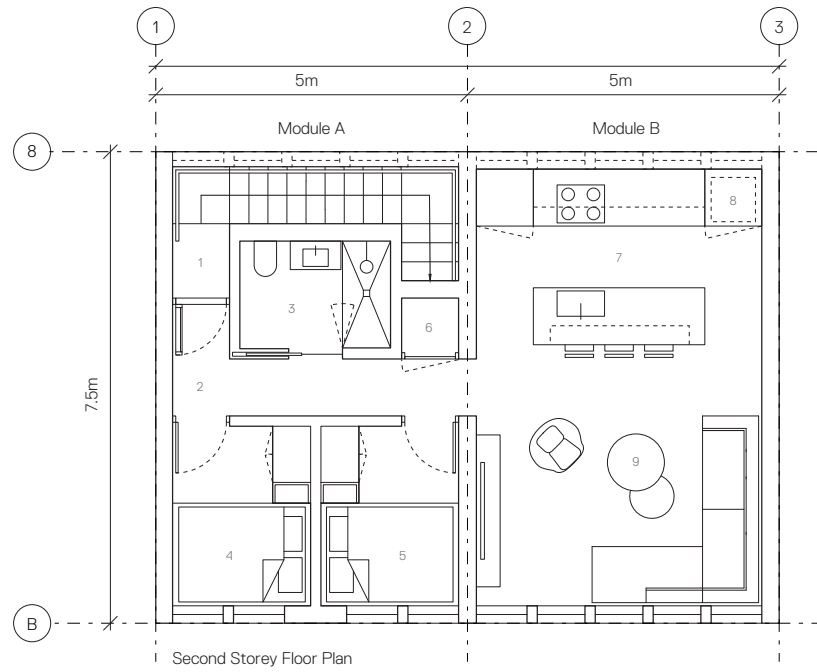


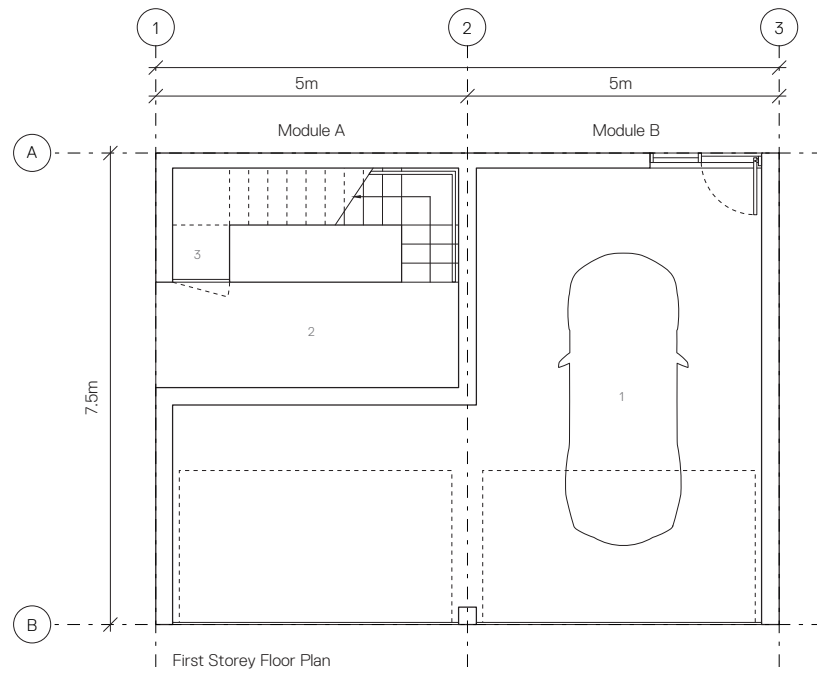
Bento

Category 1: Carriage House



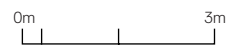
Level 2

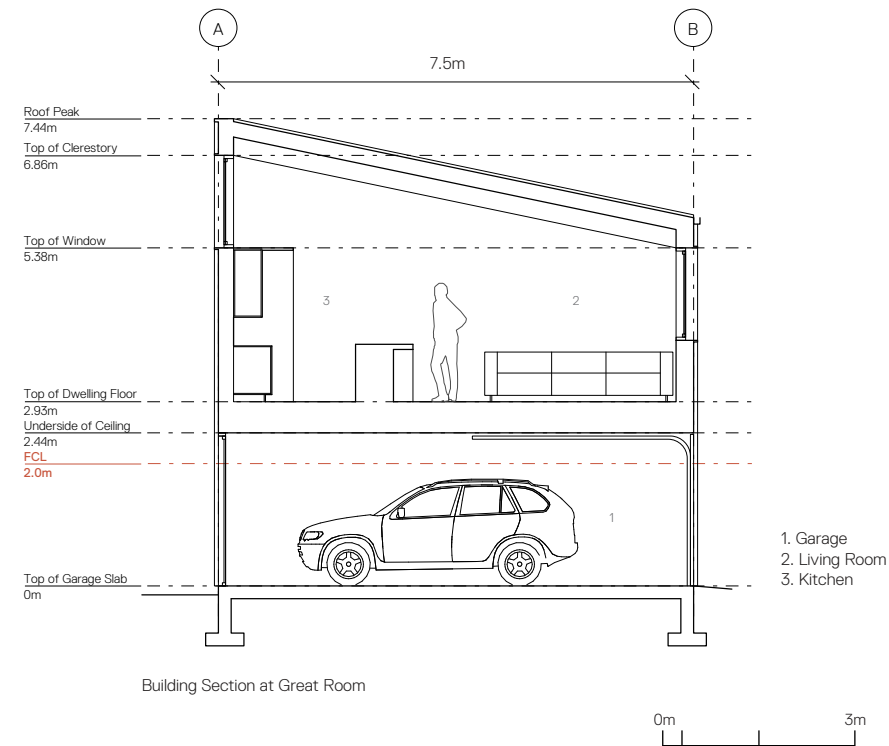
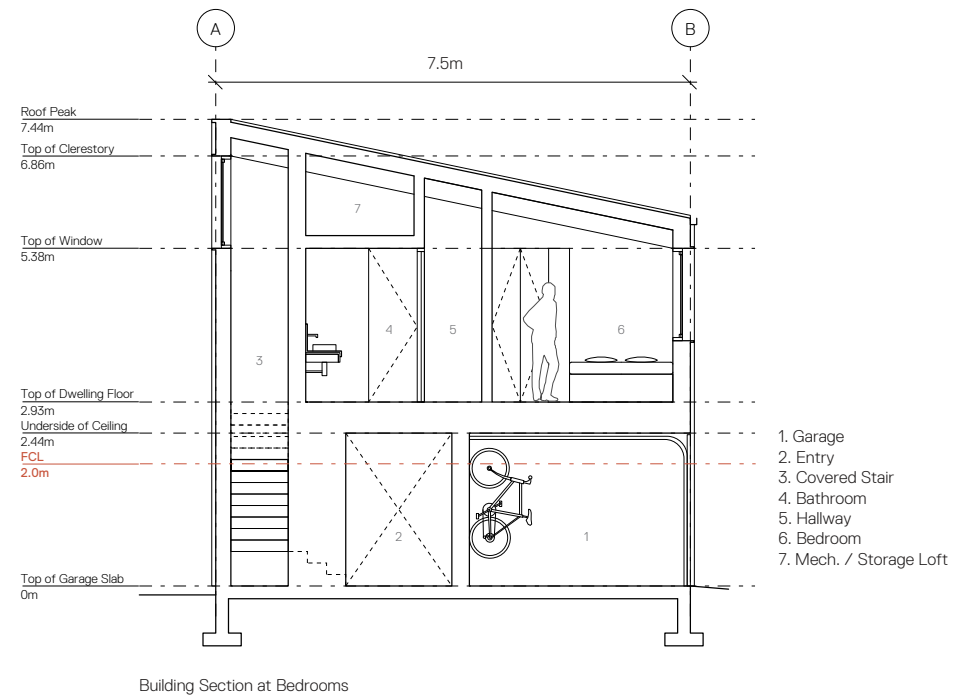
- 1. Covered Exterior Stair
- 2. Entry
- 3. Shared W/C
- 4. Bedroom 1
- 5. Bedroom 2
- 6. Mech
- 7. Kitchen
- 8. Laundry
- 9. Living

