although not in large urban city centres, will provide fundamental information for this thesis.

*Predicting an American future for Cohousing* (Williams, 2008) explores a future for cohousing in the United States by exploring the typical grass-roots approach used for development and possible alternatives to explore the "potential for cohousing to 'cross the chasm' and be adopted by the mainstream". In the process Williams surveys the residents of one of the best examples of urban cohousing similar to the focus of this thesis, Swan's Market in Oakland, California.

Williams does not go into detail about the design but does explore in depth the market for cohousing in urban regions in California.

Maruja Torres-Antonini in her doctoral dissertation titled, *Our Common House: Using the Built Environment to Develop Supportive Communities (2001)*, makes the strongest connection between design and social capital by using it as a means to dissect an existing cohousing design, but the scope does not extend to creation of a new design methodology or into cohousing in urban settings.

Although the door is opening and economic factors, as well as cultural and demographic changes are beginning to allow for the real possibility of a future for urban cohousing, very little has been written to date exploring the possibilities of urban cohousing or an appropriate design model.

# Part 2: Cohousing

## 2.1 Social Capital

> An unusually strong consensus has emerged among academics as to the problem: Americans are disengaged from civic life. Increasingly we are living in splendid isolation, relating to friends but paying little attention to our community. (Kent, Berry, 2008)

The same can be said for Canadians, we are disengaged. The support structure of a community or extended family are lost to many Canadians as is participation in a community. Modern living and all of its conveniences has for the most part negated the everyday necessity of a community support structure. Before the advent of the automobile and the common utilization of cheap energy, survival of the individual depended on a strong community structure with support for the elderly, the sharing of utilities and equipment and support in times of crisis. This was all done because the strength and wellbeing of the individual was important to the strength and wellbeing of the community.

Today, many feel the 'splendid isolation' referred to by Kent and Berry, not because they do not belong to a community, but because they do not belong to an intimate small scale community. For many, the extent of social interaction with our neighbours is to recognize them in passing. Survival may no longer require participation in a small scale community, but as we are social creatures, the quality of our survival is affected and it does have economical, political and social benefits (Williams, 2005). The issue then becomes, how do we quantify the benefits?

Social Capital is defined differently in various forms of research and is a common term with respect to fields such as political science, sociology and economics. For the purposes of this thesis the following two definitions will be used, both are in line with definitions use in sociology which has a stronger tie to architecture than the definitions found in economics or political science . Williams, in *Designing Neighbourhoods for Social Interaction: The Case of Cohousing*, defines Social Capital as,

> "…the 'glue' which binds people together in a neighbourhood and encourages them to cooperate with each other. It is the local networks together with the shared norms, values and understandings that facilitate cooperation within or among groups in a neighbourhood. Without social capital individuals feel isolated and are untrusting, which reduces levels of cooperation within a neighbourhood." (Williams, 2008)

Similarly, Robert Putnam, defines Social Capital as, “features of social organization, such as trust, norms, and networks, that can improve efficiency of society by facilitating coordinated actions” (Putnam, 1993).

Both of these definitions break social capital into 3 parts which Newton in his paper *Social Capital in Democracy* defines as; norms, networks and consequences. Norms refers to values that unite individuals, it could be a similar political perspective, or a shared interest in an activity such as gardening. Networks are created by individual’s ability to come together through the discovery of shared norms, and of course, the consequences are the cooperation towards a goal or even the creation of a common goal. Examples include the creation of a communal daycare, an agreement to recycle or bring proposed water conservation policies to the local municipality.

The question then becomes, can the built environment facilitate or influence the development of social capital?

Many scholars from other fields explore the political structures or corporate structures that aide in the development of social capital, but very few have addressed the built environment.

For architects, designing for the needs of the client is a natural part of any project undertaken. Tremendous thought and effort is put into addressing issues of design to improve interactions and define space, but distinguishing which design concepts or elements address social capital has not been extensively explored. Williams is one of the few that have postulated a link between social capital and architectural design. For Williams, design should incorporate Social Contact Design (SCD) in order to encourage development of social capital.

SCD, for Williams, is a means to promote contact between individuals by using two basic concepts, *shared pathways* and *community surveillance*. The incorporation of activity nodes and defined spaces into common access routes in order to increase potential interaction between residents is the principle behind *shared pathways*. Placing common gardens, parking, common dining facilities, laundry facilities, unit entrances and semiprivate spaces such as balconies, porches or private garden spaces onto common access routes means that individuals have the opportunity to interact while going about normal household activities.

*Community surveillance* takes shared pathways further, connecting individual units to the common facilities and pathways visually if not physically. In, *Cohousing: A Contemporary Approach to Housing Ourselves*, McCamant and Durrett explain how the use of community surveillance can aide in, not only security and creating a child-friendly environment, but also in community connectivity by allowing transitional spaces within a private unit to access communal

spaces and pedestrian routes, “Generally, the kitchen-dining area is the room most families “live” in. Locating this room at the front of the house increases opportunities to observe the common area while tending to domestic activities.”(McCamant and Durrett, 1994). This type of connection allows for interaction in many ways, the individual can observe activities, communicate with passers-by and observe other individuals to determine if there are shared norms or activities of interest allowing for group forming and networking possibilities. All of the elements of SCD discussed are intended to influence formal and informal social and personal interactions in order to create Social Capital. The following excerpt outlines some of the basic SCD concepts:

> The SCD principles include: provision of indoor and outdoor communal facilities; good visibility into all communal spaces, car parking outside the community or car-free communities, gradual transitions between public and private space, provision of semi-private outdoor spaces close to private units for socializing; positioning of key facilities and access points on walkways. (Williams, 2008)

## 2.2 What is cohousing?

Cohousing, a form of community based living first developed in Denmark, is developing a following and growing in popularity in North America. The draw to purchasing in a cohousing development is to live as a community, sharing resources and creating a supportive environment, in essence: creating an extended family. There are 6 core principles that define Cohousing and are required to be in place for a development to call itself cohousing (Durrett, 1994). The core principles are as follows:

1) Participatory Process: End users / residents participate in organizing the group which will eventually produce, finance and design the development. Normally this is done in conjunction with all or any combination of the following, architects, engineers, experienced developers, real estate and marketing experts.

2) Design Facilitates Community: The quality, orientation and general design of the cohousing development is organized to facilitate social interaction according to the desires and requirements of the end users.

3) Private Homes Supplemented by Extensive Common Facilities: Common amenity spaces to supplement the private residences.

4) Complete Residence Management: The development is managed by the cohousing community though a democratic system as defined by the community itself.

5) Nonhierarchical Structure: In all cohousing the responsibility for decisions is shared by all of the adults of the community through a process of consensus.

6) Separate Income Sources: All units are privately owned and may be sold at market rate. Also, a point that is always emphasized by cohousing proponents is that unlike communes popular in the 1960's, cohousing developments have no shared community economy.

From the beginning of the movement in North America starting in the late 1980's until 2000, 31 cohousing communities were registered with the Cohousing Association of the United States (Lebovits, 2008). In the last 8 years that number has more than tripled to nearly 100 completed cohousing developments and another 122 in various stages of development (Cohousing Association of the United States, 2008), with over 3500 people in the USA living in cohousing. In

Canada, the scale is smaller but the movement is similar: there are 8 complete cohousing developments and 7 in some preliminary stage of development (Canadian Cohousing Network, 2008). The data shown above may not accurately reflect the actual number of cohousing developments in North America, as membership in the associations is voluntary and some developments have been found in the course of researching this paper that are not affiliated and therefore have not been recognized in the statistics provided.

Although most cohousing developments are suburban or rural in North America, there is one true urban cohousing development, Swan Market in Oakland, CA, USA. This development contains 20 units with 31 residents and is part of a greater complex which includes rental units, a museum, art galleries, grocery stores and other commercial spaces, occupying one city block (Ferrante-Roseberry, 2002). As the only development found out of all of the nearly 120 completed, Swan Market is not typical and seems to have been created out of a perfect set of circumstances; very strong leadership, a municipal government looking for a group to redevelop a brownfield site, creative financing and a developer willing to take on the risk (Williams, 2002).

Jo Williams in his paper, *Predicting an American Future for Cohousing*, looks at the factors influencing the diffusion of cohousing identifying a lack of “cultural affinity” for cohousing in the USA. Williams argues that the social mindset of the average American holds individual freedom as having great importance and cohousing as a collective form of housing is perceived to impinge on this freedom. Williams also points out that cohousing adaptation in the USA is slow due to the grass-roots approach it has been developed under. Grass-roots requires much from the participants including; time, financial commitments, financial risk, management expertise, technical expertise and competing for sites with developers. These two factors, for Williams, are the major barriers to cohousing adaptation in the USA, and we can extrapolate these to be the issues facing Canadian adaptation as well (Ibid.).

Cohousing, like condominiums, are independently owned units within a greater structure. Normally cohousing developments range from 7 to 30 units, allowing for the creation of a community, yet still small enough that all members know each other. It is also important to note that in North America, most cohousing is privately funded and developed, and therefore not subsidized. The anomaly of cohousing in North America is the virtual lack of it in the core of large urban centres, unusual because it is a typology that shares much in common with condominium developments, and should, on the surface, be a viable, competitive housing option.

## 2.3 Current Cohousing Development Design

Cohousing developments traditionally have followed one of two different generative methods, resident-led and developer-led developments (Williams, 2008), both have economic and design implications.

Groups choosing to follow the resident-led approach raise the capital required for the development as well as recruiting the participants. The resident-led process has the residents engaging the architects, contractors and other needed professionals, and in essence they take on the role of project managers. This process is very time consuming and requires expertise from within the group. The benefits include; complete control over the design and building process as well as the creation of strong social connections formed between the group as they encounter and attempt to overcome challenges and obstacles. The resident-led development also appears on the surface to save money as there is no developer's overhead and profit added to the construction costs, but in most cases this is not the case. A developer's experience in land acquisition and construction management can in many cases reduce the cost of the project.

Developer-led projects can either be projects initiated by a developer or cohousing group, the latter being most common. The greatest benefits to bringing a developer into a project or having a developer lead a project is the ability of the developer to provide financing. As banks are not very accommodating in lending money for building developments to groups with no experience and little collateral, a developer's financing can be valuable. Using a developer also reduces the tremendous time commitment required by the cohousing group but in turn can reduce the social capital created by engaging in the process.

Common to all cohousing developments is resident participation called the Group Design Process. Normally this goes beyond normal client participation into program and budget. This requires a strong resident-architect design approach using workshops, presentations, group defining activities and the architect's prolonged study into the needs of the residents. The architect must integrate group norms, individual requirements, financial complexities and site in order to create a cohousing development that will satisfy the residents.

Architects use workshops with group defining activities as a common tool for working with large multi-headed client bodies. Communities, school boards and corporations are just a few of the typical forms of client that may have many agencies or individuals whose requirements for the building are different. Through workshops, architects attempt to educate the client as well as aide the client in defining themselves. By documenting the client's reflective self definition, the

architect can direct a program for the development based on the client's realized needs. In many cases, this process allows the client's diverging requirements, a normal cause of conflict and contention, to be addressed in a formal process. At an early stage in the development process all participants can see and understand the needs of the other factions involved. By this definition, the Group Design Process is a design tool for social capital by bringing groups or individuals together to identify shared norms, define and address issues of contention and create networks or links between the different groups or individuals in order to produce a product of value, a design that is optimized for the client (Durrett, 1994)

## 2.4 The Design of Cohousing Developments

Typical site design for cohousing is based on an organization of detached or town homes. This speaks to the suburban and rural sites usually adapted by traditional cohousing groups. Three basic design features identified earlier as being used in cohousing are directed at site design and orientation. These design features are, connectivity, shared pathways and community surveillance. Figure 2.1 identifies generic cohousing plans, and illustrates orientation around a courtyard or circulation corridor.

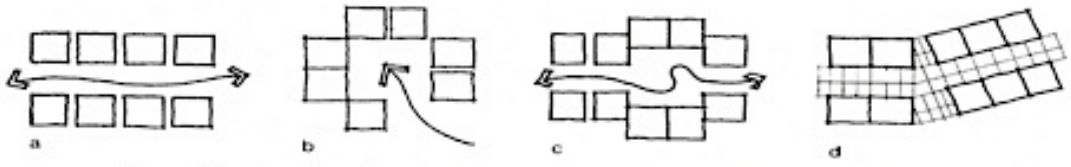



Figure 2-1: Generic cohousing site plans from Meltzer, 2005 (after McCamant and

Within common indoor facilities, any combination of uses is conceivable. The Group Design Process identified earlier, teaches the users how to interact and communicate, allowing them to begin to develop common goals (Scott-Hanson & Scott-Hanson, 2005). The social capital 'product' of workshops is the network process of the group as well as decisions concerning what is important. This is especially important when the group decides on common facilities as they reflect the norms and vision of the community. Following Williams principles of SCD, most indoor common facilities are centrally located within the development allowing for community surveillance. A central location also normally coincides with a main circulation node of the development creating centralized shared pathways. Spatial Quality is also essential. Spatial Quality, is design to improve the physical qualities of space in order to promote opportunities for the development of social capital. This includes providing appropriate lighting, changes in room

height or volume of the space in order to create areas of increased privacy. A large common room may be flexible but not comfortable for social interaction. The design should coincide with use and create comfortable semi-private zones in order to allow residents to conduct discussions in large groups but also breakdown into smaller groups and find a comfortable scale of space too occupy.

Similar to indoor facilities, outdoor facilities are normally organized with similar Spatial Quality Design concepts. The difference lies in the availability of outdoor space in the development. With enough land, many types of outdoor space can be created in key circulation areas of the community. When common outdoor space is scarce, design possibilities are limited. For example, it may be determined that an outdoor common space be connected to the common indoor space. This improves the quality of space for both indoor and outdoor common areas, and will improve opportunities for social capital.

Another example of site design for social capital is the planning for parking. If parking is provided, typical cohousing design normally separates the parking area from the development so that residents can not park their cars and walk a few steps to their home or even worse and typical in suburbia, drive directly into their garages and never have to walk into their front door. The idea of the separation is to force the use of the pedestrian pathways regularly by the residents creating a greater opportunity for interaction and networking. This is not a new idea exclusive to cohousing, Bothwell, Grindroz and Lang define this concept of pedestrian pathways coupled with reduced automobile use within one of their principles of Traditional Neighbourhood Design, “Streets and open public spaces should be configured to create a network that encourages walking and reduces the number of automobile trips” (Bothwell, Grindroz and Lang, 1998).

The connections between spaces are unique opportunities in themselves. As discussed earlier, shared pathways are an important design feature, but this isn’t the only way that pathways can be utilized to facilitate connectivity. An example of this is in the manipulation of the width and quality of the space that is the connection pathway. Designed appropriately these areas can encourage opportunistic social engagement. The inclusion of recesses in the pathway, with seating, can make what would be an informal passing encounter into a prolonged discussion, strengthening networking bonds. In essence, the passageway becomes a room or a series of rooms connected by short corridors. This is a design feature commonly found in designs of research facilities or student residences and is a typical example of architect’s informal use of design for social capital and fall under the category of Spatial Quality promoting social interaction.

## 2.5 The design of cohousing units

Workshops are a tool used to identify program, but an architect's ability to synthesize the needs of the client into an environment in order to meet the needs of networking goes beyond Williams' SCD. The design of units, common facilities, outdoor facilities and the connections between them, all require an understanding of Design for Social Capital in order to create opportunities for social capital creation.

Unit layout is an opportunity to explore ideas of minimal living in order to facilitate and promote the use of public space.

> Most gardens are unfenced (though some are individually cultivated for flowers or fruit and vegetables). There is a children's play area in front of the town houses, with colourful play structures. This was extensively used during my visit (to Cambridge Cohousing), as were the gardens. The large amount of outdoor space seemed to be important in enabling residents to live in what by North American standards are quite small units, and as an extension of domestic space used to meet other residents and share watching over children. (Miles, 2008)

Promoting residents to move outside of their private dwellings by incorporating large semi-private areas into the design of the minimal dwelling units creates opportunities for social connectivity. This in conjunction with the use of design features to promote community surveillance identified by Williams, like designing kitchens, typically the most occupied room in a dwelling, to face pedestrian pathways to encourage communication and connection between pedestrians and residents creates dwelling spaces Designed for Social Capital.

The transition from private space to public space is also very important. As discussed earlier, the units are smaller than typical units in similar development typologies and semi-private space should be incorporated in the unit design to compensate. These semi-private spaces normally act as the kitchen and should be physically or visually connected to either pedestrian pathways or common outdoor facilities to promote community surveillance.

It is also important for all of the design decisions to respond to the environment in order to create a spacial quality that will facilitate social connectivity. South facing kitchens or semi-private outdoor spaces may have problems with comfort. If these spaces must be south facing, measures should be taken to reduce solar heat gain while still allowing connectivity to the rest of the development.

## 2.6 Current Toronto housing Typologies

Toronto's current housing typologies include condominiums, co-operatives, apartments and detached or row housing, but development over the past 20 years has been dominated by condominiums.

In 2008 condominium development accounted for 90.3% of new housing starts (Canadian Mortgage and Housing Corporation, 2008). The developments in Toronto are, for the most part, high-rise (over 8 storeys) with little consideration given to environmental impact and operating costs. The reason condominium development has evolved in this way is because developers believe it is what consumers want. Little concern for life-cycle costing or maintenance is considered as profits trump developer responsibility of environmental design and build quality. Condominiums generally buildings where each unit is owned independently and all shared communal spaces are divided proportionately into the ownership of each unit. Generally condominiums are designed to provide communal spaces such as party rooms and gyms, and the governing structure depends on an elected board of owners all of which are mechanisms for the development of Social Capital.

