UNFAMILIAR NEIGHBOURS

Re-Thinking Residential Buildings for Meaningful Social Interaction

by
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ABSTRACT

Loneliness and social isolation are becoming a widespread problem in Canada today.¹ Researchers have found that chronic loneliness can have similar consequences as smoking 15 cigarettes a day.² Yet, building regulations do little to assure mental wellbeing to the extent they regulate physical health. Centuries ago, people who lived around us would be our source of community. However, in the last 35 years the number of Canadians living alone has more than doubled,³ and most don't know many of their neighbours.⁴

The current multi-unit high-rise residential building model leaves little room to meet and get to know people, ultimately forming a sense of community, security and belonging. This thesis focuses on these buildings, with their narrow hallways and awkward elevator rides. The aim is to propose an alternative which creates more socially conducive spaces through public-private gradation, proximity to common areas, attracting motivated residents, grouping, program, and exposure to nature.

¹ Ali, *What You Need to Know About the Loneliness Epidemic*, 2018.

² Holt-Lunstad, et al., *Social Relationships and Mortality Risk*, 2010.

³ Tang, et al. *Living Alone in Canada*, 2019.

⁴ Toronto Foundation. *Toronto Social Capital Study*, 2018.

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INTRODUCTION

Peoples' surroundings and environments can influence them in a psychological and physiological manner. Considering how much time we spend in our homes; it is critical for architects to give special attention to the role that our dwellings play in our social wellbeing. This thesis looks at residential buildings and housing through the lens of not only architecture, but also psychology, sociology, anthropology, and environmental psychology, in search for alternative designs more conducive to socialization. Chronic loneliness and social isolation are a real and physical danger to human health; it is twice as deadly as obesity, and as deadly as smoking a pack of cigarettes a day.⁵ Therefore, architecture needs to do its part to try to mitigate this issue. The role of this thesis is to consider how architects can re-imagine the apartment typology to create an environment that can help peoples' ability, ease, and desire to socialize, experience positive interactions, and form meaningful connections with those around us – the neighbours.

Still, one could argue that architects are notorious for attempting to better the world through their design, and that with the number of failed precedents we should not intrude on apartment design. However, every time that a building is erected with that architect stamp on its drawings, a

⁵ Kurzgesagt, *Loneliness*, 2019.

statement **is** made by the architect. Every part of the design process is a decision, however much of the apartment has simplified to standards that have not been re-considered sufficiently in years. For instance, the corridor typology which has been minimized to just meet the building codes for an increase in profit. The decision to *not* make a design statement and stay within this pre-designed typology, **is** a design statement. I would argue that the apartment typology has been hijacked by developers and investors, and there are infinite ways that it could be re-claimed and re-imagined – including how to make it more social.

That said, architecture, urbanism, or housing are not a solution to loneliness or other mental health problems. These are complex, multifaceted issues of human psychology that are not possible to solve by simply adjusting the spaces people inhabit. This thesis does not aim to solve or fix anything – it is not a solution to a problem. Rather, it is an experiment of an alternative option to the conventional apartment typology, which may set a more socially conducive stage for the ultimately unpredictable human behaviour to play out on. There is no scientific way to validate the results of the design proposed in this thesis – to fully test such a proposal would require it to be built and to watch if it succeeds. Through this thesis we can begin to imagine, explore, or experiment with what could be a possible socially focused design proposal attempting to improve the current developer typologies or residential housing in Canada.

My methodology throughout the thesis research and design was a combination of intuition, precedent review (appendix), anecdotal experiences, and a scientific readings. I came into the research with some questions about loneliness and socializing in residential buildings – from personal experiences and from my previous sociology classes. I proceeded to find books, studies, and articles to confirm, deny, or further expand my ideas. I also participated in walk-about, where I visited some of Ottawa's typical and more unique residential buildings. For a few weeks I also entertained the idea of a survey about loneliness in residential buildings, which included quantitative as well as open-ended questions. Though it did not end up as an active factor in the thesis, it remains as part of my experience which helped me arrive at my conclusions. The remainder of the research was through architectural exploration. This consisted of design brainstorming, exploring different ideas and precedents, and reviewing my many concepts with my advisor and peers.

Part one of this document will focus on the core of the loneliness issue and research from a broader perspective. It will elaborate on the human experience of loneliness, and how environments – especially high-rise apartments – can play a role.

Part two will continue to present some of the findings on the human involvement in social well-being in housing. It looks at questions of the

arrangement, quantities, and qualities of people, in relation to social interactions.

Part three is a review of different types of living arrangements, housing models, typologies, and precedents. Potential paths towards alternatives in high-density housing will be presented.

Part four of the text will break down how socialization can occur within the building. It will point out specific problems in the housing typology regarding loneliness and social isolation – and talk about ideas for architectural solutions. It will focus on implementing, building on, and drawing from the previous research in an urban Canadian, high-density, high-rise context.

Part five will implement the ideas into a hypothetical design scenario on a downtown-Ottawa site. The ideas will be applied, adapted and pushed further to the context of the chosen site. Details such as dimensions, proportions, materiality, and logistics will be discussed here.

Lastly, the **Appendix** is a compilation and summary of my review of relevant architectural precedents.

WHAT IS LONELINESS?

Loneliness is a normal part of the human experience. It is often experienced transiently as short spanning bouts, which quickly fade as the individual strengthens their ties to their friends and community. However, a new trend has been emerging, where these moments of loneliness seep into everyday life and do not fade away. The feeling of loneliness can become chronic (or long-term) similarly to sadness, which with extended duration would be considered depression.

It is important to note that loneliness and isolation are two different things. Familiar examples of this would be being surrounded by people at a party while still feeling lonely – or being completely by yourself at home but content. Being alone is an objective state, meanwhile feeling alone is a subjective experience. Loneliness could be defined as people's satisfaction with the quality and quantity of their social interactions and relationships.⁶

Figure 1: *Four Degrees of Loneliness in Canada*, Angus Reid Institute, 2019

⁶ Perlman and Letitia, *Toward a Social Psychology of Loneliness*, 1981.

In 2019 an online survey called “A Portrait of Social Isolation and Loneliness in Canada Today” was conducted, collecting the answers of 2055 Canadians. It was carried out by the Angus Reid Institute, a non-profit national research foundation in Canada. According to their survey, 47% of Canadians sometimes or often feel lonely and wish they had more friendly human contact; only 14% of Canadians would describe their social lives as “very good.”⁷ Their survey also found that many Canadians spend very little time socializing with those outside of their household. This poses a major concern for the large portion of people that are indeed living alone. In 2016, 14% of the Canadian population was living alone – a number more than doubled over the last 35 years.⁸

Figure 2: *How Often Have You Socially Interacted*, Angus Reid Institute, 2019

⁷ Angus Reid Institute, *Social Isolation and Loneliness in Canada Today*, 2019.

⁸ Tang, et al. *Living Alone in Canada*, 2019.

WHY WE FEEL LONELINESS?

The need for social connection is an inherent part of being human. Maslow's hierarchy of needs is a widely known and utilized theory of human motivation and priorities. The theory states that the lower level base needs have to be fulfilled before an individual can move up the pyramid to further exploits. At the bottom of the pyramid are physiological needs, such as water, air, and food. Higher up are safety needs like shelter, stability, security. The third are love and belonging. According to the theory, a social connection and closeness are quite fundamental to people's needs, motivations and behaviour.⁹

Figure 3: *Maslow's Hierarchy of Needs*, Simply Psychology, 2018

The evolutionary and anthropological perspective states that socialization and loneliness began with early, hunter-gatherer humans. The homo sapiens ability to communicate, collaborate and form alliances were ones of the strongest abilities that made us such a powerful species. Successful socialization and acceptance within a tribe meant higher survival rates and

⁹ Mcleod, *Maslow's Hierarchy of Needs*, 2018.

higher probability of passing on your genes. Natural selection has reinforced humans to be socially attuned and prioritize human bonds.

This is where ***social pain*** and feelings of loneliness play a role in ensuring that individuals maintain positive relationships with other people. Thus, these feelings have become part of human biology as a bodily function that drive individuals to socialize.¹⁰

“**Social pain** is the experience of pain as a result of interpersonal rejection or loss, such as rejection from a social group, bullying, or the loss of a loved one”.¹¹ It is an innate guide to navigating social networks and helping individuals adjust behaviours to become accepted as members of a group.

