



URBANARIUM
FOR SMART CITIES

DECODING

DENSITY

CHALLENGING CONSTRAINTS TO AFFORDABLE HOUSING



PUBLISHED BY
Vancouver Urbanarium Society

Urbanarium
598 West Georgia Street
Vancouver, BC
Canada V6B 2A3

Visit our websites: www.urbanarium.org and
www.decodingdensity.com

© 2024 Vancouver Urbanarium Society and its
contributors. All rights reserved.

The drawings and information contained herein
are not intended for, nor to be relied upon, for
construction or related purposes.

The drawings, photographs, plans, materials and
other printed reproductions herein are the property
of the contributors who produced them. Any use,
reproduction, or copying of these materials without
the express written consent from these contributors
is an actionable breach of the copyright of those
contributors.

Editor: Yvonne Popovska

Graphics and Design: Will Jackson

ABOUT THE URBANARIUM

Urbanarium provides Metro Vancouver a platform
for the discussion of ideas and issues about the
planning and design of communities: how our urban
systems and the forces acting on them work, what
urban futures might happen and what we can do
to affect those outcomes. We create competitions,
debates and studios that help us discover more
about our cities and ourselves.

We are a registered charity led by a sixteen-
person working Board of Directors made up of a
spectrum of professionals passionate about city
building: architects, landscape architects, planners,
developers, engineers, academics, designers
and cost consultants. As well, there are fourteen
distinguished individuals on a Board of Advisors and
100 plus energetic volunteers.

The Urbanarium's charity registration number is
83332 5830 RR0001

ISBN 978-1-7770176-5-1

A stylized map of the Greater Vancouver area, including Vancouver, Burnaby, Richmond, and Surrey. The map features a light blue background with white outlines of the cities and surrounding terrain. Four red arrows point to the right, each positioned next to a city name: Vancouver, Burnaby, Richmond, and Surrey.

VANCOUVER >

BURNABY >

RICHMOND >

SURREY >

CONTENTS

LAND ACKNOWLEDGMENT

The work for this competition is sited on generic sites, as required by the AIBC to avoid falling under the regulations of the BC Professional Governance Act, in the area known unceremoniously as the Lower Mainland. The sites were in fact stripped of their designated settler-given names when handed to competition entrants. However, neither that regulatory context nor that bland designation captures the long history of stewardship by First Nations. These places were long inhabited, tended and cared for by many groups including: the xʷməθkʷəy̓əm (Musqueam), Sk̓w̓x̓w̓ú7mesh (Squamish), səl̓ilwətaʔɫ (Tsleil-Waututh), kʷikʷəłšəm (Kwkwetlem), Semiahmoo, Katzie, Kwantlen, Qayqayt, Stó:lō, Stz'uminus, and sc̓əwaθenaʔɫ təməxʷ (Tsawwassen) Nations. To acknowledge this is a start, only a start, as we work to respond to the Calls to Action from the 2015 Truth and Reconciliation Commission. As an organization working on this unceded, ancestral and traditional territory, and focused on land use, planning and policy, we know we have more work ahead - acknowledging this history, learning from and elevating Indigenous cultures, and working to be in relationship with the land and its peoples.

04	FOREWORD	>	52	THE CO-FINITY VILLAGE CO-FINITY	>
07	INTRODUCTION	>	60	SHARING IS THE CORE THING! CATLAB	>
08	THE BRIEF	>	68	FROM NIMBY TO NIMBY BOBO ARCHITECTURE	>
09	POSSIBLE REGULATION & POLICY IMPACTS	>	77	ANTI-COMMUNITY COMMUNITY FOB LAB	>
12	TOWERHOUSE STUDIO OH SONG	>	84	ROUND HOUSE OXBOW ARCHITECTURE	>
20	SWITCH SHARED DENSITY	>	91	BUILDING LIVABLE ORGANIC COMMUNITIES BLOC	>
28	CUL-DE-SAC NOUVEAU PAC LAB	>	98	PLANNERS' PRIZE STATEMENT	>
36	MICRO-HOOD MICRO-HOOD	>	100	CREDITS	>
44	LOTS! OF BUNDLES REBUILD COLLECTIVE	>	102	SPONSORS AND PARTNERS	>

FOREWORD

Sara Stevens

Chair, Vancouver Urbanarium Society

Designers love to break the rules.

This is what we hoped to leverage with this competition—to ask creative minds, who work all the time within a framework of codes and regulations, to find the spots where a small shift could create meaningful change and unlock greater affordability, sociability and climate change resilience while adding needed density to our region. The codes and regulations that we currently have, built up over decades, represent the wisdom and the folly of different pressures and priorities on the systems of city-making, from the wise (fire codes to improve life safety) to the misguided (parking requirements that encourage heavy reliance on personal automobiles) and everything in between. This publication offers to its readers a plethora of ideas that come from these creative and knowledgeable minds in the hopes that some of the best ones will sway and influence policy.

To arrive at this publication as a celebration of all this creativity also means we have a lot of people to thank. As the Chairperson of the Board of Directors of the Vancouver Urbanarium Society, I want to recognize and thank my co-organizers of the competition, Catherine Alkenbrack, Kari Dow and Marta Farevaag. This wonderful team came together to propose and refine the competition's main idea and worked to see it through and reap the rewards as we reviewed entries and listened in fascination to the jury's deliberations. Our work was guided by Amy Nugent, the Urbanarium's Executive Director, whose positive energy and hard work kept us organized and moving forward. We were also supported by Sarah Chitsaz, the Urbanarium's Communications Manager, and returning competition volunteer and planner Zoe Acton; without their excellent help we could not have managed the large numbers of registrations and entries we had. Founding Chair of the

Urbanarium, Richard Henriquez, and past competition winners and current board members Travis Hanks (architect AIBC, also our professional advisor) and Shirley Shen rounded out our competition committee, and we are grateful for their efforts. The publication's graphics are by Will Jackson, and it was edited by the multi-talented Yvonne Popovska. I am so grateful for the work of this committed group.

We were pleased to have so many people from so many places enter their ideas and beautifully presented proposals. With eighty-five entries from nine countries, this is the highest and most international participation we have seen yet in a competition. The winners alone hail from Canada (Vancouver, Burnaby, Saskatoon), the United States (New York, Cincinnati), New Zealand and South Korea. The level of interest and geographic spread suggests that the topic has wide appeal and pressing

importance. Thank you for sharing your ideas and efforts so generously.

Their work was reviewed by talented and diverse juries. The competition jury included Cedric Yu, Architect AIBC; Frances Bula, Urban Issues/Housing Journalist; Inge Roecker, Architect AIBC and Associate Professor, SALA, UBC; Ly Tang, Senior Development Manager, Rize Alliance Properties; Marta Maj, Principal, Timber Engineering Inc.; Richard Henriquez, Architect AIBC; Sara Muir, Planning Institute of British Columbia, Climate Action Committee; Shirley Shen, Architect AIBC; and Travis Hanks, Architect AIBC. In addition, Technical Advisors included cost consultants Neil Murray and Ping Pang from BTY Global, and housing expert Wilma Leung from BC Housing. The planners' jury included Gary Hack, Fellow of the American Institute of Certified Planners; Kevin Spaans, Assistant Director of Development Planning, City of

Vancouver; Sam Maleknia, Senior Urban Design Planner, City of Surrey; and Suzanne Carter-Huffman, Program Manager, Urban Design, City of Richmond. The collective brain trust this group represents is impressive, and we are so grateful for their participation and support of the competition.

Mounting a competition of this scale requires significant financial support as well. For this, we are grateful to many— first being the three co-presenting sponsors, BC Housing, the Neptis Foundation, and UBC Faculty of Applied Science and School of Architecture and Landscape Architecture. An additional eighteen supporting sponsors also contributed to make this competition possible. Further, the municipal partners, Burnaby, Richmond, Surrey and Vancouver, remind us of the potential of such an exchange of ideas to shape policy and of the value such work can bring to our cities. All this

support is as gratifying as it is hopeful.

This competition continues the Urbanarium's legacy of ideas competitions focused on housing affordability. As with the previous two, the Missing Middle (2021) and the Mixing Middle (2017), we are seeing how these competitions have supported policy changes. We intend to continue this effort, understanding that housing affordability, especially when considered alongside climate change, is a challenge that is going to require immense and ongoing effort and creativity. In other words, stay tuned for more.



INTRODUCTION

Kari Dow

Co-chair, Urbanarium Competition Committee

Against a backdrop of escalating housing costs and a growing demand for more affordable housing, governments at both municipal and senior levels have been compelled to seek novel approaches to increase housing supply. New land use regulations have paved the way for significant new density across the region and the Province, marking a pivotal moment in urban development.

The emergence of low-rise apartments as a viable solution holds promise, offering advantages such as inexpensive and low carbon construction methods, opportunities for smaller developers and a better contextual fit within existing neighbourhoods. However, designers grappling with zoning restrictions, parking mandates and building code requirements often find themselves constrained in their pursuit of affordability, sustainability and sociability.

Navigating the intricate web of regulations and financial considerations, designers are confronted with a daunting task: how to create apartment buildings that not only meet housing demands but also foster ecological balance, social connection and well-being. The conventional building footprint often falls short in facilitating cross ventilation, sunlight access and ample outdoor spaces – essential elements for healthy urban living.

Enter the Decoding Density competition, where designers proposed transformative changes to existing codes and regulations. Their solutions not only significantly reduced construction costs and environmental impacts but also prioritized well-being and social connection. From innovative design strategies to strategic policy recommendations, the winning entries showcased the immense potential to reshape

urban landscapes for the better.

As we consider the creativity and expertise demonstrated by participants, it's evident that their holistic and effective design solutions can prompt important discussions around the modernization of regulations and codes.

THE BRIEF

In an effort to increase housing supply, planning policies are calling for apartments, generally up to six storeys, to be permitted in low density zones. However, designers exploring apartment forms find that current zoning, parking and building code restrictions generate buildings that often struggle to offer access to outdoor space, family-oriented amenities and other aspects of sociability.

Entrants were challenged to review and reconsider the constraints posed by existing building codes and other regulations in order to explore solutions to these two pressing issues. Alongside increasing housing affordability, the brief challenged entrants to address climate change, social isolation and mental health, and ecological decline – factors that normally are at odds with lowering construction costs. Entrants were encouraged to explore ideas that could dramatically reduce both cost and environmental impact through

shared living arrangements that support affordability and foster a sense of connection and well-being.

Four imagined sites in four imagined municipalities were developed to mimic low density, formerly single-family residential use zones that are generally approximately one third of a standard block in size. Entrants were asked their preferences among sites and generally assigned their first or second choice. Within the assigned site, the brief required proposals to imagine how their approach might be expanded, over time, to reshape the surrounding blockface.

Entrants were provided with a framework for their submissions that included project data and urban design, as well as social and economic rationale for the concept. Submissions were to outline project alignment to existing zoning and building codes, as well as proposed impacts to current municipal plans and

codes, development approval processes, and innovative legal mechanisms for ownership and financing. Entrants were requested to present a pro forma for their ideas based on cost of construction as provided in a financial base case shared with entrants, which would be compared to the cost of construction of a basic six-storey wood frame building assuming an increase in density to 2.5 FSR for all sites. The cost reduction listed with each team compares that financial base case for construction costs against the teams' proposals using simplified measures for cost estimating.

The Jury had discretion in the selection of prize awards considering criteria from the brief: creativity, practicality, implementability, potential to promote social engagement, access and inclusivity, as well as the anticipated improvement in housing affordability and climate change resilience.

POSSIBLE REGULATION & POLICY IMPACTS

Marta Farevaag
Competition Co-chair

A central motivation for the competition was to investigate where current codes, regulations and standards are limiting the delivery of affordable, sustainable and sociable housing – and how “decoding” might enhance “density”.

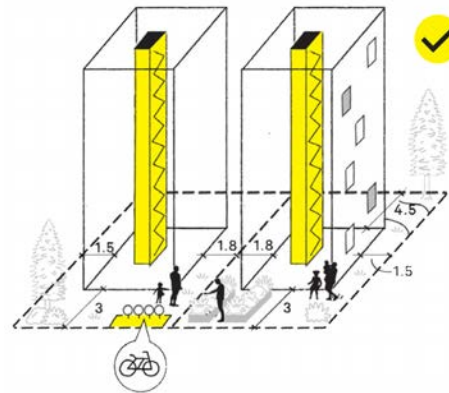
Submissions were to address the schemes’ relationships to existing zoning, municipal plans, and building code and to set out where it is compliant and where and why changes are proposed.

The competition teams took the challenge seriously. Many areas of potential amendments were identified and used to generate design ideas. Sixteen are highlighted from among the many proposed.

1. AFFORDABILITY THROUGH MORE EFFICIENT CIRCULATION

Single stair and scissor stair designs were anticipated challenges to current building code and have been much in the news recently. They are also the subject of Uytae Lee’s video that promoted the Decoding Density competition. These changes are central to many entries. Skip floor elevators and circulation design to reduce the number of elevators while still maintaining accessibility are also featured frequently.

> P38



2. SINGLE LOADED CORRIDORS

Single loaded corridors are frequently proposed for cross-ventilation and for access to daylight and views, often combined with courtyards. Schemes for assemblies of one and two lots often used single loaded corridors to produce workable floorplates.

3. EXTERIOR CORRIDORS

Exterior corridors are envisioned as social spaces, bringing residents into frequent contact. They also enhance ventilation and access to open space. These challenge current municipal policies that typically count exterior corridors in FAR and bump up densities. This is out of step with floor space exclusions that are sometimes given for balconies and amenity spaces. Not counting external corridors in FAR or given a partial reduction as amenity spaces would encourage their use and the sustainable and social benefits they can deliver.

> P33



4. REDUCTIONS IN SETBACKS

Every submission advocates reduced setbacks to achieve their design concepts. Sideyards reduced to 1.2 m and zero setback schemes are seen to have significant implications for the design of the adjacent properties. In particular, zero sideyards set up a partywall response from the adjacent property and potentially across the entire blockface that would trigger zoning and policy changes. Window placement guidelines that anticipate a neighbourhood with the reduced sideyards are a potential municipal policy response.

5. REDUCTIONS IN THE AMOUNT OF PARKING PROVIDED ON SITE

Parking and how it is integrated into building and site is a key driver in all entries. Many schemes note that while significantly reduced parking was a good strategy, eliminating parking entirely is not desirable. Sometimes parking is limited to car sharing, sometimes limited to just accessible spaces. Often it is rationalized by proximity to rapid transit. Several entries proposed parking that can be adapted to other purposes in the future if demand changes or new technologies reduce the need for on-site parking. A number of schemes, including several of the winners, provided parking at grade to eliminate cost of underground parking construction. Small sites were particularly challenged to include parking and used techniques like double deep spaces off of a lane to achieve a few spots.

➤ P26



6. PROVISION OF COMMUNITY AMENITIES ON SITE

A wide range of community amenities are included in the proposals: daycares, cafes, offices, services, community kitchens, community gardens, gathering spaces, mid-block pedestrian links, bike parking and naturalized areas. Most are offered as shared with the neighbourhood on principle and designed to maintain a sensitive interface to adjacent residences on and off-site. Use of rooftop spaces for amenities is another common thread throughout the design submissions.

➤ P15



7. MIXES OF TENANCY TYPES IN ONE BUILDING

A number of entries explore innovative mixes of tenancies and unit types and sizes, often as a means to achieve financial viability. Cross-subsidies of market housing to affordable or social housing in the same project are featured. Co-housing is one of several tenancies on sites in several proposals. These ideas trigger the need to eliminate municipal policies that restrict household sizes and limit relationships among residents. Shared amenities are often used as a strategy to reduce individual unit sizes for affordability including laundry, indoor and outdoor social spaces, and play spaces for children. These tools have implications for some zoning requirements.

➤ P9



8. MECHANISMS TO FACILITATE MULTIGENERATIONAL HOUSING

Multigenerational mixes are promoted as key drivers in several entries. Ideas include that the older generation provides downpayments and the younger generation carries the mortgage. Ways for the older generation to downsize within the building over time and future-proofing for universal accessibility to age in place are explored.

9. STEPS TO FACILITATE SELF-INITIATED PROJECTS BY COMMUNITY GROUPS, NON-PROFITS AND INDIVIDUALS

Innovations in financing and municipal approvals are suggested to encourage local residents to form groups to create housing, typically on a non-profit basis. The collaboration involved in making housing within the community is cited as a key to successful social interaction after completion.

10. HEIGHT VARIATIONS, ROOF ARTICULATION AND SMALLER BUILDING FOOTPRINTS

Many proposals stress design concepts that use variations in heights, roof forms and massing to give a stronger sense of place and individual unit identity for residents over the repetitive massing seen in buildings on large site assemblies.

➤ P46



11. ONE LOT SCHEMES

While most entries work on sites of several combined lots, several submissions demonstrate convincing approaches to one lot development concepts. The potential to redevelop one lot is seen as a benefit for small-scale builders and individual property owners to be active in building affordable housing. One submission kept lots unassembled and used easement agreements to connect exterior corridors for social benefits. Small lot options give a substantial Plan B for 'leftover' sites and allow a more fine-grained pattern of development.

➤ P61



12. MASS TIMBER AND LOWER ENERGY USE CONCRETE

Innovative materials are proposed for cost-savings and sustainable benefits. Code changes are needed for some to become feasible.

13. MODULAR AND PRE-FAB CONSTRUCTION

Quite a few proposals explore modular and pre-fab construction at various scales and intensities for potential to save time and reduce costs, including to expand schemes across multiple development sites.

14. SETTING UP MID-BLOCK PEDESTRIAN CONNECTIONS

Many schemes invite the public into and across the site. These mid-block connections are flagged as opportunities for the municipality to encourage adjoining connections.

➤ P41



15. POTENTIAL TO TRIGGER CREATION OF A LOCAL AREA PLAN TO COORDINATE RESPONSES ON ADJACENT SITES

Among the policy recommendations are ideas for local plans over several blocks to accommodate strategies like zero lot lines, party walls and substantially altered front and rear yard setbacks.

16. USE OF SAMPLE IMPROVEMENT PLANS

One entry advocates for pre-approved plans by the municipality that can simplify and streamline the development process.

FIRST PLACE (TIE) & PLANNERS' PRIZE



TOWERHOUSE

BY STUDIO OH SONG | New York, United States

Ericka Song, Justin Oh



SITE A (BURNABY)



FSR 2.7



8 STOREY



4 LOTS



110 BEDROOMS



21% POTENTIAL COST
REDUCTION

Towerhouse proposes eight towers plus accessory buildings on a four-lot assembly (spanning a lane). With no underground parking and one elevator serving two buildings, the proposal uses exterior circulation and lush communal gardens at grade to foster community connection and provide small-scale commercial spaces. Units can be naturally ventilated with multiple exposures to support climate resiliency and well-being.

Decoding proposals:

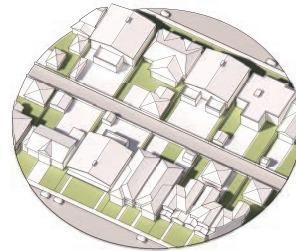
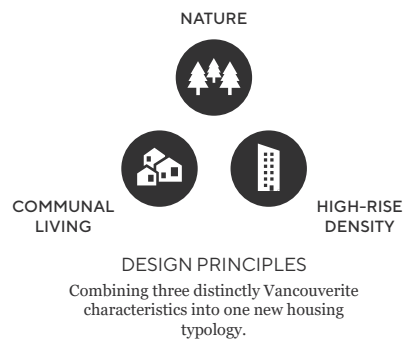
- Allow secondary buildings anywhere on a site
- Reduce setbacks
- Permit scissor stairs in 5+ storey wood frame buildings
- Reduce parking requirements to car share
- Expand definition of community amenities



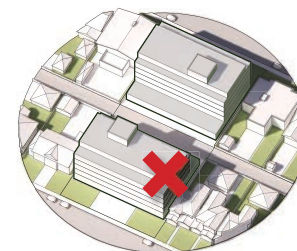
TOWERHOUSE

How can Missing Middle Housing enrich the well-being of its residents and the entire neighbourhood?

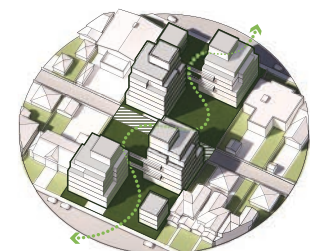
While Missing Middle Housing encompasses a range of housing options, there is still a missing link between small 4-storey single apartment buildings and larger urban mid-rise developments. This proposal takes inspiration from three distinctly Vancouverite characteristics: nature, high-rise density, and communal living to propose a new housing typology that seeks a **balance between density of units, diversity of uses, and delightful environments for its residents and the surrounding community.**



CURRENT
The single-family lot development has proven unsustainable and perpetuates unequal access to housing and high quality urban spaces.



CONVENTIONAL INFILL
Conventional infill development often create monotonous streetwalls, repetitive unit layouts, and lack of opportunities for public space improvements.

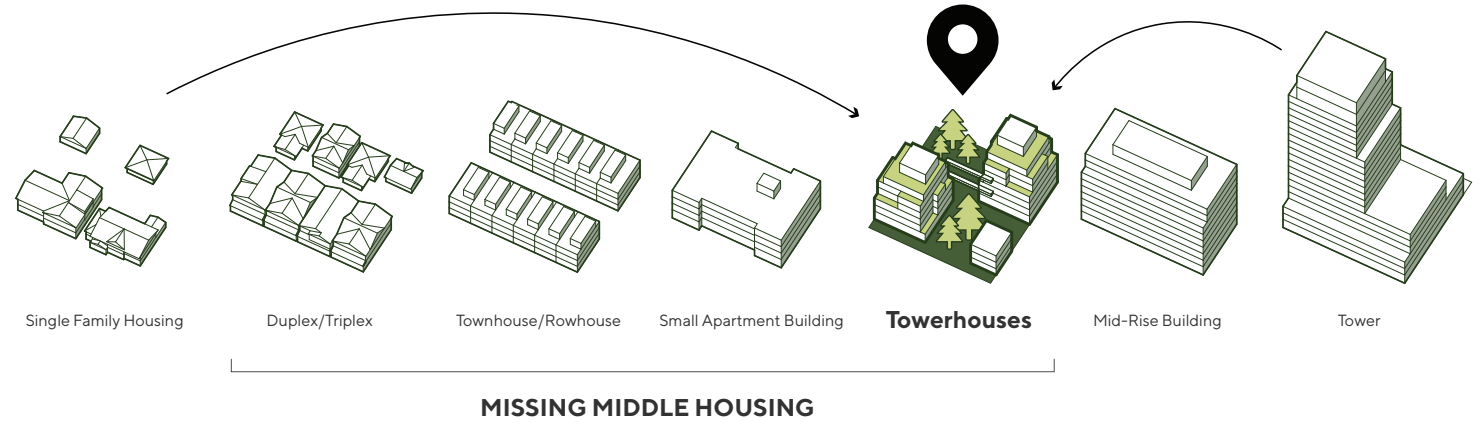


TOWERHOUSES
Towerhouses consider housing and communal outdoor space as equal counterparts: partners in a contemporary green city.

A NEW MISSING MIDDLE TYPOLOGY

How can this new inner-city housing model improve the quality of life and urban experience at; the scale of one's home, the scale of the lot, the scale of the block?

Here, the house and the tower are combined into a 'mini-tower', or 'Towerhouse', **sited within a lush landscape of communal gardens, community and resident amenities, and small-scale commercial spaces.** At the scale of the unit, Towerhouses leverage its compact building footprint to ensure that every apartment unit is situated at a corner. Corner apartment units provide **enhanced exposure to the surroundings, daylight, views, and natural ventilation, contributing to the health and well-being of its residents.**



1. Water retention systems / Rock scramble 2. Shared picnic area 3. Playground 4. Shared car and bike garage 5. Bike repair area 6. Native plantings 7. Small-scale commercial space

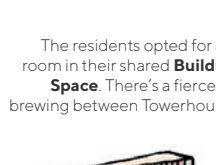
A DAY IN THE BLOCK

At the scale of the lot, the traditional front-rear-side yards of suburban developments are reimagined in favour of compact building footprints sited within a network of shared outdoor spaces. The alternating pattern of open space and built volume allows both the landscape and homes to receive ample light and air.

Activating the open spaces is a series of **Community**, **Commercial**, and **Amenity Spaces**; These are designed to be compact in favor of smaller scale local organizations and businesses:



1 The **Community Space** is booked solid for a month... Today - a birthday party, Tomorrow - band practice, The day after that - a book club meetup...



2 The residents opted for a new games room in their shared **Building Amenity Space**. There's a fierce competition brewing between Towerhouse A1 and B2.

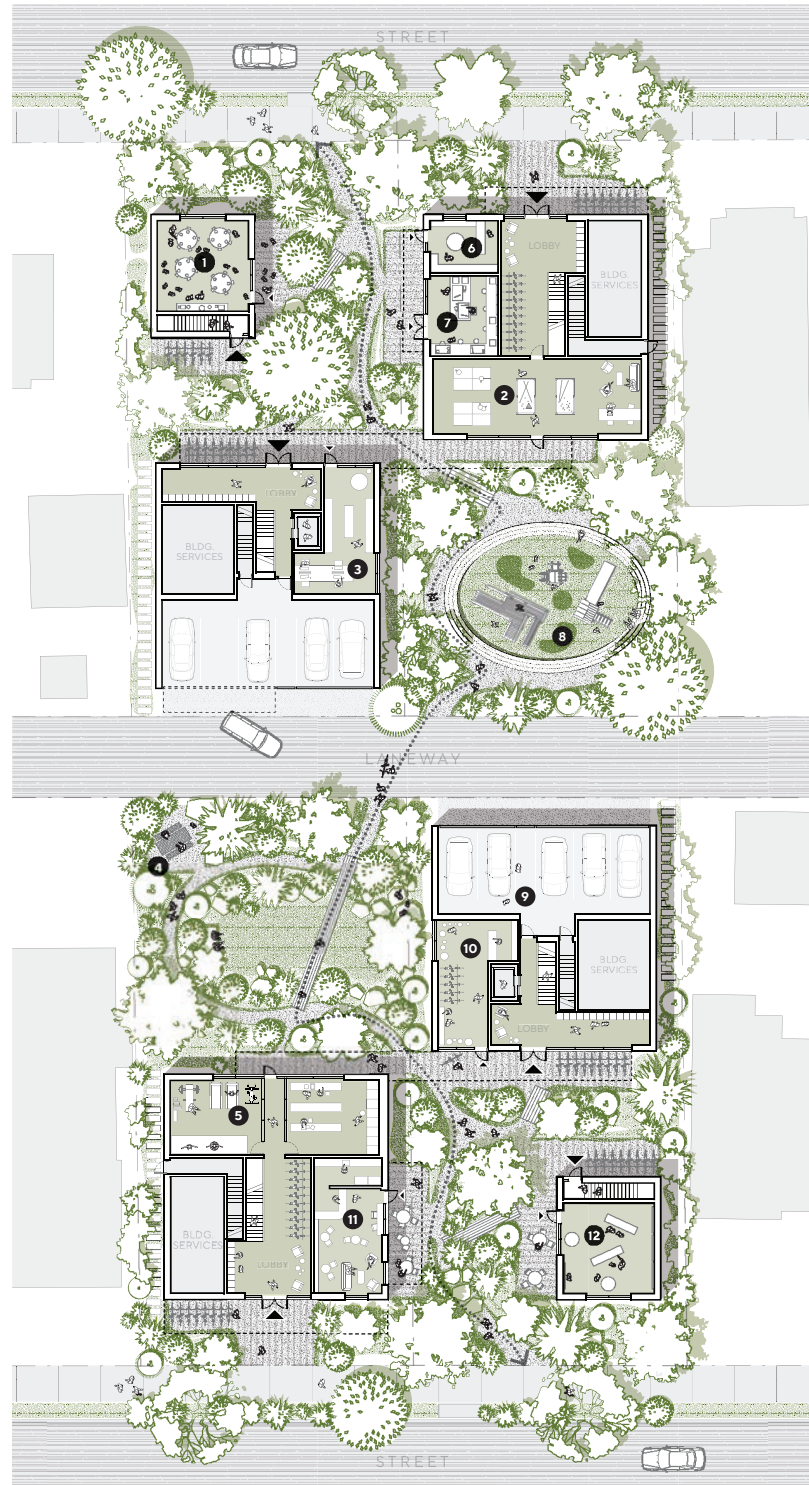


3 Two small design firms just teamed up to rent one of the **Commercial Spaces** as a joint office. Finally, a nice place to hold client meetings!

4 The **Rainwater Retention Garden** is a popular **BBQ and picnic spot**. Neighbours regularly meander in from the laneway.



5 Pragmatism won out in this shared **Building Amenity Space**: squeezing in workouts between laundry cycles.

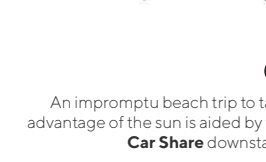


6 A local brewery opened a grab-and-go spot in the **Commercial Space**. Having a spot to grab snacks and drinks within walking distance has been a game-changer for the neighbourhood.

Since the 24/7 Makerspace opened, this **Commercial Space** has been active non-stop. They're going to start hosting workshops next week.



8 The **Playground** tucked in the rear next to the quiet laneway has been a relief for parents. The daycare down the block bring their kids here on daily outings.



An impromptu beach trip to take advantage of the sun is aided by the **Car Share** downstairs.



9 A Grandson & Pop duo had no idea how lucrative their bike repair plant shop would be. They're now looking to expand beyond their startup **Commercial Space**.



The cafe in the **Commercial Space** has become a beloved neighbourhood staple. The patio is the go-to meeting spot for neighbours.

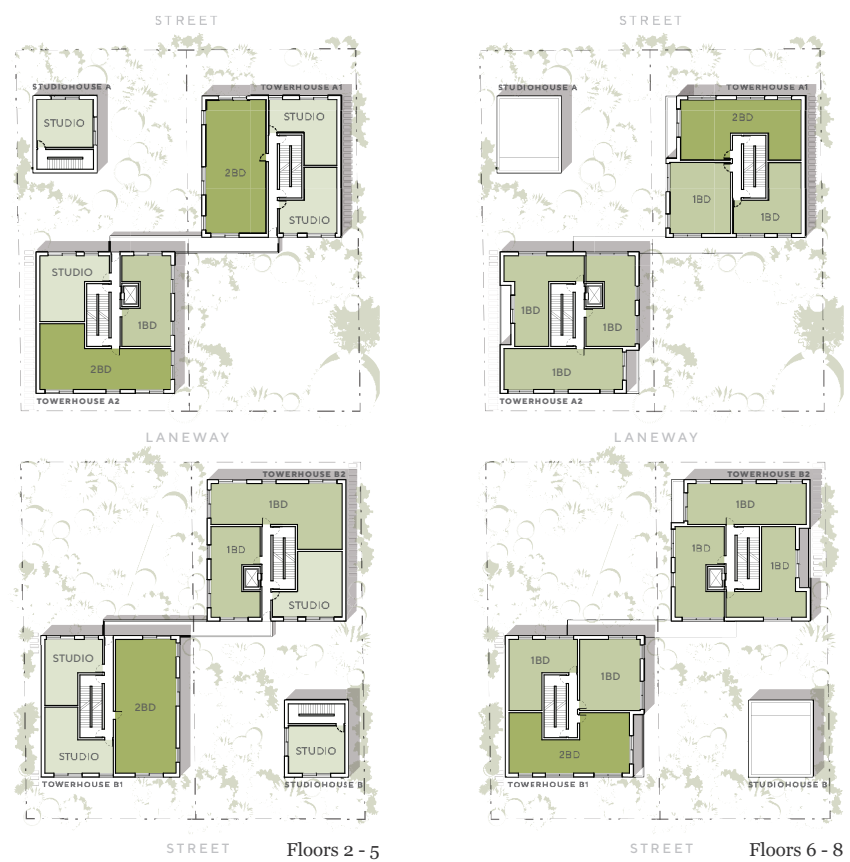


12 The artist that just moved in to one of the StudioHouse units booked the **Community Space** for a month to exhibit their pieces and everyone is just floored by the spectacle.



URBAN PRESENCE

At the scale of the city block, the interlacing gardens between the Towerhouses encourage neighbours to meander through this shared landscape and 'shortcut' their way to local destinations: the Skytrain station, a bus stop, or the local supermarket. The gardens and courtyards give people of all ages and abilities places to gather, rest, and discover. **Towerhouse developments are an extension of the city's public realm.**



	TOWERHOUSE A1, B1	TOWERHOUSE A2, B2	STUDIOHOUSE A, B	TOTAL
STUDIO	16 UNITS	8 UNITS	4 UNITS	28 UNITS
1 BD	12 UNITS	26 UNITS	-	38 UNITS
2 BD	14 UNITS	8 UNITS	-	22 UNITS
AMENITY SPACE	915 SF	-	-	915 SF
COMMERCIAL SPACE	1075 SF	890 SF	-	1970 SF
COMMUNITY SPACE	-	-	975 SF	975 SF



Towerhouse gardens connect to existing and future greenways, expanding the city's network of walking and biking paths to encourage active and sustainable modes of transportation.

LIMITATIONS

Innovation takes the combined efforts of countless regulatory bodies, agencies, and stakeholders. Below are a handful of tweaks to the building code, zoning regulations, and policies around development that we believe have the power to alleviate some challenges in developing affordable quality housing that is responsive, unique, and a positive presence for the community.

1. PARKING

Parking requirements are space and cost prohibitive in the current zoning by-laws. It's unsurprising that there is no dearth of discussion around the benefits of reducing space dedicated to automobiles and parking.

We think: Take advantage of car-sharing, strengthen connections to public transit, and provide easy and safe storage for modes of micro-mobility. Direct access to cars can still be provided on-site but in a limited, efficient, and purposeful quantity. Space is better served as amenities for the residents and neighbours.

2. EGRESS

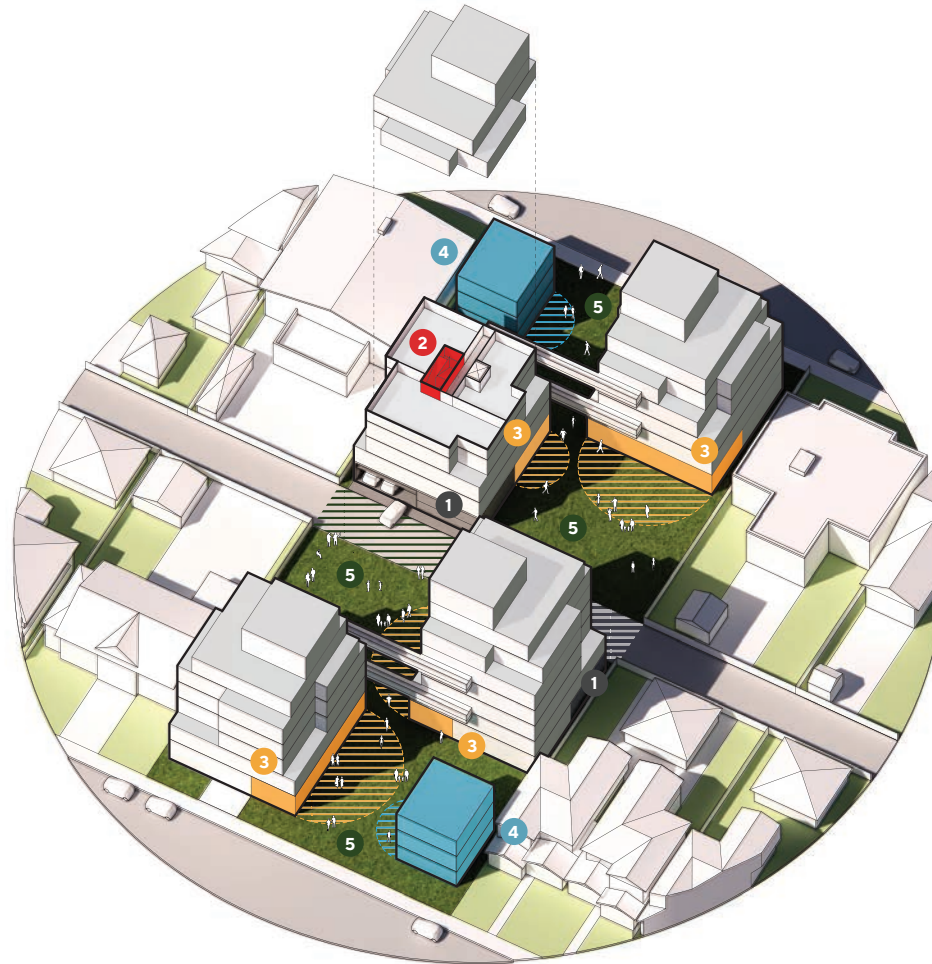
Scissor stairs are not permitted in Vancouver's mid-rise wood frame buildings, stifling efficiency and creativity in floor plan layouts.

We think: Re-evaluate and address the construction concerns around the fire separation of scissor stairs in 5 storey+ wood-frame buildings. At minimum, allowing scissor stairs increases the efficiency of floor plates, resulting in tighter building massing with more room to play with optimal siting for light and air.

3. MIXED-USE

Tight restrictions on non-residential uses in single-family residential zones results in bland neighbourhoods and a heavy reliance on vehicles to access goods and services.

We think: Loosen regulations and requirements on permitted uses, at minimum allowing the same degree of uses as in an RM-10 zone. In addition to bolstering a diverse ecosystem of small, local businesses, residents can share income from renting out the small commercial properties on-site.



4. ACCESSORY BUILDINGS

Current zoning only allows accessory buildings within a certain distance from the rear lot line, limiting the benefits of staggering building scales across lots.

We think: Allow flexibility with the placement of residential accessory buildings, particularly on multi-lot developments. Larger building masses can be staggered across the lots, creating pockets of open space and greater exposure to light and air for units on-site, open space, and neighbouring homes. Front yard residential accessory buildings can anchor the development and pack in density in its own right with a small commercial or amenity space at the ground floor and walk-up residential units above.

5. CACs

As the City of Vancouver simplifies the process of administering CAC (Community Amenity Contribution) policies, considerations should be made to how diversified social contributions from a developer can cumulatively have a positive effect and lasting impact on neighbourhoods.

We think: Reimagine conventional amenities. Seek a more nuanced view of how new developments can contribute to and benefit neighbourhoods. Meeting the growing needs of a city means increased needs for physical facilities but also means creating new and diverse opportunities to access services, access education, and foster social connections. For example, take advantage of the many-layered steps in the lifespan of a project - before, during, and after construction. Developers can become partners in the growth of the neighborhood: providing opportunities for workplace training during demo and construction, funding education in sustainable construction management and housing finance, investing in ecologically conscious landscaping for the immediate neighborhood, etc.