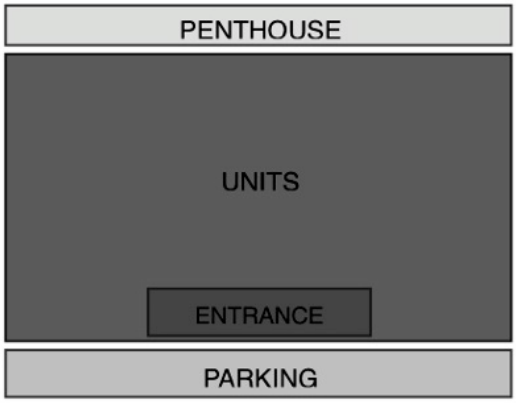


Figure 2-2: Typical condominium section.

Apartments are similar to condominiums in design, but lack the ownership element and governing mechanism. Apartments are normally owned by an individual or corporation and units are rented out. As this form of housing is closely related to condominiums in design, for ease and clarity of the comparison of development typologies, apartments will be excluded.

Throughout the 1980's in Toronto, cooperative housing developments competed against condominiums, but in the last 20 years, very few cooperative developments have been attempted. This housing type is normally similar in design to a condominium with the exception that some have more amenity space provided. Generally, the main distinction between a condominium and a cooperative development is the ownership structure. A cooperative is "Housing owned by a legal association formed on cooperative principles, where residents share the responsibilities and control of their homes" (Clurman, 1964). In Ontario all cooperatives are

not for profit, but in many cases the rent paid by the residents are split between market rate and subsidized rent.

The last development type to be discussed is one that is not found yet in Toronto, but is a form of housing that was developed with the intent of providing a sense of community, it is cohousing. Cohousing in North America typically has an ownership structure of a condominium development, but is very different from the typical condominium with respect to design. Cohousing is normally developed by the unit owners who participate in the design process. The design is also predicated on communal interior and exterior spaces and resident participation in all aspects of the community. This is similar to cooperatives, but because cohousing typically is smaller scale, greater commitment to participation is generally required by the individual.

All housing development typologies include some level of consideration of social interaction, the following definitions will provide a comprehensive description of the typology as well as a description of the design principles of the development and the individual units.

## 2.7 What is a condominium?

Condominium means control (dominium) of a property with more than one person (con). Condominiums traditionally can be town-homes, high-rise apartments (dominant in Toronto), mid-rise apartments, and other various types of arrangements where a unit, including a proportionate area of common spaces, is owned with separate deed by an individual. Condominiums in Ontario are governed by the Condominium Act and must be registered with the government. Most condominiums are a hybrid of private ownership with unit owners paying taxes on their home as well as maintenance, taxes and other ancillary expenses on common areas through what are called condo fees.

Condominium owners participate in the government of a condominium by electing a board of directors from residents living in the building, but these elections normally happen yearly or by-yearly and individuals not on the board of directors have no vote on issues concerning the operation of the condominium. In some small condominiums, Owners can have an obligation to sit on the board of directors. This system of cycling through Owners who control the direction of the condominium is a very watered down version of the Participatory Process found in both cohousing and cooperatives. Where in cohousing and cooperatives residents are asked to participate in minor maintenance, landscaping and cleaning duties, condominiums have no such responsibility.

Similar to suburban single home developments, condominiums can be very isolated. From conversations with condo dwellers, it is common to park or enter the building and go directly to a unit without seeing or speaking to anyone. Opportunities to engage and meet neighbours can be rare and with the average size of a high-rise condominium in Toronto having 300 units (Kozak, 2005), there are too many people living in a condominium to be able to engage in a meaningful way with all residents as is the purpose of cohousing.

## 2.8 The design of condominium developments

A look at an average condominium shows the inclusion of amenity spaces including party rooms, laundry facilities, swimming pools, rooftop decks and exercise rooms, all seeming to infer a strategy towards the creation of social capital not unlike cohousing or cooperatives. With a closer look at the spaces provided, it is clear that they are consumer driven additions geared to entice individuals into buying smaller units by providing amenity spaces to supplement their lifestyle. The amenity spaces are not geared towards use by condominium owners as a whole, but use by individuals. Party rooms are available for booking by owners but no accommodation for communal activities are built into the space. The amenity spaces are also normally outside of the normal circulation paths of the owners: in the basement and in the penthouse.

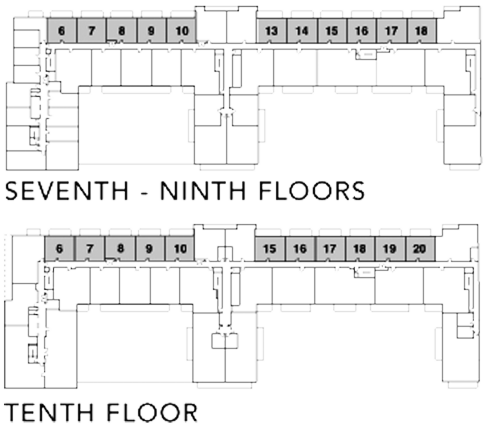



Figure 2-3: Typical condominium floor plan courtesy of http://www.550wellington.com/. April 2009.

Circulation is also problematic, vertical access by an elevator to each floor with access to units by a single or double loaded corridor is designed to create the most efficient access to units, which reduces time spent in corridors and any chances of social connectivity with others living in the building. Parking is normally designed to connect directly to the elevator for vertical access directly to the floors and in turn to the units.

The premise of condominium design is based on maximizing the areas given to units as these are the profit generating areas within a development. Accessory spaces such as party rooms are designed to occupy spaces not normally considered adequate for units. Areas adjacent to mechanical units which produce noise, areas with poor views or no views such as in a basement are normally used. Circulation spaces such as corridors and stairways are designed to minimum

area standards to allow for more space to be allocated to units. This design strategy creates corridors that are poor for social interaction with little space and normally very little natural light, creating areas people will not habitat for extended periods.

## 2.9 The design of condominium units

Similarly, units within a condominium development normally have no consideration of connectivity to circulation spaces aside from being able to enter the units. The typical wall assembly between the unit and access corridor is a fire rated assembly excluding the use of glazing and limiting visual connection. The layout of the unit is designed to be efficient but no thought is given to connectivity between residents through unit design as is found in cohousing. There is no connection between the corridor and unit except for the non-glazed door nor is there any attempt to enliven the corridor spaces by creating opportunities for occupants to use the space for more than circulation.

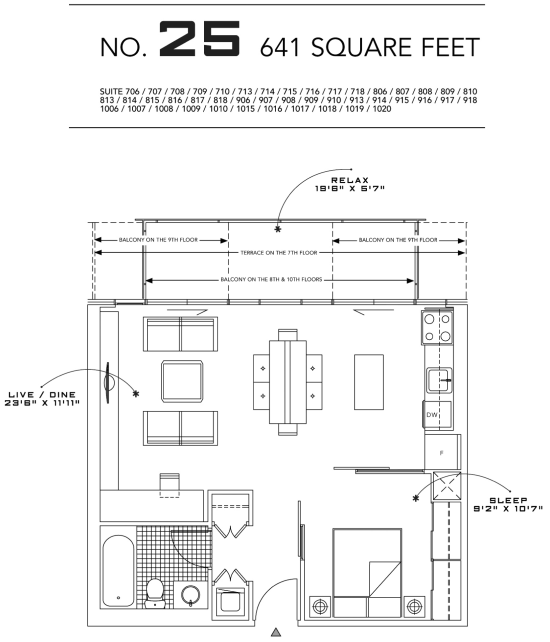



Figure 2-4: Typical condominium unit, courtesy of, http://www.550wellington.com/. April 2009.

## 2.10 What is a cooperative?

A cooperative is "*Housing owned by a legal association formed on cooperative principles, where residents share the responsibilities and control of their homes*" (Clurman, 1964). Cooperatives primarily come in two forms in Toronto. Both are 'not for profit' and ownership of the building is held by the Cooperative as a not for profit entity. Cooperatives in general have amenity spaces similar to condominiums and are large developments with between 80 and 150 units, some also have a mix of social capital features typically found in cohousing. All cooperatives require member involvement in committees, boards and basic maintenance of the building. Social

events for all occupants happen throughout the year allowing to occupants to meet and form relationships.

In the first and most common form of cooperative, the units are ‘rented’ to the occupants at a market rate or subsidized rate based on personal income the ‘rent’ is called a housing charge and is used to maintain and pay the mortgage on the building. This form of cooperative is similar to rent where the occupants gain no equity in the building and inversely do not have to buy-in when they take occupancy. The proportion of market rate to subsidized ‘rent geared to income’, where the rent is calculated at 30% of the household yearly income, is 60/40. The occupants jointly own the building, but there is no ownership or ability to sell the units or shares of the building. Windmill Line Co-op in Toronto’s Esplanade district is an example of this form of cooperative.

The other form of cooperative, an example of which is Arbor Glen Cooperative, is a building which has been split into shares with each unit being assigned particular shares according to size. These shares and therefore the units can be bought and sold, but the building is owned by the cooperative as a whole. Very similar to condominiums, this form of cooperative has ownership and fees associated with maintenance, taxes and mortgage on the building. Unlike the previous forms of cooperative discussed, this form requires a buy-in at market rate and allows the owners of the shares and therefore the unit to be sold to a purchaser approved by the board. In this way the owners can invest in the building and in time sell at a profit.

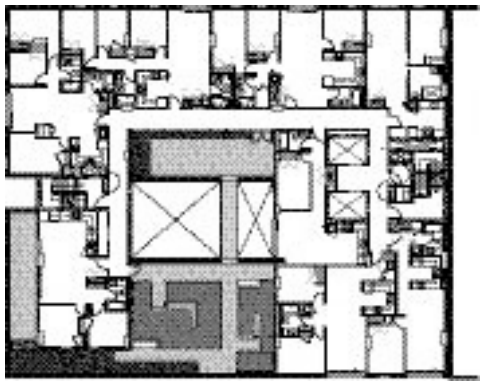


Figure 2-5: 6th floor plan of new Jarvis Street Co-op by Teeple Architects showing common outdoor spaces with circulation around a common courtyard. Courtesy of http://www.cdnarchitect.com/. April 2009.

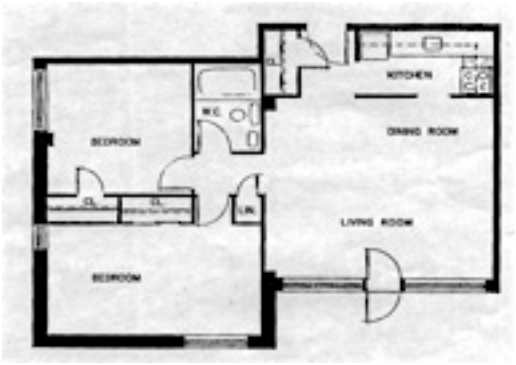



Figure 2-6: Typical cooperative unit design taken courtesy of Cardiff Housing Co-operative Inc., http://webhome.idirect.com/~cardiff/. April 2009.

## 2.11 The design of cooperative developments

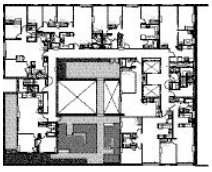
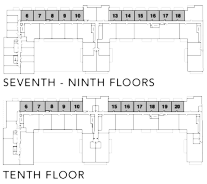
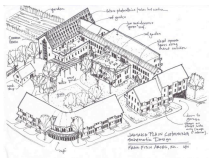
Social interaction, unlike in condominiums, is considered in many cooperative development designs. For example, Windmill Line Co-op has incorporated two 2-storey corridor designed to resemble a streetscape where residents can interact and meet. Others have meeting and garden areas designed throughout the building in designed to encourage resident interaction. Arbor Glen Cooperative, as an older development originally built in 1955, has little amenity space. The building was originally built as a rental apartment building and was bought by the residents in 1971 with ownership structure becoming cooperative at that time. This is not uncommon in Toronto, but when a building is designed and built as a cooperative, social interaction is normally considered.

Windmill Line Co-op, built in 1983, has the following amenity spaces designed onto the top floor of the building; co-op management offices, rooms of various sizes for co-op and private events, including a child-friendly space for use during meetings and outdoor roof deck with garden boxes for members. There is also a laundry room is located on the second floor and one level of underground parking in the basement.

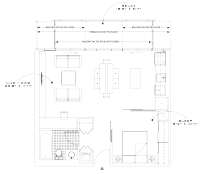
## 2.12 The design of cooperative units

The design of cooperative units are identical to condominium units. Unlike the overall development and corridor spaces in particular, within the units very little thought is given to the connection between residents. Units do tend to be larger than the comparable condominium units which when compared to cohousing ideals is contrary to the concept of motivating residents to use common spaces and facilities.

## 2.13 Comparison of design for social capital - developments

| | Pros | Cons |
|---|---|---|
| **cooperative**  | -Mid and High-rise buildings<br>-Amenity spaces designed for group functions of the residents.<br>-Participatory process in management through an elected board of directors<br>-Mandatory volunteering on committees and at clean-up events<br>-Circulation used as social interaction space (street scape corridor, courtyard)<br>-Common garden and outdoor areas | -Too many units for residents to know every other resident.<br>-Separated amenity spaces, basement and/ or top floor |
| **condominium**   | -Mid and High-rise buildings<br>-Amenity spaces designed for group functions of the residents.<br>-Participatory process in management through an elected board of directors<br>-Mandatory volunteering on committees and at clean-up events<br>-Circulation used as social interaction space (street scape corridor, courtyard)<br>-Common garden and outdoor areas | -Too many units for residents to know every other resident.<br>-Separated amenity spaces, basement and/ or top floor |
| **cohousing**  | - Participatory process in design and management through consensus based decision making<br>- Mandatory participation in management, committees, events and maintenance<br>- Common garden and outdoor areas<br>- Circulation designed for social interaction, streetscape corridors, courtyards<br>- Centralized amenity spaces designed for communal interaction and visual connectivity to units<br>- Small scale, 10-30 units designed so all residents know each other creating security and strong social connectivity<br>- Attempted diversity in age, ability and background to create diverse community | - Low-rise buildings, usually too expensive in urban centre |

## 2.14 Comparison of design for social capital - units

| | Pros | Cons |
|---|---|---|
| **cooperative**  | Similar to Condominium design but normally slightly larger units. | - No design for physical connectivity between units and circulation or amenity spaces - designed for privacy<br>- No design for visual connectivity between units and circulation or amenity spaces - designed for connectivity to views |
| **condominium**  | -Minimal area design, units intended to be augmented with amenity spaces | - No design for physical connectivity between units and circulation or amenity spaces - designed for privacy<br>- No design for visual connectivity between units and circulation or amenity spaces - designed for connectivity to views |
| **cohousing**  | - Minimal area design, units intended to facilitate use of communal amenity spaces<br>- Units designed for physical connectivity to circulation through kitchen area as time of most circulation coincides with breakfast and dinner time.<br>- Units designed with visual connectivity to communal amenity spaces in order to facilitate group use and identify with other residents.<br>- Unit design can be directed by resident during design process to meet special needs. | - Requires a comfort with reduced privacy not common in North American society. |

## 2.15 Typology Analysis Summary

From the previous analysis, cohousing has the most direct and tangible connection to social capital creation and is chosen as the focus of the design process. The main drawback to pursuing cohousing as a development model is that most of the cohousing projects and designs are based outside of urban centres, with the exception of Swan's Market, and current cohousing design is predicated on a horizontal circulation pattern.

## 2.16 Case Studies

The case studies are crucial to understanding how different architects enveloped the principles and core values of cohousing. Four cohousing developments have been chosen because of their variety of scales and design ideas which may indicate a direction for the design of urban cohousing. As all North American cohousing developments are located in suburban or rural areas, with the one exception of Swan's Market in Oakland California, their designs are not generally limited to the spacial constraints and the developments are normally organized as townhouses. Vertical movement of people is not generally considered except in the case of Jamaica Plains, which will be looked at in depth to understand if the vertical movement of people has been optimized to embody the principles of cohousing.

Terra Firma Cohousing is the only Canadian cohousing development to be looked at and it is interesting because it is a re-use of existing structures. It is very small, but has been able to become a strong presence in the neighbourhood.

Cambridge Cohousing is included in the case studies as a baseline. It is a prototypical cohousing development of townhouses with the exception of being situated on a narrow site.

## 2.17 Swan's Market, Oakland

Figure 2-7: Overhead view of Swan's Market Cohousing. Courtesy of Swan's Market Cohousing, http://www.swansway.com/photoalbum/. April 2009.

### 2.17.1 Site

The site is located in the urban context of Central Downtown Oakland, California. The cohousing development is part of a greater urban renewal development of a derelict historic market. Swan's Market Cohousing contains 20 units with 31 residents and is part of a greater complex which includes rental units, a museum, art galleries, grocery stores and other commercial spaces, occupying one city block (Ferrante-Roseberry, 2002). The building was completed in 2000 and has been fully occupied since completion. The density of residential units on the site is 80 units per acre (Williams, 2005). Swan's Market is located close to transit lines and is within walking distance of banks, shopping and entertainment.

Swan's Market is unique with respect to the way it came about, the development was a joint partnership between the municipality, and the cohousing group. As this project was not only a cohousing development but also an urban renewal project, including 24 commercial spaces with offices, retail and a museum of children's art, 18 rent geared to income 2 bedroom units and the cohousing development, funding was complex (Meltzer, 2005). The portion of the project allocated for the cohousing development was donated by the City of Oakland, the owners of the property, to the cohousing group. The funding for the development and construction of the cohousing was made up of owner equity and mortgage, with the total cost of the cohousing coming to $5,260,000.00US. The cohousing development was considered an entity in itself with

the cohousing group taking part in the design process, guided by the architect, Peter Waller of Pyatock &Associates. The ownership model for the cohousing development is condominium, with each unit being privately owned and occupied by the owners (Williams, 2005).