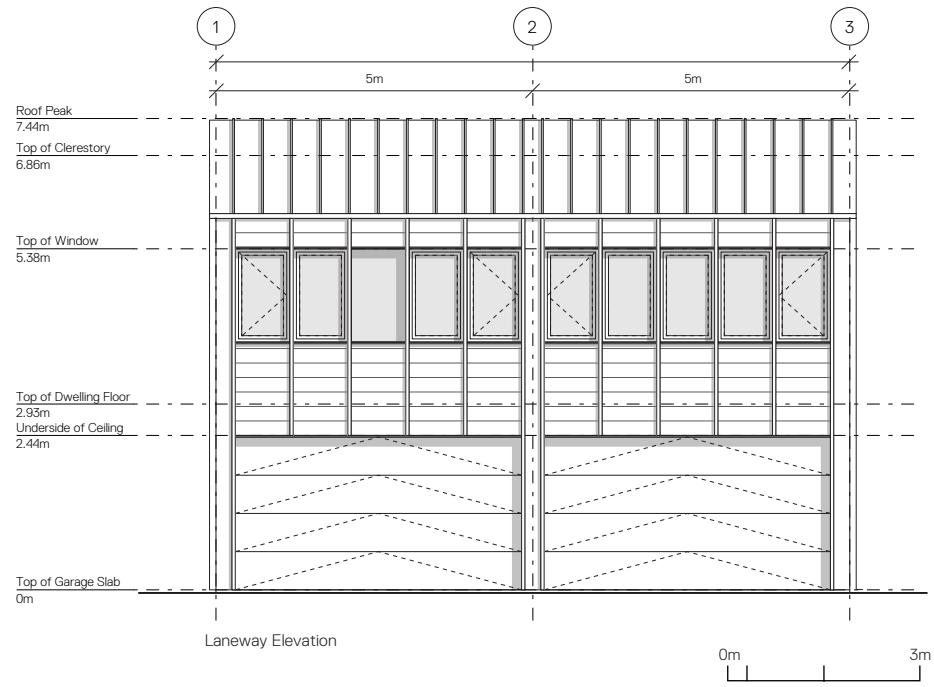
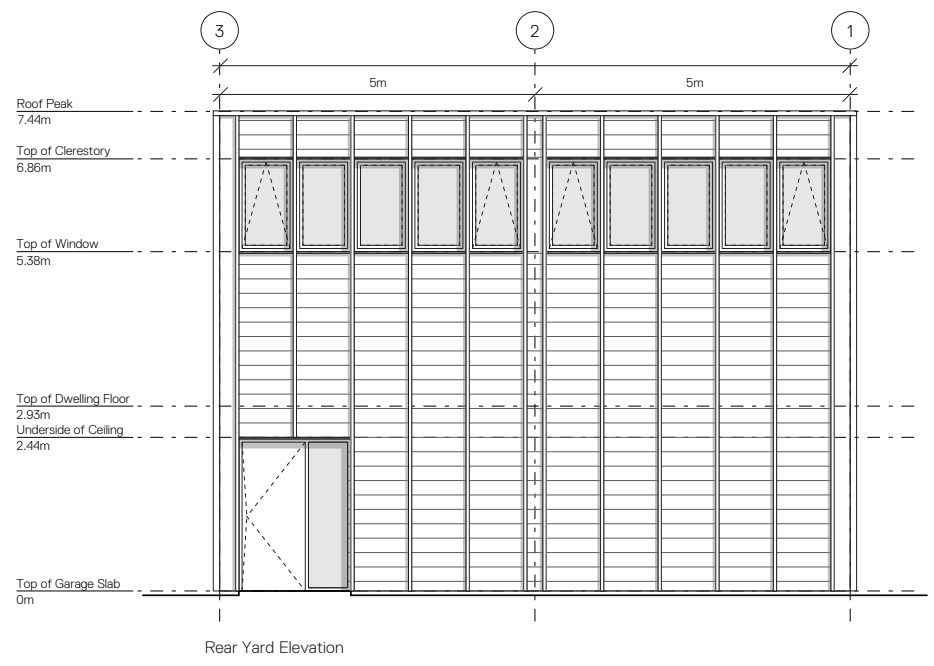
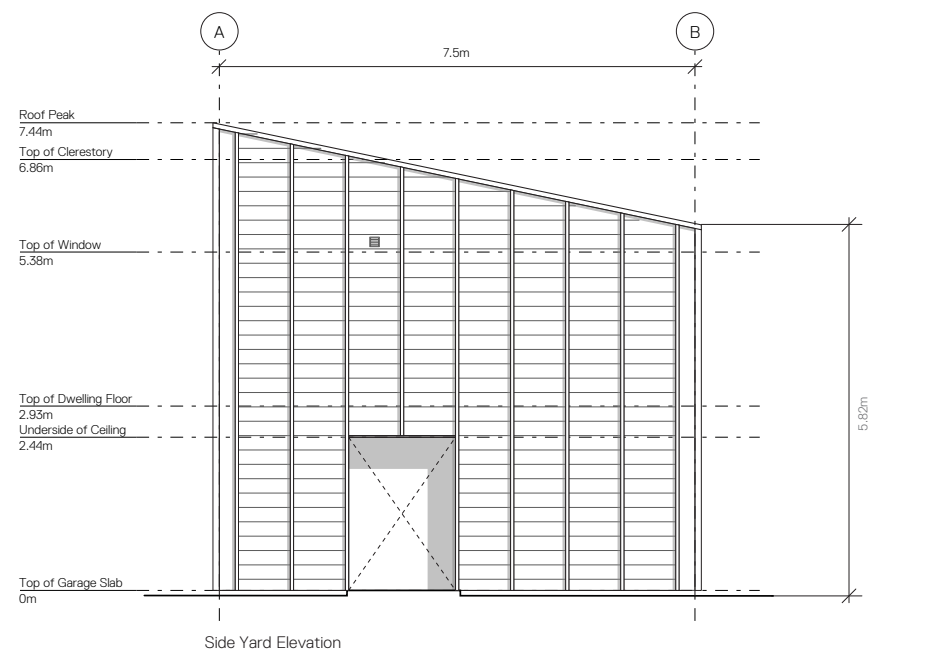