THE LONELINESS SPIRAL

Still, that is not to say that loneliness and social isolation do not intermingle and influence each other; the increased level of one does correlate to an increased probability of the other¹². Isolation and loneliness feed on and

¹⁰ Cacioppo, et al., *Loneliness within a Nomological Net*, 2006.

¹¹ MacDonald and Jensen-Campbell, *Social Pain*, 2011.

¹² Angus Reid Institute, *Social Isolation and Loneliness in Canada Today*, 2019.

perpetuate each other, and this state can become self-sustaining. One study found that when a person is lonely their sensitivity to facial cues of other people become heightened, and oversensitive to cues of negative emotion. What this could imply is that lonely individuals are more likely to perceive a neutral face as a sad or fearful one, a “maladaptive biases, such as a hypervigilance for social threat in the environment”.¹³ Those who are lonely and experiencing social pain react with defensive behaviour to protect themselves from the social threat.

However, when this becomes chronic the person remains in the perpetual self-defence mode and becomes hypersensitive to potential rejections. This leads the individual to further isolate themselves and become closed off to other people as a method of self-preservation. Unfortunately, this only makes them appear unfriendly, cold, and awkward, and thus decreasing the quality and quantity of their social interactions.¹⁴ This is why loneliness and isolation are in a mutually perpetuating spiral together, pushing the individual further into withdrawing.

¹³ Vanhalst, et al, *Heightened sensitivity for facial cues*, 2017.

¹⁴ Kurzgesagt. *Loneliness*, 2019.

WHO IS LONELY?

Figure 4: *How Often Do You Feel Alone When with Other People*, Angus Reid Institute, 2019

The survey by the Angus Reid institute created five social groups for the Canadians that participated based on their social isolation and loneliness scores.

The “**desolate**” were people with high loneliness and isolation scores. This group also had positive correlation with a lower household income of less than \$50,000, were most likely than others (25%) to be living alone and were part of many minority groups.

Another category was “**lonely but not isolated**” which had individuals with plentiful social interaction and relationships that still had high scores of loneliness. This was the smallest and youngest group of the five, with 43% of them being under the age of 35. This group also had the highest education level, and 57% of them were married or common law. Of that group a 53% lived with at least three other people.

The last notable group was “**isolated but not lonely**” which was in half (48%) made up of those aged 55 and over, and 48% also having adult children.¹⁵

Figure 5: *Loneliness and Social Isolation by Age*, Angus Reid Institute, 2019

¹⁵ Angus Reid Institute, *Social Isolation and Loneliness in Canada Today*, 2019.

LONELINESS IN HIGH-RISE RESIDENTIAL

In Ottawa nearly 30% of the population lives in multi-unit residential buildings.¹⁶ Since the day the first high-rise residential building was built, architects have been trying to figure out how to make these new homes less isolating. Higher rates of mental health issues are correlated with the social isolation associated with this housing type.¹⁷ Residents living in high-rise buildings show to have more limited social networks, a lessened sense of belonging, and are less likely to trust or help out their neighbours.¹⁸ When it comes to creating bonds with neighbours and making friends, high-rise residents have a harder time than their low-rise or detached counterparts.¹⁹

Figure 6: *Detached vs. High-rise and Social Well-being*, Data from Toronto Social Capital Study, 2018

	Detached home	High-rise building
Sense of belonging	31%	24%
Good social networks	57%	42%
Neighbourhood support	60%	48%

¹⁶ LeVasseur, et al, *Census Brief*, 2017.

¹⁷ Kearns, et al, *Living the High Life*, 2010.

¹⁸ Vancouver Foundation. *Connect and Engage*, 2017.

¹⁹ Churchman and Yona, *High Rise Housing in Israel*, 1984.

This isolating phenomenon could be attributed to several aspects that come to form urban high-rise residential buildings.

Short Term: For one, many residents rent, rather than own, and do not intend on staying for many years. The lack of permanence not only gives them less time to get to know the community and create ties, but also decreases the motivation to do so.

Crowding: Crowding is a sense of inadequate perceived available space. Similarly, to loneliness, it is an individual, subjective experience. The sense of crowding is heightened when one is in small, enclosed, interior spaces with people that they are not familiar with, and they lack the control over whether they have a social interaction with them or not.²⁰ This is ever-present in multi-unit housing in its corridors, elevators, or poorly designed common areas.

Lack of exterior exposure: Being outdoors, in open, airy space reduces the effects of crowding and exposure to greenery and biophilia promotes positive social interaction and cohesion.²¹

Too many strangers: The nature of multi-unit housing is that there are hundreds of people one could call neighbour and bump into at any point

²⁰ Rollings, *Environments and Health*, 2013.

²¹ McKeown, *Green City*, 2015.

they are outside of their unit. The sheer number of these people makes it difficult to recognize, get to know, and potentially create bonds with them. This again increases the sensation of crowding and results in individuals withdrawing socially even more.

Distance: The amenity spaces are technically in the same building - a mere walk down the corridor, then a 2-minute wait for the elevator, a ride in said cramped elevator, then another walk in a dim corridor. This however does not compare to the proximity one would have to a back yard in a detached home, or even the tree-lined walk to the neighbourhood park. Amenity spaces that are not close enough do not evoke the same sense of belonging, ownership, and desire to utilize them.

Lack of buffer zones: The standard high-rise building offers nothing between private (the unit) and public space. Not to say that single homes do not have their fair share of problems, but what they do offer is a porch or front yard. This too is not perfect, but the concept of having a private space in public, or a buffer zone allows a resident to comfortably spend time outside of their unit and create more opportunities for social interaction.

MAKING A VILLAGE

It is also important to note that one cannot expect to find their best friend or a soul mate in their pool of neighbours, and this thesis does not aim to suggest that these deep connections will be formed. What it focuses on instead are “light relationships”²² and creating a village-like *sense of community* between the building’s neighbours.

Sense of Community: “The perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, and the feeling that one is part of a larger dependable and stable structure.”²³ “A feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together.”²⁴

²² Montgomery, *Happy City*, 2013.

²³ Sarason, *The psychological sense of community*, 1974.

²⁴ McMillan and Chavis, *Sense of Community*, 1986.

LIVING ALONE

Figure 8: *Proportion of the population that is living alone, Statistics Canada, Census of Population, 1981 and 2016*

Figure 9: *Composition of Canadian Households, Statistics Canada, Census of Population, 2016*

The number of people living alone in Canada has more than doubled in the last 35 years, rounding up to a 14% in 2016,²⁵ and a reported 17% in the Angus Reid study in 2019.²⁶ This means that single-person households have become the most common in Canada, making up 28% of all households according to the 2016 census.²⁷ Living alone comes with a greater risk of social isolation and the development of chronic loneliness. Studies show that the prevalence of common mental disorders, such as anxiety and depression, is higher in those living alone, regardless of age, sex, or the various dates sampled.²⁸ Another study

²⁵ Tang, et al., *Living Alone in Canada*, 2019.

²⁶ Angus Reid Institute, *Social Isolation and Loneliness in Canada Today*, 2019.

²⁷ Statistics Canada, *Households and Families in Canada*, 2017.

²⁸ Jacob, et al, *Living Alone and Common Mental Disorders*, 2019.

shows that rates of anxiety and depression are double in adults living alone rather than cohabiting.²⁹

There is no question that living alone is not the ideal arrangement for people's mental health nor social connectedness. Some of the reasons which may drive a person to move out alone are: relocating for a school or a job; for personal freedom; independence; privacy; or due to terminated relationships. However, the available alternatives – such as living with a roommate, friend, family, partner, or even co-housing – are either not feasible, clash with the reasons that are driving people to solitude in the first place, or even pose their own challenges with *crowding*.

CROWDING

Crowding is a concept relating to human psychology, sociology, and environmental psychology. It is the perception of inadequate amount of available space – “an individual psychological response to high interior density based on perceptions of spatial restriction due to too little space or too many people present in a space.”³⁰ Unlike density – which is the literal and objective measure of persons per area, crowding is a subjective experience.

²⁹ Joutsenniemi, *Living Arrangements and Mental Health in Finland*, 2006.

³⁰ Rollings, *Environments and Health*, 2013.

