



## 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.**

### NATURE



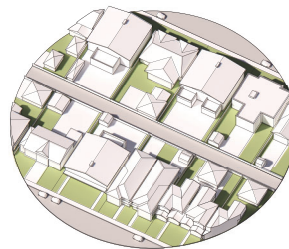
COMMUNAL  
LIVING



HIGH-RISE  
DENSITY

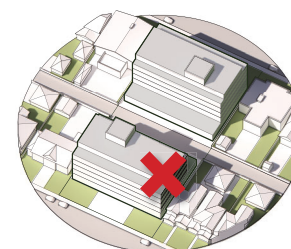
### DESIGN PRINCIPLES

Combining three distinctly Vancouverite characteristics into one new housing typology.



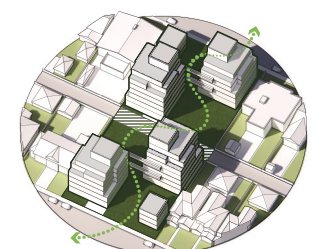
### CURRENT

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.



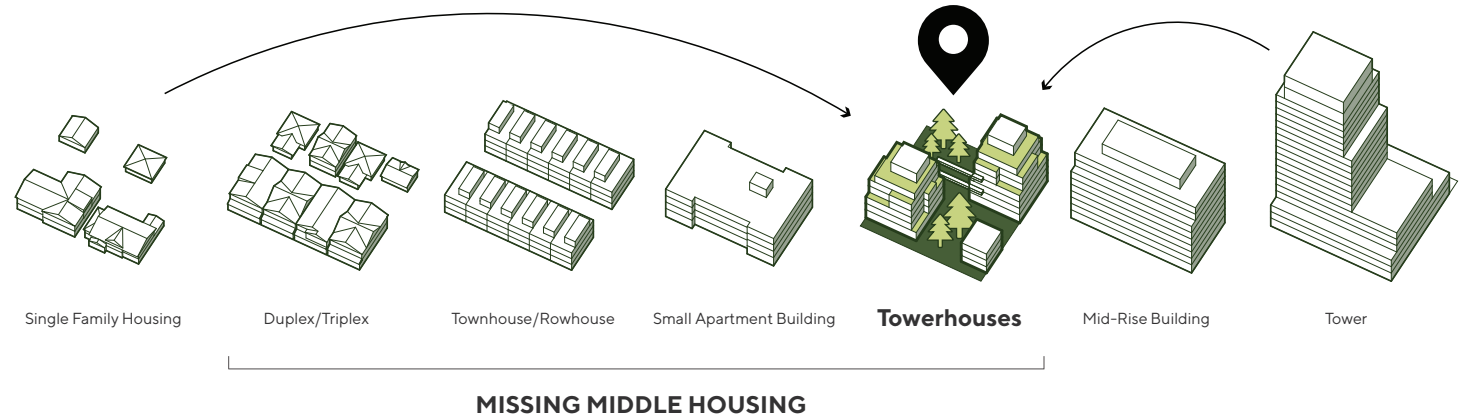
### TOWERHOUSES

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 reimaged 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:

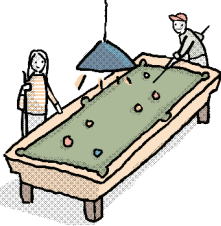


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The **Community Space** is booked solid for a month... Today - a birthday party, Tomorrow - band practice, The day after that - a book club meetup...

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.

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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!