Level 1

- 1. Principal Dwelling Garage
- 2. Exterior Covered Entry
- 3. Garbage + Recycling







Bento

Category 1: Carriage House

Location: Squamish / BC

Total Gross Floor Area: 150 m²

Building Code: BCBC 2024

Energy: BCBC 2024 (Step Code 3 Equivalent)

Envelope: BCBC 2024 (Step Code 3 Equivalent)

Overview

Bento is a carriage house prototype for adaptable densification in urban and suburban neighbourhoods of Squamish, B.C.. Leveraging a component based design system and a highly repeatable approach to pre-manufacturing and assembly, Bento is conceived as a response to the 'missing middle', addressing the need for equitable homes that can be successfully implemented across Squamish's established laneway neighbourhoods with a FCL of 2.0 m. Bento is a systematic approach to gentle densification that seamlessly blends aesthetics, innovation, and creativity while maintaining affordability, sustainability, and resilient design principles.

Aesthetics

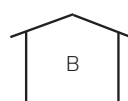
Bento focuses on function, proportion adaptability, and materiality to mark a shift away from urban housing as a disposable commodity. The architecture expresses its modular fabrication techniques as a repeated aesthetic motif, harmonizing structure, openings, and cladding to create a cohesive and visually striking design language that is distinctly modern yet not out of place within the surrounding Squamish community.

Bento's straightforward single-sloped roof pays homage to the traditional vernacular architectural styles prevalent in the Squamish Valley. It features a cross ventilated clerestory window intended to highlight expansive views of the nearby mountains without sacrificing privacy between the ADU and primary residence. The tall sloped ceiling with exposed dimensional lumber celebrates a rugged material palette of thoughtfully assembled 'off-the-shelf' materials while providing a moment of relief and spatial expansion uncommon in such hyper-efficient floor plans.

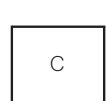
While acknowledging the practicality of prototypes like the Vancouver Special for its efficient use of space and affordability, Bento is critical of how a lack of architectural diversity and visual appeal can contribute to a monotonous streetscape. Bento aims to foster architectural diversity by offering 3 roof types (shed, gable and flat) that acknowledge the distinctive qualities of site and context and give homeowners opportunity for individual expression.