Physiological distress and mental ill-health can be worsened by chronic residential crowding,³¹ and longitudinal studies show chronic residential crowding has adverse effects on adults' psychological health.³² Some of its consequences are: "an induced feeling of loss of control, especially over desired social interaction; a state of over-arousal or over-stimulation; social hassles interfering with attainment of a valued goal or daily activities; or interference with socially supportive relationships among home residents leading to social withdrawal."³³

There are several mitigators and aggravators – or “affordances”, that contribute to the experience of crowding. Some spatial and architectural features can lessen the sensation of crowding, such as natural light, floor levels higher up, higher ceilings, increased window area, and increased depth and permeability of a space. Generally, the goal would be to increase the perception of available space, even if the square footage remains the same (E.g. large windows looking over vast space), and to create ability to escape and retreat (E.g. variation in the space that creates “nooks and crannies” to retreat to).

³¹ Leventhal and Newman, *Housing and child development*, 2010.

³² Wells and Harris, *Housing Quality, Psychological Distress, and the Mediating Role of Social Withdrawal*, 2007.

³³ Rollings, *Environments and Health*, 2013.

It is also critical to give residents a truly private escape in their unit, not just a sense of it, especially when designing a high density building or a high-density neighbourhood. A balanced relationship between high interior density and low exterior density, or vice-versa are correlated with lower rates of mental hospitalization than high-high or low-low pairings.

Figure 10: *Number of Mental Hospitalizations per 100 People*, David Halpern, 1995

		EXTERIOR DENSITY	
		High	Low
INTERIOR DENSITY	High	1.41	0.99
	Low	0.79	1.24

Non-spatial means of mitigating the feelings of crowding stem in the relationships between

residents. For instance, high levels of cooperation have been shown to increase the tolerance for crowding and lessen its effects.³⁴ Living with family, close friends or a partner, even in dense conditions, would not majorly affect crowding. However, living with non-kin does show adverse emotional effects, hence rooming situations may not be ideal when trying to combat loneliness.³⁵ To combat this a residential design would need to take into consideration the sense of community and cooperation amongst

³⁴ Sinha and Mukherjee, *Effect of Perceived Cooperation on Personal Space Requirements*, 1996.

³⁵ Mitchell, *Some Social Implications of High Density Housing*, 1971.

its residents. One way to generate it is by utilizing building programs and events that instill a sense of a common goal or shared responsibility.

Another way to mitigate the effects of crowding is to give residents control over their social interactions. Undesired, forced, or unpredictable encounters with strangers or acquaintances are shown to lead to increased feelings of crowding, and thus resulting in further social withdrawal.³⁶ To help with this, a design that will create places for social and introverted time are important, as well as luring people to intentional and mindful interactions, through programming and events, and by attracting motivated residents to the building in the first place, with non-individualistic orientation and a goal of making connections.

³⁶ Schaeffer, et al., *Architecturally Mediated Effects of Social Density in Prison*, 1988.

THE SIZE OF RELATABILITY

There is a limit to how many people an individual can have a relationship with, and it's widely accepted that the number is around 150 – Dunbar's number. The British anthropologist, Robin Dunbar; studied social groups of primates and the brains neocortex to come up with this estimated limit.³⁷ Looking more in depth however, Dunbar has outlined several layers to the human social network, with emotional closeness and frequency of contact decreasing the larger the group. The inner groups of 5-50 are made up of intimate and good friends, the 150 mark is “the number of bilateral relationships of obligation and reciprocity”, and the outermost spheres are acquaintances and people we know the name of.³⁸ These numbers

Figure 11: *Human Personal Social Networks*, Dunbar, 2014

continuously appear in studies of human social networks and relationships, such as in the analysis of pattern and frequency of phone calls in a 2016 U.K. study, showing the evidence of Dunbar layers.³⁹ These numbers neatly correlate to human groups in hunter-gatherer societies, which fall into three main

³⁷ Dunbar and Sosis, *Optimising Human Community Sizes*, 2018.

³⁸ Dunbar, *The Social Brain*, 2014.

³⁹ Carron, et al., *Calling Dunbars Numbers*, 2016.

groups: (1) small “bands” of 30-50, (2) medium “cultural lineage groups” of 100-200, and (3) large “tribes” of 500-2500.⁴⁰

Like bands, small group sizes such as in a historic village, a small-town community, or even most co-housing developments tend to carry along stronger community ties and bonds. In contrast a typical building with, say 200 residents, becomes full of unfamiliar faces where it's easier to withdraw and face the door in an elevator. It can be over-stimulating, socially intimidating, and meaningless. Whereas in smaller groups, the frequencies of interaction increase, and since there are fewer faces to remember it becomes feasible to make connections. Smaller groups reinforce that sense of community and belonging that pave the way for more sincere social interactions.⁴¹

⁴⁰ Zlatev, *The Co-Evolution of Human Intersubjectivity, Morality, and Language*, 2014.

⁴¹ *Social Group Size*, 2017.

HOUSING TYPOLOGIES

There are different housing typologies which can be either more, or less conducive to social interaction and forming community bonds. The **single home** offers great perks: such as a front yard or porch, which is a privately owned space in a public and exterior setting; the proximity to habitable public space such as sidewalks, paths, or parks; and the small but significant neighbour interactions that happen right outside the home, made easier with the reduced density of that topography. However, with low density comes the unsustainable dependence on cars, unfavourable locations, and inevitable urban sprawl.

Figure 12: Typical Floor Plan in 929 Richmond Road, RLA, 2018

The next most common typology is the **typical high-rise building**. Socially it offers the least out of all other typologies because it's layout and architecture are not designed with community forming in mind. The bigger goal of high-rise buildings is to maximize the density and increase floorplan efficiency for greater profits.

Another housing type that holds a lot of relevance to this thesis is the **courtyard house**, though its prevalence in Canada is much smaller. It is made up of several homes surrounding and enclosing a central outdoor space. This shared space that can be seen from individual units can be catalyst to social interaction and well being – as

Figure 13: Site Plan of the Fountain Gate condominiums

it promotes the sense of community meanwhile maintaining individual privacy.⁴² An example of an adaptation of the courtyard housing typology in Ottawa are the Fountain Gate condominiums on 250 Rideau Place. Its residents know each other within the community and therefore any visitor is immediately noted as an outsider. This is a drastic difference to the other apartment and condo buildings visited where everyone has a cloak of anonymity. Upon visiting the property, I was greeted and offered help by everyone who was coming by and had the privilege to hold a few conversations about the property. It's residents' value their central courtyard as the foundation for community forming. They noted how

⁴² Zhang, *Courtyard Housing for Health and Happiness*, 2017.

children play in the shared space year-round, and how neighbours frequently enjoy their morning coffees together there.

Figure 14: *Photo from a precedent visit of the Fountain Gate courtyard*

Aside from co-housing, which will be discussed in the next section, there is also the **co-living** arrangement which is important to mention. It is essentially a rooming house, where an intentional community is formed within the house. The residents typically have small living quarters but share common areas such as the kitchen and living room amongst 2 or (much) more people. Though some choose this for social perks, most often people opt to live in this arrangement for financial reasons, as the cost of living independently is rising. This housing type can potentially be wonderful to combat loneliness and social isolation, especially for those who do not reside with family, a friend, or partner. However, it also has the potential to go downhill very quickly. Crowding, clashing of beliefs, small nuisances, lack of autonomy, and tight quarters can have the completely

opposite effect on the social atmosphere in the home – especially when entering this situation purely due to financial reasons.

CO-HOUSING

Co-housing is an alternative living arrangement, where multiple households

actively seek to develop a sense of community and co-dependency. There are varying degrees of participation and composition, anything from organized daily dinners with the community to just monthly get-togethers, or from a cluster of homes in a suburban block to newly designed buildings just for the community. There are typically 10-35 households that make up such communities, and they are various mixes of different generations of singles, couples, and families.⁴³ Once a unit or house within the community becomes vacant, typically there is a

Figure 15: Seattle Capitol Hill Urban Cohousing - Diagram of Common Space, Schemata Workshop, 2016

⁴³ *What Is Cohousing?* n.d.

through vetting and interviewing process before potential residents are welcomed to assure compatibility within the group.

The units or homes in a co-housing establishment are self-sufficient, meaning they have the amenities, appliances, and spaces to live independently. However, in addition to this the community also has a “common house” or common spaces in which they get together. These can include a shared kitchen and large dining space for the whole community, children’s play area, gardens, etc.

What co-housing provides is a unique opportunity to live in a socially interconnected community that resembles a traditional village or a small-town. However, there are several challenges of developments like these which prevent them from being more widespread.