### 2.17.2 Community / Social Structure

The community is made up of 31 individuals, with ages ranging from 2 to 70, three of which are children (Williams, 2005). The group is made up of people of various religious beliefs indicating a diverse group, but with respect to class and household income, the group is homogeneous with all being affluent home-owning singles and couples, most having completed a college education and most earning an average household income of between $50,000 and $70,000 (Williams, 2005). It is interesting to note that 2 of the units (as well as the common areas) were originally designed as handicapped accessible units for owners with disabilities, and both owners have moved from the development for various reasons not related to the development.

Decision making is by consensus, a system similar to Scott-Hanson & Scott-Hanson's true consensus and Butler's formal consensus, but unique to Swan's Market. There are group leaders, a leadership 'process team', 'facilitators' and committees to oversee various social, financial and maintenance concerns. (Cohousing Association of the United States, 2008). Originally, meetings were held frequently for the committees and became contentious because they caused a burn-out effect and individuals were pulling away from participation. As the group learned and adapted their structures and systems, the cohousing group stabilized.

Initially, as with meetings, group meals and activities where scheduled more frequently, but as the group settled into systems that suited their lifestyles, meals and activities were scaled back.

- 1 group meal per week on Sundays
- 1 exercise class per week
- 1 maintenance day per month
- 1 film nights per month
- 2 Social events per month

Informal activities are common as well. As there is no formal semi-private space, but an abundance of public space in the development, individuals take part in informal gardening and discussions in the common indoor and outdoor areas.

### 2.17.3 Group Design Process

The Group Design Process was used for the design of this development, but there were restrictions. Because of the program of the building cohousing was only a small part of the entire Swan's Market development, space and number of units was pre-determined before the cohousing group were part of the design process. This limited the amount of outdoor space and limited the layout of the development.

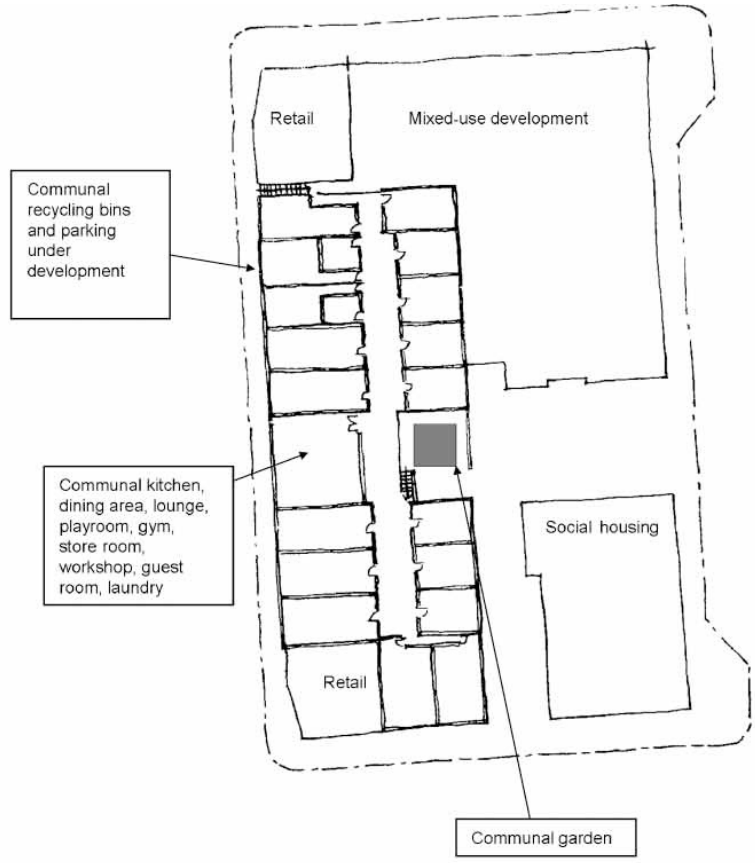



Figure 2-8: Plan of Swan's Market, From Williams, J. (2005)*Designing Neighborhoods for Social Interaction: The Case of Cohousing*. Journal of Urban Design.

The cohousing development is made up of two storey row houses or one storey units with loft units above. All are situated on the roof of the original Swan's Market. As mentioned, there is very little green space provided, only one formal garden (Williams, 2005). Although Swan's Market is the only true urban cohousing development in North America, the development layout is based on horizontal circulation as it is in most general terms a townhouse/row-house development situated on a roof.

There are 20 units with an average size of 92.3 m2 combined to create a total of 1846.9m2 of total private space. There are 3 studio units, 5 one bedroom units ad 12 two bedroom units. There is 321m2 of two storey communal indoor space, 236m2 of single storey outdoor communal space (including garden, children's play area and unit access corridors) and the total site area of the development is 1011.8m2. The footprint of private units is 692.4m2, footprint of public outdoor and indoor spaces is 319.4m2. Also, every unit is provided a parking space on the ground floor of the development (Williams, 2005). The proportion of public space versus private space is, 3.3:1.

As is typical in cohousing developments, Minimal Unit Design was also used in order to encourage the use of the communal spaces. The residents also had a strong influence on the design of the units, suggesting a reorganization of the circulation within the units and lowering the kitchen windows in order to make a stronger connection between the private units and the public corridor space.

### 2.17.4 Social Capital Design Concepts

Social Capital Design concepts incorporated into this site include car parking on the periphery, shared pathways of circulation, taking individuals through the common outdoor garden area to access any of the unit entrances. Also the main entrance connects to the unit corridors at a node which includes the common area, outdoor garden and unit access corridors. Unit access corridors are large enough for small gatherings and all units have a visual connection by way of a window from the private kitchen dining areas to the unit access corridor and for many units, they have a direct visual connection to the communal dining/kitchen area. The main circulation corridor is wide enough that many of the residents have expropriated a small area in front of their unit and created a semi private space with seating and potted gardening. Although this area in front of the units is not technically part of the unit, the adaptation to semi private spaces has strengthened the resident's connection to their community.

Communal Spaces decided on through the Group Design Process that have become the Social Capital created by the process are:

- Communal Dining/Kitchen area
- Children's playroom
- Lounge
- Gym
- Workshop
- Laundry

- Guest room
- Storage space
- Garages
- Outdoor Garden

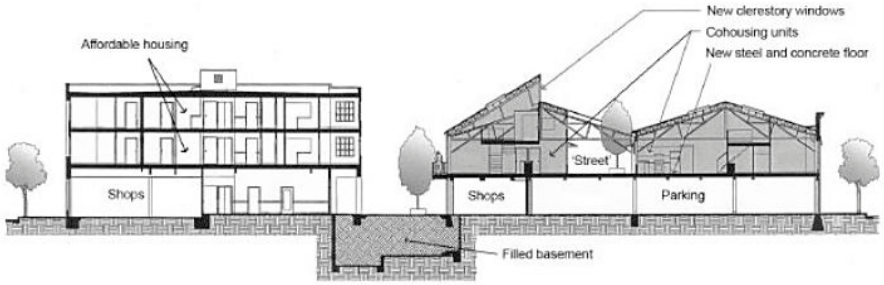



Figure 2-9: Site Section of Swan's Market, From Meltzer, G. (2005), *Sustainable Community: Learning from the Cohousing Model*. Victoria, BC. Original Drawing by architects, Pyatock and Assoc.

All of these spaces are situated in or are attached to the indoor communal space. As outdoor space was scarce, it was placed adjacent and directly connected to the indoor communal space. This allowed for the indoor space to open onto, and be supplemented by, the outdoor space on days when weather permitted. In California as weather is normally temperate, this design feature is a useful means to enliven the space.

Figure 2-10: Photo of Swan's Market Garden.

Figure 2-11: Photo of Swan's Market communal outdoor space.

## 2.18 Jamaica Plains, Boston

### 2.18.1 Site

Jamaica Plains is an urban cohousing development 3 to 4 miles outside of the downtown core of Boston, Massachusetts with 30 units on a 0.4 hectare site, completed in 2005. The site was originally a brownfield site before development. It is located near subway access and no car parking is provided on site as car usage is discouraged. Ownership is individual and the development is set up as a condominium board with directors.

By accident, the U-shaped configuration of the buildings on the site created a central courtyard. Initially the group design process looked at creating one building with a double loaded corridor, but an aqua-duct running through the centre of the site forced the separation of the buildings, creating the central courtyard that has become the key social focal point of the community. Another contributing factor to this configuration of buildings was a city ordinance calling minimal setbacks from the street forcing the buildings to be pushed to the edges of the site. This culmination of accidents has created a central courtyard that is surrounded by outdoor corridors and catwalks that allow access to all units creating a very strong sense of security and group identity. This secure courtyard area and the children's play area within it has in turn attracted children and parents from the surrounding community on a constant basis.

The large common area also opens into the central courtyard creating a very large and enjoyable gathering area in the summer. Barbecues, parties, meetings and events are a common summertime occurrence. There is a garden area on a separate site located behind the development that is used for organic food production and composting.

### 2.18.2 Community / Social Structure

Jamaica Plains is made up of 42 adult members and 11 children, totaling 53 members. Decision making is unique to Jamaica Plains: it follows the unanimous voting system with a caveat that if an issue is debated and brought to vote, after 2 tries with a unanimous consensus, a third vote is taken with a majority vote deciding on the issue. There are many committees created to maintain Jamaica Plains and every resident is expected to contribute 4 hours per month towards maintenance. There is a board of directors charged with the management of the cohousing's finances, legal responsibilities and insurance. For all other issues as they arrive, taskforces are created and dissolved as necessary.

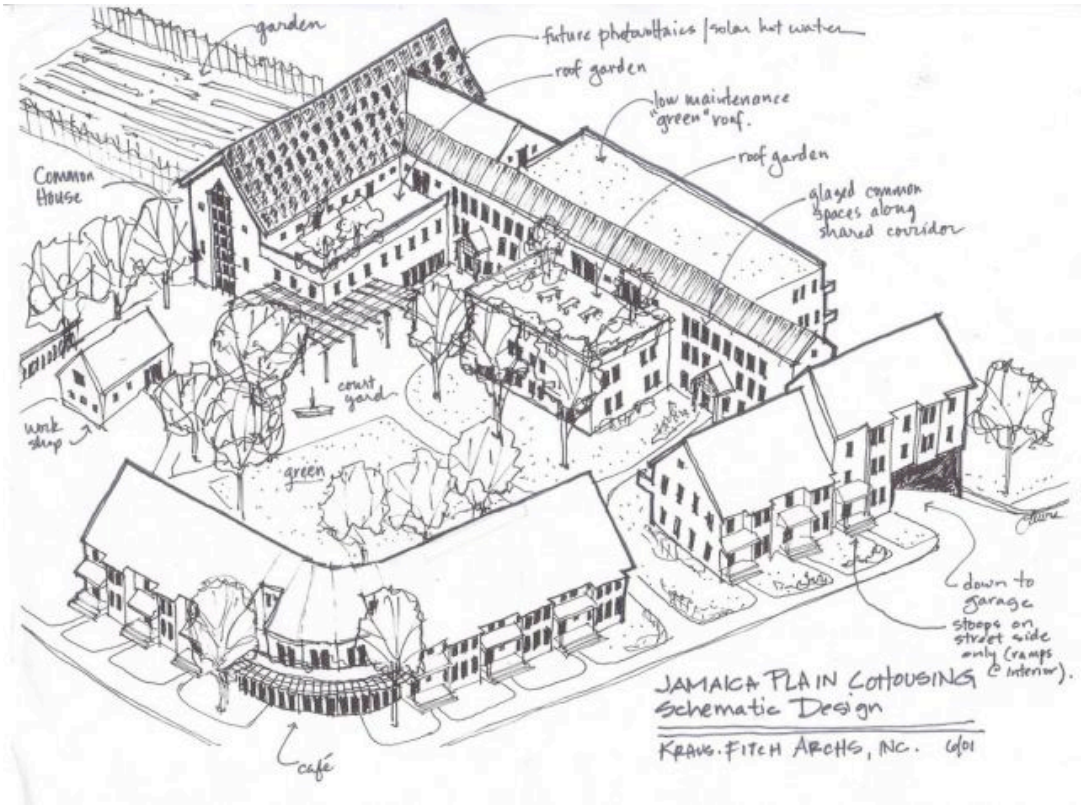



Figure 2-12: Jamaica Plain Cohousing schematic design sketch. Original Drawing by architects, Kraus and Fitch Inc., courtesy of http://www.krausfitch.com/portfolio/cohousing/jamaica-plain-cohousing/. April 2009.

Formal social activities consist of a shared meal bi-weekly. The group has learned that the meal preparation system works best when small teams attempt easy dinners. Outside of the planned dinners, the group has a number of events including Saturday night movie nights in the common room, a cabin fever day party in March, arts and crafts shows, music workshops, a yearly talent show and a Halloween party every year where all the neighbourhood is invited. The group is now also working on creating a system of shared cars.

Informal activities are wide ranging with participation by group members in political groups, gardening, child care and children's activities, children's birthday parties and many small group dinners and social events.

### 2.18.3 Group Design Process

Kraus-Fitch Architects Inc., the designers of Jamaica Plains have created their own Group Design Process specifically for cohousing they call *the participatory design process for cohousing committees.* The process is not unlike those used by other firms and included elements geared to educate and bring together groups by means of slide shows and group building exercises. The architects also found that giving homework before the initial workshop sped up the process.

The group meeting began with exercises designed to bring the group together by identifying and manipulating elements of the site plan and eventually by prioritizing spaces, identifying a detailed program including special considerations and patterns and finally identifying separate uses and spaces. The process, once begun, required constant communication between the architects and the residents, including numerous meeting for presentations and feedback (D. Goodmand, personal communication, November 18, 2008).

### 2.18.4 Social Capital Design Concepts

As previously discussed, Jamaica Plain Cohousing is organized in as a series of row and semi-detached buildings ranging from one to three storey's. The clustered organization creates a courtyard building with units ranging from 1 to 3 bedrooms. The courtyard and adjacent common room are the social hub of the development.

Much of the information forwarded in the following description of the development is from an interview with David Goodmand one of the residents of Jamaica Plain Cohousing. The development consists of 30 individual units, a common house, courtyard common space with deck, a garden area and 650m2 of unfinished basement for storage. The units are all connected and accessible to one another through a series of very wide outdoor corridors that create what the residents call flipper access, because you can visit any neighbour in your slippers or flip-flops. This has created an informal connectivity and sense of community enjoyed by the residents. The

Figure 2-13: Jamaica Plain Cohousing view from corridor. Courtesy of http://www.krausfitch.com/portfolio/cohousing/jamaica-plain-cohousing/. April 2009

corridors are also wide enough to act as a semi private balcony space in front of each of the units . According to community surveillance principles already discussed, the kitchens of all of the units have a window onto the outdoor corridor allowing for a visual connection to corridor, the common courtyard (and children's play area) and the common house (D. Goodmand, personal communication, November 18, 2008).

Figure 2-14: Jamaica Plain Cohousing view from couryard. Courtesy of http:// www.krausfitch.com/portfolio/cohousing/ jamaica-plain-cohousing/. April 2009.

The indoor common area includes a communal dining area, playroom and laundry facilities. These facilities are regularly used for meetings and social gatherings. Once a month a cohousing meeting takes place with a voting adult from each unit allowed a vote in the decision making process (D. Goodmand, personal communication, November 18, 2008). The communal room also hosts meals as previously discussed.

Outdoor common area is a central courtyard visible by all units of the development. The courtyard includes a children's play area, bicycle storage and an outdoor deck attached to the common house. A garden is also provided behind the development. There is a strong sustainable ideology unifying many of the residents of the cohousing development. On site organic farming and composting as well as a strong mandate to recycle is part of the social capital systems utilized in Jamaica Plains. No parking is provided for cars and all residents are encouraged to bike or take public transit creating a strong social and ideological connection between the residents (D. Goodmand, personal communication, November 18, 2008).

The outdoor area is the most important and main social centre for the cohousing community. Dinners and parties from the communal house spill into the central courtyard and it is the area where most of the informal social contact takes place. Children from all around the area come to play in the courtyard as it is a safe and well supervised area (D. Goodmand, personal communication, November 18, 2008).

## 2.19 Terra Firma, Ottawa

Figure 2-15: Terra Firma Cohousing street view.

### 2.19.1 Site

Situated near the Rideau Canal in Ottawa, Ontario, Terra Firma is made up of 7 units, 6 units are created from existing 2-storey row-housing with 1 unit and common areas newly built as an infill between the original 2 buildings of 3 units each. The area is an older, established, residential district with shopping, schools, and access to public transit. The Rideau Canal nearby has bicycle paths and acts as a skating route to the city core in the winter.

### 2.19.2 Community / Social Structure

There are 25 members, 21 adults and 4 children, who are currently living in the development with 2 members who wish to buy in and 2 outside members who participate informally as neighbours to the development.

Formal social activities and structures include use of formal consensus as discussed previously, a group governing system developed by C. T. Butler with no formal leader. All members of the cohousing have a say but only members who live in the development have a vote.

There are group dines together three times a year. There are also monthly activities such as Tai Chi, a music night, art night, holiday parties and movie nights for the residents to participate in.

Another benefit of the development is the inclusion of an informal communal childcare. This is provided when possible by residents who are currently retired and volunteer their time.

The group is also engaged in acquiring land north of the city as a retreat and opportunity to attempt agriculture on a small scale.