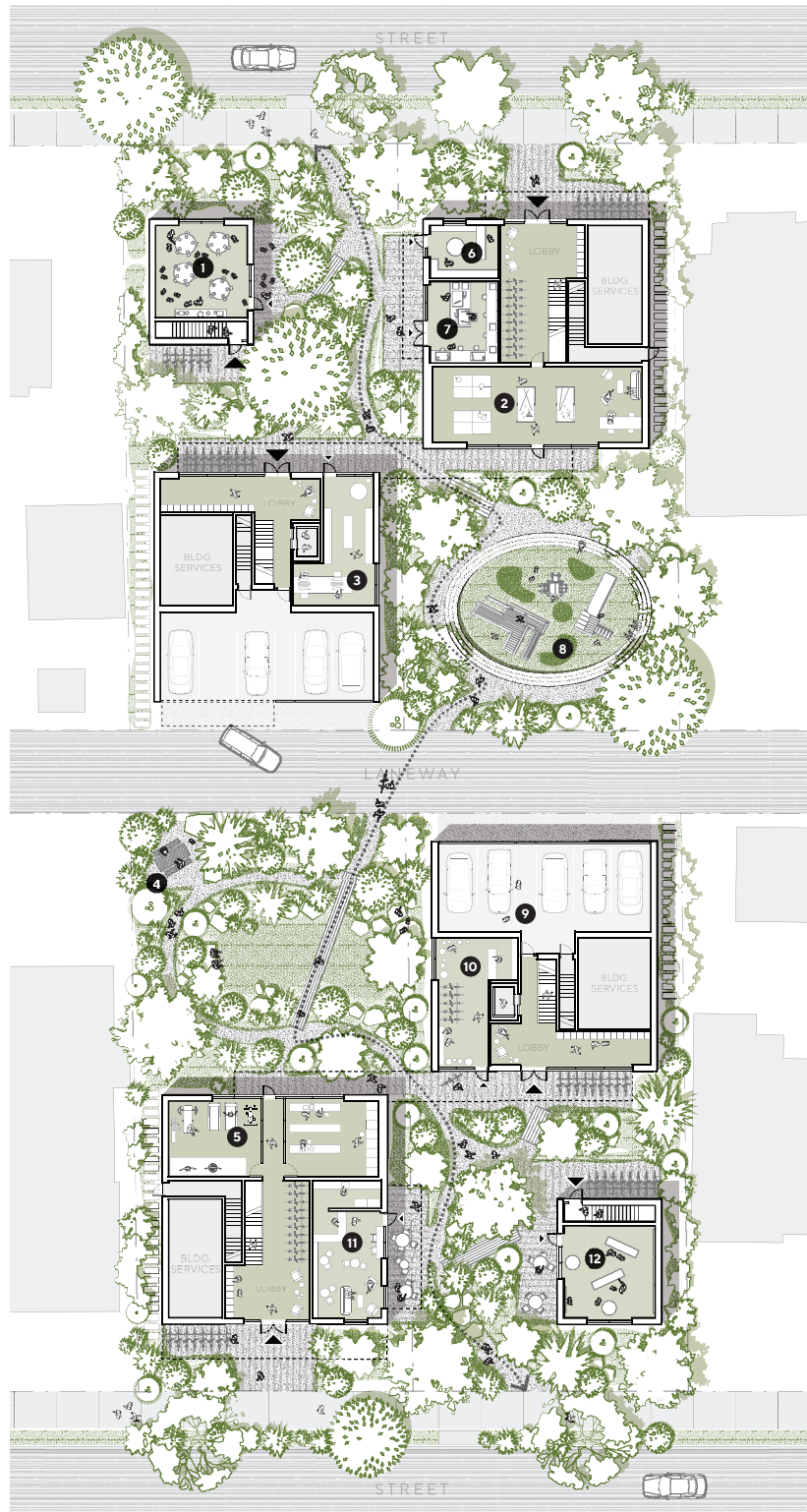
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The **Rainwater Retention Garden** is a popular **BBQ and picnic spot**. Neighbours regularly meander in from the laneway.



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

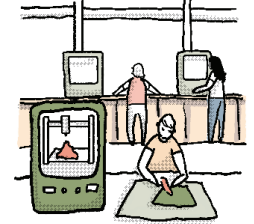


6

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.

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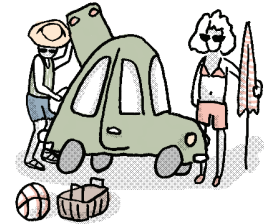


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The **Playground** tucked in the rear next to the quiet laneway has been a relief for parents. The daycare down the block bring their kids here on daily outings.

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



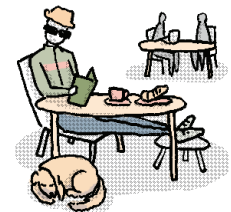
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A Grandson & Pop duo had no idea how lucrative their bike repair plant shop would be. They're now looking to expand beyond their startup **Commercial Space**.