First of all, it takes initiative from the initial household to organize a compatible a group of people seeking similar arrangements. Typically, only

Figure 16: *Seattle Capitol Hill Urban Cohousing - Photo of Courtyard, Schemata Workshop, 2016*

once a sizable group is established does the physical location and project get developed. Because of the unique allotment of space that it requires, and the amount of negotiating it takes to satisfy a large group of inexperienced people, it can be challenging to secure developers and investors, therefore often times the co-housing families usually need to self-organize and finance the project independently.⁴⁴

Secondly, co-housing takes commitment and decisiveness from the households participating. It is a niche, and atypical housing arrangement that might intimidate, and prevent some from even considering it as an option.

**A review of architectural precedents can be viewed in the appendix.*

⁴⁴ Pfeffer, *Questioning the Senior Cohousing Challenge*, 2018.

THE ALTERNATIVE

Considering the benefits and challenges of the different housing arrangements, this thesis proposes a happy medium – **co-PARTMENTS**. This new typology is quite different from the standard condo or apartment, where residents can only make use of their own unit and a sense of community within the building can hardly develop or is not present. It is neither a co-housing model, where the property is co-owned, developed, and organized by the community, and is a high-commitment, selected group of people. Nor is it the unsustainable single home or the autonomy-lacking co-living.

Instead the co-PARTMENTS will be something in between; drawing inspiration from these typologies and bringing new ideas to the table for socially conducive housing. The proposal would be designed with community forming at its core, but also allow for high densities to fit the urban core. It can be financed and developed by more traditional means with an outside owner for greater feasibility. Unlike in apartments, the resident - as part of the community - shapes the ambiance, amenities, and activities of the building. A screening process would be in place to find the correct fit for new residents, and every community within the building would have a say.

It will have a smaller and less intimidating social commitment than co-housing or co-living, but at the same time it will draw together people who want to find that sense of community within their immediate surroundings while maintaining their personal independence.

Figure 17: Mid-point between Co-Housing and Apartments

SEMANTICS

The origin of the word apartment fundamentally stems from “apart” and “to separate”. Therefore, due to the unique and social typology of this thesis proposal the new nomenclature had to be carefully chosen.

Origin of word “apartment”:

1635–45 *apartment*

Breakdown of “co-PARTMENT”: co + part + ment

prefix *co-* [with, together, joint]⁴⁶ + *part* [an essential portion or integral element]⁴⁷ + suffix *-ment*

⁴⁵ “Apartment.” Dictionary.com, www.dictionary.com/browse/apartment?s=t.

⁴⁶ “Co.” *Merriam-Webster.com Dictionary*, Merriam-Webster, <https://www.merriam-webster.com/dictionary/co>. Accessed 25 Mar. 2020.

⁴⁷ “Part.” *Merriam-Webster.com Dictionary*, Merriam-Webster, <https://www.merriam-webster.com/dictionary/part>. Accessed 25 Mar. 2020.

The following parts of the thesis will also include other new nomenclature to describe the different elements of the building. These terms were specifically chosen to mirror its low-density single home counterparts, so that they could be understood with similar connotations. These terms are “urban-PORCH”, “COURTYARD”, “community-BLOCKS”, “garden terrace”, and “neighbourhood market hall”. They will be gradually introduced in the following pages.

Lastly, regarding the choice of words in title of this thesis, the term **Meaningful Social Interactions** is understood as interactions that go beyond the banal small talk that you have in an elevator. Instead, these are the types of interactions that can lead to a formation of an acquaintance or casual friend. They occur when personal information is exchanged, and conversations involve shared goals, interests, activities, and personal experiences. These interactions are built over time and are sustained long-term.

Figure 18: A Flowchart of Design for Socialization

This thesis proposes several methods to help facilitate positive social interaction and bonding within a multi-unit residential building – the flowchart below visualizes how. At the very root, there are two basic conditions that need to be created: the **desire** to partake in social interactions, and the **opportunity** to have them.

DESIRE

There is no guaranteed human behaviour on the basis of the surrounding architecture – in the end it will be the resident at the heart of any project. Regardless of how much common space there is, and how socially conducive the architecture is, if people want nothing to do with their neighbours, then the project could not succeed. Therefore, the proposed building needs to **attract residents who seek social connection** in the first place. Hence the emphasis is on being an alternative living arrangement to today's typical apartment. Through its design and its marketing, it will draw together people who want to make community connections.

Making repeat encounters possible will also aid in creating social bonds. This will be done by decreasing the number of people a resident will interact with to smaller, more manageable quantities. Therefore, the **building will be grouped into smaller sub-communities**, which would consist of several three to four storey BLOCKS. Therefore, rather than intermittently interacting with, say, 100 unfamiliar faces, a resident would more consistently encounter 30-or-so.

Figure 19: *Diagram of Chunking a High-Rise Building*

The number of encounters will also increase by the design of common spaces. Each one of the three-storey community-BLOCKS would have their own indoor-**courtyard** on the lowest level, in an open-concept fashion, where neighbours have more opportunities to meet each other.

Figure 20: *Six Storey Atrium of Manitoba Hydro Building, KPMB, 2009 - Precedent*

The next step to motivating socialization will be to allow people to discover common interests and generate **feelings of commonality**. Strengthening these ties is important to reduce the presence of crowding, which would lead to social withdrawal or hostility in the residents. To help foster relationships the proposed building will utilize organized building events, program allocation, and potentially a mobile app for communication among residents, event planning, and space booking. The ideal programs would

create feelings of shared responsibility, ownership, and a common goal to raise the levels of cooperation between neighbours, such as a community garden, book club, or group dining. While some programs will be allocated, most of the shared space will remain flexible, so that residents may shape and utilize it to create the unique community that they wish to live in.

Figure 21: Ideas for how the Courtyard Space can be utilized.

Another important attribute to minimize the presence of crowding will be ensuring residents' control over social interaction. The desire within the residents will have to be the primary driving force to socialization, because imposing it would have inverse effects. Control can be in part provided by ensuring a proper **gradation between private and public space**. This means slowly increasing the size of the residents' social sphere from just their household, to their floor, to the whole building, and even to the greater city. Similarly, as Dunbar's layers, this model creates a progression in the number of people and the potential strength and frequency of their

interaction and relationship. Providing a place to retreat and isolate oneself will in the end have restorative effects and lead to more positive interactions when they do happen. Architectural gestures that can reinforce this include having a private and self-sufficient unit, rather than proposing a rooming situation, or providing nooks and crannies, and other irregularities within the common spaces.

Figure 22: *Diagram of Expanding Social Spheres*

Figure 23: *In-between Space and Floor plan of the Table Top Concept, Kwong Von Glinow, 2017 - Precedent*

Ensuring proper **exposure to the exterior** or biophilic elements within the common space will also promote positive social interactions. Small doses of nature such as vegetation or plantings can improve mood and encourage sociability.⁴⁸ Aside from including biophilic ideas and greenery, the proposed design will have one of the four enclosing faces of the community-BLOCK's three storey courtyard be either glazed or fully open to the exterior.

OPPORTUNITY

In order to create more opportunities for social interaction, the building's design will have to encourage more time spent outside of the unit. One way this could be done is with **motivation and incentive**. For example, the size of the units could be slightly decreased to make way for ample common space, or the community-BLOCK's kitchen having larger, enticing appliances.

The other way to achieve more time is to introduce the idea of private space in public, buffer zones, - or "**urban-PORCHES**". When comparing private outdoor space across housing contexts a disappointing transition emerges - from large porches of rural homes, to the little alcove by the front door of

⁴⁸ Negami, et al., *Field Analysis of Psychological Effects of Urban Design*, 2018.

a suburban townhouse, to the miniature slabs of isolated and unstimulating balconies in a residential tower. Instead what these could be are privately owned spaces at the front door of every unit, adjacent to the corridor and in visual connection to the courtyard and it's view to the outside. It would be partially enclosed in order to reinforce the sense of ownership, where the resident may furnish and inhabit it as they wish, considering it a part of their property. However, a full visual connection will remain open between any other resident within the community-BLOCK who is on their own urban-PORCH, in the corridor, or in the courtyard at the lower level. A set of double doors and windows from the unit could also look out onto this space to provide further flexibility on the resident's choice of social interaction. These series of blurred thresholds create a unique condition of ambiguity – Who does this space belong to? Where does “my” area end? How far can I step in? The purpose of this ambiguity is that it creates the space for new opportunities and a modified set of behaviours and interactions.