### 2.19.3 Group Design Process

This project was conceived as a re-use development. Two adjacent, decrepit, buildings built in about 1920 were purchased. Both buildings where made up of 3 row houses. Initially each of the six families that bought into the development bought one of the units. With the help of a resident who was also an architect, the work to individually renovate each unit was begun and completed, financially independent of each other, by each of the owners. The development was at the time also legally defined as a condominium with six units. The small backyards were joined and turned into one large outdoor amenity space with a shared bike storage shed, a garden storage shed, a children's play area, wood storage area and garden space. Individual units were still provided a semi-private outdoor deck space.

A couple of years later, one of the original organizers of the group, who was unable to purchase at the time the buildings became available, asked to buy in. An arrangement was made to attach the existing two the buildings creating a seventh unit plus an indoor amenity space, kitchen, guest room, sauna, laundry room, still unfinished hot tub, and a solar hot water system.

The units range in size from 88.3m2 to 130m2 with outdoor decks ranging in size from approximately 7m2 to 16m2.

### 2.19.4 Social Capital Design Concepts

As stated earlier, the development has many social capital features; a communal outdoor space, semi-private decks space, communal indoor space, communal kitchen, communal sauna, guest room, bicycle storage and the residents are working on a car sharing system.

## 2.20 Cambridge Cohousing, Boston

Figure 2-16: Cambridge Cohousing view from common greenspace. Courtesy of http://www.cambridgecohousing.org, April 2009.

### 2.20.1 Site

Located at 175 Richdale Street in Cambridge, Massachusetts, USA, Cambridge Cohousing is a development of 41 units completed in 1998. It is situated on a very narrow 6000m2 site with a built area of 5850m2 (United States Department of Energy, April 2009). The site is not a true urban site as defined by this paper but the constrictions of the site, sandwiched between a road and rail line may give indications as to possible downtown urban design elements. The units range from 3 storey town houses to 1,2, and 3 bedroom units (United States Department of Energy, April 2009).

The primary Cohousing group initiated the project by hiring a developer, Oaktree Developments to lead the process and the architect on the project was Bruce Hampton (The Cohousing Association of the United States, April 2009). Included in the design of the 41 units were 2 affordable housing units and a supported independent living unit.

### 2.20.2 Community / Social Structure

There are currently 80 people living in the development, and 3 outside members of the cohousing group (The Cohousing Association of the United States, April 2009). The age range is 2 to 85 years old (Cambridge Cohousing, April 2009).

The group decision making process is similar to the other case studies with a consensus based system. The community requires all members to participate in committees or management, a rotation system insures all members are involved and have a chance to explore various

positions. There is one management board, 22 officially recognized committees and 5 taskforces to look into new and emerging issues.

One of the committees is a facilitator committee designed to train meeting facilitators and leaders of the community. This is a unique form of social capital, encouraging personal development for the good of the community is not seen in any of the other cohousing developments studied.

The community enjoys a wide variety of formal social activities and amenities including outside of communal meals. There are monthly poetry readings, a childcare system with an indoor children's playroom provided, a number of small hallway libraries with books and videos, a workshop, guest rooms and an exercise room. Meals are provided 3 to 5 times a week with one day being pizza ordered in, another day being a home cooked meal by one of the meal teams that rotate the responsibility in a 6 to 8 week cycle and the rest of the meals are pot luck (Cambridge Cohousing April 2009).

Another very strong social connection is the shared concept of 'living lightly'. Sustainable living practices are incorporated into almost every aspect of life for the residents. This includes recycling, composting, the use of recycled materials in the construction of the units and the design and employment of sustainable features in the buildings. The community buys bulk non-toxic cleaning supplies for the units and communal areas as well as attempting to reduce driving by introducing two Zipcars, a web based car rental system, into the community. Through the groups gardening efforts, 3% to 5% of their food in grown on site reducing their carbon footprint and providing healthy organic vegetables.

### 2.20.3 Group Design Process

There is very little information available on the design process but there was a design committee composed of the initial cohousing group that worked with the developer and the architects to create a development that met their goals and vision for a community.

The development used recycled materials and was constructed as a series of prefabricated units to reduce waste during the construction process.

Figure 2-17: Cambridge Cohousing view prefabricated units. Courtesy of http://www.cambridgecohousing.org, April 2009.

### 2.20.4 Social Capital Design Concepts

The design of this development is the most prototypical of all the case studies when compared to the current literature. The project is a townhouse/row-house development with a central circulation corridor with parking removed from the units, a common garden space, a library and children's play area. The units all have their kitchens fronted onto the main circulation corridor and semi-private space for the units is provided in the rear. The group design process was a strong factor in creating the initial social capital and cohesiveness of the group along with the shared ideology of sustainable living practices. Incorporating their sustainable ideology into the design using prefabrication for the construction can also be considered part of Social Capital Design.

## 2.21 Design for Social Capital

The core principles of cohousing and the current design tools of cohousing have been identified and discussed, and the case studies have identified design features and design ideas conceived of by architects in order to accommodate cohousing design on various sites, but as yet a broad set of objectives incorporating the concept of social capital has not been developed.

The purpose for the development of a new set of broad design objectives stems from the dilemma of trying to fit the existing principles and design tools developed and illustrated using buildings based on a horizontal circulation plan. The problem of expressing these design tools into a vertical building as would be typify an urban development requires a look at the generating first principles behind the core principles of cohousing and the current cohousing design tools, a look at design for social capital.

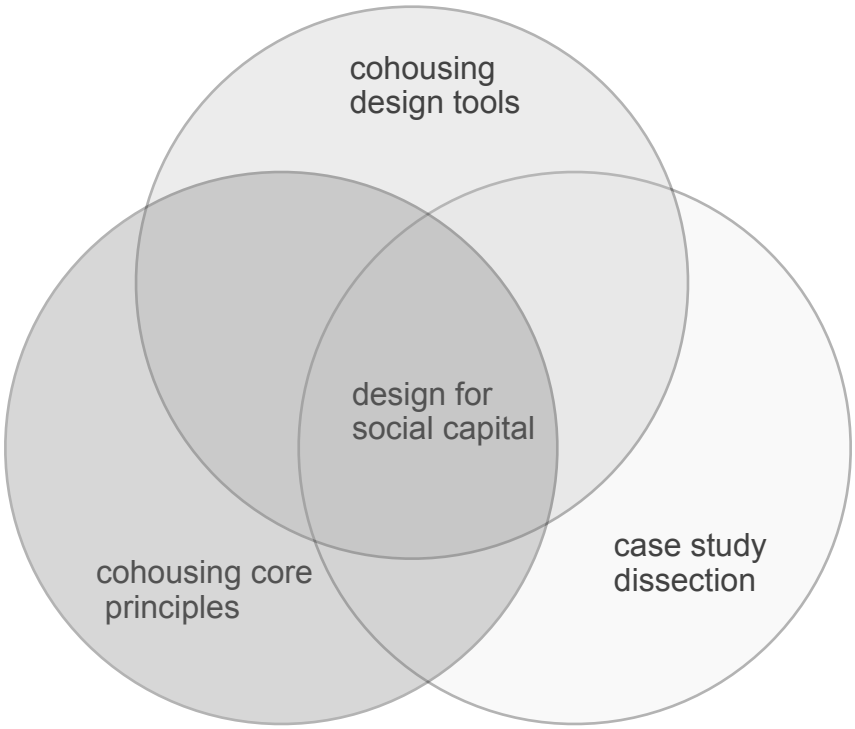



Figure 2-18: Intersection of research.

The following 6 Design for Social Capital objectives are identified from the analysis of the case studies as well as an examination of the broader goals of the core principles of cohousing and current cohousing design tools. By clearly identifying these objectives a framework is established that can be applied to the design of cohousing in any environment. By creating broad objectives it is hoped that the current design tools previously identified can be utilized to explore new methods of addressing cohousing for urban environments.

1. *Individual Identity* describes the design elements that support and help to create identity for each of the residents of the development. As discussed previously, inclusion of *Individual Identity* within a development helps to create a unique environment and a sense of belonging for the residents. Torres-Antonini explains,

> " Lang states: "Identity—which is associated with the needs for belonging, self-esteem and selfactualization identified by Maslow—is the need to know who one is and what role one plays in society" (1987, p. 148). Researchers suggest that personalization, that is, marking a territory for communication and defense purposes by placing personal objects, decorating it, and otherwise customizing the space to reflect occupation, is the territorial behavior that best suits expressing identity." (Torres-Antonini, 2001)

Design elements that fall under the category of *Individual Identity* are: differentiation of units according to the requests of the residents, the provision of semi-private space and the provision of common space allocated for individual use. All of these elements have been observed in the case studies and have been met described as important to the development by the residents.

2. *Group Identity* encompasses design elements that aide in the creation of a group identity including unifying design features and common ideologies. Torres-Antonini is again a source of clarification:

> "So, as in the case of participation, the built environment of the cohousing community is in itself an affordance for the social integration of the group. A subtle reference to this unity is the use of a common architectural language for the buildings. Despite the overt customization of the units keeping a similar scale, materials and details contribute to allow reading the different structures as a group, and to connote a sense of "we."" (Torres-Antonini, 2001)

The sense of "we" described by Torres-Antonini is key not only to the unification of the group but also identifies the group as unique to the outside community. To this end, group identification to the outside community, activities as well as design determine the identity of the group. Supporting and creating events that incorporate the outside community help to define and differentiate the cohousing community from the community at large while providing an opportunity for the expansion of social networks.

3. *Security* simply means the design elements that help provide a sense of security for the residents, their children or the community surrounding the development. Enclosed common areas, areas visible from multiple units and visibility between units are the most common examples of this. This objective is identified as important by many of the interviews with residents. Although security is not a common theme discussed by Scott-Hanson or Durrett in their books which are the commonly regarded as standard texts of cohousing design, it is implied in the design of common areas and site planning. Torres-Antonini directly addresses security with respect to cohousing through social contact design, "Ensuring a feeling of safety for residents is the one aspect of a sense of community that is most clearly addressed by social contact design" (Torres-Antonini, 2001). Williams also addresses security as a product of community surveillance a part of his definition of social contact design.

4. *Privacy* is the creation of privacy whether it is for residents in their own units or the creation of spaces in the common areas designed for more private or intimate conversations, privacy allows for places where residents can be themselves or make strong personal connections with other residents. Privacy, or the distinction between private and public is covered extensively in cohousing literature. Williams sites a perceived lack of privacy as a reason for adoption of cohousing in the American marketplace, "…cohousing is perceived by the American public to be inconsistent with the values of individual freedom and privacy…" (Williams, 2008). Emphasizing individual and group privacy within a cohousing development is key to mainstream adoption of cohousing, but more importantly it is key to the development of the social ties that are elemental in the creation of social capital.

5. *Physical Connectivity* describes the physical connections between units and by extension residents. Corridors, walkways, building configuration and unit access to common areas are all examples of design elements that allow for development of personal connections by creating physical hard connections between people. In an interview with a resident of Jamaica Plain Cohousing, easy access between units was considered essential to the communities identity and function. In essence, proximity between units was artificially enhanced by the design of the circulation pathways of the buildings. Williams identifies proximity as an important factor in socializing:

> "Proximity greatly influences patterns of socializing (Homans, 1968). Immediate neighbours tend to communicate more with each other than

> residents living further apart. Residents living in the middle of a row of houses communicate with other residents more than those who live at the edge of the community. Those on the edge of the community tend to be more isolated. In flats residents living next to the stairwells are more inclined to socialize with residents from lower and upper floors, whilst those living in the centre of the floor are more inclined to socialize with their immediate neighbours (Homans, 1968; Baum & Valins, 1977).“

6. *Social Connectivity* differs from *Physical Connectivity* in that these elements are not physical but concepts or activities. Common ideologies, political views, and shared experiences, these are instruments that connect the community in the development of social capital. An activity common to cohousing that begins to develop *Group Identity* and is essential in the creation of a development’s *Social Connectivity* is the group design process. Bothwell, Gindroz and Lang describe the benefits of the group design process:

> “In fact, the process itself helps restore a sense of community by initiating the idea of civic engagement. It also gives residents a sense of ownership in their surroundings that promotes the long-term success of the project. It is only by engaging residents in the design process that we know that the resulting changes will help create a safe and stable community.”

One of the common criticisms of cohousing in North America, the homogeniality of the white middle class early adaptors, may also be a reason for the success of the communities. Having a population that share a common background may help to create the social connectivity that is required to create a development, but as the development matures and common experiences and identity is created, as group members leave and new residents take their place, the initial importance of a common background may be lost opening the door for greater diversity.

## 2.22 Case Study Comparators

The 6 Design for Social Capital objectives encompass the goals of cohousing as described previously, these 6 objectives will be the basis for the comparison of the case studies in order to better understand and illustrate the objectives. An added heading of General Description Is introduced as a base to identify the basic characteristics of the case studies.

### 2.22.1 General Description Chart

| | **Swan's Market Cohousing** | **Jamaica Plains Cohousing** | **Terra Firma Cohousing** | **Cambridge Cohousing** |
|---|---|---|---|---|
| **Site** | Urban | Semi-Urban | Semi-Urban | Semi-Urban |
| **Development Model** | Developer Lead | Resident Lead | Resident Lead | Resident Lead |
| **Number of Members** | 31 | 53 | 25 | 80 |
| **Number of Units** | 20 | 30 | 7 | 41 |
| **Community and Social Structures** | Consensus Based with many delegated committees | Unanimous Consensus with majority vote after 3 unsuccessful attempts<br>Many delegated committees | Consensus Based model of C.T. Butler method | Consensus Based with many delegated committees |

### 2.22.2 Individual Identity Chart

| | **Swan's Market Cohousing** | **Jamaica Plains Cohousing** | **Terra Firma Cohousing** | **Cambridge Cohousing** |
|---|---|---|---|---|
| **Unit Design** | No individual input into the unit design. All unit facades are similar | No individual input into the unit design. All unit facades are similar | All units were renovated independently by the owners and are unique in material and colour. | No individual input into the unit design. All unit facades are similar |
| **Semi-Private space** | None provided, but residents have occupied the area of the corridors directly in front of their units to create an informal yard and have imprinted their personal style into the spaces | Similar to Swan's Market, the circulation corridor in front of the units is created with enough width to allow residents to occupy the space as a balcony. | Semi-private decks are provided for all units that walk out into the common back yard. The decks are decorated by the residents with plants, furniture and art work. | Semi-private decks and balconies are provided for each unit. The decks are decorated by the residents with plants, furniture and art work. |

### 2.22.3 Group Identity Chart

| | **Swan's Market Cohousing** | **Jamaica Plains Cohousing** | **Terra Firma Cohousing** | **Cambridge Cohousing** |
|---|---|---|---|---|
| **Unified Design** | Central entrance to the development with wide double loaded corridor for informal social interaction. Materiality and form are identical throughout the development | U-shaped orientation of buildings on site provides a central courtyard that acts as the main entrance to the development and the units. Forms and materiality is unified and complimentary throughout the development | All units were renovated independently by the owners and are unique in material and colour, but the form shape and configuration of the row house units are uniform | Materiality and form are identical throughout the development. Entrance to all units is from the main communal outdoor space. |
| **Communal spaces** | Communal indoor space is provided as well as a communal garden. The main circulation corridor is designed to be wide enough to act as a communal outdoor space for informal social activities | A communal indoor space, outdoor courtyard space, children's play area and garden space are provided. As with Swan's Market, circulation corridors are wide enough to allow for informal social activities. | Common house with kitchen, laundry, children's play area, sauna, guest room and video projector is provided. Common outdoor backyard is also provided with bike storage, garden, children's play area, seating areas and canoe storage | A common room with kitchen and dining is provided. A indoor childcare area as well as on outdoor children's playground is provided. Also provided are common libraries, a workshop, laundry facilities, a garden and a shade garden. |
| **Shared ideology** | -Sustainable urban living | -Sustainable urban living | -Sustainable urban living | -Sustainable urban living |
| **Interaction with outside community** | No | Yes, have events where the surrounding neighbourhood is invited to partake. | Yes, have events where the surrounding neighbourhood is invited to partake. Also have members of the cohousing group who live in the outside community | Yes, have events where the surrounding neighbourhood is invited to partake. Also have members of the cohousing group who live in the outside community |

### 2.22.4 Security Chart

| | Swan's Market Cohousing | Jamaica Plains Cohousing | Terra Firma Cohousing | Cambridge Cohousing |
|---|---|---|---|---|
| **Community surveillance** | -There is no designated communal outdoor space outside of the garden.<br>-The main corridors are wide enough to allow for seating and informal social events<br>-All units have visual access to the communal corridor space | All units have direct visual access from the kitchens to the central courtyard which is the main social hub. The courtyard also contains the children's play area. | All units have visual and direct connection to the communal rear yard and children's play area. | The orientation of the buildings creates an enclosed courtyard that has direct visual access from all units. |
| **Shared Pathways** | -Shared access to units.<br>-Shared main entrance corridor | -Central courtyard main entrance to all units<br>-Where possible access to units through common house<br>-Unit groups have shared access to Units. | -None | -Shared main pedestrian pathway to all units |

### 2.22.5 Privacy Chart

| | Swan's Market Cohousing | Jamaica Plains Cohousing | Terra Firma Cohousing | Cambridge Cohousing |
|---|---|---|---|---|
| **Unit Design** | Units all have bedrooms on the second floor loft or in the rear of the unit. | No information available. | Bedrooms are all situated on the second floor of the units with one exception. | No information available. |
| **Semi-Private Space** | None provided, but residents have occupied the area of the corridors directly in front of their units to create an informal yard. | The circulation corridor in front of the units is created with enough width to allow residents to occupy the space as a balcony. | Semi-private decks are provided for all units | Semi-private decks and balconies are provided for each unit. |
| **Private nodes in communal spaces** | Private nodes created in the circulation corridor by resident's occupation of the area in front of their units. | Many private seating areas and spaces provided in the courtyard, the circulation corridors and the common house. | Private seating areas in the communal rear yard and a sauna included in the common room | Private nodes designed into the common room, garden and shade garden. |