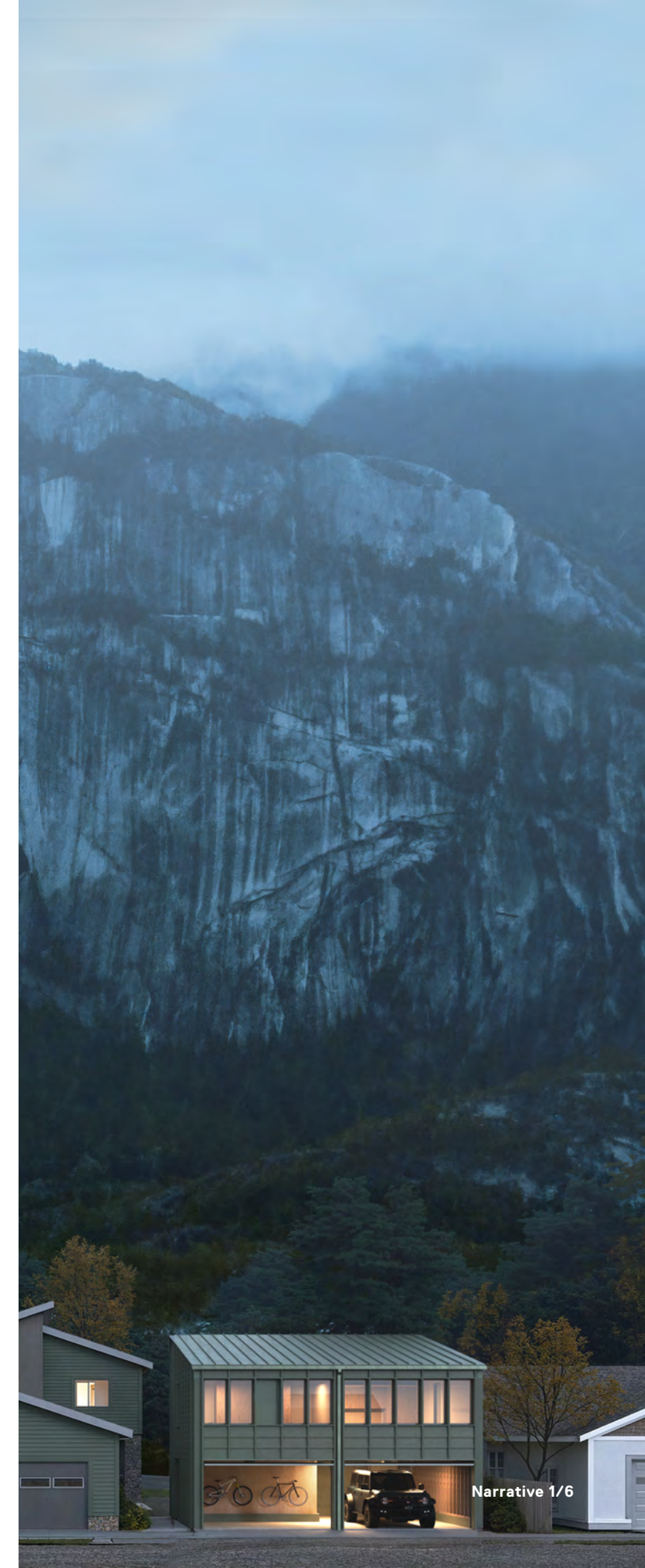
Shed
Roof



Gable
Roof



Flat
Roof



Affordability & Cost-Effectiveness

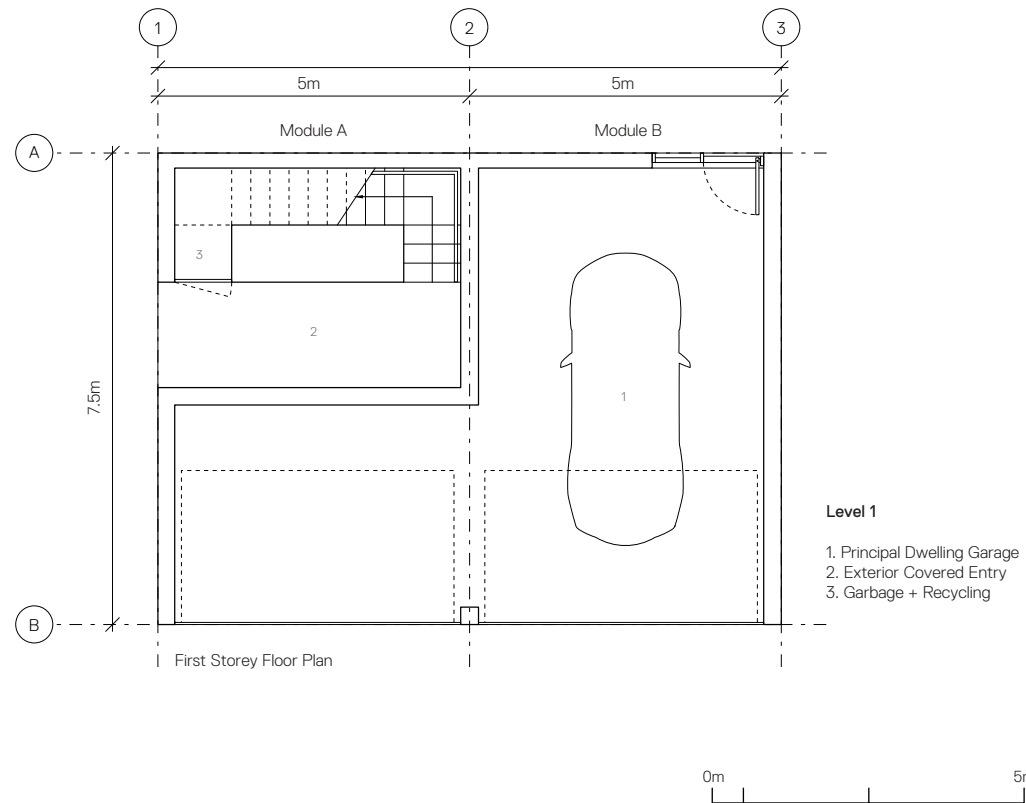
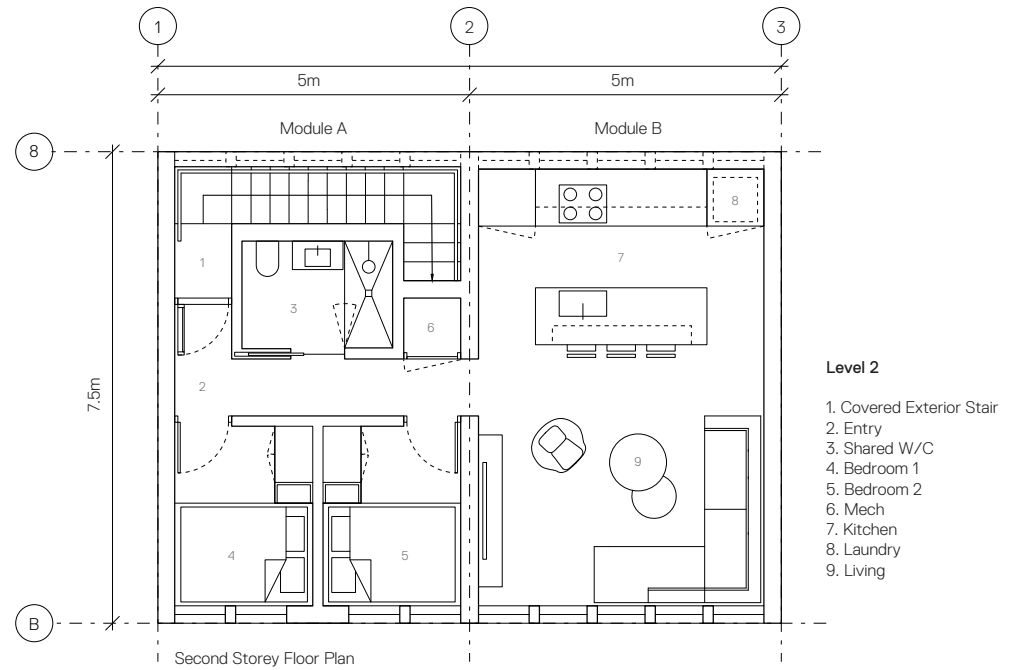
Bento's pre-fabricated construction strives for affordability by economizing materials and allowing homeowner-developers to build with greater ease, cost predictability, and in a fraction of the time needed for traditional construction. This strategy offers a number of benefits including reduced construction time and cost, improved energy efficiency, and reduced environmental impact. Bento's kit-of-parts are shipped flat-packed to site and components are assembled and finished by certified builders in under 6 months.