This can be part of a whole framework considered either as standalone contributions or in conjunction with providing physical community amenity facilities. Having a wider framework of options can mean quicker implementation by developers, reducing the barrier to developing more affordable housing. Communities can also start to benefit well before the end of construction.



1. Corner apartment unit 2. Juliet balcony 3. Cafe 4. Water retention gardens 5. Open air corridor 6. Playground 7. Dog park 8. Apartment terrace/building setback



COST BASE CASE ANALYSIS

	BASE CASE	TOWERHOUSE	
Building Type:	6 Storey Wood-Frame Building	8 Storey Wood-Frame Building	
FSR:	2.5	2.7	
Lot Size:	36,580 SF*	36,580 SF	Grouping of 4 lots totalling 36,580 SF
Gross Building Size:	91,450 SF	98,590 SF	
Net Building Size:	77,733 SF	82,470 SF	
Efficiency (net/gross)	85%	84%	
Number of Residential Units	104	88	
Number of Bedrooms	90	110	
Shared Social Space	1,500 SF	1,890 SF + 14,900 SF	Building Amen./Comm. Space + Outdoor Space
Square Footage of Commercial/Retail	0 SF	1,970 SF	4 Commercial/Retail Units

LAND COSTS

Land Value	\$275/SF	\$275/SF
Assembly Premium	20%	20%
Land Cost Subtotal	\$12,071,400	\$12,071,400

CONSTRUCTION COSTS

Concrete	\$340/SF	\$0	
Wood	\$275/SF	\$25,148,750	\$27,112,250
Elevator	\$40,000/stop	\$240,000	\$640,000
Parking	\$90,000/stall	\$6,529,530	\$0
Construction Cost Subtotal		\$31,918,280	\$27,752,250

Land Costs	\$12,071,400	\$12,071,400
Construction Costs	\$31,918,280	\$27,752,250
TOTAL	\$43,989,680	\$39,823,650

AFFORDABILITY

Towerhouses focus on reducing two expensive infrastructural components in multi-family housing: underground parking and multiple elevators. Taking advantage of the mass transit network and growing advocacy for walkable developments, typical parking is substituted with limited above-grade car share spots and micro-mobility storage. Other benefits to eliminating underground parking include reducing construction and site planning complexity, reducing the reliance on concrete as a building material, and the likelihood of shortening the construction timeline. In favour of floor plate efficiency and reducing elevator construction costs, a single elevator services two Towerhouses. Stairs are encouraged as the primary mode of circulation. Walkways bridge between the Towerhouses to offer an accessible route to upper floors. At the ground level, increased building frontage to public grounds create new retail spaces for small businesses and revenue generation.

**The Base Case lot size has been adjusted to match the 4 lot assembly of the proposed Towerhouse development. This adjustment was made to ensure that the land costs and assembly premium are equal to those of the proposed Towerhouse development.*

JURY STATEMENT



Towerhouse proposes an open ground plane with a design that makes it a very desirable space. A number of submissions propose similar checker-board site plans that toggled open space and built form, but this solution is the most successful and elegant among them. Also similar to many entries, it eliminates underground parking on-site and includes a few spaces for car shares. Its climate strategies are solid and proven, and importantly link the technical design decisions about reducing carbon to the more social side of climate resiliency by designing to encourage active transportation over driving and connections with neighbours through the community room and shared outdoor spaces. It does not require land assembly, yet with one or two lots is able to add density and challenge the status quo.

FIRST PLACE (TIE)

SWITCH

BY SHARED DENSITY | Vancouver, Canada
Jonas Thalamas, Charlie Petit, Kareem Negm, Chris Quigley



SITE D (VANCOUVER)



FSR 3.0



8 STOREY



1 LOT



44 BEDROOMS



16% POTENTIAL COST
REDUCTION

Shared Density proposes to increase the maximum front and rear height allowances, and at the same time, improve inner courtyard dimensions. By reducing front building depth, the proposal promotes ventilation. The code changes would increase density from 0.7/1.0 and a max of eight bedrooms to an FSR of 3.0 and up to forty-four bedrooms distributed across various unit types. Using at-grade parking to avoid expensive site work, the scheme creates a shared outdoor space in the centre of the site above the covered parking and a retail space to activate the sidewalk.

Decoding proposals:

- Substantially reduce front setback
- No underground parking
- Provide at-grade parking at 0.5 spots/unit plus 0.125 spots/unit for car share
- Permit buildings to 8 storeys
- One exit stair for up to 8 storey building

SWITCH | Shared Density

Urbanarium | Decoding Density | Site D

The project seeks affordability, flexibility and versatility through simplicity. Simplicity of means and techniques to allow and create an environment that promotes social connections and interactions, a sense of belonging and quality of life. The project should represent a simple, efficient and yet powerful way of living.

Within walkable distance (500m max.) to transit, stores, parks, schools.

Urban residential area

SITE

36.6m

15.23m

Lane

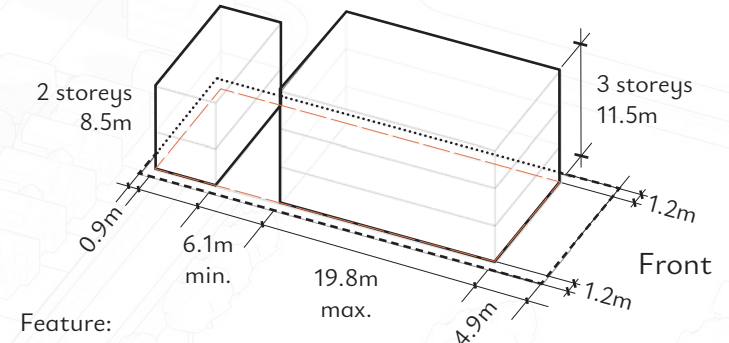
Street

School

Current zoning rules

R1-1 (small scale residential)

Site dimensions and area: 15.23 m x 36.6 m | 557.5 m²

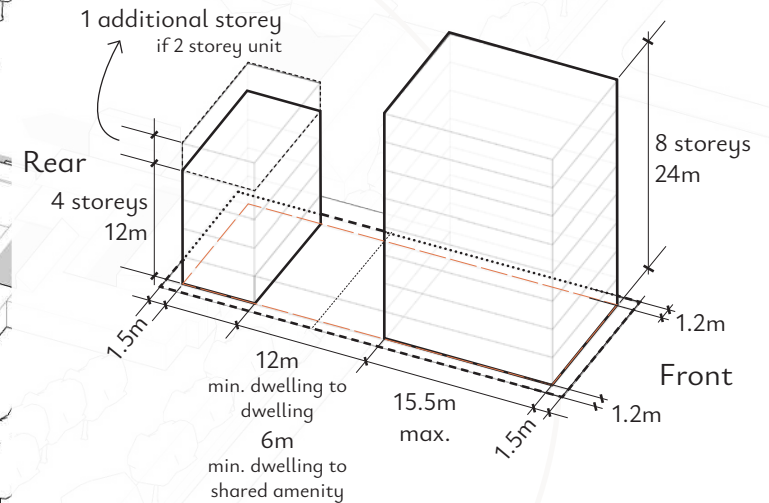


Feature:

- FSR: 0.7 / 1
- Up to 8 bedrooms development.

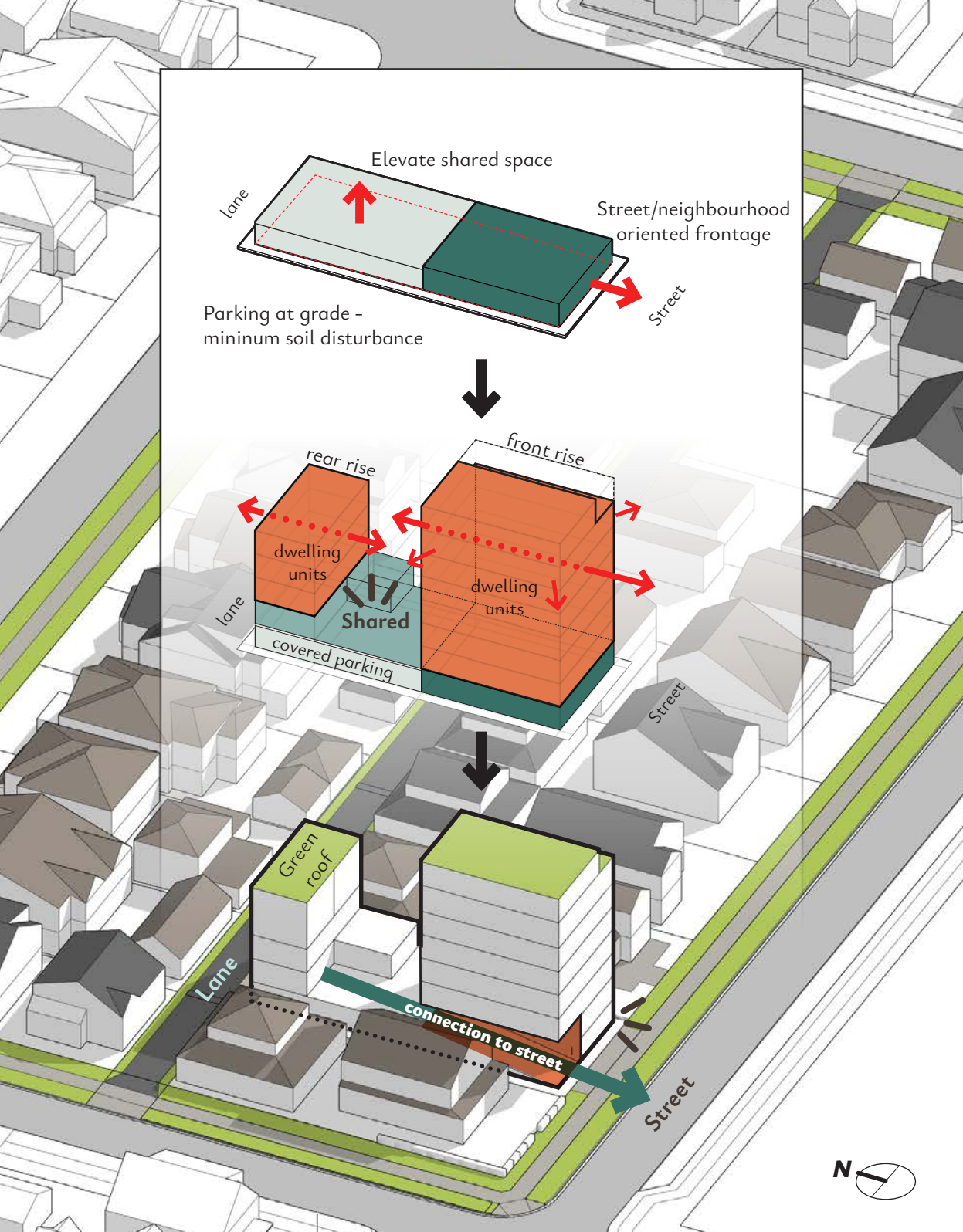
Revised zoning rules

R+ (mid scale residential)



Key updates:

- FSR: 3
- Increased maximum rear and front height to improve density.
- Improved inner courtyard dimensions.
- Reduced front building depth to promote crossing units.
- Up to 44 bedrooms distributed amongst various unit types.



Design Rationale

The project strives to make affordability a reality while focusing on providing quality of life, flexible enough to accommodate all sorts of living scenario.

SITE

- Designed to work on a single 50'x120' lot to avoid land assembly premium. Allowing the project to evolve by simple phases, one lot at a time. Creating opportunities for a broad range of development scenario: Owner-developer, Small developer, small Co-op, small Community Land Trust.
- No digging of underground parking to avoid costly site work.

BUILDING

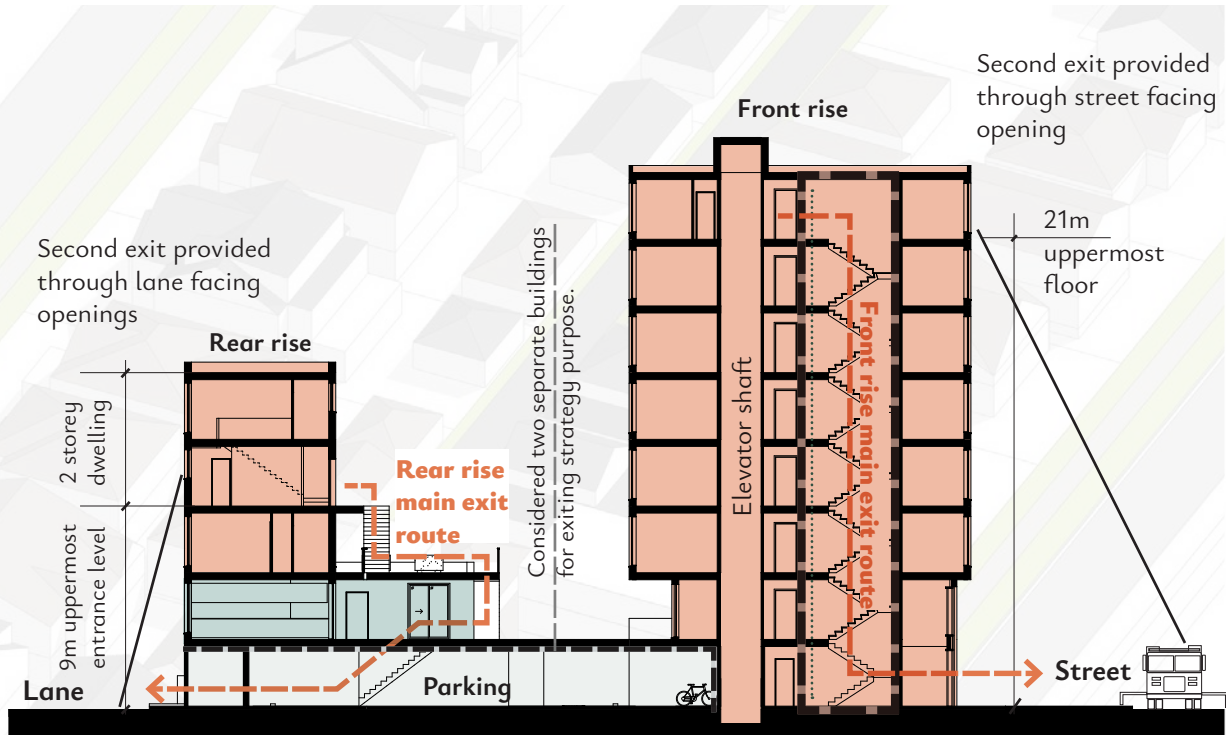
- Extrusion of a 8 level 'front-rise' and a 4 level 'rear-rise' sharing an exterior courtyard that provides main access to the dwelling units.
- Modular construction (boxes or panels or any efficient kind) to allow off-site construction in order to reduce waste, work in a controlled weather environment and improve the life and safety of a construction site. Pushing standardization to reduce costs.
- One internal staircase to maximize floor area efficiency and provide better quality of living by providing crossing units.
- Simple floor plate and common shaft to allow for flexibility in floor planning and ability to change programme over time. Can accommodates all sorts of lifestyle, from open space loft to 3 + bedrooms.
- Creation of a strong connection between the inner courtyard and the street.

SOCIAL

- Interior and exterior shared spaces are proposed to enhance livability. Common workshop, kitchen, exterior area are provided to promote exchange and foster a sense of community and belonging among residents. These social interactions contributing to a vibrant and supportive living environment.
- Ground level street frontage that permits interaction, where and when required, with neighbourhood. Small coffeehouse, work live studio, bike repair shop, you name it.
- The access to the courtyard from the street seeks to activate social interaction and visual connection.

ENVIRONMENTAL

- Compact and simple form factor for improved energy efficiency. Aiming for step code 4 and beyond.
- Green Roof to manage water retention and let small wild life flourish.
- The front-rise roof top can host renewable energy production system.
- Efficient insulation factor and solar gain/protection to maximize low consumption and avoid overheating during warmer season.



Cracking the code

• Building Code Reference: BC Building Code 2024:

Based on a typical code analysis, the current prototype would fall under 3.2.2.48. Group C, up to 12 Storeys, Sprinklered. Requiring a fire resistance rating of floor assemblies and load bearing elements of 2 hours. Because of its height it would also require 2 exit staircases.

But, considering its reduced floor area, it could be looked as follows: Proposed alternative code article

3.2.2.54.b: 'Group C, up to 8 storeys - 21m, Small Footprint',

Not more than 8 storeys - 21m uppermost level - in building height, and building area not more than the value in the following table.

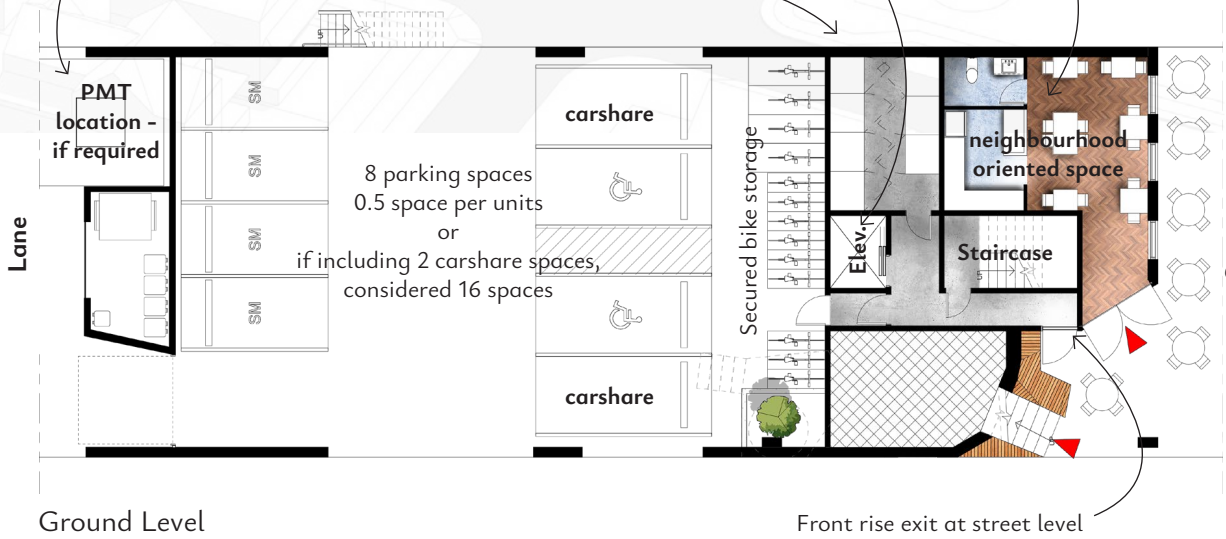
No. of Storeys	Maximum Area, m ²		
	Facing 1 Street	Facing 2 Streets	Facing 3 Streets
1	1,800	2,250	2,700
2	900	1,125	1,350
3	600	750	900
4	450	562.5	675
5	360	450	540
6	300	375	450
7	255	320	385
8	225	280	337.5

Added lines

- Parking covered under concrete slab or other 2hr (min.) fire resistant assembly
- Standpipe in pressurized and fire rated staircase
- Fire dept. connection on street side
- Very low occupant load per floor

The PMT could be shared between several developments
 Side setbacks allow fire fighter acces from street and possible openings in the units, as allowed by limiting distances calculations

Elevator can fit a stretcher
 Multi-use street oriented space



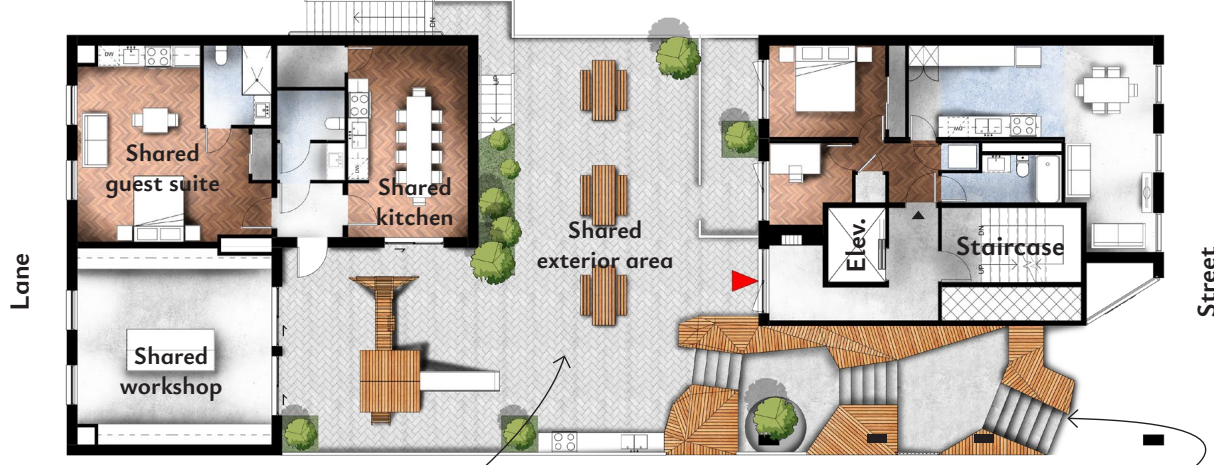
Combustible construction or noncombustible construction used singly or in combination, where all load-bearing elements as well as floor assemblies are fire separations with a fire-resistance rating not less than 45 min,

Other requirements such as standpipes and fire alarm system remain as applicable.

3.4.2: Number and Location of Exits from Floor Area

As for the exit strategy, the 'front rise' aligns to building regulation abroad, well documented (i.e. <https://secondegress.ca/Jurisdictions>), where only one exit stair is permitted up to 8 storeys, provided that openings on the street side are accessible to an aerial ladder truck. The 'rear rise', due to its lower nature, has an exterior exit stair, and openings on the lane side accessible with an 10.6m extension ladder.

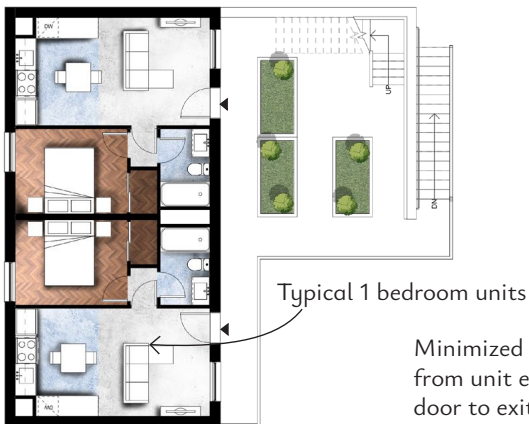
These measures aim to keep a satisfactory level of life a safety, meeting the Objectives and Functional Statement as outlined in the Building code.



Level 2

Shared courtyard as the **beating heart** of the development

Access walkway offers strong connection of the courtyard and rear rise with the street



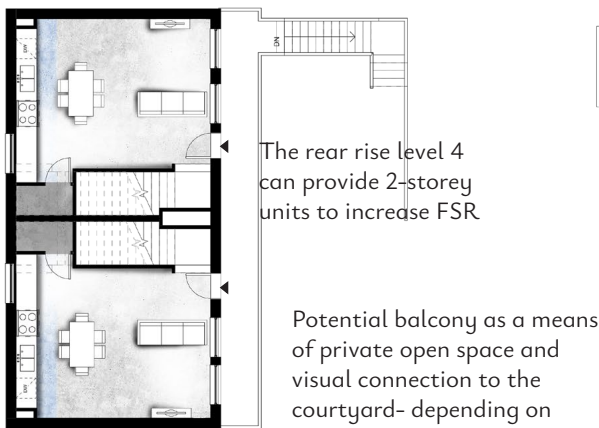
Level 3

Typical 1 bedroom units

Minimized distance from unit egress door to exit door



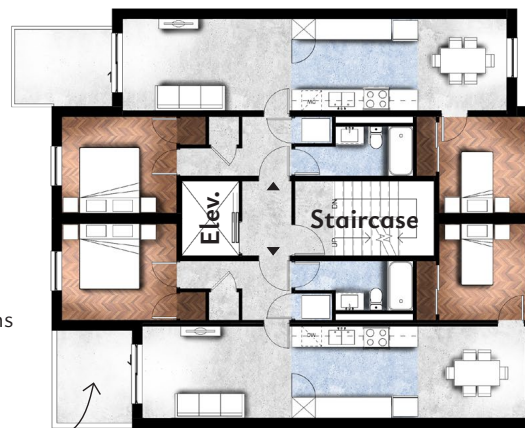
Typical 2 bedroom units



Level 4

The rear rise level 4 can provide 2-storey units to increase FSR

Potential balcony as a means of private open space and visual connection to the courtyard- depending on development programming



Economic Rationale / Proforma

The project has been tested to see if it is viable under two scenarios - a market condo building and a purpose-built rental building.

The market condo option demonstrates that the project can make sufficient returns for the landowner/investors to secure standard construction financing. However, this is only possible when the sale values are close to or at current prices for condominiums in urban area such as Vancouver (i.e. approximately \$1,400 per sqft). This test demonstrates and confirm that providing affordable home ownership would require the construction cost to be reduced through measures such as prefabrication off-site and efficiencies gained through repetition and standardization.

Summary Proforma - Market Condo	
REVENUE	
Sales Revenue	\$ 16,873,532
COSTS	
Land	\$ 4,410,000
Soft costs	\$ 2,574,430
Hard costs	\$ 5,776,852
Financing costs	\$ 550,576
Project cost	\$ 13,311,858
Net Revenue	\$ 3,561,674
Return on Capital	26.76%

Summary Proforma - Purpose-Built Rental	
MARKET VALUE	\$ 12,747,867
COSTS	
Land	\$ 4,410,000
Soft costs	\$ 1,207,500
Hard costs	\$ 5,672,294
Financing costs	\$ 612,433
Project cost	\$ 11,902,227
Supportable loan	\$ 9,958,256
Equity required	\$ 1,943,971

The costs incurred for the land will cover the equity requirement

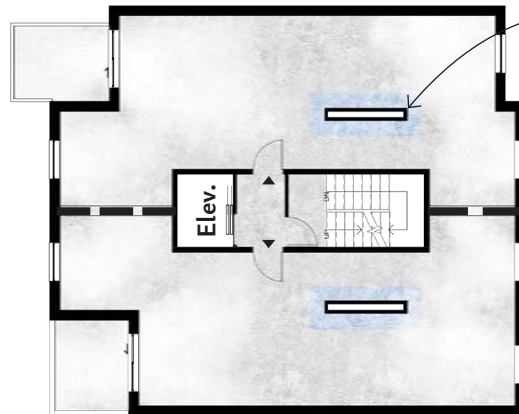
The purpose-built rental option offers more room for inserting greater levels of affordability into the project. The proforma provides a test at current market rates for new rental construction in Vancouver. Based on these assumptions (i.e. approximately \$4.00 per sqft) and using the CMHC MLI Select programme for cheaper construction financing, there is the potential to use just the land purchase as the equity. In fact, the analysis shows that only half of the current land value would be required as equity (roughly \$2m out of the \$4m value) to access a construction loan. **If the land was mortgage free then there is considerable scope to reduce the rents significantly and still meet the equity test for getting the project into construction.**



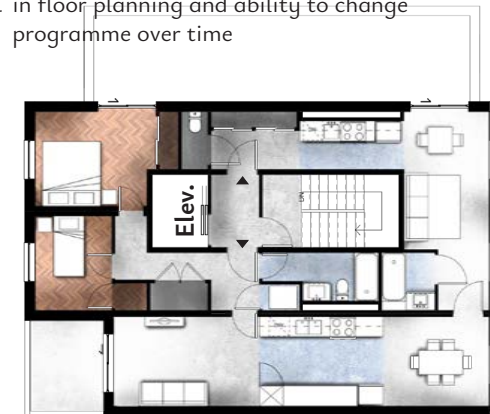
Level 5
Upper level of 2-storey unit



Flexibility @ Level 5 & 6
Example of possible 4 bedroom and 1 bedroom unit layout



Flexibility @ Level 7
Floor plate as shell space, reducing the developer construction cost. Helping first time buyer to get into the market and adapt the layout to their needs over time.



Flexibility @ Level 8
Upper most level, 2 bedroom associated with a small studio. Can offer access to a shared rooftop patio.

Common shaft to allow for flexibility in floor planning and ability to change programme over time



Now that the rules are set and no land assemblies are required, the prototype can evolve, easily adapting to social and economic context and need. Creating a vibrant new streetscape.

Over time, as new developments appear, the courtyards could be connected.

Development area summary:

Site: 557.6 sq.m

Parking: 270.7sq.m

Rear Rise residential units	sq.m		sq.m
1 bedroom	42	x2	84
2 Bedroom (2 storey unit)	84	x2	168
Front Rise residential units			
1 bed + den @ level 2	68.7	x1	68.7
Typical 2 Bedroom layout	77.3	x10	773
2 bed + studio @ level 8	117.3	x1	117.3
Other			
Interior Amenities	118	x1	118
CRU	42.5	x1	42.5
Bike storage	25.3	x1	25.3
Lockers	18	x1	18
Lobby (total)	22.1	x1	22.1
Vertical circulation	19.2	x8	153.6
TOTAL Gross Floor Area			1,590.6



Conceptual Section/Elevation



Shared courtyard (during a birthday party)



Street Elevation and relation to adjacent buildings



Street frontage / activation of neighbourhood

Over the years a new streetscape takes shape.



JURY STATEMENT



The jury was swayed by the practicality of this scheme. A simple set of changes – adding height, hiding cars from the street and reducing the front setback – would be very applicable in the Lower Mainland. The scheme has a great section that includes a small commercial or community space at the street, and draws people in and up to an elevated outdoor courtyard space in the midblock. What it does at the street with the lack of setback, generous public program and welcoming entry up toward the courtyard, is very successful. At the back, cars are hidden and their presence minimized. With sixteen units on one lot, it densifies and has the potential to greatly improve on affordability.

THIRD PLACE

CUL-DE-SAC NOUVEAU

BY PAC LAB | Auckland, New Zealand

Nadhachai Kongkhajornkidsuk, Xian Chris Li, Elitsa Vutova, Liam Lautze



SITE B (RICHMOND)



FSR 2.05



5 STOREY



2 LOTS



100 BEDROOMS



8% POTENTIAL COST
REDUCTION

Cul-De-Sac Nouveau weaves missing middle density housing into the suburban form of the cul-de-sac. On two lots, the project proposes two buildings as interconnected co-housing communities as part of a community land trust, and creates the groundwork for a future laneway to be added to improve pedestrian access. The housing is designed through a participatory process with sustainability and climate resilience in mind, using cross-laminated timber, encouraging walkability and considering life-cycle costs.

Decoding proposals:

- Incentives for a diversity of housing tenures, including cooperative
- Density bonuses for providing pedestrian laneways as public easements
- Single exit stairs for 6 storeys with up to 4 units/floor
- Light frame timber construction to 5 storeys
- Incentives for a participatory design process
- Performance-based guidelines for setbacks including solar access



CUL-DE-SAC NOUVEAU

The typical North American suburb appears as a pattern of winding streets and cul-de-sacs, dotted with cookie cutter single-family houses. Over time, this pattern has spread far and wide, engulfing cities like Vancouver where 81% of residential land is strictly limited to single detached properties¹. However, our world is changing and with it, our needs. The new vision of residential utopia is a vibrant, walkable neighborhood connected to the city by bike paths and convenient public transportation.

By allowing layers of “missing middle” housing into residential neighborhoods and incentivizing practices like sustainable and participatory design, we can create vibrant neighborhoods with diverse housing types and tenures, space for local businesses and increased permeability to break away from car-dependency.

Diversity of Housing

Layering “missing middle” into neighborhoods can weave a tapestry of housing typologies into our urban fabric, ranging from single family to mid-rise apartments. Participatory design helps to ensure that diverse unit types meet the needs of current and future community members. Incentivizing a diversity of housing tenures, such as cooperative housing (co-ops), offers a middle ground between traditional rentals and home ownership while creating long-term affordable housing stock for Metro Vancouver.

The Cul-De-Sac

The cul-de-sac is the pinnacle of modern day suburbia. While it can be a safe haven for impromptu neighborhood events, it is too often an underutilized dead end. The cul-de-sac can be a very challenging urban design typology to mitigate once it has been laid down in a neighborhood. Through the integration of “missing middle” into the residential fabric, there is an opportunity to create permeability and connection by breaking through with pedestrian laneways to open up the otherwise car-centric cul-de-sac.

1 - Jens von Bergmann, “SDH Zoning and Land Use: How Much Land Do Single Detached and Duplex Houses Consume?” Mountain Math (blog), June 17, 2016.

Missing Middle: Weaving missing middle into existing residential neighborhoods can ameliorate the housing and affordability crisis by offering more diverse housing typologies and tenures.

The Cul-De-Sac: New developments allow cities to ‘liven up’ this dead end typology with vibrant pedestrian laneways.

Community: Residents should be put in control of their built environment through the participatory design process.

POLICY FOR BUILDING THE MISSING MIDDLE

To enhance the suburb and alleviate the housing crisis, we propose expanding the zoning code regulations in residential zones. New residential zones will include a range of “missing middle” typologies, depending on the proximity to arterial roads or public amenities, with density bonuses awarded when pedestrian permeability is created through public easements on new developments.



AD - Arterial Density: Mixed-use residential buildings up to 6 stories.

Site Location: Adjacent to arterial roads, regardless of block face.



MD - Moderate Density: Residential buildings with conditional non-residential, up to 4 stories.

Site Location: Adjacent to AD block, or within a five minute walk of a public park, school, or commercial area.



LD - Low Density: Residential building up to 3 stories and 8 units.

Site Location: Any residential zone not specified as AD or MD.



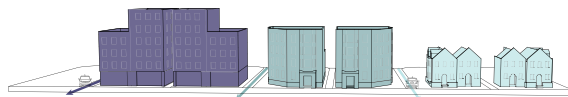
Density Bonus:

Density bonuses are available on site locations when the project introduces permeability through pedestrian laneways designated as public easements. Density bonuses allow a project to move from a lower density zone to a higher density zone (ie. LD to MD or MD to AD).

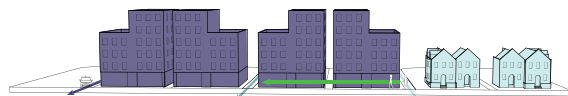
Site locations eligible for a Density Bonus:

- A cul-de-sac where the creation of a pedestrian laneway would improve pedestrian permeability.
- A LD or MD block being opened up to a AD block

Default: Arterial, Moderate, and Low Density



Upgraded Laneway: Arterial, Upgraded Moderate, and Low Density



The Cul-De-Sac Condition

Opening the cul-de-sac is accomplished by creating permeable public easements along new developments. On sites where a development cannot ensure permeability, they may lay the groundwork for a laneway, which can be completed by future developments.



Building Code Suggestions

With the influx of modern safety technology, portions of the building code can be re-evaluated to ensure our safety while enabling creative design. Recommendations include:

Egress Stairs:

For up to 6 stories in residential buildings, allow:

- (1) pressurized stair up to 4 units per floor
- (1) pressurized stair with (1) external stair for up to 6 units per floor

Timber Construction:

Allow +5 story mid-rise construction with light frame timber.

Ensuring Neighborhood Character

To aid in the creation of a vibrant and unique community, cities can:

- Incentivize projects that undergo the participatory design process.
- Use performance-based guidance to ensure respectful setbacks.

DEVELOPING LASTING AFFORDABILITY

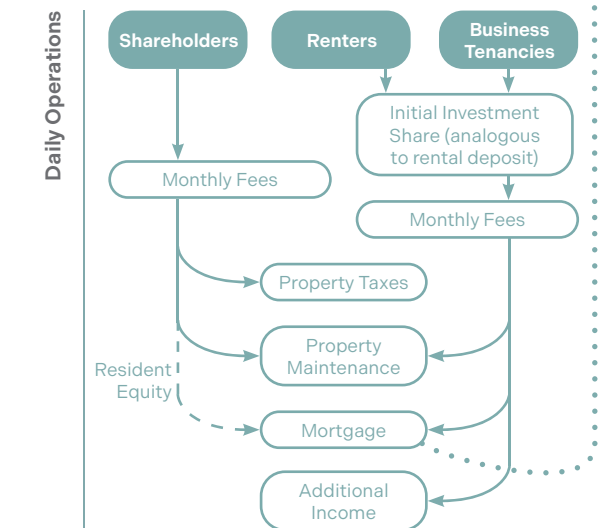
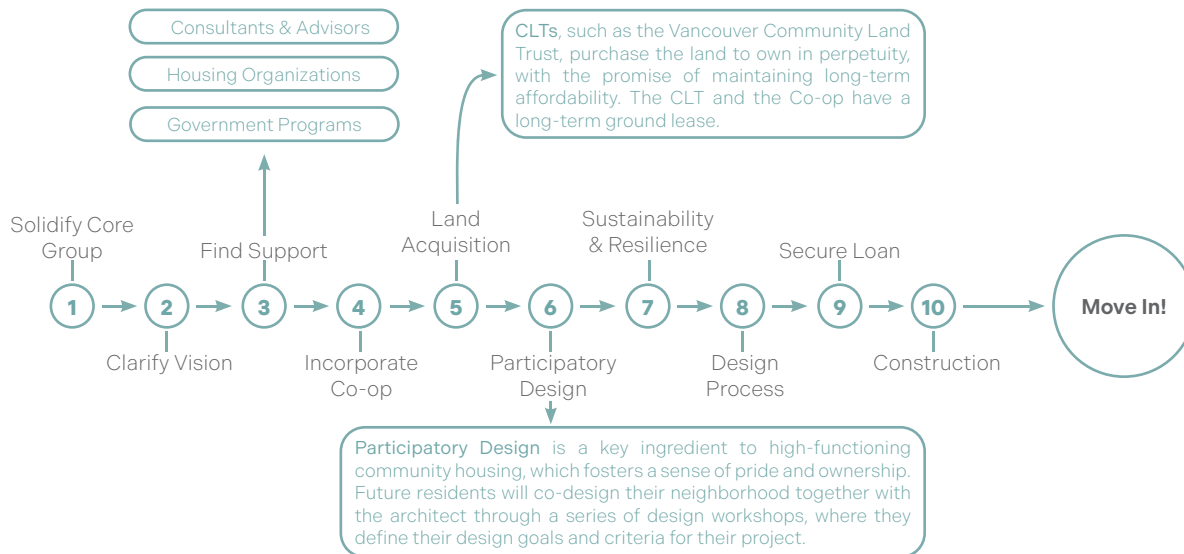
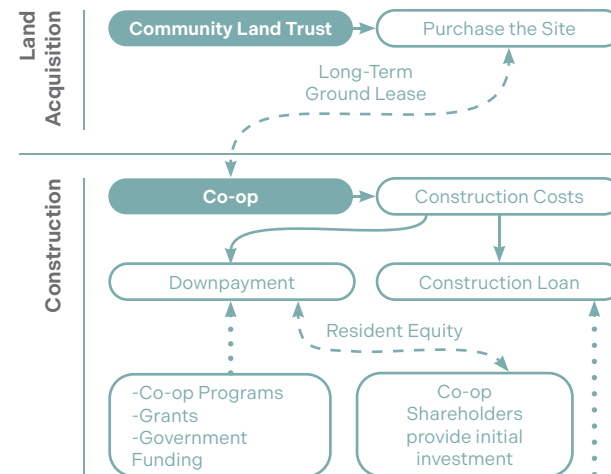
Housing has become a dilemma - rentership or homeownership; a lack of wealth accumulation or an insurmountable barrier to entry. Alternative tenures, like limited equity co-ops, offer a middle ground - striking a balance between building personal equity and affordability. In this scheme, the development of the building can be coordinated by a community land trust (CLT) and a co-op, comprising of the future co-housing community members and residents.

