

# 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.

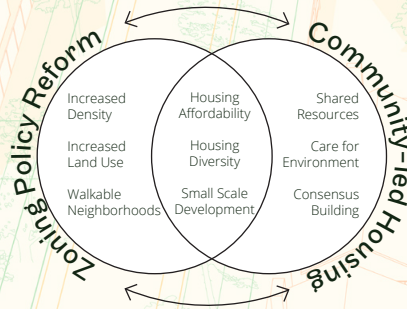


Fig 2. Zoning Policy Reform and Community-led Housing can provide mutual support and meet common goals.

## 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 to introducing higher density housing into formerly low-rise neighborhoods.

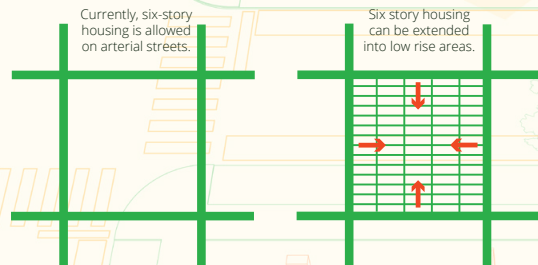
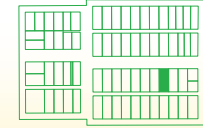


Fig 3. Expansion of legalized six-story residential buildings from arterial streets into residential blocks.

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.