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



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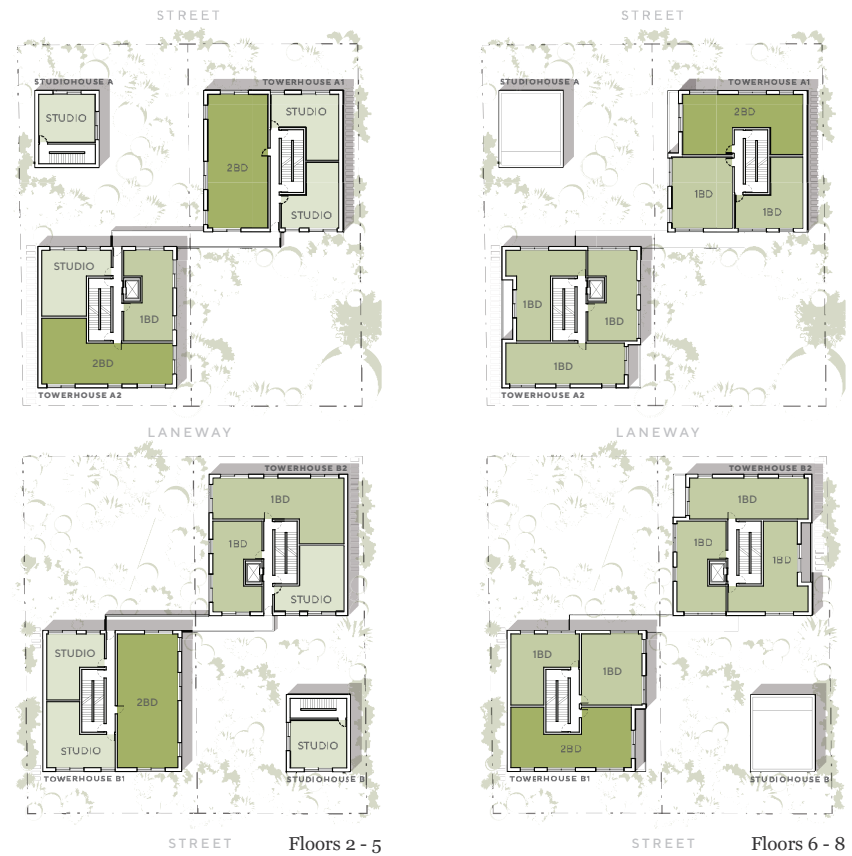
The artist that just moved in to one of the StudioHouse units booked the **Community Space** for a month to exhibit their pieces and everyone is just floored by the spectacle.





## 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

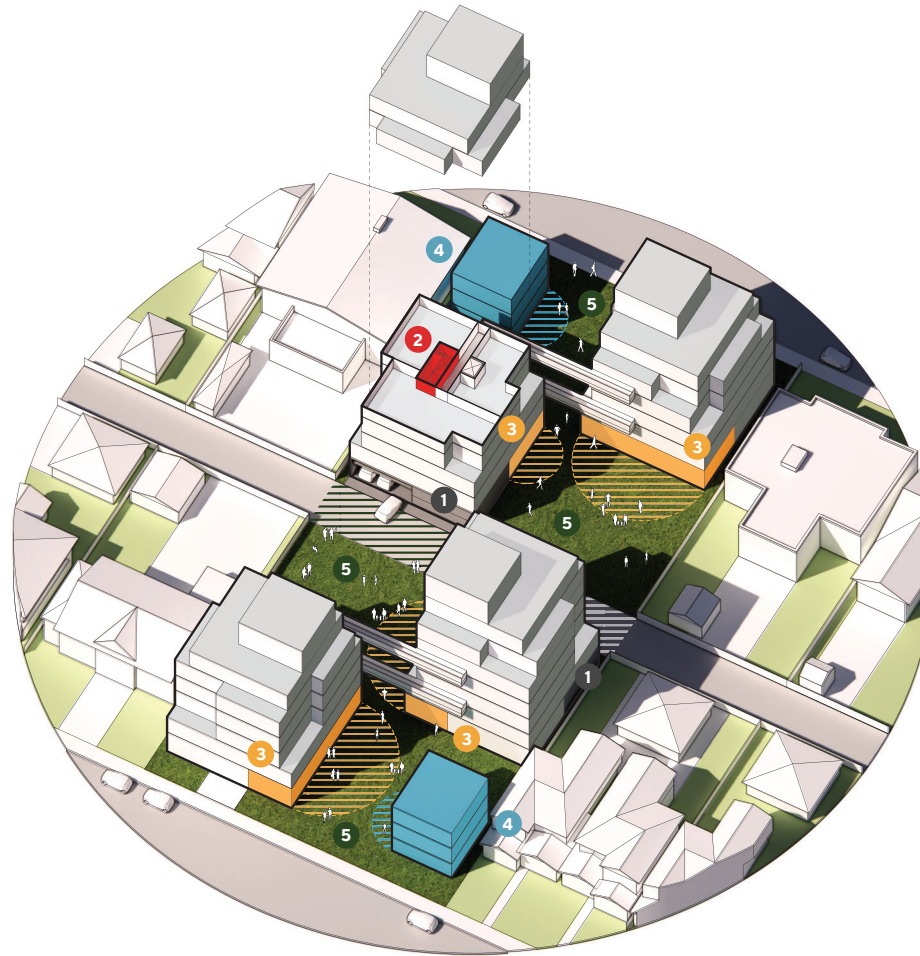
Scissor stairs are not permitted in Vancouver's mid-rise wood frame buildings, stifling efficiency and creativity in floor plan layouts.

**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 |                        |
| 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           |
|                            |                |              | No Underground Parking |

|                    |                     |                     |  |
|--------------------|---------------------|---------------------|--|
| Land Costs         | \$12,071,400        | \$12,071,400        |  |
| Construction Costs | \$31,918,280        | \$27,752,250        |  |
| <b>TOTAL</b>       | <b>\$43,989,680</b> | <b>\$39,823,650</b> |  |

## 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.*