Long-term affordability is ensured through the nature of the co-op. Shareholder's selling price is capped by a yearly percentage, typically following inflation. Rental and business tenancy unit prices are tied to the local median equity. Subsidized rental units offer low-income housing. As the cost of construction loan is paid back in full, capital generated from rental units can be applied to development loans for other similar communities, ensuring additional communities to develop over time.

Non-profit alternative housing tenures are more reliant on government support to be financially feasible. Cities in Metro Vancouver should continue and expand initiatives to reinstate programs supporting co-op and other alternative tenure development.

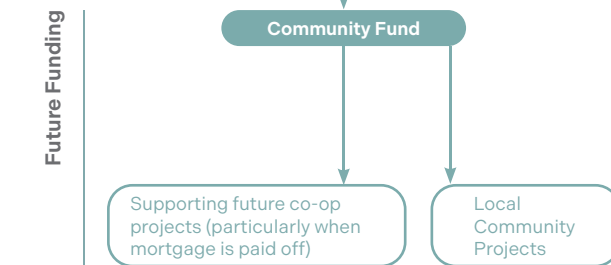


How the Money Flows



Building Operations - Cohousing Community

Co-housing communities are the social entities which govern the daily operations of the community. Decisions are carried out by consensus of the whole group during common meetings.



A PROTOTYPE FOR ARTERIAL DENSITY



Front elevation of Cul-De-Sac Nouveau.



A summer day in the courtyard.



A view down the laneway.

Cul-De-Sac Nouveau is home to two interconnected co-housing communities. Built on the ideal of a walkable city, the two buildings form a lush pathway that is primed to become a permeable laneway when joined with a future development.

The project prioritizes the pedestrian, interweaving with the indoor and outdoor social spaces, encouraging spontaneous interaction between residents and fostering a sense of community.

Built as a home to a diverse group of people, the design and circulation promote the close proximity and chance encounters that allow for long-lasting relationships.

Pedestrian & Vehicle Access



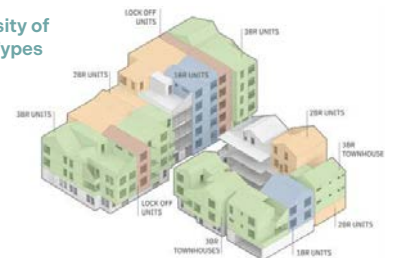
Locations of Common Spaces



Building Statistics

FSR:	2.05
Lot Size:	25,530 SF
Gross Building Size:	52,401 SF
Number of Residential Units:	54
Number of Beds:	100
Shared Social Spaces:	12,276 SF
Commercial Retail Spaces:	545 SF

Diversity of Unit Types



PEOPLE AND SPACES



Ground Floor Plan

- | | | |
|-------------------|---------------------|----------------------|
| 1. Common Lobby | 6. Childcare | 11. 1-Bedroom Unit |
| 2. Common Kitchen | 7. Coffee Shop | 12. Lock-Off Unit |
| 3. Common Dining | 8. 3-Bedroom Unit | 13. Bike Storage |
| 4. Sitting Room | 9. 2-Bedroom Unit | 14. Parking Entrance |
| 5. Play Room | 10. 1-Bedroom+ Unit | |



2nd Floor Plan

- | | |
|------------------------|--------------------|
| 1. Ad Hoc Social Space | Townhouse |
| 2. Co-Working Space | 6. 1-Bedroom+ Unit |
| 3. Common Dining | 7. 1-Bedroom Unit |
| 4. 3-Bedroom Flat | 8. Lock-Off Unit |
| 5. 3-Bedroom | |

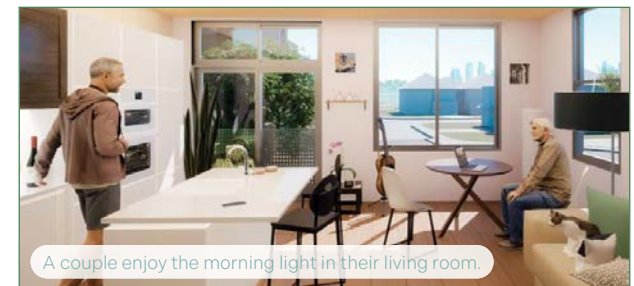


3rd Floor Plan

- | | | |
|------------------------|------------------------|------------------|
| 1. Ad Hoc Social Space | Flat | 8. Lock-Off Unit |
| 2. Rooftop Garden | 5. 3-Bedroom Townhouse | |
| 3. Celebration Space | 6. 1-Bedroom+ Unit | |
| 4. 3-Bedroom | 7. 1-Bedroom Unit | |



A view of the courtyard from the West Common Space.

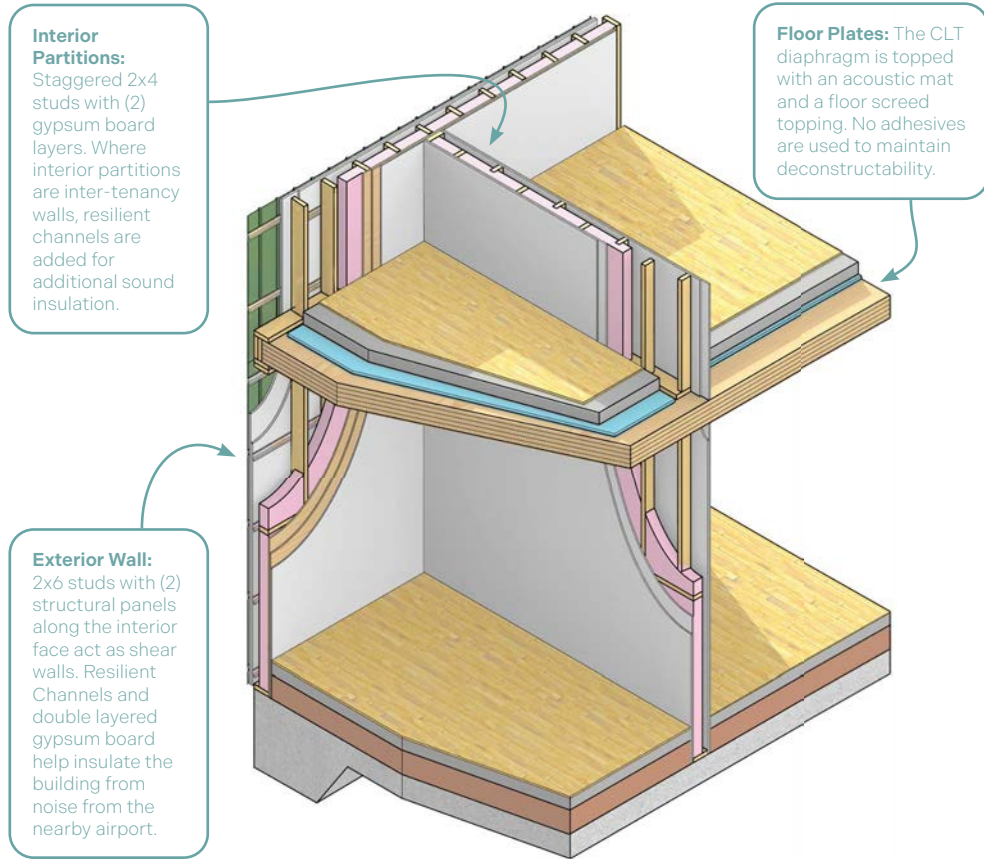


A couple enjoy the morning light in their living room.

THE NITTY GRITTY

Building Structure:

Cul-De-Sac Nouveau is a mid-rise timber building. Lateral force resisting systems are made up of cross-laminated timber (CLT) panels as diaphragms and traditionally framed stud walls as shear walls.



Building Life-Cycle:

A holistic understanding of a project's life-cycle can dramatically decrease the environmental impact of new construction. Design for program flexibility increases a building's lifespan, and design for disassembly creates a less wasteful end of life. *Cul-De-Sac Nouveau* uses the following strategies:

1 Construction:

- Wall and floor assemblies can be pre-fabricated off site or pre-assembled on site, allowing the use of heavy machinery to be completed in a tighter window.

2 Maintenance and Change of Use:

- Reduce interactions between different systems such as separating MEP from structural elements.
- Design for possible future uses. The layout of structural and non-structural walls considers the addition of commercial spaces along the ground floor, allowing future flexibility.

3 Deconstruction:

- Keep detailing standardized and repetitious to ease deconstruction.
- Where possible, minimize adhesives, and welds. Replace with mechanical connections, such as bolts and screws.

Sustainable and Resilient Design:

Sustainability is broadly recognized as a sign of responsible construction. However, the "how" of sustainability is often misperceived as too complicated, out-of-budget, or an afterthought. While the obstacle of the climate crisis can be overwhelming for a single designer, each step forward brings us closer to decreasing our impact on the environment. In a coordinated effort, all of our disciplines must strive to experiment, share knowledge and move our industry closer to our climate goals with each new project. Sustainable design should become a critical consideration, given the same importance as the safety of our designs and the constructability of our dreams.

Climate Change Resilience:

As the climate changes, we must adapt. Metro Vancouver is expected to experience at least 5 types of extreme climate events and our building must be designed to this new normal. Techniques employed by *Cul-De-Sac Nouveau* include:



Extreme Heat: Large trees and outdoor shading devices protect human health mitigate Heat Island effect.



Poor Air Quality: Air filtration systems meet MERV-13 or better.



Drought and Extreme Rainfall: Capture rainwater from the building roofs and suspended slab courtyard into cisterns stored in the underground level. Reuse this rainwater for the gray water systems.

Maximize landscaped permeable surfaces, including rain gardens, and use permeable pavements.

Limit the extent of the underground parking by encouraging car-sharing amongst the co-housing community, reducing the required parking spaces.



Sea Level Rise: Place the mechanical and electrical equipment on an elevated slab on the ground floor.

Mitigation of Future Emissions:

To meet the international 2 degree climate target, we must keep working to limit our embodied and operational emissions. A few unique approaches used by the *Cul-De-Sac Nouveau* include:



BC Energy Step Code: Achieve minimum Step 3 energy performance objectives.



District Energy Utility: Connect to the nearby Alexandra DEU. If a connection is unavailable, design mechanical rooms that can be readily upgraded once the DEU's reach expands.



Timber Construction: Maximize the benefits of timber construction by ensuring locally sourced materials and sustainable forestry practices.



Post Occupancy Analysis: Utilize building monitoring to ensure the efficiency of MEP systems and to better understand building usage.

Building Cost:

Construction Costs:

Concrete - \$340 per SF:	\$602,480
Timber - \$275 per SF:	\$15,076,050
Elevator - \$40,000 per stop:	\$360,000
Parking - \$90,000 per stall - 2-level underground parking based on 0.7 stalls per unit:	\$3,402,000
STEP Code 3:	-12%

Construction Subtotal:	\$19,440,530
Compare to base project:	\$19,803,750

Land Costs:

Land Value:	\$275 per SF
Assembly premium:	20%
Land Cost Subtotal:	\$8,424,900
Compare to base project:	\$7,425,000

Total:	\$27,865,430
Compare to Base:	\$27,228,750

Note: soft costs not included

JURY STATEMENT



This entry does a great job of showing how the cul-de-sac can be a site for opportunity. Cul-de-sacs have such an iconic status as the quintessential suburban form, and with that a reputation for being dominated by cars. Their urban form seems intractable and even hopeless. But this proposal demonstrates that density can be located on cul-de-sacs, and can even be innovative and push us ahead on sustainability. Its proposals match its goals: using a community land trust and a housing cooperative for long-term affordability, and pre-fabrication and cross-laminated timber to maximize sustainability and keep construction costs down.

HONOURABLE MENTION



MICRO-HOOD

BY MICRO-HOOD | Vancouver, Canada

Minsu Kim, Ronak Shah, Austin Mills, Kathleen Fu, Chris Hill, Antoine Morris, Emily Rennalls, Kevin Wu



SITE C (SURREY)



FSR 2.7



6 STOREY



1 LOT



64 BEDROOMS



10% POTENTIAL COST
REDUCTION

Micro-hood proposes a new approach to neighbourhood development that lets neighbourhoods evolve, enables small builders and leans into prefabrication to fill the labour gap. Using a community land trust and a deep rear yard setback, the project aims to preserve affordability and open space for the long term. While the scheme is based on a single lot redevelopment, the land trust looks ahead to a wave of similar redevelopments in the area, creating a network of shared common spaces and neighbourhood amenities.

Decoding proposals:

- Permit point access block and single loaded corridors for cross-ventilation
- Reduce setbacks
- Eliminate parking requirements
- Use pre-fabricated components that have already passed building inspection
- Allow multiple principal buildings on one lot

Micro-hood

Building an apartment building is expensive. Really expensive. Land and construction costs are on the rise, along with nearly everything else.

Micro-hood's position is that our neighbourhoods could be made better by supporting apartment buildings on single lots, that communities can be more resilient by sharing in ownership and that the way we built yesterday needs a reset.

This proposal imagines re-hashing the building rules, constructing with pre-fabricated panels and the creation of a Community Land Trust to bring a resilient, lower-carbon community to life. We've established a Code of Conduct to guide our approach.

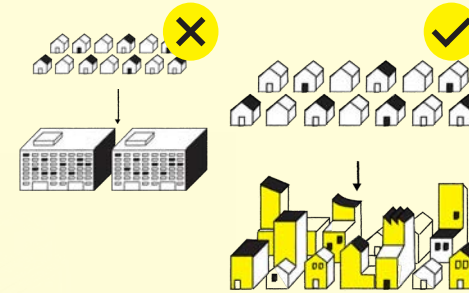


Macro Micro-hood

The Micro-hood is a comprehensive and philosophical approach to neighbourhood development, not a cut and paste architectural typology. Instead of designing a neighbourhood, we are imagining how new rules building rules could unfold.

Code of Conduct

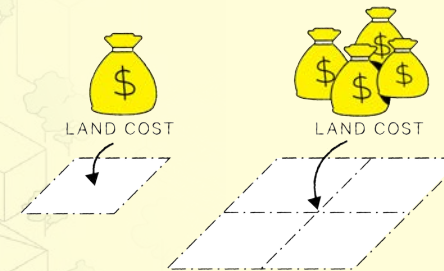
Let neighbourhoods evolve



There's something special about having neighbours that knew the story of a place before you arrived. Through lot assemblies, communities are being rebuilt from the ground-up with a severed relationship to a place's history.

Let's pass the torch from what once was, to what will be by respecting the urban fabric.

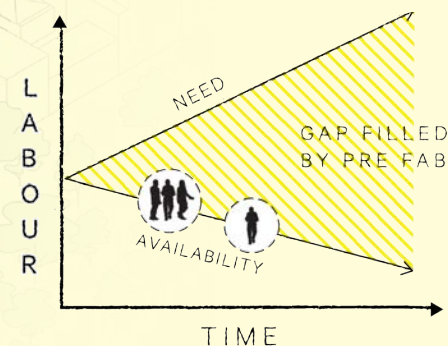
Give small builders a chance



The more lots required, the more costs are incurred. Interest on that debt can make good projects nonviable. Small-scale builders simply can't afford the same debt load as larger developers.

Let's tackle the restrictions that make it nearly impossible to build on one lot and give small builders a fighting chance.

Fill the labour gap with prefab

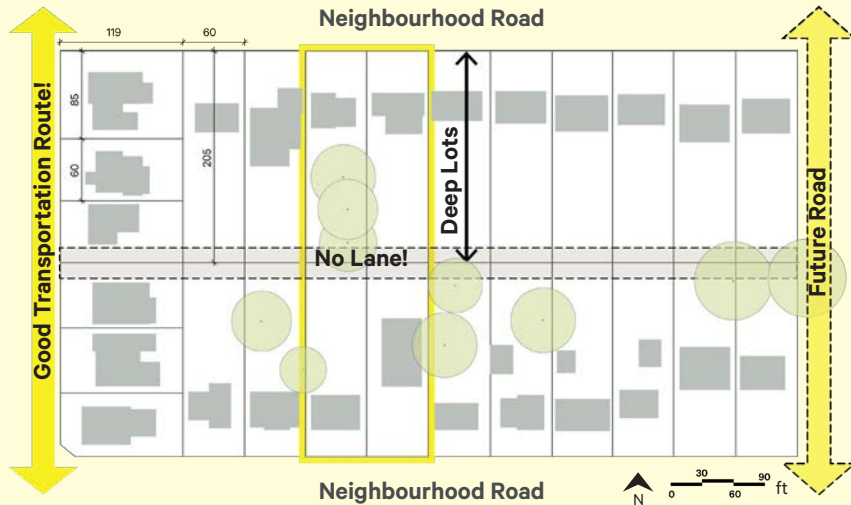


We are in a construction labour crisis and its only getting worse. The average age is increasing faster among skilled tradespeople than it is in the broader labour market. How will we build homes if we don't have the hands to do it?

Let's accelerate the prefabricated construction industry to fill the labour gap.

Breaking, Bending and Rewriting the Rules

We started reviewing Site “C”...



... then a conversation ensued...

Alright, the Urbanarium said we have to assemble 3-4 lots. So let's assemble. Then add a lane... or maybe a new road?



Wait! Metro Vancouver is full of bulky apartment buildings. When I think of cities that I love, narrow apartment buildings are everywhere.

Why default to lot assembly? And what if the municipality wasn't the one to steward the lane?



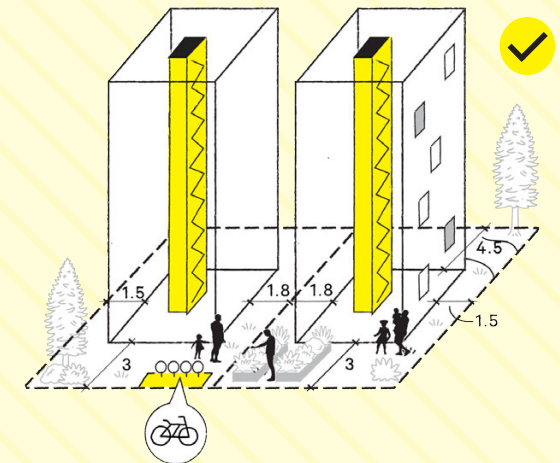
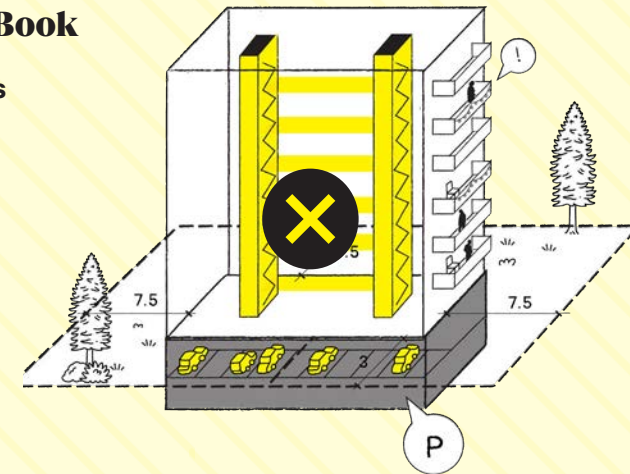
Two buildings can fit on each lot. We could use lot coverage and setbacks to help protect greenspace for each building and the neighbourhood.



We should also think about the challenges in the labour market. Prefab construction offers so many opportunities. Let's tackle the barriers getting in their way too.

Re-hashed Design Rule Book

- 1 Design with single egress**
Allow single egress (point access block) up to 12 storeys (just like Sweden!).
- 2 Minimize setbacks**
Maximize buildable area while accommodating for fire egress, privacy between facing units, and sunlight penetration in units.
- 3 Minimize expensive parking requirements**
Let the market decide.
- 4 Give permits to prefab factories**
Just like modular homes, pre-inspect prefab components so that building inspectors can be confident with new building methods.
- 5 Require builders to provide shared outdoor amenities**
Focus less on private outdoor space and instead on shared amenities that support community-building.
- 6 Permit neighbourhood-scale commercial uses**
Who doesn't like corner stores?
- 7 Create a deep rear yard setback**
Maintain a 4.5m setback to protect greenspace while allowing space for multiple buildings.
- 8 Allow multiple "principal" buildings on one lot**



Construction 2.0

We are and have been in a construction labour crisis for years. The crisis is worsening, 25% of Canada's 4 million tradespeople will need to upgrade their skills within five years amid significant digital disruption. 700,000 skilled trades workers are set to retire by 2028 and we don't have enough apprentices to backfill those positions. How will we build the homes we need if we don't have the hands to do it?

Making prefabrication work

Begin with prefabrication in mind

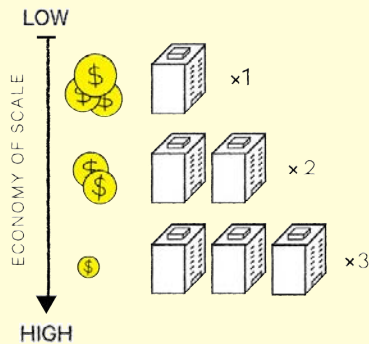
The typologies use a standard maximum panel size of 10 by 16 feet. The panel size forms the space planning module. The largest panel width that avoids expensive wide load permits is approximately 10 feet. With it, one can obtain a floor-to-ceiling height of 9 feet. The maximum panel length is about 16-20 feet. Anything more than that and you begin to get concerned about flying panels over buildings.

Inspect ahead of time

We shouldn't put all the burden of risk on municipalities. Certifying factories, just like we certify mobile home or car manufacturers, will give peace of mind for all involved.

Economic rationale

Building with panelized pre-fab is not necessarily less expensive than traditional wood frame when just one building is compared to another. The benefit of pre-fabrication is realized when scale is reached. Multi-family housing provides a far greater opportunity for achieving an economy of scale than single-family forms.



The Prototype



DESCRIPTION	
Building type	6 storey using prefab wood panels
FSR	2.7
Lot Size	12,330 sf.
Gross Building Size	32,453 sf
No. of residential units	40
No. of bedrooms	64

CONSTRUCTION COSTS	MULTIPLIER	VALUE
Wood	\$375 per sf.	\$12,169,946
Elevator	\$40,000 per stop	\$280,000
Parking	\$90,000 per stall	\$1,260,000
TOTAL		\$13,709,946

Legend

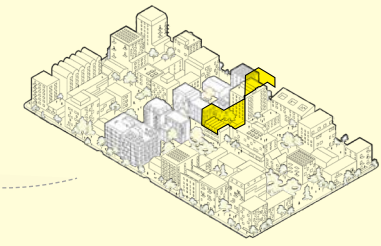
- Amenity
- Commercial
- Studio
- 1 BDR
- 2 BDR
- 3 BDR
- TH Townhomes



Following the New Rule Book

This example - one of many - achieves:

- Units that support all sorts of household sizes ranging from singles to families.
- Space efficiency - corridors are nearly eliminated
- Cross-ventilation
- A variety of indoor amenities
- Outdoor shared spaces
- A coffee shop at your front door



Tenure

The housing conversation is focused on owning vs. renting, but there is a wide gradient in-between that can provide affordable options. As Metro Vancouver's age demographics shift and the make up of households changes, more forms of tenure should be explored.

We propose a **Community Land Trust (CLT)** to facilitate **community-oriented development, stewardship of shared open spaces, and non-profit land ownership that provides affordable and secure tenure. It's called Surrey Street CLT.**

Definitions

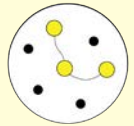
A Community Land Trust (CLT) is a form of cooperative ownership where several members of the community and values-aligned funders pool resources to own and develop property. In British Columbia, CHF BC has used a CLT as a mechanism for preserving and developing housing that is affordable to a wide swathe of residents.

A life-tenancy is a form of tenure. A current owner can give someone the right to live in a property until they pass away, afterwards, the property can be fully transferred to someone else or return to the original owner.

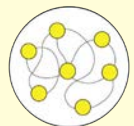
The Surrey Street CLT is born



Each lot in the neighbourhood is owned separately.



Then, neighbours in the Surrey Street CLT and aligned funders pool money to purchase lots.



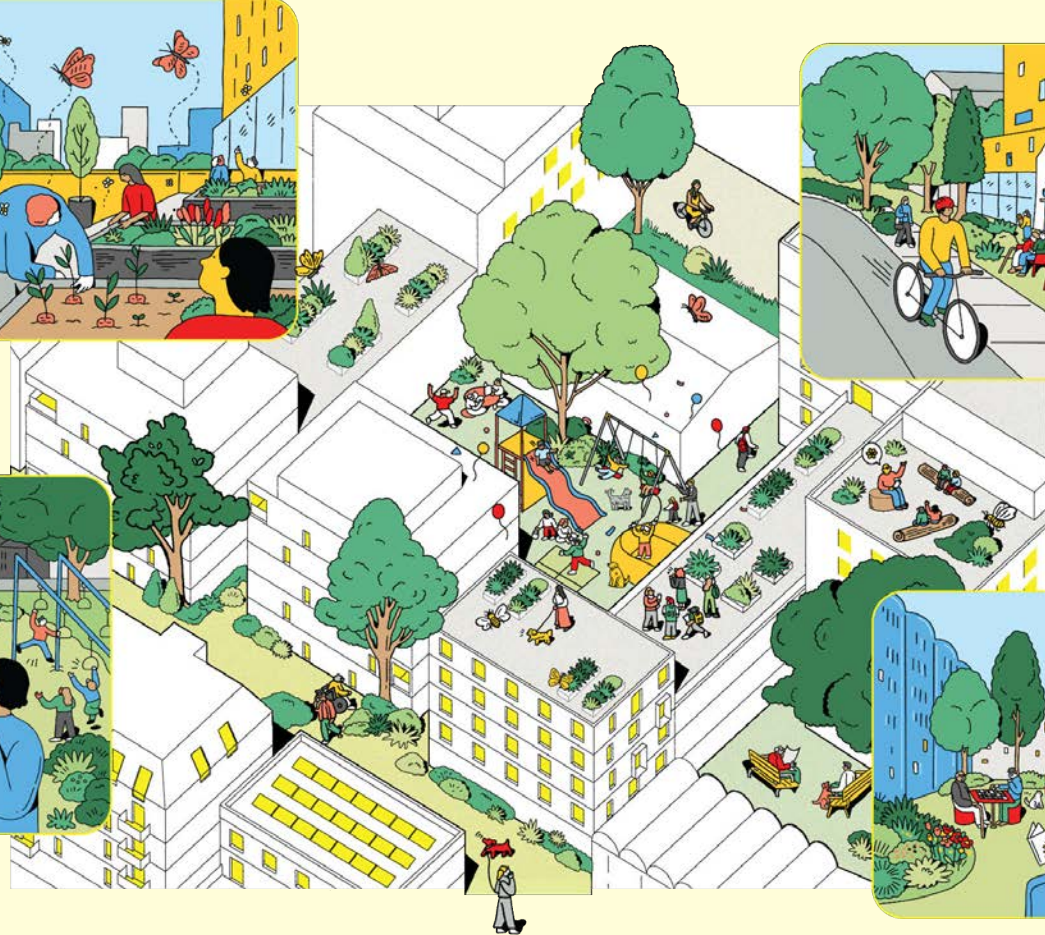
Eventually, the neighbourhood is a network of shared resources.



Walter lives within the Surrey Street CLT community area. He is a retired senior resident and a widower. He is contemplating selling his home but can't find an option in his neighbourhood that suits his need or his limited retirement savings. His home is a keeper of dear memories and Walter doesn't want to leave a place that he shared with his late wife and their children.

Walter offers to sell his home to Surrey Street CLT.

They drum up a life tenancy agreement whereby Walter maintains the right to use the accessible main floor and lease out the ground floor to a member of the CLT. The CLT has the right to develop the remainder of the property. Once Walter passes away, the CLT would be full owners of the property.



Overtime the Surrey Street CLT redevelops the neighbourhood with shared common spaces and neighbourhood-scale services. Here's how.



The CLT builds a small apartment building in the remainder of the property and operates it as a Co-Op, tying fees to the incomes of residents. The apartment residents share a large food garden with Walter. Sulay, a resident of the apartment building moves her pottery studio and gallery into Walter's ground-floor unit. Walter gets first dibs on newly fired works of art.



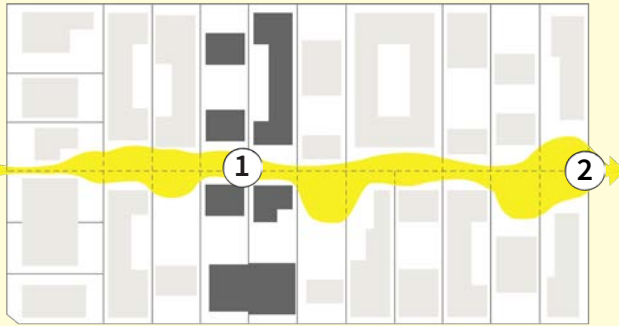
The CLT continues to form life-tenancies within the neighbourhood, allowing existing homeowners to age-in-place while developing the property. With each property acquisition the CLT registers a covenant on title to maintain a large rear yard setback. Overtime, a semi-public park emerges that is stewarded by the residents of the neighbourhood.



Living in the Open

When ample open spaces stitch dense neighbourhoods together, less private space is required. Over time and through intentional development, Surrey Street CLT forms a semi-public park that runs through the middle of the neighbourhood block. **They name it the Lifeline.**

The Lifeline



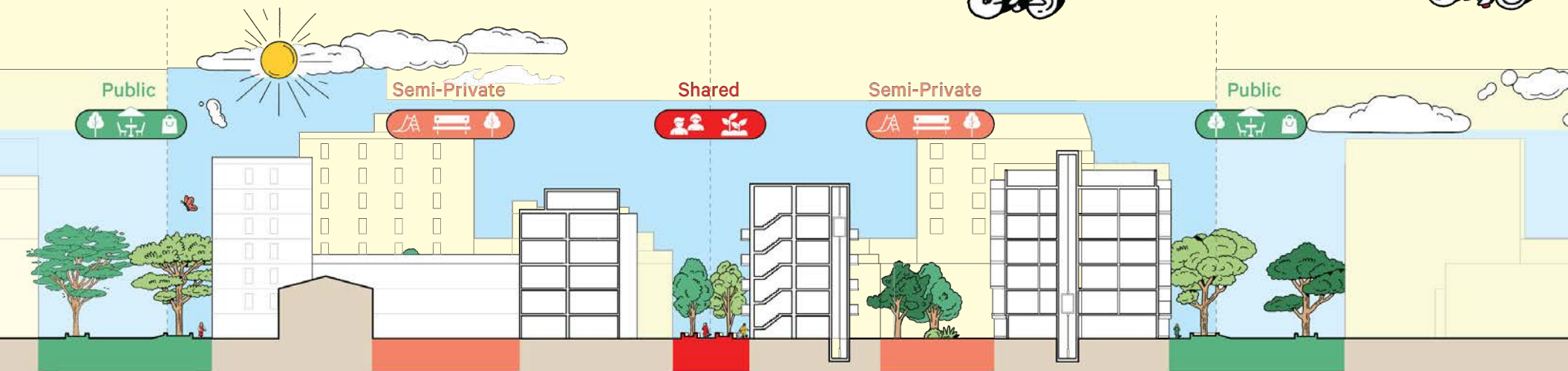
The Lifeline includes the rear yard setback and any remnant outdoor spaces. While each building would steward their portion of the lifeline, together the outdoor spaces form a shared network, governed through the Co-Ops that make up the Surrey Street CLT.

The Lifeline is just one of a series of open space typologies. With neighbourhood-scale shops allowed fronting any neighbourhood street, there is a spectrum of highly public to semi-private spaces throughout the Micro-hood.



1 Open spaces between buildings deeper in the Lifeline may be more private: think of spaces for gardening, hosting a long-table dinner, or walking a dog.

2 Open spaces closer to the street may be more social, with cafes, daycares and shared patios framing the Lifeline.



A Day in the Lifeline

The Lifeline is full of open spaces and neighbourhood shops. It is where neighbours build life-long connections across generations. Imagine all the possibilities!



7:00 AM

11:00 AM

What if I could walk to the daycare just down the street?
What if my neighbours could offer childcare in a reciprocal exchange?

What if I didn't have to drive to meet my daily needs?



What if it was easy to convert old neighbourhood homes into new uses? Like an art studio or gallery!

What if we had shared spaces for gardening and gathering that were stewarded by the neighbourhood?

2:00 PM



5:00 PM

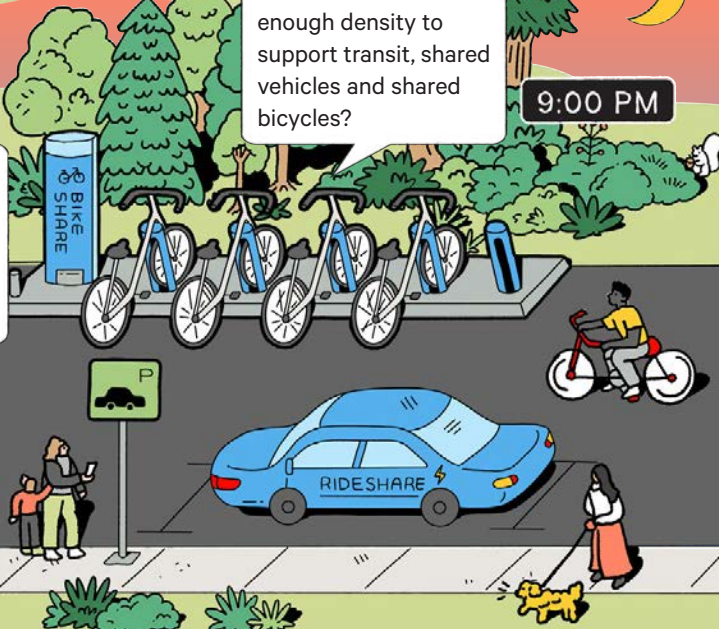


What if we had enough density to support transit, shared vehicles and shared bicycles?

9:00 PM

What if small businesses were allowed wherever, including in upper floors of buildings?

7:00 PM



JURY STATEMENT



The jury appreciated the emphasis on tenure, financials and land trusts in this proposal, all communicated clearly and beautifully in the submission. The proposal uses a community land trust and a co-ownership model to create a lower carbon community. The design updates a barbell form but creates a larger community space at the centre. The interest in using prefab to fill in the labour gap responds to current market conditions and shows a thoughtful approach to larger systems. By sticking to single lot developments, the proposal gives smaller builders a chance to thrive.

HONOURABLE MENTION

LOTS! OF BUNDLES

BY REBUILD COLLECTIVE | Cincinnati, United States

Peter Yi, Peter Loayza, Amanda Skyler, Leah Roodhouse



SITE D (VANCOUVER)



FSR 2.72



6 STOREY



1 LOT



33 BEDROOMS



18% POTENTIAL COST
REDUCTION

Lots! of Bundles is a community-led housing project that stacks matching programs to create a “stem” running vertically up the six-storey building. Using this scheme, a new building on a single lot with no underground parking provides good solar access and creates units for individuals and families with ample green space on the roof and shared spaces. The ground level is designed as a common house of shared living, cooking, and dining spaces, as well as a guest unit and an accessible unit.

Decoding proposals:

- Allow 6 storey buildings everywhere
- Point access block
- Implement solar access guidelines
- Reduced side and rear setbacks
- Require parking for accessibility and car share only (0.125 spots/unit)
- Legalize shared and mutual aid housing types
- Incentivize housing projects that include affordable units currently in short supply
- Incentivize community-led housing through a Neighbourhood Benefit Bonus (NBB)

Lots! of Bundles is an imaginative and practical design toolkit for growing density through community-led housing.

As cities including Vancouver embrace zoning reform to address the housing crisis, we have the opportunity to not only increase density but also mend our social and environmental fabrics. Our proposal, Lots! of Bundles, offers a restorative approach to densification by connecting zoning reform advocacy with the community-led housing model.

Community-led housing is a way for resident collectives to self-organize and build cohousing. Cohousing offers an actionable solution to housing affordability: a combination of private units and shared spaces that fosters mutual aid and reduces housing costs. Zoning reform can act as a catalyst for more community-led housing by opening new development sites, reducing regulatory burdens, and increasing cohousing viability. In return, community-led housing, with its emphasis on resource sharing, environmental care, and grassroots development, offers a sustainable and socially conscious path toward densification.

Lots! of Bundles is an eight-part design toolkit that translates design imagination into practical solutions. This toolkit empowers community-led housing groups to design their own spaces, adapting them to specific sites, needs, and budgets.

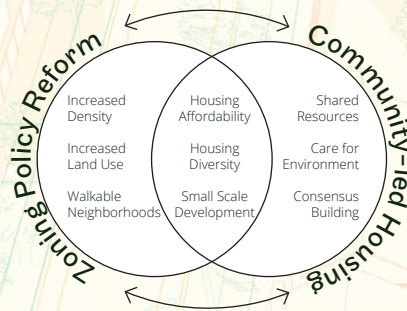


Fig 2. Zoning Policy Reform and Community-led Housing can provide mutual support and meet common goals.

Uncover New Sites

A critical and challenging first step for a group looking to build cohousing is to select a site, which is driven by a combination of desired area, needed services and amenities, available land, and construction cost. There are currently 23 completed cohousing communities in Canada, 15 of which are in British Columbia. A lot more can be constructed if new land is opened up that is welcoming to cohousing development.

