

DENSIFYING THE 80%

A new standard of community living for Vancouver’s single-family neighbourhoods

By Christine Rohrbacher
Bachelor of Interior Design, Humber College, Toronto, Canada, 2014

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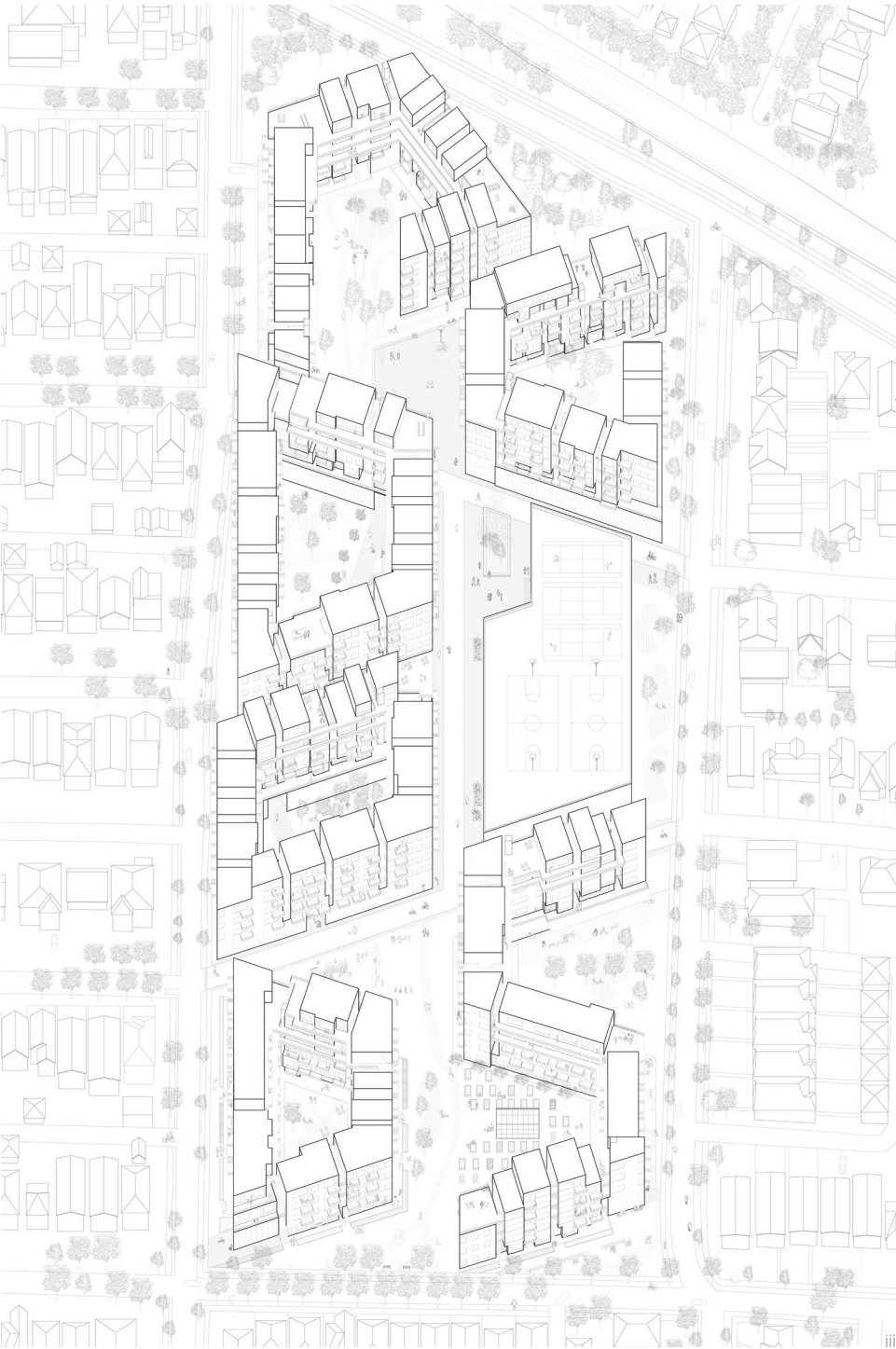
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Committee Members:

Sara Stevens <i>PhD, MED, B.Arch, BA</i> GP2 Chair
Sherry Mckay <i>PhD, MA, BA</i> GP1 Mentor, GP2 Internal Member
Marianne Amodio <i>Principal at MA+HG Architects,</i> <i>Architect AIBC, LEED AP</i> GP2 External Member	

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abstract

Many cities have been unable to provide an adequate amount or quality of housing for all inhabitants. In Vancouver, land speculation has made it difficult to create affordable homes for all. On top of this, the current market-driven typologies do not prioritize the complexity and functionality of community, the diversity of Vancouver's inhabitants, or the opportunity to densify within single-family zones currently occupying 80% of the land.

***Densifying the 80%* looks to recreate the low-rise multi-family housing typology to provide for age and class inclusivity; to design outdoor spaces between that foster a multitude of connections; and to establish a starting point for the densification of single-family neighbourhoods.**

The project will highlight the connections between the city, neighbourhood, community and building through pathways, transitions and thresholds. It will emphasize the opportunities of designing a community around a school's needs by creating efficient and collaborative spaces. It will provide an example of how to densify single-family zones in a gentle manner, and design a community with more consideration on exterior space and unit livability.

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The Housing Crisis

capitalist regime

The housing market in Vancouver has been affected by neoliberalist strategies that have aggravated housing policy by cutting public funding and expanding the gap between economic classes. Through capitalism, we have allowed these neoliberalist tactics to push people out of the city and create class segregation. Neoliberalism has caused privatization within the housing industry, and has essentially made housing a commodity. The city's housing industry now lies in the hands of the developer, and because of this, many social and economic classes have not been accounted for in the current housing aggregate.

"But at the root the housing shortage is primarily a social, class-based phenomenon having many causes, all of which can be traced in their origin to the methods of capitalist economics".¹ The major problem lies in the economic industry expecting to fix itself, but there is no sign of this happening anytime soon.

This is a problem for many cities, especially in regards to the re-appropriation of millennials and the affects it has on many cities that depend on this generation to pursue social and economic innovation.

the millennial world

The millennial generation in Canada is currently the same size as the baby boomer generation. This generation is the first to have grown up in a digital lifestyle. They are more educated than all other generations, and choose to get married and buy houses a lot later in life.² Millennials are also less likely to have a drivers license than other generations.³ For millennials in Vancouver, these decisions are heavily connected to the current housing market and the economic struggle of student debt and saving for a home. A recent study calculated that it would take someone 27 years to save up for a 20% down payment for a house in Vancouver.⁴ This has led to the ever increasing strain on the rental market, which has also allowed rental prices to increase based on demand.

Millennials, more than any other generation so far, are being heavily effected by these capitalist regimes. They look to cities for connectivity, diversity, education, and a richer quality of life. What they get in return is extremely high housing prices that force them to live in not so connected areas, or even pushed to leave the city all together. This is not only a problem for millennials, but also heavily affects the low and middle economic class. Many new jobs are being created within cities for the digital generation, and if there is no one to do the job, they will go elsewhere. As well, the capitalist strategies are greatly effecting the culture of Vancouver, as each generation has their own roles to play within communities and neighbourhoods.

Based on the facts so far, we can start to understand what millennials are looking for in a neighbourhood, community and dwelling. These trends will help us build better homes for people today, as well as the generations to come.

1 Teige, Karel, and Eric Dluhosch. *The Minimum Dwelling*. Pg. 11

2 Norris, Doug , Ph.D. "Blog." *Millennials: The Generation Du Jour*.

3 Jaffe, Eric. "3 Reasons Millennials Are Driving Less Than Previous Generations Did at the Same Age."

4 "Time to save a Downpayment." *Generation Squeeze*.

What qualities do millennials look for in a home? Firstly, they prefer to live in cities and are interested in diversity within their neighbourhoods. They would like to live in a community group of 4-10 people which has set specific boundaries between public and private space. They are also open to sharing spaces such as kitchens if it means gaining more flexible private space. They are interested in more ways to socialize and build community connection while “getting more bang for your buck”.⁵

An info-graphic from Goldman Sachs reiterates many of the same ideals, confirming that millennials are looking for social connection within their community, but also privacy. They are looking to make a space their own, and are interested in ways to express their identity.⁶

Environics Analytics goes further into describing millennials as liberal in regards to gender equality, family types and cultural diversity. They look for jobs that are fulfilling and are seen as successful. Personal identity and accomplishment is also important to them and is seen through their job and social life.⁷

automation

It is important to briefly bring up the conversation of automation, specifically in regards to people depending more on cities. Many jobs will be replaced by automation in the coming years. In Canada, the jobs that will first be replaced are in small industrial towns, and will start to push more people to cities to look for new work. These people will start to look to cities for similar economic means as the millennials.

We can safely assume that more people will be reliant on cities than ever before, and we need to come up with a strategy that accommodates everyone. This starts with creating a better standard of living for all people living in cities.

5 How will we live in the year 2030?" One shared House 2030.
6 "Millennials: Coming of Age." Goldman Sachs.
7 Norris, Doug , Ph.D. "Blog." Millennials: The Generation Du Jour.

counter strategies

Many cities across the world have been going through similar housing crises as Vancouver. One of the major proposals in dealing with automation and job depletion is the introduction to a Universal Basic Income.

A pilot program in Ontario is testing out whether a universal basic income could positively affect employment, education, and quality of life. This is also being done in many countries in Europe. These programs are currently focused around towns and cities that once relied on industries that are no longer thriving.⁸ Many cities will slowly be affected in the same way, with industrial areas being pushed out, and automation taking over jobs that are repetitive and routine. There are many studies that suggest that cities with a high number of jobs in

the creative and social intelligence area, such as tech, finance and managerial roles will not be as heavily effected by automation.⁹ These roles need to be filled with the younger generation who has grown up in the digital age and has the education to fulfill these tasks. To avoid being effected by automation, cities should be focused on bringing young people into their cities and providing a basis for creative and intellectual opportunity.

The Barcelona Right To Housing program is another important strategy. It has been created to ensure housing serves a public function, and states that “individuals who lack sufficient resources have the right to a decent home”.¹⁰ This plan, started in 2016, and is a ten year plan to provide for housing emergencies, to create more affordable housing, and to redevelop existing housing up to standard. Some of the challenges they hope to overcome are to help people find affordable units where they can make their rent payments, to create more housing stock for the increased number of young individuals, and to stop homes from being turned into tourist accommodation.¹¹

This is important in many ways, as it outlines our rights as individuals, to housing. It also talks about increasing the standard of housing. We should all have the opportunity to clean, well lit, affordable shelter. As well, this program speaks about the increase in young individuals within cities, and how they are currently being left out of the housing regime today. There is an obligation for each city to recognize when appropriate housing is not available for its inhabitants.

8 Younglai, Rachelle. “Ontario to Roll out Basic Income in Three Cities.”

9 Woyke, Elizabeth. “In These Small Cities, AI Advances Could Be Costly.”

10 “2016-2025 Right to Housing Plan.” Barcelona Housing.

11 “2016-2025 Right to Housing Plan.” Barcelona Housing.

vancouver's current housing strategy

Vancouver has recently released a three year action plan and a ten year plan. The three year plan addresses land price speculation, renters and vulnerable residents, density with connection to a variety of building typologies, and how to streamline the development process in order to build projects faster.¹² The ten year plan has similar goals, but hopes to create 72,000 homes in the next ten years, with 50% of this for people making less than \$80,000 annually, and 10% for people making less than \$30,000 annually.¹³

There are many positive outcomes within these strategies, but there are also problems. Firstly, the land speculation portion also talks about creating rental only areas within the city. This is a problem as it only escalates the segregation already happening in the city, and gives the developer a motive to increase the segregation which could lead to the creation of slums and endanger many neighbourhoods. The second problem I want to bring up is that, still, 50% of the housing to be built in the next ten years is for people making over \$80,000. When looking at data from the 2016 census, we can see that the median household income is \$72,000, but the median rental household income is at \$48,000.¹⁴ Comparing this with

the fact that more than half of households are occupied by renters,¹⁵ we can speculate that there is a greater demand for lower income housing than the city has accounted for.

Overall, there are very positive plans being implemented in Vancouver, but there are many areas being overlooked, and the focus is not evenly distributed. This is a problem when looking forward, as the city has not considered the decrease in jobs, or the effect that automation could have. The city is still focusing on its capitalist clients over the people who are in real need.

¹² City of Vancouver. "Housing Vancouver Strategy: Three-year Action Plan."

¹³ City of Vancouver. "Housing Vancouver Strategy."

¹⁴ Metro Vancouver Housing Data Book.

¹⁵ Gerszak, Rafal. "The picture of renters in Vancouver's tight housing market."

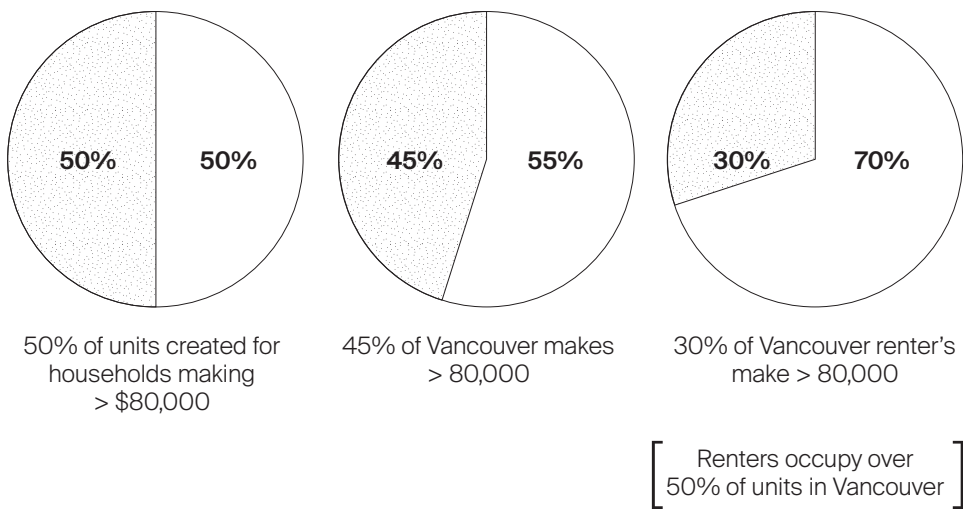


Fig. 1
Rohrbacher, C. *Vancouver's 10 Year Strategy*. December, 2018.

change must come from the city

The most relevant question right now is, how long are we going to let capitalism and the private sector dictate how we live? The change must come from the Vancouver municipality through new zoning opportunities, higher design standards and affordability security.

Karel Teige, a modernist critic, urged people to take action on the housing crisis of the 1930's. This type of housing crisis is not new, and, as he states, needs to be taken seriously in order for any change to happen. Such a substantial change must be enforced and encouraged by the city in order to bring the people on board.

"[Committed to constructivism,] the architectural avant-guard must essentially assume a destructive role in the capitalist context: it must promulgate with all its energy the negation of existing cities and existing ways of dwelling, and it must unmask the hoax and deception that are being spread abroad on the matter of housing. It must criticize the methods used today to expose the unwillingness of the bureaucracy and the government to put into place an effective popular housing policy - in short, it must demonstrate that the inability of society to solve the housing crisis is one of the most intractable exigencies of the current ruling order".¹⁶

Vienna and Berlin are examples of cities that have taken a stance on the privatization of housing, and stood up for their inhabitants. There is a lot to take from European cities, as they have been around much longer and have gone through similar situations in the past.



Fig. 2
 Rohrbacher, C. *Karl Marx-Hof, Public Square*. December, 2017.



Fig. 3
 Rohrbacher, C. *Adelheid-Popp-Gasse 5*. December, 2017.

vienna

Vienna has been developing affordable housing since the 1920's. Today, more than half of the population lives in subsidized housing, with a quarter of that being owned by the city and another quarter by limited profit organizations. Vienna is dedicated to providing a high standard of life for all of its inhabitants, and this starts with a high standard of housing. Today, a large majority of new construction is subsidized housing, giving the city a major role in deciding quantity, quality and distribution.¹⁷

The age demographic in Vienna has been changing, which is similar to Vancouver's situation as well. A large amount of young individuals and elderly people are moving to the city looking for increased accessibility and community connection.

Their main instrument in creating social housing is through a four pillar model, which is designed to create competition and progressive design solutions. The four pillars are: planning, costs, ecology and social sustainability.¹⁸ This model allows the city to continually review and change the model requirements based on the current housing situation. And, because of this, it has helped push the city into an urban design driven city, or a city with a common urban plan that is continually evolving. This is a simple move which could help many cities today.

Vancouver could learn many things from Vienna's model. The dedication from the city is very impressive, although they have had many years to perfect this. The model both fulfills the needs of the inhabitants while creating a competitive stream of work for the developers. The model also allows the city to mold itself to each situation that arises in an efficient manner, which many cities will have to do in the future.

¹⁷ Förster, Wolfgang, and William Menking. The Vienna Model. Pg. 41.

¹⁸ Förster, Wolfgang, and William Menking. The Vienna Model. Pg. 7.



Fig. 4
Rohrbacher, C. *Charlottenstraße 16*. October, 2017.



Fig. 5
Rohrbacher, C. *Stargarder Str. 52*. October, 2017.

berlin

Currently in Berlin, rental tenants make up for 85% of the population.¹⁹ Of all German cities, Berlin is one of the poorest, which has usually equated to lower rental prices overall. With the increasing interest in Berlin over the last decade however, this inequality between low-income renters and newcomers is growing at a fast rate.²⁰

Berlin's recent housing spike is related to increased interest in the art and tech Industries. This is similar to Vancouver, as there are many art, film and media opportunities, but without housing for young individuals to sustain these employment opportunities, they will quickly move elsewhere.

Berlin's plan is to increase the number of affordable housing units owned by the city from 80,000 to 400,000 by 2026 through purchasing and building new complexes, with a priority for low-income families. On top of that, the city has reinforced rent controls, stopped luxury renovations that spike rental prices, and banned Airbnb. The city is also open to co-op housing initiatives, with opportunities for joint mortgages and alternative design solutions. Berlin wants their city to remain a place where average earners and low-income families can afford to live, and these moves will help keep it that way.²¹

Berlin has made a claim to keep their city a place where all can afford to live, and they have backed this up with strong moves. The city of Vancouver, however, has made a similar claim, in stating that the city should be full of families, and should be a place where young people can buy a home, and where everyone from every economic and social class can live together.²² But their moves are not as strong, and the strategies do not stand for all the people of Vancouver. As well, it is interesting to point out that Berlin's plans are based around creating affordable rental units, while Vancouver looks to provide ownership opportunities. This highlights the actual target market in each city.

19 Chazan, Guy. "Berlin's war on gentrification."

20 Chazan, Guy. "Berlin's war on gentrification."

21 Chazan, Guy. "Berlin's war on gentrification."

22 City of Vancouver. "Housing Vancouver Strategy."

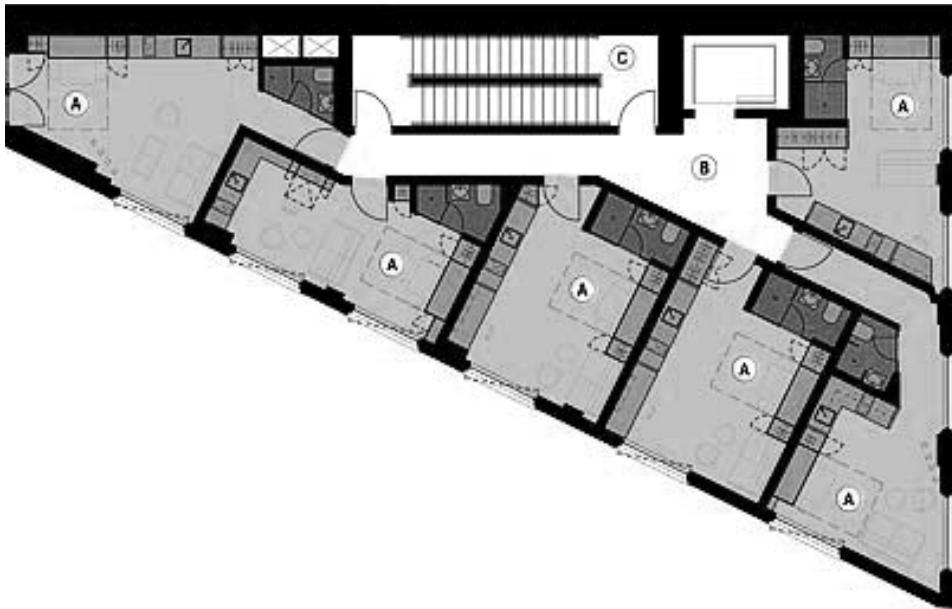


Fig. 6
Carscadden Architects. *Burns Block Floor Plan*. Accessed: <https://www.chelseanovak.ca/living-small/living-small-the-prospects-for-tiny-houses-as-a-solution-for-affordable-housing-in-vancouver/4/>

vancouver's micro dwellings

In comparison with Berlin and Vienna, Vancouver has been making a few small moves. One of the most important strategies currently taking over the city is the micro dwelling. The micro dwelling is a typology created by the developer by the permission of city relaxations on minimum unit sizes. This typology claims to ease gentrification by providing more units within one building, but at the cost of the general well-being of the inhabitant. As well, the cost of the units does not correspond with the decreased square-footage. The micro dwelling is another work-around for developers to bring in more income by splitting the building into more price tags. And, in turn, these units are actually feeding the problem and further inflating rental prices throughout the city.

Another major problem with the micro dwelling is the typical lack of connection to the community. They are designed to fit in as many people as possible, but do not provide opportunities for the inhabitants to connect with one-another or with their neighbourhood. The floor plan on the left shows a building in Vancouver that was converted from a Single Room Occupancy building into micro dwellings. This allowed the developer to make minimal changes and to turn over the rent at almost three times the price. Most of the units have fold-down beds that face the kitchen and minimize the entry to the bathroom. As well, the main table folds out when the bed is vertical, not giving a lot of flexibility of use within the space.

Karel Teige once stated that “policies are not really aimed at solving the housing crisis but exploit to the maximum the absorption capacity of the existing housing market, in which increased demand for small and cheap apartments has pushed up their price”.²³ He talked about how wage increases in the past have caused the increase in residential prices, but today because of the massive separation between economic class, the majority of people effected by housing price inflation do not see the benefits of the wage increase. He also reiterated the fact that there is more profit to be made on the small [and often worst] apartments, which is also very relevant today.²⁴

This typology is a temporary solution at best, but ultimately is causing more problems for the city. The micro dwelling is heavily based on mathematical efficiency, which Alberto Pérez-Gómez claims to ignore tradition and history which is relied on to bring about an ethical capacity.²⁵ This capacity must be brought back into housing projects in Vancouver.

23 Teige, Karel, and Eric Dluhosch. *The Minimum Dwelling*. Pg. 46.

24 Teige, Karel, and Eric Dluhosch. *The Minimum Dwelling*. Pg. 46.

25 Alberto Pérez-Gómez. *Towards an Ethical Architecture*. Pg. 67-68.



Fig. 7
 4410 Kaslo Street - Temporary Modular Housing Floor Plan.
 Accessed: <http://development.vancouver.ca/4410kaslo/documents/flpl.pdf>

temporary housing

The second architectural strategy I want to talk about is the temporary modular supportive housing initiative. The temporary housing projects are created by the city and offer temporary units for people in severe need. They are created specifically for low income or homeless residents. In addition to the modular units that can be moved from site to site, supportive help is provided as well as an amenity space and laundry facilities. The goal for these units is to provide homes for people until permanent housing is created. The plan in place right now provides housing for individuals for 3-5 years depending on the site, as many are owned by developers. The units themselves are self-contained, with each having a kitchen and bathroom within the 250sq.ft. layout.

There are many positives to this initiative, as there are a lot of people are in need of housing in Vancouver. But, there are also a few questionable aspects, such as its effects on the current neighbourhoods and the uprooting of the inhabitants to new neighbourhoods and moves in a few years. The overall effects on the neighbourhoods where the temporary housing projects are being located could be very positive. These projects are adding to the diversity and density of each neighbourhood which is beneficial for everyone. The problem lies in uprooting these people from their new community, and assigning them a new home wherever the city sees fit. We need to understand the importance of community and work toward providing permanent housing with locational choice.

As well, it is important to note that these units are below the Vancouver standard square footage for a bachelor unit, which in turn could effect unit sizes in the future. And finally, based on Vancouver's ten year strategy, it is unrealistic to think that enough units will be created so these temporary units will not be needed in five years. With over 3,600 people considered homeless today, a 30% increase since 2014,²⁶ and many people moving to Vancouver every year, the pressure on units is far greater than the proposed plan. This critique is aimed at putting the pressure back on the city to come up with a housing strategy that considers community connectivity within each development.

how to permeate the modern city

There are two underlying factors that will be present throughout the design principles in Part Two. These are important to keep the project in focus. These factors are intention and inclusivity. These factors have been brought to the surface through current circumstances and generational trends and are backed up by historical theory, experimentation and experience of many key influencer's such as Jane Jacobs, Jan Gehl, Christopher Alexander, Michel Leguerve and Doreen Massey.

intention

The purpose of this thesis is to create a strategy that encompasses the urban, community and dwelling scales into one baseline design intent. The strategy is to empower the inhabitants, community members and neighbourhood, and provide a basis for self governance. This ties into many of the urban hierarchies.

The strategy also supports what Jan Gehl calls "pedestrianism",²⁷ or putting focus on the human dimension above all else. This is an important theme within the community hierarchies.

The intention within the dwelling is based specifically on the user base, and how to create thoughtful solutions that provide for a sense of one's own place.

Christopher Alexander states that when a city possesses visible evidence of individual origin, growth and purpose, it creates a feeling or a sense of pleasure that can be felt by its users. And, the users respond to these types of spaces by the feeling of belonging and identification.²⁸

The intention is to create a sense of place within the modern technocratic city. This is brought about through the depth and complexity of the design principles. This strategy is meant to create a multitude of progress, a progress that is defined by the user and not predefined by modernity.

²⁷ Gehl, Jan, and Lord Richard. Rogers. *Cities for People*. Pg. 6.

²⁸ Chermayeff, Serge, and Christopher Alexander. *Community and Privacy*. Pg. 51.

inclusivity

The set of design principles is a tool that can be used to create intention and inclusivity within a housing project. The aim is to provide a tool that shows the importance of diversity and then shows how to create it.