Figure 24: *Front Yards in Copenhagen 8House, BIG, 2010 - Precedent*

Figure 25: Section Diagram of the Social Progression of One Community-BLOCK

Figure 26: Axo Diagram of the Exit Path Through the Typical Apartment

The last aspect of facilitating social interaction within the building will be making the residents feel comfortable and providing them with a real sense of belonging, though careful design of the common areas.

To dissect the existing apartment building standard, once a resident exits the front door of their unit, they are no longer in anything that feels remotely like their property. The double loaded corridors are narrow, dim, and unprogrammed. They are used purely as an efficient means of circulation. If a person were to pull out a chair and inhabit it for extended periods of time, they could possibly be met with a police call reporting a suspicious person, or at the very least some uncomfortable looks from the neighbours. Then the

pathway continues to the elevator where people avoid eye-contact at all costs, then a small lobby with the mailboxes and maybe a couch. The common spaces of today's buildings are designed as places to walk through, not as places to be.

Aside from some of the things mentioned before, another way to create the **sense of belonging** is through physical proximity and visual connection. This is another reason why this divide of the building into more digestible chunks is important – aside from grouping smaller groups of people, it also means that everyone can be close to their courtyard and have a view of it from their urban-PORCHES or even from their unit, through the double doors or indoor-facing windows. The sheer proximity to the space plays a large role in the residents' sense of belonging and ownership of it.⁴⁹ Because of this, the courtyard is more likely to be utilized and well populated, in addition of the convenience factor of such a close distance.

⁴⁹ Montgomery, *Happy City*, 2013.

Figure 27: Axo Diagram of the Exit Path Through Proposed Design

This design will follow the design principles and ideas outlined above and implement them in a hypothetical design scenario in Ottawa. The target demographic for this specific development would be young adults and seniors as they are the most socially concerning age groups amongst Canadians, as described in the previous pages – however, accommodations will be considered for various household models, including families.⁵⁰

THE SITE

The chosen site is in downtown (not Centertown) Ottawa, Canada. The corner lot faces Queen Street, Kent Street, and Albert Street. Its urban location makes for a walkable and socially sustainable neighbourhood. The site is straddled directly between the two new LRT stations – Lyon and Parliament. It has a 5+ minute walk to key destinations; however, the anticipation is that Queen Street will soon flourish with the new transit system. The biggest concern is the lack of nearby grocery stores, for this

⁵⁰ Angus Reid Institute, *Social Isolation and Loneliness in Canada Today*, 2019.

development and other apartments nearby, therefore the ground floor retail component of this design will make sure to fill that void.

Figure 29: Ottawa Site Map

The lot is currently utilized for surface parking despite the height and density of the neighbouring properties. Its dimensions are ~60.5m by 75.5–83.5m. It is under a Mature Neighbourhood Overlay, and its zoning is Mixed-Use Downtown. It has no minimum or maximum setbacks, and its height limit ranges from 81 meters to 92 meters according to Schedule 19.

Figure 30: *Ottawa Site Satellite View and Camera Locations*

The site is surrounded by mostly high-rise office towers. Across Kent Street on it's west is the Place de Ville office Tower B at 22 storeys. Across Queen on the North is the 14-storey mixed-use C.D. Howe Building. At the South

across Albert are a few smaller mixed-use or office buildings ranging from 6-14 storeys. Lastly, on the East, directly adjacent area a 4-storey mixed use and a 16-storey office building.

Figure 31: View A, Google Street View

Figure 32: View B, Google Street View

Figure 33: View C, Google Street View

Figure 34: View D, Google Street View

Since there are not too many residential buildings in the immediate surroundings, the materiality encompassing the site is predominantly metal, glazed and corporate. Though some older buildings do make use of exposed concrete, stone and brick.

BUILDING FORM

Figure 35: *Parti Diagram*

Based on the size of the lot the design is able to accommodate two residential towers. The community-BLOCK modules are stacked on top of each other in alignment as to simplify the vertical shafts and connections. The BLOCKS are angled in a way that the open face is oriented for maximum sun exposure, and so that the two towers can also look onto each other. The two towers vary in height in accordance with the height restrictions and for a more varied appearance. They rest upon a 3-storey commercial podium, which has street-level retail and office space above. Atop of the podium would be the resident's garden terraces, divided into two sections by the tower placement. The height of the podium aligns well with the neighbouring 4-storey buildings because they have smaller ceiling heights.

The commercial program of the podium also helps tie in the development to the surrounding context, and it also accommodates the needed grocery store and neighbourhood market.

Figure 36: Shadow Studies

This arrangement of the building elements allows for the most efficient use of direct sunlight. In the summer months, the elevated courtyards will have direct exposure for two thirds of the day. The garden terraces alternate their sun exposure into a morning terrace and an evening terrace – which will later influence their programmatic layout. In the winter months, there is not much direct sunlight due to the nature of the high-rise neighbourhood.

The below massing diagrams show the general form and orientation of the podium, towers, and their courtyards in relation to their existing context.

Figure 37: *Massing Diagrams*

BUILDING LAYOUT

The ground level of this building holds the two residential lobbies, the lobby for upstairs offices, four retail units, a commercial loading dock, a few street-side parking spots, and entry to an underground parking garage for residents and commercial visitors.

The largest retail space is allotted to the Neighbourhood Market Hall on the corner of Kent and Albert Street. This space functions much like an outdoor market, such as the ByWard market; however, it can function year-round. Quite a few of the businesses within the market would be permanent, yet space is also available for shorter-term installations – including room for the residents' independent businesses. The Hall connects to both residential lobbies to facilitate the connection between residents and the city. On the exterior of the Market a small plaza was formed to break up the linear façade and create an alcove for gathering and dining.

The second largest retail space on Queen Street is the grocery store that has access to a mezzanine level above. This space also connects to the greater Neighbourhood Market.

Figure 38: *Floor Plan Level 1*

The second level contains a chunk of the office space, the grocery store mezzanine, the double height space above the Neighbourhood Market, and the bottoms of the residents' pools. Minimal planning was done to the office space in this design, leaving a predominantly open floor plate, as it was not necessarily relevant to the thesis.

Figure 39: *Floor Plan Level 2*

The third level contains the remaining bulk of the office space, as well as some of the residential amenities. These amenities are shared between the two towers and consist of “typical” spaces such as a gym, pool, and laundry.

Figure 40: *Floor Plan Level 3*

Level four is at the top of the podium where the exclusively resident space begins. Looking at the exterior, the two Garden Terraces provide ample space and various amenities for the two towers. The winding lines of the landscaping help to break up the rectilinearity of the building. Densely grown planters act as the privacy screen for this floor's apartment units.

On the left-most (West) of the Morning Terrace, there are community gardens with maximum exposure to the sun. The large open space leaves room for flexibility of temporary program or community events. On the Evening Terrace a portion of the space is given to social gathering, cooking and shared meals. Next to it is a small playground to accommodate any families or visitors with children. Below that is a small dog run for the building's most social four-legged inhabitants.

Looking now into the interior, the two towers have their community-BLOCK's interior courtyard. The courtyards are encompassed on three sides by small residential units and their inward facing urban-PORCHES. The glazed face of the courtyards is also operable and can be fully opened to spill out onto the terraces.

Figure 41: Floor Plan Level 4

The last floor plan is of a typical floor – excluding those with a courtyard every three storeys. The three level, ~10m height open space is encompassed by open corridors and residents' urban-PORCHES. Directly across from the elevators are the staircases that connect the 3 levels within the community-BLOCK.

The layout of the units themselves is atypical because they are “through units”, with the most private side on the building's perimeter. Because of this all the bedrooms are located on the exterior wall, while the more public spaces such as kitchen, living, or dining face into the courtyard. The doors to the units are glazed sliding doors of 2-3 panels so that the living space can open to the community and easily spill out onto the PORCH. The units are also smaller than usual; self-sufficient but only meant to provide for basic living and encourage inhabitants to spend free time in the shared spaces.

Figure 42: *Typical Floor Plan*

The sections below showcase the distinct community-BLOCKS within the towers and their independent connections via the Courtyard stairways.