In 2021, the city of Vancouver approved up to six-story residential buildings to be constructed on arterial streets. This legalization can be expanded to the surrounding neighborhoods, opening up the options for community-led housing groups to find attainable and desirable land to build housing. At the same time, community-led housing, with its stewardship approach to land and resource sharing, can act as a good model for introducing higher density housing into formerly low-rise neighborhoods.

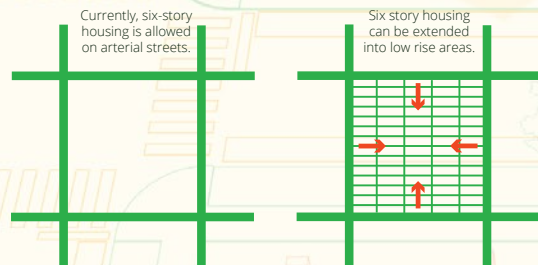
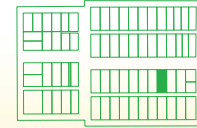


Fig 3. Expansion of legalized six-story residential buildings from arterial streets into residential blocks.

Fig 1. A view of our proposal, shown adapted to a single 50' x 122' lot in Site D. One of the biggest challenges to zoning reform is neighborhood resistance. In response, we propose a scalable building form that adds beauty to the neighborhood through green space, and is shaped by preserving solar access to neighbors.

Building Data:
 Building Type: 6-Story Light Wood Frame with Mass Plywood Panel Floors
 Total Lot Size: 6,100 sf
 Gross Building Area: 16,586 sf
 Net Building Area/Efficiency: 14,606 sf/88%
 Bonus Rooftop/Terrace Green Space: 5,040 sf
 FSR: 2.72
 Total Units/Bedrooms: 31/33

Location of Our Proposed Lot in Site D:



Key Design Features

Solar Stepping preserves solar access to neighbors while creating attractive balconies lined with planting trellises.

Point Access Block design arranges unit clusters around a single exit, saving cost and creating flexibility.

"Stem and Bundle" modular design can be configured for different unit types and lot dimensions.

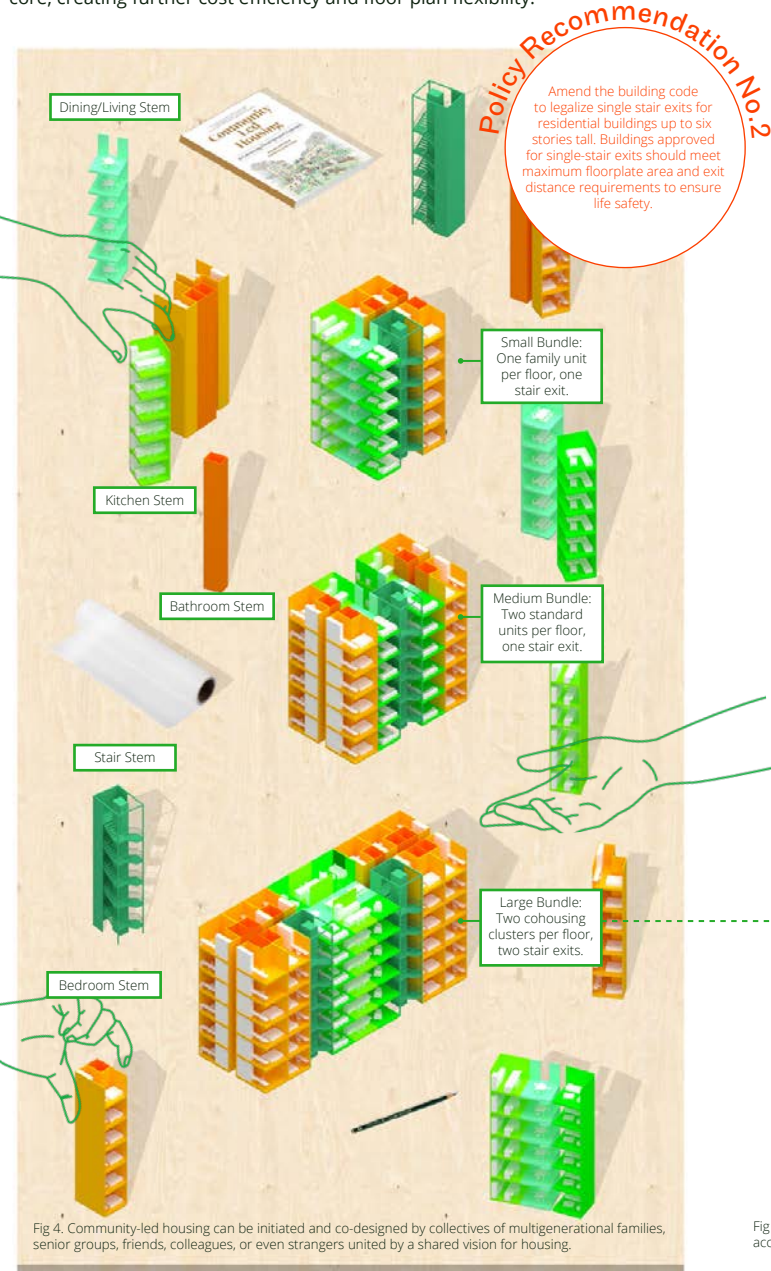
Terraced Rooftop Gardens allow for onsite food growth and water reuse while breaking down building scale.

Porous Common House connects the social life of the building to the neighborhood and opens side alleys.

Policy Recommendation No. 1
 Amend zoning code to legalize by-right approval of six-story residential buildings in all residential zoned land. Create incentives and guidelines for community-led housing groups to initiate housing projects in these areas.

Design Together with Stems and Bundles...

A community-led housing project is designed collaboratively by its future residents. Our proposal starts as a collection of "stems": stacked rooms of the same type, including stair cores, kitchens, bathrooms, bedrooms, and living spaces. These stems can be arranged by a group of residents into different "bundles" that serve their specific housing needs. The use of stems results in stacked service walls and modular units, benefiting construction cost and efficiency. Furthermore, our proposal amends the current building code to legalize single-stair exits for six-story residential buildings. Modeled after the Point Access Block typology commonly found in Europe, the bundles are comprised of different units aggregated around a single stair core, creating further cost efficiency and floor plan flexibility.



... and Create Solar Access

Architecture professor and theorist Ralph Knowles wrote that there is "a remarkable variety of ways to live in the city within a height range of three to seven stories" that preserves access to natural light for inhabitants. Our proposal applies lessons from Knowles' influential research on solar access design, which he termed "solar envelopes," for introducing six-story residential buildings into an existing low-rise neighborhood. The bundled stems can create solar benefits for residents and neighbors and adapt to different site conditions: stepping down to the south to reduce its cast shadow, and stepping in at the east and west to allow more sunlight into side alleys shared with neighboring buildings. The resultant spaces created by the stepping become well-illuminated outdoor terraces and balconies.

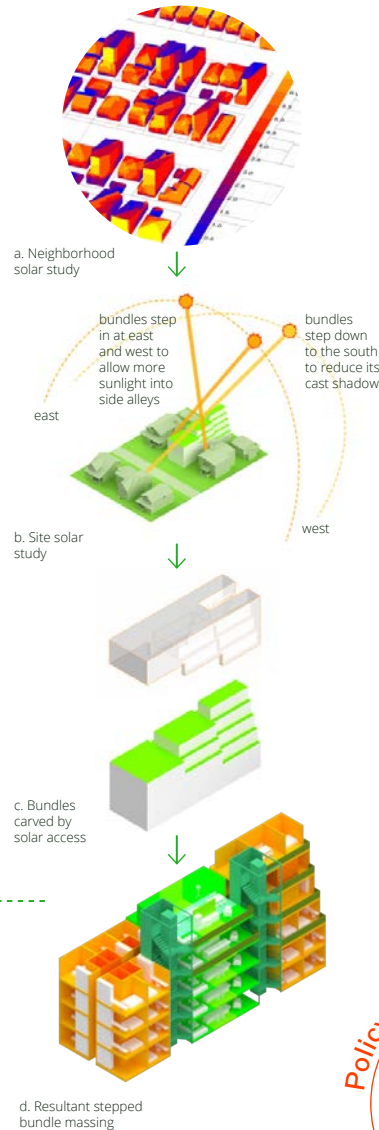


Fig 5. Solar design tools shape each bundle according to the solar access needs of its particular site.

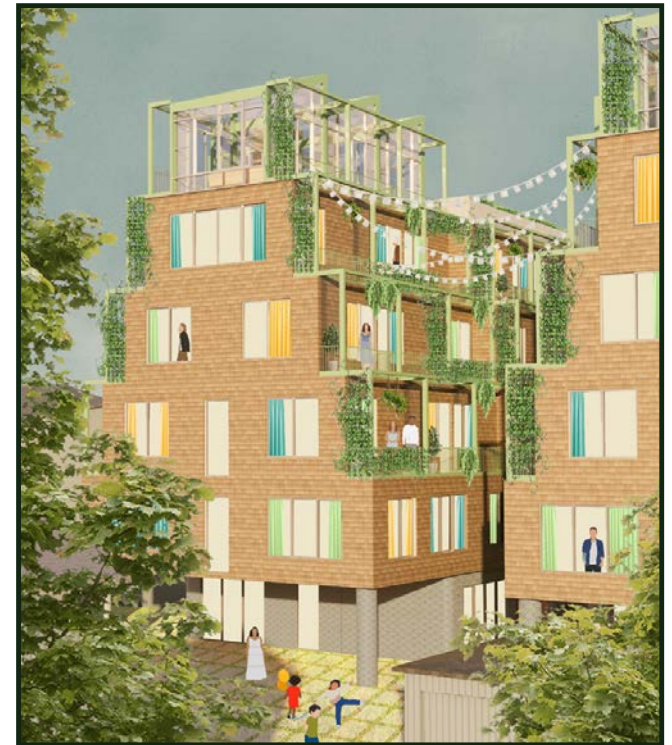
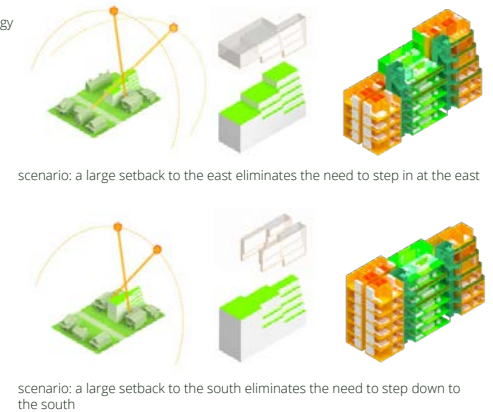


Fig 6. Aided by the stepped bundle forms, rays of sunlight shine deep into the "canyon" carved between two of our designs built side by side, illuminating terraces full of life that spill from the roof to the alleyway below.

Fig 7. The solar access strategy changes depending on surrounding site conditions, resulting in a diverse array of bundle forms.



Policy Recommendation No. 3
To aid in the introduction of six-story residential buildings into existing low-rise neighborhoods, implement solar access guidelines for all new construction that preserve a set number of sunlight hours for neighboring buildings.

Fig 4. Community-led housing can be initiated and co-designed by collectives of multigenerational families, senior groups, friends, colleagues, or even strangers united by a shared vision for housing.

Replan the Ground Level as a Common House

Community-led housing projects include a common house: a collection of spaces shared by all residents as an extension of private domestic space. Our proposal reimagines the ground floor as a common house, creating a more porous relationship between the building, site, and neighborhood. Because a common house celebrates social activity and the use of outdoor space, our proposal loosens setback restrictions to take advantage of more buildable area on a lot, while carving out nooks of outdoor space that invites the activation of side and back alleys. This creates new lateral connections across the block through greenways that support mobility and walkability.

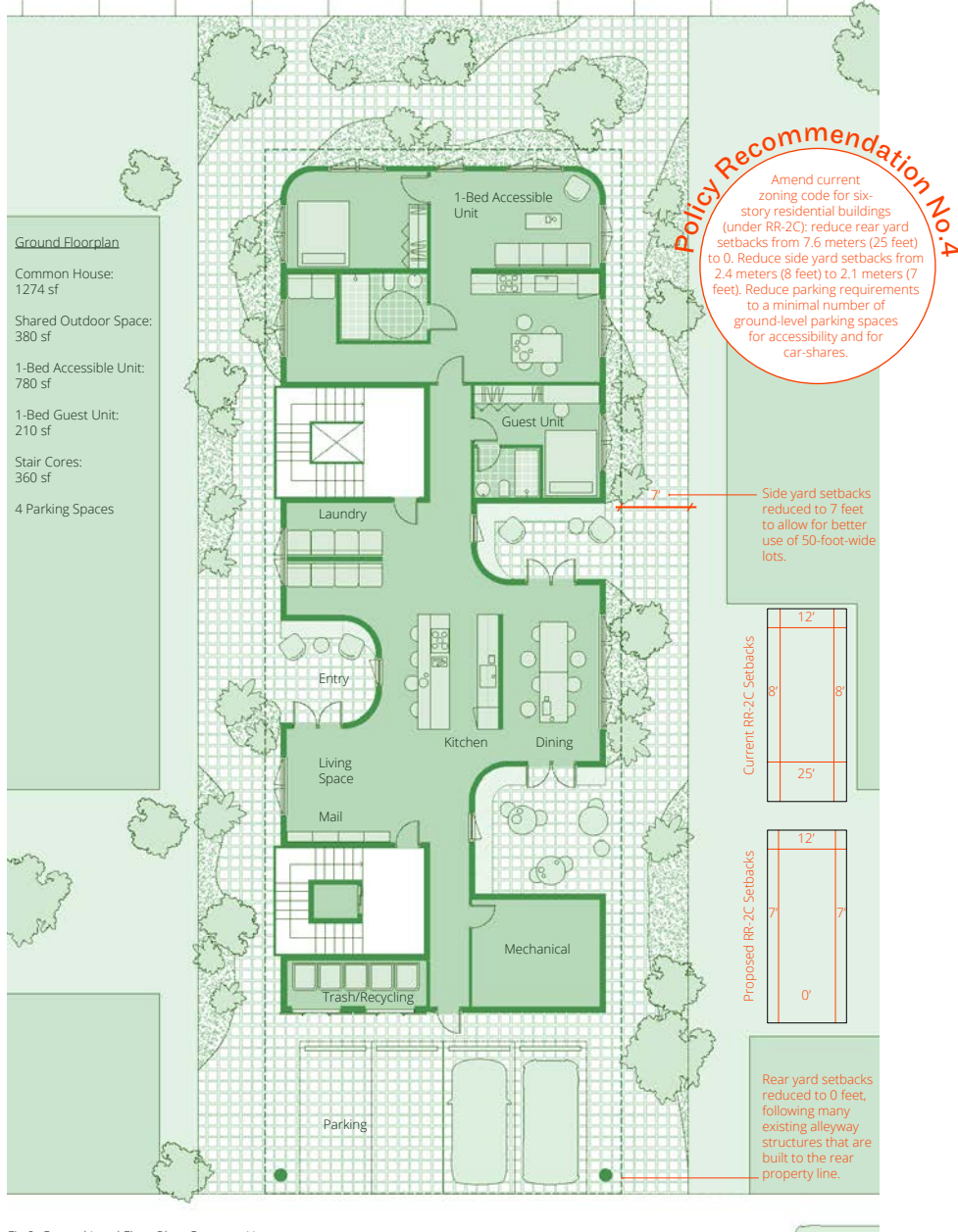


Fig 8. Ground Level Floor Plan: Common House



Fig 9. A side view of the building reveals the different layers that make up its geometry: a ground floor Common House full of nooks for gathering, a mass of housing units supported above that steps toward the sunpath, and a verdant layer of roof terraces draped over the top of the building.



Fig 10. The north side of the building, facing the street, blends into the neighborhood with its gentle form and cedar shingled walls.

Create Room for Individuals...

Community-led housing projects are tailored to the specific housing needs of its residents, and by nature expand housing unit types beyond the limited options found in larger housing developments. These expanded unit types range from smaller units that share common spaces (ideal for young professionals and elderly), to larger, fully private units with multiple bedrooms (ideal for families.)

In this plan layout for a lower level in our proposal (full floorplate), we adopt a collective cohousing model, with ten affordable private units sharing a generous living space. The shared living space includes two kitchens separated by a central dining/working area, which divides the living space into nine different zones. This allows for a diverse array of activities to coexist in the shared living space, serving both residents who are looking for alone time and residents who are looking to socialize

Typ Cohousing Floorplan

1-Bed Cohousing Units:
210 sf each (10 Total)

Common Living Space:
1655 sf

Stair Cores:
360 sf



Fig 11. Ground Plan



Fig 13. Third Floor Plan

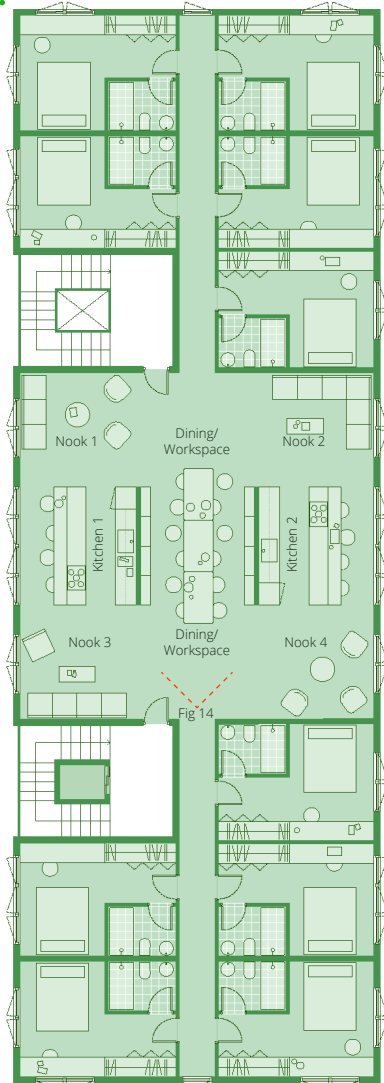


Fig 12. Second Floor Plan: Cohousing Floor

Policy Recommendation No. 5

Fully legalize shared and mutual aid housing types in zoning and building code, including cohousing, cooperative housing, co-living, supportive housing, and single-room occupancy housing. Remove density restrictions such as maximum unit counts and limitations on shared spaces that make it difficult to construct such housing.

Policy Recommendation No. 6

Create density bonus and tax credit incentives for housing projects that include affordable units currently in short supply, particularly small units that use shared living spaces, and three or more bedroom family units that serve multigenerational families.



Fig 14. In the heart of the building, a shared cohousing living space opens completely from east to west, providing different sunlight exposures and cross breezes. Two kitchens create ample opportunity for enjoying food, whether together with others or alone.



Fig 15. A private bedroom basks in the dusk light. Many of the building's rooms open out to a balcony lined with trellises, extending living space to the exterior.

... and for Families

In this plan layout for an upper level in our proposal (partial floorplate with outdoor terraces), we show a three-bedroom multigenerational family unit. The unit has three differently sized bedrooms, with one of the bedrooms separated as a suite, ideal for a grandparent or a young adult. Ample balconies extend interior space into the exterior. A large rooftop garden can be accessed by all residents of the building through the stair core.

Because of the one-size-fits-all approach created by the housing market, Vancouver is failing to meet the housing needs of more diverse groups. On one end, this includes smaller, affordable units that take advantage of shared spaces. On the other end, this includes three bedroom units for multigenerational living. Our proposal empowers community-led housing groups to create both types using our kit of parts.

Family Unit Floor

3-Bed Family Unit:
1380 sf

Private Balcony Space:
385 sf

Shared Roof Terrace:
2000 sf

Stair Cores:
360 sf

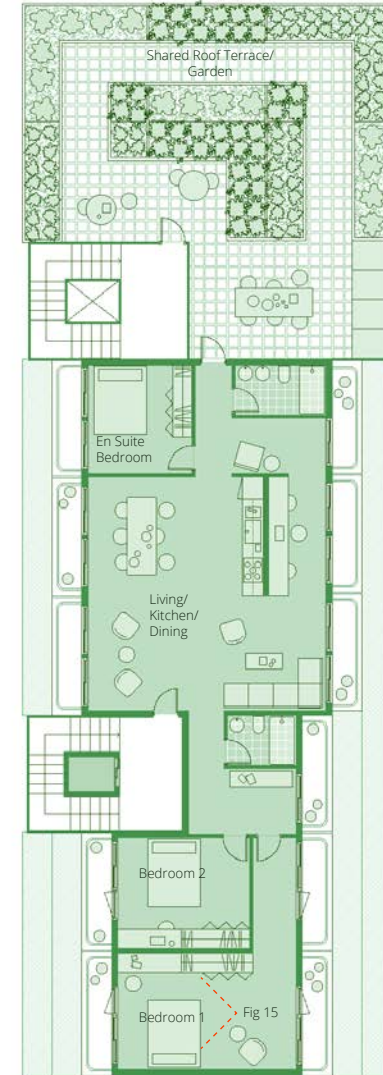


Fig 17. Fifth Floor Plan: Multigenerational Family Unit



Fig 16. Fourth Floor Plan



Fig 18. Sixth Floor Plan

And Lastly, Build Impact and Advocate for Change

Community-led housing projects are grassroots efforts initiated by self-organized groups. Improving our built environment through zoning reform requires a similar initiative: through collective action on individual lots. Community-led housing and zoning reform can work together and engender a movement to densify low-rise neighborhoods through tenets of mutual aid and environmental care.

Imagine: as community-led housing grows, the neighborhood itself will transform and reveal possibilities of cooperation between neighbors. Streets, fences, and hedges will give way to connective green spaces and community amenities. Lots! of Bundles of all shapes and sizes appear, maintaining the diverse fabric and character of the neighborhood even as it grows in density.

Cost Base Case: Site D

	Base Case	Units	Submission	Units	Notes	
Building Type:			6-story wood frame building to Step Code 4.			
FSR:	2.5		2.72			
Lot Size:	22,500 SF		6,100 SF		One 50' x 122' lot	
Gross Building Size	56,250 SF		16,586 SF			
Net Building Size	47,800 SF		14,606 SF			
Efficiency (net/gross)	85%		88%		Our proposal uses single exit stairwells, which increases efficiency and reduces cost.	
Number of residential units	75		31			
Number of bedrooms	90		33		Our proposal includes primarily cohousing units.	
Shared social space	1,500 SF		5,437 SF		Our proposal includes a common house on the ground floor and additional shared living spaces on other levels.	
Square footage of commercial/retail space	6,000 SF				While our proposal does not include retail space, the ground floor space and rooftop greenhouse can host events and be rented out for additional income.	
Bonus rooftop/terrace living space			5040 SF		Our proposal includes ample roof gardens and balconies that act as "bonus" outdoor living space.	

	Base Case	Units	Submission	Units	Notes
Land Costs					
Land Value	\$700 SF		\$700 SF		
Assembly Premium	20%		20%		
Land Cost Subtotal	\$18,900,000		\$5,124,000		

Construction Costs							
	Multiplier	Units	Base Case	Units	Submission	Units	Notes
Concrete	\$435	SF	\$0				
Wood	\$385	SF	\$21,656,250		\$ 6,385,610	SF	
Elevator	\$40,000	per stop	\$240,000		\$240,000		
Parking	\$120,000	per stall	\$5,400,000				We propose eliminating parking requirements, and provide four covered ground level parking spots for accessibility and car-share.
Step Code	-12%				-12%		
Other?							
TOTAL			\$27,296,250		\$6,625,610		

	Base Case	Units	Submission	Units	Notes
TOTAL					
Land Costs	\$18,900,000		\$5,124,000		
Construction Costs	\$27,296,250		\$6,625,610		
(Soft Costs not included)	0		\$0		
TOTAL	\$46,196,250		\$11,749,610		

Financing Options:

Strata Title: Building is self-funded by residents or with developer partner. Each household has separate title to their own home and common space.

Community Land Trust: Building is self-funded by residents, who create a non-profit to hold the land permanently for affordability, with individual units owned by residents.

Rental Housing: A non-profit or small scale developer funds the building, and rents it out to residents. Additional funding can be secured to provide supportive services.

What makes our proposal affordable?

Key factors include: making use of outdoor/landscape space as living area, using shared living spaces, using stacked service walls and modular room sizes, using single-exit stairs, eliminating parking requirements, and using simple wood frame construction.

Policy Recommendation No. 8
Create a Neighborhood Benefit Bonus (NBB) for community-led housing that recognize the benefits such projects provide for the neighborhood. The NBB provides incentives similar to a Density Bonus Law and enable increased dwelling units, FSR, and building heights while eliminating onerous approval processes.

Neighborhood Benefits

Affordable Housing: Housing incorporating shared spaces creates affordable options for a wider range of income levels, and can relieve rent increases for existing residents.

Green Space: Rooftop gardens, balconies, and porous ground floors increase green and pervious surfaces in the neighborhood, creating a better environment for all to enjoy.

Increased Mobility: Our proposal activates side alleys and links streets and rear alleys, creating lateral connections across blocks to improve mobility and walkability.

Care Infrastructure: As new housing enables more residents to move into the neighborhood, new amenities such as libraries, childcare centers, and pocket parks can be sustained.

Public Transport: Added housing grows public transport ridership and bike-share usage, funding additional bus and bicycle infrastructure.

Solar Access: Our proposal spurs guidelines for equitable access to natural light and the preservation of open green spaces.

Incremental Growth: Starting at the size of one lot, our proposal can plug into existing neighborhoods without the need for land consolidation.

JURY STATEMENT



Lots! of Bundles uses a scheme of stem and bundles to think about prefab and flexible design. This approach also facilitates the delivery of housing that includes co-housing to a variety of stakeholders. The jury appreciated the innovative floor plans this yielded, noting the innovative floor plans and the clear articulation of shared spaces. A smart approach to rooftop gardens, solar design and stormwater complements the thoughtful approach to site design that allows a greenway through the site to create stronger connections in the neighbourhood.

HONOURABLE MENTION

THE CO-FINITY VILLAGE

BY CO-FINITY | Burnaby, Canada
Cyrus Wu , Melanie Vanco, Alvin Wang



SITE A (BURNABY)



FSR 3.4



6 STOREY



4 LOTS



142 BEDROOMS



16% POTENTIAL COST
REDUCTION

Co-Finity Village is a mixed-use development of rental apartments and co-housing that emphasizes sharing, collective activities and living sustainably with nature. With two levels of program below ground and limited at-grade parking, the scheme takes full advantage of the site to increase density and create more affordability. The design uses green building materials such as hempcrete and mass timber, and prefabrication panels for greater insulation to reduce reliance on mechanical systems. Integrated rooftop gardens create community space, shared activities and further underscore the importance of sharing.

Decoding proposals:

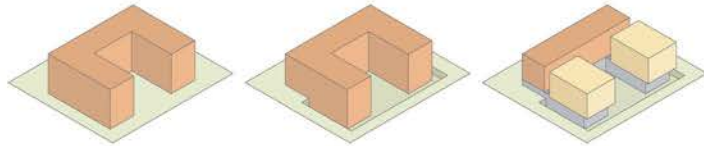
- Parking for car share at 0.1 spots/unit, at grade with lane access; no underground parking
- Allow only natural, passive ventilation
- Incentivize hempcrete and prefabrication for sustainability and energy efficiency
- Incentivize solar panels and grey water systems
- Approve developments through a Sample Approved Plan process
- Reduce setbacks at side and rear following Vancouver's C-2 zone

THE CO-FINITY VILLAGE

Co-Sharing Co-Living Co-Thriving

The world around us moves quickly to modernize and urbanize, new technologies surface that allow us to create long distance internet connections and powerful machines enable us to travel far distances, we spend money on consumer goods and hoard material goods in our homes. The future within the capitalist environment continues to promote expansion and densification but many people are reluctant to move to the fast paced urban environment of the city. Alternatively, they may seek out slower rural lives where they can join a small village to find that sense of community they were missing from the city. Now imagine if you could find that village environment within the urban fabric. A place where you know all your neighbours because you share a table at dinner with them almost every night. Where all you need to do is walk down the stairs to get to your local coffee shop, pub or community center. Where you can gather with your friends in the courtyard for live music. Where your kids don't have to leave your sight to go play at the park. Where you can grow your own garden or start a new hobby. A place where everyone works together, shares together, lives together and thrives together. The Co-Finity Village.

The building consists of mixed uses with public and commercial amenities sunken down on the lower two levels, two towers with residential apartments, a large central social co-housing facility that all surround a large public vegetated courtyard.



MAIN GOALS

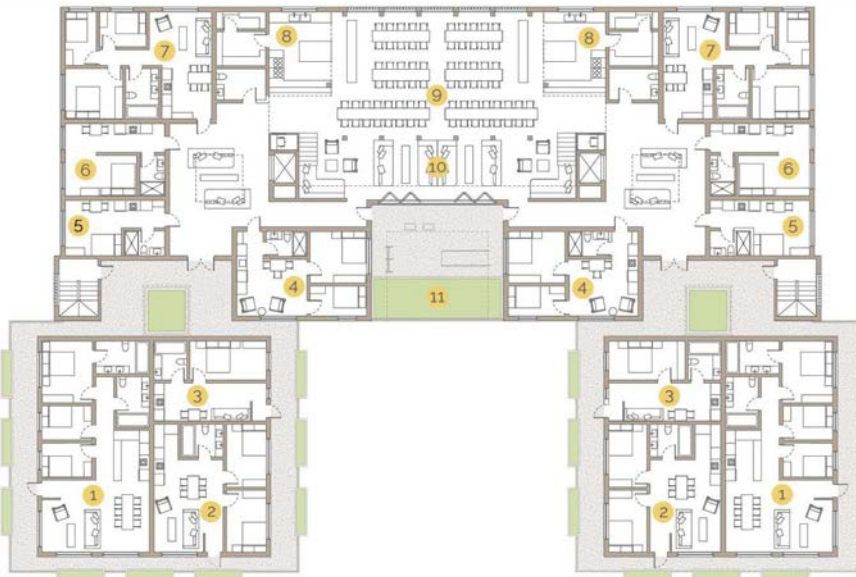
- CO-DWELL :** Shared living facilities and resources
- CO-OPERATE :** Ample small business opportunities
- CO-MINGLE :** Options to gather and socialize
- CO-DINE :** Resources to garden, cook, and dine together
- CO-TRAVEL :** Program for sharing vehicles and cargo bikes
- E-CO :** Living sustainably with nature



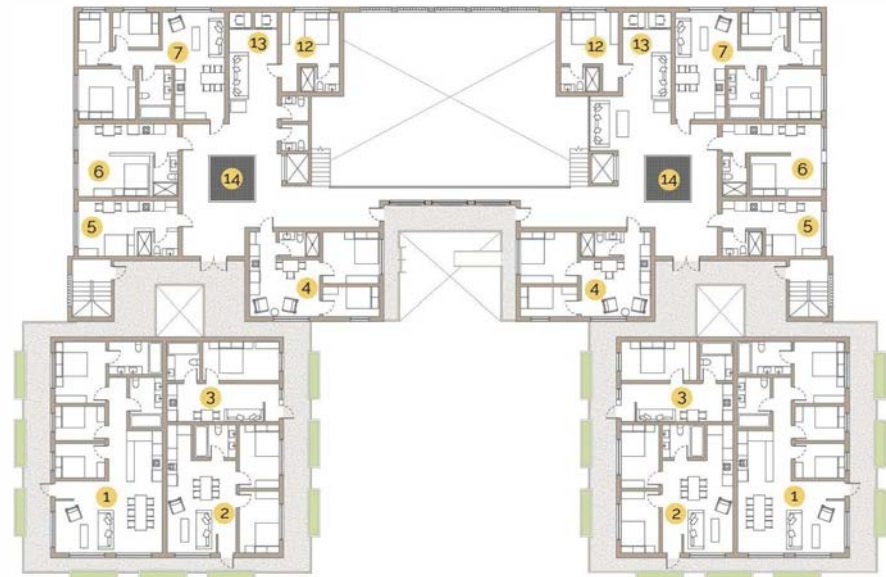
 Vancouver, BC Site A	 60.8m x 38m 2310 m ²	 93 Residential Units	 745 m ² Commercial Space	 645 m ² Community Space	 226 Max Occupants
 975 m ² Green Space	 2,000,000 Litres of Rainwater Harvested Annually	 800m ² Solar Roof	 200,000 kwh Produced Annually by Solar	 10 Electric Vehicles to Share	 10 Electric City Bikes 5 Electric Cargo Bikes 85 Bike Parking Spots

Residential Floors Legend

1. Three Bedroom Apartment
2. Two Bedroom Apartment
3. One Bedroom Apartment
4. Two Bedroom Co-op
5. Studio Co-op
6. One Bedroom Co-op
7. Three Bedroom Apartment
8. Industrial Shared Kitchen
9. Communal Dining Hall
10. Communal Living Room
11. Play Courtyard
12. Guest Bedroom
13. Quiet Study Corner
14. Hang Out Net
15. Outdoor Adult Only Patio
16. Adult Only Billiard Room
17. Adult Only Kitchen
18. Four Bedroom Co-op
19. Communal Greenhouse
20. Chicken/ Rabbit Coop
21. Blue Green Roof
22. Outdoor Kitchen/Bar
23. Sand Pit
24. Sun Deck
25. Play Area
26. Picnic Area
27. Fire Pit Lounge



SECOND FLOOR



THIRD FLOOR

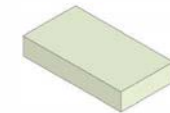
AFFORDABILITY IN THE VILLAGE

The floors above the public sector consist of two different housing typologies. The two wings on the side form five levels of apartments while the central portion houses a social housing co-operative. The two typologies are separate from each other besides from the outdoor balconies that connect the structures and the residents. By providing both options, the development allows for flexible buying options and various levels of co-sharing. The apartment units range from one bedroom to three bedrooms and are marginally smaller than conventional apartments making them cheaper without sacrificing comfort since spaces for laundry and storage are separate and shared with the co-housing residents. All residents also get discounted access to the gym and sauna, workshop, craft and work spaces and free access to the outdoor rooftop spaces and greenhouse.

The units in the co-housing sector are even smaller, but where they lack in kitchen and living spaces, they make up for in the very spacious shared social spaces throughout the different levels. These shared spaces promote sociability and co-operation in organizing meals, planning events, coordinating childcare, and sharing household chores all while developing trust. The main shared double height space is large enough for two large kitchens, enough dining seating for all the co-housing residents, ample living room spaces for relaxing as well as opening onto a child play courtyard. Scattered throughout the levels are also quiet work pods for when residents need a space to get some work done as well as lounging nets that offer a playful alternative to the conventional living room. The upper levels each offer more kitchen and living spaces and even an adult only billiard hangout and outdoor patio.

One of the biggest reasons for the persistence of poverty is that poor people do not have the savings or space to buy bulk so they pay more. This is part of the poverty tax. By organizing the residents and possibly nearby residents, residents can buy in bulk. Living in such a localized environment and co-sharing on such a level saves significantly on time, allowing residents to enjoy the luxury of a relaxed, slow pace village life when they come home from working in the busy city. Although sharing is key to the project, residents still have access to their own private space that they can personalize and call their own. Everyone needs space to themselves or time with just their family.

APARTMENT UNITS



10 Three Bedrooms
+ kitchen + 2 bathrooms
94 m²



10 Two Bedrooms
+ kitchen + 1 bathroom
60 m²



10 One Bedrooms
+ kitchen + 1 bathroom
37 m²

CO-HOUSING UNITS



2 Four Bedrooms
+ kitchen + 2 bathrooms
150 m²



10 Three Bedrooms
+ kitchenette + 1 bathroom
65 m²



10 Two Bedrooms
+ kitchenette + 1 bathroom
45 m²



16 One Bedrooms
+ kitchenette + 1 bathroom
30 m²



18 Studios
+ kitchenette + 1 bathroom
23 m²



- 60% cheaper home buying and renting options
- 30% increased purchasing power when shopping together
- 80% in hydro savings from solar and material construction
- 50% more small businesses and job creation within the neighborhood



ADDRESSING CLIMATE CHANGE

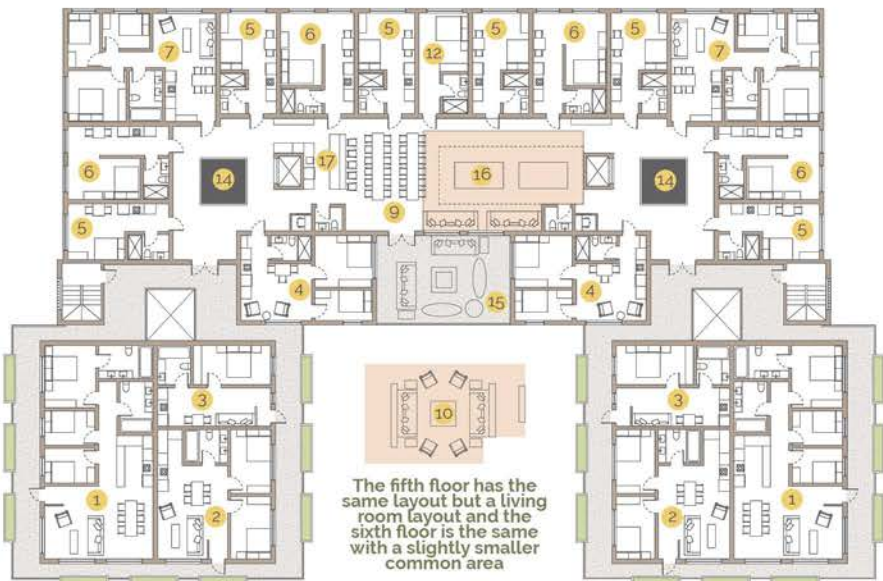
Current architectural practices are damaging to the environment. Thankfully new technologies and materials are helping to reduce this impact and new architectural developments such as this one can actually have a positive impact on their environment. Large operable windows allow for natural ventilation and ensure sufficient amounts of daylight as no space is deeper than 7 m. In the summer, overhanging balconies provide solar shading but during winter, the sun's heat warms the thermal mass of the hempcrete floors that are additionally heated by radiant coils powered by an underground heat pump. Within the common spaces are 9m² openings in each floor equipped with lounging loft nets allowing for stack ventilation to occur. In combination with discrete through wall mechanical ventilation, there is no need for expensive and outdated duct systems. Interior green walls also contribute to the air quality inside the building and promote good mental health, while an intensive green roof top helps mitigate the heat island effect and aids pollinators.