### 2.22.6 Physical Connectivity Chart

| | **Swan's Market Cohousing** | **Jamaica Plains Cohousing** | **Terra Firma Cohousing** | **Cambridge Cohousing** |
|---|---|---|---|---|
| **Unified Design** | Central entrance to the development with wide double loaded corridor for informal social interaction. Materiality and form are identical throughout the development | U-shaped orientation of buildings on site provides a central courtyard that acts as the main entrance to the development and the units. Forms and materiality is unified and complimentary throughout the development | All units were renovated independently by the owners and are unique in material and colour, but the form shape and configuration of the row house units are uniform | Materiality and form are identical throughout the development. Entrance to all units is from the main communal outdoor space. |
| **Communal spaces** | Communal indoor space is provided as well as a communal garden. The main circulation corridor is designed to be wide enough to act as a communal outdoor space for informal social activities | A communal indoor space, outdoor courtyard space, children's play area and garden space are provided. As with Swan's Market, circulation corridors are wide enough to allow for informal social activities. | Common house with kitchen, laundry, children's play area, sauna, guest room and video projector is provided. Common outdoor backyard is also provided with bike storage, garden, children's play area, seating areas and canoe storage | A common room with kitchen and dining is provided. A indoor childcare area as well as on outdoor children's playground is provided. Also provided are common libraries, a workshop, laundry facilities, a garden and a shade garden. |
| **Easy Access between Units** | -Sustainable urban living | -Sustainable urban living | -Sustainable urban living | -Sustainable urban living |

### 2.22.7 Social Connectivity Chart

| | Swan's Market Cohousing | Jamaica Plains Cohousing | Terra Firma Cohousing | Cambridge Cohousing |
|---|---|---|---|---|
| **Formal Social Events** | -Community meeting once a week.<br>-Communal dinner once a month. | -Community meeting once a month.<br>Various committee meetings ongoing.<br>-Communal dinner 2 to 3 times a week.<br>-Birthday party celebrations.<br>-Various events and parties throughout the year.<br>-Weekly movie night | -Community meeting once a month.<br>Various committee meetings ongoing.<br>-Communal dinner 3 times a year.<br>-Birthday party celebrations.<br>-Weekly movie night<br>-Various events and parties throughout the year. | -Community meeting once a month.<br>Various committee meetings ongoing.<br>-Communal dinner 3 to 5 times a week.<br>-Birthday party celebrations.<br>-Various events and parties throughout the year. |
| **Shared ideology** | -Sustainable urban living | -Sustainable urban living | -Sustainable urban living | -Sustainable urban living |
| **Resident Participation** | Mandatory participation in maintenance | Mandatory participation in maintenance, committees and communal food preparation | Mandatory participation in maintenance and decision making process. | Mandatory participation in maintenance, committees and communal food preparation |

With respect to urban design methodologies, two of the developments stand out as directly informing the process. Swan's Market Cohousing indicates is most informative with regards to security and the use of circulation space as a semi private area for resident interaction. Jamaica Plain Cohousing, although sited in a suburban setting, due to it's size and density requires the address of vertical circulation and indicates the importance of the method of connectivity to the creation of social capital between residents not only in adjacent units but throughout the development. The inclusion of a central courtyard along with vertical circulation work well, but the social connectivity indicated by Swan's Market's open single circulation corridor used by all residents informs the creation of stronger social capital connection. A design that could incorporate the strength of both designs would be the goal of the design portion of this thesis.

# Part 3: Design

## 3.1 The Client

The use of a real cohousing group as a hypothetical client has the benefit of imposing real values and program necessities into the design. Toronto Ecohousing Community is a Toronto based cohousing group looking to develop a cohousing project in the downtown core of Toronto. The group has a diverse membership and are looking to build in the west end of Toronto as many of the groups members's children are to attend an new school called the Grove Community School. When interviewed the group outlined its goals and principles, they are as follows:

- social conscience
- creativity and health are of special importance
- group currently based on families with children but is accepting of all lifestyle choices
- Many members of the group currently participates in a food share organization
- avid cyclists promoting a minimum use of cars
- environmentally conscious
- downtown Toronto urban living is preferred

These goals and principles will be used to focus the design and create a development that reflects not just an imagined concept of urban Toronto Cohousing but instill some real constraints and boundaries.

The group has also helped to develop a generic minimum program for the building. This program will not only aide in the design, but will be instrumental in determining the appropriate site. The program is as follows:

1 One Bedroom – (70m2) large enough for two people to live in.
13 Two Bedroom – (90m2) large enough for a small family 3-4 people.
1 Three Bedroom – (110m2) large enough for a family of 4-6 people.

---

15 Units Total – (1887m2) 2 to be low-income rental, 2 Handicapped Accessible

The common areas are:

- Bicycle Storage – 2 Bikes per unit minimum
- Workshop – Large enough for 2 bicycles with tool storage
- Children's Play Area – Interior and Exterior spaces provided
- Guest Rooms – 2-4 rooms
- Garden Space – Large garden space, possible greenhouse
- Parking – 8 spaces, 2 for shared cars.

## 3.2 Program analysis

From the analysis of the program, a general understanding of the minimum size of building required can be ascertained to be approximately 2000m2. This is a minimum and generic idea of the area required, depending on the number of floors and the circulation requirements more area may be required.

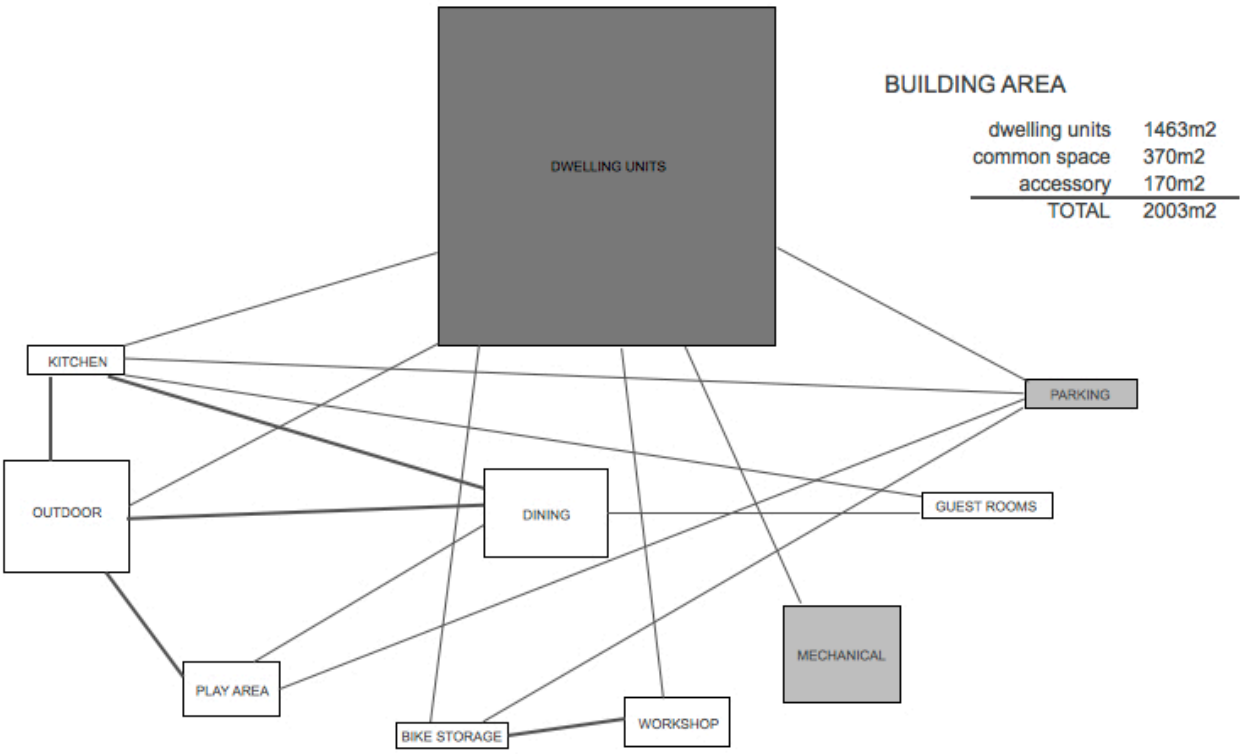



Figure 3-1: Program connectivity chart and required building area calculation.

## 3.3 The Site

Site selection was an extensive process, many properties were considered, some were forwarded as possible choices from the client but most were found through a process of exploration of the areas indicated by the client would be possible areas of interest. Three types building sites were considered, sites with existing industrial buildings, sites with existing residential buildings and sites with no existing buildings or buildings not suitable for reuse. As the client had expressed a strong interest in environmental building practices, reuse of an existing structure was given priority.

A site comparison and grading table was used to compare 13 sites to criteria determined to be important through interviews with the client, these are: minimum building size, site area, access to sunlight, proximity to school, proximity to downtown core and adaptability of existing buildings. The chart identified 89-91 Niagara Street as the most suitable site for which to base the building. The site is an industrial factory from 1867, five storeys in height with a building configured around an existing courtyard surrounded by later smaller scale additions to the existing building. The structure is heavy timber with a structural masonry exterior. The main entrance to the building is through an original carriage way that accesses the central courtyard. This means that there is no main door or entrance into the building from the main street, a security feature that could be utilized in the conversion to a residential use.

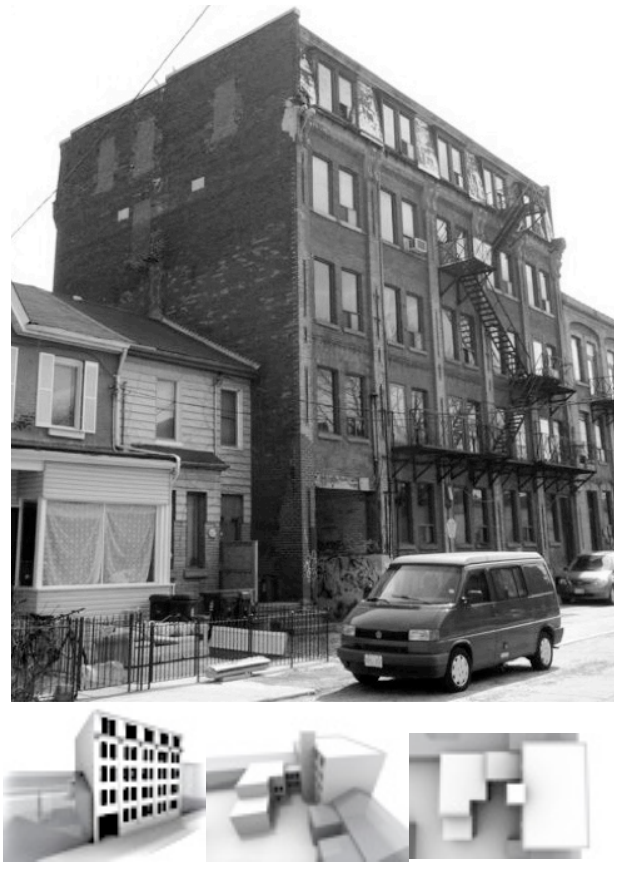


Figure 3-2: Photo and renderings of 89-91 Niagara Street, Toronto.

Historically, the area began as the practice range for the cannons of Fort York. In the early 1860‘s, the area was sold off for development and because of the proximity to the lake and the rail lines, the area became an industrial district. Common to the period, industries developed workers housing in the area these houses remain surrounding the industrial buildings and giving the area a unique dichotomy of scale. Bathurst Street is currently being transformed by numerous new high-rise condominiums while behind the veneer of Bathurst, the community of

workers houses and industrial complexes now predominantly divided into live/work studios continues to thrive. Niagara Street in particular is comprised of all the buildings types discussed. It is a mix of new condominiums on the Bathhurst St., small scale workers housing and a large historical industrial complex of which the chosen development site is adjacent to (Figure 3-3).

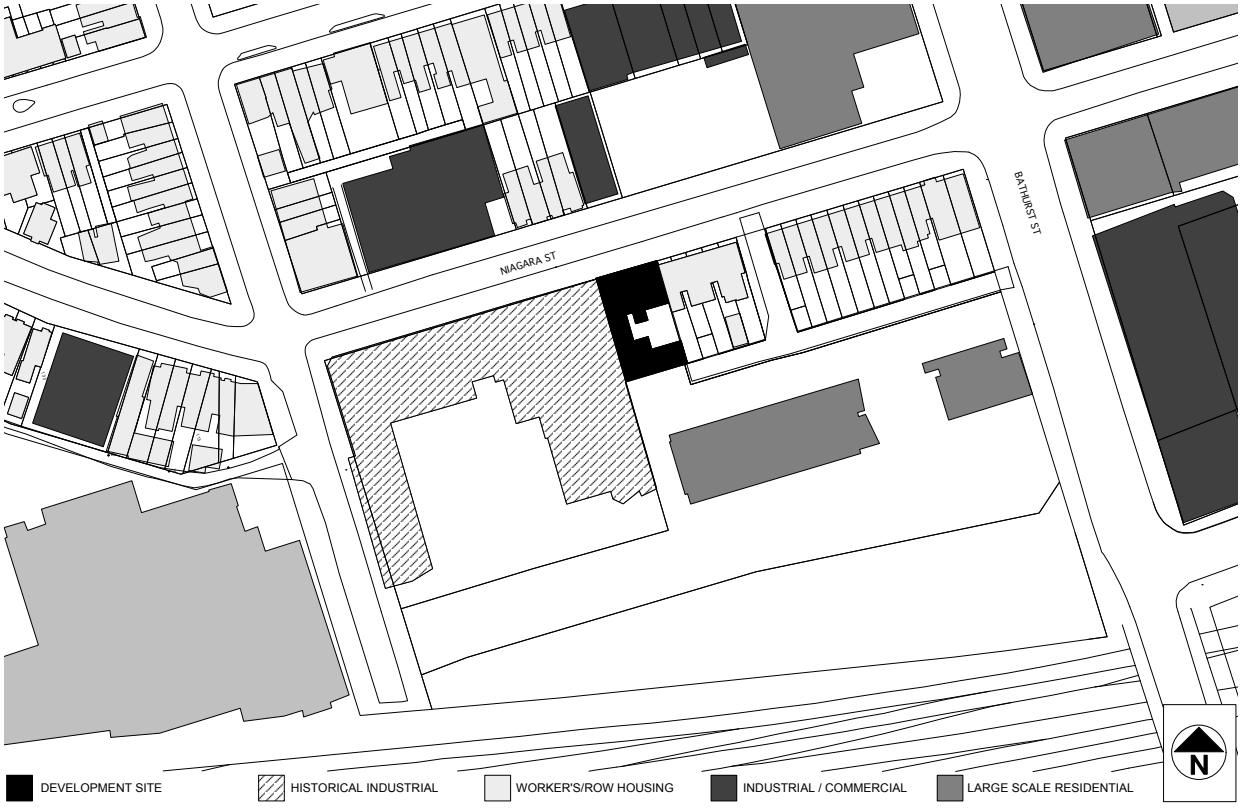



Figure 3-3: Site Analysis, Existing building types.

## 3.1 Design Evolution/Design Methodology

As the site analysis indicated the allowable area of the site and building would meet the minimum requirements of the program, the main focus of the design became the circulation. The principles of design for social capital put tremendous emphasis on the connection between units, communal spaces and circulation. The circulation system not only had to physically connect the spaces but also create a visual tie between units, corridors, the courtyard and the communal spaces. The visual connection is intended to connect residents to the community by allowing the to see what happening within the community, creating a stronger personal link to the community and in turn social capital. Along with the visual connection, resident traffic was considered. If all residents were forced to use the same corridor, personal connections could be made and social capital created. Also, if the concept of connecting the kitchens of the units to the corridor could be created with operable windows or doors, connections between residents in their units and residents coming or going from their units could be created.

The design began with trying to create a main connective corridor that could tie the common spaces, the courtyard entrance and the units. he concept of creating a connection with the greater community outside of the development was also explored with a main connective bridge. This concept lacked the ability to connect the units and was ultimately discarded but the material coupling of a light steel framed structure with the heavy masonry did prove to be expressive of the imposed new ‘lighter’ residential use the building was now

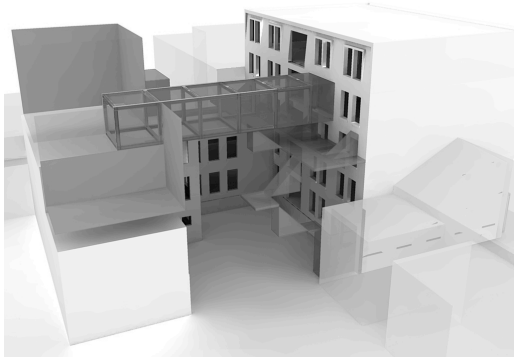


Figure 3-4: Design development image.

Figure 3-5: Design development image.

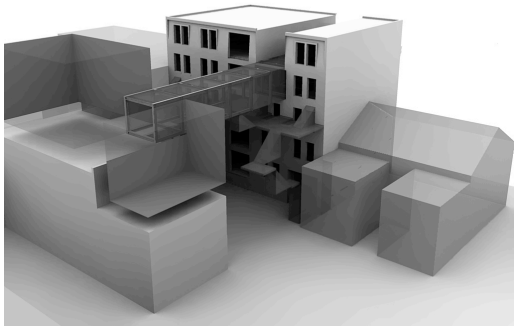


Figure 3-6: Design development image.