Figure 43: *Section of East Tower*

Figure 44: *Section of West Tower*

Break Down of Occupancy

The below graphic breaks down the number of units, but also the number of residents that is expected to inhabit this development. The four columns are broken down to statistics per floor, per community-BLOCK, per tower, and for the whole building. The top row shows how many unit types are in each of the column's segment.

Figure 45: Unit and Resident Breakdown

The bottom row shows the potential number of residents if the building is fully rented out. The first line here provides the number of residents if only one person lives per unit – the minimum occupancy. The second line assumes that there is one resident per bedroom of a unit – the probable occupancy. And the third shows the maximum occupancy if each bedroom of a unit had two persons sleeping in it.

To sum up, the total number of residents expected for this development would fall between ~300 and 1000. However, the number of neighbours active in the day to day interactions within the community-BLOCK would be only between ~30 to 100.

Comparison of Private to Public Space Ratios

The below images are a comparison of the floor area distribution between different developments in Ottawa and the proposed co-PARTMENT. These numbers are *rough approximations*. They were calculated based on the floor plans of the entire building, not just the typical floors shown. The teal colour signifies private space, and the orange shows the shared spaces. Vertical circulation, balconies, and surrounding grounds were excluded.

Ottawa co-PARTMENT

65% Private Space

7% Urban-PORCHES

14% Shared Indoor
Space

13% Shared Outdoor
Space

Le Corbusier's Cité Radieuse

79% Private Space

15% Shared Indoor
Space

5% Shared Outdoor
Space

212 Slater (condos)

83% Private Space

17% Shared Indoor
Space

1% Shared Outdoor
Space

414 Churchill (co-housing proposal)

88% Private Space

12% Shared Space

929 Richmond
(condos)

95% Private Space

4% Shared Indoor Space

2% Shared Outdoor Space

100 New Orchard
(condos)

91% Private Space

5% Shared Indoor Space

3% Shared Outdoor Space

Figure 46: *Shared-to-Private Ratio Comparison between Developments*

MATERIALITY

The courtyards utilize screens and semi-opaque elements to emphasize the ambiguity of their ownership and thresholds. Translucent glass and wooden slats frame the boundaries of each urban-PORCH. The wooden materiality, repetition, and colour scheme take inspiration from biophilic design.

The glazed façade is operable by a harmonica system to fully open up the community-BLOCK to the exterior. A linear skylight also runs along the edge of the curtain wall to create visual connection from floor to floor between residents. On the 4th level, the operable harmonica glazing extends to the floor to create a seamless transition from the inside to the outside. The extended indoor flooring further blurs the threshold.

The ceilings of each BLOCK are painted with a different colour, progressing from chartreuse green on levels closer to ground, to midnight blue on levels closer to the sky. This helps give an identity to each sub-community – easily identifiable from the street or terraces. It also gives a pop of colour and brightness to the city block while indicating the unique condition of the co-PARTMENT.

Figure 47:
View of the
Interior
Courtyard

Figure 48:
View from
Elevated
Courtyard

Figure 50:
View of 4th
Floor
Terraces
from
Courtyard

Figure 49:
View of
Community
Gardens on
Terraces

Figure 51:
View of an
Urban-PORCH

Figure 52:
View from the
Green Roof

Figure 53:
View from
Albert and
Kent

CONCLUSION

This thesis addressed the questions of how can multi-unit high-rise residential architecture respond to Canadians' loneliness problem? How can they create a better social environment for their residents? Can architecture really influence how people interact?

Chronic loneliness and social isolation are a complex, multi-faceted issue that is influenced by many professions and disciplines, architecture included. Re-thinking the existing building model to create something more socially conducive is our role in trying to mitigate these issues.

The high-rise multi-unit residential building is a prevalent typology in Canada. However, it is typically reduced to un-inventive standards that maximize profit while meeting the building code, without consideration for creating socially rich environments for the building's community. The typical building appeases only the individualistic type of mindset – with minimized shared space, and very clearly defined boundaries of what is mine and what is yours. The idea of co-PARTMENTS aims to also satisfy our collectivistic side as well.

The goal of the new architecture would be to increase the quality, frequency, durations, and variety of interactions that happen between residents, so that they may lead to forming acquaintances and casual friendships, and a sense of community amongst the group.

That is not to say that any kind of architecture can solve such a complex human issue as loneliness and social isolation. Nor that human behaviour is predictable enough that this design can guarantee the result. However, the co-PARTMENTS would create a stage where these desires and opportunities *can* flourish - potentially.

This design will also not be for everybody – some people may want nothing more than to never see, hear, or speak to their neighbours in their local community. However, the basic premise of the dissimilar nature of people calls for a variety in the high-rise apartment typology that is currently lacking. The co-PARTMENTS can be another option for housing for those that do not feel the existing options socially fulfilling.

In the end, it will be up to the people that live there to make the building vibrant, but thoughtful and deliberate design can be one of the keys to creating meaningful connections with those around us.

Figure 54: Documentation of Online Thesis Defence
Taken place via Zoom due to lockdowns of the COVID-19 global pandemic

APPENDIX | ARCHITECTURAL REVIEW

Unite d'Habitation, Marseille, France, Le Corbusier, 1940

Figure 55: *Unite d'Habitation Exterior*

Source: Dezeen, Brutalist Buildings: Unité D'Habitation by Le Corbusier, 2016

- A re-imagining of apartment buildings as autonomous vertical neighbourhoods – a place where residents can shop, play, and live within one building
- The high-rise formation aimed to provide better views, more green spaces, and better sanitary conditions
- Utilizes the skip-stop layout with an internal “street” every 3 storeys
 - most units are two levels with their own internal staircase
- The 3rd street (7th and 8th level) contain a good bulk of non-residential space – such as shops, restaurant, and a small hotel

The second bulk of the amenity spaces are on the rooftop – such as a small pool, gymnasium, running track, and kindergarten⁵¹

Figure 56: Unit Layouts of Unité d'Habitation

Source: *The House and the Home: The Balance of Architecture and Psychology within the Residential Home*, 2015

⁵¹ Bonnie, Claire. "Marseille: Unité D'Habitation." *Bennie On the Loose*, 22 Sept. 2015, bennieontheloose.com/marseille-unite-dhabitation.

Frearson, Amy. "Brutalist Buildings: Unité D'Habitation by Le Corbusier." *Dezeen*, 28 June 2016, www.dezeen.com/2014/09/15/le-corbusier-unite-d-habitation-cite-radiouse-marseille-brutalist-architecture/.

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Figure 57: *Unite d'Habitation Internal Street*,
Source: Archdaily, AD Classics: Unite d' Habitation / Le Corbusier, 2010

Figure 58: *Unite d'Habitation Commercial Street*
Source: Flickr, Unite D'Habitation, Marseille, Anna Armstrong, 2009

Figure 59: *Unite d'Habitation Commercial Street*
Source: Bonnie on the Loose, Marseille: Unité D'Habitation, 2015

Pruitt-Igoe, St. Louis, Missouri, US, Minoru Yamasaki, 1954

Figure 60: *Pruitt-Igoe Exterior*

Source: Facebook, The Pruitt-Igoe Myth

- Massive 33 tower public housing development inspired by Le Corbusier's Unite d'Habitation – demolished by 1973
- Utilizes the skip-stop layout with a gallery corrido every 3 storeys and staircases that lead up/down into apartments
- The wide gallery corridor is adjacent to communal laundry and storage areas, with the intent of making it a communal gathering space – mimicking the community life on a sidewalk
- Labelled as the “death of Modern Architecture”
- Initially it was a great success – past residents look back on it saying it was like a resort, that is was “a good thing”, that it was a place full of happy memories, and how there was a great community and you were never alone
- A lot of factors lead to its failure – including the underfunding, lack of maintenance and neglect, racism, failures of government welfare systems and housing policy, urban sprawl, and the building's design

- The communal stairs and galleries became homes for gangs, prostitution, drug-deals, shootings, assaults, and vandalism⁵²

Figure 61: *Pruitt-Igoe Floor Plans*

Source: *Americanization and Ethnicity in Urban Tenements*, 1983

⁵² Wright, Gwendolyn. "Americanization and Ethnicity in Urban Tenements." In *Building the Dream*. Cambridge: MIT Press, 1983. 119.

Fiederer, Luke. "AD Classics: Pruitt-Igoe Housing Project / Minoru Yamasaki." *ArchDaily*, 15 May 2017, www.archdaily.com/870685/ad-classics-pruitt-igoe-housing-project-minoru-yamasaki-st-louis-usa-modernism.