Electricity is harnessed on the upper most solar 'blue' green roof which also harvests rainwater that gets stored and used by the building for gray water or gardening. The accessible rooftop is also home to a large greenhouse, available to residents and equipped with 8 planter beds that each house 4 in bed vermicomposting units. These can process the organic food waste of all the residents and the restaurant. In return, with the help of some bumble bee pollinators, the residents are rewarded with fresh produce and herbs they can use in the kitchen to cook delicious shared meals. Other things the residents share include tools and materials in the woodshop and craft room where residents can learn to fix or mend things further reducing waste. Residents share 10 electric cars, which is sufficient in any neighborhood with a public transit hub nearby and a well connected bus route. Ample bike lanes throughout the neighborhood and bike storage with 5 shared electric cargo bikes further reduce the need of cars for small trips to the grocery store and encourage mixed use commuting.

GREEN BUILDING MATERIALS

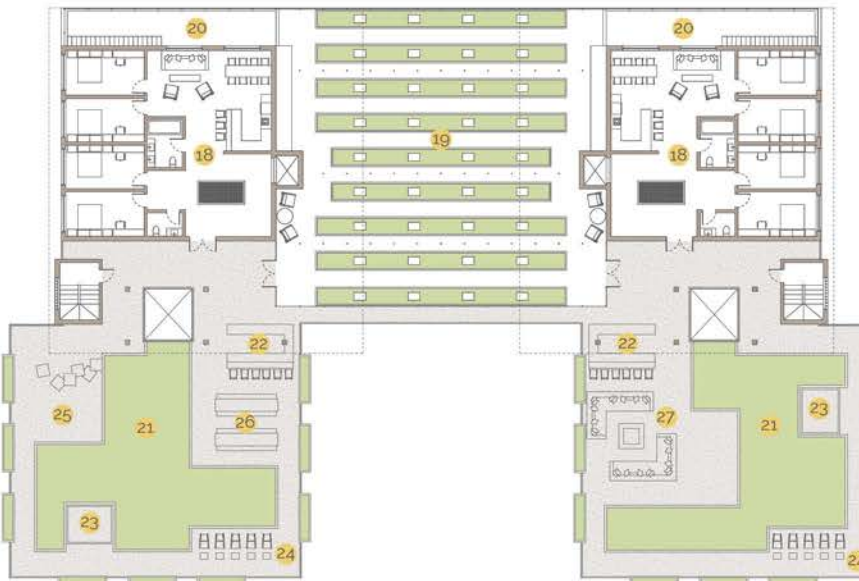
The foundation of the building is constructed of reinforced hempcrete. Although slightly more expensive than concrete, it is incredibly worth it. Hempcrete is antimicrobial and antifungal, it has a low thermal conductivity and a high R-value making it three times more energy efficient than concrete. When being farmed locally, the hemp plants are very low maintenance and their deep roots return nutrients to the soil after harvest and can even be planted in areas damaged by industrious activity to remove contaminants from the soil. The plant also grows to maturity in approximately 100 days making it a much faster renewable material when compared to timber or even bamboo. Hemp farms absorb enough carbon from the atmosphere to actually make hempcrete a "carbon-negative" product when considering the greenhouse gas emitted during production and application. At the end of the building's life cycle, hempcrete is also completely biodegradable making it a zero waste product that's initially even made from the waste product of making other hemp materials such as insulation and fabrics or even food.

Where hempcrete falls short is in its structural integrity and therefore it needs to be reinforced by timber. Mass parallel strand lumber posts and beams made from structural composite lumber of recycled flaked wood are used in larger open spaces due to their high bending strength. The walls for the residential portions of the building will be prefabricated off site to cut labor costs by 50% and will be made from laminated strand lumber, another form of structural composite lumber. These walls will be prefabricated with hemp insulation which has an R-value of 3.5 per inch. Additionally, its ability to compress allows a 5.5" thick piece of insulation to fit into a 3.5" thick wall stud, equating to an R-value of 19.25. The prefabricated wall panels will be equipped with triple pane, argon filled, energy efficient windows. Areas with larger openings will use glass blocks filled with argon gas for increased energy efficiency, resulting in the building requiring minimal mechanical heating and cooling. The blocks are also more fire resistant than classic windows and have been used in places with fire safety in mind such as the stairwells.



FOURTH FLOOR

The fifth floor has the same layout but a living room layout and the sixth floor is the same with a slightly smaller common area



SEVENTH FLOOR

"We need to become good citizens in the global village, instead of competing. What are we competing for - to drive more cars, eat more steaks? That will destroy the world"

-Yuan T. Lee

VILLAGE ECONOMY

Besides reducing costs, Co-Finity is designed to offer ample economic opportunity. If residents need office space to start a business, they can go to the co-working space where they have access to computers, printers and copying machines. There are conference rooms so clients can meet in a professional environment. Other creative small businesses can use the tools in the workshop and craftspace and then sell their goods during the market. Businesses can also use the storage rooms to hold their inventory. Classes can be taught in the meeting rooms, workshops, or the flexspace. Small retail trailers and food trucks can take turns hooking up to the building's electricity and hydro, providing residents with ever changing variety. The other flexible commercial spaces can be used for small business startups that want to try operating a store front. These spaces contribute to offsetting the cost of construction resulting in lower residential prices. Other amenity services such as the gym and laundry have also been converted into businesses that the community can use, this way the costs are lower and the service quality is higher than if it were included for free. All of these commercial opportunities equate to around 50 job opportunities on site that will prioritize employing the residents.

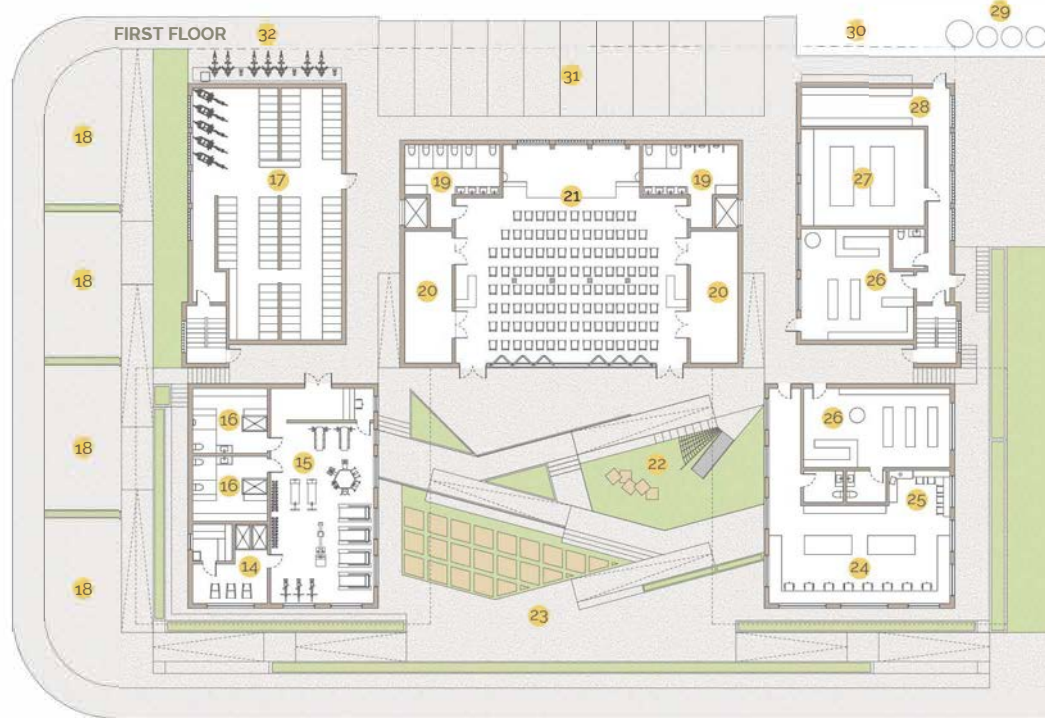
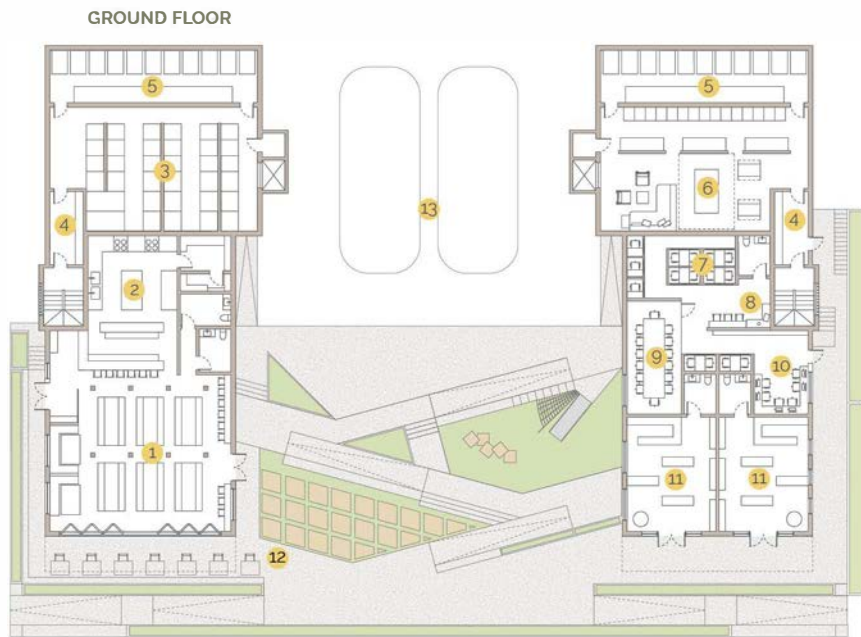
PROPOSED APPROVAL PROCESS

- City to explore and develop several missing-middle Sample Approved Plans (SAP), which contains site plans and permit drawings that developers can utilize within sites with similar site attributes as those contemplated on the SAP.
- Instead of circulating plans within individual departments of the City, it should implement Project Managers to expedite the entire process and dictate on speed of review as well as inter-departmental communications and decisions.
- Implement Online permitting, which can create accountability for stakeholders to track progress and be held accountable to reasonable timelines for their part in the review process. Furthermore, this online process should include a public-facing portal that makes department metrics and timelines public.
- Legislation to impact on speed of approval: This could include requirements that towns and cities report on permitting metrics and performance; limits on the amount of time for reviews before a permit is automatically granted; and rules that consolidate or streamline the public comment process.

PRO FORMA

Building Type	Mixed Use Residential
FSR	3.4
Lot Size	24868.91 square feet
Gross Building Size	85068.72 square feet
Net Building Size	75863.89 square feet
Efficiency	89%
Average Unit Size	816 square feet
Hempcrete	7 246 250 \$
Prefabricated Mass Timber	12 284 725 \$
Elevator	640 000 \$
Total Cost	28 377 717 \$
Commercial Offset	51 96 111 \$
Cost per Bed	144 885 \$





“What Suburbia cries for are the means for people to gather easily, inexpensively, regularly, and pleausrably - ‘a place on the corner’” - Ray Oldenburg

SOCIABILITY IN THE NEIGHBORHOOD

Suburban neighborhoods lack third spaces, social surroundings that are separate from the home and the workplace. They are places that offer an opportunity for self expression, where individuals can participate in being members of a community which is very important for mental health. When people are socially connected and have stable and supportive relationships they are more likely to make healthy choices and to have better mental and physical health. The coffee shop/pub is a great place for socializing where residents and neighbors alike can grab a morning coffee before work or meet up with some friends on the weekend to enjoy the secluded patio. Other amenities that help with reducing stress include a small gym with dry sauna, a crafting makerspace, a greenhouse, an office and study space, and a laundromat that doubles as a games room with a ping pong and foosball table will also be available to not only the residents but the community at large to avoid the sense of exclusivity by the surrounding neighborhood. By not providing vehicle parking, mostly the local neighborhood will use these facilities since they will be walking and biking distance from their homes, encouraging strong localized bonds to form.



Residents will also have the opportunity to open their own retail shop within one of four designated spaces provided on site. This allows for business startups to be possible with little upfront cost while bringing revenue to the building. Existing mobile businesses can rent out the food truck parking spaces where they can hook up to water and electrical supply, this reduces their cost and climate impact while further increasing business densification. At the center of all these public amenities is a flexible community hall and a beautiful outdoor courtyard. The community hall is paired with ample storage space to accommodate various seating arrangements and activities such as weddings or conferences, it can even be used to facilitate a daycare, sport activities such as yoga classes, movie nights or small theater acts, and religious congregations. The courtyard features ample vegetation, a play area, and lots of deck space to accommodate outdoor activities such as a farmers market or flea market, community BBQ and small live music acts. All together, these spaces perform as a small hub and can facilitate larger community gatherings for the whole neighborhood.

Ground and First Floor Legend

- 1. Local Pub/ Cafe
- 2. Industrial Kitchen/Bar
- 3. Shared Storage
- 4. Mail Foyer
- 5. Mechanical
- 6. Public Laundromat
- 7. Public Quit Study/Work Pods
- 8. Lunch Break Kitchenette
- 9. Meeting Room
- 10. Public Internet Lounge
- 11. Flexible Commercial Space
- 12. Outdoor Patio
- 13. Rain Water Retention Tanks
- 14. Sauna/ Relax Space
- 15. Public Gym
- 16. Changerooms
- 17. Bike Storage
- 18. Vendor Truck Parking
- 19. Washrooms
- 20. Storage
- 21. Multipurpose Hall/ Stage
- 22. Outdoor Play Area
- 23. Public Courtyard
- 24. Public Crafting/ Makers Space
- 25. Lunch Break Kitchenette
- 26. Flexible Commercial Space
- 27. Work Shop
- 28. Used Items Exchange
- 29. Garbage/ Recycling Disposal
- 30. Pick up/ Drop Off Zone
- 31. Car Share Parking
- 32. Mobi Bike Share Station



	Current
Zoning Type	R1-1
Max FAR	1.0
Max Units	8
Residential	Yes
Commercial	Only Grocery Store
Max Height	11.5 m / 3 storeys
Minimum Set Backs	F: 4.9m S: 12m R: 0.9m

	Proposed
Zoning Type	C-2
Max FAR	3.5
Max Units	No max
Residential	Yes
Commercial	Yes to most types
Max Height	19.8 m / 6 storeys
Minimum Set Backs	F: 2.5m S: 10.5m R: 4.6m

	Project
Zoning Type	C-2
FAR	3.0
Units	86
Residential	Yes
Commercial	Yes
Height	19.5 m / 7 storeys
Set Backs	F: 4m S: 5m R: 3.6m



COMPLIANCE WITH THE CODE

Most of the city of Vancouver's area is currently classified as residential inclusive or R1-1 which is arguably one of the most restrictive zoning types catering mostly to small scale residential buildings while adhering to the single lot character of the area. Although some other uses are allowed they are limited and conditional. The Co-Finity Village would have to ignore most of the building requirements of this zoning type and therefore a proposition to change the zoning type to a mixed use commercial or C-2 zoning is the plan of action. The intent of this zoning type is to provide a wide range of commercial uses as well as residential uses along arterial streets while limiting impact on adjacent residential sites and contributing to pedestrian interest and amenity. The design is made to be built on the intersection of two arterial roads so in some areas where this zoning change has already happened it would even fit into municipal plans.

In reference of the C-2 guidelines, there are many ways it does not comply. In reference to the Building Form and Placement table 3.1.2 some minor rule breaks are evident. The building for the most part is 6 storeys. An additional 7th level was added to increase FSR but the building height would still only measure 19.5m at the rear and 18m at the front where it is only 6 storeys. In terms of setbacks it is only 3.6m from the rear property line rather than 4.6m.

The side yard facing other residential lots is supposed to be 3.7m for portions of the building below the fourth floor and 10.7m for portions of the building above the 4th floor. In this design the side yard depth at grade is a generous 7m but the residential levels are only 5m from the setback line. Compliance can easily be achieved by removing the 6m wide food truck parking spots on the other side. The front yard depth is considered a "build-to" boundary of 2.5 m for non residential uses as outlined in section 4.3. Currently the front yard depth is 4m but is designed in a way to improve and widen the sidewalk for the public realm. Part (a)(i) also states an increased front yard is allowed for the purpose of a pedestrian courtyard at grade.

Pedestrians are able to move through the courtyard and commercial sector of the building using outdoor corridors in all directions to comply with sector 2.1 (a). Facing into the courtyard are some living rooms which does not comply with section 2.3 (a) but the courtyard is 16m x 18m making it much larger than the 6.1 minimum outlined in part (b). Since the development is located on a major intersection it is important to comply with section 2.5 regarding noise and hence another reason why hempcrete and hemp insulation is used throughout the building. Hemp building materials are very good at absorbing noise rather than reflecting it like concrete and wood. In accordance with section 2.6, privacy is improved with the use of visually distorting glass blocks. Some balconies overlook into residential blocks however they are not private balconies but circulation balconies.

Section 2.7 outlines crime prevention which is achieved by clearly defining public and private sectors since they are on different levels and do not share circulation paths. Implementation of Jane Jacobs "eyes on the street" philosophy also ensures that public areas are casually surveilled visually at all times.

Circulation and pedestrian access were key designing factors, yet the design does not comply with section 2.8 because some commercial units are accessed via a gently sloped vegetated ramp that invites people into the sunken courtyard. This path is meant to heighten the experience of pedestrians and adds to the architectural expression of the building. In compliance with section 4.2 (c), semi private outdoor rooftop spaces and smaller courtyards are integrated to improve liveability. In total they equate to 730 m² which is equal to 8.5 m² per unit. This is almost double the requirement outlined in section 6.2 (d) that requires 4.5 m² of outdoor semi private space per unit. However there are no fully private balconies so it still does not comply with section 6.2. The development is designed to discourage vehicle use, therefore no underground vehicle parking will be implemented. Instead, 10 electric vehicle ports are directly accessed by the lane as part of the car share program used by the residents. This is a significant reduction from the 43 parking spots that would otherwise be required as outlined in section 4.2.1.13 of Vancouver's off street parking space regulations.

CATALYST FOR CHANGE

The existing housing crisis is a complex issue intertwined with problems related to affordability, social inequality, and the impact of climate change. Co-Finity addresses this multifaceted challenge and underscores the necessity for flexibility in the current rigid urban planning structures. It is an initiative centered around promoting inclusivity and community while establishing equitable access to housing and economic activity, promoting healthy living and stimulating creativity. Currently many people live individualistic car centric lives and have negative preconceived notions about what co-housing is because existing examples are few and far between and usually disconnected from the neighbourhoods they are tucked away in. But the more people that experience the benefits communal living offers the more demand there will be for mixed use social housing projects. Co-Finity is a start to the missing middle and the missing third space problem within suburban neighborhoods. By providing affordable housing and amenities within a communal context while also improving the walkability of its surrounding neighborhood, Co-Finity will become the future. A future where people have the opportunity to:



co-share
co-live and
co-thrive.

JURY STATEMENT



This project emphasizes sharing and co-living in a design that highlights climate resilience. The jury was particularly drawn to the interesting mix of tenure types that include rental apartments and co-housing. The design of efficient layouts for housing is balanced by a mix of retail and amenity spaces to support sociability. The urban village model it proposes brings in greenspace, gardening, community space and shared electric cars and bikes to promote sustainable living.

HONOURABLE MENTION

SHARING IS THE CORE THING!

BY CATLAB | Seoul, South Korea

Sang Hoon Youm, Sumin Hong, Seungho Jeong, Mina Kim, Dongmin Lee



SITE C (SURREY)



FSR 2.37



7 STOREY



3 LOTS



180 BEDROOMS



16% POTENTIAL COST
REDUCTION

Sharing is the Core Thing! proposes affordable, community-centric and sustainable cooperative housing that maximizes potential for social interaction in shared stairwells, rooftops, courtyards and green spaces. With two buildings per lot, the three-lot scheme connects all buildings with outdoor circulation spaces and provides ground-floor commercial spaces for cafes and office use driven by a community-based business plan. It proposes that residents are involved in planning and that units are designed for flexibility and variation.

Decoding proposals:

- Permit point access block
- Incentivize using external stairs and corridors as communal spaces, such as by not counting them in floor space calculations
- Remove code restrictions on adjacency for secondary units to allow vertical relationships
- Reduce setback regulations
- Increase permitted height
- Reduce encapsulation ratings for timber structures

sharing
is the
core thing!

Catalyst for Affordability

We believe in community-based housing as a solution for affordability, viewing codes and regulations not as barriers but as 'catalysts' for community engagement and fostering neighborly bonds. The revision of codes to facilitate affordable, community-centric, and environmentally sustainable housing is crucial. We find the opportunity to streamline the design and expand the social roles of circulation spaces to craft homes that are not only efficient but also rich in social vibrancy.

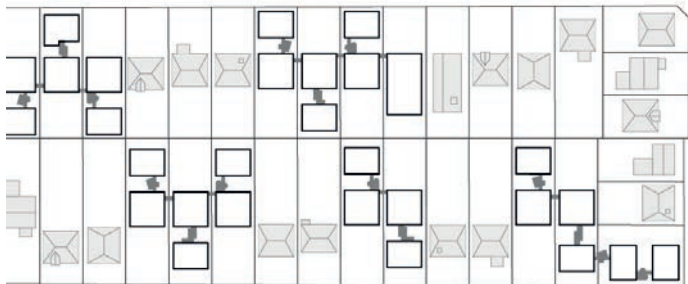
Collective Community

Our project reimagines community within urban landscapes, acknowledging the evolving nature of social interactions and spatial dynamics. It suggests

that community isn't confined to singular spaces but rather dispersed throughout the urban fabric. Instead of unchanging ownership paradigms, it promotes collective spaces that foster shared experiences and solidarity among city dwellers.

Sustainable Diversity

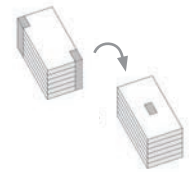
The project outlines urban design principles and initiatives such as commoning corps and mixed-use densification, aimed at creating interconnected networks of shared resources and expertise. It emphasizes the active role of residents in shaping and participating in these communal spaces, highlighting the transformative potential of collective action and engagement in urban development.



blueprints for urban harmony

The proposed de-codes advocate for a shift from the singular notion of "community" to embracing diverse "communities" within a common ground. It aims to mediate between different habitats, fostering inclusivity and synergy in the era where we hunt for norms in unpredictable societies.

1. Point Access Block

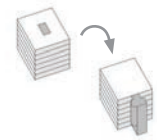


De-Code BC Code 3.4.2.1

Opportunity More efficient floor usage, natural ventilation, and various unit options, ultimately increasing affordability.

Precedent In France and many other parts of the world, point access blocks are permitted; interestingly, France also accommodates winder stairs.

2. Incentive for External Stairs with Communal Connection



De-Code Floor Area Incentive, Zoning and Development By Law

Opportunity Community connections through circulation space can be encouraged by incentivizing the external stairs which connect neighbors and communal spaces.

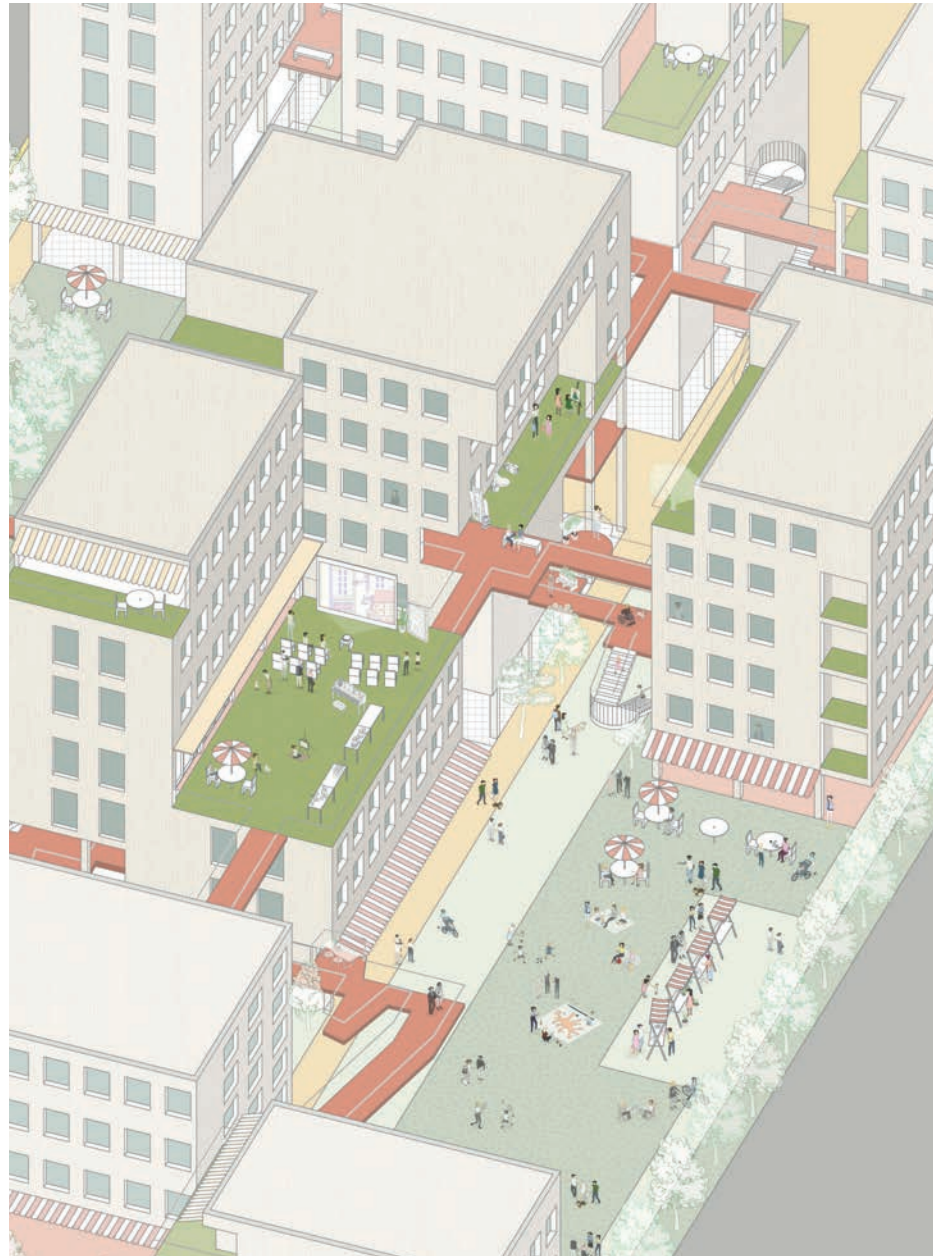
Precedent In South Korea(85 to '92), external stairs under 1m in width were excluded from the FAR, encouraging external stairs connected to the street flow.

3. Secondary Unit Vertical Distribution

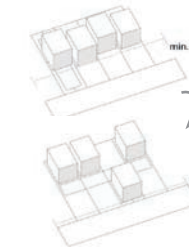


De-Code British Columbia Building Code 2018 Revision regarding Secondary Units

Opportunity BC Code 2018 relaxed many restrictions on secondary units, but still requires horizon adjacency. Going further and allowing for vertical distribution of secondary units would create diverse options, greatly enhancing affordability.



4. Flexible Yard Distance



De-Code Front and Rear Yard Regulation, Zoning and Development By Law

Opportunity Yard regulations typically restrict building placement, but flexible site placement can create varied open spaces benefiting residents and neighbors.

5. Flexible Height Limit

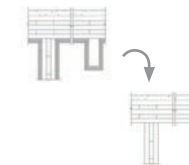


De-Code Building Height Regulation, Zoning and Development By Law

Opportunity If the height limit is alleviated to the extent that it provides public space, it would encourage a mixture of programs.

Precedent In South Korea, 2000-, if the ground floor of a multifamily house is used for parking, it doesn't count towards the maximum number of floors allowed.

6. Alleviation of Encapsulation Ratings



De-Code EMTC Requirement

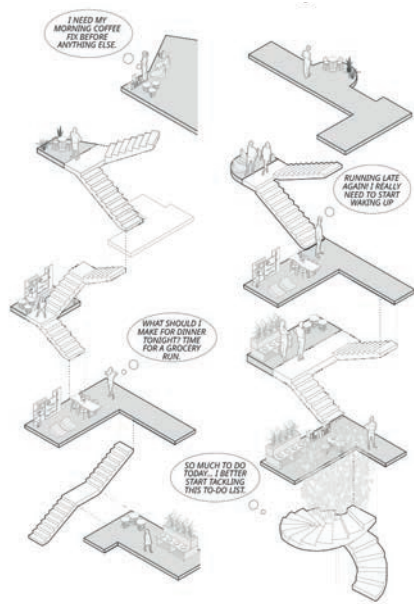
Opportunity Alleviation of the encapsulation ratings for timber structures, while ensuring structural safety, substantially reduces interior construction costs while also enhancing aesthetic appeal.

staircase symphony

In envisioning a communal ethos within urban landscapes, 'Sharing is the Core Thing!' introduces five innovative urban design principles to shape this shared network:

- 1. Staircase Symphony:** Encouraging shared spaces like stairwells as hubs for interaction.
- 2. Courtyard Conversations:** Transforming hidden corners into vibrant meeting spots.
- 3. Rooftop Retreats:** Creating communal spaces atop buildings for relaxation and socialising.
- 4. Alleyway Alliances:** Revitalising neglected alleys as lively community hubs.
- 5. Parklet Paradigms:** Converting parking spaces into green oases for communal gatherings.

Staircase Catalogue

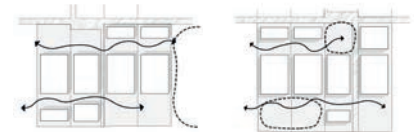


Residents' Ramblings: Dive into the delightful chaos of creativity! Let your thoughts flow freely as you scribble, share, and sprinkle a touch of sparkle with fellow residents.

Art Adventures: Embark on a journey of imagination! Unleash your inner artist as you doodle, create, and proudly showcase your masterpieces along the whimsically adorned Stitched Staircase.

Nature's Nook: Step into a serene sanctuary amidst the bustling cityscape! Wander through the tranquil surroundings of the Stitched Staircase, where every corner invites you to wonder, wander, and lose yourself in nature's soothing embrace.

Creating Neighborhood



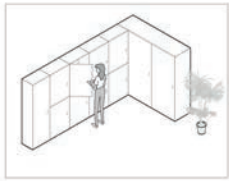
The formation of diverse open spaces and the establishment of relationships between areas of various sizes can be achieved by working together with the surrounding buildings.



interweaving spaces

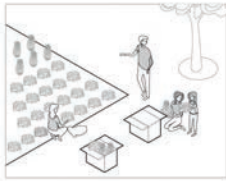
By fostering a "Commoners Corps" and promoting access, neighbours are empowered to actively participate in shaping their shared environment. This collective effort transforms individual spaces into a cohesive network, greater than the sum of its parts.

Affordable housing projects become more financially viable when they incorporate commercial uses, since retail and office spaces can provide financial support to both the residents and the community



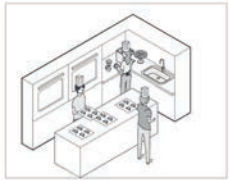
Storage

Several cubicles are rented to operate a storage facility.



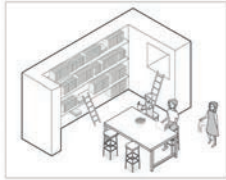
Urban Farming

Organic vegetables are cultivated by renting shared space.



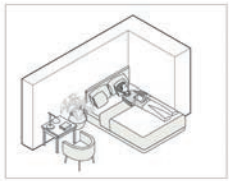
Bar

Open space is renovated to operate a bar.



Library

Multiple cubicles are rented to use as an office with attached shelves.



Accommodation

Cubicles are rented vertically to operate a makeshift lodging facility.



Childcare

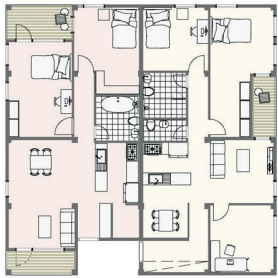
Open space is rented to operate a childcare classroom.



flexible diversity

Flexible unit layouts in affordable housing enhance adaptability and space efficiency, catering to diverse resident needs and reducing the necessity for costly moves. These designs boost marketability and sustainability by minimizing renovations and appeal broadly across demographics. Moreover, they foster community through shared, versatile spaces, offering a comprehensive solution that balances individual preferences with environmental considerations, thereby streamlining the approach to affordable living.

Flexible Unit Variation



2BR+2BR



1BR+3BR



1BR+1BR+1BR+1BR



Double Height



1BR+1BR+1BR+Common Area



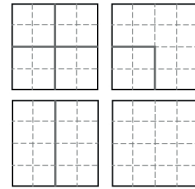
2BR+Common Area



tribute to community and nature

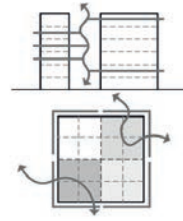
Our design philosophy merges carbon and cost efficiency with community well-being, utilizing decarbonized materials like mass timber to slash carbon emissions and optimize natural light and ventilation, reducing reliance on artificial means and enhancing communal spaces. Innovations like social staircases foster resident interaction and well-being, highlighting our commitment to eco-friendly, community-centric urban living.

Simultaneously, a community based business plan targets local housing needs through inclusivity, sustainability, and community engagement. It emphasizes affordable housing, sustainable development, economic growth, and the creation of communal amenities, guided by governance that involves community in management decisions. This dual approach not only addresses environmental concerns but also bolsters community ties and well-being, presenting a holistic vision for sustainable, inclusive urban development.



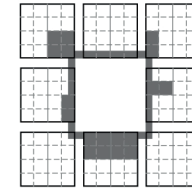
Flexible Planning

The modular building facilitates easy construction in terms of time and cost with adaptable spatial divisions that can accommodate all users.



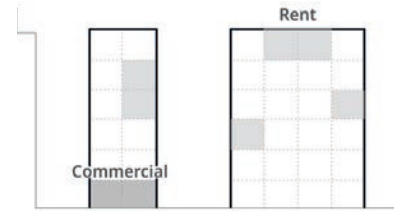
Carbon Saving

Vertical ventilation is implemented in each building through the separation of two masses. By doing so, each unit will have a minimum of two openings for fresh air.



Accessibility

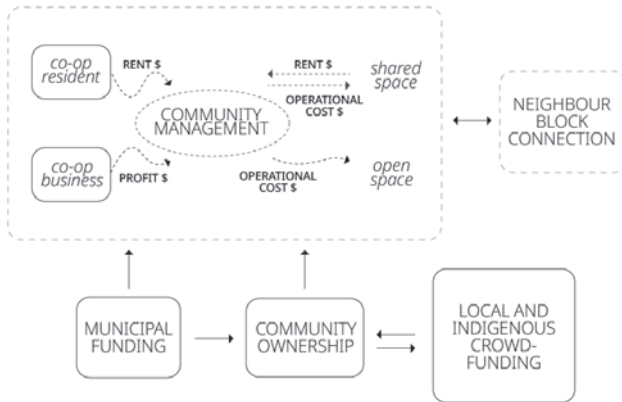
Offering a range of community spaces can contribute to cost savings.



Co-op Business

Providing rental spaces generates various sources of income, leading to a cycle of sustainability.

Community Based Business Plan



Pro Forma

	BASE CASE	UNITS	SUBMISSION	NOTES
Building Type:	6-storey wood frame building to Step Code 4.		6-7 storey wood frame building to Step Code 3.	
FSR:	2.5		2.37	
Lot Size:	22,500		31,778	
Gross Building Size	56,250	SF	76,426(69,606)	(incentive proposal)
Net Building Size	47,800	SF	67,654	
Efficiency (net/gross)	85%		90%(96%)	(incentive proposal)
Number of residential units	65		72	
Number of bedrooms	90		180	
Shared social space	1,500	SF	1,468	
Square footage of commercial/retail space	0	SF	1,187	
Construction Costs:				
Concrete	MULTIPLIER \$340	UNITS SF	\$0	\$0
Wood	\$275	SF	\$15,468,750	\$16,813,720
Elevator	\$40,000 per stop		\$240,000	\$280,000
Parking	\$90,000 per stall		\$4,095,000	\$4,536,000
Step Code 3	-12%			step code 3
Other				
TOTAL			\$19,803,750	\$19,034,154
Construction Costs				
TOTAL			\$19,803,750	\$19,034,154
Construction Costs			\$19,803,750	\$19,034,154
(Soft Costs not included)			0	\$0
TOTAL			\$19,803,750	\$19,034,154



JURY STATEMENT



This scheme is smartly planned to create social space and outdoor space at multiple levels. Its checkerboard site plan creates privacy between units due to its smart planning and at the same time allows units to get lots of light from multiple sides. The jury liked its expandability and the feasibility of its implementation in phases. The proposal includes a community-based business plan and very efficient units, even including lock-off suites. The sustainability approach links social and environmental factors, from light and ventilation to thoughts on carbon and urban farming. Like many it proposes a point-access block and includes outdoor circulation to encourage social activity.

HONOURABLE MENTION

FROM NIMBY TO NIMBY

BY BOBO ARCHITECTURE | Vancouver, Canada

Daichi Yamashita



SITE A (BURNABY)



FSR 2.8



6 STOREY



5 LOTS



99 BEDROOMS



22% POTENTIAL COST
REDUCTION

From NIMBY to NIMBY proposes a stepped-massing building that activates the neighbourhood with retail program on the ground floor. A shared, elevated courtyard space on the interior of the lot adds a community amenity and green space. Limited at-grade parking reduces reliance on automobiles, mass and cross-laminated timber and passive design strategies address sustainability. The project utilizes a single elevator to propose a code change for a point-access block.

Decoding proposals:

- Point access block, single access up to 6 storeys
- No underground parking
- At-grade parking for car share and visitors
- All level 1 units are accessible

FROM NIMBY TO NIMBY

(From "Not In My Back Yard!" To "Neat, It's A Mid-rise Building Ya'!!!")

From NIMBY to NIMBY (From "Not In My Backyard!" to "Neat, It's a Mid-rise Building, Ya'!!!") aims to change the often negative public perception of high-density developments in predominantly single-family neighbourhoods. Despite the growing need for more housing due to the escalating affordability crisis, resistance to such developments is still strong. This project hopes to shift their perspective so that they welcome the density, not resist it.

From NIMBY to NIMBY endeavours to convince NIMBYs into becoming Mid-rise loving supporters by focusing on two aspects: form and amenities.

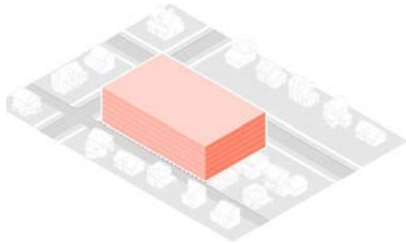
In terms of form, the building's massing will respect neighbouring properties by stepping down to a comparable height of 3-4 stories

and providing extra setback. This ensures that the building is imposing on the neighbours and mitigates concerns about overshadowing and overlook. The corner at the intersection will be built to the maximum height of 6 stories to ensure sufficient density while providing a vibrant focal point for the neighbourhood ("Meet me at the pointy building!").