This thesis strives to create diversity, not only in the architectural language, but also amongst inhabitants. This will be seen through all three scales, through the diversity of urban amenities, building typologies, and unit typologies.

Doreen Massey speaks about modernity as a singular, hegemonic process that represses many trajectories of space. This process has been conflicted with migration and globalization and has created a separation between place and space. This thesis aims at opening opportunities for multiple trajectories to happen within space, and for these trajectories to have a level of connectivity between them.²⁹

Another level of multiplicity will be seen through informality. Michel Leguerve speaks about this as a way to break down class, ethnic and gender barriers.³⁰ Together, these concepts will aim at creating a diverse community and neighbourhood. This diversity is equally important in order for self governance to take place. As Jane Jacobs mentions, it is also critical to have the proper density to create a political identity.³¹ And, through this density, we can create an open, less segregated web of connection between people, place and space.

29 Massey, Doreen B. For Space. Pg. 68-70.

30 Laguerre, Michel S. The Informal City. Pg. 19.

31 Jacobs, Jane. The death and life of great American cities. Pg. 132.

Design Principles

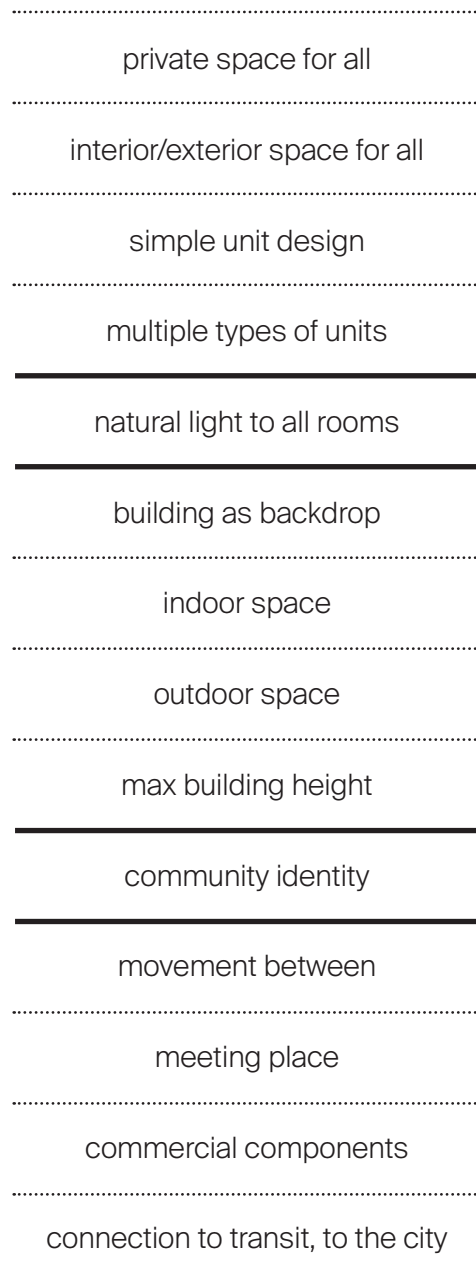


Fig. 8
Rohrbacher, C. *Design Principles*. December, 2018.

This set of design principles can be used as a tool to bring to light certain design considerations that haven't been prioritized in present residential design. Some of these items will act as theoretical frameworks, and others are very direct architectural thresholds. As well, some of these, rightfully so, blur the lines between the urban, community and dwelling subjects. They all work together to create a gradient of public to private, from urban into the dwelling.

The goal is to encourage equal contribution throughout urban, community and dwelling creation. In doing so, these strategies will empower the user within the urban, community and dwelling context and create a new standard of design city-wide.

This hierarchy is heavily influenced by millennial trends, current Vancouver development trends, as well as past examples of housing in times of need.

where speculation ends, that is, at the threshold of real life...¹

private space for all

[dwelling]

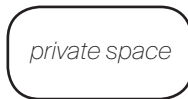


Fig. 9
Rohrbacher, C. *Private Space for All*. April, 2018.

Starting at the most intimate and private space, everyone should have access to their own private area within their dwelling. This is especially important within cities, as we are constantly surrounded by noise and activity.

"It helps develop one's own sense of identity; it strengthens one's relationship to the rest of the family; and it creates personal territory, thereby building ties with the house itself".²

These spaces do not have to be private *rooms*, but spaces that can be cut off from the communal (*living room*) and personal space (*bedroom*) when needed. It is this space that allows oneself to be quite and calm. This space should be away from the main entrance, between the communal and personal spaces. In a studio, or unit for one person, the kitchen may also take on the role of the communal or workspace.³

2 Alexander, Christopher... A Pattern Language: Towns, Buildings, Construction. Pg. 671.
3 Teige, Karel, and Eric Dluhosch. The Minimum Dwelling. Pg. 242.

interior & exterior space for all

[dwelling]

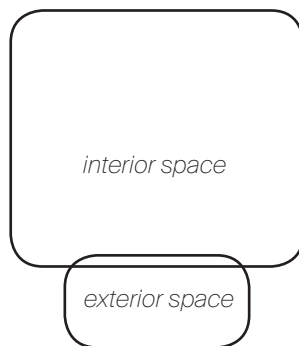
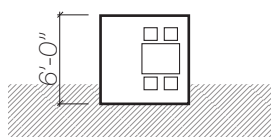


Fig. 10
Rohrbacher, C. *Exterior Space for All*. December, 2018.

Each unit should have a connection to the outdoors. This can be done through balconies, terraces or gardens attached to the dwelling. These spaces must be directly connected to the dwelling, and preferably adjacent to the common spaces within the dwelling. The connection to the common space allows for an extension of this space during warmer seasons, and provides access for all inhabitants.

It is important to consider the use of these outdoor spaces. They are often used to watch people in the courtyard or on the streets. The inhabitants could have a barbecue and a table for dining. They could also have lounge seating for reading a book or talking on the phone.

Each balcony or terrace should be geared toward being able to sit and watch the ground level activity. As well, it should provide opportunity for dining and gathering with people. This insinuates a certain dimension to comfortably fit a table and chairs. According to The Pattern Language, each balcony should be at least 6'-0" wide, and also recessed into the building to create a sense of privacy.⁴ By recessing the balcony, you also create partial shelter from the weather. The six foot width provides optimal space for multiple configurations allowing the inhabitants to use the space as they please.



simple unit design

[dwelling]

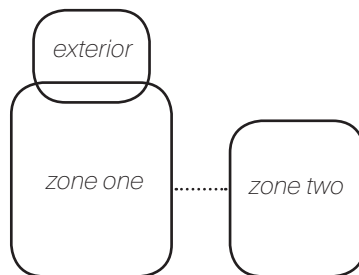
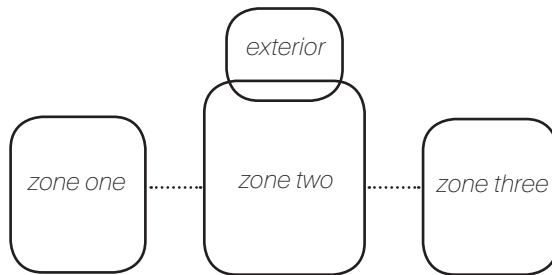


Fig. 11
Rohrbacher, C. *Simple Unit Design*. December, 2018.

Each unit should be designed for multiple scenarios of inhabitation. Before deciding how many bedrooms each dwelling should provide, one should decide how many zones should be within the dwelling. It is easy to visualize a family unit as three zones, but this could also work as multi-generational, live/work, or in a roommate scenario. The same should be considered when looking at a unit design for one person, with only one zone. The way we occupy units is changing as more people are living in units vs. homes than ever before. This is also a major affect of the ever increasing range of economic class within cities. This should be factored into how we design each unit today.

The main goal within the unit is to separate the kitchen (or common space) from the bedroom (or private space). This should follow a type of intimacy gradient throughout the dwelling, with the entrance in proximity to the common space, and the private space at the end or each ends of the dwelling. Karel Teige then suggests to pair up the kitchen and dining areas, and the bedroom with the living areas within smaller units. He suggests that, since many people do not rely on the kitchen as we use to, it should be paired with the dining area to invite more use. The main sleeping space, which we use the most, should be paired up with the living room, and should be the larger of the two zones.⁵ There should be at least two zones in every unit, even if it designed for only one user.

5 Teige, Karel, and Eric Dluhosch. *The Minimum Dwelling*. Pg. 242.

multiple types of units

[dwelling]

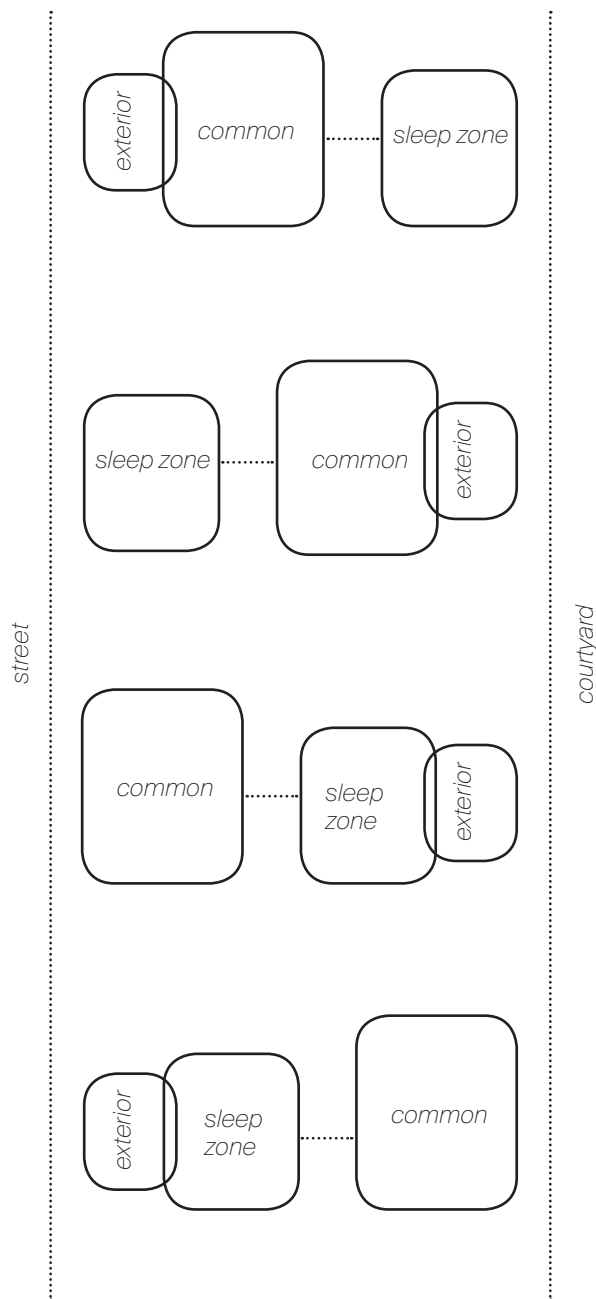


Fig. 12
Rohrbacher, C. *Multiple Types of Units*. December, 2018.

On top of having many sizes of units with multiple amounts of zones within, there should be a variety of types of each unit, with a varying degree of privacy.

"Some people want to live where the action is. Others want more isolation. This corresponds to a basic human personality dimension, which could be called the "extrovert-introvert" dimension, of the "community living-privacy loving dimension".⁶

This consideration allows for even more diversity within the building and neighbourhood, and allows people to find a fit that will work for their lifestyle, but also gives them an option to move into a different type of unit while staying in the same building and/or neighbourhood. This was a major critique brought forth by Team 10, when looking at CIAM's work in the 1950's. CIAM was interested in creating growth and change based on an analytical grid that was very strict in its use. Team 10 argued that this system created very static spaces. Team 10 wanted to re-introduce the opportunity of modification within the urban scale. The urban realm would then unfold in a complexity of public and private.⁷

With a mix of units within one building, you also have people watching many areas of the site, and at different times of day, providing a larger span of visual connections to the street, adding to the overall security of the neighbourhood and visual interest of the built form.

6 Alexander, Christopher. A Pattern Language: Towns, Buildings, Construction. Pg. 192-196.
7 Avermaete, Tom. Another Modern. Chapter 4.

natural light to all rooms

[dwelling]

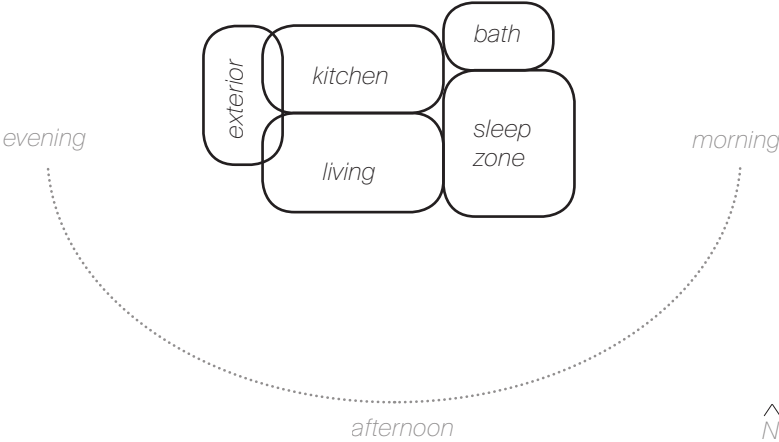


Fig. 13
Rohrbacher, C. *The Typical Layout for Natural Light*. December, 2018.

Natural light is very crucial to the livability of space. There are many factors that should be considered, such as window height, width, the amount of windows per room, the orientation based on the sun, and the distance light can actually enter a space.

"... man actually needs daylight, since the cycle of daylight somehow plays a vital role in the maintenance of the body's circadian rhythms, and that the change of light during the day, though apparently variable, is in this sense a fundamental constant by which the human body maintains its relationship to the environment".⁸

The sun typically doesn't reach further than 12'-0" into a room at any time in the day. Natural light can enter a room in a uniform flow, or in an intense stream. Horizontal windows are used to create a more even light throughout a space.⁹ But, having horizontal windows on two walls of every space can create an even greater and more habitable flow of natural light, getting rid of harsh shadows.¹⁰

The position of each space should be considered in accordance with the sun pattern. The typical layout puts the bedroom and kitchen in the morning light, with the common area at afternoon, and the porch getting evening light. However, many people do not appreciate morning sunlight in their bedroom, and some may prefer morning light on their porch and kitchen. The consideration of light creates an added complexity to the multitude of units within a building.

8 Alexander, Christopher. *A Pattern Language: Towns, Buildings, Construction*. Pg. 527.

9 Teige, Karel, and Eric Dluhosch. *The Minimum Dwelling*. Pg. 252.

10 Alexander, Christopher. *A Pattern Language: Towns, Buildings, Construction*. Pg. 746-751.

building as backdrop

[community]

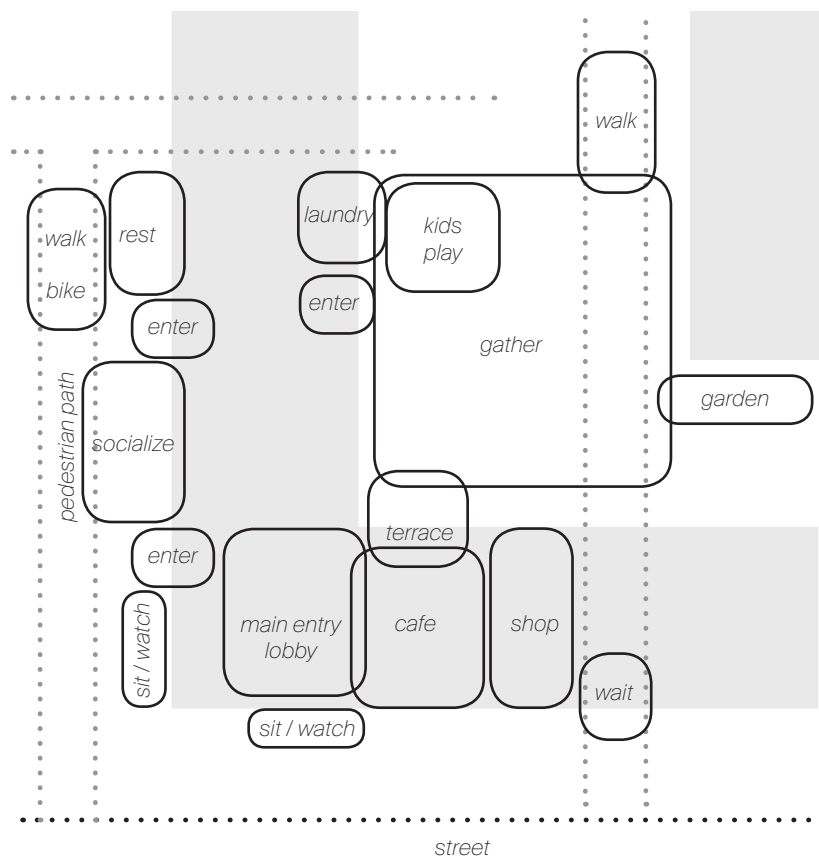


Fig. 14
Rohrbacher, C. *Building as Backdrop*. April, 2018.

The facade of a building should evoke many opportunities for its inhabitants and the surrounding community. It should be viewed as a social complex, not a monolithic unit.¹¹ The facade of the building is, after all, the connection between the public and private, or the inhabitants and the rest of the community.

"If the complex is interesting and exciting at eye level, the whole area will be interesting. Therefore try to make the edge zone inviting and rich in good detail, and save your efforts on the upper floors, which have far less importance both functionally and visually".¹²

There are many opportunities to be had at the ground floor of a building. This is where people will gather, rest, and watch people go by. There is often opportunity for commercial units on the ground floor and communal areas near main entryways. Jan Gehl explains how people walking by buildings need constant stimulation, emphasizing that facades should change every 16' - 20'.¹³ This provides opportunities for multiple types of commercial space, as well as a mix of commercial and residential.

The building should be inviting and encourage gathering. The facade should provide overhangs, pass-throughs, alcoves and seating areas for different types of gatherings. This should be mixed into the combination of commercial storefronts and residential entryways.

11 Alexander, Christopher. *A Pattern Language: Towns, Buildings, Construction*. Pg. 469.

12 Gehl, Jan, and Lord Richard, quoting Ralph Erskine. *Cities for People*. Pg. 82.

13 Gehl, Jan, and Lord Richard. *Cities for People*. Pg. 77.

indoor space

[community]

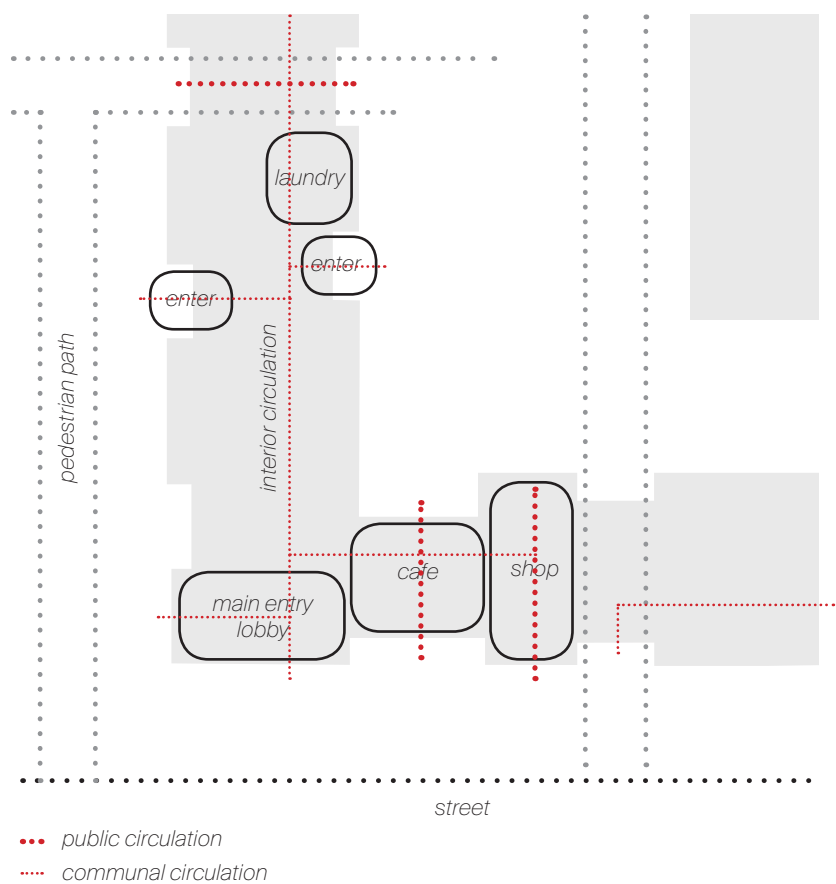


Fig. 15
Rohrbacher, C. *Indoor Space*. December, 2018.

Indoor spaces consist of communal spaces within the residential complex, as well as public spaces that reside in the ground floor of the building, such as book stores or coffee shops. There should be a mix of these spaces throughout each building, as they bring life to the building and community.

The communal interior spaces should be on the lower floors of the building, directly connected to the main circulation routes and within the *heart* of the building.¹⁷ The public interior spaces should be on the ground level, and directly adjacent to the public path system. Each of these areas should have the possibility for passive, active and planned activities to happen, providing a versatility of use throughout.¹⁸

As well, there should be a visual connection to these spaces, from either the communal or public circulation. It is understood that when people gather in the public realm, they attract more people.¹⁹

"The sight of action is an incentive for action. When people can see into spaces... their world is enlarged and made richer; there is more understanding; and there is the possibility of communication, learning".²⁰

17 Alexander, Christopher. A Pattern Language. Pg. 618.

18 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 22.

19 Jacobs, Jane. The death and life of great American cities. Pg. 153.

20 Alexander, Christopher. A Pattern Language. Pg. 774.

outdoor space

[community]

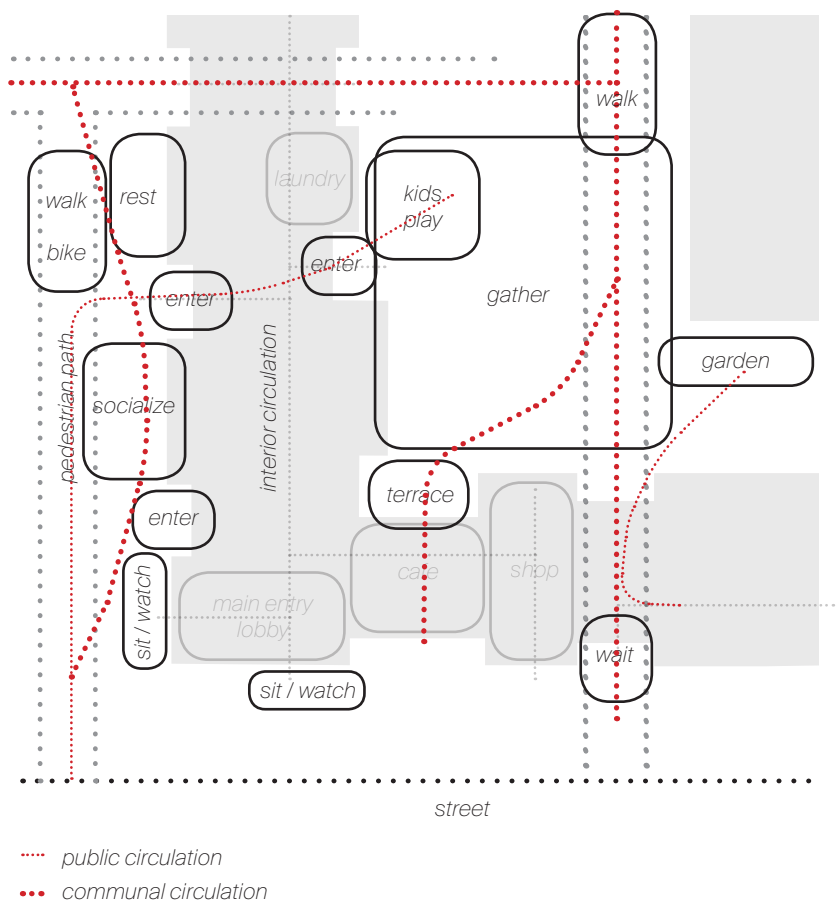


Fig. 16
Rohrbacher, C. *Outdoor Space*. April, 2018.

Outdoor spaces have similar requirements as indoor spaces. There should be multiple opportunities for passive, active and planned activities to happen, and there should be a general connection to the public and communal circulation paths. Outdoor spaces can consist of green open spaces, public squares, openings in the building facade, or communal courtyards.

The most important aspect of outdoor space, is that it should not be negative, but positive space.²¹ Each of these areas should be thoughtfully designed and created in accordance to the adjacent buildings and circulation paths. Any outdoor spaces directly connected to the indoor [communal or public] spaces should consider the continuation of program between each space.

Jan Gehl speaks about outdoor spaces, where people generally use the edge of the area first before inhabiting the center. He also suggests giving these outdoor areas a view, or an opening.²²

"...the edges of public space hold a magnetic attraction for people. Here our senses can master the space, we are facing what is happening and our backs are covered".²³

The size of the square or open space is dependent on its use. Each gathering place should be suitable to the use, or even slightly smaller, since it will not be used if it constantly feels vacant or empty. An area with a 35' diameter only needs 4 people to feel occupied, and an area with a 60' diameter needs about 12 people.²⁴ It is also important to understand that you can hear someone from about 200' away, read someones facial expressions from about 70' away, and hold a conversation at about 20' away from someone.²⁵

The exterior spaces should also consider the intimacy gradient, depending on its position to a path, a building, or a communal interior space. Its overall function and success will be based on these areas.

21 Alexander, Christopher. A Pattern Language. Pg. 517.

22 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 137.

23 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 136.

24 Alexander, Christopher. A Pattern Language. Pg. 312.

25 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 34.

maximum building height

[community]



Fig. 17
Rohrbacher, C. *Maximum Building Height*. April, 2018.

The conversation of maximum building height is important to the connection of inhabitants to their community, and to consider shadows being cast from the building. Many people have specific preferences they go by; Peter and Alison Smithson recommend 6 stories, as they believe anything higher will not have contact with the ground.¹⁴ Jan Gehl recommends 5 stories or 44'-0" for the same reason.¹⁵ Christopher Alexander, however proposes 3 or 4 stories, as each floor is easily accessible by stairs.¹⁶

The most important part of the building height, is not the overall height, but the height in comparison to the adjacent buildings. As this project strives to help densify single family zones, I am proposing a minimum building height of three storeys. The Maximum height should then be six storeys. This will fluctuate across the site and change based on the proximity to single family homes. The overall goal is to provide a new datum for future development around the site, while still maintaining a modest building height that allows for ground level connection.