Construction Estimate Notes:

1. Based on Altus Group 2024 Canadian Cost Guide
2. Building Type: Custom Built Single Family Residential
3. Cost Range: \$495/ft² to \$1,250/ft² (Vancouver)
4. Assumed Level of Finish: \$495/ft²
5. Unit Conversion Calculation:
495 per ft² * (1/0.092903) \$/m² = \$5,315.74 m²

Construction Costs

Garage (excluded as per AGCCG)	NA
Covered Entry Area	\$42,523
Covered Stair Area	\$53,157
Dwelling on Second Level Area	\$398,680
Subtotal (as per AGCCG)	\$494,360
Landscaping Allowance	\$15,000
Utilities and Connections	\$11,000
Construction Budget	\$520,360
Building Permit Fee	\$2,030
Consultant - Survey	\$2,800
Drawings Download	\$1,500
Consultant - Geotechnical	\$3,200
Consultant - Structural	\$12,000
Consultant - Building Envelope	\$3,000
Furniture	\$10,000
Project Subtotal	\$555,890
GST	\$27,795
Total Project Budget	\$583,685



Gross Floor Area	m ²
Garage	57 m ²
Covered Entry	8 m ²
Covered Stair	10 m ²
Dwelling on Second Level	75 m ²
Total Gross Floor Area	150 m²

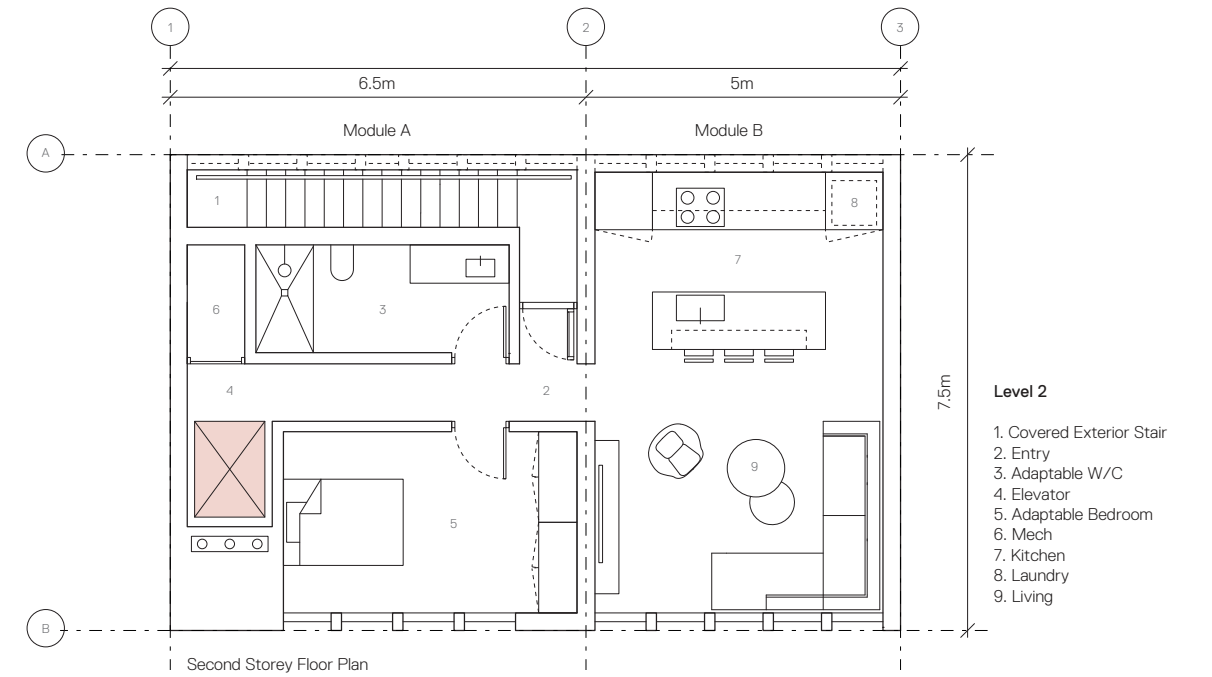
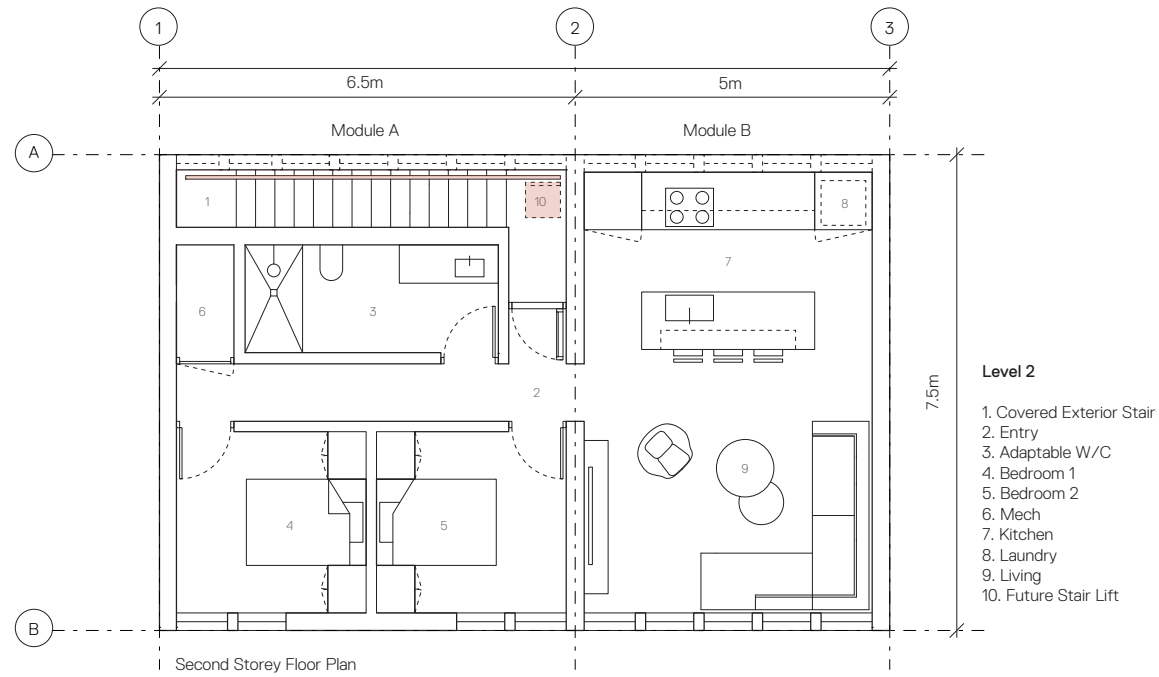
Innovation and Creativity: Adaptable Building Shell