As for amenities, the project aims to be a neighbourhood hub, offering residents and neighbours a place to shop, socialize, and come together to engage in various activities without having to travel far. The inclusion of ground-floor retail spaces adds convenience and vitality to the area, while creating opportunities for local businesses to thrive. The large central courtyard offers a space for gathering, relaxation, and recreation, a hidden neighbourhood oasis.

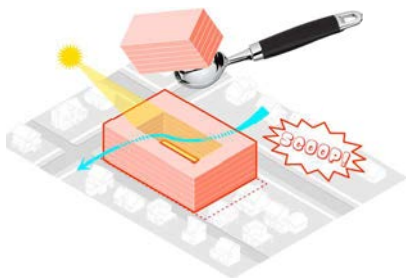
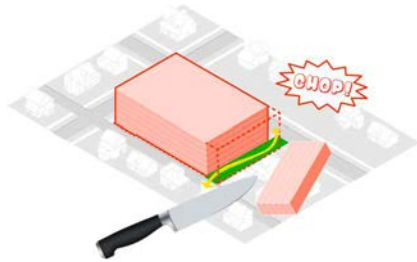


THE BIG MOVES



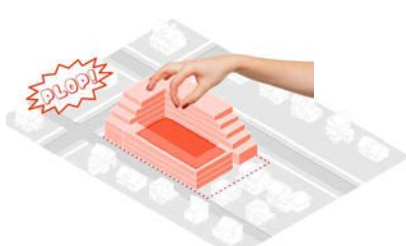
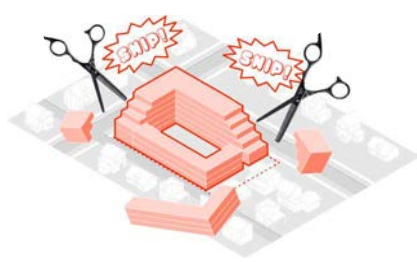
1
Starting with a block, six stories high, taking up the entire site, we see that it needs a little work to be more considerate to our neighbours.

2
Let's chop 15' off the east end so we're not too close to our neighbour. It also becomes a thoroughfare to get from the street to the lane.

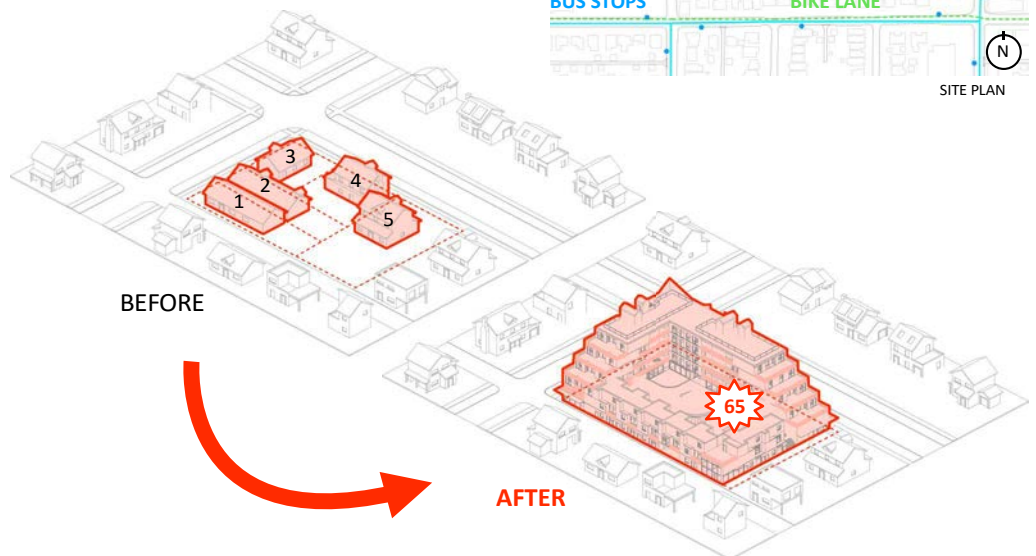
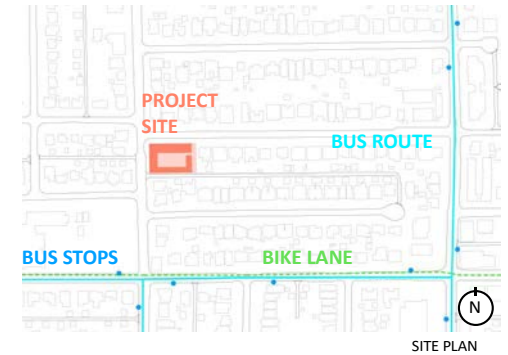


3
Now, how about we scoop out the middle section to create a nice courtyard in the middle? Let there be natural light and cross ventilation for all the units!

4
Hmm, it's still looking a little chunky. Time to trim the excess from the sides and the back, while keeping the front corner at intact.



5
The cherry on top is an elevated courtyard with landscaping and seating around which the amenity spaces and residential units look into.





RETAIL @ CORNER



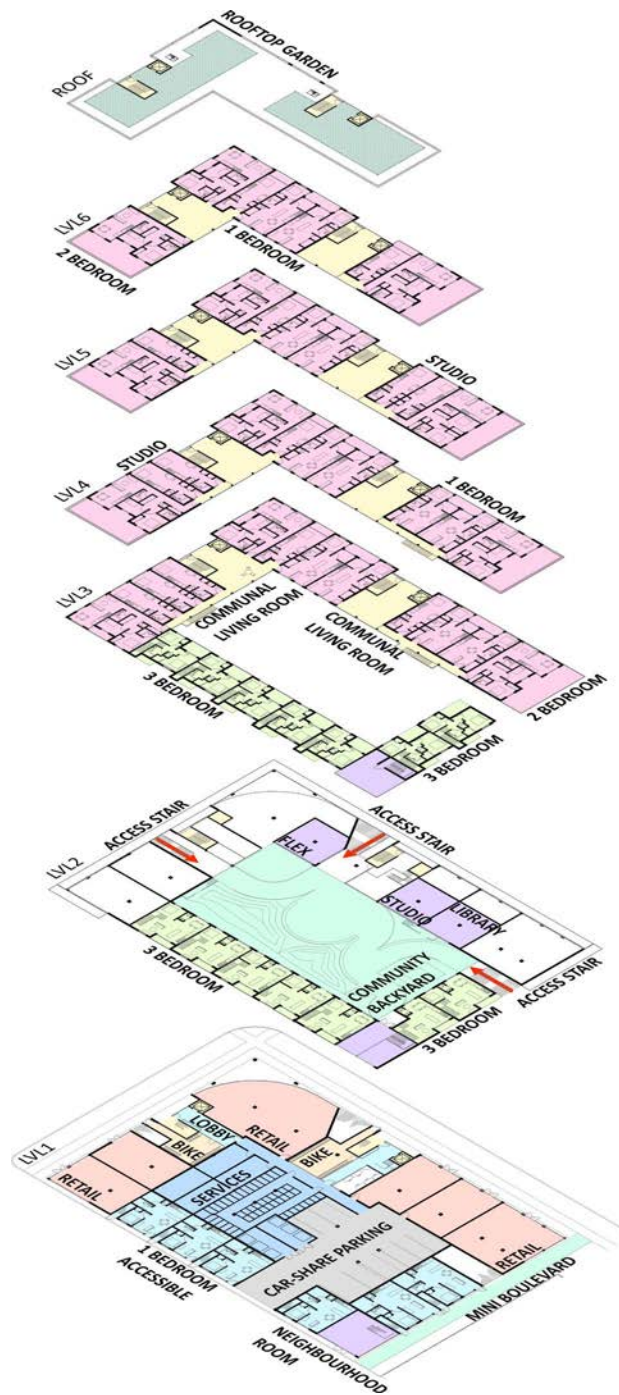
COMMUNAL LIVING ROOM



WEST ENTRY



COURTYARD



Mini Boulevard

The Mini Boulevard is a public pedestrian path between the project lot and the neighbour. It is lined with a bioswale and trees on one side to provide a visual and acoustic buffer.

Communal Living Room

The Community Living Room is a semi-private/public space located at each landing, shared by 4-7 units. The room is open to both the street side and the courtyard. A space for chance encounters.

Amenity Rooms (Flex, Studio, & Library)

The building contains a series of amenity rooms that provide a range of programs for community oriented activities. The rooms are accessed from the courtyard.

Neighbourhood Room

The Neighbourhood room is located at the corner of the lot where the mini boulevard meets the lane. This room is rented by the hour to anyone in the neighbourhood. The space has a mezzanine and a rooftop and can be accessed from the lane or the courtyard.

Parking

The building will have 8 parking stalls for car-share, visitor, and commercial use. The property is fairly accessible being in close proximity to two major bus routes and a bicycle lane. The assumption is that the neighbourhood will be developed with similar projects offering amenities and shops, limiting the need for personal vehicles.



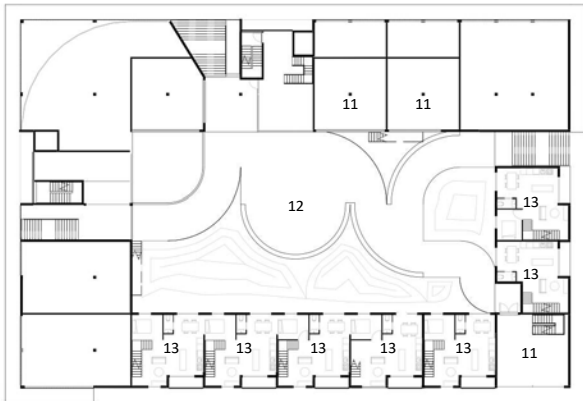
NEIGHBOURHOOD ROOM



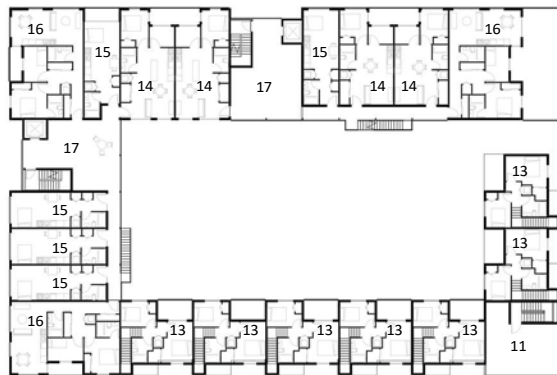
MINI BOULEVARD



LVL 1



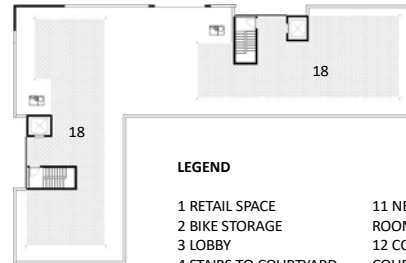
LVL 2



LVL 3



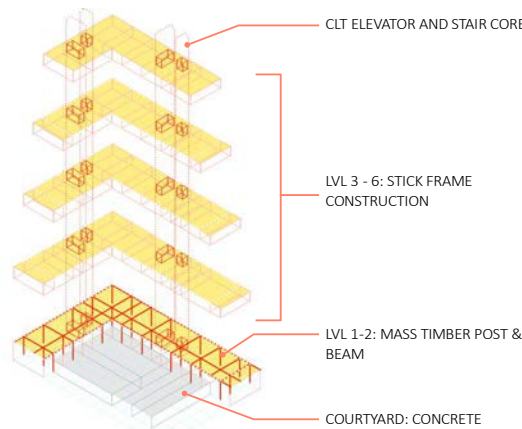
LVL 4-6



ROOF

LEGEND

- 1 RETAIL SPACE
- 2 BIKE STORAGE
- 3 LOBBY
- 4 STAIRS TO COURTYARD
- 5 OFFICE
- 6 STORAGE
- 7 SERVICES
- 8 GARBAGE
- 9 CAR SHARE & VISITOR PARKING
- 10 ACCESSIBLE 1BD UNIT
- 11 NEIGHBOURHOOD ROOM
- 12 COMMUNAL COURTYARD
- 13 3BD TOWNHOUSE
- 14 1BD UNIT
- 15 STUDIO UNIT
- 16 2BD UNIT
- 17 COMMUNAL LIVING ROOM
- 18 ROOF TOP GARDEN



STRUCTURE DIAGRAM

PROFORMA

	Base Case	PROPOSAL
Building Type:	6-storey wood frame building to Step Code 4.	6-storey wood frame building to Step Code 4.
FSR:	2.5	2.8
Lot Size:	22,500 sf	25,000 sf
Gross Building Size:	56,250 sf	70,000 sf
Net Building Size:	47,800 sf	51,000 sf
Efficiency (net/gross):	85%	72.86%
Number of residential units:	65	65
Studio (330- 380 sf)		15
1 Bedroom (525- 620 sf)		23
2 Bedroom (820- 890 sf)		20
3 Bedroom (935 sf)		7
Number of bedrooms:	90	84
Shared social space:	1,500 sf	13,700 sf
Retail space (860- 2000 sf)	0	6,825 sf
Land Costs		
Land Value	\$275	\$275
Assembly Premium	20%	20%
Land Cost Subtotal	\$7,425,000	\$8,250,000
Construction Costs		
Concrete (\$340 psf)	\$0	\$1,122,000
Wood (\$275 psf)	\$15,468,750	\$14,932,500
Mass Timber (\$320 psf)		\$2,784,000
Elevator (\$40k per stop)	\$240,000	\$480,000
Parking (\$90k per stall)	\$4,095,000	\$720,000
# of stalls	45	8 Car Share
Construction Cost Subtotal	\$19,803,750	\$20,038,500
TOTAL		
Land Costs	\$7,425,000	\$8,250,000
Construction Costs	\$19,803,750	\$20,038,500
(Soft Costs not included)	0	\$0
TOTAL	\$27,228,750	\$28,288,500

Construction

The building consists of an L-shaped block in the front facing the streets that goes up to six stories high, and a three-story high stacked townhouse portion facing the laneway and adjacent property. Mass timber post and beam construction is utilized for the double-height retail spaces. The rest of the building is stick frame wood construction. The walls are aligned to minimize the need for transfer beams. The elevator and stairs are encased in CLT panels. The structure for the courtyard, which sits above services and parking, is concrete.

Code & Bylaw

This project proposes to take advantage of the BC government's proposal to allow single exits from multifamily buildings up to six stories high. Also called Point Access Blocks, this change eliminates the need for long double-loaded corridors and allow greater flexibility in unit types, sizes, and orientation.

Amenities

The lack of underground parking and adoption of single stair blocks offer significant savings to the project that can be redistributed to amenities on site. This project provides a total of 13,700 sf of shared social and amenity spaces to the residents and public.

Retail

The ground floor retail units may be included as part of the start up and collectively owned by the residents, which will offer a revenue stream.

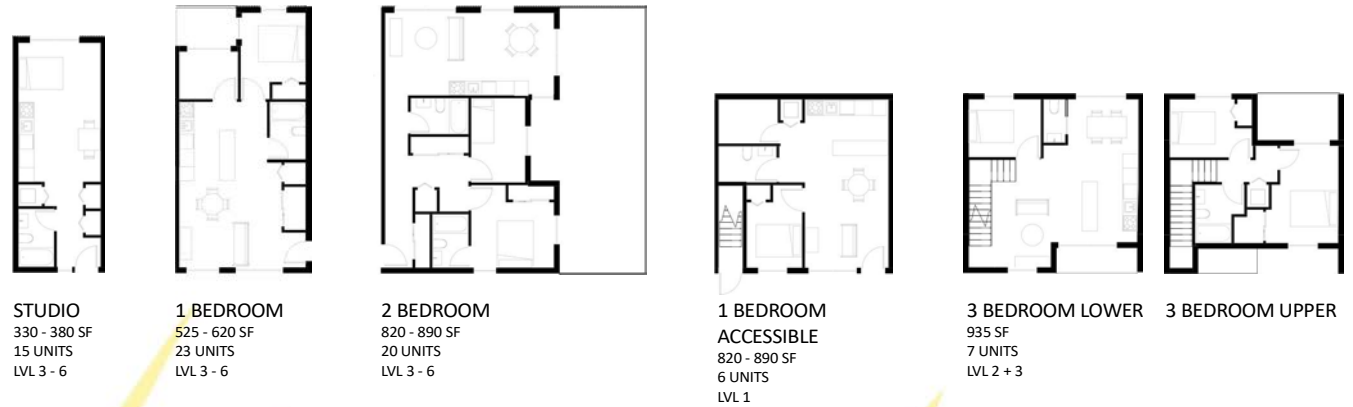
Passive Strategies

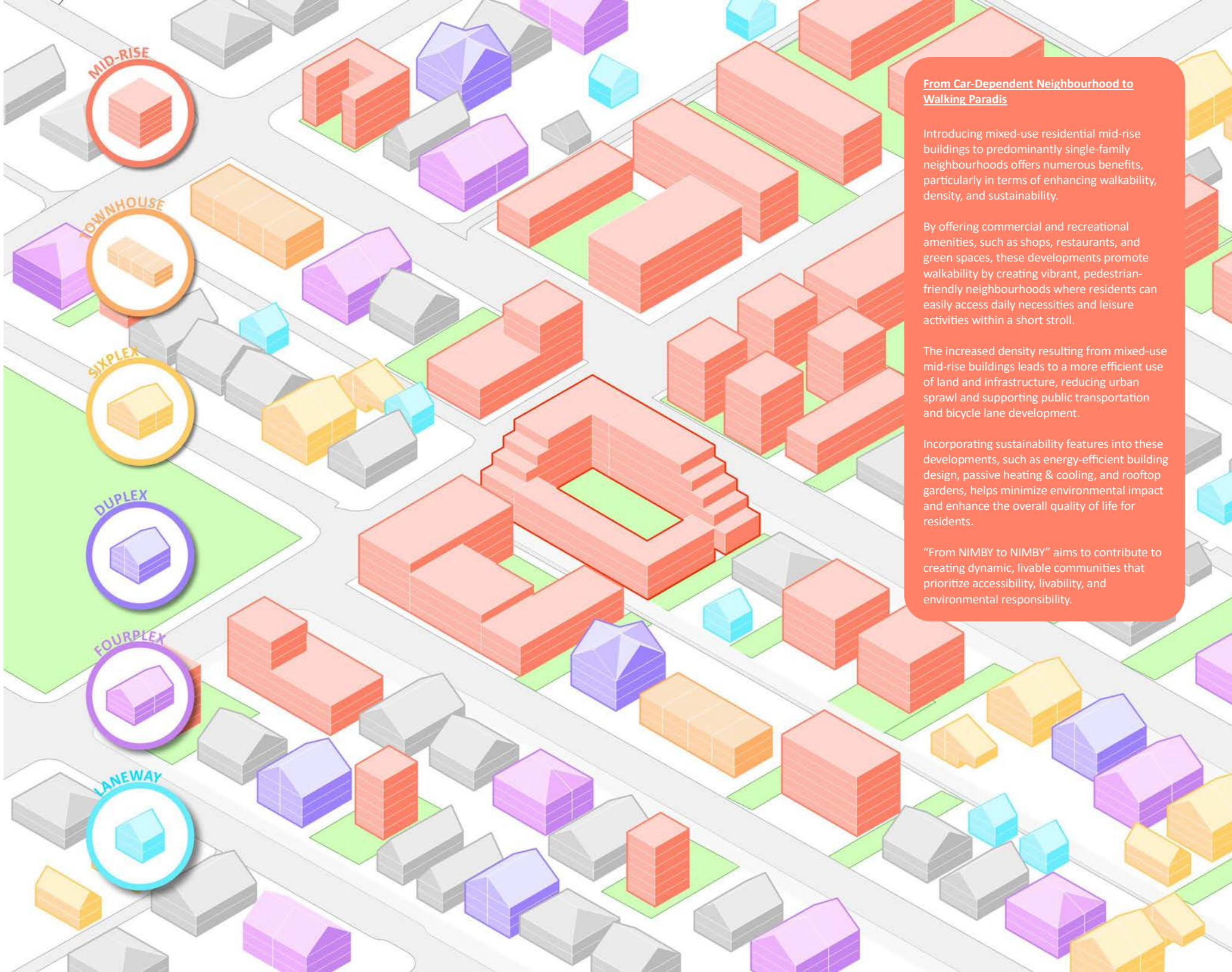
The building is designed to maximize passive heating and cooling, thereby reducing reliance on mechanical units for comfort and lowering electricity demand.

The majority of the building is oriented east-west, allowing for southern exposure. The massing is designed such that the southern building (the stacked townhouses) is only three stories high, ensuring ample sunlight in the courtyard and the six-story block to the north.

Apart from the ground floor accessible units, all other units have at least two opposing exterior faces, allowing for cross ventilation and natural light from multiple angles.

In addition to saving energy, these passive attributes contribute to a more comfortable and pleasant living space, regardless of size or location of the unit within the building





From Car-Dependent Neighbourhood to Walking Paradis

Introducing mixed-use residential mid-rise buildings to predominantly single-family neighbourhoods offers numerous benefits, particularly in terms of enhancing walkability, density, and sustainability.

By offering commercial and recreational amenities, such as shops, restaurants, and green spaces, these developments promote walkability by creating vibrant, pedestrian-friendly neighbourhoods where residents can easily access daily necessities and leisure activities within a short stroll.

The increased density resulting from mixed-use mid-rise buildings leads to a more efficient use of land and infrastructure, reducing urban sprawl and supporting public transportation and bicycle lane development.

Incorporating sustainability features into these developments, such as energy-efficient building design, passive heating & cooling, and rooftop gardens, helps minimize environmental impact and enhance the overall quality of life for residents.

“From NIMBY to NIMBY” aims to contribute to creating dynamic, livable communities that prioritize accessibility, livability, and environmental responsibility.

JURY STATEMENT



This proposal foregrounds the potential for site massing to blend into an existing neighbourhood context without sacrificing needed density increases. It prioritizes sustainability in a thoughtful and not simply technical way by using passive strategies for heating and cooling, and promoting walkability, mixed uses and a rooftop garden to encourage social interaction. The jury appreciated how with this larger scale of building the potential for commercial spaces is improved. Sustainability and resiliency require strong social components to be successful, and this scheme really designs for that in an intentional way.



SPECIAL MENTION

ANTI-COMMUNITY COMMUNITY

BY FOB LAB | Vancouver, Canada

Clyde Montgomery, Bianca Del Rio Kodato Melo, Eden Zinchik



JURY STATEMENT

Not all entries came from professionals working in housing design and planning. This entry explicitly presents a stirring counter-perspective. In a powerful call for more diverse housing and more community agency in determining housing forms and options, the collective authors penned a manifesto that calls for housing as a living organism, with food and pollinator gardens and even facades that could foster symbiotic coexistence among species. Their proposal is a reminder that housing forms, governance and communities of care all need rethinking.

Anti-community community

We are designers, artists, renters, movers, activists, guests, and neighbors.

We are not architects, urban planners, or interior designers.

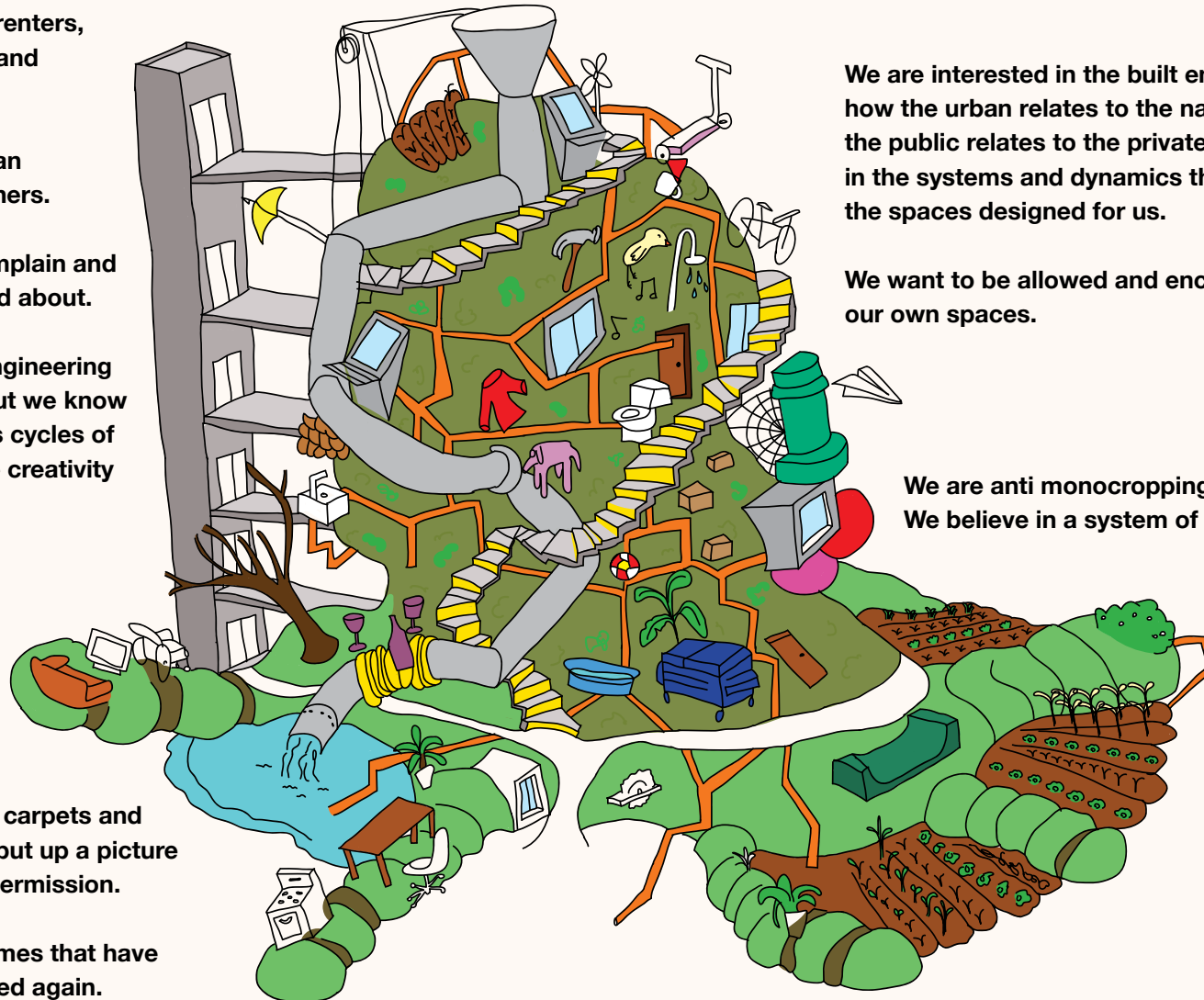
We are neighbors who complain and who have been complained about.

We know nothing about engineering and codes and by-laws. But we know we don't enjoy the endless cycles of bureaucracy that limit true creativity and agency.

We are landlord by dirty carpets and moldy windows. We can't put up a picture frame without asking for permission.

We live in single-family homes that have been divided and subdivided again.

We are the by-product of post-industrialization, commodification and over regulation.



We are interested in the built environment, how the urban relates to the natural, how the public relates to the private, we are interested in the systems and dynamics that are formed from the spaces designed for us.

We want to be allowed and encouraged to design our own spaces.

We are anti monocropping of neighborhoods. We believe in a system of diverse housing.

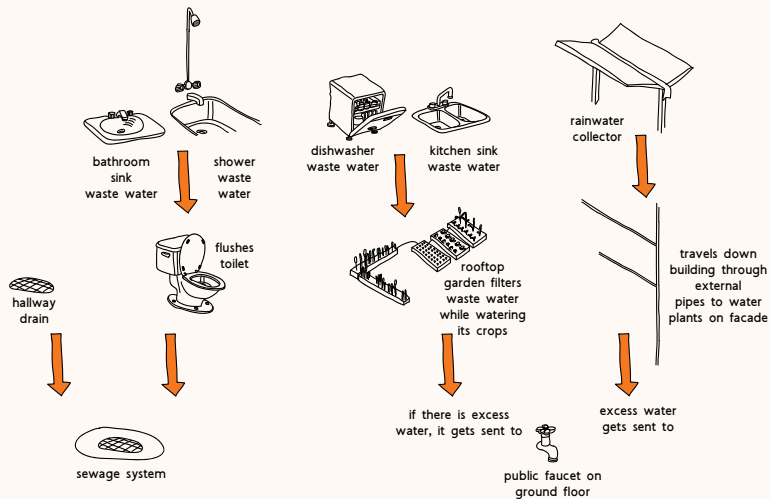
ROOFTOP

Through this project we decided to focus on different design implementations that can support and benefit different types of housing in this transitional period towards more affordable, communal, and climate resilient ways of living. We focused in:

- Housing not for monetary value: rejecting profit-driven construction. A house is not just a shelter. A house should not be a commodity. Rent can and should decrease overtime.
- Housing as a living organism: adapting based on residents' needs and desires. A symbiotic system, mutually benefiting the ones within and around it.

Our waste makes our food, our food makes our waste. We use local native marshland species such as the Cattails, White Bog-Orchid or the Marsh Cinquefoil as plants that both invite pollinators and filter water. This filtered wastewater can further be used to water houseplants and crops, and go back to feeding us again. This is one of three liquid recycling systems at play.

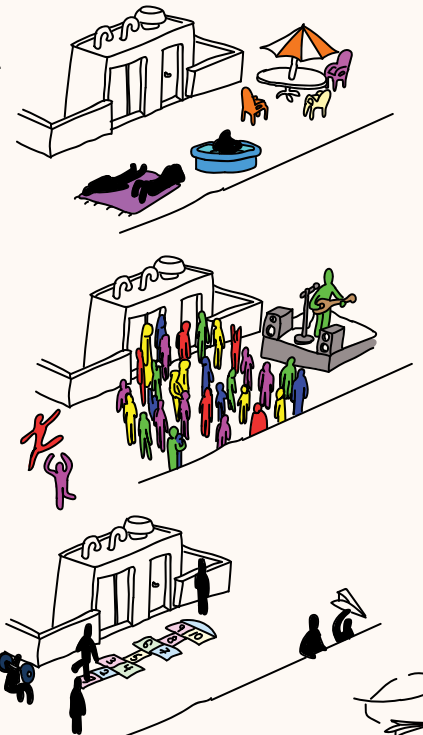
Liquid Recycling



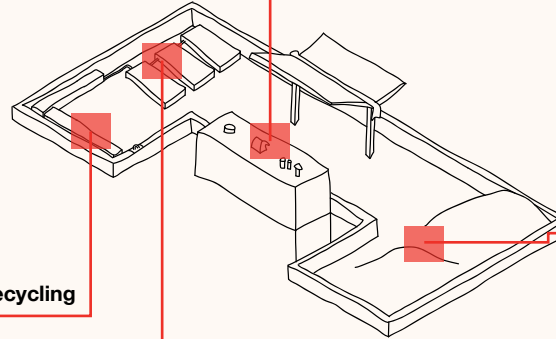
Though communal rooftops exist, they are very under-utilized. Wide open areas of emptiness filled in with concrete blocks of flooring, create cold undesirable spaces to hang out in and leisure.

The rooftop is designated as a communal public-accessible area. Though primarily used as a space for building residents, non-residents are able to use the space through a fob system of exchange. The coffee shop houses 10 fobs which can be exchanged for a piece of ID or important belonging; allowing the public to utilize the space while making sure fobs don't get lost or stolen.

The rooftop amenities include a rain water collection roof, a community garden cared for by building residents, knolls for privacy and still a open empty space that allows for different usages depending on people's desires and demands.

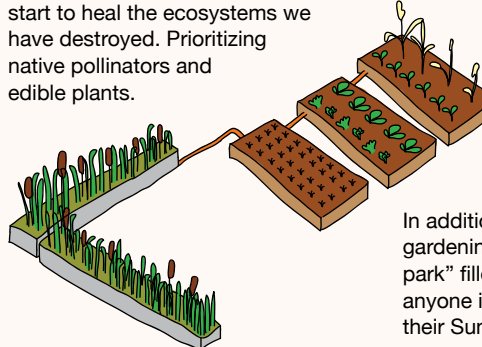


Rooftop



Food + Pollinator Gardens

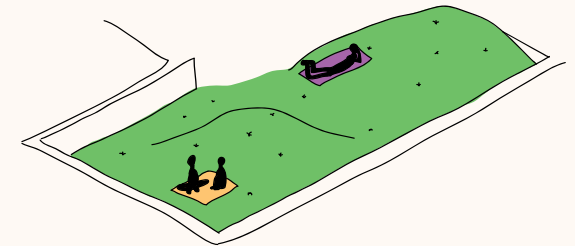
In urban and residential cases, plants are zoned as beautification tools. Stripped of their nature and bred to be more and more colorful, more and more impressive, with greener grass and redder roses as ways to upstage your neighbors. We believe in incorporating plants beyond their pretty flowers and perfect lawns, they can feed us, flavor our lives and start to heal the ecosystems we have destroyed. Prioritizing native pollinators and edible plants.



In addition to the water system, rooftop and the residents' gardening spaces, there will be garden beds lining the "side park" filled with sage, mint, oregano and other herbs". Open to anyone in the community to grab a stem or two of rosemary for their Sunday roast.

Knoll

Knolls create pockets of privacy and a more dynamic environment through playful intervention.

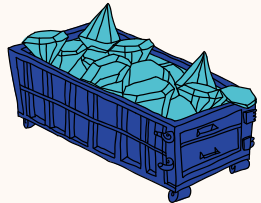
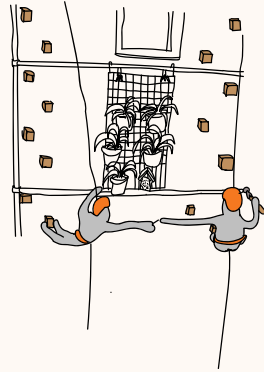


RESIDENTIAL



Climbable for repair

Inspired by the Great Mosque of Djenné - which was designed with big climbable beams so each year the community can get together and re-stucco the walls with clay, - our building facade has climbable 4X4 holds and a belay system to assist with the taking care of the facade, such as adding more plants or cleaning windows.



Construction company exchange

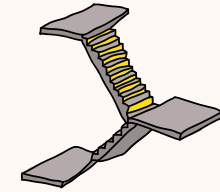
In Metro Vancouver 1/3 of all the waste is produced from construction material - either from new building construction or demolition and renovation.

Our building will work with construction companies to divert good quality materials from going to waste. Material offcuts and other waste materials are sorted and stored throughout the main construction process that once finished can be used in collaboration with the residents to construct wooden shelving, doors, and cabinets for their units, or cardboard for laying ground on community garden planter beds, etc.

While diverting good quality material from turning into waste and extending their life cycles, the exchange between building and construction company also financially benefits both. The building gets free material - decreasing their construction and maintenance costs, - while the company can dispose of their waste without having to pay a disposal fee to a landfill or recycling company; also decreasing their expenses.

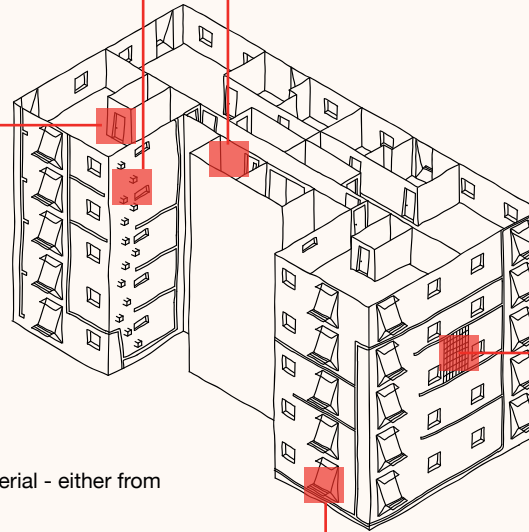
This mutually beneficial relationship promotes circular practices and slow making, while supporting a living space that encourages personification and stewardship from the beginning.

By opting for single staircases, we are able to have a smaller hallway avoiding the feared skinny long slit cutting across the middle of the building. That way, every apartment is able to have windows on more than 1 side of their unit, improving air circulation as well as natural light access.

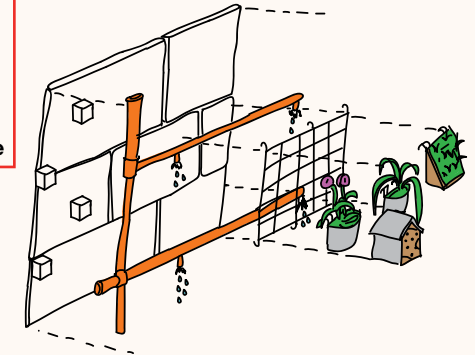


Single staircase

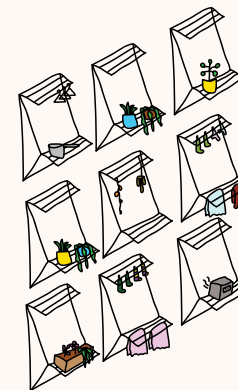
Facades should not be treated like lifeless gray squares designed to repel any and all life. Our building facade was designed to support symbiosis and co-existence between beings while giving residents the autonomy to personalize their living spaces post-construction.



Multi-species facade

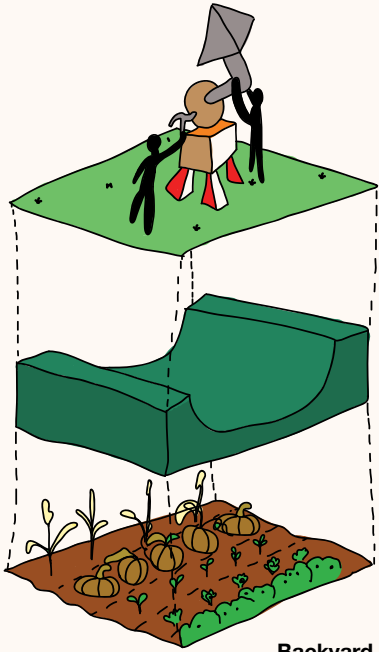


Personalized window



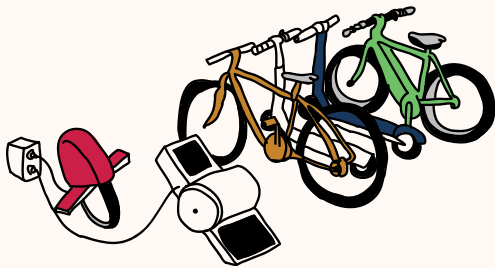
Another example of intervention post-construction is the protruding windows, designed with 2 basic racks that allow the residents to use it as an extension of their house. Angled to allow more light in and keep peepers out.