Freidrichs, Chad, Brian Woodman, Jaime Freidrichs, Jason Henry, Benjamin Balcom, and Steve Carver. *The Pruitt-Igoe Myth*. New York: First Run Features, 2012.

Figure 62: *Architect's Vision for the Pruitt-Igoe Gallery*
Source: Defensible Space Website, 2009

Figure 63: *Vandalism and Neglect in Pruitt-Igoe Gallery*
Source: Defensible Space Website, 2009

Home for Senior Citizens, Chur, Switzerland, Peter Zumthor, 1993

- The interior gallery style corridor doubles as a gathering space – it is filled with resident's furniture acting as an extension of their unit

Figure 64: *Home for Senior Citizens Exterior*
Source: Galinsky, Home for Senior Citizens, 2001

Figure 65: *Corridor in Home for Senior Citizens*
Source: Atlas of Places, Homes for Senior Citizens 702AR, 2019

Qianhai Talents' Apartments, Shenzhen, China, Foster + Partners, 2020

Figure 66: *Qianhai Talents' Apartments Exterior Render*

Source: Dezeen, Foster + Partners reveals visuals of co-living apartment block in China, 2020

- Design concept for a “co-living” apartment block (*Co-Living is defined on page 39*)
- Designed exclusively for professionals who live an intense work-centered lifestyle and want to find a sense of community in their living arrangement
- Every 3 storeys are a communal space shared between 12 units which includes a full kitchen and dining area - Individual units do have their own kitchenettes⁵³

⁵³ Baldwin, Eric. “Foster Partners Design Modular Residential Towers for Shenzhen.” *ArchDaily*, ArchDaily, 11 Feb. 2020, www.archdaily.com/933493/foster-plus-partners-design-modular-residential-towers-for-shenzhen.

Crook, Lizzie. “Foster Partners Reveals Visuals of Co-Living Apartment Block in China.” *Dezeen*, 17 Feb. 2020, www.dezeen.com/2020/02/17/foster-partners-qianhai-talents-co-living-apartments-shenzhen-architecture/.

Figure 67: *Qianhai Talents' Apartments Common Space Render*

Source: Dezeen, Foster + Partners reveals visuals of co-living apartment block in China, 2020

Figure 68: *Qianhai Talents' Apartments Building Entry Render*

Source: Dezeen, Foster + Partners reveals visuals of co-living apartment block in China, 2020

60 Richmond Housing Co-op, Toronto, Canada, Teeple Architects, 2010

Figure 69: *60 Richmond Housing Co-op Exterior*

Source: Archdaily, 60 Richmond Housing Cooperative / Teeple Architects, 2010

- Environmentally focused mid-rise building with a full-cycle ecosystem – including a rainwater collection cistern on the roof, a vegetable garden supplying the resident-ran restaurant, and an in-house compost program
- Resident communal areas include the community garden and an interior amenity space⁵⁴

⁵⁴ “60 Richmond Street East Housing Development.” *Teeple Architects*, 18 Oct. 2019, www.teeplearch.com/portfolio/60-richmond-east-housing-development/.

Saieh, Nico. “60 Richmond Housing Cooperative / Teeple Architects.” *ArchDaily*, ArchDaily, 2 Nov. 2010, www.archdaily.com/85762/60-richmond-housing-cooperative-teeple-architects.

Figure 70: 60 Richmond Housing Co-op Exterior

Source: Archdaily, 60 Richmond Housing Cooperative / Teeple Architects, 2010

Hunziker Areal, Zürich, Switzerland, Several Architects

Figure 71: *Hunziker Areal*/Exterior
Source: Flurina Rothenberger, More than Living

- Mixed use development of 13 buildings with a focus on environmental sustainability for living and working
- Car-free living for residents – visitor parking only
- For all stages of life from young adults, to families, to seniors
- House 1 has a unique and flexible layout – the communal areas on each floor (such as a kitchen, dining, and living) are shared by several clusters of bedrooms. These bedrooms can be rented by

separate individuals to form a co-living arrangement, or all by one family to create a more traditional layout, or a hybrid of the two⁵⁵

Figure 72: *Hunziker Areal House 1 Floor Plan*

Source: Cities Connection Project, Hunziker Areal House I. Zurich-Oerlikon

⁵⁵ “Deubau-Preis 2014: Hunzikerareal in Zürich.” *Detail.de*, 28 May 2020, www.detail.de/artikel/deubau-preis-2014-hunzikerareal-in-zuerich-11171/.

“Hunziker Areal House I. Zurich-Oerlikon.” *Cities Connection Project*, www.citiesconnectionproject.com/project/hunziker-areal-house-i-zurich-oerlikon/.

“More than Housing.” *World Habitat*, 8 May 2018, www.world-habitat.org/world-habitat-awards/winners-and-finalists/more-than-housing/#award-content.

Figure 73: *Hunziker Areal Common Area*
 Source: Detail, DEUBAU-Preis 2014: Hunzikerareal in Zürich, 2013

Figure 74: *Hunziker Areal Common Site Plan*
 Source: Detail, DEUBAU-Preis 2014: Hunzikerareal in Zürich, 2013

MX581, Mexico City, Mexico, HGR Arquitectos, 2018

Figure 75: *MX581 Courtyard*

Source: Archdaily, MX581 Building / HGR Arquitectos, 2018

- Japanese inspired central courtyard with the units facing into it with spacious front porches
- The unit's bedrooms face away from the courtyard onto the street and have private balconies
- The kitchen, living, and dining space opens onto the front porch with a large sliding door ⁵⁶

⁵⁶ Brillon, James. "Mexico City Housing by HGR Arquitectos Surrounds Circular Japanese-Style Garden." *Dezeen*, 21 Nov. 2018, www.dezeen.com/2018/11/25/mx581-hgr-arquitectos-mexico-city-housing/.

Rojas, Cristobal. "MX581 Building / HGR Arquitectos." *ArchDaily*, ArchDaily, 26 Nov. 2018, www.archdaily.com/906498/mx581-building-hgr-arquitectos.

Figure 76: MX581 Porch facing the Courtyard
Source: Dezeen, Mexico City housing by HGR Arquitectos surrounds circular Japanese-style garden, 2018

Figure 77: MX581 Transition from Interior to Porch
Source: Archdaily, MX581 Building / HGR Arquitectos, 2018

Silodam, Amsterdam, Netherlands, MVRDV, 2002

Figure 78: *Silodam Exterior*
Source: MVRDV Projects, Silodam

- Mixed-use development on water with a focus on “variety” – each portion of the building has a unique cluster of homes
- Designed for all types of people – families, seniors, professionals, artists, different hobbies, attitudes, lifestyles
- Various communal spaces – such as library, BBQ, garden, gym, toy exchange, and public balcony
- Some Sundays implement an open-house program where residents are welcome to visit each other when they otherwise would not
- Some clusters of homes have shared balconies⁵⁷

⁵⁷ Frearson, Amy. “MVRDV's Silodam Combined Housing Typologies Says De Vries.” *Dezeen*, 28 July 2015, www.dezeen.com/2015/07/28/silodam-mvrdv-housing-amsterdam-harbour-movie-nathalie-de-vries/.

“Silodam.” *MVRDV*, www.mvrdv.nl/projects/163/silodam.

“Silodam (Housing Silo).” *Arcspace.com*, arcspace.com/feature/silodam-housing-silo/.

LOFTS	HUTS	PATIO	MAISONETTE
GYMNASIUM	HOBBY	X-HOUSE	OFF BEAT 3 ROOM
PANORAMA	UNITE	BALCONY	PANORAMA
PANORAMA		SENIOR	GARDEN HOUSE
HOBBY	SENIOR	LIVE & WORK	DOORZON
VALERIUS HOUSE	STUDIOS	WORK LOFT	3 BEDROOM FLAT
VENETIAN WINDOW	HALL & TRAY	MARINA	FAMILY HOUSE
	STORAGE		LIVE & WORK LOFT

Figure 79: *Silodam Section Diagram*
Source: MVRDV Projects, Silodam

Figure 80: *Silodam Floor Plan*
Source: Arcspace, Silodam (Housing Silo), 2012

Figure 81: *Silodam Interior*
Source: Dezeen, MVRDV's Silodam block contains a cross-section of Amsterdam society says Nathalie de Vries, 2015

Wohnprojekt Wien, Vienna, Austria, Einszueins Architektur, 2013

Figure 82: *Wohnprojekt Wien Exterior*
Source: Archello, Co-Housing Vienna, 2015

- Privately owned co-housing project
- Communal spaces include a garden, coffee shop, kitchen and dining area, playroom, workshops, and event rooms
- Balconies are staggered and become another place to meet neighbours
- The individual units remain a fully private place where residents can find retreat⁵⁸

⁵⁸ Architektur, Einszueins, et al. "Co-Housing - Wohnprojekt Wien." *Simon Architecture Prize*, 4 May 2020, simonprize.org/co-housing-wohnprojekt-wien/.