Bento is thoughtfully designed with efficient floor plans that support a variety of ownership models including owner rental, multi-generational, and age-in-place.

The most minimal design option consists of a single prefabricated 75 m² building shell footprint that is further divisible into two 37.5 m² increments. Standardize modules are designed for easy reconfigurability depending on the size and orientation of the lot.

The bedroom module (Module A) is easily expanded 1.5m to accommodate an 86.25m² building footprint (172.5m² GFA) on larger sites or for owners desiring additional space including; second garage parking stall, adaptable bedroom space including; second garage parking stall, adaptable bedroom(s), and an adaptable bathroom.

Bento's standardized system is based on a modified BOSS (Building Offsite Sustainable System) which is an open-source offsite wood-based construction solution designed to meet the needs of diverse communities throughout British Columbia. The system uses closed panels that are pre-fabricated in a controlled factory environment, which helps ensure quality, consistency, and cost.

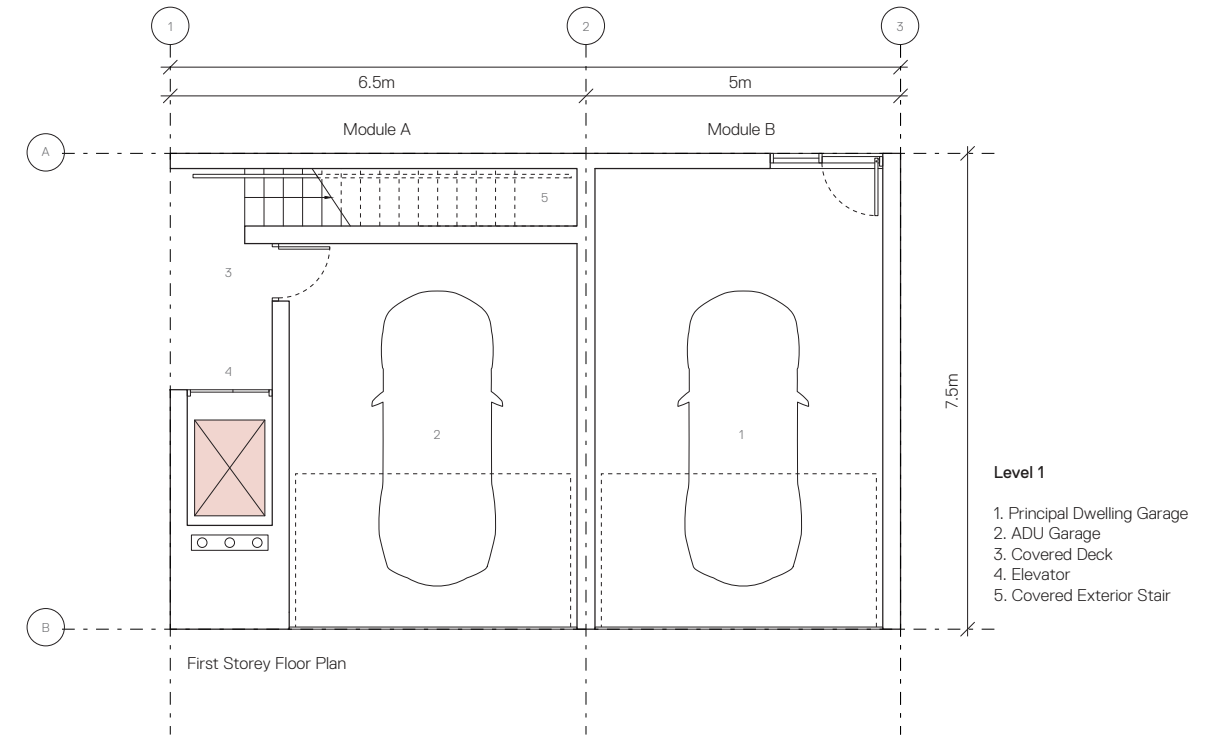
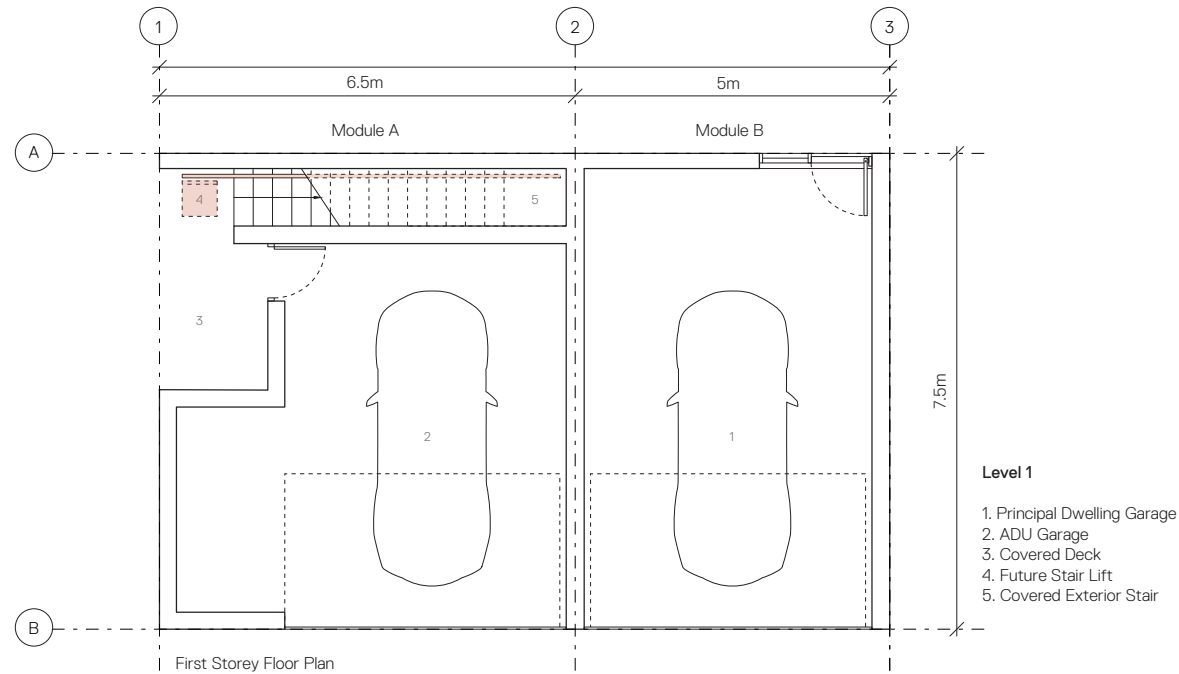