By keeping the overall height of the building at 6 story's or lower, many people will still choose to walk to and from their unit. They will be more inclined to spend more time in the communal and public areas on the ground level, and the neighbouring buildings will have a visual connection, creating a greater community atmosphere throughout the space between.

14 Frampton, Kenneth. *Modern Architecture*. Pg. 272.

15 Gehl, Jan, and Lord Richard. Rogers. *Cities for People*. Pg. 42.

16 Alexander, Christopher. *A Pattern Language*. Pg. 114.

community identity

[community]



Fig. 18
Rohrbacher, C. *Community Identity, Gladstone Secondary School*. April, 2018.

Kenneth Frampton talks about belonging as a basic emotional need, which leads to identity and then neighborliness.²⁶ This is something that has been heavily disregarded in community development over the last couple decades, as well as in the 1950's housing crisis. Le Corbusier speaks about how the man of the future will be a nomad, and everything will become a product for his consumption. This, in itself, provoked an emotional search for a sense of place which many people are feeling even more-so today.

The past housing identity was seen as the ability to last, and then, during the time of CIAM, as the ability to change.²⁷ Based on these strategies so far, the community identity I aim to evoke is the ability to encourage community connections.

This strategy acts as a reminder for all strategies so far, to work together to create a common goal in providing a basis for user interface and user connectivity on a community scale. Architecturally, this requires consideration of how many people it takes to create a community, and within what proximity. Community identity is also reliant on the next few strategies to provide connections to other communities, or amenities that bring life to communities and neighbourhoods. This strategy is unquantifiable, but needs to be considered as we push for more density and continually modify residential areas.

Doreen Massey speaks about "a sense of place as an understanding of "its character", which can only be constructed by linking that place to places beyond".²⁸ Her requirements for this sense of place specifies no boundaries, no single identity, and no static entities. It does require the space to have some sort of uniqueness.²⁹ This strategy aims to encourage complexity and uniqueness through architectural solutions. It aims to pull all strategies together, and push towards the creation of community identity.

26 Frampton, Kenneth. *Modern Architecture*. Pg. 271.

27 Avermaete, Tom. *Another Modern*. Pg. 126.

28 Massey, Doreen B. *For Space*. Pg. 9.

29 Massey, Doreen B. *For Space*. Pg. 8.

movement between

[urban]



Fig. 19
Rohrbacher, C. *Movement Between*. April, 2018.

Each building, community and neighbourhood relies on the ability to move between one another freely within multiple levels of public and private pathways. This creates a dynamic context for movement and activity to emerge.

Within the building context, circulation should be connected to the interior and exterior spaces, and then also connected to the main entry that leads to and from the community zone. The circulation within communities should be heavily focused on pedestrian and bike traffic, with vehicle traffic on the peripheries. Walkable communities encourage healthy lifestyles but also allow children and pets to play safely. These circulation paths create connections between green spaces, activity zones, commercial units, transit, and the rest of the city.

"Better conditions for bicyclists invite more people to ride bikes, but by improving the conditions for pedestrians, we not only strengthen pedestrian traffic, we also - and most importantly - strengthen city life".³⁰

The movement between communities and neighbourhoods rely on the ability to move between residential blocks with ease. This is important in allowing many people from different communities to gather together. Jane Jacobs speaks about how many streets, short blocks and easy access throughout can create more successful city neighbourhoods.³¹

These circulation paths should be designed in unison with the built environment to create visually interesting paths that invite staying. There should also be a variety of places where different groups of people can meet. There should be a main path, with multiple secondary paths coming together.

30 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 19.
31 Jacobs, Jane. The death and life of great American cities. Pg. 180-185.

meeting place

[urban]



Fig. 20
Rohrbacher, C. *Meeting Place*. April, 2018.

The meeting place is meant for the use of the many communities within the neighbourhood. It should be open to the public and available for a multitude of activities such as weekend markets, exhibitions, music performances and festivals (depending on the existing neighbourhood amenities). It should also promote the opportunity for democratic conversation amongst the neighbourhood.

"The spectrum of activities and actors demonstrates the opportunities for public city space generally to strengthen social sustainability. It is a significant quality that all groups of society, regardless of age, income, status, religion or ethnic background, can meet face to face in city space as they go about their daily business".³²

This meeting place should stand out as an architectural node.³³ It should be connected to the main streets and pedestrian paths that connect to all communities within the neighbourhood. It should be located in a position where it equally benefits all communities, and allows for further growth and modification as the neighbourhood grows. As Jane Jacobs mentions, to form a network, you need "a start of some kind; a physical area with which sufficient people can identify as users; and Time".³⁴

Similarly to the exterior and interior community spaces, the meeting place should provide the opportunity for passive, active and planned activities to take place. Weather protection, security, and approachability should be heavily considered in the design of this meeting place. Overall, the meeting place should reflect and accommodate the diversity of the neighbourhood as well as its unique character.

32 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 28.

33 Alexander, Christopher. A Pattern Language. Pg. 164.

34 Jacobs, Jane. The death and life of great American cities. Pg. 136.

commercial components

[urban]

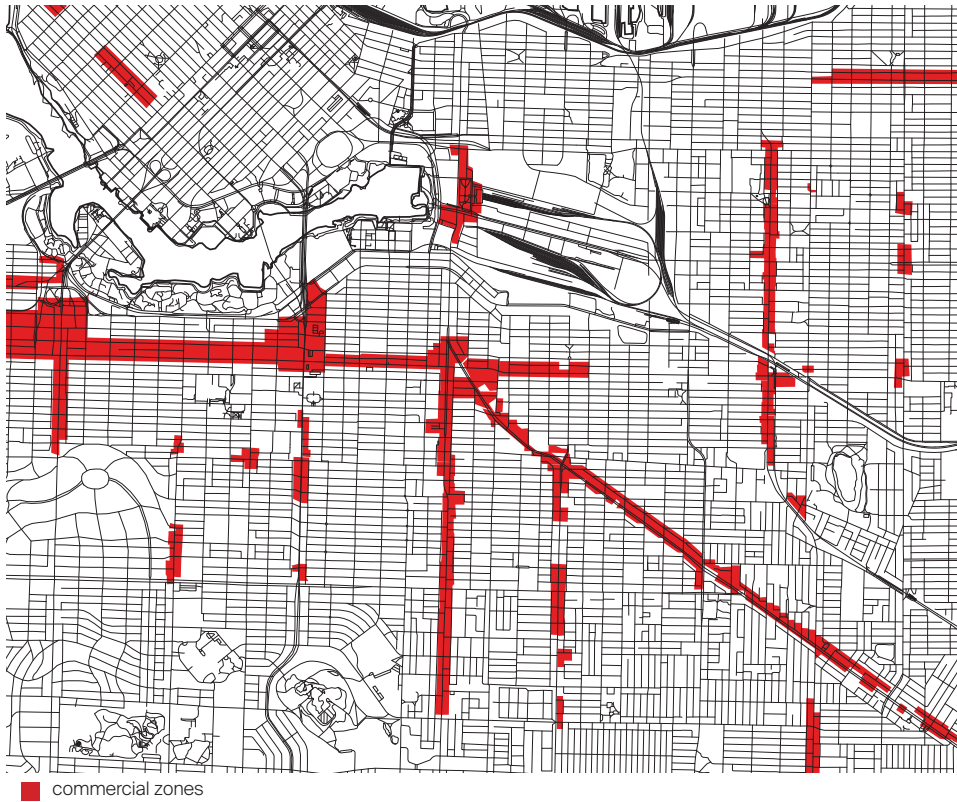


Fig. 21
Rohrbacher, C. *Commercial Zoning*. April, 2018.

As mentioned in many strategies already, commercial components are very important to the overall function of the neighbourhood. On the one hand, they create a new level of diversity, mixing inhabitants and people from other areas of the city. On the other hand, they place a large role in the safety of the neighbourhood. They provide eyes on the streets, put people on the streets, and then these people attract more people to the streets.³⁵

The commercial unit also puts the focus back on the pedestrian. For an enterprise to be successful within a neighbourhood, it should be located where many people are likely to pass by.³⁶

The types of buildings within the neighbourhood influence the types of enterprises looking to locate within a neighbourhood. Jan Gehl often talks about how cafés bring life to cities, as they provide opportunities for people to stay and be apart of the neighbourhood.³⁷ As well, businesses that are open at night provide an added level of safety to the neighbourhood.³⁸

35 Jacobs, Jane. The death and life of great American cities. Pg. 36.

36 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 67.

37 Gehl, Jan, and Lord Richard. Rogers. Cities for People. Pg. 146.

38 Jacobs, Jane. The death and life of great American cities. Pg. 36.

connection to transit/city

[urban]

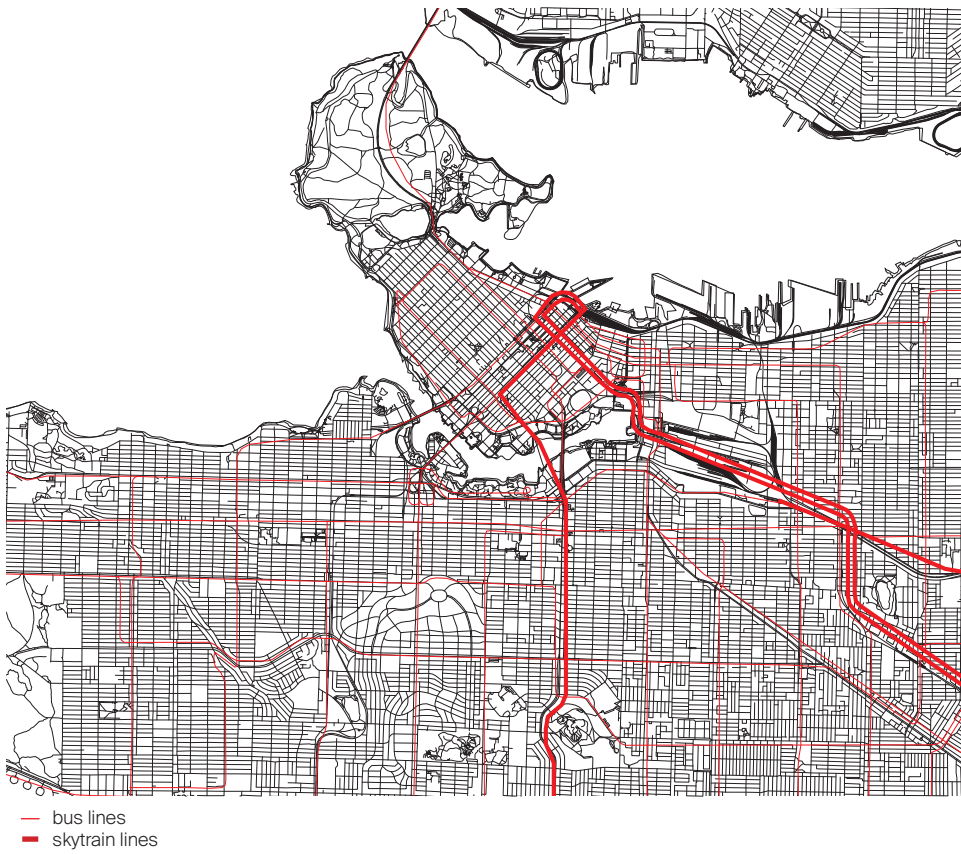


Fig. 22
Rohrbacher, C. *Vancouver Transit*. April, 2018.

The connection to transit acts as a contact point to and from the rest of the city. This is the start and the end of the hierarchy where people enter and exit the neighbourhood. This strategy relies heavily on the function of all other strategies to enable pedestrian and vehicular connection, safe and well considered waiting areas, density required to justify public transit, and a desire for people to come and go.

Millennials, more than generations before, want to feel connected to the many opportunities a city has to offer. They want the freedom and opportunities one has when they own a car, without the burden of actually buying a one. The future of cities should be designed with this in mind, and allow for more connection between the pedestrian and public transit.³⁹

Many youth and elderly people rely on public transit to get around the city and to get to school. These locations within each neighbourhood must be well integrated into the neighbourhood in order to benefit from the strategies discussed earlier. They should be connected to the main pedestrian paths and allow people to enter these locations with ease through small blocks and multiple pathways.⁴⁰ They should be in interesting, well-lit public spaces, with protection from the climate. Ultimately, they should invite people to gather, and encourage life to happen.

The locations in which people wait for public transit or enter a subway station should be given architectural merit, as they are one of the first things people see when they enter a neighbourhood. They are, essentially the new gateways to neighbourhoods. These locations should also act as nodes within the neighbourhoods, and promote activity as motivation for people to stand and wait.

Overall, the connection point to transit and to the city is the very point where the qualitative aspects should begin, and flow throughout the neighbourhood, community and dwelling. As these strategies blur together, the design considerations will play off one-another to create thoughtful and interesting space that allows for a new standard of living, community connection, and identity within a neighbourhood.

39 Gehl, Jan, and Lord Richard. Rogers. *Cities for People*. Pg. 242.
40 Jacobs, Jane. *The death and life of great American cities*. Pg. 180.

Strategy

vancouver



Fig. 23
Rohrbacher, C. *The 80%, RS Zoning*. December, 2018.
Information gathered from City of Vancouver. "Zoning Map."

Vancouver is a very diverse city with a lot to offer its many inhabitants. Its location in proximity to the ocean allows only one direction of sprawl, away from downtown. The vacancy rate in Vancouver is at an all time low, creating an ever-increasing demand for housing.

About 80% of Vancouver's land is zoned for single family homes.⁴¹ A large chunk of the downtown core is made up of high-rise buildings. This leaves little room for low or mid-rise development.

This proposal looks to critique these two very different typologies, understand their place within the city, and then propose a new form of low-rise development that works within the existing fabric.

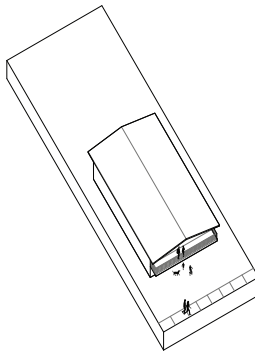


Fig. 24
 Rohrbacher, C. *The 80%*. December, 2018.

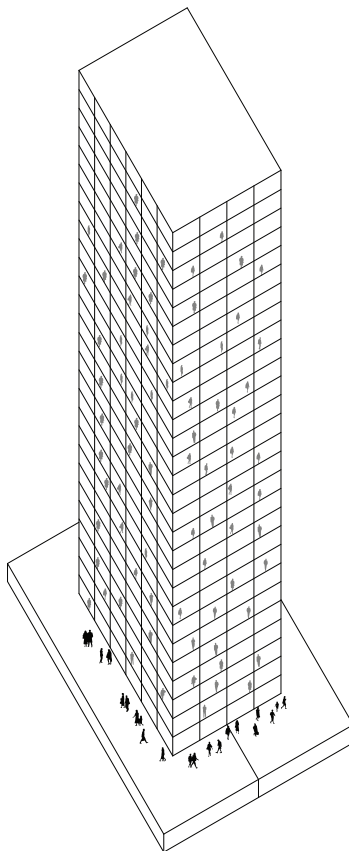


Fig. 25
 Rohrbacher, C. *The Reaction*. December, 2018.

The design intent of a single family home allows for a multitude of users: Families, roommates, multi-generational etc. We are drawn to the single family home because of its connection to the outdoors as well as its street presence.

The high-rise building is essentially the reaction to the lack of affordability of a single family home. Ideally, when you put multiple units on an area of land that would typically only hold one or two single family homes, the land price will decrease, allowing each unit to be less expensive. Today, units are also shrinking, allowing you to fit even more units onto this small area of land. However, we are still failing to produce affordable units in Vancouver while using this typology.

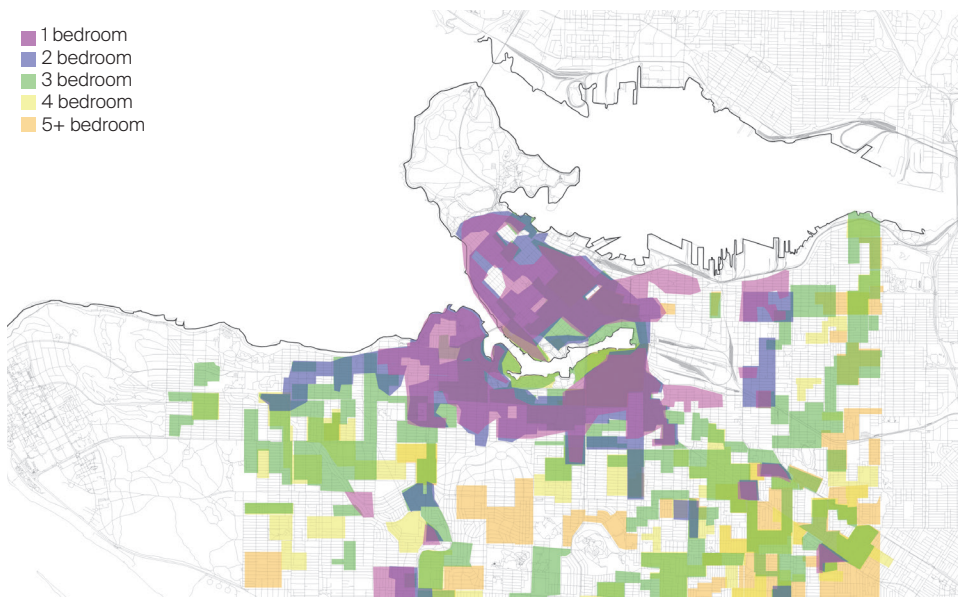


Fig. 27
 Rohrbacher, C. *Dwelling Types*. January, 2018.
 Information gathered from Statistics Canada. "Census Mapper."

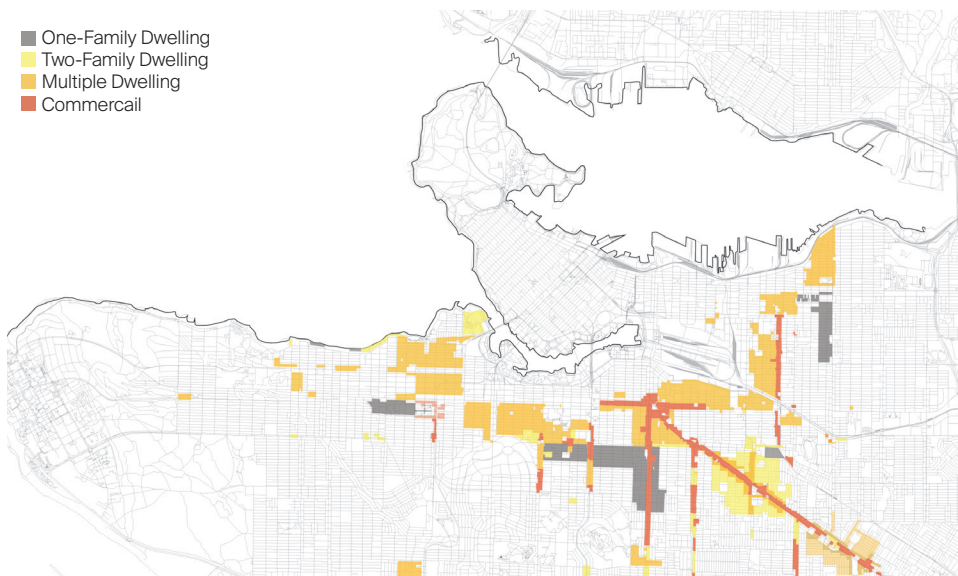


Fig. 28
 Rohrbacher, C. *Multi-Family Zoning*. January, 2018.
 Information gathered from City of Vancouver. "Zoning Map."

This project aims at focusing the density conversation on single family neighbourhoods that have large existing vacant sites in need of re-use. Sites such as soon-to-be vacant public school properties, vacant churches, or industrial buildings provide opportunity for a new typology of housing within the city. This type of site is something that is becoming more available in Vancouver, and should be taken advantage of.

The maps on the left have helped locate specific parameters for site consideration. The first map shows where millennials are living in Vancouver. This is helpful in understanding the movement of young individuals within the city. The majority of millennials either live downtown or along major transportation roads such as Broadway or Kingsway.

The second map showcases the density in types of units throughout Vancouver. This shows the lack of diversity of units throughout the city, giving even more reason to create more diverse types of neighbourhoods throughout Vancouver to provide people with opportunity to live anywhere in the city.

public school closures



Fig. 29
Rohrbacher, C. *Map of Potential VSB Sites*. April, 2018.
Information gathered from Goble, Deborah. "Vancouver School Closures".

In 2016, the Vancouver School Board created a list of potential school closures due to the combined need for seismic upgrades and lack of enrollment. This list was tabled until November 2018. As the province is paying for the renovations, they require a certain enrollment before they will renovate. This leaves two options: do nothing, and have the students enrolled in seismically unsound buildings, or pool the students together so certain schools can be upgraded to a safe learning environment. Neither of these options are optimal.⁴²

This problem introduces an interesting opportunity for new institutional frameworks to take place that could be mixed with other neighbourhood needs such as higher density housing. Of the 12 schools to be closed (from the 2016 list), 11 of these were on the east side and in single family neighbourhoods.⁴³ Most of them are situated on substantial amounts of land that could be more efficiently used.

42
43

Sherlock, Tracy. "Vancouver School Board's Space Problem Raises Possibility of School Closures Again."
Sherlock, Tracy.

gladstone secondary school



©

Fig. 30
Rohrbacher, C. *Gladstone Secondary School, Birds Eye View*. April, 2018. Image Captured from Google Maps

Gladstone Secondary School is a public school opened in 1950 and is located in the Kensington neighbourhood on the south-east side of Vancouver. It is centrally located amongst a single family neighbourhood, but many high-rise buildings along Kingsway can be seen from the site. The school provides open space amenities for the neighbourhood and the current building provides a library as well as community space.

The school itself is at 62% capacity and in need of seismic repair. At its highest point, it is a three storey building, but the majority of the school is at one storey. There is a grass sports field on one side and a gravel field on the other. As well, there are two sports fields within a five minute walk. There are many old trees on site which bring life to the site as well as visually conceal the skytrain line. At many points, the mountains create a scenic backdrop.

The site is well connected to the skytrain line, at a 5 minute walk to Nanaimo station. As well, it is in close proximity to buses along Kingsway, Victoria and Nanaimo street. There are many commercial amenities along Kingsway within a 5-10 minute walk.



Fig. 31-34
Rohrbacher, C. *Gladstone Secondary School Exterior Photos*. October, 2018.



Fig. 35-38
 Rohrbacher, C. *Gladstone Secondary School Context Photos*. October, 2018.

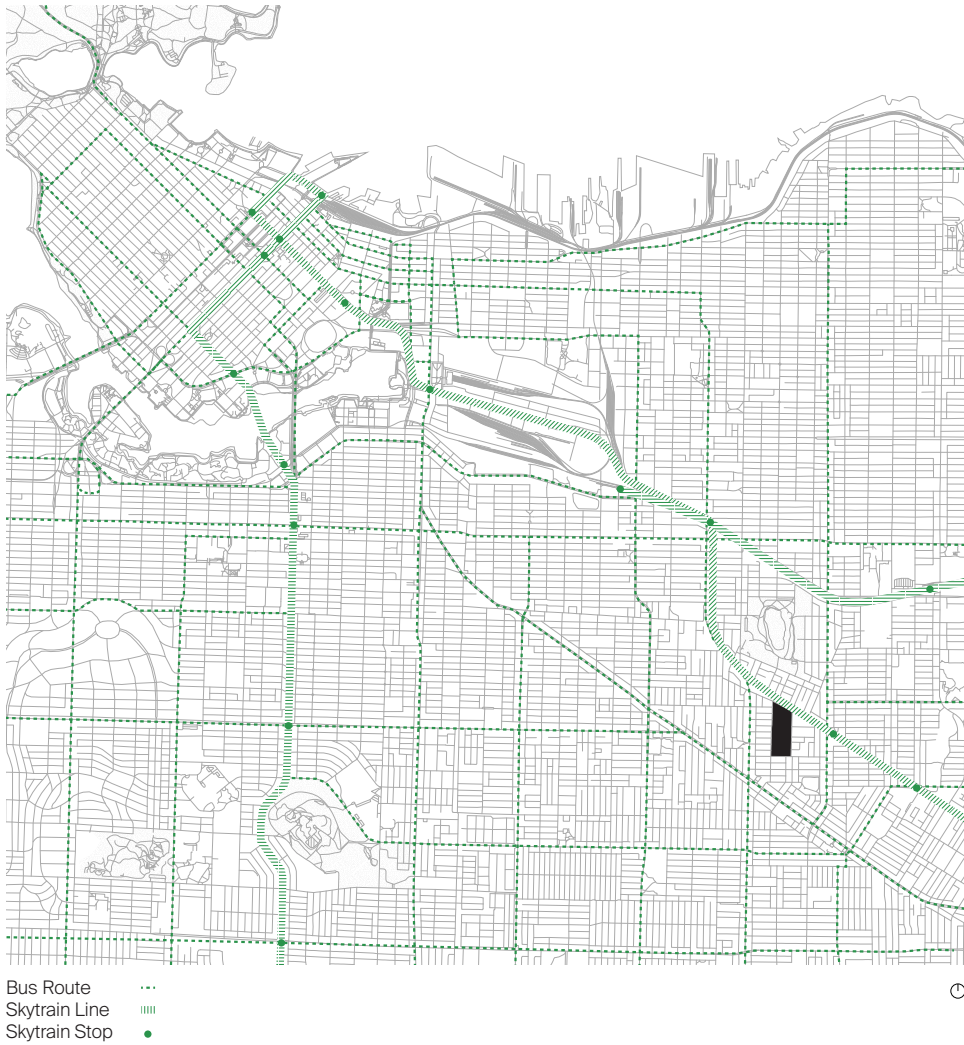


Fig. 39
 Rohrbacher, C. *Site Connectivity*. December, 2018.