GROUND FLOOR



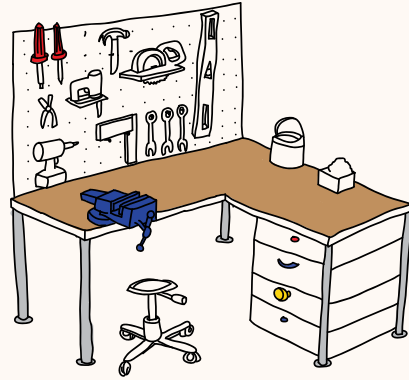
Backyard area

The backyard area has the intent of being a rentable community-focused space. Yearly, the board collectively decides what the backspace can be used for. Not only will this work in having the community benefit from it being there, but also the residents that live inside of it - while the surrounding community gets culture, the building residents get cheaper rent.

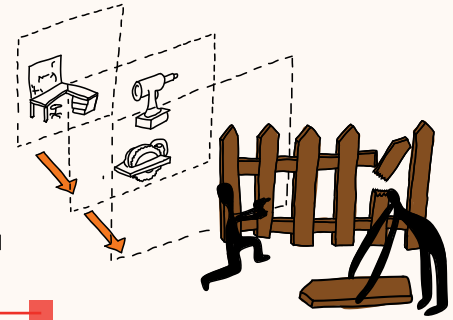


Bike room

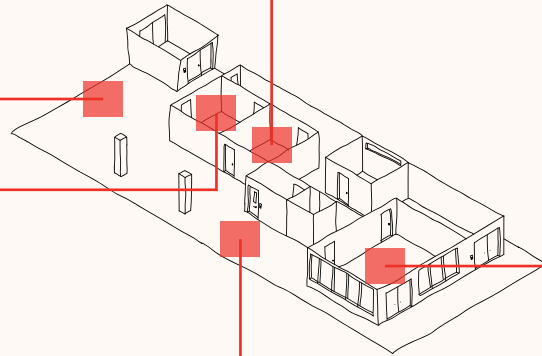
We are not having car parking and are opting for large bike parking area. Also including charging ports for alternate electrical modes of transport.



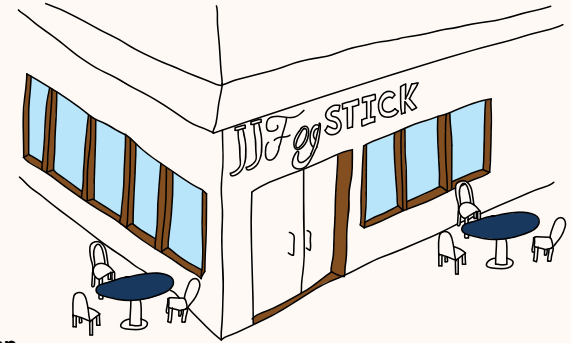
If a hook breaks in your house or you wanna build something there is the repair room giving residence autonomy. Potential to host community repair nights like a community bike shop. Acting as a neighborhood tool crib that would cause a ripple effect inspiring people in the community to get involved in fixing their own stuff.



Repair room



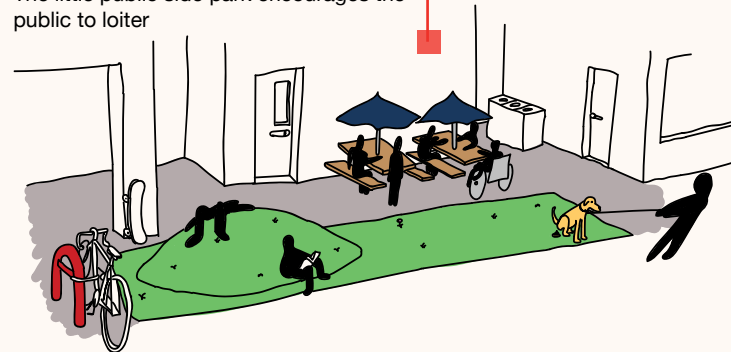
Coffee shop



Coffee shops are common third spaces, with their own multi-zoning. Vibrant places with friends catching up, work meetings, students cramming, and book clubs bringing strangers together. An external living room filled with lively chatter and coffee aroma. In addition to this, when the cafe is closed, the space would also act as an ad lib boardroom for the members, with the cafe's owners and workers also engaging as active members of the decision board.

Side park

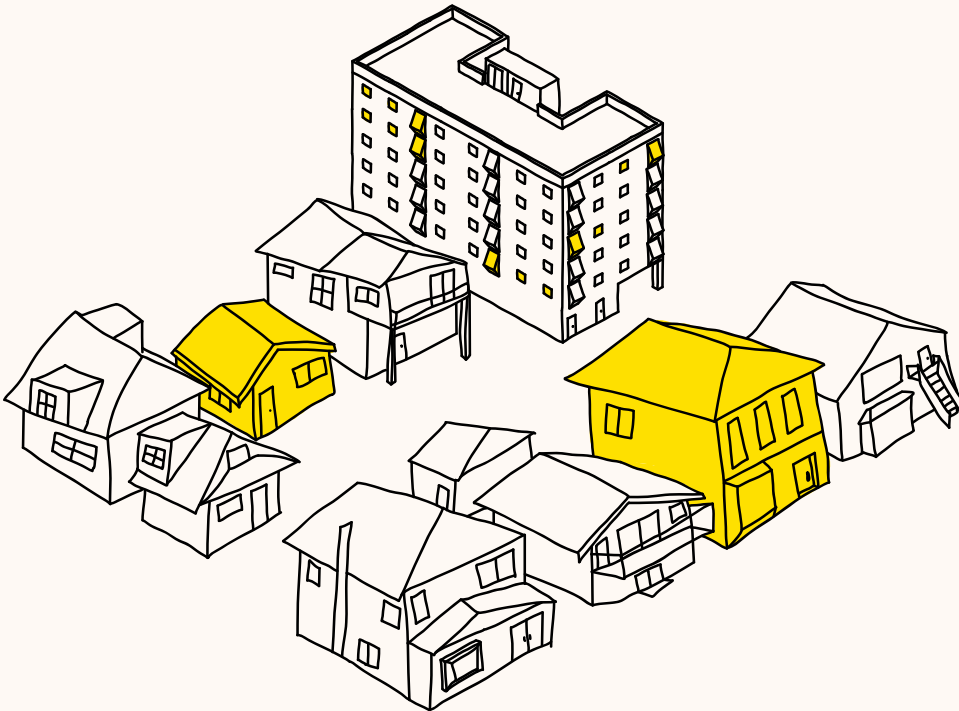
The little public side park encourages the public to loiter



Governance:

As renters, we have little to no power and agency to get anything done within our rental spaces. We are either at the mercy of landlords, who most often couldn't care less if you live or die... as long as you pay rent. Endless back and forth emails with mysterious strata shadow forces begging them to fix windows that won't open or pipes that are leaking. This hierarchical, impersonal and diminishing system of governance only reinforces the way housing is seen as a profit making machine rather than a right for all people.

With a concentric governance system we propose a system in which the ones who get directly impacted and influenced by the building are the ones who have the voice to make decisions about it.



Concentric hierarchies: inner circle has power of final decision but takes into consideration what everyone else has spoken about.

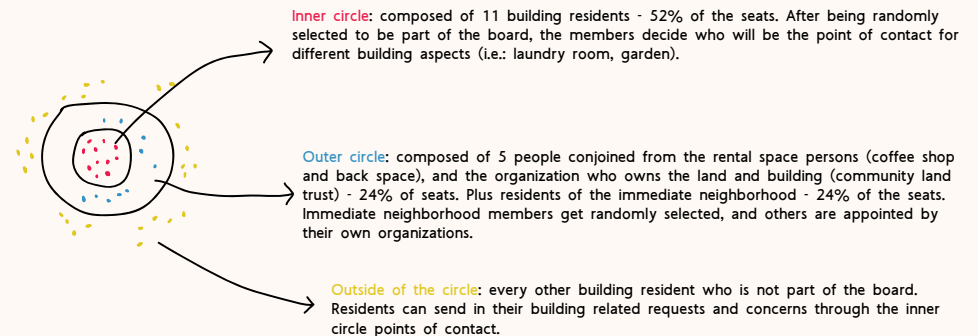
Instead of:



Top down hierarchies: people with most power make all decisions. People with least power follow with little to no say.

Influenced by Community Land Trusts' and Mutual Housing Associations' ways of operating we propose a governance system in which a board composed of building residents, immediate neighborhood residents and stakeholder (the ones who own the land and the ones who have rental spaces on the ground level) members make decisions collectively.

The way board members get selected is through a randomized selection following the modes of operation that the organization [DemocracyNext](#) has created. In that system, everyone is encouraged to participate in decision-making and gets encouraged that their voice matters. The idea is that the board members cycle every year; getting everyone a chance to have a more active voice within the building, while not having it consume their individual lives.



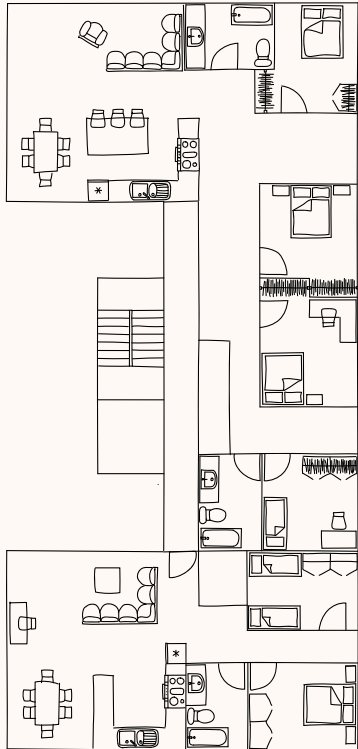
Inner circle: composed of 11 building residents - 52% of the seats. After being randomly selected to be part of the board, the members decide who will be the point of contact for different building aspects (i.e.: laundry room, garden).

Outer circle: composed of 5 people conjoined from the rental space persons (coffee shop and back space), and the organization who owns the land and building (community land trust) - 24% of seats. Plus residents of the immediate neighborhood - 24% of the seats. Immediate neighborhood members get randomly selected, and others are appointed by their own organizations.

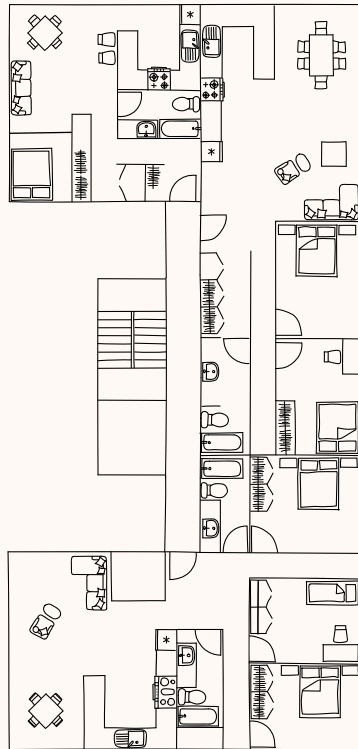
Outside of the circle: every other building resident who is not part of the board. Residents can send in their building related requests and concerns through the inner circle points of contact.

Project data + Floorplans

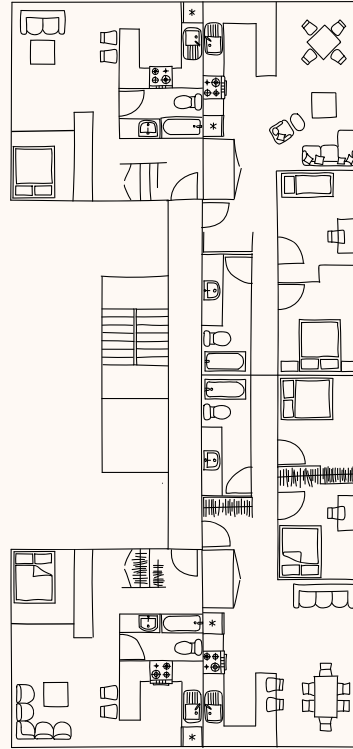
floor 2



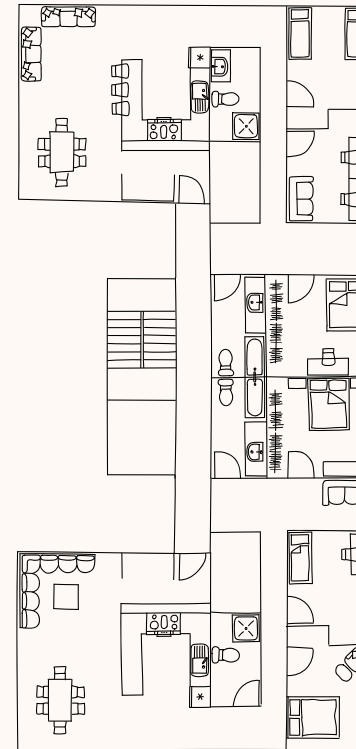
floor 3



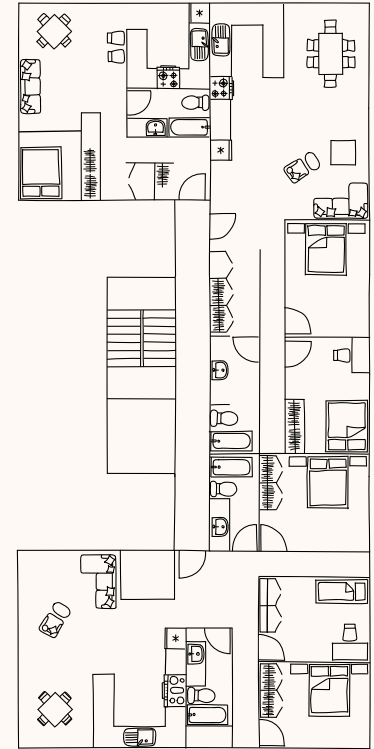
floor 4



floor 5



floor 6



FSR 2.2
Lot size 6060 sqf
Building size 12640 sqf
Residential units 14 units
Bedrooms 30 bdrms
Shared Social Space 6943 sqf
Commercial/Retail Space 720 sqf (cafe) +
450 sqf (back space)

SPECIAL MENTION

ROUND HOUSE

BY OXBOW ARCHITECTURE | Saskatoon, Canada

Andrea Clayton, Brad Pickard, Jim Siemens, Megan Florizone, Meghan Taylor, Sam Lock



JURY STATEMENT

Foregrounding that housing is a human right, this team's proposal looks at decoding affordability alongside resource extraction and industrial materials. Relying on insights from Mi'kmaq elder Peter Poulet about the inherent qualities of materials from an Indigenous perspective, the team uses the concept of Indigenous two-eyed seeing to learn both from Indigenous and Western world views. Their diagnosis, that industrialized housing production needs to be decoded, led to an exploration of structural round timber (SRT) and community benefit.

decode

we must decode what it means to live in community to avert a housing crisis

we must decode our relationship with resources to avert an environmental crisis

decoding density for community is a **social action**

decoding density for sustainability is an **ecological action**

individual ownership -----> public housing

structural round timber <----- milled lumber

Introduced boundaries compromise the potential of the land and society.

Divided segments compromise the structural potential of the material.

When land is surveyed and cut up into parcels, divided and sold off; a select few profit. Indigenous worldviews are not predicated upon ownership of land - but built upon community.

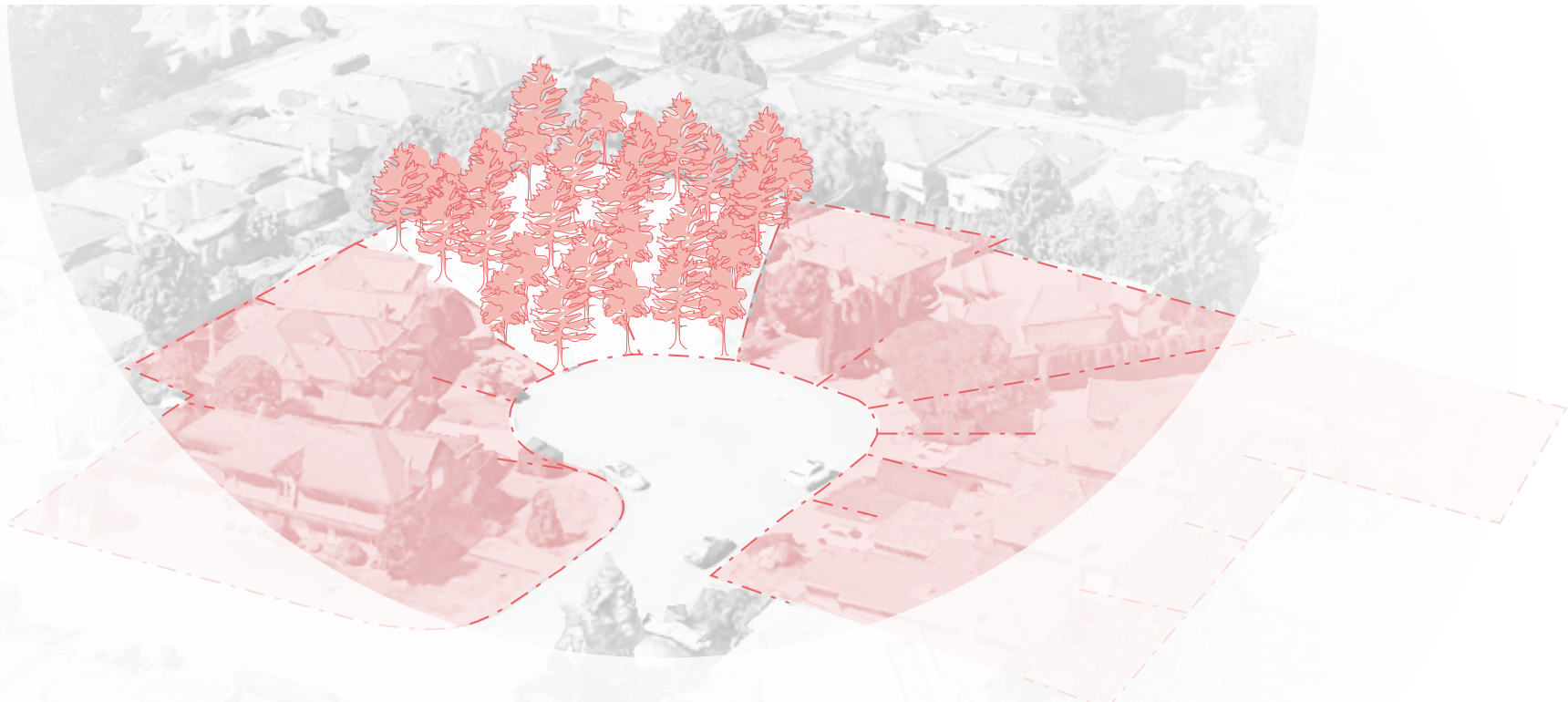
When a tree is felled and milled into lumber its integrity is compromised. A log in its purest form has greater structural capacity than the dimensional product that is milled.

The **land** is transformed into individual commodities.

The **tree** is transformed into individual commodities.

We must embrace the inherent strength of **community**.

We must embrace the inherent strength of **resources**.



problem

Segmentation of communities compromises the potential of land & society

Canadian building codes and practices are rooted in a political and financial system that is creating products for a market, and instruments of investment. Looking for technical solutions to improve housing in a system that is inherently **flawed** will not result in livable solutions.

By taking a problem that is political and making it a technical one - we have made it palatable to the existing societal norm. Technical solutions to reducing the cost of housing usually result in greater efficiencies; smaller living and common spaces, lower net to gross ratios of a building and they may also result in lower construction costs when minimum building code standards are relaxed. The result is that we end up with smaller and less robust homes in the race to the bottom. We already hit bottom some time ago and communities are suffering for it.

The delivery of housing as a commodity requires its process of production to be as standardized and uniform as possible. We sell housing by the pound and there is no incentive to make it of any quality other than the barest minimums set by building codes and CMHC minimum standards. Further, parsing land into small pieces, to be owned individually, has reduced the potential value of that land to society. Our housing needs places for inhabitants to be neighbourly. The single-family home of Neighbourhood Site 'B' is the antithesis of this.

People should feel connected to their neighbours, and their neighbourhood. We need buildings that offer generous communal spaces, such as communal laundries, gardens and outdoor areas. We must provide conditions for connection to take place; and create opportunities to meet neighbours and develop community.

Our social norms and the commodification of land and housing is what needs to be decoded.

Segmentation of resources compromises the potential of a material's utility

The design values for structural capacity of round wood of northern species listed in the document: CSA O86:19, Engineering Design in Wood, states that the round wood tree is much weaker than sawn wood of the same cross section. This is clearly an **inaccuracy**.

The forestry and mass-timber industry in particular has largely overlooked low-tech timber technologies such as structural round timber (SRT) – looking instead to high-tech engineered wood solutions such as glue laminated and cross-laminated timber with a total embodied carbon many factors more than the equivalent SRT. Additionally, design values for black spruce (a species that ranges across Canada) are nonexistent, making the implementation of local material sourced from Indigenous wood harvesters across Canada more difficult.

The practices and perspectives of wood use in Indigenous cultures within Canada has also proven the strength and efficiency of SRT. Mi'kmaq elder Peter Poulet summarized the approach of many Indigenous cultures. He argued that one would never consider making a smaller rope by sawing or shaving down a larger diameter rope. The structural integrity of trees comes from their fibers running continuously from end to end in concentric circles, the most structurally efficient configuration, optimized by nature.

From this perspective, the extraction and manufacturing processes in contemporary wood-frame construction is problematic. The relative strength of milled lumber is significantly compromised compared to SRT and far more carbon intensive to produce. We must aspire beyond a specialized and technocratic role of industry.

Our housing industry and the commodification of limited resources is what needs to be decoded.

solution

Decode Social Norms.

The solutions are not new or untried.

Prioritize conditions that foster a sense of collective ownership and build community

**Civic ownership of properties
Rent controlled properties**

The social norm of living in social housing is new to **Canada.**

The most expedient way to change a system is to legislate it. The “housing crisis” could be solved if we collectively chose to make housing a truly social endeavour and human right (similar to healthcare and education in Canada) and not a profit centre for investors. It’s not about moving the goal posts of home ownership to within more people’s reach, it is about removing them altogether. Owning a home should not be a sign of success or define one’s class. Homes are places to be proud of, to build families and communities, but not define our socio-economic status

The design product is not novel or never before seen.

It could be fantastic or very “normal”. This is the idea of a new public housing. A new Canadian Dream - a dream of a community and shared existence - not a single family residence in isolation in suburbia.

Good housing should be equitable housing. The housing industry can and must do more to address housing inequality and insecurity. Priority should be given to providers that can give affordable, long-term leases to vulnerable members of our community. This principle should guide us housing solutions.

The product:

A diversity of people living in a mid-sized building. All ages, ethnic diversity, and a range of socio-economic strata - living together.

Decode Industry Norms.

The solutions are not new or untried.

Utilize decades of existing research toward the scaled commercialization of structural round timber (SRT)

**Support Indigenous perspectives
Utilize resources more wisely**

Black spruce (*Picea mariana*) has a wide range across **Canada.**

Northern Black Spruce is a slow growing tree with tight, straight grain resulting in high strength; as a result its inherent structural characteristics that could be better utilized by the Canadian wood industry. SRT is stronger in bending than an equivalent cross-sectional area of milled lumber due to the wood fiber continuity and preservation of grain orientation.¹ In milled lumber, wood fibers are disrupted and discontinuous, creating stress concentrations and initiate fractures, while wood fibers in round timber flow continuously around knots on the surface.

The design product is not novel or never before seen.

With improvements in grading methods that can result in significant increases in design values; structural round timber will become a cost-competitive mass timber product alternative.

When less strength is needed, a smaller diameter tree or sapling is used, employing its inherent structure efficiently. This principle guided the construction of Indigenous longhouse structures of the Pacific Northwest. This principle was well familiar to Indigenous builders in Canada’s boreal forests.

The product:

Develop appropriate design values with physical testing to justify design criteria for building solutions with round wood black spruce.

1. Wolfe, R. (2000) Research challenges for structural use of small-diameter round timbers. Forest Products Journal, 50(2), 21-29.



Community Perspective

(Who are we building for and why are we building this way?)



Indigenous geographical names³



Indigenous lands³



major suburban development⁴

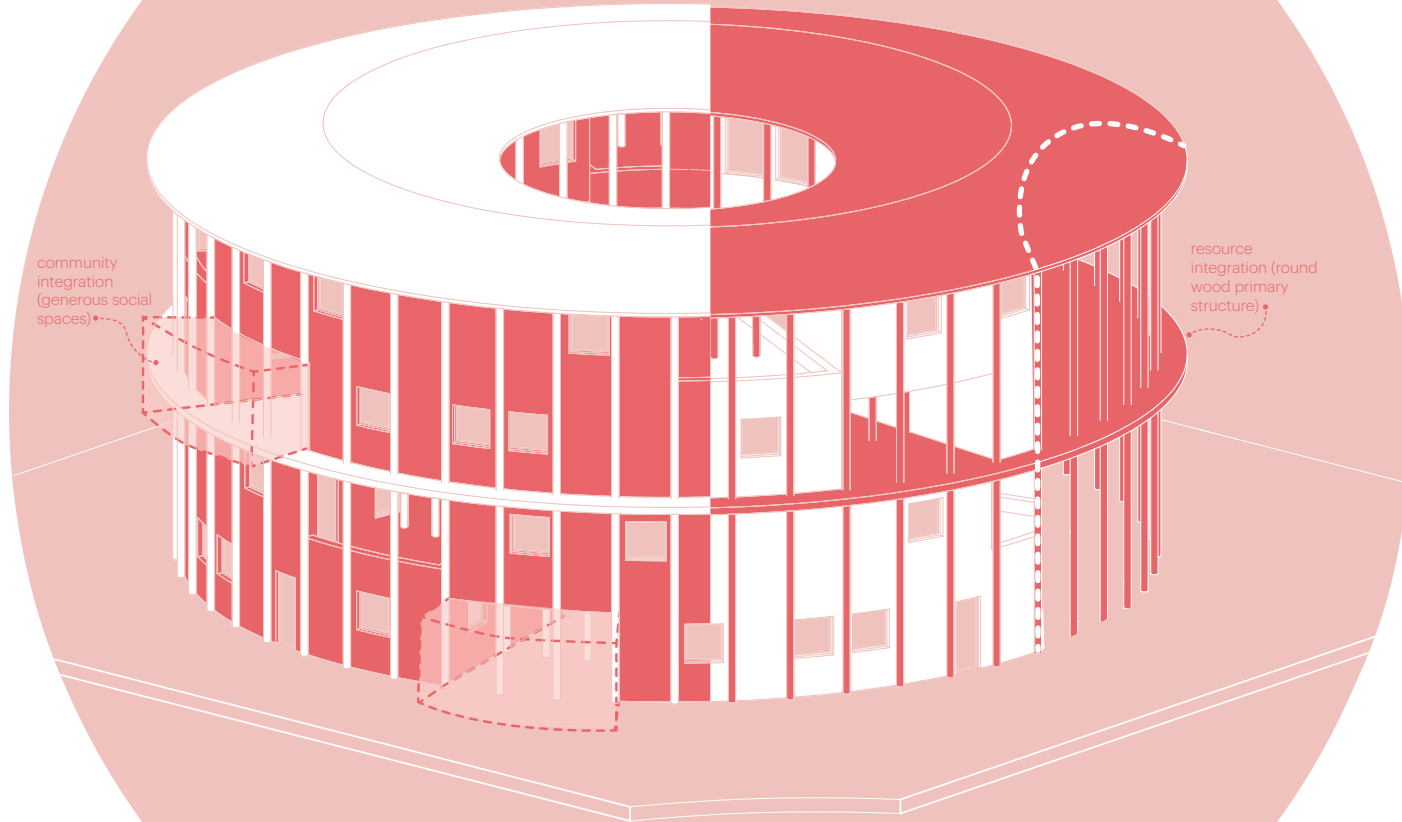
2. Bartlett C., Marshall M., Marshall A. (2012). Two-eyed seeing and other lessons learned within a co-learning journey of bringing together Indigenous and mainstream knowledges and ways of knowing. *Journal of Environmental Studies and Sciences*, 2, 331-340.

prototype

Etuaptmunk: Two-Eyed Seeing

Two-Eyed Seeing refers to learning to see from one eye with the strengths of Indigenous ways of knowing and from the other eye with the strengths of Western ways of knowing and to using both of these eyes together.²

- Mi'kmaw Elder Albert Marshall



community integration (generous social spaces)

resource integration (round wood primary structure)

The prototype is an exploration of the traditional and contemporary alignments of structural round timber construction to broader national issues such as ecology, regionalism, colonisation and settlement. By examining Canada through the lens of this underutilized construction typology, relationships between traditional and Western knowledges emerge as a working prototype.



Resource Perspective

(What are we building with and why are we building this way?)



black spruce cover for Canada³



forests land cover in Canada³



managed forests in Canada³

3 Map Source: Canadian National Forest Inventory; Website: <https://nfi.nfis.org/en>

4 Map Source: Canadian Suburbs Atlas; Website: schoolofcities.utoronto.ca/research/canadian-suburbs-atlas/

community

At the heart of the development is a model built upon civic ownership and funded through a not-for-profit approach.

The approach embraces an understanding that people need to feel connected to their neighbours. Critical to this is the shared common spaces that offer unique moments which we hope one day become the norm in multi-family mid-rise housing developments.

The prototype developed is illustrative, it is not a final concept. It shows the potentials of what collective living can look like and how individuals can begin to rewrite society's compulsion for home ownership.

Key to the success and wide adoption of this perspective:

De-stigmatize rental housing. Normalize it, and make it a sustainable way to live.

Adaptable to the changing social 'codes'. The standard house hold is more diverse than ever before and design needs to allow for this diversity.

Housing that is truly multi-generational. Flexible units adaptable for all stages of life.

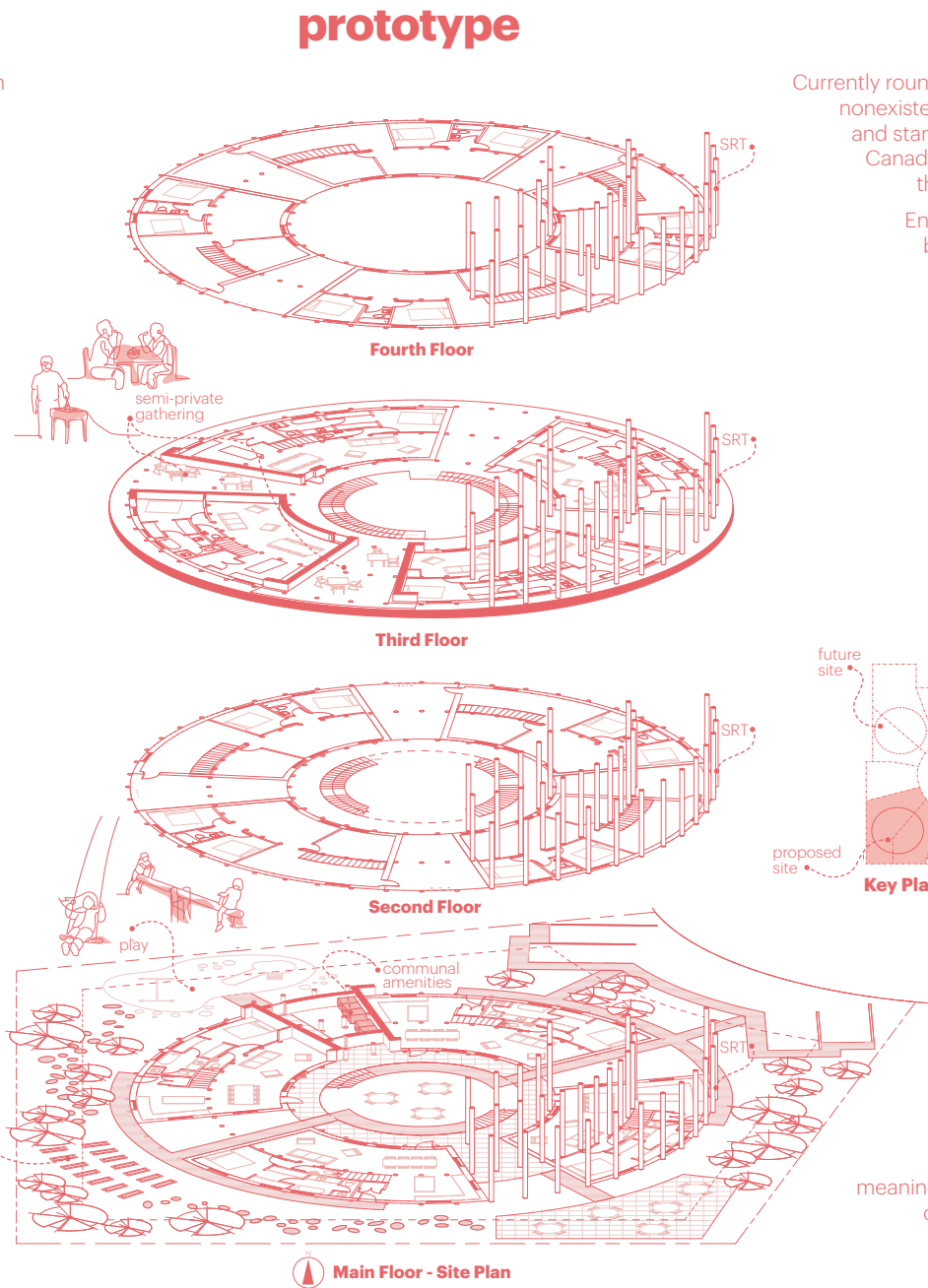
Provide the platform for collective ownership of land and rent controls that ensure stability and increase housing security.

Provide a space for people to be proud of, to personalize, to socialize in, and to live in.

Treat housing as a human right.



community gardens



Main Floor - Site Plan

Key Plan

resources

Currently round wood black spruce design values are nonexistent in Canadian structural design codes and standards. This is an issue that impacts the Canadian forestry resource management and the timber industry. We can change this.

Enhanced design values can be achieved by in-grade testing with point estimator cohorts and general improvements in grading structural round timber, improving the likely adoption of this alternative mass timber product. This will unlock low-value black spruce logs, providing markets to an alternative structural product. A product that supports healthier forest ecologies and carbon sequestration.

Key to the success and wide adoption of this perspective:

Address Canadian structural design codes and standards shortcomings to unlock an underutilized resource and support healthy ecologies and national climate plans and targets.

Develop design values with point estimator sized cohorts and physical testing to justify design criteria for round wood black spruce by an IAS accredited test lab and third party.

Utilize these design values to bring advanced solution to design and construction.

Utilize First Nations companies in the sourcing of black spruce to construct meaningful structures rooted in traditional and contemporary contexts across Canada.

community + resources

Re-evaluate Canadian societal 'code' valuing home ownership using public housing providing choice, community and quality design to influence a societal shift.

The most expedient way to change a system is to legislate it. Housing should be a universal right and a social endeavor funded through a not-for-profit approach.

With common-spaces and public amenities the proposal promotes formal and informal interactions between the public and residences.

The use of SRT will lower the carbon footprint and reduce maintenance costs. The design of the openings and courtyard maximize natural ventilation.

Prioritize conditions that foster a sense of collective ownership and build community

Provide a replicable model of housing driven by civic ownership and rent controlled properties

de-code Design values for black spruce (a species found across Canada) are nonexistent. Our solution promotes the testing of Black Spruce and revisions to CSA-086:19

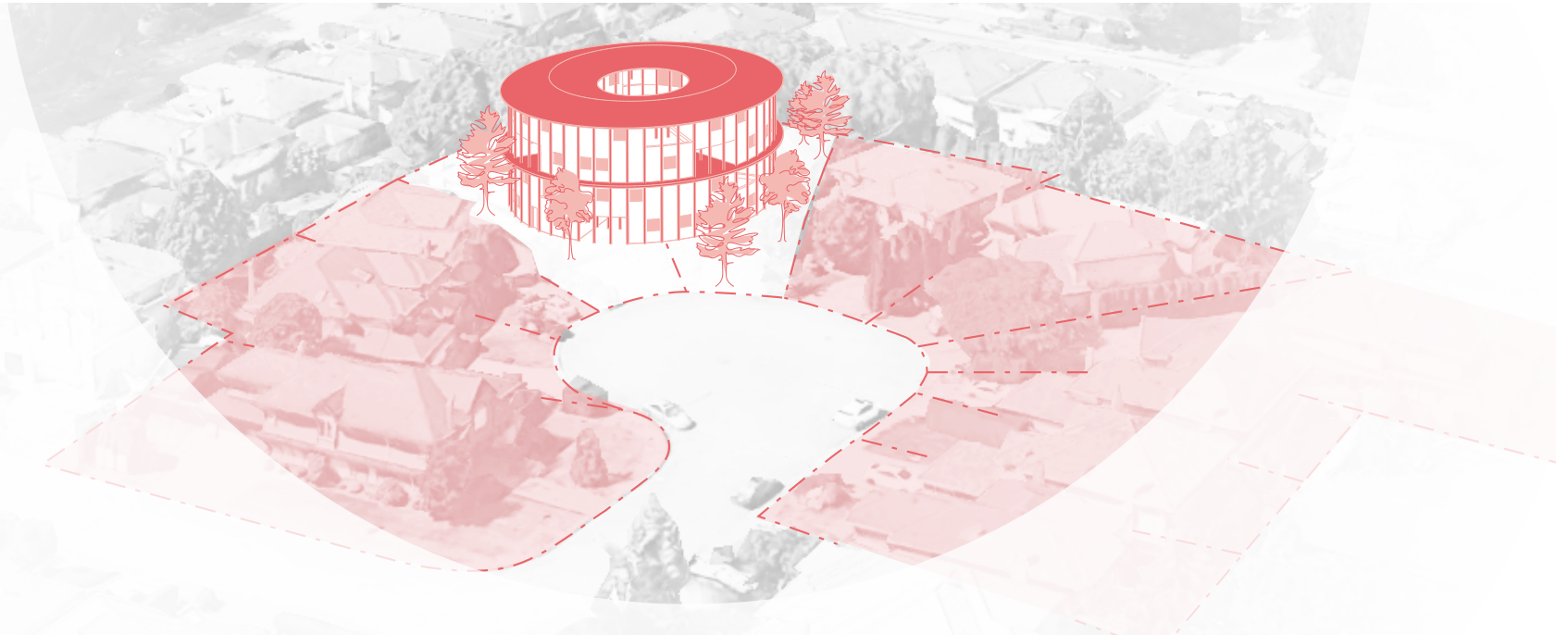
affordability The use of SRT requires less resources compared to milled dimensional lumber, thus reducing the manufactured costs required to get an end product.

community Sourcing and harvesting of Black Spruce in a sustainable way should be a collaboration between Industry and First Nations.

climate To create a climate resilient industry we must diversify and find efficiencies. When Black Spruce SRT is used in its raw form it reduces manufacturing.

impact Support indigenous perspectives and utilize resources more wisely.