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

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

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

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

**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.

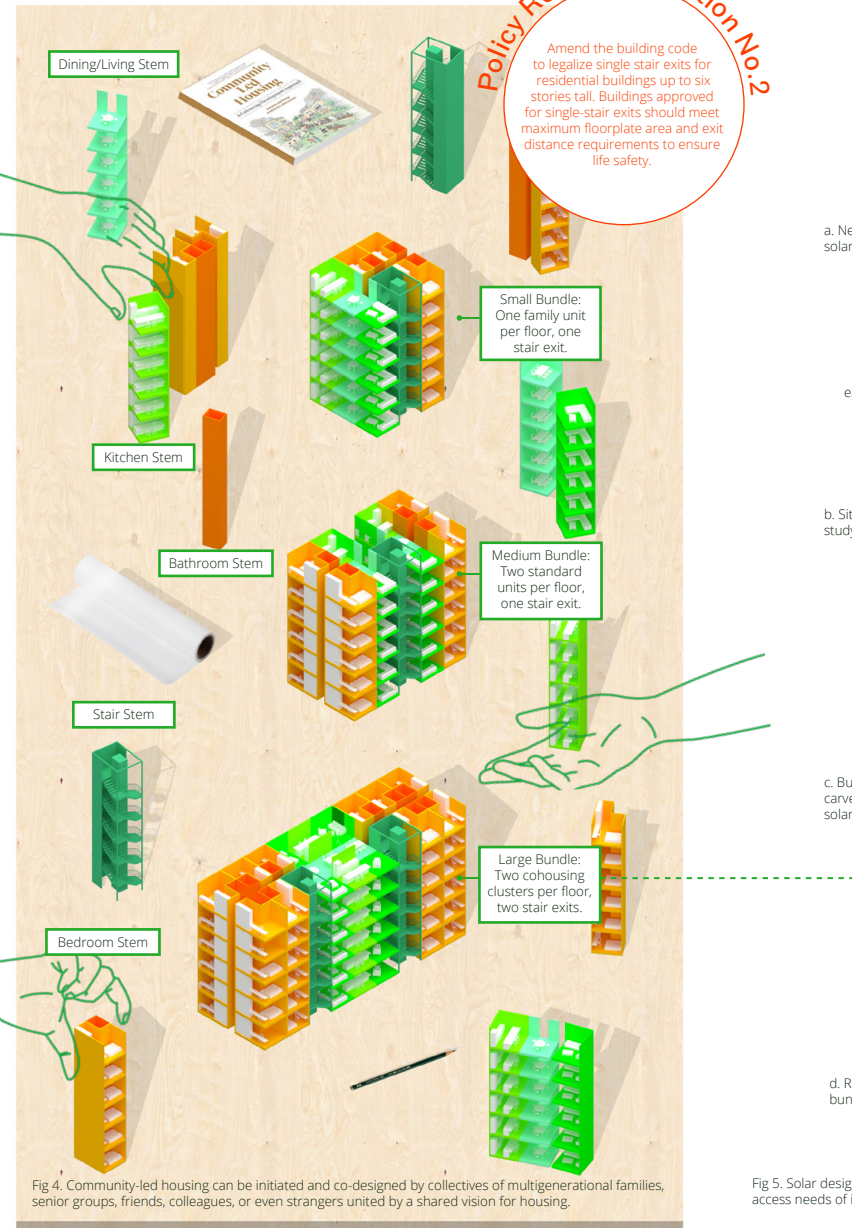


Fig 4. Community-led housing can be initiated and co-designed by collectives of multigenerational families, senior groups, friends, colleagues, or even strangers united by a shared vision for housing.

## ... 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 to reach into side alleys shared with neighboring buildings. The resultant spaces created by the stepping become well-illuminated outdoor terraces and balconies.

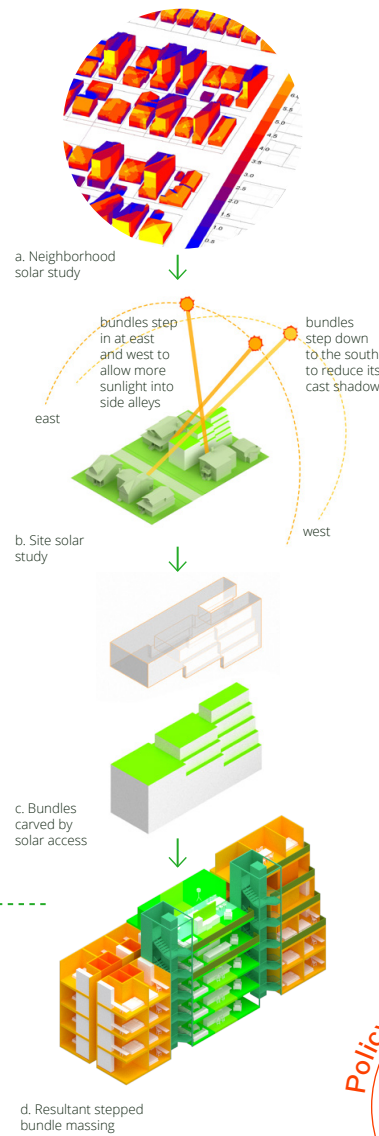
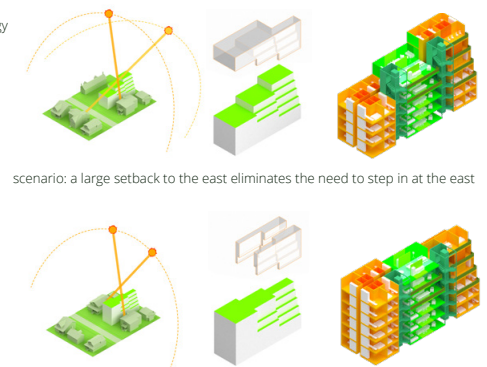


Fig 5. Solar design tools shape each bundle according to the solar access needs of its particular site.