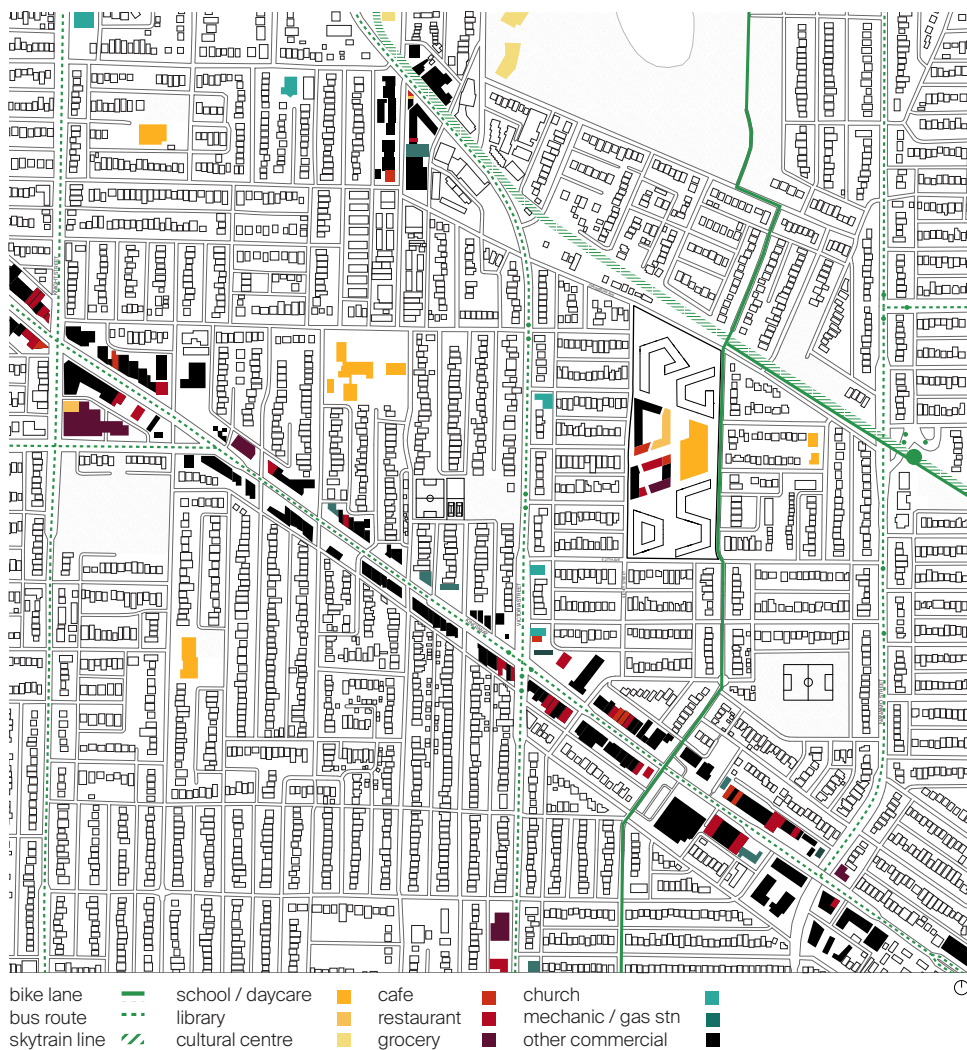


Fig. 40
 Rohrbacher, C. *Site Amenity*. December, 2018.

affordability

As discussed earlier, there is a general lack of affordable units in Vancouver. This project looks to bring this conversation to the forefront and to speak to affordability in unison to the design phase. Firstly, we must understand what is an affordable unit in Vancouver, and how can we design with that goal in mind.

GOAL

To provide affordable units based on 33%
of the median rental income of \$48,000 annually.

\$1,320/month

The study on page 68 shows multiple typologies tested on the site to start to understand how much site coverage, how many units, how tall the buildings need to be and what type of construction will be needed to reach this affordability goal.

This study revealed many other considerations; some typologies provide less units, but house more people than others. Specifically, the townhouse typology allows for more people to be housed per unit, under the same amount of incomes. As well, depending on the height of the building, more or less site will be covered, allowing you to provide more units or a greater amount of green space.

From this study I decided to focus the project on residential buildings ranging from 3-6 storeys. This will allow me to change the building type throughout to offer multiple unit types, as well as create open and active green spaces throughout.

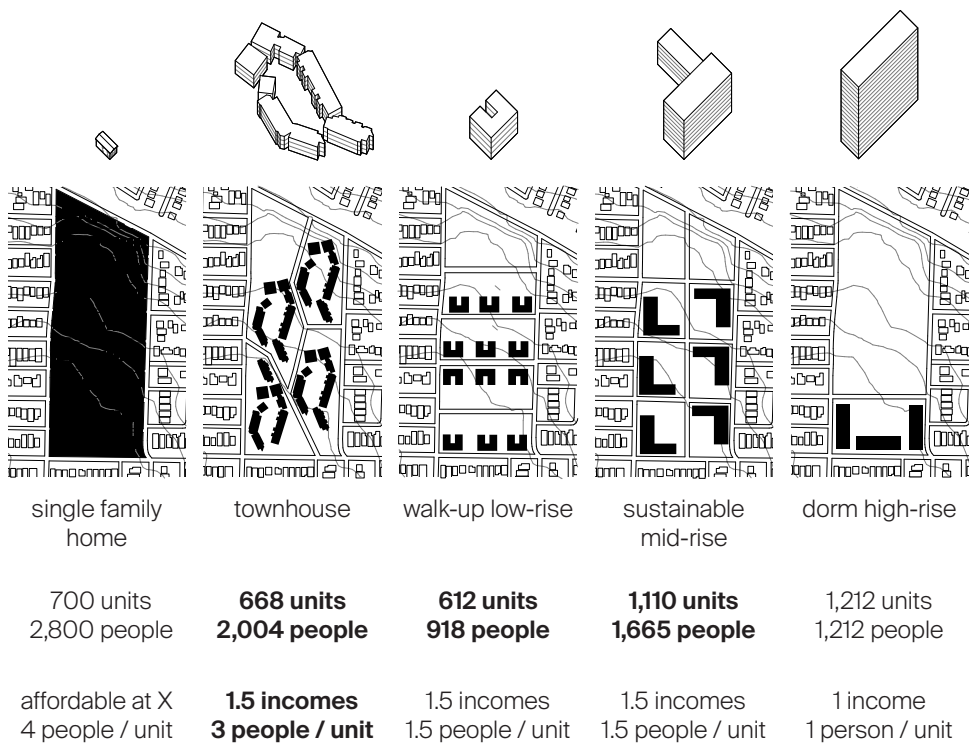


Fig. 41
 Rohrbacher, C. *Copied Vancouver Typologies*. December, 2018.
 Information Calculated from Altus 2018 Construction Guide.

prominent design principles - site

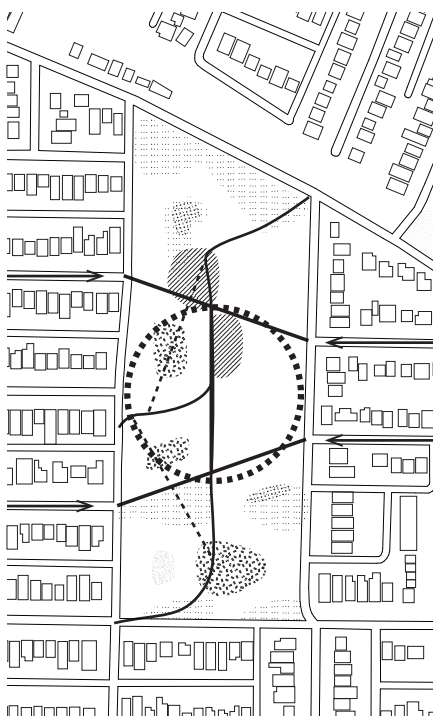
These design principles stemmed from the earlier principles. The scale ranges from community, building and unit. These site principles simplify the basic ideas of the site planning, starting from the connection from the existing streets.



Fig. 42
Rohrbacher, C. *Site Principles*. December, 2018.



multiple path systems



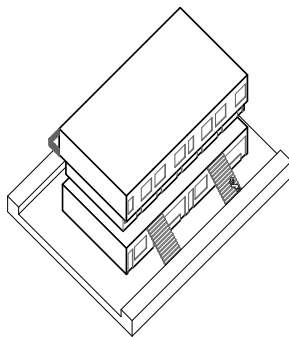
complex expandable web



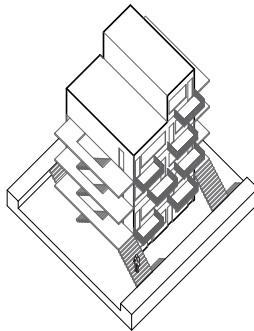
prominent design principles - building - unit

The building design principles focus on the way people connect with the built environment as a user or a member of the community. These principles are put in place to create different types of micro communities within each building typology, as well as consider how each building affects the people around them in regards to heights, widths, shadows etc.

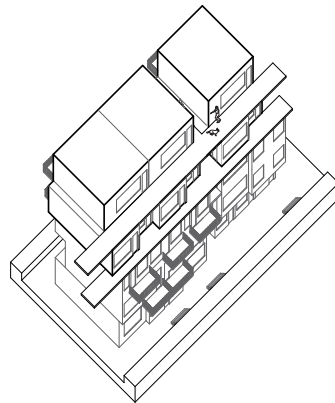
The unit principles for this project focus mainly on bringing in natural light and ventilation to create a better living atmosphere. This requires at least two exterior walls. As well, every unit should have their own private outdoor space, and access to communal and public outdoor spaces.



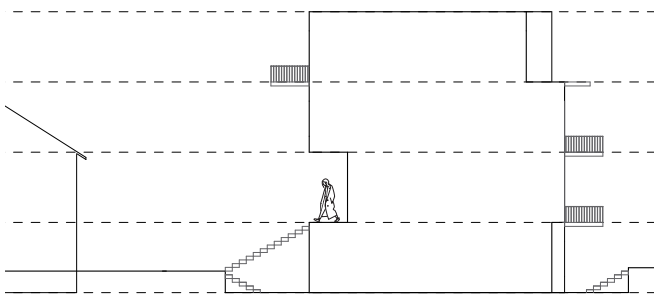
The Townhouse Typology



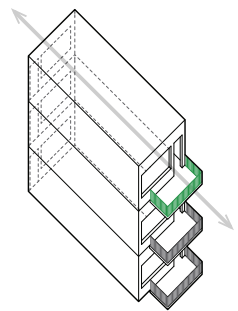
The Shared Stair Typology



The Density Typology



Typical Building Height



Two Exterior Walls/unit

Proposal

program

SITE		COMMERCIAL	
area	600,000sf	cafe / restaurant	12,540sf
RESIDENTIAL		grocery	5,000sf
unit count	707	other commercial	26,230sf
total unit area	532,000sf	PARKING	
FSR	1.33	bike	1 / unit (700 indoor spaces)
INSTITUTIONAL		vehicle	0.5 / unit (350 spaces)
school	120,000sf		
library	10,900sf		
shop / maker space	16,000sf		

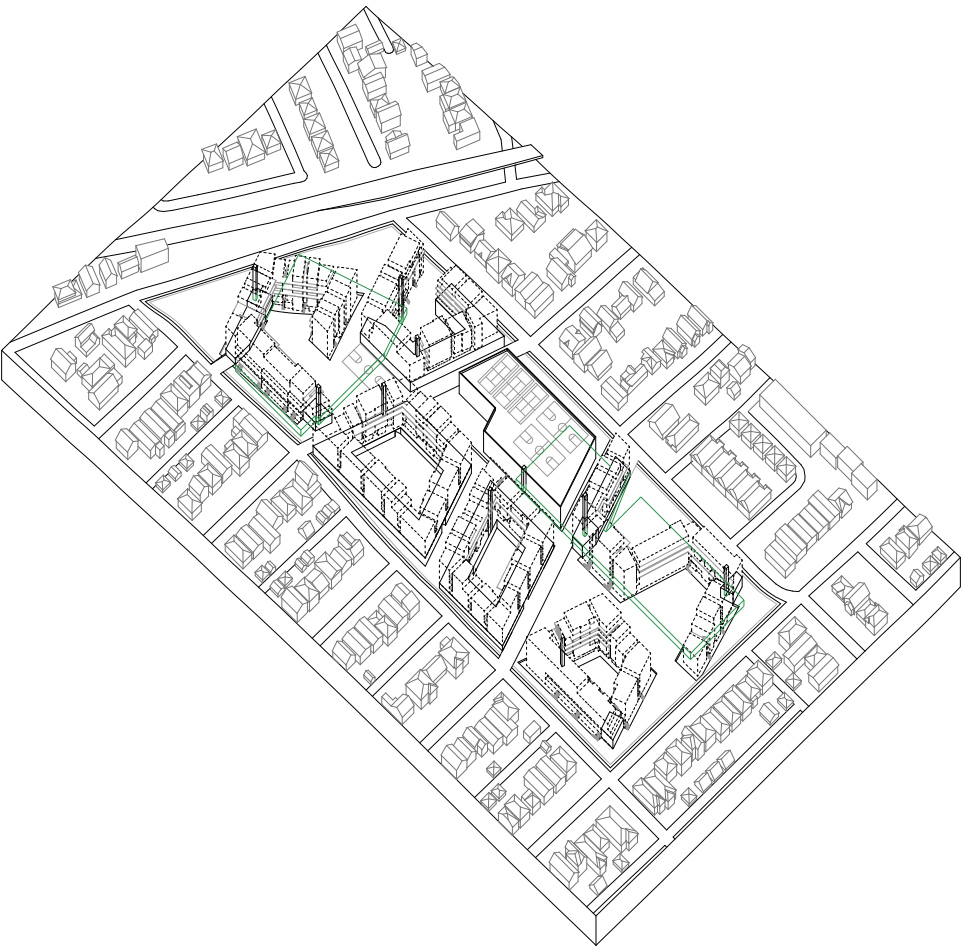


Fig. 44
Rohrbacher, C. *Program Diagram*. December, 2018. 75

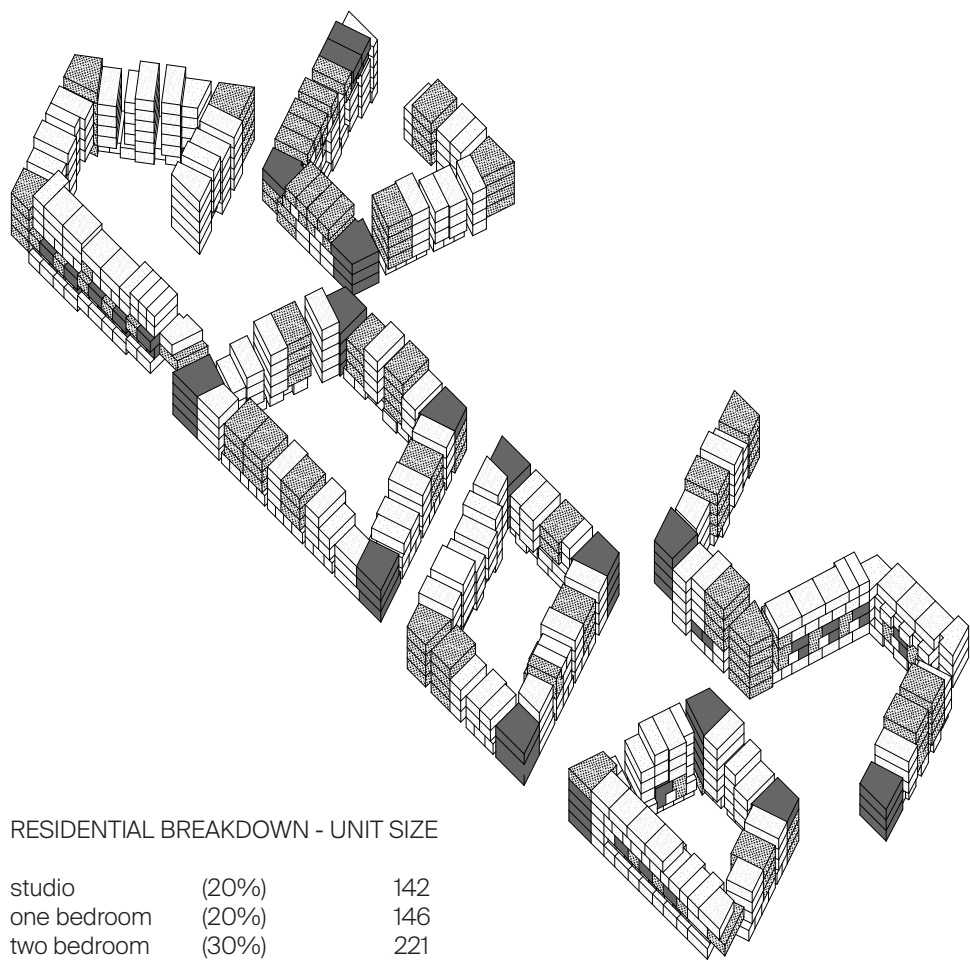
adjacencies

The school was the most important in regards to placement. It needed to be central and directly connected to all school related amenities. The library and shop are pulled out of the school to encourage shared spaces between the school and community. All commercial areas are adjacent to the street, creating easy access for all. The residential building typologies change based on adjacencies to single family homes and each other.



Fig. 45
 Rohrbacher, C. *Ground Floor Adjacency Diagram*. December, 2018.

unit mix



RESIDENTIAL BREAKDOWN - UNIT SIZE

studio	(20%)	142
one bedroom	(20%)	146
two bedroom	(30%)	221
three bedroom	(20%)	134
four bedroom	(10%)	64
total		707

RESIDENTIAL BREAKDOWN - UNIT OWNERSHIP

rented	55%
owned	35%
subsidized	15%

20% of rental and owned units set aside for teachers and first responders

Fig. 46
Rohrbacher, C. *Unit Mix Diagram*. December, 2018.

housing financial strategy

This project looks to create a new way to produce affordable units. This financial plan consists of a 99 year lease with the Vancouver School Board, the current owners of the land. This strategy requires that 20% of units be put aside for public school teachers and staff, as well as Vancouver's first responders. This strategy shifts the investment strategy onto the teachers, community and city, instead of the real estate.

99 Year Lease From VSB

700 Units / 532,000 SF

\$225/SF (high-end Altus Construction costs, 2018)

Parking 350 spaces at \$50,000 each

CONSTRUCTION COSTS: \$119,700,000

SOFT COSTS : \$23,940,000

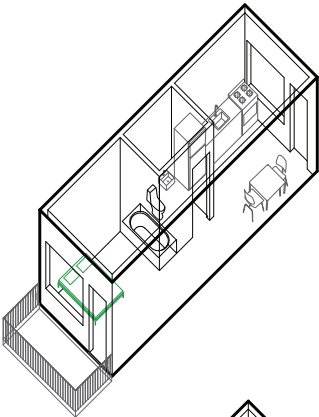
LAND COSTS: \$168,500,000

TOTAL: \$312,140,000

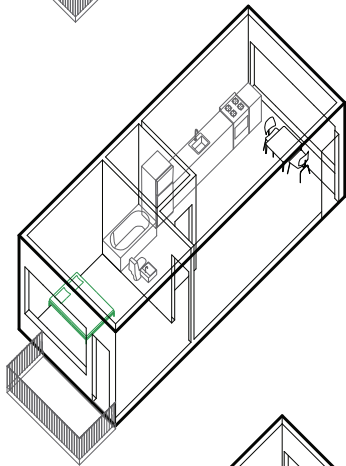
* Parking not included in affordability calculations

unit design

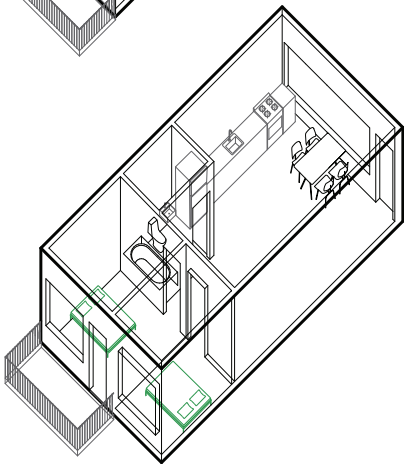
Each unit is a stand-alone unit. The affordable income percentage ranges from 26-40% of the median rental income, depending on unit type and the number of people contributing to rent/mortgage.



STUDIO
400SF
\$234,000
26% OF 1 INCOME

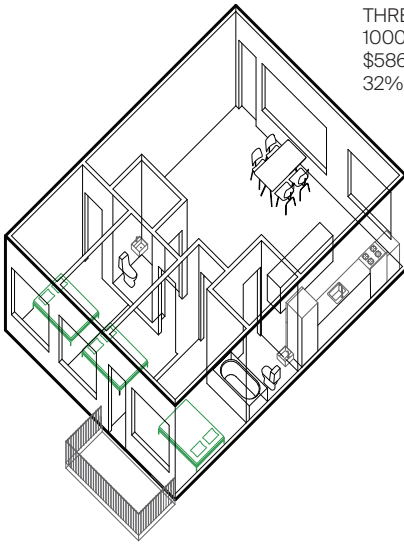


ONE BEDROOM
600SF
\$351,600
26% OF 1.5 INCOMES

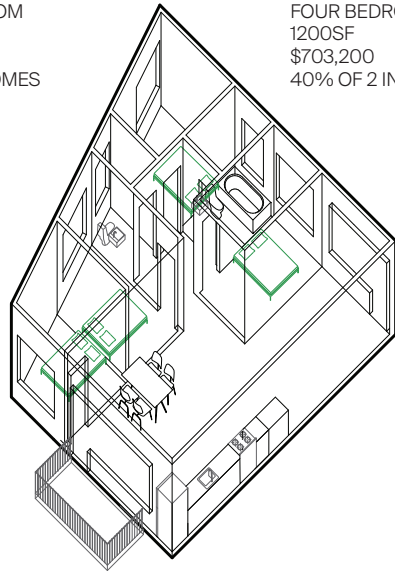


TWO BEDROOM
800SF
\$468,800
35% OF 1.5 INCOMES

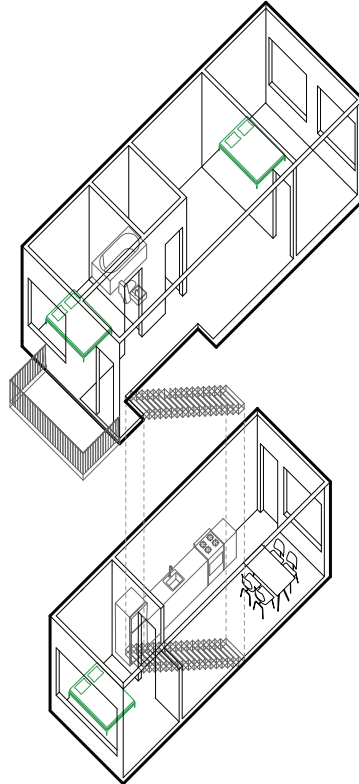
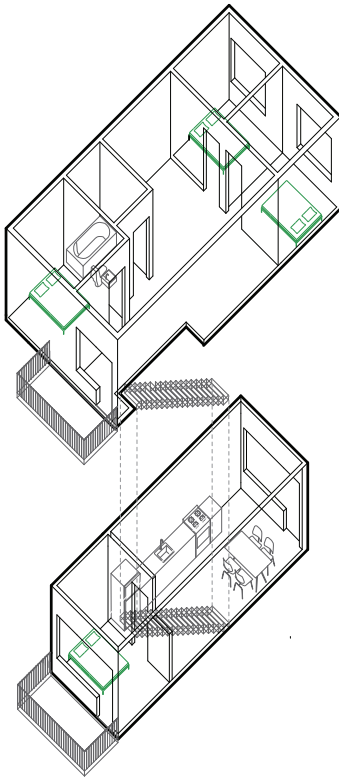
Fig. 47
Rohrbacher, C. *Unit design Diagram*. December, 2018.



THREE BEDROOM
1000SF
\$586,000
32% OF 2 INCOMES



FOUR BEDROOM
1200SF
\$703,200
40% OF 2 INCOMES



the edge condition

The edge condition connects with the street and single family neighbourhood. It creates connections to multiple paths throughout the site, opens and closes to invite people into the public spaces, and connects the residential units to the community while maintaining a semi-public threshold through height changes and landscape features.



Fig. 48
Rohrbacher, C. *Edge Condition, Oblique Detail*. December, 2018.



Fig. 49
Rohrbacher, C. *Edge Condition 2, Oblique Detail*. December, 2018.

multiple outdoor spaces

Each unit should have a private outdoor space. As well, each unit should have access to outdoor communal space and multiple types of public outdoor spaces. By placing the more public outdoor spaces on the perimeter of the site, such as a playground, you can invite people from the community. Wider stairs at the residential units promote interaction among people and the built environment.