Accessibility & Universal Design

Bento is designed with consideration of pending 2024 BCBC regulations for accessibility in buildings and incorporates various adaptability features to help people stay in their home through illness, injury, disability or aging.

Bento is designed to minimize future retrofitting costs by pre-planning adaptable spaces, providing reinforcement of bathroom walls to allow for future installation of grab bars, accessible clearances through doorways, installing switches and controls at accessible heights, and pre-planning installation of a future stair lift or elevator.

Future adaptations of the system are accomplished by simple minor renovation through carefully considered plumbing and service locations.



Expanded Adaptable Dwelling

Option 01 - Future Stair Lift Second Storey Accessibility

Minimal future retrofitting costs by pre-planning stair lift with reinforcements integrated into panel system.

Expanded Adaptable Dwelling

Option 02 - Future Elevator Second Storey Accessibility

Future adaptation to replace second bedroom with an elevator is pre-planned as a simple renovation possible through carefully considered reinforcement, plumbing and service locations.

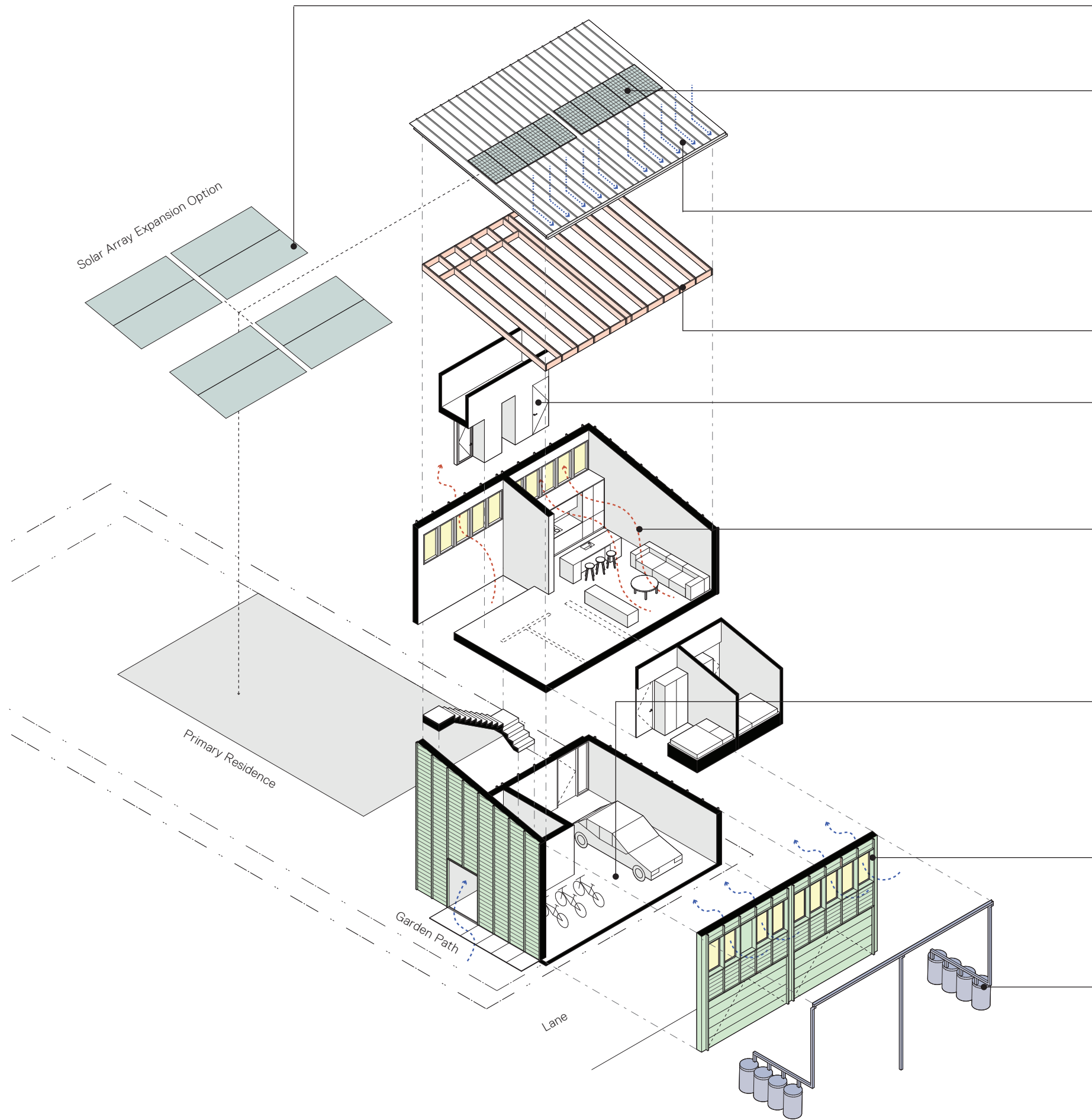


Sustainability & Resilience

Bento is designed and detailed according to BCBC 2024 Step Code 3 for both energy efficiency and envelope compliance. Passive House and Net Zero are available as an upgrade but not offered as the base model to promote affordability and cost-effectiveness.

Bento operates with a zero-waste philosophy in the design and implementation of thoughtfully considered environmentally-conscious building materials to reduce on-site waste, minimizing energy consumption, and efficiently use space and energy. Bento is fabricated using FSC-certified Canadian wood and responsibly-sourced and produced materials that can be fully recycled.

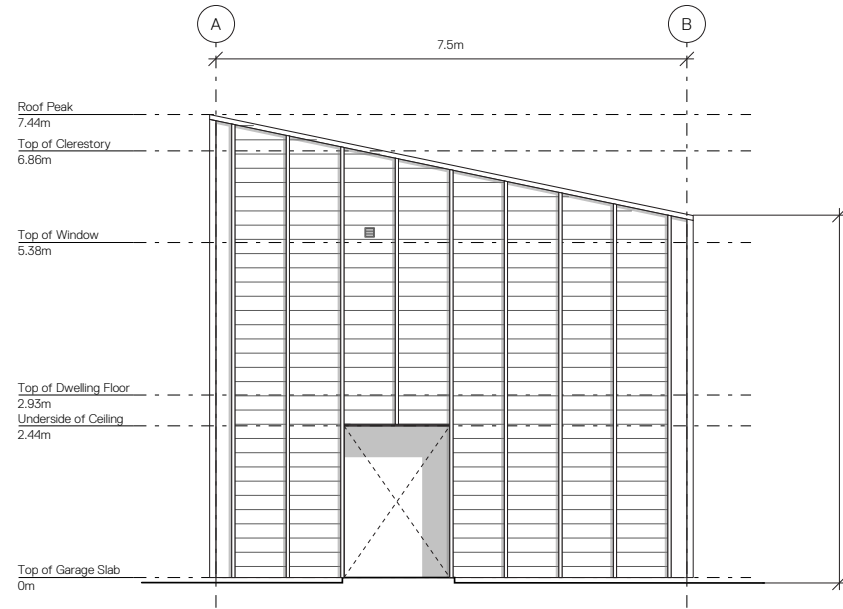
	Proposed Specification	R/USI or Efficiency
Insulation and Air Barrier	Under Foundation Slab R14 Rigid	R14
	Exterior Above-Grade Walls Panel: 1/2" sheathing, 2x4@24o/c cross strapping R roxul batt, 2x6@24o/c R22 celulose fill, 1/2" sheathing, 1/2" GWB	R25.51