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



## 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.

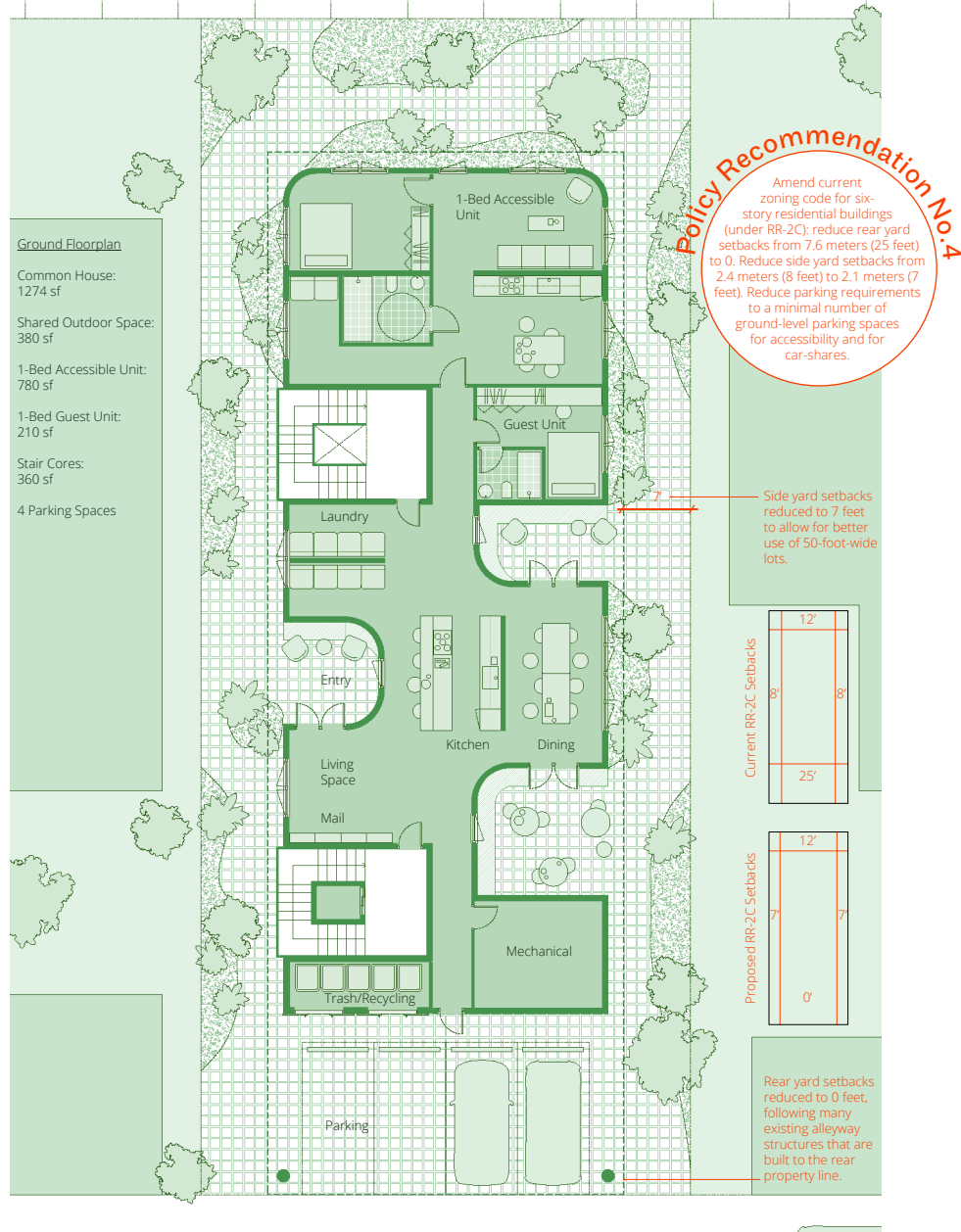


Fig 8. Ground Level Floor Plan: Common House



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

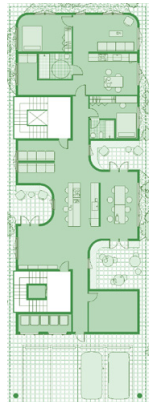


Fig 11. Ground Plan



Fig 13. Third Floor Plan

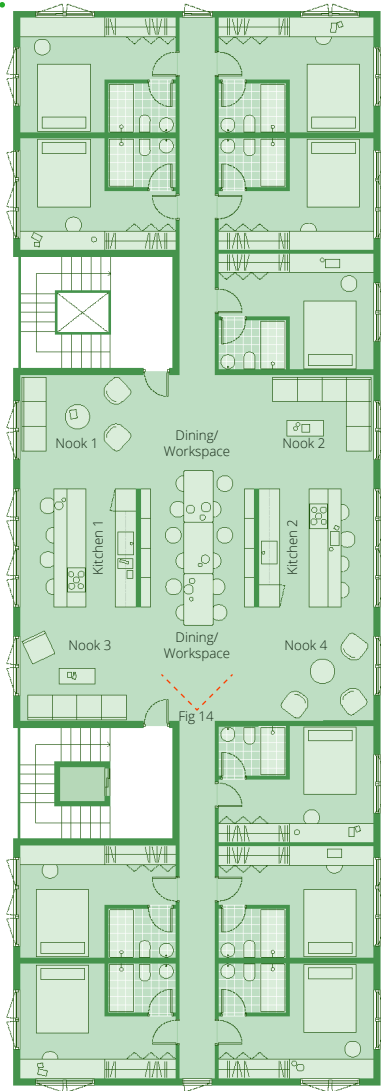


Fig 12. Second Floor Plan: Cohousing Floor

**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.

## ... 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.

**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.

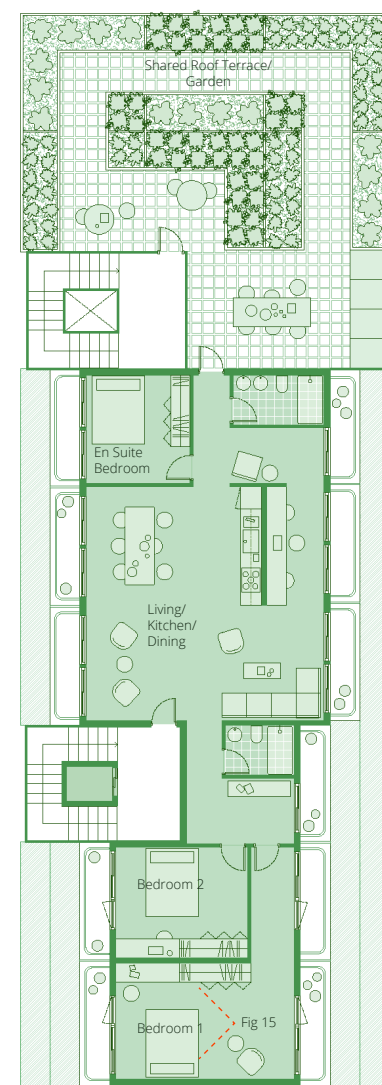


Fig 17. Fifth Floor Plan: Multigenerational Family Floor

Family Unit Floor

3-Bed Family Unit:  
1380 sf

Private Balcony Space:  
385 sf

Shared Roof Terrace:  
2000 sf

Stair Cores:  
360 sf



Fig 16. Fourth Floor Plan



Fig 18. Sixth Floor Plan



## Embrace the Environment

Community-led housing groups foreground resource sharing to create both social and environmental benefits. They are often early adopters of sustainable living and practice self-sufficiency through gardening, solar energy generation, and water reuse.

Our proposal bridges sustainable building and maintenance practices with improving comfort and livability through access to outdoor space. Generous rooftop areas and a greenhouse allow for year-round food production, while the common house provides spaces to prepare and enjoy grown food together. Rain barrels collect water used for irrigation, while roof gardens and permeable ground pavers further reduce the site's stormwater runoff. The building's stepped form creates more exposure to natural daylighting for passive heating, and units with multiple exposures for cross ventilation.

### Plants

- a. Roof gardens for food production and solar access
- b. Greenhouse for food production

### Sunlight

- c. Solar panels for energy production
- d. Balconies for solar access
- e. Open stair for solar access
- f. Porous ground floor for solar access