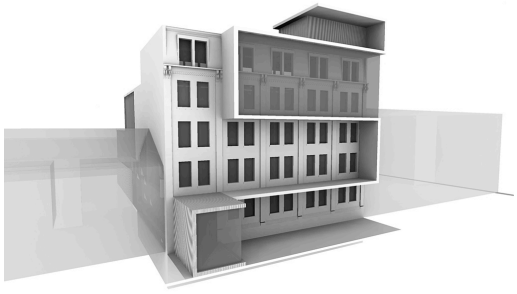


Figure 3-7: Design development image.

going to take on.

The next phase of the design exploration attempted to focus on what was lacking with the main connective corridor. Continuity and connectivity were explored by attempting to create a ribbon of circulation that could connect the spaces. The program proved to be too diverse and the clean separation between circulation and defined spaces was unattainable without a disproportionate amount of circulation space. The ribbon attempt (Figure 3-7 & 3-8) did lead, if only by creating a visual indication of it, to the introduction of a main circulation ring which could act to access all of the residential units (Figure 3-9), create a visual link to the communal spaces and focus all circulation to and from units into one corridor.

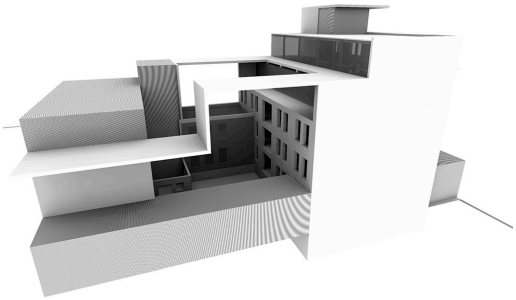


Figure 3-8: Design development image.

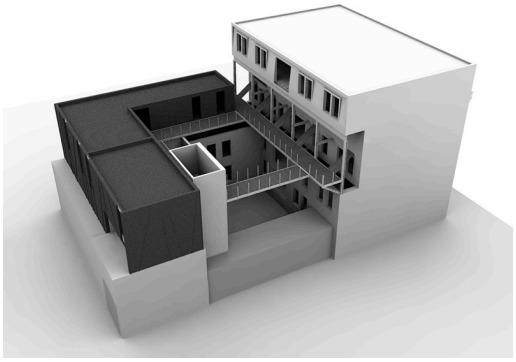


Figure 3-9: Design development image.

The ring became the main concept behind the circulation but in order to have one corridor connect as many units as possible, the units would need to be stacked and designed in a way that brought most of the entrances into one floor of circulation. In this the case studies proved invaluable Windmill Line Cooperative's 2-storey circulation 'street' allowed 3 storeys of units to access one corridor. This concept became pivotal in the final design.

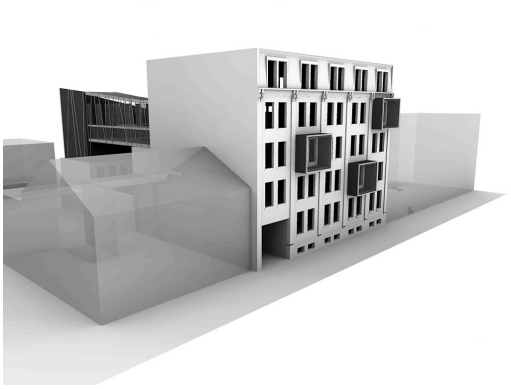


Figure 3-10: Design development image.

## 3.2 Final design

Three major concepts permeate the design process of this cohousing development, the creation of social capital, minimum environmental impact and an urban vertical housing model. The design methods used to explore the creation of social capital will be covered in the following sections. As the design is directly derived from the Principles of Cohousing, Current Cohousing

Design tools and the creation of Social Capital, the concepts and design decisions relating to social capital will be explained under the broad and encompassing headings of the six Design for Social Capital objectives outlined previously. This section will look to explain the basic configuration of the building and the design as it pertains to reuse of the existing building and the sustainable design concepts incorporated.

The floor plans of the building are based on the premise of a courtyard as the hub of all activity. The courtyard is intended to be the main focus of the building, acting as the main entrance to the units, the common social areas as well as the neighbourhood food share. It is also a usable space intended to be a spill over area for the common dining room, an area to hold informal gatherings and house a small market for the local farmers affiliated with the food share. It is intended that the courtyard also acts as a buffered semi-private area during the day and a secured area in the evening (Figure 3-11). Residents and visitors have to cross the courtyard in order to have access to the residential units above but four units have almost direct access to the courtyard via a raised walkway. The raised walkway imposes a level of privacy but as some of the current client group operate businesses from home these units provide a closer connection to the public. Main vertical circulation is located in the south-east corner of the

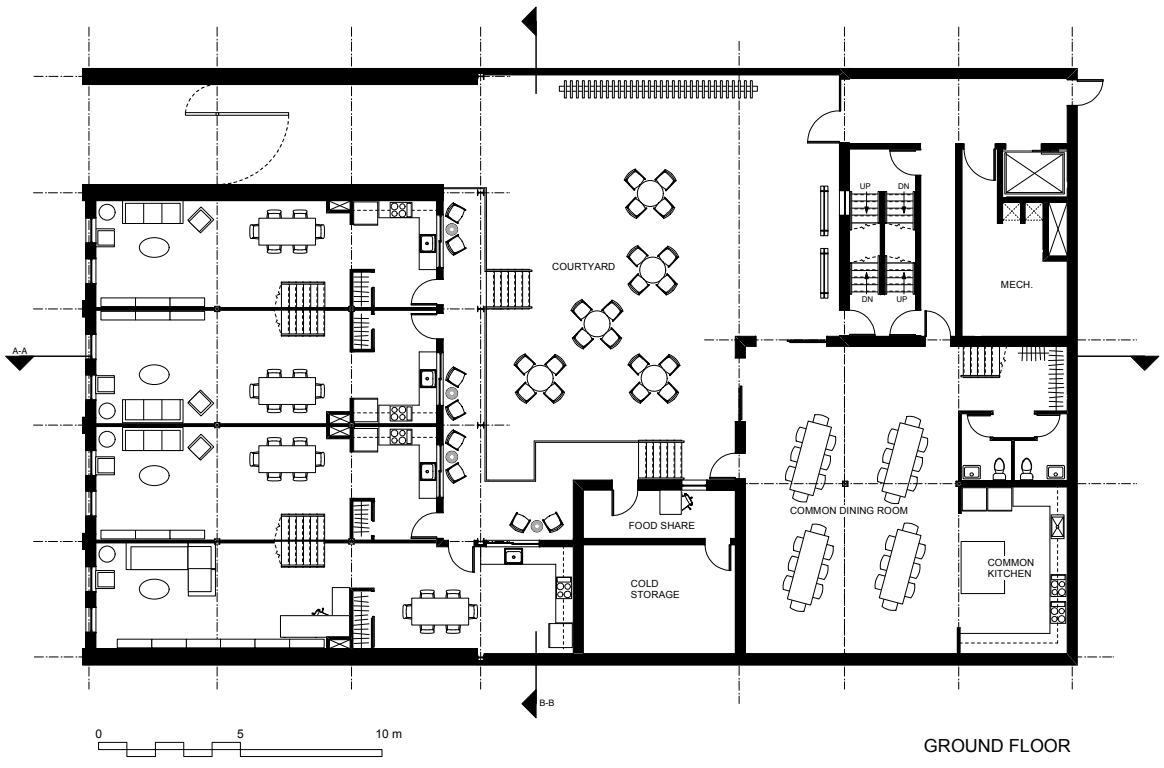



Figure 3-11: Ground Floor Plan.

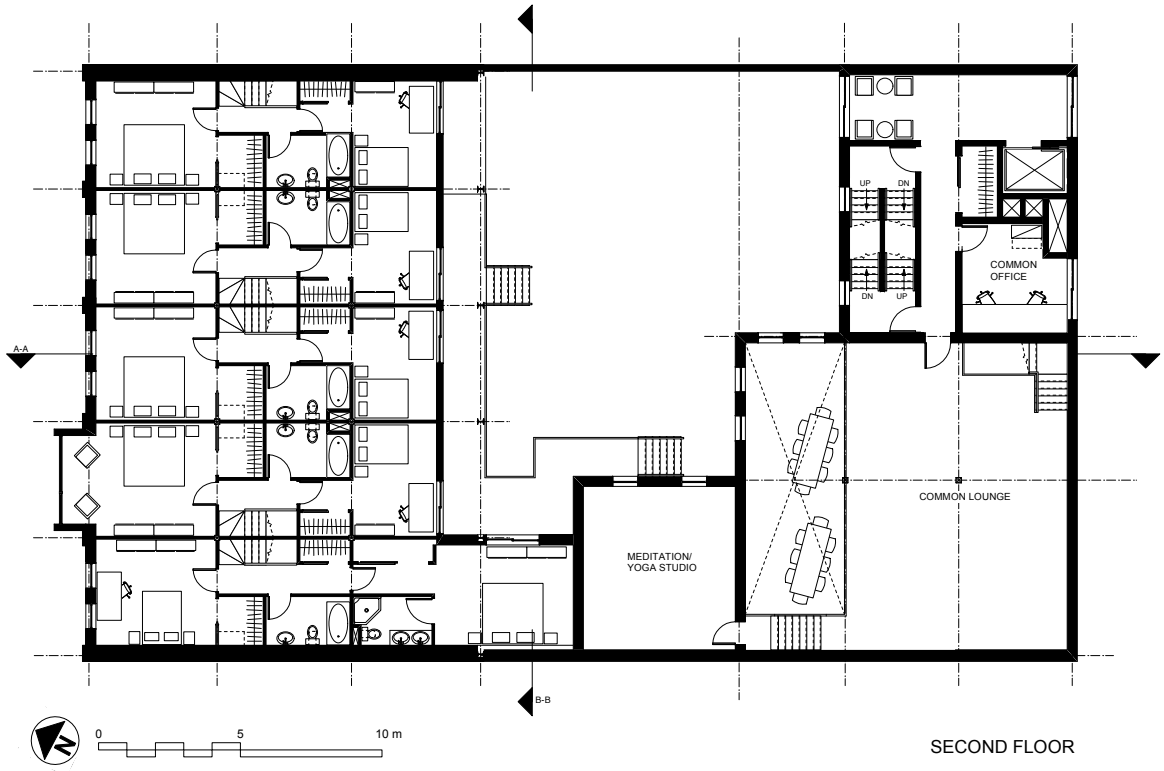



Figure 3-12: Second Floor Plan.

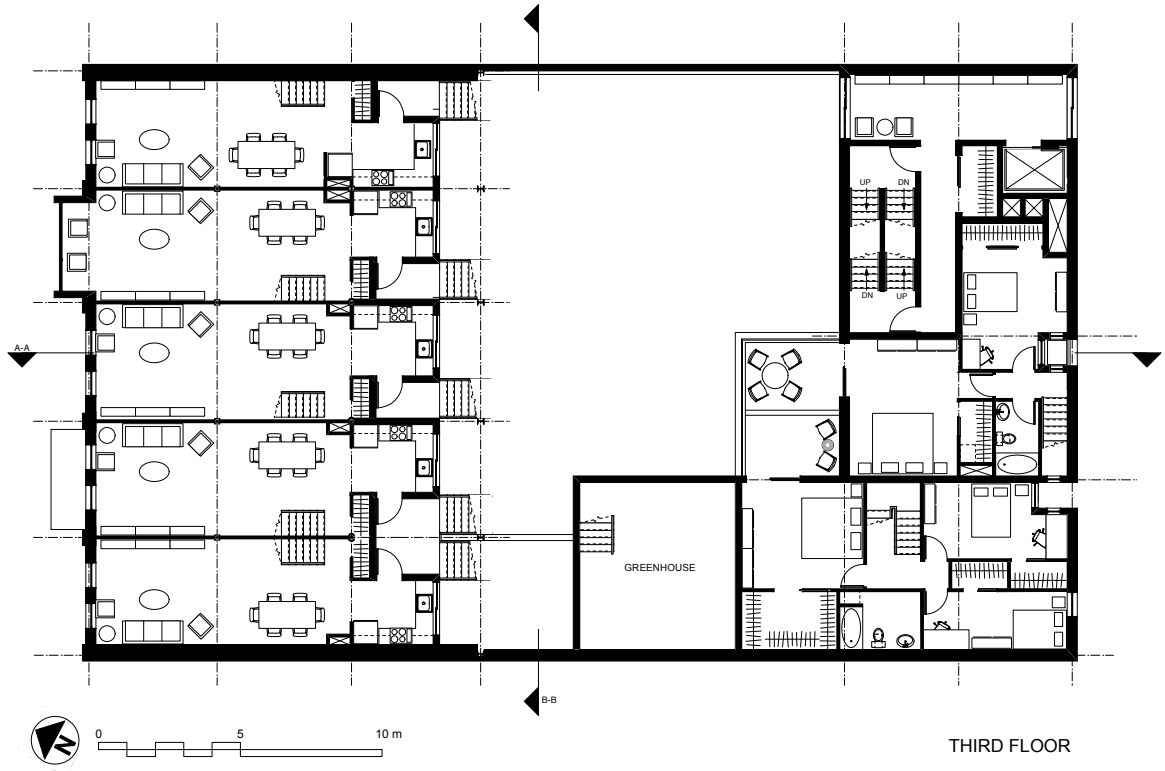



Figure 3-13: Third Floor Plan.

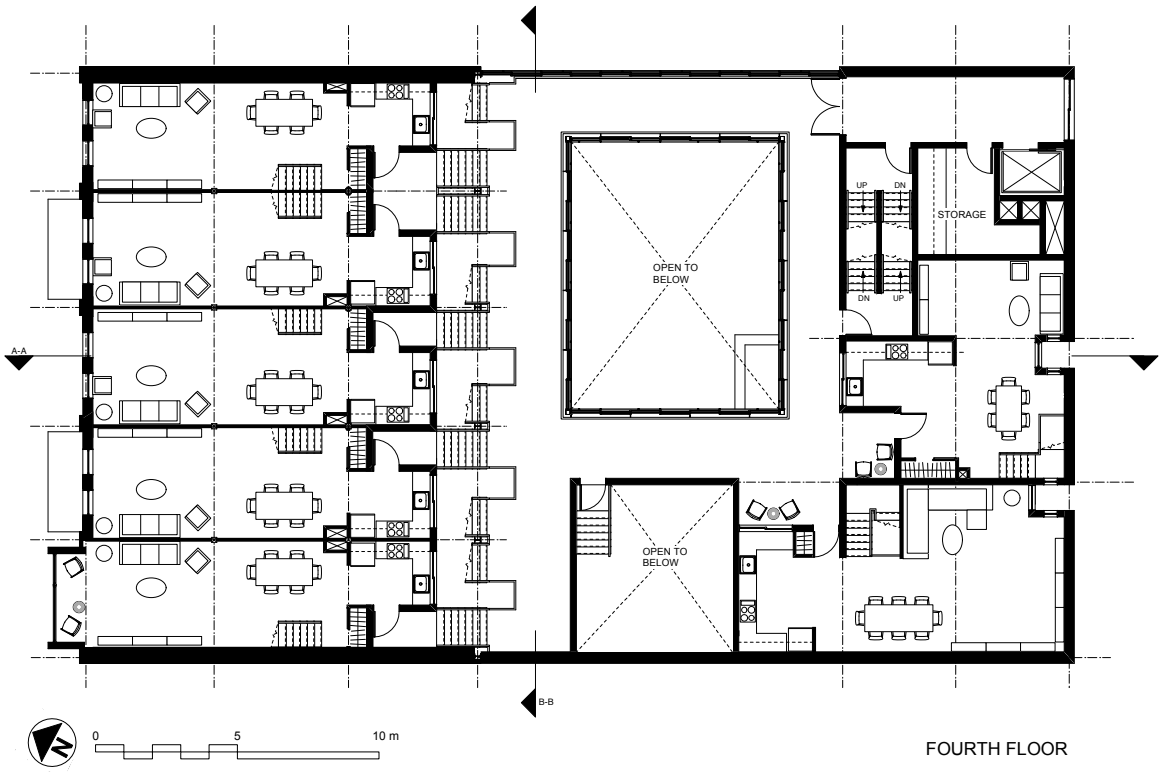



Figure 3-14: Fourth Floor Plan.