"Co-Housing Vienna: Einszueins Architektur." *Archello*, archello.com/project/co-housing-vienna.

Figure 83: *Wohnprojekt Wien Common Space*
Source: Archello, Co-Housing Vienna, 2015

Figure 84: *Wohnprojekt Wien Floor Plan*
Source: Archello, Co-Housing Vienna, 2015

Loomis Courts, Chicago, US, Loewenberg & Loewenberg, 1951

Figure 85: *Loomis Courts Exterior*

Source: Chicago Gang History, Loomis Courts

- Public housing project - renovated in 2005 after gang activity and violent drug wars in the buildings
- Implements “sidewalks in the air” – a gallery style hallway that is open to the exterior, however due to lack of feelings of safety they cannot be utilized as shared balconies⁵⁹

⁵⁹ Vale, Lawrence and Freemark, Yonah. From Public Housing to Public-Private Housing. Journal of the American Planning Association, 2012, 78. 379-402. 10.1080/01944363.2012.737985.

“Loomis Courts.” Chicago Gang History, chicagoganghistory.com/housing-project/loomis-courts/.

“Photographing the Demolition and Transformation of Chicago's Public Housing.” Archinect, archinect.com/features/article/150018618/photographing-the-demolition-and-transformation-of-chicago-s-public-housing.

Figure 86: *Loomis Courts Exterior Back*
Source: Chicago Gang History, Loomis Courts

Figure 87: *Loomis Courts Sidewalk in the Air*
Source: Archinect, Photographing the demolition and transformation of Chicago's public housing, 2017

Robin Hood Gardens, London, England, Smithsons, 1972

Figure 88: *Robin Hood Gardens Exterior*

Source: Archdaily, AD Classics: Robin Hood Gardens / Alison and Peter Smithson, 2011

- Social housing project inspired by Le Corbusier's Unite d'Habitation
– demolished between 2017-2019
- Skip-stop balconies every third floor formed the outdoor "streets" with the intent that it would encourage interaction between residents - architects hoped residents would personalise and furnish the space, and that children would use it to play
- The outdoor streets had alcoves called "pause spaces" that turned out to be unsafe blind spots - a place for muggings and assaults⁶⁰

⁶⁰ Balters, Sofia. "AD Classics: Robin Hood Gardens / Alison and Peter Smithson." ArchDaily, 2011, www.archdaily.com/150629/ad-classics-robin-hood-gardens-alison-and-peter-smithson.

"Robin Hood Gardens, London." Greyscape, 2020, www.greyscape.com/robin-hood-gardens/.

Figure 89: *Robin Hood Gardens Exterior Corridor*

Source: Archdaily, AD Classics: Robin Hood Gardens / Alison and Peter Smithson, 2011

Figure 90: *Robin Hood Gardens Pause Spaces*

Source: Archdaily, AD Classics: Robin Hood Gardens / Alison and Peter Smithson, 2011

Earth Tower, Vancouver, Canada, Perkins + Will, 2019 Pre-development

Figure 91: *Earth Tower Exterior Render*

Source: Dezeen, Perkins+Will designs "world's tallest hybrid wood tower" for Vancouver

- 40 storey hybrid wood tower – the tallest wood hybrid in the world
- "The project will support community and dramatically improve livability in tall, urban residential buildings. Through creating meaningful connections to our natural environment, it will restore local biodiversity and provide public areas that are vibrant and accessible."⁶¹
- Planned to be a passive house and zero carbon design – focus on social and environmental connection
- Every third storey there is a south facing communal garden shared by 12–18 households - a means of creating a space for gathering⁶²

⁶¹ "Canada's Earth Tower." *Perkins and Will*, perkinswill.com/project/canadas-earth-tower/.

⁶² McKnight, Jenna. "Perkins Will Designs 'World's Tallest Hybrid Wood Tower' for Vancouver." *Dezeen*, 5 June 2019, www.dezeen.com/2019/05/29/canadas-earth-tower-perkins-will-vancouver-canada/.

Figure 92: *Earth Tower Floor Plan*

Source: Dezeen, Perkins+Will designs "world's tallest hybrid wood tower" for Vancouver

Figure 93: *Earth Tower Interior Render*

Source: Dezeen, Perkins+Will designs "world's tallest hybrid wood tower" for Vancouver

Figure 94: *Earth Tower Section*

Source: Dezeen, Perkins+Will designs "world's tallest hybrid wood tower" for Vancouver

LEXICON

Affordances: “Attributes within the environment that promote or hinder behaviors, including those related to health.”⁶³

Buffer zone: A neutral area separating conflicting forces.

Co-housing: An intentional living arrangement in which people build a cluster of single-family houses around a common building for shared meals, childcare, guest rooms, etc.

Co-PARTMENT: An alternative housing typology designed with social connection of the residents in mind. It provides a socially conducive space through, ample shared space, urban-PORCHES, proximity to common areas, attracting motivated residents, community-BLOCKS, program, and exposure to nature.

Collectivistic vs Individualistic culture: “Individualism emphasizes personal freedom and achievement. Individualist culture therefore awards social status to personal accomplishments such as important discoveries,

⁶³ Rollings, *Environments and Health*, 2013.

innovations, great artistic or humanitarian achievements and all actions that make an individual stand out. Collectivism, in contrast emphasizes embeddedness of individuals in a larger group. It encourages conformity and discourages individuals from dissenting and standing out.”⁶⁴

Community: A group of people living in the same place or having a particular characteristic in common. A feeling of fellowship with others, as a result of sharing common attitudes, interests, and goals.

[Sense of] Community: “The perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, and the feeling that one is part of a larger dependable and stable structure.”⁶⁵ “A feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together.”⁶⁶

Community-BLOCKS: The modules that make up a co-PARTMENT. Organized around a shared courtyard on the lower floor, with residential

⁶⁴ Gorodnichenko and Roland, *Individualism-Collectivism Cleavage and Its Effects*, 2012.

⁶⁵ Sarason, *The psychological sense of community*, 1974.

⁶⁶ McMillan and Chavis, *Sense of Community*, 1986.

units wrapping around three sides in a U-shape. One face is glazed or open to the exterior. Typically, 3-storeys in height.

Crowding: “A psychological construct wherein the amount of space available is less than desired.”⁶⁷

Density: A measure of the amount of people in a physical space. For example, persons per room.

Environmental psychology: An interdisciplinary field that focuses on the interplay between individuals and their surroundings. It examines the way in which the natural environment and our built environments shape us as individuals.

Indefensible space: A place which nobody feels responsibility or ownership over.⁶⁸

Light relationships: Light-hearted, effortless, easy-going, casual relationships with acquaintances or familiar faces.⁶⁹

⁶⁷ Psychology, *Crowding Definition*, n.d.

⁶⁸ Newman, *Defensible Space*, 1978.

⁶⁹ Montgomery, *Happy City*, 2013.

Meaningful: Having a serious, important, worthwhile, or useful quality or purpose.

Meaningful social interactions: Interactions that go beyond the banal small talk that you have in an elevator. The types of interactions that can lead to a formation of an acquaintance or casual friend. When personal information is exchanged, and conversations involve shared goals, interests, activities, and personal experiences. These interactions are built over time and are sustained long-term.

Social pain: The experience of pain as a result of interpersonal rejection or loss, such as rejection from a social group, bullying, or the loss of a loved one".⁷⁰ It is an innate guide to navigating social networks and helping individuals adjust behaviours to become accepted as members of a group.

Urban-PORCH: The private-space-in-public in front of each residential unit in a co-PARTMENT. It is located in the open corridor of a community-BLOCK and is individual to each unit. Its generous area allows unit program to spill out into the public realm with the goal of facilitating social interaction.

⁷⁰ MacDonald and Jensen-Campbell, *Social Pain*, 2011.

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