### Rainwater

- g. Rain barrels for on-site water reuse
- h. Bioswales for stormwater control

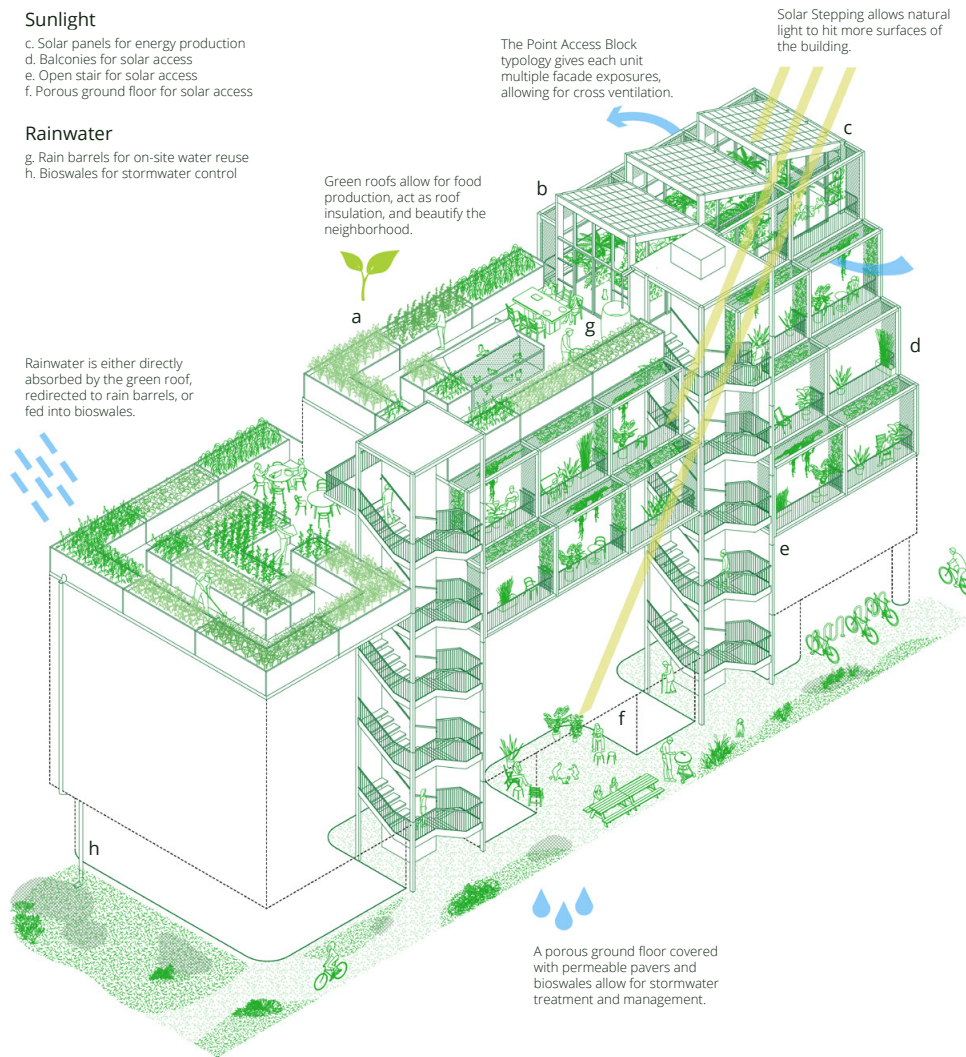


Fig 19. The building embraces ecological principles in its design, inhabitation, and maintenance. It also celebrates the comfort and joy in the rhythm and rituals of domestic life created through access to sunlight and the outdoors.



Fig 20. Looking down on two of our designs built side by side reveals the ever-changing spaces created by the sun's movement. One side basks in light while the other awaits in shade. The green roofs buzz with activity, with their vegetation appearing to cascade down the facades into the alley below.



## 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
<b>Building Type:</b>					6-story wood frame building to Step Code 4.
<b>FSR:</b>	2.5		2.72		
<b>Lot Size:</b>	22,500 SF		6,100 SF		One 50' x 122' lot
<b>Gross Building Size</b>	56,250 SF		16,586 SF		
<b>Net Building Size</b>	47,800 SF		14,606 SF		
<b>Efficiency (net/gross)</b>	85%		88%		Our proposal uses single exit stairwells, which increases efficiency and reduces cost.
<b>Number of residential units</b>	75		31		
<b>Number of bedrooms</b>	90		33		Our proposal includes primarily cohousing units.
<b>Shared social space</b>	1,500 SF		5,437 SF		Our proposal includes a common house on the ground floor and additional shared living spaces on other levels.
<b>Square footage of commercial/retail space</b>	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.
<b>Bonus rooftop/terrace living space</b>			5040 SF		Our proposal includes ample roof gardens and balconies that act as "bonus" outdoor living space.

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

Construction Costs							
	Multiplier	Units	Base Case	Units	Submission	Units	Notes
<b>Concrete</b>	\$435	SF	\$0				
<b>Wood</b>	\$385	SF	\$21,656,250		\$ 6,385,610	SF	
<b>Elevator</b>	\$40,000	per stop	\$240,000		\$240,000		
<b>Parking</b>	\$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.
<b>Step Code</b>	-12%				-12%		
<b>Other?</b>							
<b>TOTAL</b>			<b>\$27,296,250</b>		<b>\$6,625,610</b>		

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

### 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.

**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.

**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.

**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.