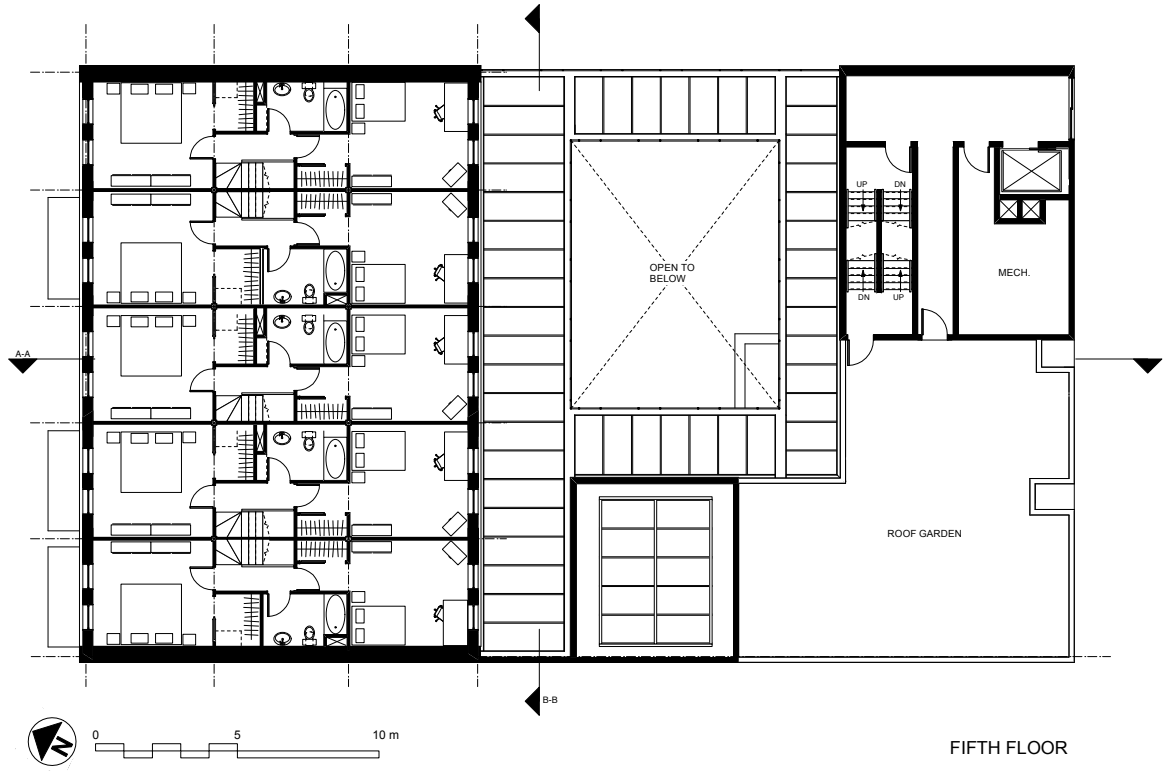



Figure 3-15: Fifth Floor Plan.

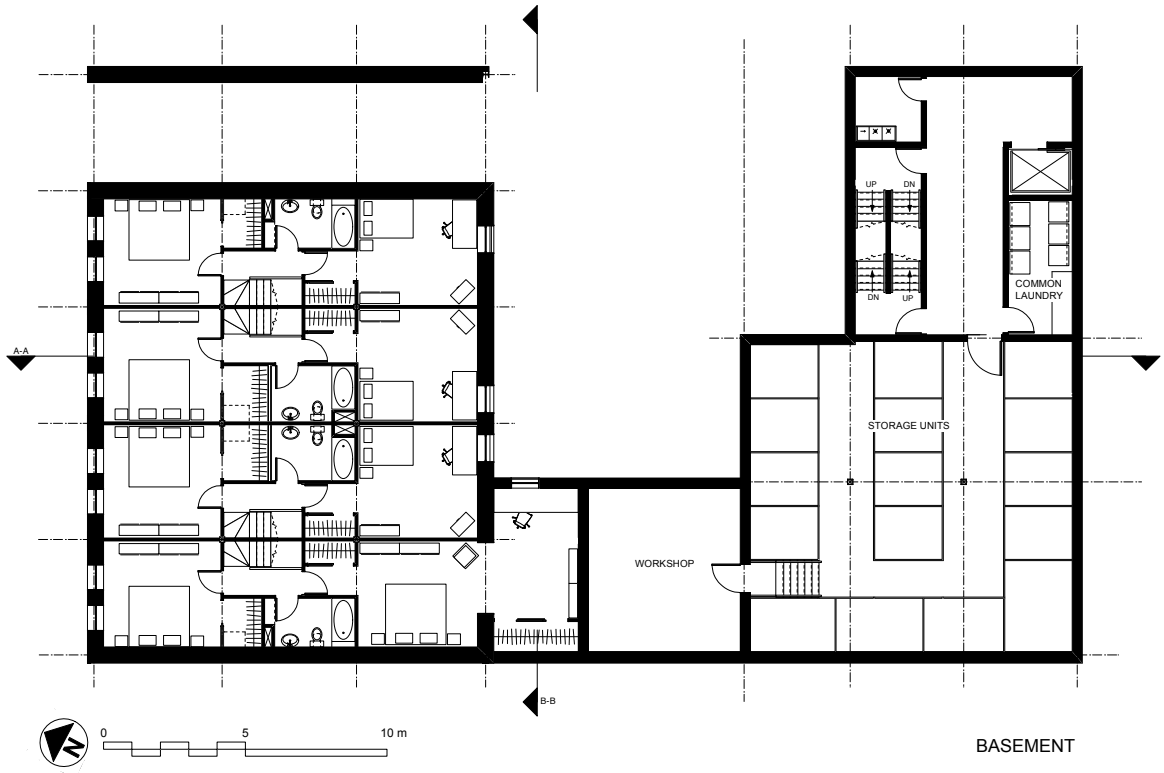



Figure 3-16: Basement Plan.

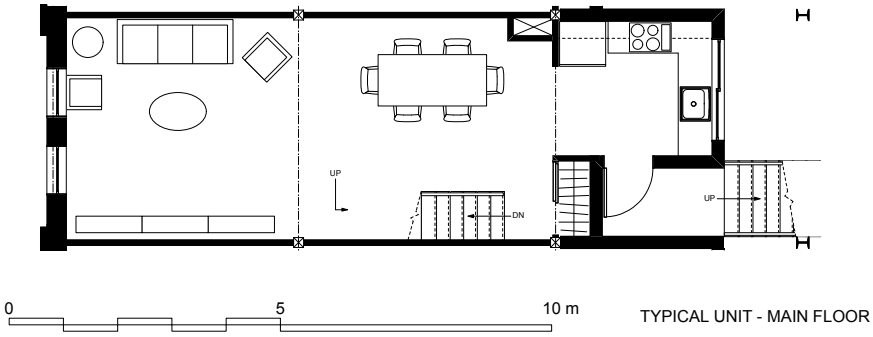



Figure 3-17: Typical Unit Plan - Main Floor.

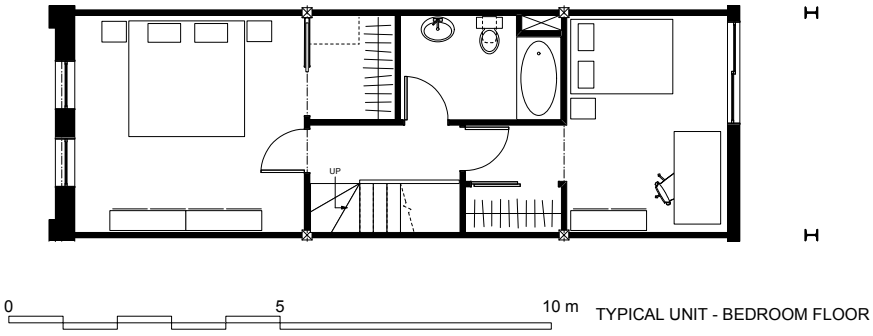



Figure 3-18: Typical Unit Plan - Bedroom

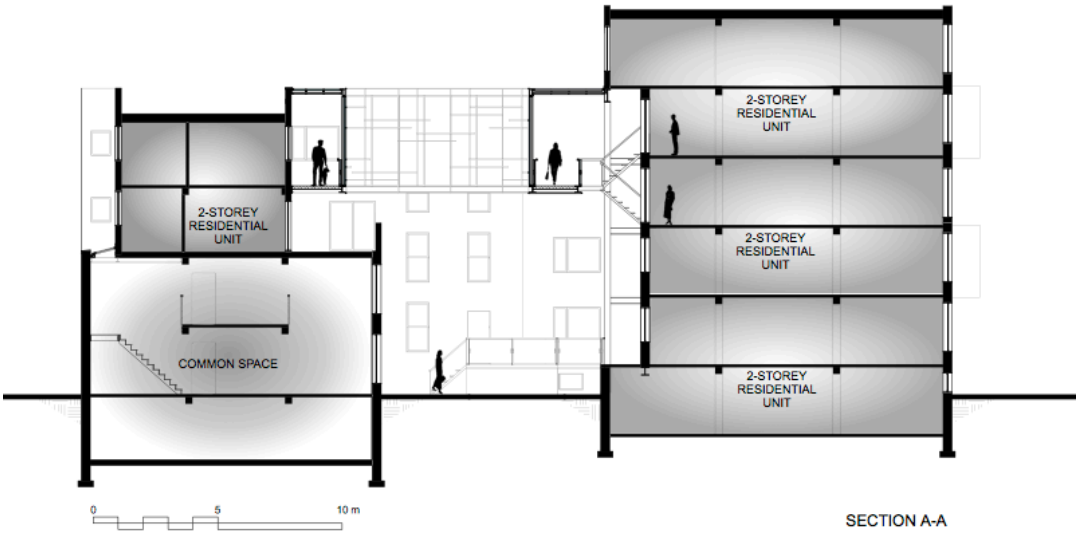



Figure 3-19: Section A-A.


Figure 3-20: Section B-B.

development with an elevator and scissor stairs. The south-west corner houses main communal space on the first two floors followed by residential units and finally a private rooftop garden and children's play area.

The plans of the units are designed with the kitchens at the entrance of the units and with operable kitchen windows directed at the main circulation corridors and the courtyard. This idea comes from the current cohousing design tool of site design for connectivity. It is based on the premise that at the times when most people are leaving or coming home to their unit is also the same time that most other people are using their kitchens. The direct physical connection between creates opportunities for personal interaction. The configuration of all of the units shown is a generic 2-storey unit (Figure 3-17 & 3-18) with 15 units 2-bedroom units, and 1 1-bedroom unit this comes from the clients requirements, but the units are easily adaptable and could be reconfigured to fewer 2-bedroom units with more 3 or 4 bedroom units.

The 2 storey unit provides the key to the circulation ring on the 3rd floor, this is most easily understood by section A-A (Figure 3-19). Two rows of units have access through one corridor forcing pedestrian density and personal interaction.

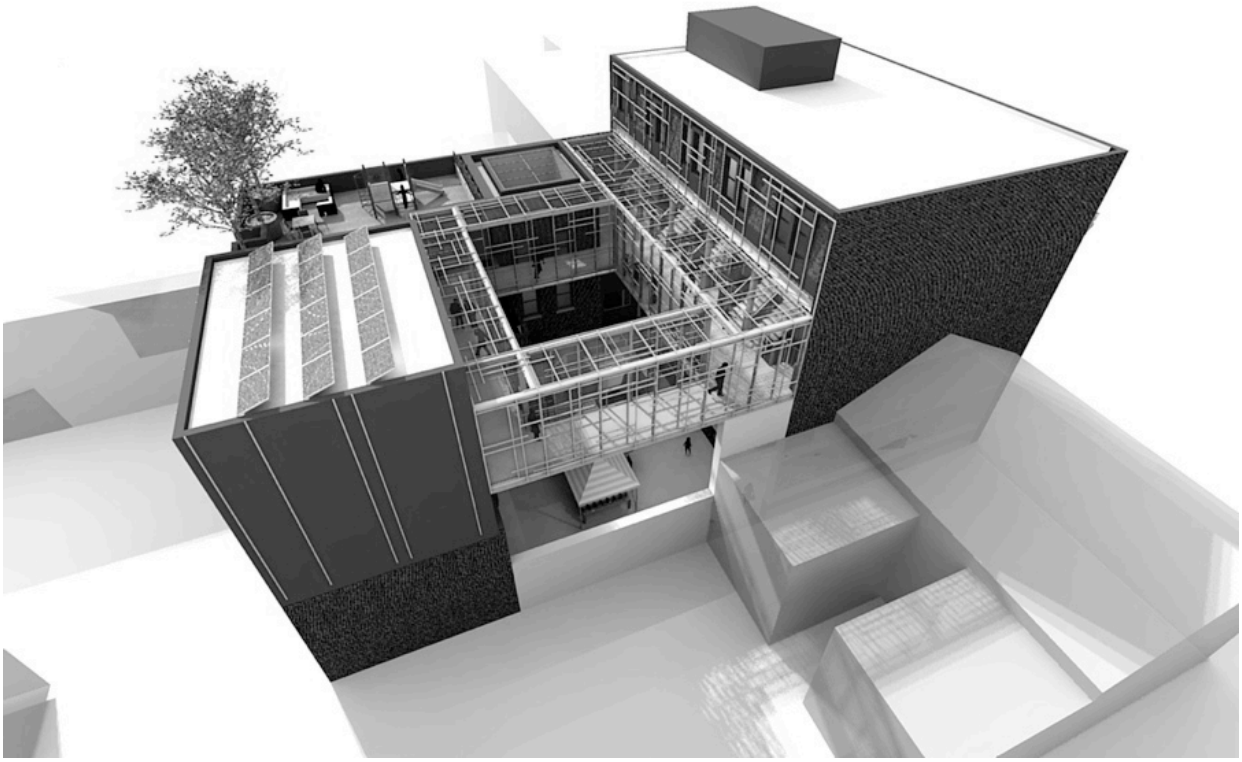


Figure 3-21: Perspective Rendering, East building face.

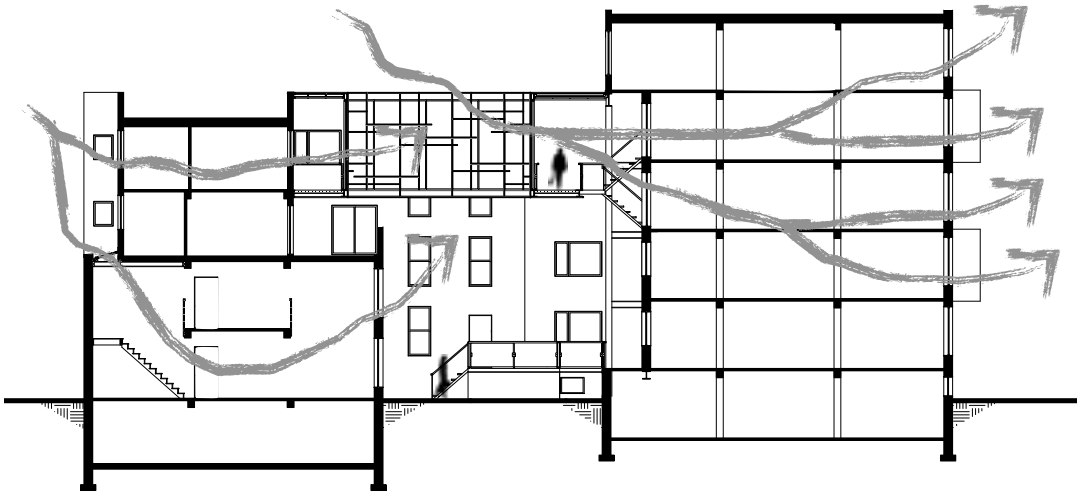


Figure 3-22: Cross Ventilation Section.

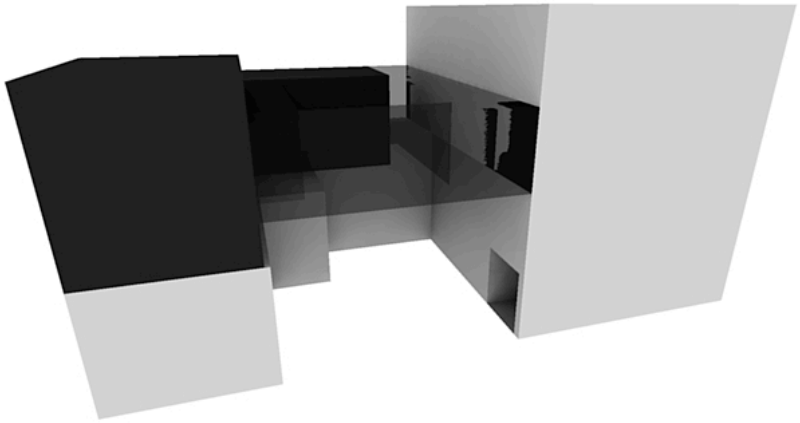


Figure 3-23: New vs. Old.

All units are designed to facilitate cross ventilation (Figure 3-22). As the building is near Lake Ontario, cool winds blowing up from the lake are intended to be utilized in the summer months. The courtyard with its heavy masonry walls and little direct sunlight also acts as reverse heat sink, cooling down at night and acting as a cooling feature for the building as all units open onto it. The ring itself opens to the courtyard with sliding glass doors. In the winter, the glass doors are intended to be closed creating a greenhouse affect to moderate the temperature, allowing the semi-private space of the corridor to be used throughout the year as an inhabitable area. The building has approximately 300 square meters of roof space, which could produce approximately 140 MWh per year if utilized for solar panels.

## 3.3 Individual identity

The identity of the cohousing development is ultimately tied to the group design process undertaken by the cohousing group. In some cases, the group design process is also the first time individuals can influence the design of their units,

but for most, imprinting personal identity on the living space after the units are designed is the only outlet. Space was required that could be personalized from one unit to the next. Swan's Market Cohousing addressed this issue by allowing residents to occupy the spaces in front of their units (Figure 3-24). The result was an imprint of the unit inhabitants onto the entrance of their unit. Pieced together the effect is dynamic, not only do some people put out seating while others put out plants, some chose to leave the space empty, the differences add a residential feel to the space and a sense of belonging for the residents.

Figure 3-24: Swan's Market Circulation Corridor

Figure 3-25: Rendering of designed corridor.

To translate group identity into this urban development, every unit is allocated a semi-private space creating a transitional connection between the pubic corridor and the private unit. For many of the units the space allocated is a stairway, wider than required and sheltered the stairs are fashioned in the spirit of the brownstones of Brooklyn whose entrance stairs are famous for the way the residents occupy them (Figure 3-25). For units without stairs, an alcove is provided as a space for individual imprinting (Figure 3-26).