Provide a replicable example of the integrated use of a national resource in a manner that supports healthy ecologies and Canada's climate plans and targets



SPECIAL MENTION

BUILDING LIVABLE ORGANIC COMMUNITIES

BY BLOC | Vancouver, Canada

Brady Dunlop, Mojdeh Kamali, Simon Caulfield Sriklad, Kendra Scanlon, Paul van Ellenberg, Maryam Ahmadi, Matt Trepanier, Gerrit Atkinson, Paul Giles

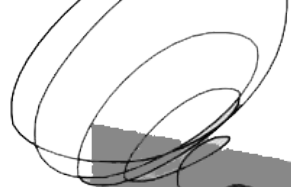


JURY STATEMENT

The jury was impressed at the approach to process in this submission, much of which focuses on a project's initiation and design process and the sticky questions of how exactly to spark people to get together and do something about housing. The scheme echoes others in proposals for code change, including point access block and not including outdoor circulation in FSR; uniquely, it puts forward a code change to eliminate restrictions on household formation in zoning bylaws. It also proposes a crowd-funding mechanism to complement a data-driven and community-led approach that stood out to the jury.

THE PROBLEM

AFFORDABILITY IN HOUSING IS BEING DISCUSSED AROUND SO MANY KITCHEN TABLES. DEVELOPER AND SPECULATIVE-DRIVEN APPROACHES TO HOUSING ARE FAILING TO MEET THE NEEDS OF THE COMMUNITY. THERE ARE MANY BARRIERS TO HOUSING DEVELOPMENT AND MARKET ENTRY, WITH FINANCIAL MODELS REMAINING RIGID AND LINEAR. THIS CONVERGENCE OF CHALLENGES HIGHLIGHTS THE IMPERATIVE FOR NEW SOLUTIONS THAT TRANSCEND TRADITIONAL CONSTRAINTS AND PRIORITIZE COMMUNITY WELLBEING AND ACCESS TO HOUSING.



THE VANCOUVER SUN
Edition 21635
April 3rd, 2024
HOUSING CRISES

UNAFFORDABLE
There is a scarcity of affordable housing options in the city, squeezing the middle class and it's causing a crisis and it's crucial that we address this urgent problem. The current position is: faster implementation of the development of medium-density housing is essential to address the need to address the crisis and bring more income and sustainable communities.

THE PUBLIC WANT ANSWERS
43% of all new homes in Vancouver are investor-owned.
Average home price: \$1,276,644 (Greater Vancouver, 2023)
Benchmark detached home price: \$2,104,379
Median Multiple (gross-income): 11.3 - 3rd worst
Income needed to buy average home: \$222,345
Years to save for downpayment: 39 years
\$8000 per low-income renter: just 22 for every 100 (2021)

UNSUSTAINABLE

DEPARTMENT OF HOUSING
EVICTIION NOTICE
YOU ARE HEREBY REQUIRED TO VACATE. FAILURE TO VACATE WILL RESULT IN LEGAL PROCEEDINGS, ATTORNEY FEES, COURT COSTS, AND PENALTY DAMAGES.
#3072

RT-1 ZONING
Intent and Overview

PREFAB WOOD MAGAZINE

BLOC

BUILDERS/ DESIGN PROFESSIONALS

"Maybe we need to incentivize speed, efficiency and execution to improve work flows and reduce costs."

CITY PLANNER

"I'd like to have the confidence that repeatable, efficient designs achieve the density and energy efficiency goals of the official plan"

CURRENT HOMEOWNER

"I want to develop my home into a vibrant community that I can retire into through gathering with like-minded individuals"

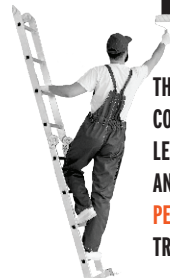
FUTURE HOMEOWNER

"I wish I could have access to affordable housing in the right neighbourhood nearby great amenities"



THE SOLUTION

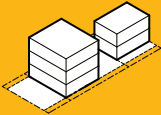
THE SOLUTION TO THIS IS SELF-INITIATED COMMUNITY-DRIVEN HOUSING MODELS, AUGMENTED BY LEVERAGING THE BENEFITS OF DATA, THE VIRTUAL SPACE AND MANUFACTURED WOOD TECHNOLOGY. THIS **EMPOWERS PEOPLE TO LEAD THEIR OWN PROJECTS** AND MEET THE TRUE NEEDS OF THE COMMUNITY.



DECODING POLICY

CHANGES PROPOSED

PLAN



ORGANIC COVERAGE

REDUCED FRONT SETBACK AND REAR SETBACKS AS WELL AS EXCEPTIONS FOR FRONT AND REAR BUILDING WIDTH AND DEPTH CAN CREATE MORE URBAN VITALITY.

MORE COMPACT FORMS ALLOWS FOR DYNAMIC INTERSTITIAL SPACES MID SITE AND DENSITY THAT CAN BE HIGHER AND LESS IMPOSING.

FLUID DWELLING

ELIMINATE PRESCRIBED LIVING ARRANGEMENT TERMINOLOGY SUCH AND CONSIDER ONE FLUID DWELLING RELATIONSHIP CONSISTING OF SINGLES AND COUPLES.

TRANSITIONAL ZONING

MULTI PURPOSE SPACE THAT CAN FACILITATE WHAT THE COMMUNITY REQUIRES: CAFE, WORKSHOP, DAYCARE, GATHERING SPACE (KITCHEN)

DYNAMIC DENSITY - OUTDOOR FSR AS EXCLUDABLE AMENITY

OUTDOOR CIRCULATION SERVES AS A VALUABLE AMENITY FOR COMMUNITY CONNECTIONS BY PROMOTING PHYSICAL ACTIVITY AND FACILITATING SOCIAL INTERACTION. BY INVESTING IN WELL-DESIGNED AND WELL-MAINTAINED OUTDOOR CIRCULATION INFRASTRUCTURE, COMMUNITIES CAN CREATE VIBRANT, HEALTHY, AND INTERCONNECTED ENVIRONMENTS THAT ENHANCE RESIDENTS' OVERALL QUALITY OF LIFE AND SENSE OF BELONGING.

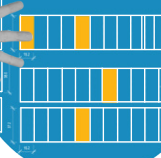
SINGLE STAIR

REVISE THE BUILDING CODE TO ELIMINATE OBSTACLES TO AFFORDABLE CONSTRUCTION. CONSIDER PERMITTING SINGLE-STAIRCASE CONSTRUCTION FOR BUILDINGS UP TO 7 STOREYS AND ALLOWING SINGLE EGRESS.

BUILD



INCENTIVIZE



CITY INCENTIVES?

CAN WE ENSURE LOTS ARE SERVICED AND 'SHOVEL READY' WITHIN A TIME PERIOD OF PROJECT COMMITMENT? TO ALLOW COMMUNITIES TO BUILDING HOMES EFFICIENTLY?

COULD LOTS BE DESIGNATED AS 'COMMUNITY-FUNDED' AND COME WITH PRE-APPROVED PARTIAL PLANNING TO EXPEDITE THE PROCESS AND REDUCE HURDLES?



MULTI GEN HOUSEHOLD

OLDER GENERATIONS PROVIDE THE BULK OF THE DOWNPAYMENT, WHEREAS YOUNGER GENERATIONS PROVIDE THE INCOME FOR THE MORTGAGE.



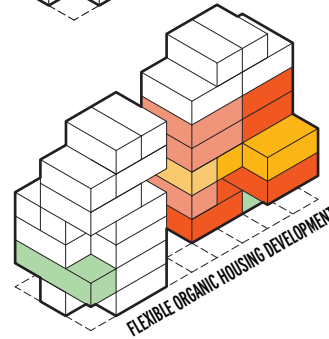
FIRSTTIME HOME BUYERS

MANY WELL-EMPLOYED INDIVIDUALS, WHO BELIEVE THEY SHOULD BE ABLE TO BUY A HOME, AND ARE UNABLE TO OWN, SHARED EQUITY OWNERSHIP MAY BE AN OPTION.



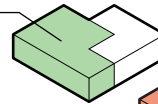
DOWNSIER

THEY NEED TO DOWNSIZE BUT DON'T WANT TO LEAVE THEIR NEIGHBOURHOOD AND COMMUNITY. INSTEAD, THEY POOL TOGETHER THEIR RESOURCES TO CREATE SMALLER UNITS WITHIN THEIR SINGLE-FAMILY HOME.

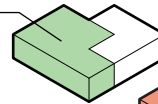


FLEXIBLE ORGANIC HOUSING DEVELOPMENT

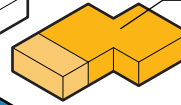
RESIDENT DEVELOPER
3 BED



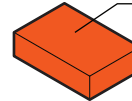
TENANT
2 BED + WORK FLEX



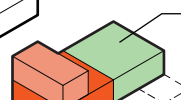
FIRST TIME HOMEBUYER
2 BED + ADD ROOM



DOWNSIER
2 BED



MULTI-GEN
2 BED + LOCKOFF



TYPICAL LINEAR SPECULATIVE-DRIVEN DEVELOPER PROCESS

Limited Community Feedback

Future Resident Input

Developer



COLLABORATIVE SELF-INITIATED COMMUNITY-LED

HOUSING MODEL

DESIGNED WITH FLEXIBILITY AND UNIVERSAL ACCESSIBILITY IN MIND, ALLOWING FOR EASY MODIFICATIONS TO ACCOMMODATE CHANGING NEEDS. IT INCORPORATES FEATURES SUCH AS MODULARITY, TECHNOLOGY INTEGRATION, AND SUSTAINABILITY TO ENSURE LONGEVITY AND COMFORT FOR OCCUPANTS. THIS CONCEPT EMPHASIZES FUTURE-PROOFING AND MAY BE PART OF LARGER COMMUNITIES OFFERING SUPPORTIVE SERVICES.



RESIDENT DEVELOPERS

THEY OWN THEIR HOUSE AND ARE LOOKING TO GENERATE EXTRA INCOME BY CREATING NEW HOUSING UNITS ON THEIR PROPERTY.



TENANTS

STUDENTS, RECENT ARRIVALS, WORK PLACEMENTS NEED A PLACE TO CALL HOME.

MEET THE NEIGHBOURS

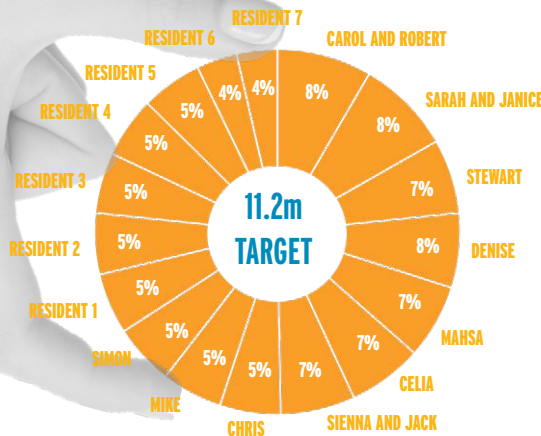
BLOC IS A DIGITAL PLATFORM DEDICATED TO FOSTERING VIBRANT COMMUNITIES. DESIGNED TO FACILITATE COLLABORATION, IT EMPOWERS COMMUNITY MEMBERS TO ENGAGE IN ALTERNATIVE HOUSING OPPORTUNITIES BY HARNESSING THE POTENTIAL OF DATA, DIGITAL TWINNING AND VIRTUAL NETWORKING, TO PROMOTE SELF-DRIVEN COMMUNITY-LED DESIGN AND DECISION-MAKING.

1. THE COMMUNITY PLATFORM
FACILITATES COMMUNITY ENGAGEMENT AND PARTICIPATION IN THE DESIGN AND DEVELOPMENT PROCESS, BUILDING COMMUNITIES THAT GREATER REFLECT THE NEEDS AND DESIRES OF IT'S RESIDENTS.

2. THE DATA ANALYTICS
ALLOWS THE COMMUNITY TO PLAN THOUGHTFULLY AND MAKE INFORMED DATA-BASED DECISIONS ON CLIMATE, AFFORDABILITY AND LIVEABILITY.

3. THE SMART PLANNING
SIMULATION TOOLS SUPPORT THE COMMUNITY IN TESTING OUT OPPORTUNITIES AND OPTIMIZE THE EFFICIENCY OF LAND-USE.

4. THE PREFAB WOOD
ENGINEERED MANUFACTURED CONSTRUCTION METHODS CAN HELP DELIVER FASTER, CHEAPER AND MORE SCALABLE HOUSING SOLUTIONS.



CROWD-FUNDED EQUITY MODEL

EACH BLOC RESIDENT CONTRIBUTES BETWEEN \$400,000 TO \$1,000,000 (OR ABOUT 800 \$/SQFT) TO THE PROJECT TO COVER LAND COSTS, DEMOLITION AND CONSTRUCTION."



Find the right community.

Get ready to ignite your search for compatible co-owners with the BLOC digital platform! It allows community members to connect with like-minded individuals, explore exciting opportunities, and dive into discussions about fulfilling their desires and needs.

Find the right place.

With this innovative tool, community members can find the right site for them, and kickstart their project, embarking on a journey to cultivate a more vibrant, supportive community tailored to their unique needs!

Find the right model.

Lock in your tenure and financial model that works for you. We can lay the foundation for a seamless journey towards shared ownership and collaborative success. Let's make it official and ignite the spark of community-driven innovation together!

"Being connected across multiple generations is so valuable for society. It can give people a sense of belonging and allow them to live their best life".

"Blending living, amenities and business is the way forward, making life vibrant, active and easy."

"No more top-down. It's about owning our future. Together, we can build better neighborhoods; we're boosting unity and empowerment, too".

"In a smart neighborhood, there are virtual twins and digital connections that share valuable data and ideas".

"Using the power of digital connection and smart data, we can understand, develop and manage our own communities".

"We could use the digital platform to engage with our community and connect us with 'future' neighbours, establish a plan and start building together."



SARAH, 36
BIKE TECH.

JANICE, 42
ARTIST

FIONA, 38
ARCHITECT

DENISE, 48
COFFEE SHOP OWNER

CELIA, 25
STUDENT

JACK, 38
CARE WORKER

MAHSA, 28
ACCOUNTANT

MIKE, 52
CARPENTER

SIENNA, 49
MARKETING CONSULTANT

CHRIS, 43
SOFTWARE ENGINEER

SIMON, 24
NON-PROFIT ORGANIZER

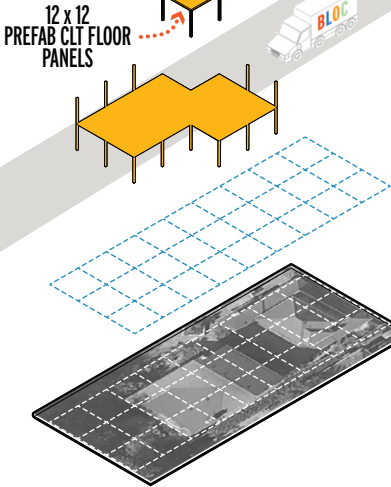
DATA-DRIVEN
COMMUNITY LED

BLOC PARTI

AFFORDABLE, ADAPTABLE, AND COLLABORATIVE DESIGN SOLUTIONS LEAD BY THE COMMUNITY.

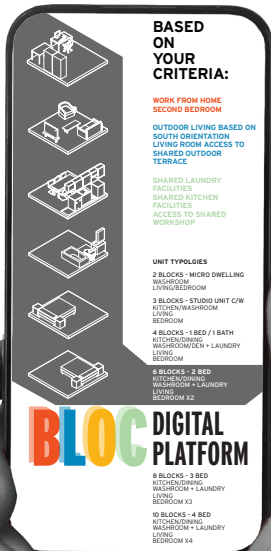
PREFAB WOOD

STANDARDIZATION AND MODULAR CONSTRUCTION ALLOW FOR MAXIMUM FLEXIBILITY.



SINGLE LOT SOLUTION
ADDRESSES RISING LAND COSTS BY ERADICATING THE NEED FOR LAND ASSEMBLY.

SITE GRID
ESTABLISHING A SITE GRID FOR MAXIMUM FLEXIBILITY.



CONSTRUCTION & DESIGN EFFICIENCY

MULTI-FAMILY DESIGN APPROACH TO BE EASILY REPLICATED, SAVING SIGNIFICANT TIME ON DESIGN APPROVALS AND CONSTRUCTION PROCESS. DE-RISK THE DESIGN AND EXECUTION OF MASS TIMBER AND PREFAB DESIGN IN FUTURE PROJECTS. PROVIDE HIGH-QUALITY, EFFICIENTLY CONSTRUCTED, AND COST-EFFECTIVE LOW-CARBON HOUSING. EXTERIOR TERRACE CIRCULATION ENABLES PASSIVE NATURAL VENTILATION AND ACCESS TO OUTDOORS FOR ALL UNITS REGARDLESS OF ORIENTATION AND LAYOUT.

FLEXIBLE MULTI-GENERATIONAL

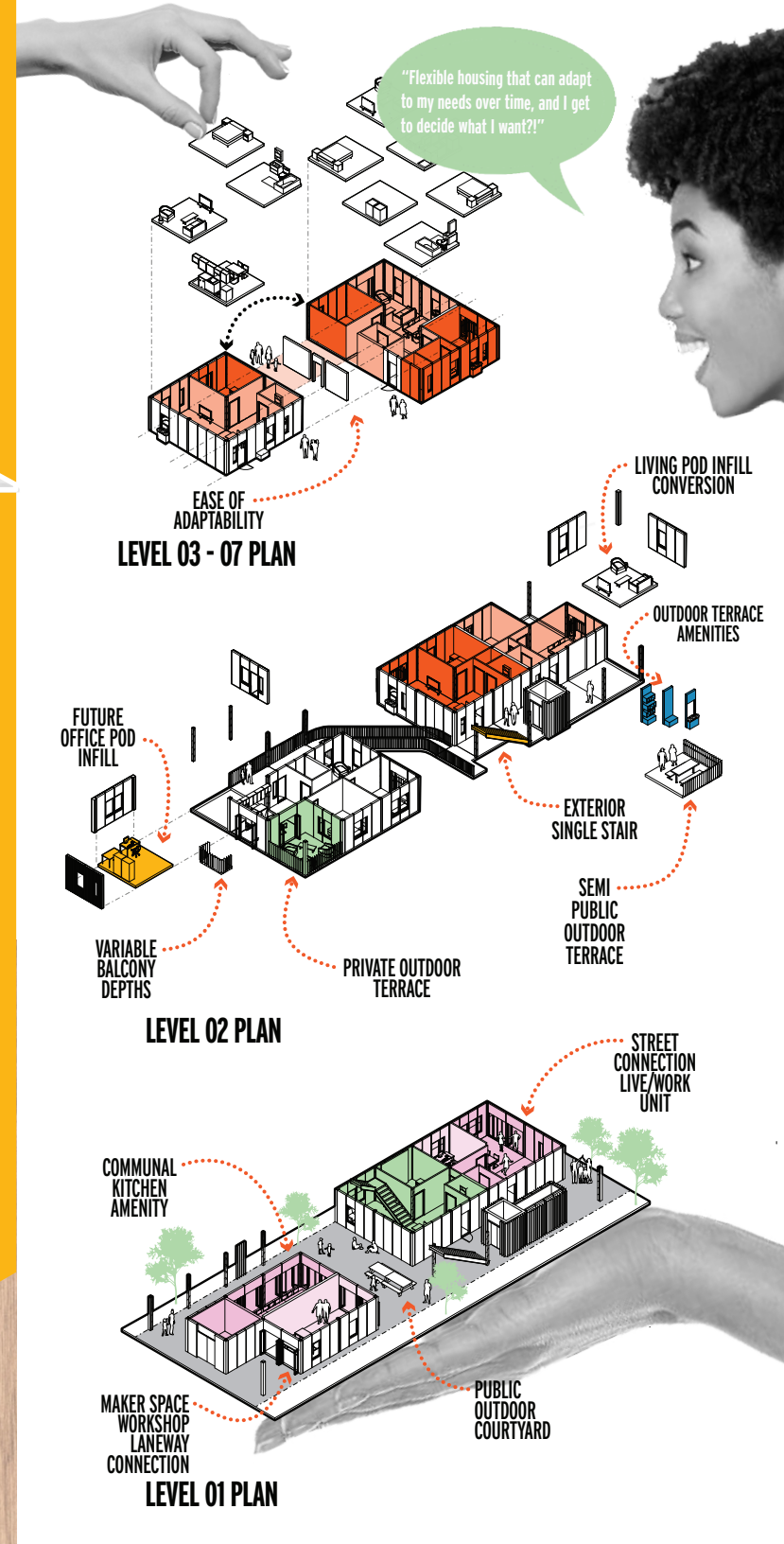
COMMUNITIES DESIGNED TO ACCOMMODATE AND SUPPORT INDIVIDUALS OF ALL AGES AND LIFE STAGES. THESE NEIGHBOURHOODS PROMOTE INCLUSIVITY, INTERGENERATIONAL CONNECTIONS, AND SOCIAL COHESION. WITH FLEXIBILITY BUILT INTO THEIR DESIGN, THEY ADAPT TO THE EVOLVING NEEDS OF RESIDENTS, WHETHER YOUNG FAMILIES, WORKING PROFESSIONALS, OR SENIORS. AMENITIES, SERVICES, AND INFRASTRUCTURE ARE DESIGNED TO BE ACCESSIBLE AND SUITABLE FOR EVERYONE, FOSTERING A SENSE OF BELONGING AND COMMUNITY ENGAGEMENT. BY ENCOURAGING INTERACTIONS AMONG DIFFERENT AGE GROUPS, THESE NEIGHBORHOODS CREATE A SUPPORTIVE ENVIRONMENT THAT ENRICHES THE LIVES OF ALL RESIDENTS AND PROMOTES LIFELONG WELLBEING.

COMMUNITY AMENITIES

MAXIMIZING LAND USAGE, PROMOTE WALKABILITY, AND CREATE VIBRANT COMMUNITIES. BY COMBINING RESIDENTIAL, COMMERCIAL, AND RECREATIONAL SPACES, THEY OFFER CONVENIENCE, REDUCE CAR DEPENDENCY, AND ENCOURAGE AN ACTIVE LIFESTYLE. ADDITIONALLY, THEY ENHANCE ECONOMIC VIABILITY BY SUPPORTING SMALL BUSINESSES AND INCREASING PROPERTY VALUES. IN SUMMARY, MIXED-USE BUILDINGS CONTRIBUTE TO SUSTAINABLE URBAN DEVELOPMENT AND ENRICH COMMUNITY LIFE.

ECONOMIC RATIONALE

	BASE CASE (MULTIPLE LOTS)	BLOC APPROACH (SINGLE LOT)
LOT AREA	22,500 SF	6,100 SF
NET BUILDING SIZE	47,800 SF	15,000 SF
NUMBER OF SUITES	75	17
NUMBER OF SUITES	90	26
LAND COSTS	\$18.9M	\$4.3M
CONSTRUCTION COSTS	\$27.3M	\$7.8M
TOTAL COSTS	\$46.2M	\$12.1M
COST PER SF	\$966.45/SF	\$803.67/SF
EXCLUSIONS (EXTERIOR CIRCULATION)		0.6 FSR
DENSITY	2.1 FSR	2.5 FSR
STEP CODE LEVEL	3	4



GATHERING IT ALL TOGETHER

Digital twinning technology through the BLOC digital platform allows real-time monitoring, simulation, analysis of building performance, design optimization and also promotes transparency, knowledge sharing, cost savings, and reduced waste.

Stairwells, balconies and circulation routes are activated to encourage the utilization of transition spaces as community amenity spaces that foster spontaneous interactions and connections throughout the community.

Biophilic elements offers numerous benefits that enhances community wellbeing. It also supports sustainable living by using eco-friendly and low embodied-carbon materials.

Flexible & adaptable semi-public amenity spaces can adapt to changing weather and changing uses from communal shared spaces to retail, cafes, daycares, gardens etc.

COMMUNITY KITCHEN

Multi-generational housing fosters social connections and intergenerational knowledge sharing. Residents can learn from one another and create safer, healthier environments in-person and through the BLOC platform.

Shared spaces encourage community members to connect, collaborate and build stronger relationships. They also allow for plentiful amenity spaces while keeping construction costs down

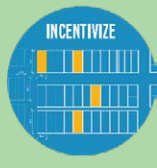
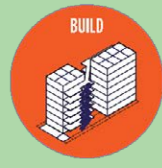
COMMUNITY MEMBERS CONVENE FOR A COMMUNITY GATHERING TO GET TO KNOW THEIR NEIGHBOURS, PROVIDE INPUT TO A NEW COMMUNITY BEING PLANNED, AND SPREAD THE WORD ABOUT THE NEW COMMUNITY-LED INITIATIVE, FACILITATED BY BLOC.

BLOC
MY COMMUNITY BOARD
COMMUNITY MEET-UP IN THE COURTYARD!

COMMUNITY BOARD
🔔 NEED HELP TO WALK THE DOG
👤 ANY ONE HAVE A TEXT I COULD BORROW



ENCODED DENSITY



THROUGH PURPOSEFUL URBAN INTERVENTIONS, RE-IMAGINING OF ZONING AND POLICY REQUIREMENTS, AND LEVERAGING DIGITAL TOOLS TO FOSTER COLLABORATION, BLOC CAN EMPOWER PEOPLE TO CREATE A FUTURE WHERE THE LARGER COMMUNITY CAN REVITALIZE THE HOUSING STOCK ON THEIR TERMS. ADOPTING ZONING AND POLICY CHANGES AND UTILIZING INNOVATIVE TECHNOLOGY THROUGH PREFAB WOOD CONSTRUCTION, A MORE PEOPLE-CENTRIC APPROACH TO COMMUNITY DEVELOPMENT COULD DIRECTLY ADDRESS THE CURRENT HOUSING CRISIS. THIS COULD BE THE BEGINNING OF A HOUSING REVOLUTION WHICH PUTS POWER IN THE HANDS OF THE PEOPLE, AND ALLOWS THEM TO SHAPE THEIR OWN FUTURE, MAKING HOUSING MORE SUSTAINABLE, ACCESSIBLE, AND AFFORDABLE FOR THE RESIDENTS THAT NEED IT MOST.

DESIGNING COMMUNITIES THAT ACCOMMODATE INDIVIDUALS OF ALL AGES AND LIFE STAGES, PROMOTING INCLUSIVITY, INTERGENERATIONAL CONNECTIONS, AND SOCIAL COHESION THROUGH ADAPTABLE AMENITIES AND INFRASTRUCTURE.

DIGITAL TWINNING IDENTIFIES THE CURRENT AND FUTURE COMMUNITY NEEDS IMPLEMENTING SMART TECHNOLOGIES LIKE DIGITAL TWINNING TO GATHER AND ANALYZE DATA FOR IMPROVING COMMUNITY SERVICES AND QUALITY OF LIFE, ENABLING FASTER AND MORE CONFIDENT DECISION-MAKING FOR FUTURE DEVELOPMENTS.

BLOC COMMUNITIES

MASS TIMBER ASSEMBLY PLANT
MODULAR BUILDING COMPONENTS DESIGNS PRESENT AN OPPORTUNITY FOR BUILDERS TO PREFABRICATE COMPONENTS IN AN ASSEMBLY LINE TO REDUCE CONSTRUCTION COSTS FURTHER.

HAIR SALON

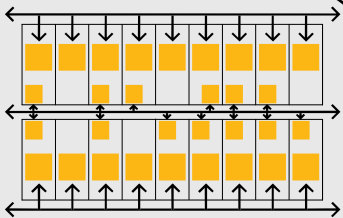
ORGANIC CONNECTIONS UTILIZING INNOVATIVE ARCHITECTURE, MIXED-USE DEVELOPMENTS, AND PUBLIC ART TO CREATE ENGAGING ENVIRONMENTS THAT REFLECT THE COMMUNITY'S IDENTITY, FOSTERING INTERACTIONS, ECONOMIC OPPORTUNITIES, AND WELL-BEING.

COFFEE SHOP

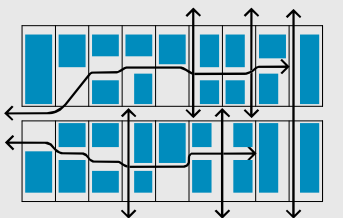
POTTERY STUDIO

DENTIST OFFICE

ACTIVE PATHWAYS



CURRENT DEVELOPMENT SCENARIO



ORGANIC DEVELOPMENT WITH DYNAMIC CONNECTION

MAXIMIZING LAND USAGE AND PROMOTING WALKABILITY BY REMOVING PHYSICAL BARRIERS BETWEEN DEVELOPMENTS AND PROVIDING MIXED-USE SPACES TO ENHANCE CONVENIENCE, REDUCE CAR DEPENDENCY, SUPPORT SMALL BUSINESSES AND CONTRIBUTING TO SUSTAINABLE URBAN DEVELOPMENT.

ENCOURAGING ACTIVE PARTICIPATION FROM RESIDENTS, ORGANIZATIONS, AND STAKEHOLDERS IN SHAPING NEIGHBOURHOOD GROWTH AND DEVELOPMENT, FOSTERING A SENSE OF OWNERSHIP, PRIDE, AND RESPONSIBILITY TO ENSURE ALIGNMENT WITH COMMUNITY NEEDS, VALUES, AND ASPIRATIONS, LEADING TO MORE SUSTAINABLE, RESILIENT, AND COHESIVE COMMUNITIES.

THE VANCOUVER SUN

April 3rd, 2026

Edition 33490

ROADBLOCKS TO AFFORDABLE HOUSING REMOVED WITH NEW COMMUNITY PLATFORM FOR INCREASING DENSITY
COUNCIL APPROVES COMMUNITY APPROACH TO MIXED-USE DEVELOPMENT

PLANNERS' PRIZE STATEMENT

Gary Hack

Jury Chair, Professor Emeritus, MIT and University of Pennsylvania

Many single-family neighbourhoods in the Vancouver metro area are under pressure to be re-built at higher densities, or accept additions that increase the number of housing units. Previous Urbanarium idea competitions have explored new housing types (The Missing Middle) and how retail shops and workplaces might be added to create a more walkable city (The Mixing Middle). While many imaginative ideas emerged, the bugaboo of high land prices and longstanding requirements have made it difficult to realize new affordable development. Decoding Density picks up where previous competitions left off, asking: what kinds of changes to building codes and zoning regulations might allow designers and developers to plan higher density affordable residential projects and promote the orderly transition of neighbourhoods? The jury for the Planners' Prize consisted of senior officials in the municipal planning departments of Vancouver, Surrey and Richmond, and an outside expert on housing and urban design.

One entrant, the Switch team from Vancouver, cogently presented the issues. The current small-scale residential zoning (R1-1) rules require street and alley

setbacks, side yards and spaces between main and accessory dwellings that prevent use of over 40% of the area of a 50' x 120' (15.3 m x 36.6 m) lot. Coupled with a maximum FSR of 0.7/1 and a three-storey height limit, it is simply impossible to redevelop such a lot. With land values that commonly range from \$700 to \$1,400 per sq ft (\$7,500 to \$15,000 per sq m), the entry concluded that at least sixteen residential units with amenities would be required, with an eight-storey structure on the street and four storeys on the lane. There are also other impediments that weigh in the economics of building: off-street parking requirements, fire resistance requirements, dual access stair requirements, elevator requirements, among others. And, not the least, the difficulty of acquiring and assembling land, harmonizing the intrusion of structures much taller than existing homes and dealing with neighbours' objections to changing the character of their block.

Understanding these issues, the jury looked for modular proposals that could be realized on a single lot or two, and possibly added to as adjacent lots are able to be acquired. While larger projects were

sometimes intriguing, and could result in an entirely new streetscape, we concluded that they would be rare cases, perhaps only at the end of blocks where there was potential for commercial development to share the high costs of land assembly. To defer part of the high land costs, many of the entrants proposed land trusts, although they were not a compelling solution absent a plausible source of patient capital. We were surprised that very few entries even hinted that there might be creative ways of engaging existing homeowners through block buyouts, or offering them new apartments in the development coupled with equity in the project.

The best proposals recognized that successful development would include offering its neighbours a better environment than they now have. Our choice for the Planners' Prize, Towerhouse, by Studio Oh Song, offers generous shared open spaces not only for the residents of the twenty-eight apartments in its two elegant towers and accessory buildings, but also nearby residents. Its FSR is 3.0, more than triple the typical use of the sites today, but the approachable scale of the structures, and the fact that they are set in a green

environment, belies the density. The green spaces can be tailored to the needs of residents and neighbours, including children's play areas, passive sitting parks, adult exercise areas and extensions of the restaurants, coffee shops, small businesses and indoor amenity areas facing them. By connecting the two towers on each site by outdoor bridges, the number of emergency stairs and elevators can be halved, while increasing the social contact and the sense of community. Onsite parking for private vehicles has been eliminated, and in its place are six car share electric vehicles that residents can reserve when needed, an important saving. The subtlety of planning the new urban ground floor reflects a kind of approach that is likely to reassure neighbours that they have much to gain from the new development.

We were struck by how many of these proposals were also incorporated in other schemes. A large fraction of the proposals employed external access balconies, some wide enough to serve as outdoor social spaces. These spaces, which are less costly than indoor access areas (and are excluded from FSR calculations), typically share a single access stairway and elevator. While

approving this arrangement requires further debate of safety issues, it is worth noting that most European apartment structures that line city streets allow for a single stairway and elevator access, while designating windows on the street face as emergency access and escape routes. A majority of the proposals incorporated new mass timber technologies for construction, and the recent willingness to take a fresh look at fire safety issues may bode well for revising access requirements.

Many of the schemes submitted also proposed some combination of co-housing, apartment layouts that can easily accommodate renting a room to a student or single, secondary suites, attached to family apartments, other innovative housing that reduces costs by eliminating the duplication of kitchens, micro-apartments or live-work units. We concur that right-sizing and right-typing housing are appropriate ways to reduce housing costs. But these innovations have been discussed for some time and there are few built examples. Perhaps public development entities will need to take the lead in creating prototypes or incentivizing new mid-density housing forms. And certainly, the rules

that stand in the way of building new types of housing need to be changed.

The jury discussed dozens of proposals that had merit, too numerous to mention here. We were impressed by the consensus of designers and planners about the impediments, the visionary ideas and the potential. We are persuaded that changes to zoning and codes to triple the density of older residential areas with good public transit access should be a priority today.

CREDITS

COMPETITION CO-CHAIRS

Catherine Alkenbrack
Kari Dow
Marta Farevaag
Sara Stevens

COMPETITION COMMITTEE

Zoe Acton
Travis Hanks
Richard Henriquez
Shirley Shen

URBANARIUM EXECUTIVE DIRECTOR

Amy Nugent

EDITOR

Yvonne Popovska

GRAPHIC DESIGN & COMMUNICATIONS

Will Jackson
Mitch McKamey

SPECIAL THANKS

Andrea Smith
Jana Tyner

JURY

Frances Bula, Urban Issues/Housing Journalist
Travis Hanks, Architect AIBC
Richard Henriquez, Architect AIBC
Marta Maj, Principal, Timber Engineering Inc.
Sara Muir, Planning Institute of British Columbia, Climate Action Committee
Inge Roecker, Architect AIBC and Associate Professor, SALA, UBC
Shirley Shen, Architect AIBC
Ly Tang, Senior Development Manager, Rize Alliance Properties
Cedric Yu, Architect AIBC

THE PLANNERS' PRIZE JURY

Suzanne Carter-Huffman, Program Manager, Urban Design, City of Richmond
Gary Hack, Professor Emeritus, MIT and University of Pennsylvania
Kevin Spaans, Assistant Director of Development Planning, City of Vancouver
Sam Maleknia, Senior Urban Design Planner, City of Surrey

TECHNICAL ADVISORS

Cost Consultants: Neil Murray and Ping Pang, BTY Global Directors
Housing and Sustainability: Wilma Leung, Mobilizing Building Adaptation and Resilience at BC Housing

Visit decodingdensity.com to view all 85 submissions, videos, updates and more.

“ I think it’s very worthwhile to have exercises where we create designs from scratch without thinking about rules. To get above the weeds of regulation and try to understand the bigger picture of what we want in the buildings and communities we create. And by discovering what regulations they brush up against, we can open an important discussion on what rules we should revisit and maybe change today. To me, that’s the first step in creating better apartments.”

-Uytae Lee, Director and Producer, About Here

“ I am so impressed by the many entries’ strategies in not only designing homes, but also in building communities. People knowing their neighbours and their needs is a key foundation for successful adaptive and resilient housing outcomes.”

-Wilma Leung, Mobilizing Building Adaption and Resilience, BC Housing

“The Decoding Density competition put forward questions that our students are thinking about all the time—housing affordability and climate change—with a willingness to explore what’s possible by breaking the rules. These are the foundations for both quality research and for catalyzing change in the world.”

-Blair Satterfield, Associate Professor and Director, School of Architecture + Landscape Architecture, University of British Columbia

CO-PRESENTING SPONSORS



THE UNIVERSITY
OF BRITISH COLUMBIA
School of Architecture +
Landscape Architecture
Faculty of Applied Science

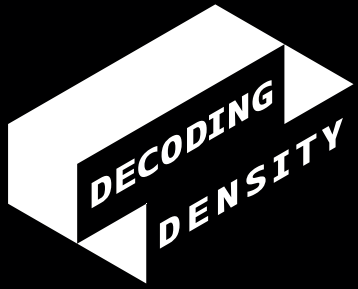
MUNICIPAL SPONSORS



SUPPORTING SPONSORS



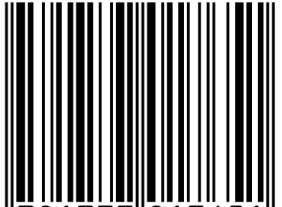




Decoding Density is an international invitation to imagine new possibilities for six-storey plus apartment forms by addressing two of the most existential problems of today: climate change and housing affordability. Submissions will challenge the constraints of code and other regulations to do so.

CAN \$25.95

ISBN 978-1-7770176-5-1



9 781777 017651