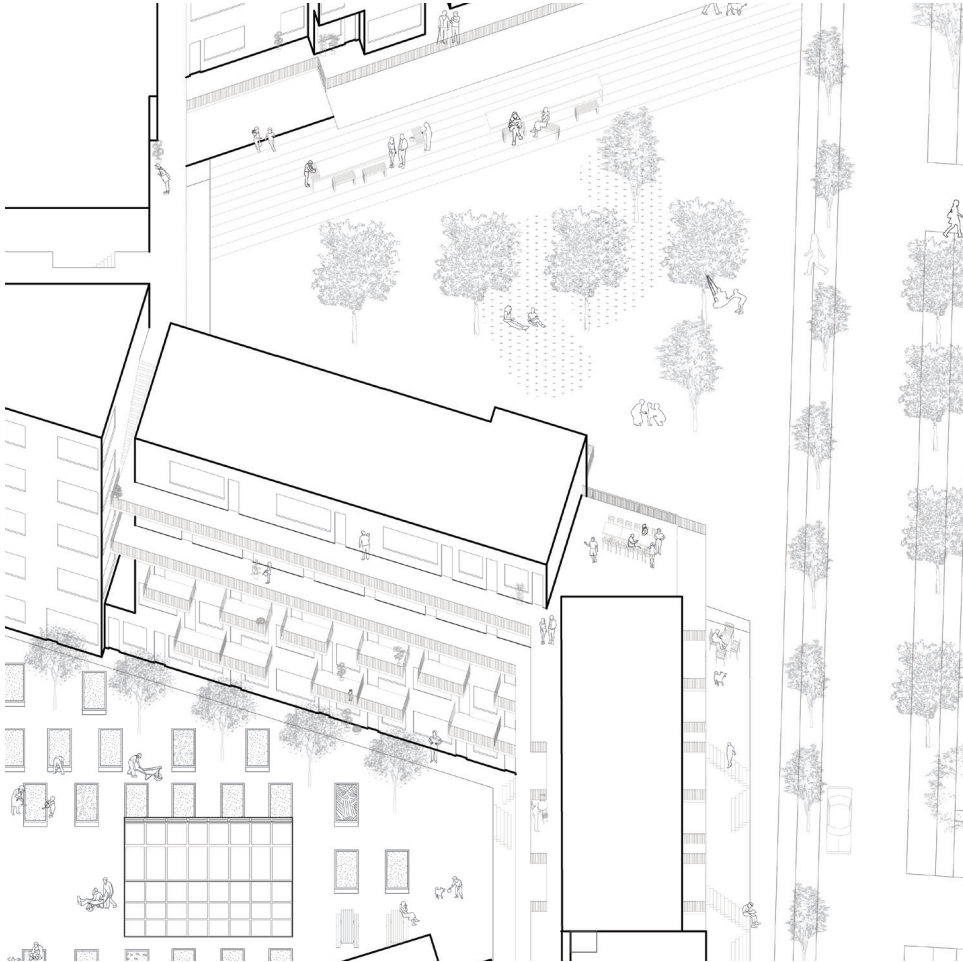


Fig. 50
Rohrbacher, C. *Outdoor Space, Oblique Detail*. December, 2018.

public spaces at the perimeter

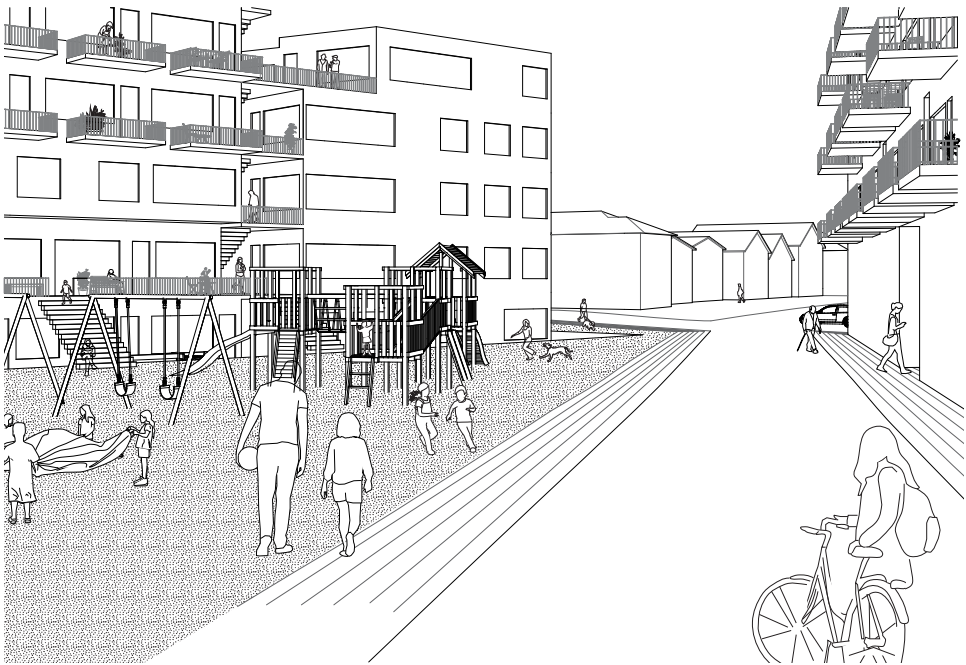


Fig. 51
Rohrbacher, C. *View at Playground*. December, 2018.

semi-public outdoor spaces

Each outdoor space is slightly different and caters to different types of activities and people. The semi-public spaces allow for the residents to cook, gather with small groups and use the green space however they choose. These spaces have tighter openings than other outdoor spaces to create the semi-public threshold.



Fig. 52
Rohrbacher, C. *Semi-Public Outdoor Space, Oblique Detail*. December, 2018.



Fig. 53
Rohrbacher, C. *Semi-Public Outdoor Space 2, Oblique Detail*. December, 2018.

commercial connections

The commercial units are centrally located on the ground floor. Public courtyards cut through the areas, allowing for quick access through the site, but also creating spaces where these commercial spaces can spill out and interact with the public, the inhabitants and the students. Specific types of commercial spaces, such as cafe's, should be placed on the corners to invite the public to use the space.

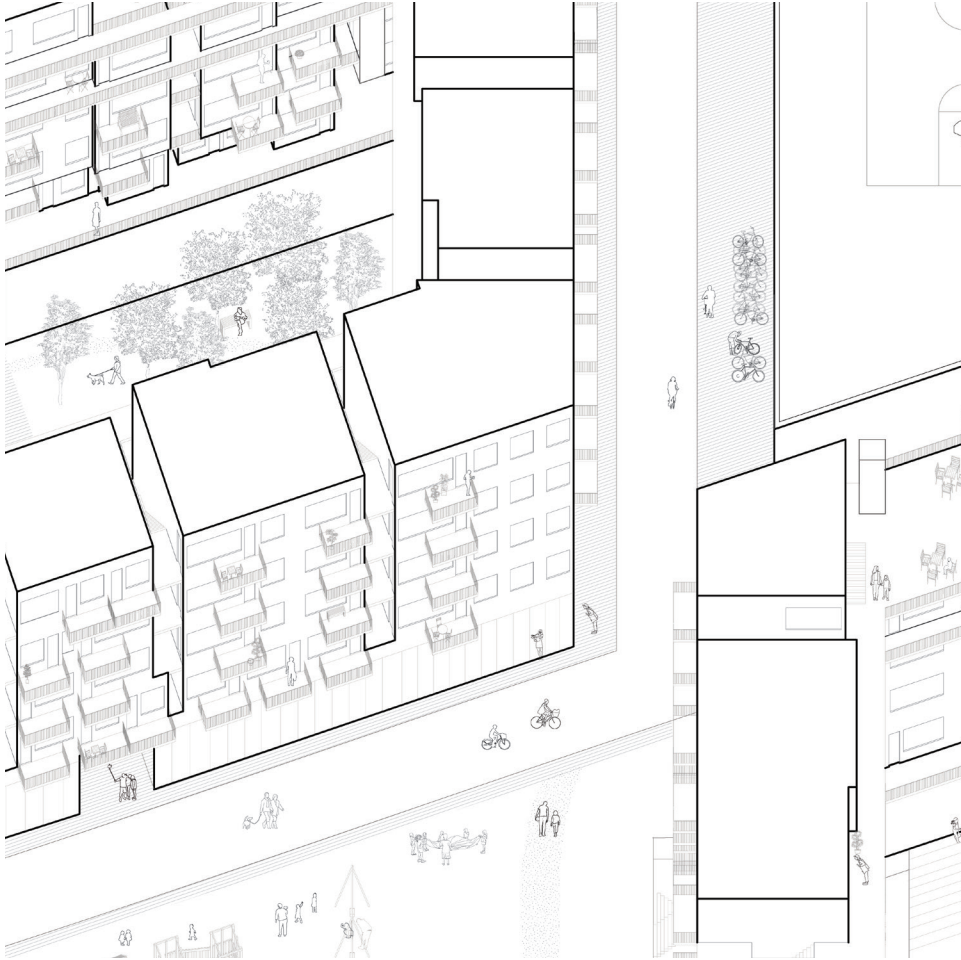


Fig. 54
Rohrbacher, C. *Commercial Connections, Oblique Detail*. December, 2018.

commercial invitation

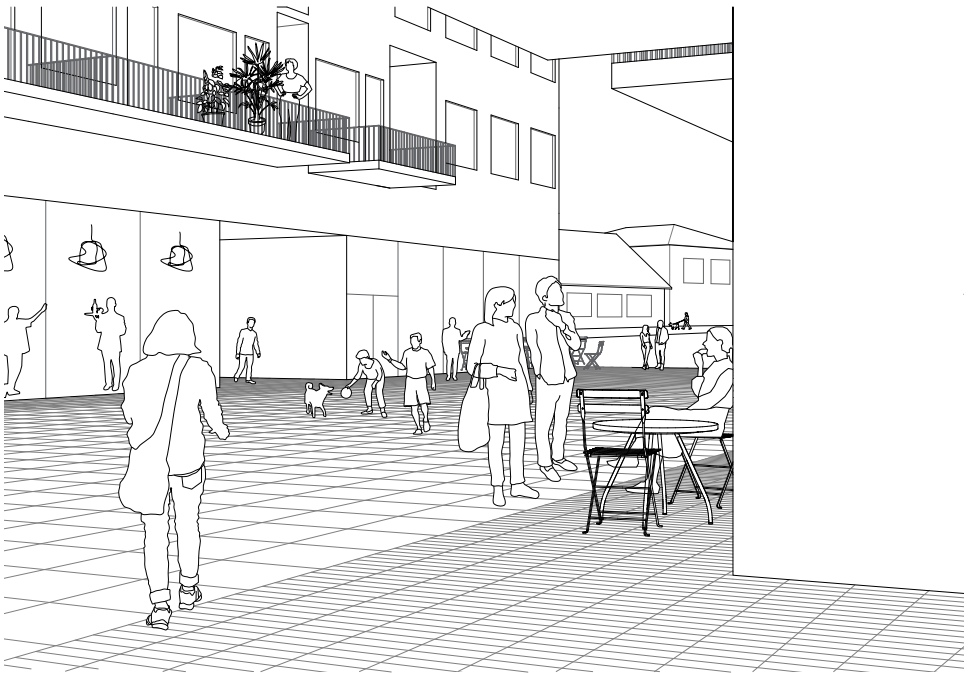


Fig. 55
Rohrbacher, C. *View at Commercial Strip*. December, 2018.

a meeting place

There is one large meeting place, centrally located, and at the end of the linear corridor. It provides space for passive, active and planned activities for all ages. It provides space for the school and residential program to expand. It also provides a space for markets, events, cinema and music festivals to take place. This space is visible from the linear corridor, from multiple buildings, and from the single family neighbourhood on both sides. It is the location where all paths meet and where everyone can gather at once.



Fig. 56
Rohrbacher, C. *Meeting Place, Oblique Detail*. December, 2018.

linear connections



Fig. 57
Rohrbacher, C. *View at Linear Corridor*. December, 2018.

DENSIFYING THE 80%

Overall, this project looks to create a system that provides modest densification to suit the existing neighbourhood, housing that allows for diversity, and focuses both on affordability and livability in unison.



Fig. 58
Rohrbacher, C. *Site Oblique*. December, 2018.

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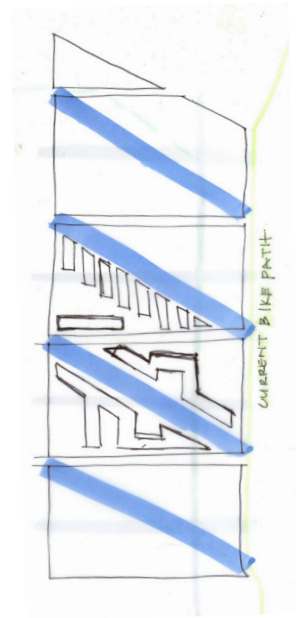
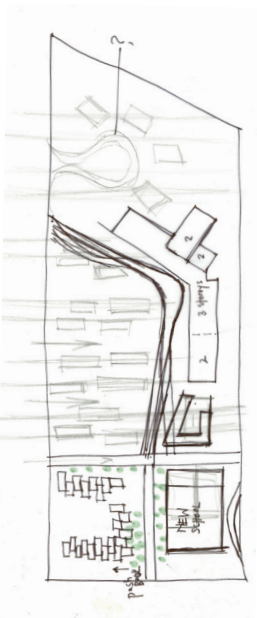
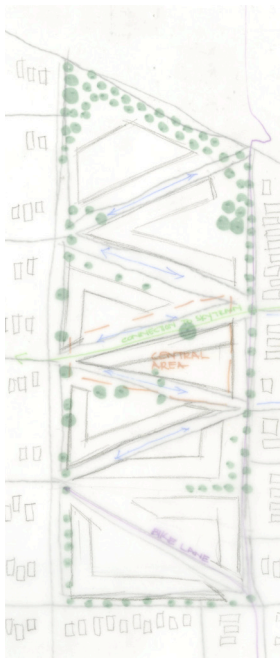
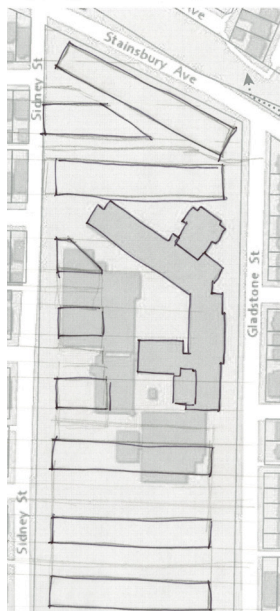
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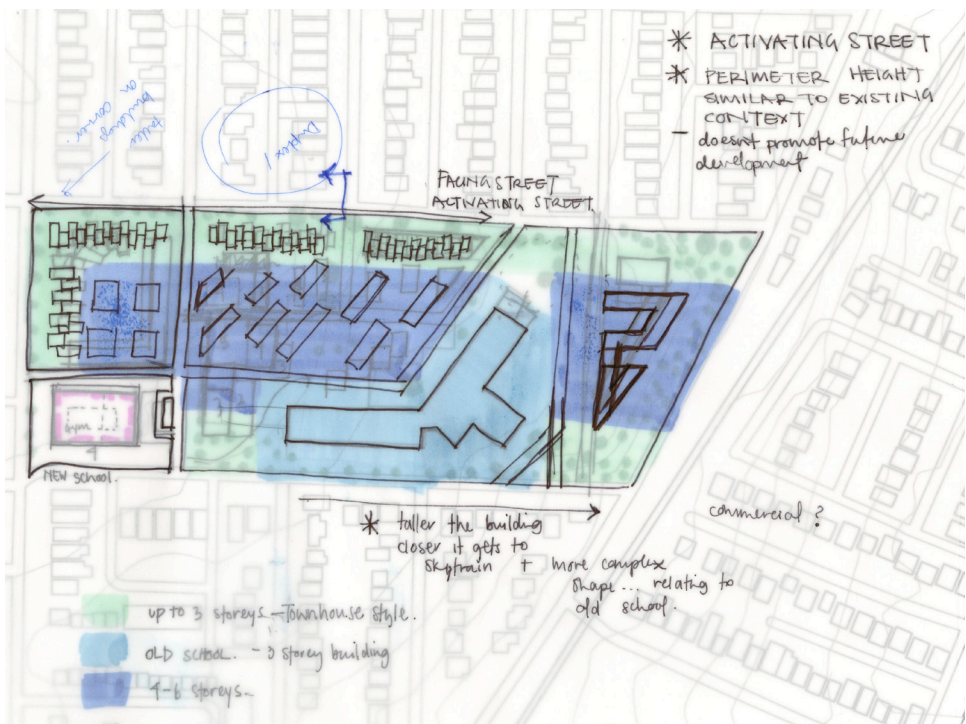
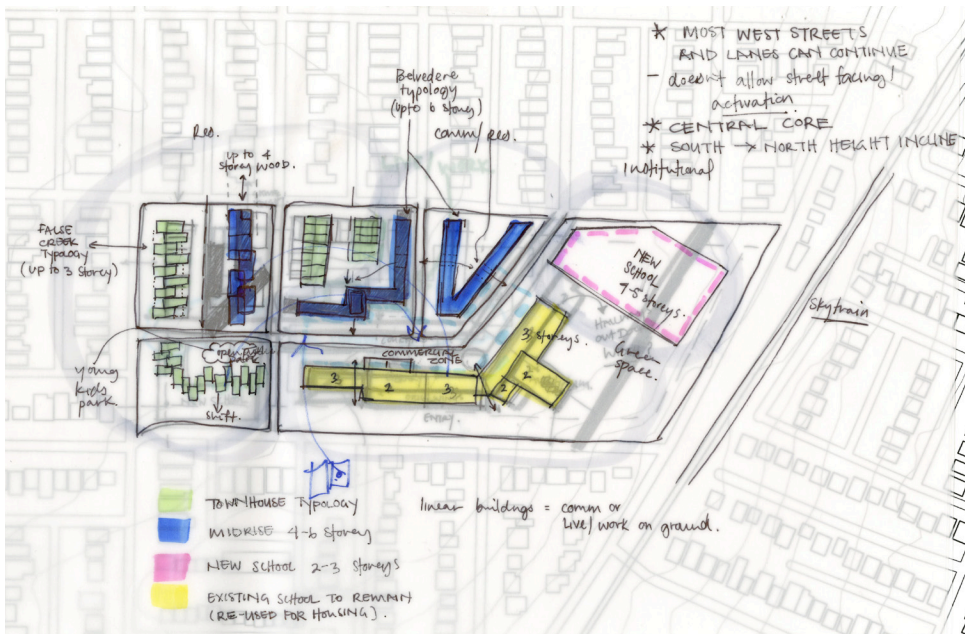
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Appendix A



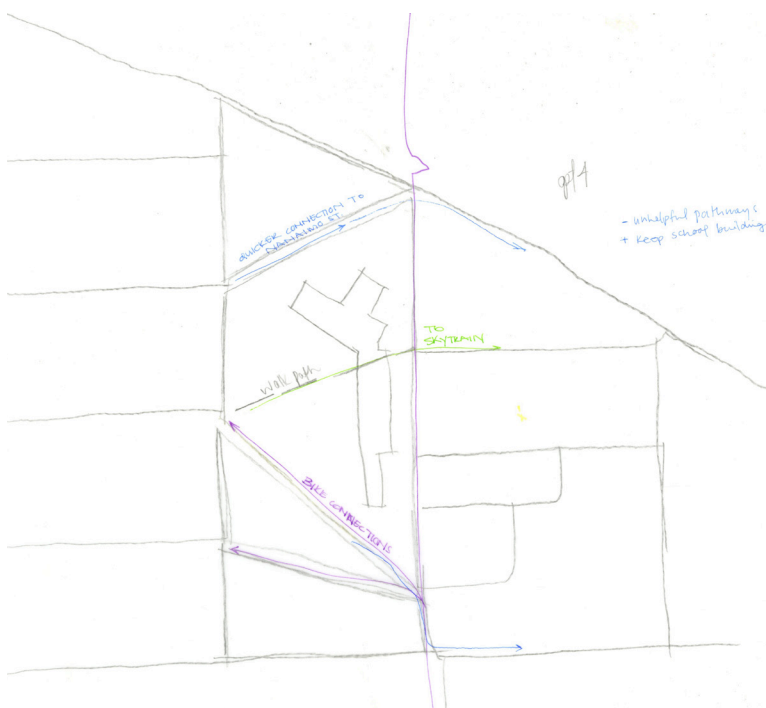
site planning



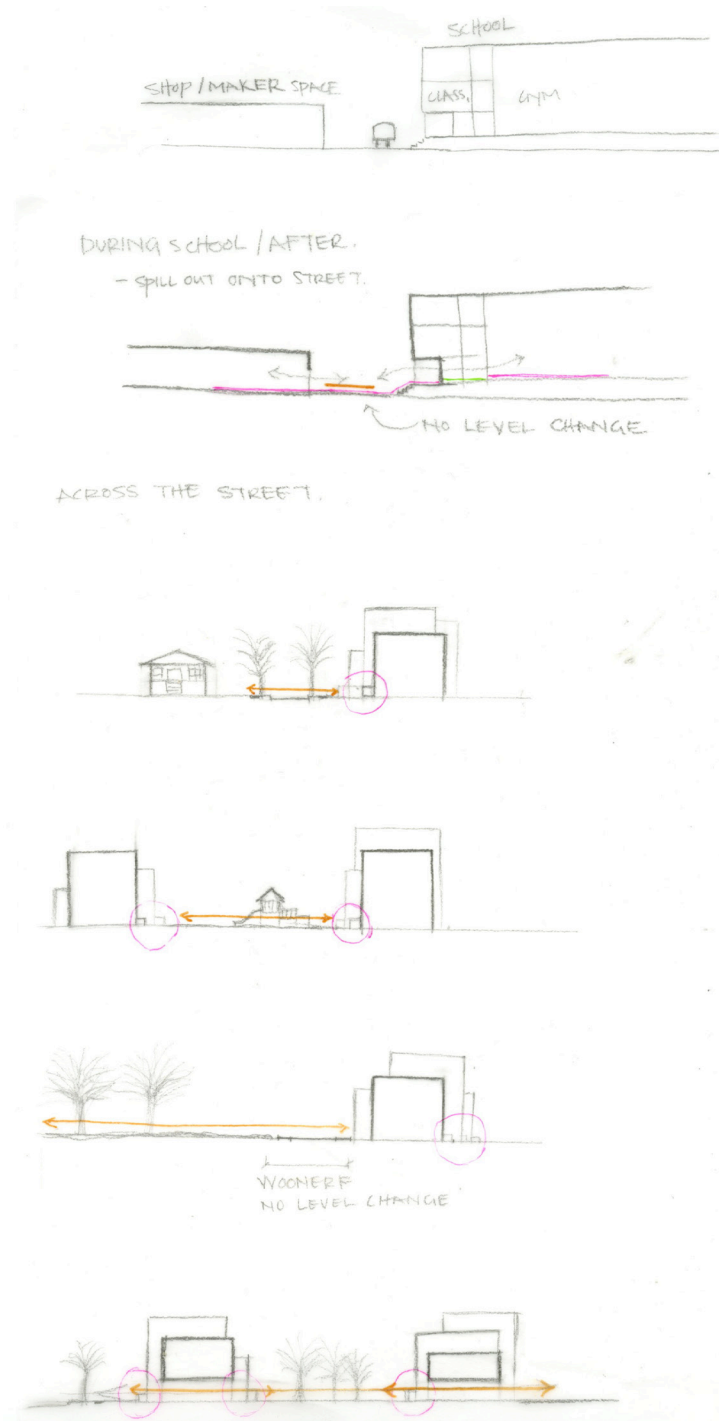


neighbourhood connections

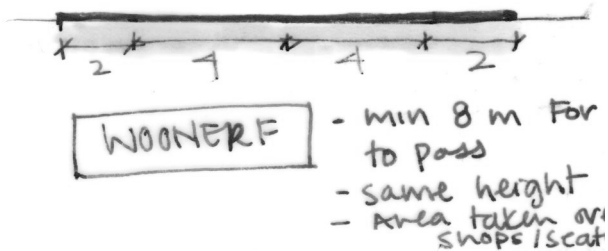
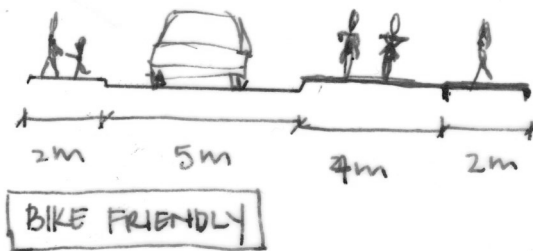
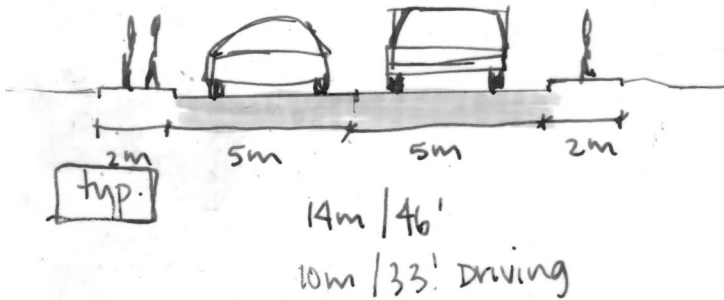




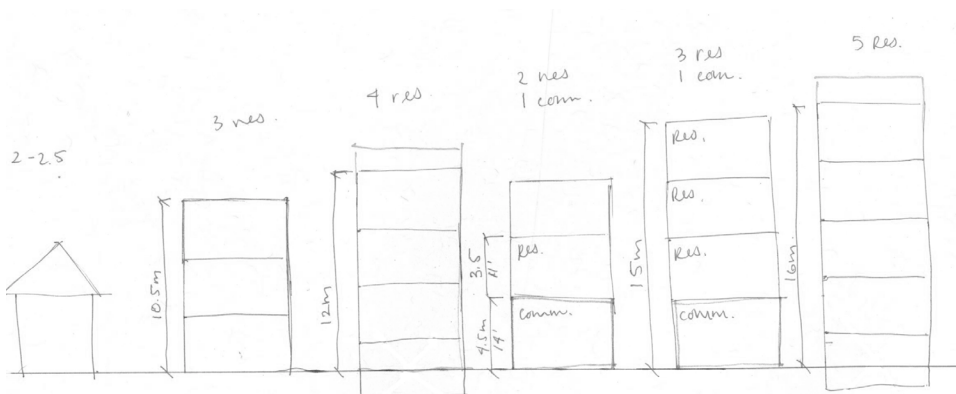
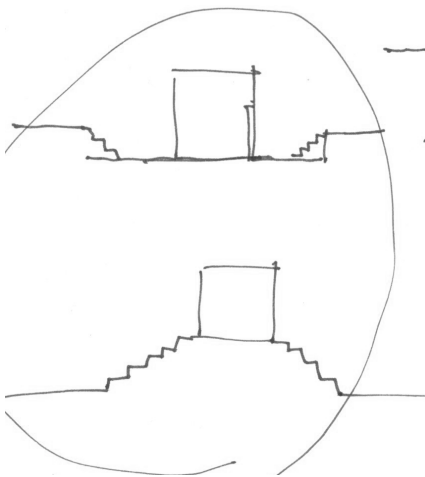
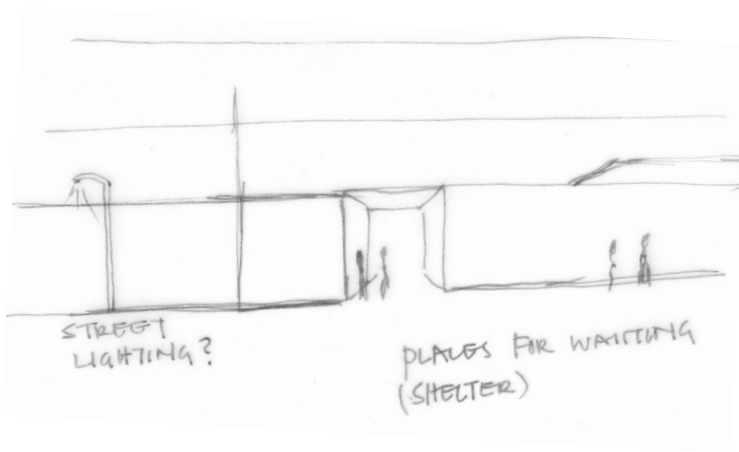
connections between buildings