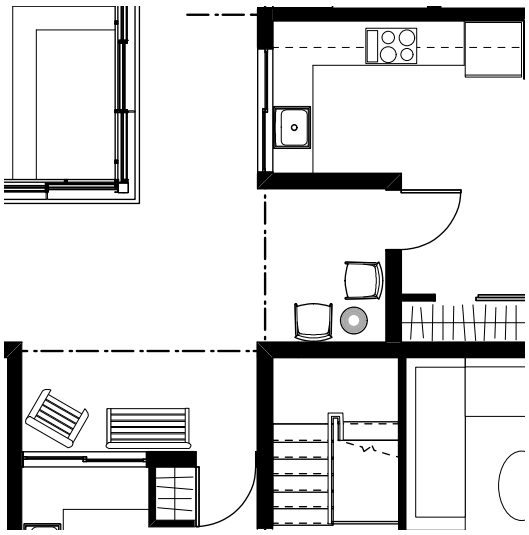


Figure 3-26: Plan of semi-private alcove space.

## 3.4 Group identity

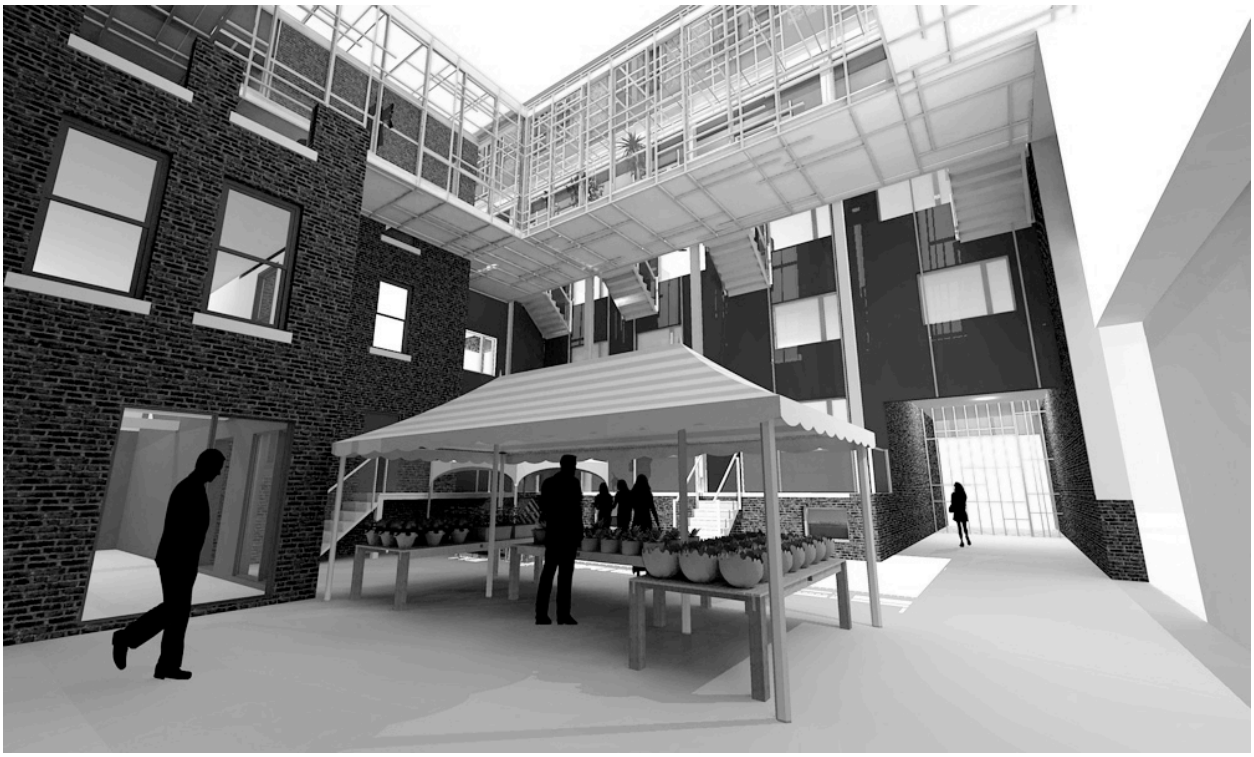


Figure 3-27: Courtyard Perspective of seating.

The identity of the group has two very important facets, first architecturally the design must be cohesive to illustrate to the residents that they are part of a greater group, and secondly the design must identify the group as unique to the community at large. Through both the external and the internal, the identity of the group is solidified and for the individual a place is created through a common identity.

Figure 3-28: Rendering of north facade.

The issue of architectural unity or cohesiveness is easily dealt with because of the reuse of the existing building. This coupled with a very strong entrance to the development through the carriageway clearly defines the line between inside the community and outside the community. Once inside the courtyard, the strength of the design of the ring corridor becomes a unifying element, tying together all of the units and the communal spaces.

Creating a unique identity for the community that is recognizable to the neighbourhood is done both architecturally and through programming. The projected new elements on the street facade of the building architecturally indicates the new development to the external community while

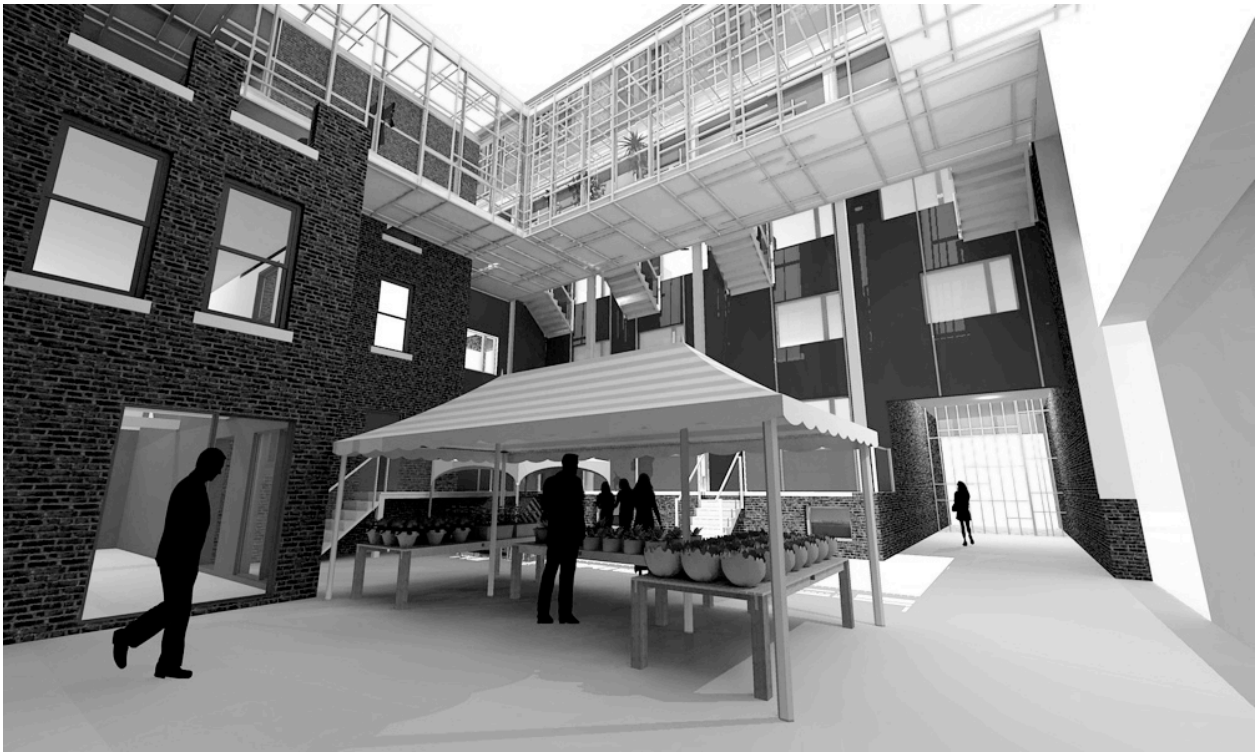


Figure 3-29: Courtyard Perspective of Market.

respecting the unity of the original facade. Through programming, the concept of bringing the neighbourhood into the development becomes important. This method distinguishes the cohousing community while at the same time allows the neighbourhood to create a level of comfort with the new development. At Terra Firma Cohousing as discussed previously, at first the local community was against the development concerned that it was a commune or cult group. After the initial problems, the cohousing community made a concerted effort to include the greater community by invitations to classes offered and through invitations to special events like their annual halloween party which has become an attraction for many of the neighbourhood children. Jamaica Plains Cohousing also indicated that the neighbourhood children and families have been welcomed, and make great use of the children's play area enclosed by their development because it is a safe environment. Strong ties with the greater community creates a strong group identity, but it also allows the outward creation of social capital which can strengthen neighbourhoods. The food share is the strongest programmatic link to the greater community, but also included is the weekly market (Figure 3-29) and the open courtyard space during the day which affords a safe and place to meet and congregate for the neighbourhood (Figure 3-27).

Figure 3-30: View of Circulation Ring from south-west corner unit.

## 3.5 Security

One of cohousing's main tenants is small scale. This is because the residents should all be identifiable to each other. In this way any guest or intruder stands out creating a strong sense of security and comfort. Added to this is a broader scope and responsibility to the greater community defined by Jane Jacob's as, "eyes on the street" (Jacobs, 1961). In an urban centre it is not enough to create a secure inner space but a development must take on the responsibility of security of the street.

This design, because of the virtues and reuse of the existing carriageway, creates a very secure inner courtyard space. The carriageway acts as a boundary even when unlocked during the day. Also, all units are designed to have a view of the courtyard and circulation ring so anyone not part of the cohousing community will be easily identified. This concept is extended to the streets in front of the building (Figure 3-31). The building has 14 units designed with their living room spaces directed at the street. This level of surveillance is intended to secure the area around the building not only for residents coming and going but for the greater neighbourhood. An added level of security for the children of the development is provided as the main play area is located in the roof top garden accessible only through entering the main circulation system of the building.

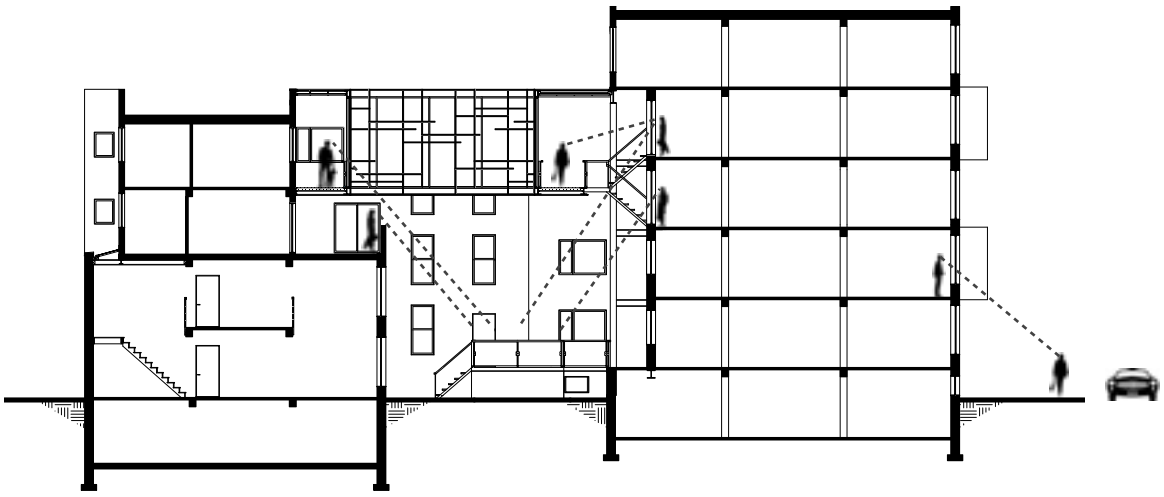


Figure 3-31: Section showing views from units.

## 3.6 Privacy

Whether it is for residents in their own units or the creation of spaces in the common areas designed for more private or intimate conversations, privacy allows for places where residents can be themselves or make strong personal connections (Figure 3-34).

The units are themselves private spaces but a transition area between the units and the public spaces helps to define the level of privacy. In most high rise condominiums, the units open directly into the circulation corridors creating a harsh transition that in essence diminishes the privacy of the unit every time the door is opened. The entrance to all of the units in this cohousing development have a semi-private space reinforcing the concept of a non-hierarchical design but also allowing a break between the public and the private (Figure 3-32). Privacy is considered in the design of some of the communal spaces by moving the meditation/yoga studio, greenhouse and library off of the ground floor.

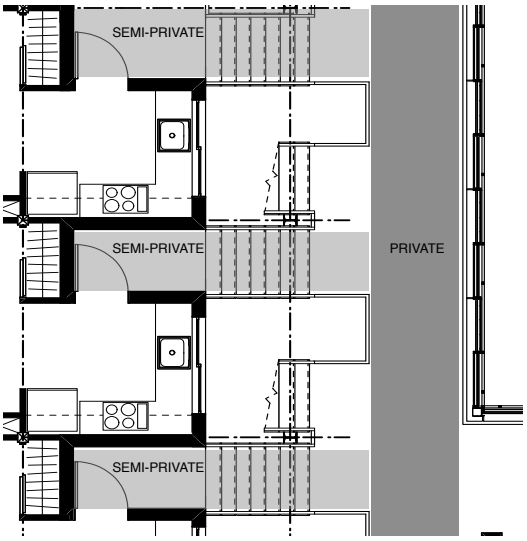


Figure 3-32: Plan - private vs. semi-private.


Figure 3-33: Perspective rendering showing rooftop play area.

## 3.7 Physical Connectivity

Finding ways to reduce the proximity between units in order to encourage socialization became a main objective of the design. To do this, the ring corridor was developed not only to be a central access route to almost all of the units, in essence making almost everyone in the development a close neighbour, it was also designed to create a strong connection to the courtyard. The courtyard connection extended the concept of proximity from the horizontal to include vertical proximity connections, tying the all of the units and the main communal areas together.

## 3.8 Social Connectivity

Figure 3-34: Rendering of unit entrances.

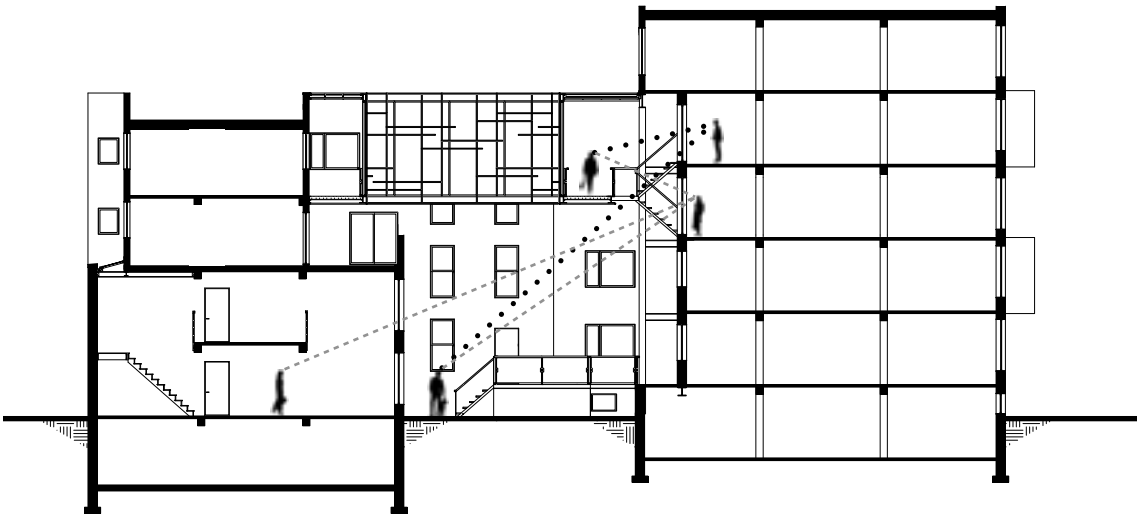


Figure 3-35: Section of courtyard connectivity.

Figure 3-36: Perspective rendering of courtyard from carriageway.

Social Connectivity is the common ideologies, political views, and shared experiences of the group, these are instruments that connect the community in the development of social capital. Initially, the group is drawn together by some common experience or ideology with the first method of developing social capital, the group design process. This is the beginning of social connectivity and group design is a common tool for Architects. Social connectivity also transpires in different scales of community. The connectivity of the cohousing residents is the first manifestation but the greater community is also connected to the development and this form of social connectivity must also be encouraged.For the smaller scale community of the cohousing development the ring corridor is the strongest element of social connectivity followed closely by the common spaces where activities such as dining, gardening or even just talking help to define and unify the group socially. The ring corridor and courtyard are designed with enough space that they are comfortable areas with seating available for informal meetings and discussions between the residents. The larger scale community of the surrounding community is connected through the food share, the weekly market and other events when the development invites the community at large to participate.

Figure 3-37: Perspective rendering inside ring corridor.

Figure 3-38: Perspective rendering of courtyard circulation.

Figure 3-39: Perspective rendering of courtyard from south-east corner.

Figure 3-40: Perspective rendering of rooftop garden/play area.

## 3.9 Conclusion

The goal of this thesis was to explore architectural design in an urban context from the perspective of social capital, a tangible but immeasurable quality of human interaction. Proof of whether the built environment can facilitate or influence the development of social capital is only conjecture, but from the research and case studies, elements of design previously found to create an environment where social capital was encouraged where able to be adapted and used in an urban building form that was not typical and stood outside of the accepted design paradigm.

Figure 3-41: Birds eye perspective of building from south.

Cohousing was shown to hold the greatest opportunity as a housing form for the creation of social capital but very few projects or current research explored the possibility in an urban environment. The level or quality of social capital developed will never be qualified or quantified, but the opportunity has been explored and by devolving the current paradigm to understand the broader concepts of cohousing and cohousing design new ideas surrounding the creation of social capital have been brought to light. From the writer's point of view, cohousing can be developed in a vertical urban model comparable in creation of a community as the existing horizontal suburban/rural developments that have begun to grow as an alternative form of housing in North America.

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