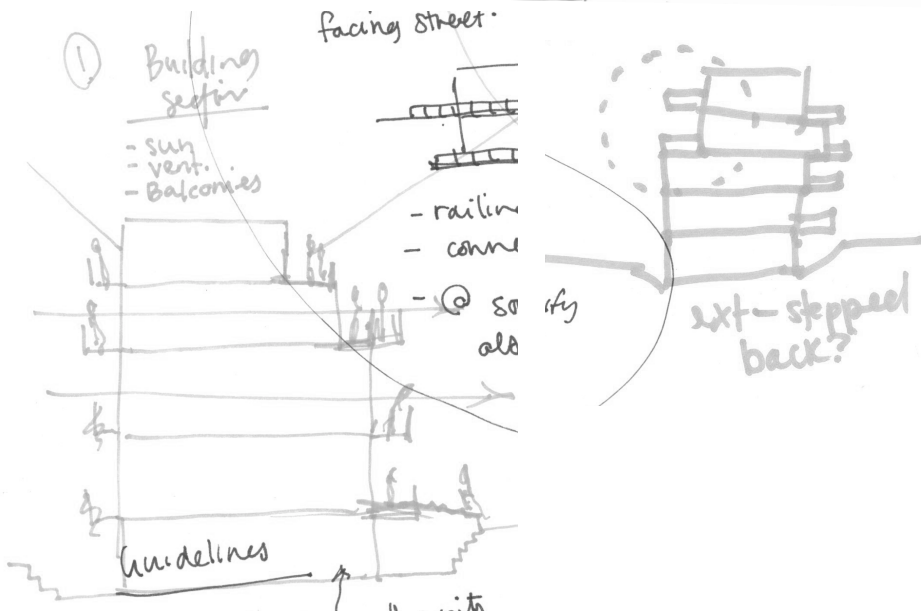
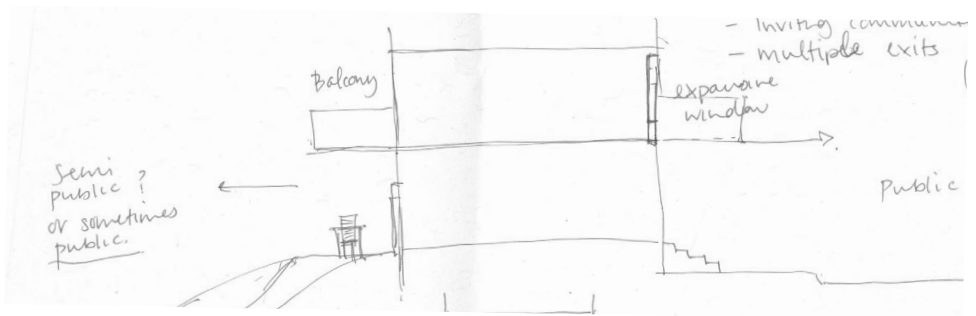


street types

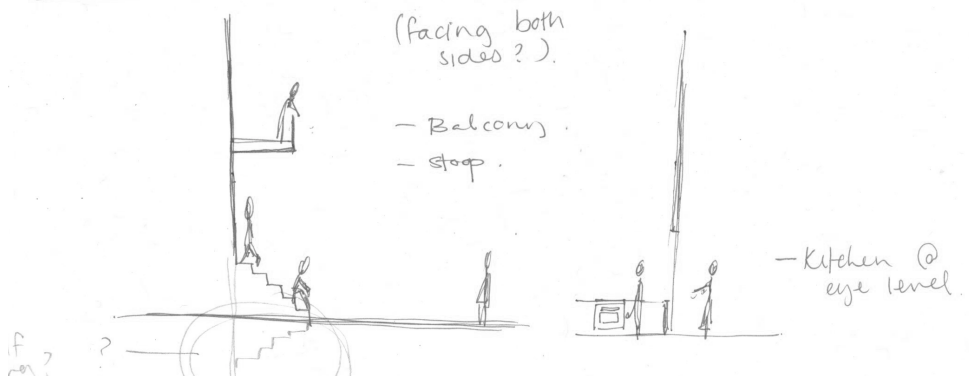


thresholds, transitions

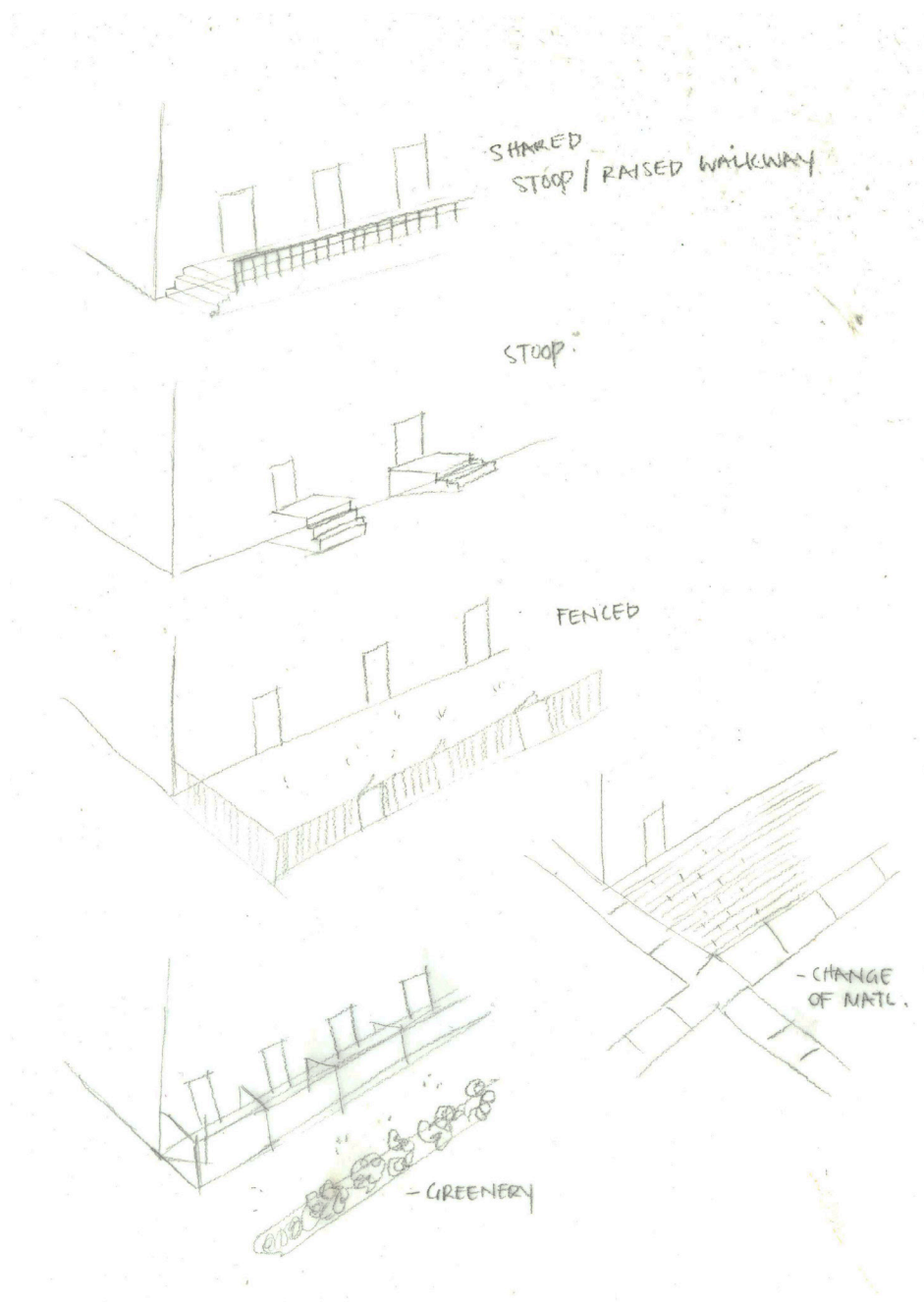




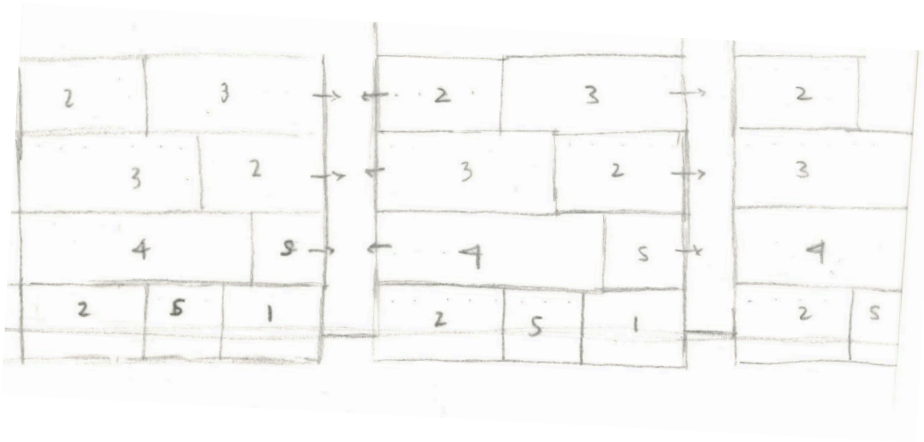
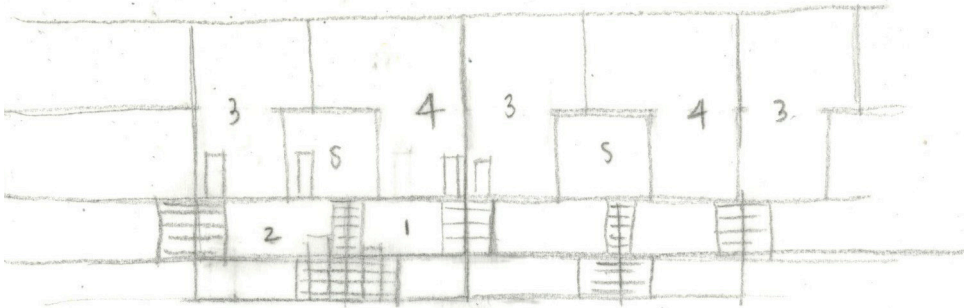
Design to Foster community connection.



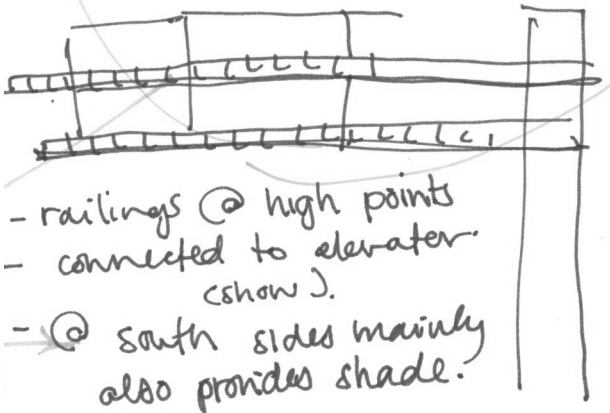
indoor / outdoor connection



building typologies

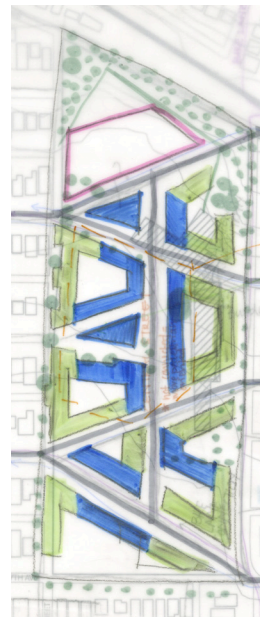
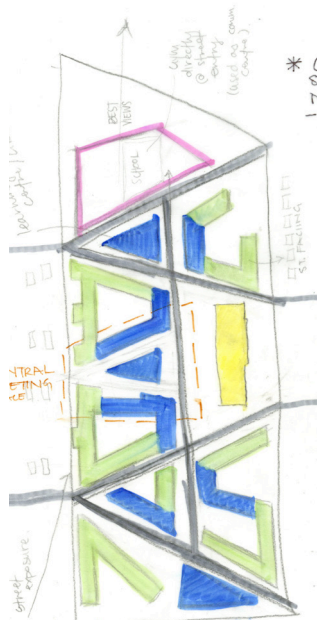
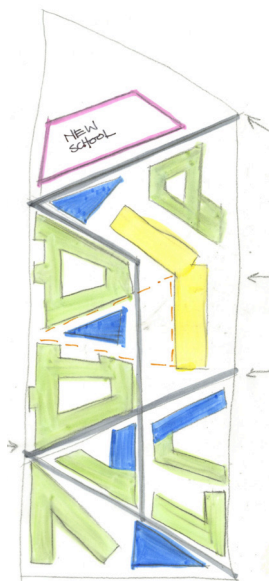
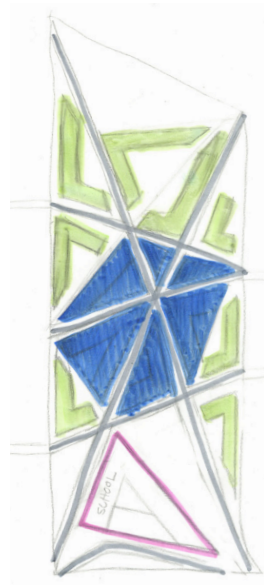
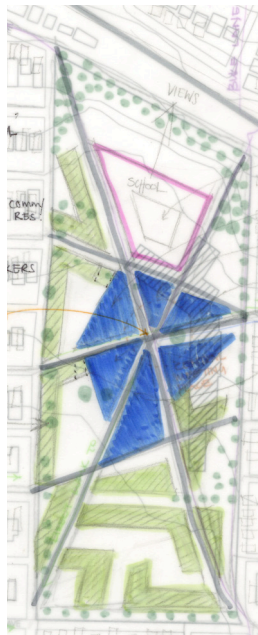


Street.



- railings @ high points
- connected to elevator (shown).
- @ south sides mainly also provides shade.

site planning cont.



- MIDRISE 4-6 Storey
- TOWNHOUSE 2-4 Storey
- EXISTING SCHOOL TO REMAIN 2-3
- NEW SECONDARY SCHOOL

Appendix B

housing in the urban context

work done as a self directed study in preparation for Graduation Project

Title: Housing In the Urban Context

Course Number: 545A

Completion: January, 2018

Housing has always been a relevant topic within architectural discourse, and ever more so as a higher amount of people are moving into dense urban areas than ever before. Urban areas are driven by the need to reserve resources, economy and space¹. They are also driven by the concentration of jobs, education, healthcare, transportation, and recreation². As seen through the examples below, this need to save resources must be combined with this concentration that brings people into the city. As well, there is an underlying desire that we are all drawn to, the single family home, that needs to be factored into urban housing design. For example, Atelier Kemp Thill works towards inserting the assets of a single family home and private yard into collective dwellings. This is seen in the Hiphouse by creating open flexible layouts and full height glazing to extend the unit as well as connect the resident to the natural surroundings. This then ties into the question of how large can a collective dwelling be without disconnecting the residents from the community around it. Jan Gehl argues that anything at the fifth story or lower, the resident is actually able to take part in the life of the city and feel connected to the community⁴.

This compilation of housing projects is diverse through the way each project establishes a sense of community connection and urban life. The intention of this book is to investigate current mid or low-rise housing developments within Europe's urban areas, and focus on cities that have been mindful in improving quality of life for their citizens. Each city has its own unique ways of dealing with urban density, and different needs and requirements that drive these methodologies. In this catalogue you will find urban housing examples from Paris, Amsterdam, Rotterdam, Berlin, and Vienna, with multiple examples from each. Each project looks into housing typologies, urban environment and quality of life. These examples differ from one another in a qualitative manor, in regards to size, shape, location, density etc. Through experiencing these projects, understanding the connection to the urban context, and comparing them to one another, qualitative ideas can be brought about to help understand what these architectural motives represent.

¹ Per, Aurora Fernández, Javier Mozas, and Javier Arpa. Density is home.

² Aravena, Alejandro, Andrés Iacobelli. Elemental Incremental Housing and Participatory Design Manual.

³ Kempe, Andre. Atelier Kempe Thill: Villa Urbane.

paris

Paris is currently going through a housing shortage of its own. The main problem is from the lack of land currently available. The goal created by the Paris Habitat Commissioner is to create 7,000 new units every year until 2020. These units will mostly be seen in the east side of Paris, where the majority of social housing projects currently exist, but the radical part of this plan is that some of these units will pop-up in the most wealthiest parts of town where space is free. As well, unused office buildings will be transformed into housing units. In any municipality in France with more than 3,500 inhabitants, 20% of its housing must be public. The current initiative is to prevent social segregation within cities, and level out the housing economy.

All information from: O'Sullivan, F. "Paris Declares War on 'Ghettos for the Rich'."



Rohrbacher, C. 17 Rue des Suisses. November, 2017.



Rohrbacher, C. 71 Rue de Meaux. November, 2017.



Rohrbacher, C. 7 R Boulevard Jourdan. November, 2017.



Rohrbacher, C. 45 Rue de l'Ourcq. November, 2017.



Rohrbacher, C. 7 R Boulevard Jourdan. November, 2017.



Rohrbacher, C. 7 P Boulevard Jourdan. November, 2017.

149 rue des suisses apartment buildings



Rohrbacher, C. 149 Rue des Suisses, View From Street. November, 2017.



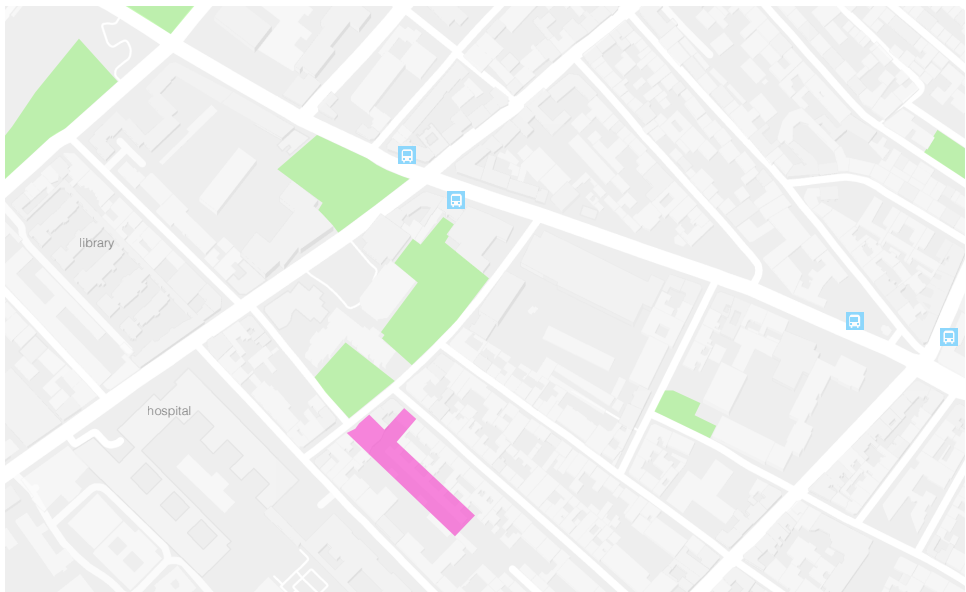
149 Rue des Suisses, Inside Courtyard. Accessed: <http://www.archidiap.com/opera/complesso-residenziale-in-rue-des-suisses/>

Area: 2,734 sqm, Units: 57 apartments
Building Dimensions: Height 37m, 7 Stories
Year Completed: 2000
Typologies: Housing Block, Three-story courtyard building Single-family homes
Exterior/Communal Space: Private courtyard between buildings, Park across the street
Architect: Herzog & de Meuron

Pros: Visually interesting facade, adjustable by user. Project incorporates three housing typologies creating a rich mixture of users. Fits within existing grid. Benefits from existing neighbourhood development: Transit, parks, green space.

Cons: Not inviting to the public, no public/private gradient. Does not interact or connect to existing housing grid. Does not bring anything new to the neighbourhood.

All Information From: "149 Rue des Suisses Apartment Buildings." Herzog & de Meuron.



amsterdam

In Amsterdam the housing market has been taken over by an overwhelming demand, where supply cannot keep up. Housing prices are increasing 5-10% annually, and this is increasing the gap between people who can afford to buy and who rent². This is creating a middle ground between people who qualify for the public housing permit and people who don't³. Anyone earning less than €36,000 annually qualifies for apartments costing €710 or less per month³. This type of housing makes up for almost half of Amsterdam's rental market³. As well, many public rental buildings are quite old and often get demolished or sold once they become vacant, creating an increasing need for rental units². The market has recently been leaning towards smaller apartments in nicer areas, where the rent can just pass the permit price; and as of 2015, Amsterdam has been building over 8,000 new units which will rent for less than €1,000/month³. "The rental market must be restored to a proper alternative for young people who can't afford to buy yet"¹.

¹ Pieters, Janene . "Netherlands faces increasing risk of housing market bubble: Rabobank." NL Times.

² Moran, Tracy. "Netherlands Is One of the Worst Places to Live In. Here's Why." OZY.

³ O'Sullivan, Feargus. "Smaller, More Expensive Apartments Are What Amsterdam Needs, Says the Dutch Government." CityLab.



Rohrbacher, C. Silodam 402. November, 2017.



Rohrbacher, C. Dirk Vreekenstraat 89. November, 2017.



Rohrbacher, C. Reimerswaalstraat 1-A-1 to 1-M-10 & Ookmeerweg. November, 2017.



Rohrbacher, C. Hazenstraat 58. December, 2017.



Rohrbacher, C. Bertrand Russellstraat 19-11. October, 2017.



Rohrbacher, C. Funenpark, Linear Block. November, 2017.

funenpark



Rohrbacher, C. Funen, Entry From the South. November, 2017.



Rohrbacher, C. Funen, Path Looking West. November, 2017.

Area: 4ha

Building Dimensions: 2-6 stories

Year Completed: 2011

Typologies: Housing Block, Linear Block, Courtyard Block

Exterior/Communal Space: Open courtyard shared with 16 residential buildings and one mixed-use building (all designed by different architects), underground parking.

Architect: De Architecten Cie. (Master-planning, Linear Block)

Pros: Large community presence, multiple typologies with multiple building layouts and identities to attract diversity. Simple public courtyard (low maintenance) connected to other neighbourhoods through pathways, opportunity for multiple commercial units within linear block.

Cons: Diversity between housing blocks could be more organic (low income is currently just in the linear block around the park).

All Information From: "Funenpark." Landezine.



rotterdam - the hague

Like Amsterdam, Rotterdam and The Hague also provide social housing units for people who earn less than €36,000 annually². But, unlike Amsterdam, there are already many social housing units within these two cities. Rotterdam is the poorest city in the Randstad. It has a large amount of social housing units, although there still is a wait-list. The new city strategy however, is to appeal to the middle and high class groups to boost economy and job creating. Rotterdam has recently been labeled as “Europe’s new cool Capital”, so there has been high pressure to re-introduce the city. Because of this, many social housing units are to be demolished to make room for middle and high class units. On one side this allows communities to diversity, but it also pushes the lower class out of the more prestigious neighbourhoods¹. As for The Hague, the city plans to build more homes for the middle class, as well as more subsidized housing, with 30% of new housing to be subsidized³. The emphasis is being put on compact urban strategies, that aim for a diverse social-economic mix in each residential neighbourhood³.

¹ Renders, Ashley. “Critics Keep Pressure on Rotterdam’s Affordable Housing Teardown Plan.” Next City.

² O’Sullivan, Feargus. “Smaller, More Expensive Apartments Are What Amsterdam Needs, Says the Dutch Government.” CityLab.

³ “More social housing and sustainable homes in The Hague.” The Hague Online.



Rohrbacher, C. Justus van Effenstraat, Rotterdam. September, 2018.



Rohrbacher, C. Parklaan 24, Rotterdam. September, 2018.



Rohrbacher, C. Waraarslaan 1, The Hague. August, 2018.



Rohrbacher, C. Parallelweg 112, The Hague. August, 2018.



Rohrbacher, C. Van der Woudendijk 8, The Hague. August, 2018.



Rohrbacher, C. Grotekerklein, Rotterdam. September, 2018.

justus van effen block



Rohrbacher, C. Justus Van Effen Block. September, 2018.



Rohrbacher, C. Justus Van Effen Block, Courtyard Patios. September, 2018.

Area: 12,500 sqm (147 x 85m, one full block)

Building Dimensions: 3 Stories

Year Completed: 1922 (Renovated in 1984 & 2012)

Units: 273

Typologies: Perimeter Block

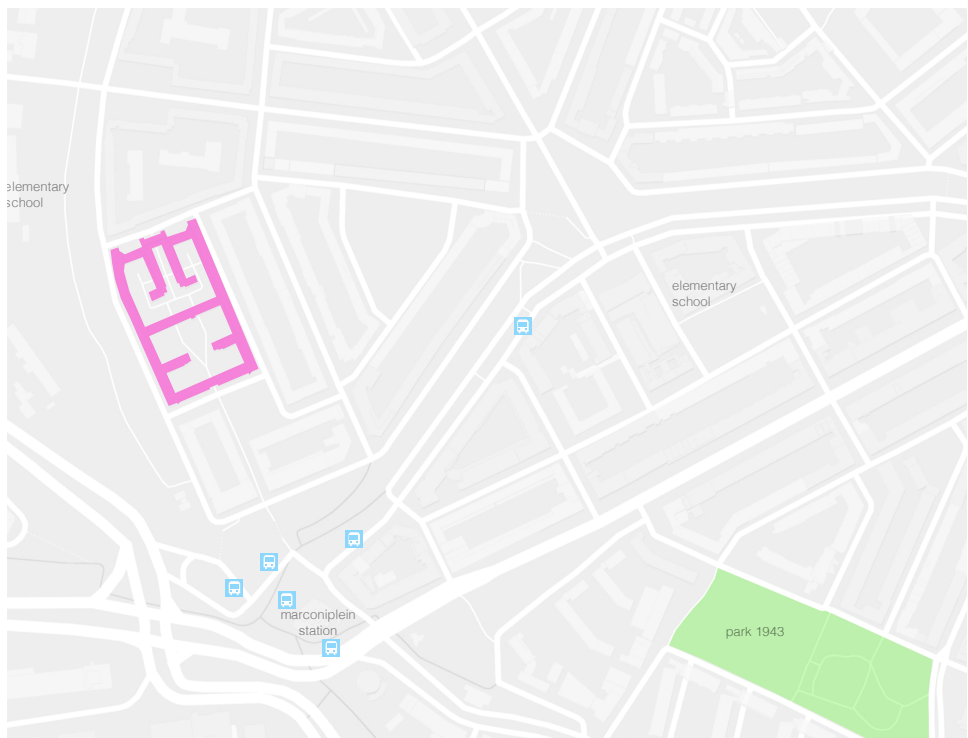
Exterior/Communal Space: Public street through courtyard, balconies, access pathway at third floor.

Architect: Michiel Brinkman

Pros: Open courtyard allows for public/tenant interaction, and opportunity for each unit to have their own outdoor space. 3, 4 and 5 bedroom dwelling units to accommodate families. Each unit has at least dual facing glazing. Most entries are off courtyard, creating a safe and communal atmosphere.

Cons: Community could benefit from having smaller units to promote diversity. Lacking in amenities and greater neighbourhood connection.

All Information From: "Housing Justus van Effen Block, Michiel Brinkman, Rotterdam." Architecture Guide NL.



berlin

Currently in Berlin, rental tenants make up for 85% of the population¹. Of all German cities, Berlin is one of the poorest, which has usually equated to lower rental prices overall. With the increasing interest in Berlin over the last decade however, this inequality between low-income renters and newcomers who can afford to pay more for in rent is growing at a fast rate¹. The city of Berlin is trying to keep up with the housing shortage; with on average 40,000 people moving to the city every year and many refugees relocating here as well, the housing crisis is getting greater². Berlin plans to increase the number of affordable housing from 80,000 to 400,000 by 2026. They plan to purchase 26,600 apartments and build 53,400 apartments, with 30% of the newly built apartments for low-income families². The City of Berlin wants their city to remain a place where average earners and low-income families can afford to live². On top of the increase in city-owned housing, the city has reinforced rent controls, stopped luxury renovations that spike rental prices, and banned Airbnb².

¹ O'Sullivan, Feargus. "Can Berlin Buy Its Way Out of a Housing Crisis?" CityLab.

² Chazan, Guy. "Financial Times Germany: Berlin's war on gentrification." Financial Times.



Rohrbacher, C. Neue Schönhauser Str. 19. October, 2017.



Rohrbacher, C. Stargarder Str. 52. October, 2017.



Rohrbacher, C. Lychener Str. 50 . October, 2017.



Rohrbacher, C. Oranienburger Str. 90. October, 2017.



Rohrbacher, C. Charlottenstraße 16. October, 2017.



Rohrbacher, C. Zelterstraße 5-11. October, 2017.

zelterstraße 5-11



Menges, S. Ze05, Courtyard 2. Accessed: <http://www.zanderroth.de/de/projekte/ze05/260>



Menges, S. Ze05, Street View. Accessed: <http://www.zanderroth.de/de/projekte/ze05/260>

Area: 9,100 sqm

Building Dimensions: 4-7 Stories

Year Completed: 2010

Units: 45

Typologies: Linear Blocks (townhouses with storefronts and single facing block) Flanking Courtyard, Infill

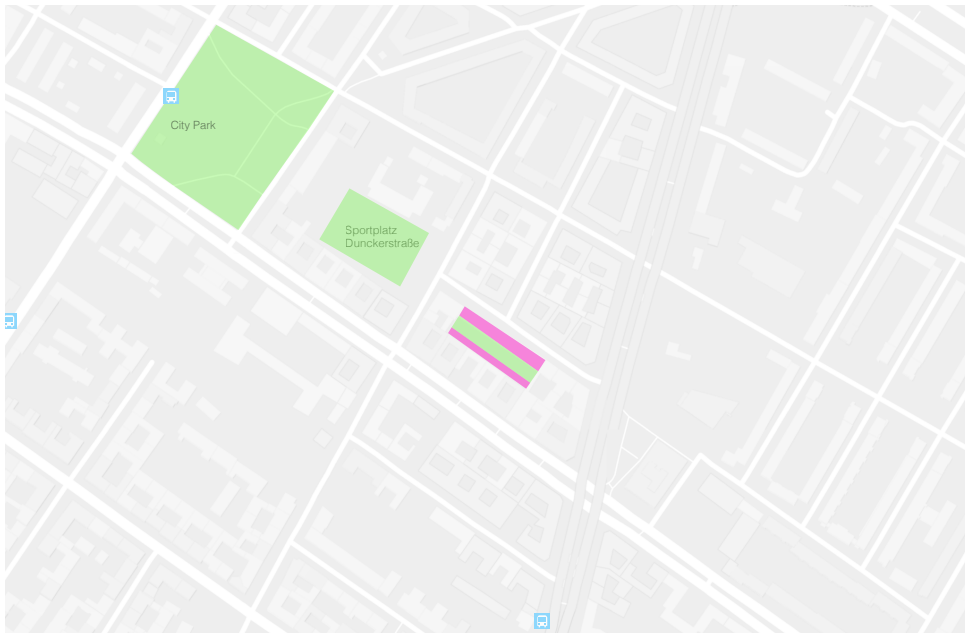
Exterior/Communal Space: Courtyard for residents, private balconies and terraces, communal cooking facilities, sauna and four guest houses.

Architect: Zander Roth Architekten

Pros: Three types of units: townhouses, single facing garden units and penthouse units with extensive views. The communal garden is raised to allow for more light, and to house parking underneath. Project was led by its 72 inhabitants, allowing for lower prices and a community/privacy balance. Fits within city grid.

Cons: No public access, building facade is lacking in identity of the community it houses.

All Information From: Zanderrotharchitekten gmbh. "Ze05 BiGyard - construction group project."



Rohrbacher, C. Zelterstraße 05, Urban Context. January, 2018.

vienna

Vienna is one of the highest ranked cities in regards to quality of life, and it has something to do with the social housing plan the city has been implementing since the 1920's. 62% of all households in Vienna live in subsidized housing. The city itself owns 25% of the housing stock with 220,000 rental units, and about 200,000 affordable units are owned by limited profit housing associations¹. Because the City of Vienna has resisted the privatization of their housing, they have been able to influence it in many ways. Their way of keeping the housing market competitive is through "Developer Competitions". All social housing projects must be shown to a jury and judged on four categories: planning, costs, ecology and social sustainability¹. This pushes designers and developers to continually learn from existing projects and look for new ideas within the social housing sector. With Vienna's demographic changing, more young and old people are living in this city. This has put a spotlight on identity and social connection within the social housing realm.

All Information From: Förster, Wolfgang, and William Menking. Das Wiener Modell: the Vienna Model. Berlin: Jovis, 2016.



Rohrbacher, C. Heiligenstradter Strasse 82-92. December, 2017.



Rohrbacher, C. Schweidlgasse 44. December, 2017.



Rohrbacher, C. Vorgartenstraße 124. December, 2017.



Rohrbacher, C. Adelheid-Popp-Gasse 5. December, 2017.



Rohrbacher, C. Sperrgasse 17 . December, 2017.



Rohrbacher, C. Bärenmühdurchgang. December, 2017.

karl marx-hof



Rohrbacher, C. Karl Marx-Hof, Public Square. December, 2017.



Rohrbacher, C. Karl Marx-Hof, South Courtyard. December, 2017.

Area: 76,313 sqm

Building Dimensions: 6 Stories

Year: 1930

Units: 1,325 at time of completion (approx. 1,000 currently)

Typologies: Large Courtyard Perimeter Block

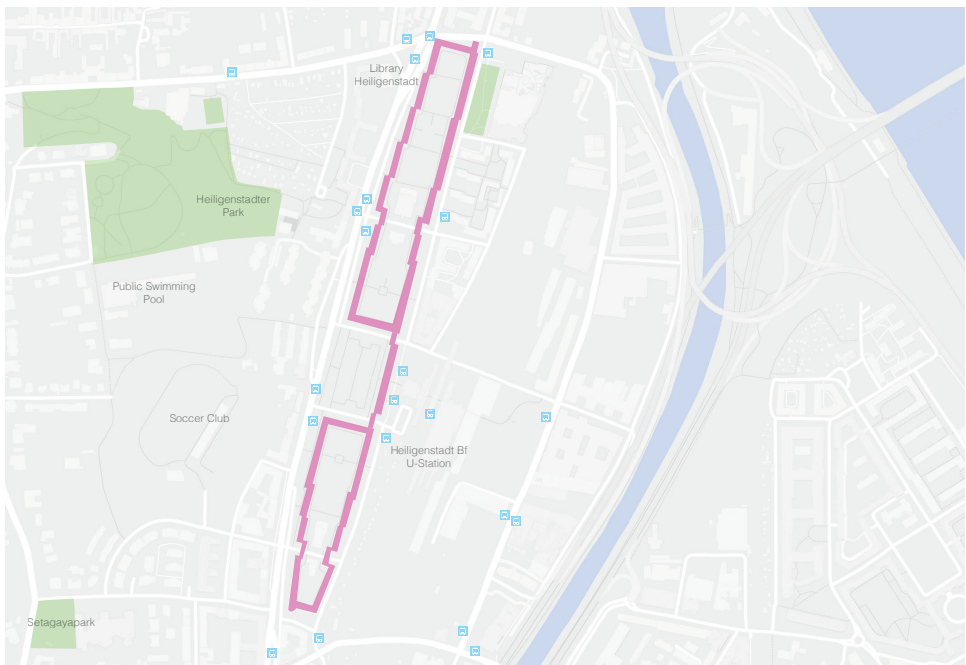
Exterior/Communal Space: Public Square, Semi-Public Courtyards, Commercial Spaces Throughout.

Architect: Karl Ehn

Pros: Identity and history is embedded within the project, many areas still have differing facade treatments, landscaped courtyards for public and inhabitants to co-exist. These spaces are so large that the public/private border blurs. Easily accessible by public transit, Dual facing units.

Cons: Lacking in opportunity for personal identity for the inhabitants.

All Information From: Förster, Wolfgang, and William Menking. Das Wiener Modell: the Vienna Model. Berlin: Jovis, 2016.



Rohrbacher, C. Karl Marx-Hof, Urban Context. January, 2018.

oase 22



Rohrbacher, C. Oase 22, Courtyard. December, 2017.



Rohrbacher, C. Oase 22, Bike Parking Area. December, 2017.

Site Area: 13,595 sqm

Gross Floor Area: 19,462 sqm

Building Dimensions: 6 Stories

Year: 2013

Units: 359

Typologies: Perimeter Block with Courtyards

Exterior/Communal Space: Semi-Public Courtyards, Communal gardens, Playgrounds, Bike Storage, Communal Rooms, Senior Center, Games Room.

Architect: Studio uek, Pesendorfer ZT, Kob & Pollak Architektur, Schmoeger, g.o.y.a.

Pros: Site offers a variety of unit types, identity as a whole and as separate buildings through multiple architectural concepts, inward focus creates a sense of community, and opens up to neighbourhood.

Cons: Hard to get to by public transit.

All Information From: Förster, Wolfgang, and William Menking. Das Wiener Modell: the Vienna Model. Berlin: Jovis, 2016.



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Appendix C

housing in the urban context - vancouver

work done as a self directed study in preparation for Graduation Project

Title: Housing In the Urban Context - vancouver

Course Number: 545B

Completion: September, 2018

This catalogue of housing projects in Vancouver is a selection of projects over time that exemplify key shifts in housing typologies. Firstly, they show shifts in rental vs. stratified occupancy, market vs. non market and public ownership vs. privately owned operations. This is clearly outlined in the timeline.

So what do these variables mean to each project? The timeline allows us to quickly categorize certain types of projects to understand similarities in typologies and time-frames. It also sheds a light on what has been tested in Vancouver. The general breakdown of projects then go into further depth on a qualitative view of success. This is where you can start to understand the role each of these typologies in the Vancouver housing market to start to understand the importance of typologies within cities. They can shed light on architectural time-frames, as well as reflect political action. Many of the social housing projects in this study were brought about because of a community action.

This catalogue also looks at qualitative aspects of each project that I feel showcase a form of success. These categories consist of: a building that is inviting to the public, fits into the existing city grid, has multiple typologies within to create a mix of users, brings something new to the neighbourhood, has an identity, has a connection to the street, the design takes into account natural light, the open space between the neighbourhood and the building creates a sense of community.

However, while studying many projects in Vancouver, and considering these modes of success that I have laid out, one can quickly see that “success” does not just rely on design or urban strategies, but also the location within the city and the organization taking ownership over the project. Although, as architects, we cannot control these parts of a project but we should become more thoughtful and understanding of what these mean for the future of that building.

This study is meant to piece together the history of Vancouver housing, to formulate an understanding on what user groups are looking for, and what has been provided to them. Moving forward, this understanding will be a backbone for more social housing research and design strategy, and hopefully to a new wave of social housing typologies in Vancouver.

timeline



Mole Hill



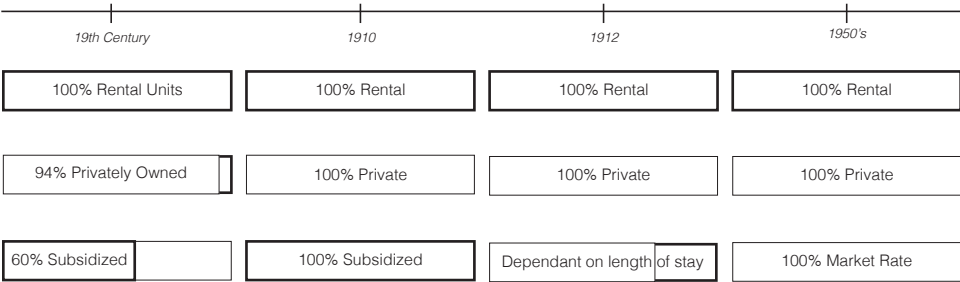
Chinese Benevolent Association



Belvedere Court



Beach Towers



King's Landing



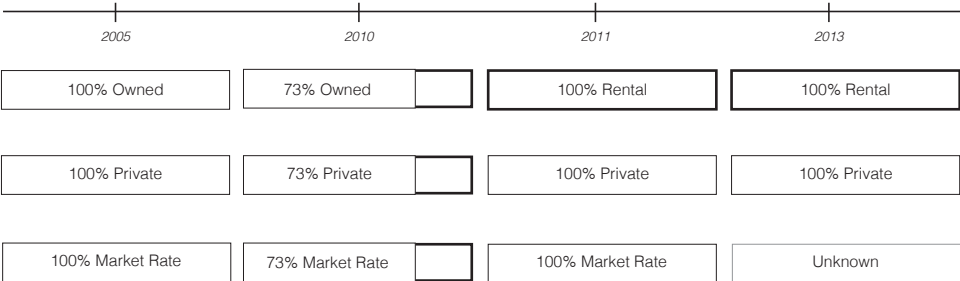
The Woodward Building



Burns Block Micro Apartment



Union Street Laneway





Mclean Park

1963

100% Rental

100% Public

100% Subsidized



False Creek Co-op

1974

100% Owned

100% Private

100% Non-Market Rate



Mau Dan Gardens
Housing Co-op

1981

100% Rental

100% Private

100% Non-Market Rate



Capers Building

1993

91% Owned

100% Private

100% Market Rate



Vancouver
Cohousing

2016

94% Owned

100% Private

100% Non-Market Rate



COV Temporary
Modular Homes

2017

100% Rental

100% Public

100% Subsidized



Vancouver House

2019

81% Owned

100% Private

100% Market Rate

mole hill community housing

West End Block: Pendrell St. - Bute St. - Comox St - Thurlow St.



Rohrbacher, C. Mole Hill 3. August, 2018.



Rohrbacher, C. Mole Hill Context Map. August, 2018.

Typology: Heritage Single Family Homes Converted Into Multiple Rental Units

Year Completed: 1888 (2003)

Architect: Hotson Bakker / S.R. McEwen, Associated Architects

Height / Unit #: 3 Storeys / 170

Defining Features: Low-rise social housing within a high-density area, open to the public

Mole Hill is a community of single family homes clustered together within the middle of the west end. The original houses were built in the 19th century, with renovations made in the 1940's to accommodate rental units, and then redeveloped between 1999-2003. Currently, Mole Hill provides 170 rental units, both market and subsidized, with 10 units dedicated to the Maclaren Housing Society wait-list. This development was made possible by the Mole Hill Living Heritage Society, a group that came together to save these houses from becoming unaffordable tower structures. This project represents an interest in holding onto the historic character of the west end, and withstands a hierarchical character making everything else look out of place around it. The layout is open to the public as if each building was a stand-alone entity, and it seamlessly opens up to the streetscape. The redesign of each house allows for multiple types of units to be created, and paired with the multiple rental options, it truly allows for a mix of user groups to co-exist.

All Information From: "History of Mole Hill." Mole Hill Community Housing.

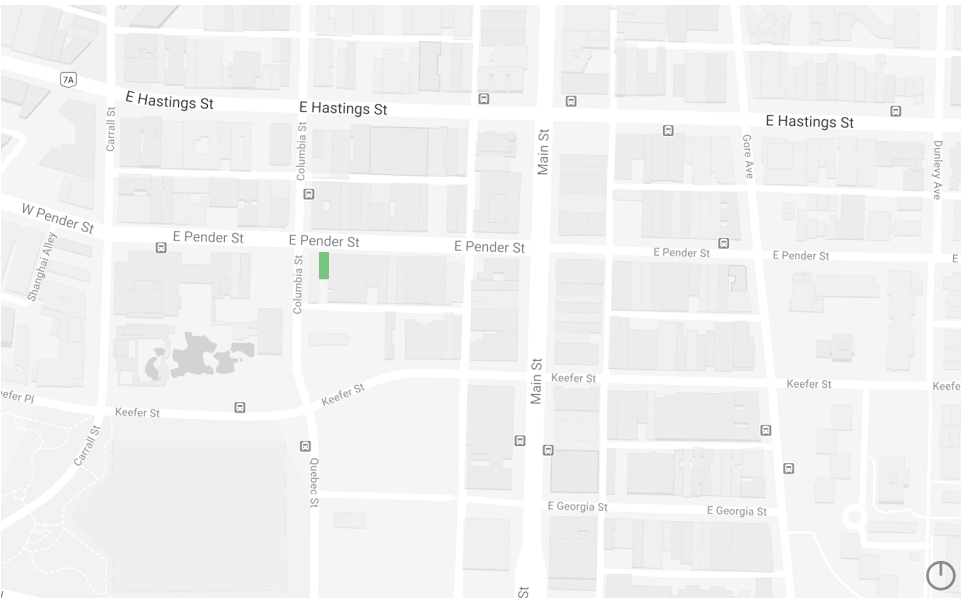
Reference: City of Vancouver. "Mole Hill Community Revitalization." Mole Hill Community Housing. 2003.

chinese benevolent association

104-108 East Pender Street



Rohrbacher, C. CBA 1. September, 2018.



Rohrbacher, C. CBA Context Plan. September, 2018.

Typology: Low-Rise Commercial/Residential

Year Completed: 1910¹

Architect: Unknown

Height / Unit #: 4 Storeys / Unknown

Defining Features: Commercial/Residential in Historic Neighbourhood,
Association Driven housing

The Chinese Benevolent Association first formed in 1895 to provide support for railway workers.¹ Like many Chinese associations in the neighbourhood, their building represented the regional Chinese style of their origin, southern China, seen through the recessed balconies, ornate ironwork and decorative tile.¹ Today, this association hosts many charity events to support low-cost housing.² Although this building does not have a heritage status, it is recognized as a significant building within the historic neighbourhood of Chinatown.¹ This status will hopefully help keep the history of Chinatown and of the early growth of Vancouver alive by protecting the historic buildings of Chinatown from re-development. When comparing this project to other projects alike, it does however reveal a segregated view, as it is pulled away from the street, and is focused on helping Chinese Canadians. This project stands for a time in Vancouver's history, but hopefully we can move past this typology and become more integrated as a city.

CBA. "History of the CBA." Chinese Benevolent Association of Vancouver.¹

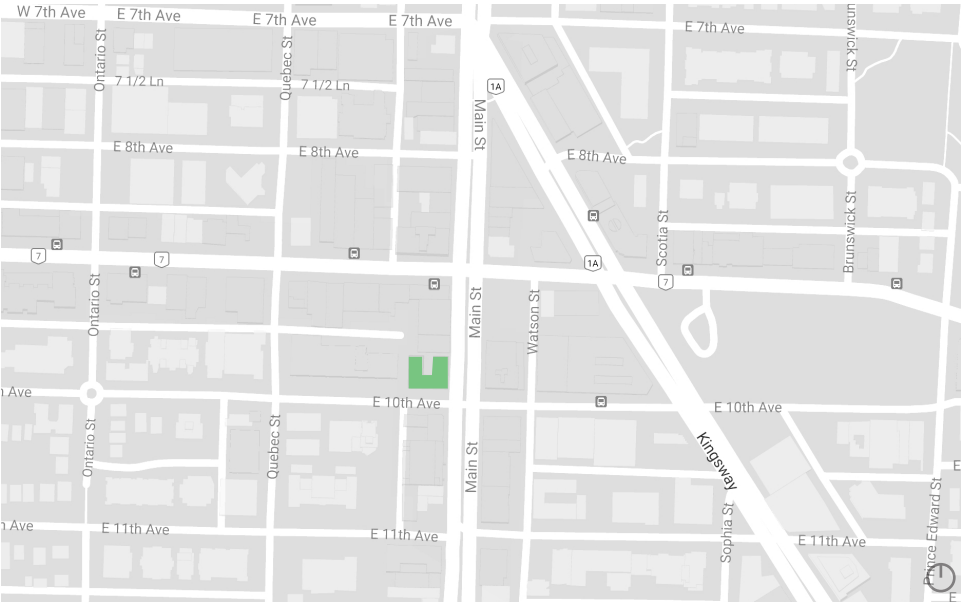
Vancouver Heritage Foundation. Vancouver's Chinatown Historic Society Buildings. ²

belvedere court

2545 Main Street



Rohrbacher, C. Belvedere Court 1. August, 2018.



Rohrbacher, C. Belvedere Court Context Map. August, 2018.

Typology: Low-Rise Courtyard

Year Completed: 1912

Architect: Arthur Bird

Height / Unit #: 4 Storeys / Unknown

Defining Features: Medium density with commercial units flanking a main street

This building, as well as many buildings in the area was built to ease the demand of social housing at the time. They are strategically placed along main corridors and provide commercial amenity space on the ground floor. This building was built by Arthur Bird, the City's architect at that time¹. It has been given a heritage B significance for its cultural significance within the neighbourhood of Mount Pleasant¹. This specific building also represents the renoviction reality within Vancouver. The Vancouver Tenant's Union as well as many people living in Belvedere Court have joined together to stop many renovictions in the last few years². This often happens when tenants have been renting for long periods of time and are paying far less than the new tenants. This project fits into the urban grid and allows for a higher density of people to live within proximity to main corridors. Like the project before, however, it provides a home for very few user groups. These types of buildings were built with the intention to house many people efficiently, without really considering community connection and livability.

¹"Belvedere Court." Vancouver Heritage Foundation, Heritage Site Finder.

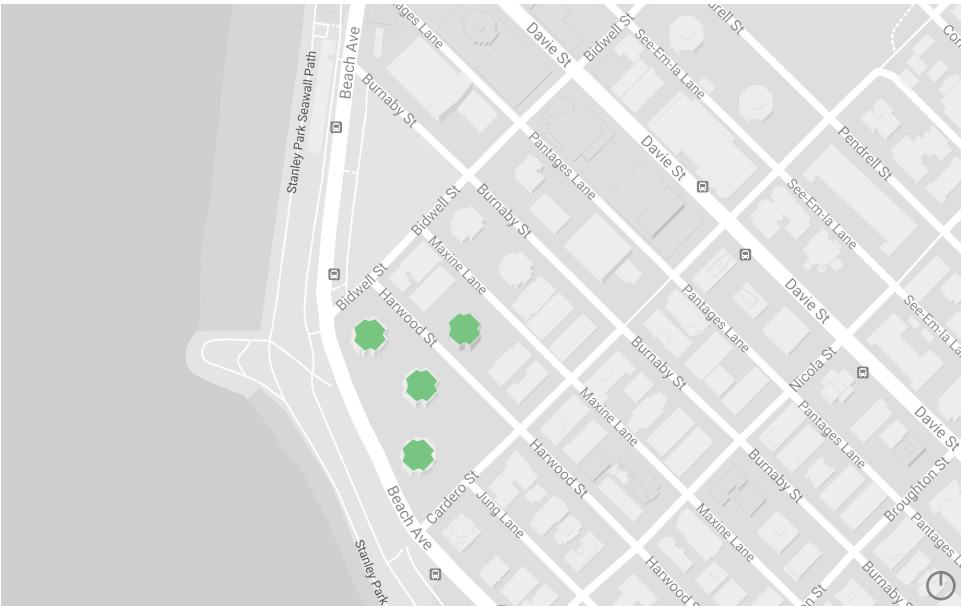
²Hernandez-Blick, Cristian. "Victory at the Belvedere Court." Vancouver Tenants Union.

beach towers

1600 Beach Avenue



Rohrbacher, C. Beach Towers 1. August, 2018.



Rohrbacher, C. Beach Towers Context Map. August, 2018.

Typology: High-Rise Towers

Year Completed: 1962-68¹

Architect: CBK Van Norman¹

Height / Unit #: 19-21 Storeys / 607 Rental Units²

Defining Features: High density rental units with joint amenities

The Beach Towers were one of the first high-rise rental towers to be built in Vancouver and signify the densification of the west end¹. The site consists of three towers connected by an underground parking lot and amenity space. The fourth tower was built a couple years later across the street¹. In 2010 IBI Group submitted a rezoning application to add a four storey tower and townhouses to the site, as well as a 9 storey tower on an adjacent site, creating 133 new units to be below market-rate². This application was accepted, as the City is in favor of adding densification wherever possible, but was then put on hold by the owners in 2015³. This project represents the beginning of the tower typology - the most efficient and economic way to house many people. The amenity space between these three buildings however, is open, spacious and connects the site to the community. Each unit has its own outdoor space and view, which isn't a requirement in high density buildings today.

¹IBI/HB Architects. "Beach Towers Rezoning Application: History of Site." City of Vancouver.

²O'Connor, Naoibh. "Vancouver Council Approves Beach Towers Development." Vancouver Courier.

³Lee, Jeff. "West End Rental Housing Plan Put on Hold by Owners."

mclean park

710 Keefer Street



Rohrbacher, C. Mclean Park 1. August, 2018.



Rohrbacher, C. Mclean Park Context Map. August, 2018.

Typology: Mid-Rise Towers, Maisonettes

Year Completed: 1963

Architect: Erwin C. Cleve and Ian MacLennan

Height / Unit #: 8, 3, 2 Storeys / Unknown

Defining Features: Multiple Typologies within one site, Pedestrian focused, social housing segregation

This social housing development was created under the direction of the chief architect and planner of CMHC at the time, and designed by Erwin C. Cleve. This building is directly managed by BC housing and its occupancy is completely social based. The site was designed with families and elderly in mind, with playgrounds on site and seating and pedestrian routes throughout. The buildings themselves back onto the street, making the site inward focused and cut off from the rest of the neighbourhood. The buildings and their adjacent gardens are fenced off, minimizing neighbour and public interaction. Even during the 1960's this project was seen as an attempt to treat the symptom of public housing, where "economic rationalism" will never solve the root cause of social housing. This project is publicly owned and provides social housing at a non-market rate, but it still seems to function below expectation. There is a feeling of melancholy throughout the site, with fences guarding every door and no one to be seen on the wide pedestrian streets. There is no creative opportunity within this institution, and the multiple typologies within the site have little to do with this, as they all provide homes for the same user group.

All information from: Liscombe, R. W. The New Spirit: Vancouver Modernism.

false creek housing co-operative

711 millyard



Rohrbacher, C. False Creek Co-op 1. August, 2018.



Rohrbacher, C. False Creek Co-op Context Map. August, 2018.

Typology: Townhouses + Low-Rise Building

Year Completed: 1974

Architect: Henriquez Partners Architects

Height / Unit #: 4 Storeys / 24 Apartments, 146 Townhomes

Defining Features: Public courtyard, inward and outward facing units, public and private outdoor space

The False Creek Co-op was created by a group of people looking to provide affordable housing for families in Vancouver in the 70's. They aspire to create an inclusive, respectful community that is socially, economically and environmentally sustainable. The complex consists of two townhouse enclaves consisting of 2, 3 and 4 bedroom units and one building that houses 1 and 2 bedroom units. The co-op requires you to purchase a unit, and participate in keeping the co-op safe, fun and viable for all inhabitants. The co-op is privately run and applications can be processed through their website. The complex is lively, open to the public, and situated amongst many other community groups that make up Southern False Creek. The low-rise town house typology allows each unit to be connected to the courtyard and to be apart of the community. As well, by purchasing your own unit one might feel a greater connection to the organization and community. Understanding ones role within a co-op is also a major part of creating a functioning community when you don't already know everyone around you. There are many things that can be learned from cooperatives in regards to economic and socially sustainable living.

All Information from: Cana Management Associates Ltd. "About Us." False Creek Housing Co-operative.

mau dan gardens housing cooperative

360 E Pender Street



Rohrbacher, C. Mau Dan Gardens 1. August, 2018.



Rohrbacher, C. Mau Dan Gardens Context Map. August, 2018.

Typology: Low-Rise Complex

Year Completed: 1981

Architect: Joe Y. Wai and Spaceworks Architects

Height / Unit #: 3 Storey Townhouses, 4 Storey Building / Unknown

Defining Features: Low-rise development, inward facing, fenced off to public

The Mau Dan Gardens Housing Cooperative was built in the 80's after many people's homes were demolished in the 60's to make room for higher density projects (such as Mclean Park). This site was originally going to be used for a fire hall, but after a community protest the decision was made to use it for housing. The Strathcona Area Housing Society (SAHS) developed the project along with Joe Y. Wai and Spaceworks Architects. Today, the housing development is run as a private co-op, where the inhabitants rent their units and abide by the rules and regulations of the co-op. The co-op site is fenced off from the public and acts as its own community with open spaces between the townhouses. The project is visually interesting and fits within the adjacent density. It focuses its energy on the livability once inside the co-op, with large pedestrian spaces between the row-houses and ample light and greenery throughout. This project is very much self contained, which is representational of once losing their homes. Moving forward, this typology can be visualized within many single family neighbourhoods to bring more density and community back into struggling neighbourhoods.

All information from: "Mau Dan Gardens Cooperative Housing." Welcome to Mau Dan Gardens | Mau Dan Gardens Cooperative Housing.

capers building

2255 4th Avenue West



Rohrbacher, C. False Creek Co-op 1. August, 2018.



Rohrbacher, C. False Creek Co-op Context Map. August, 2018.

Typology: Mid-Rise Tower

Year Completed: 1994

Architect: Unknown

Height / Unit #: 5 Storeys / 85 units

Defining Features: Density on main street, Commercial space on ground floor, Stepped back formal logic

The Capers Building is one example of a commercial/residential project on a main street in Vancouver. There are many like this project built around the same time that provide opportunities for commercial and residential. Each floor steps back to lessen the feeling of a tall building adjacent to a pedestrian zone. The building is visually interesting and allows for optimal light to hit the sidewalk during the day. It provides 78 strata units and 85 units in total, and permits rental opportunities for unit owners. The building also provides ample private patios for most units, but is lacking in communal space. These types of projects tend to put more focus on blending into the neighbourhood over providing optimal living spaces. Unlike the earlier low-rise buildings, this project integrates itself with the existing environment in a positive way. This project however lacks in its private community space where people within the housing community can come together. This project represents the seclusion of privately owned condo buildings where people do not have space to get to know their neighbours or surrounding community.

All information from: "The Capers Building, Building and Condo Information". BCCondos.net.

king's landing

428 Beach Crescent



Rohrbacher, C. Kings Landing 1. August, 2018.

Typology: High-Rise Tower, Mid-Rise Tower, Podium, Townhouses

Year Completed: 2005¹

Architect: James KM Cheng Architects¹

Height / Unit #: 29, 18, 9 Storeys / 158 Units¹

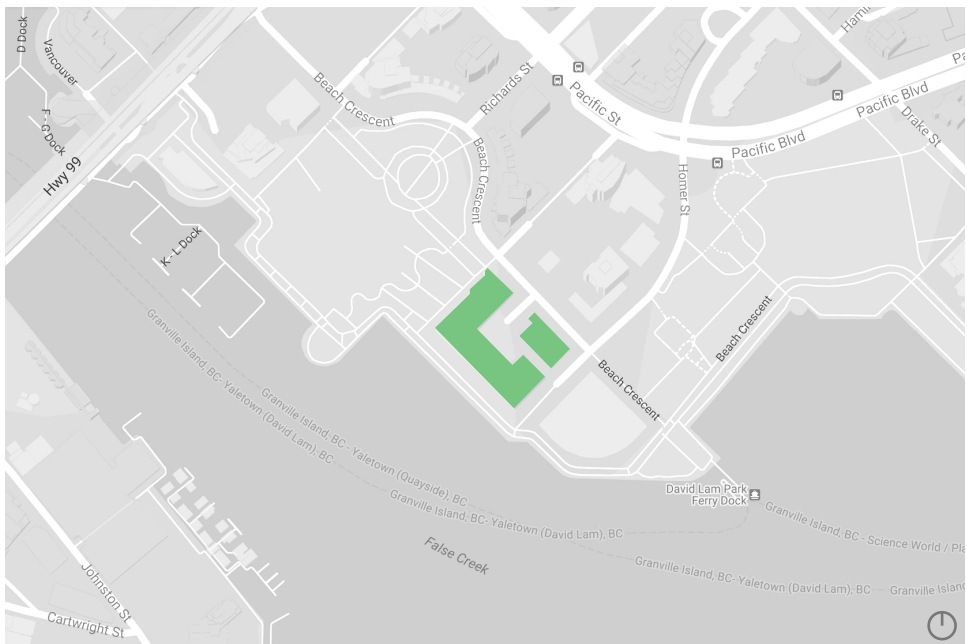
Defining Features: 'Vancouverism' Glass Tower and Podium with private entry

The King's Landing development is an example of the typical 'Vancouverism' towers seen across the skyline, where tall towers mixed with low-rise or podium typologies create density as well as life on the street level. The skinny towers allow for views throughout the city and the podiums provide opportunity for light and air to energize the pedestrian space.² This specific building was awarded the Best Multi-Family Development (High-Rise) in 2006 by Canadian Home Builders' Association of BC.³ It is a completely stratified building with extensive amenities and is designed to feel like a 'garden sanctuary' for its inhabitants.¹ There is no public access, with the vehicular entry as its primary entrance. The project is located directly off the seawall, but lacks in any connectivity to that community. The multitude of unit types offers opportunity for many user groups to come together, although these waterfront buildings are often out of the price range of many Vancouverite. This typology could be characterized as a superior type of living, or symbol of class. This typology represents the shift between social and capitalist driven housing.

"Kings Landing Building and Condo Information." BCCondos.net.¹

City of Vancouver. "Vancouverism (Urban Planning, Sustainable Zoning, and Development)." ²

"About Us." James KM Cheng Architects.³



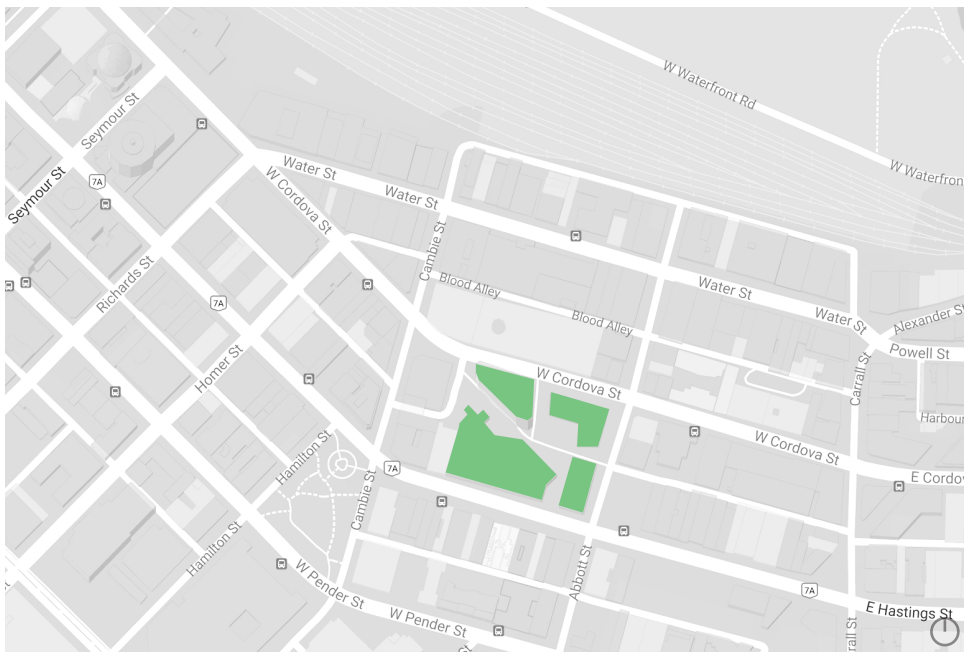
Rohrbacher, C. Kings Landing Context Map. August, 2018.

the woodwards building

333 Abbott Street



Rohrbacher, C. Woodward 1. August, 2018.



Rohrbacher, C. Woodward Context Map. August, 2018.

Typology: High-Rise Tower and Commercial

Year Completed: 2010

Architect: Henriquez Partners Architects

Height / Unit #: 43, 32 Storeys / 535 Market units, 200 Social units

Defining Features: Historic character maintained, Mix of social and market housing

Since 1903, The Woodward's Building was a well-known department store in Vancouver. After its demise in the 90's, squatters took over the building and demanded more social housing within the city. The Woodward's building is now a mix of market units, social housing, retail and institutional use. Some may claim that this building brings together West and East Vancouver, although the architectural layout says otherwise by the separation of market and social housing entry-points. But, this project is a large accomplishment for social housing in Vancouver, by providing livable units within the Downtown East-Side, while pairing it with community enriching programs and uses. This project tries to mesh together this 'superior' living with social housing, creating an interesting combination seen throughout the ground level. As projects like Kings Landing continue to take over Vancouver's downtown area, the separation between class seems to grow further and further apart. The Woodward's building is an example of this. In projects like Mole Hill, where many types of people live together, it is not nearly as evident. Architecture must bridge the gap between community, class and status before we can co-exist under one roof again.

All information from: "Woodward's." ULI Case Studies.

burns block micro apartments

18 West Hastings Street

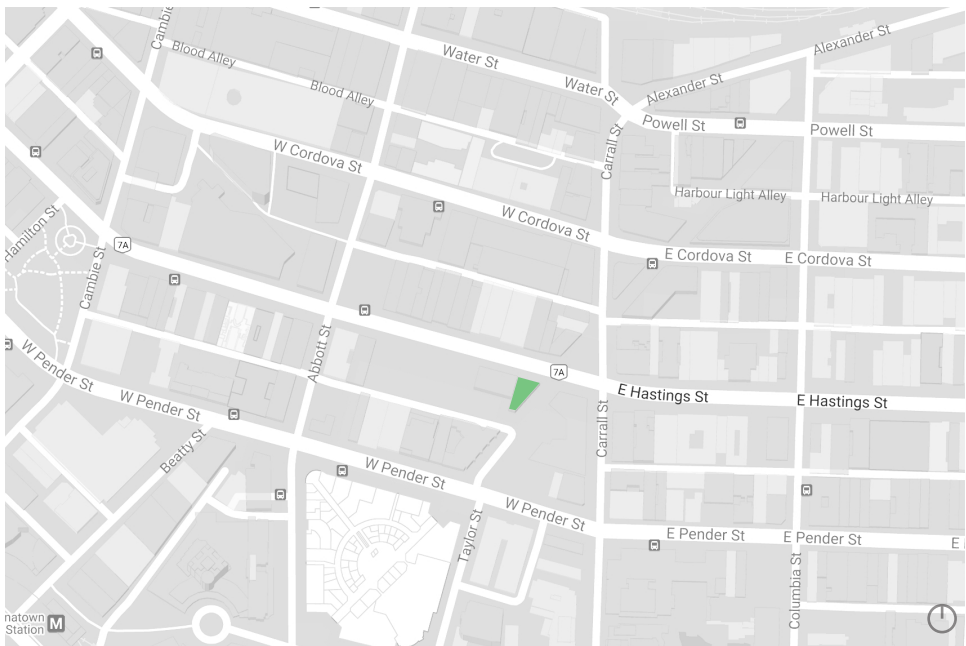


Rohrbacher, C. Burns Block 1. August, 2018.

Typology: Mid-Rise Tower
Year Completed: 2011
Architect: Carscadden Stokes McDonald Architects
Height / Unit #: 6 Storeys / 30 Units
Defining Features: Micro living, adaptive re-use of building

The micro apartment is a building that has units smaller than the minimum size required by The City. In the struggle to ease the housing crisis the COV has given relaxations on overall unit size to help produce more units overall. The Burns Block existed as an SRO before its renovation. The units are now the same size, at around 250 sf, but are being rented at three times the original price. The units do come outfitted with space-saving furniture, but that still doesn't make it affordable to the common person in Vancouver. This typology is only adding to the crisis by allowing other buildings in Vancouver to increase their unit price, and therefore pricing-out many people that current live in the city. This typology has intentions to help house more people, but at the cost of any remaining livability standards, and for further developer profit. Smaller, more separate units is not the solution, just another half-considered reaction to the symptom.

"18 West Hastings." Carscadden.¹
Digitalmonkblog. "Burns Block - Anything but Affordable?" CityHallWatch: Tools to Engage in Vancouver City Decisions.²



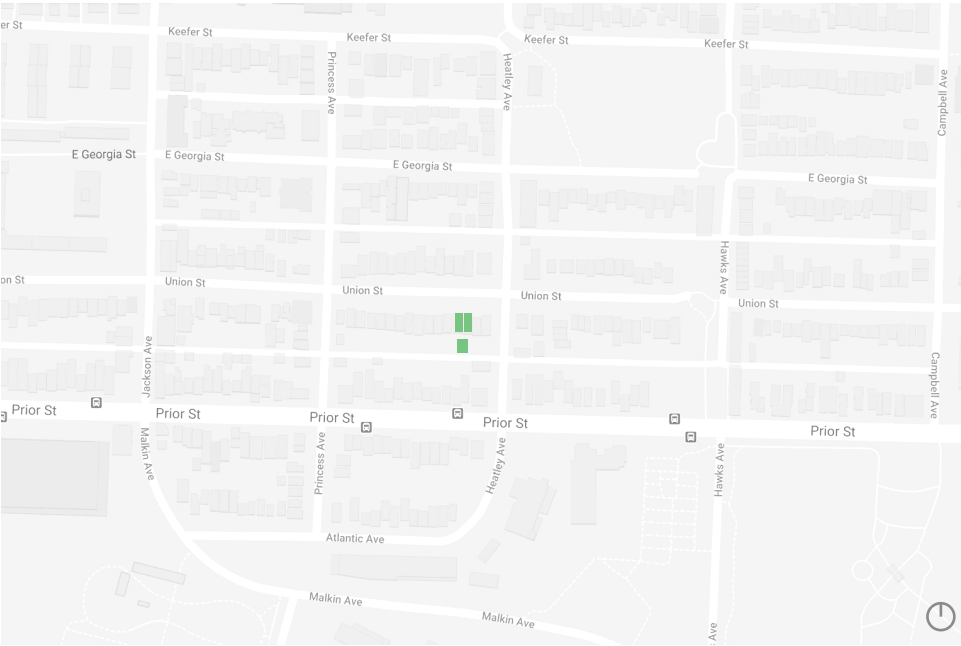
Rohrbacher, C. Burns Block Context Map. August, 2018.

union street laneway house

662 Union Street



Rohrbacher, C. Union Laneway 1. September, 2018.



Rohrbacher, C. Union Laneway Context Map. September, 2018.

Typology: Laneway / Infill

Year Completed: 2013¹

Architect: Shape Architecture

Height / Unit #: 3 / 7 Units - one unit in laneway¹

Defining Features: Laneway situated on two lots, density in single family neighbourhood

Laneway houses were introduced in Vancouver in 2009, and since then 3,000 laneway permits have been issued.² This specific laneway was developed alongside the re-development of the two single family houses. The re-development of the two houses (one holding a heritage B designation) and placement of the laneway home allowed for 7 units to be placed on the two lots.¹ This type of density preserves the existing single family streetscape while adding more rental opportunity and security to the laneway.² The City's plan when implementing the laneway typology was to provide detached rental opportunities for people to live within the city. This is an important start to the densification of single family neighbourhoods, but should be pushed even further to permit more than one unit. The laneway house fits within the city grid, it activates the laneways and creates more connections to the community, and brings a mix of incomes back into the neighbourhood to create a more enriched community. This typology is very important as there are so many single family neighbourhoods in Vancouver.

¹"Union Street EcoHeritage." SHAPE Architecture.

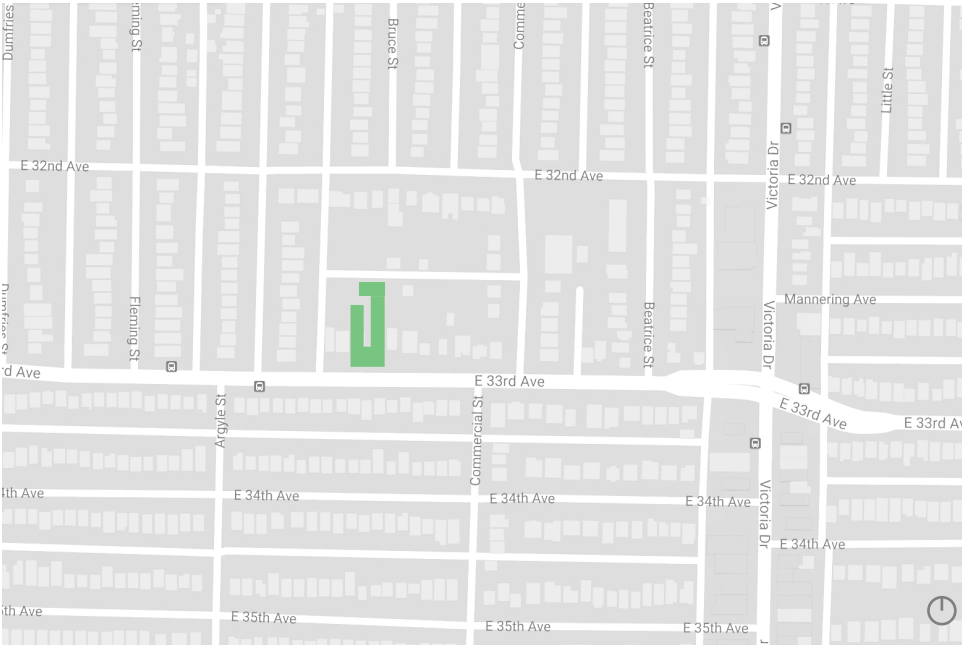
City of Vancouver. "Laneway Houses." City of Vancouver.²

vancouver cohousing

1733 E 33rd Avenue



Rohrbacher, C. Vancouver Cohousing 1. August, 2018.



Rohrbacher, C. Vancouver Cohousing Context Map. August, 2018.

Typology: Low-Rise Courtyard

Year Completed: 2016¹

Architect/Consultant: McCamant & Durrett Architects²

Height / Unit #: 3 Storeys / 31 Units¹

Defining Features: Private co-housing complex, Inward facing courtyard, Below Market Rate

Vancouver Cohousing was created by a group of people coming together to create an affordable home together. It consists of 29 owned units, two rental units and a communal building with a community kitchen, dining room to seat 30 people, a lounge, activity rooms, office areas, two guest rooms, and rooftop gardens.¹ The building itself sits on two residential lots in a single family neighbourhood.² Like the other co-ops above, this co-housing project also requires participation in running and maintaining the co-housing agenda, but provides many perks such as car-sharing, child-care and communal dinners.² This type of project caters to people with like-minded living interests and goals, but is diverse in many other ways. The project is cut off from the street, but provides a safe space for people to share household items, and for children to play freely. The courtyard provides a place for creative opportunity as a community and as an individual, with each unit being accessed from this point. This typology successfully brings people together while sharing the costs of construction, management, and daily needs.

¹"The Project." Vancouver Cohousing.

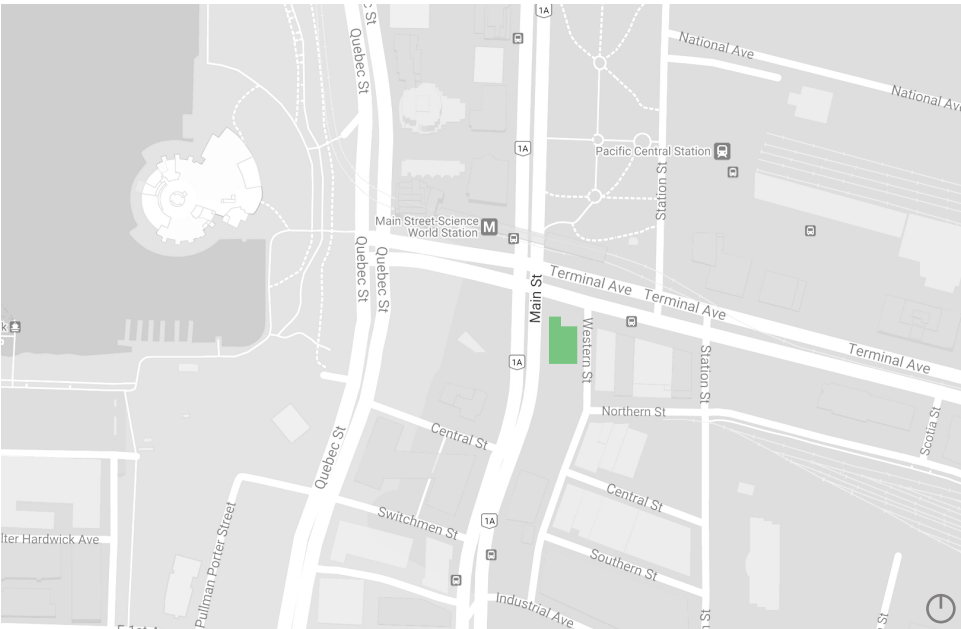
²"Vancouver Cohousing Tour." Interview by author. June 21, 2018.

city of vancouver temporary modular homes

220 Terminal Avenue



Rohrbacher, C. Temporary Modular Homes 1. August, 2018.



Rohrbacher, C. Temporary Modular Homes Context Map. August, 2018.

Typology: Low-Rise Temporary Building

Year Completed: 2017¹

Architect: City of Vancouver

Height / Unit #: 3 Storeys / 40 Units

Defining Features: Minimum Unit Size, Structure designed to be moved and reused

The Temporary Modular Housing developments in Vancouver are designed to house people in the greatest need of shelter. This site, being the first temporary modular home, has provided 40 units, 4 of them with universal accessibility.¹ Each unit is renting at the \$375 income assistance shelter rate, and this specific shelter is for men and women with low or fixed incomes. ¹ Each building will accommodate a specific organization, catering to a specific at-risk group of individuals. The units are 250sq.ft. and have their own bathrooms and kitchens. The buildings provide shared laundry and indoor/outdoor amenity space. This type of building can provide a home within 6 months,² but this also means that this type of home will cause uprooting for its inhabitants in 3-5 years, and situate them on sites that are deemed unfit for permanent housing. Comparing this to Mclean Park, the other publicly run housing project, we can predict what may happen to these types of developments. However, they are temporary, and are successful in getting many individuals off the streets, which is a positive step for Vancouver.

City of Vancouver. "Doors Open for Vancouver's First Temporary Modular Housing Development." City of Vancouver.
City of Vancouver. "Temporary Modular Housing." City of Vancouver.

vancouver house

1480 Howe Street



Rohrbacher, C. Vancouver House 1. August, 2018.



Rohrbacher, C. Vancouver House Context Map. August, 2018.

Typology: High-Rise Tower
Year Completed: Expected 2019
Architect: Bjarke Ingels Group (BIG)
Height / Unit #: 53 Storeys / 502 Units
Defining Features: Internationally designed tower

The Vancouver House is one of a handful of towers currently being built by internationally known architects. This new typology is being called “Super Prime”, where world class architects create luxury towers in the most prestigious cities.¹ This project will be the fourth tallest tower in Vancouver, and it houses 407 owned units, 95 rental units, and more parking spaces than units.² The project consists of one major tower and two podium-type towers between the bridges. It aims to activate the vacant space under the bridge and create lively public space for the neighbourhood.¹ This type of project is for a very specific real estate market, and in no way will help ease the current housing crisis in Vancouver. The marketing approach is geared towards recreating the neighbourhood, and changing what we know Vancouver to be. This marketing scheme directly relates to the glass towers of Vancouver, in creating an even higher standard of living. Compared to the temporary modular homes before, we can visualize how separate these two classes are becoming, through the use of architecture as status.

¹“10 Reasons to Own Creative Space - Vancouver House Leasing.” Vancouver House. Accessed September 09, 2018. <http://vancouverhouse.ca/>.¹

Chan, Kenneth. “Vancouver House Construction Has Topped out at Its Ultimate Height of 497 Ft (PHOTOS).” Daily Hive.²

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Name of Author: Christine Rohrbacher
Date: December, 2018

Signature:

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