	Exposed Floors Panel: 1/2" sheathing, 12" TJI @24o/c R50 celulose fill, 1/2" sheathing, 5/8" ply, 3/4" wood engineered wood flooring	R50
	Vaulted Roof Panel: Standing seam metal roof, 3/4" Rainscreen, Weather Barrier, 10" Poly-Iso, 5/8" Sheathing, 2x12 open Joist @16o/c	R68.2
Fenestration	Air Barrier Continuous air barrier design	</=ACH 2.5
	Side-hinged doors	</=USI 1.8
	Windows	</=USI 1.22
Mechanical	Ventilation Heat Recovery Ventilator	</= 75% @
	Heating System Ductless Mini Split	HSPF 10 SEER 20
	Domestic Hot Water Electric heat pump hot water	COP 3
	Recirculation System Insulated pipe wrap > R2	R2



- Solar Expansion**
Pre-planned system allows for easy expansion that adds an additional 9,000 kilowatt-hours (kWh) per year to offset primary residence.
- Solar Roof**
Roof system is pre-wired and reinforcement installation of a 4,000 kilowatt-hours (kWh) per year solar array model that can be easily added to over the life-cycle of the home.
- Roof**
Roof envelope BCBC 2024 Step Code 3 equivalent with a class "A" fire rated standing seam metal roof with gravity fed rainwater collection.
- Pre-Fab Wood Panels**
Offsite construction process minimizes waste, reduces energy consumption.
- Energy Efficiency**
High-efficacy zoned ductless mini-split system and HRV, high-efficiency water heater and energy-efficient lighting and appliances. Storage loft above core.
- Passive Stack Ventilation**
Passive stack ventilation relies on natural airflow to ventilate buildings, utilizing a vertical stack to induce airflow through a combination of temperature and pressure differential between high and low openings.
- Floor Hazard Resilience**
Incorporating a garage and covered open-air entry on the main level enhances flood resilience by mitigating water ingress and minimizing potential damage during flood events.
- Exterior Walls**
Exterior walls BCBC 2024 Step Code 3 equivalent with a class "A" fire rated board and batten cement board siding.
- Rainwater Harvesting**
Gravity-fed rainwater collection system and storage tanks easily integrated and expanded by simple roof and drainage design, promotes water efficiency, and bolsters wildfire resilience by providing an alternative water source for property protection.

Side Yard Elevation 1

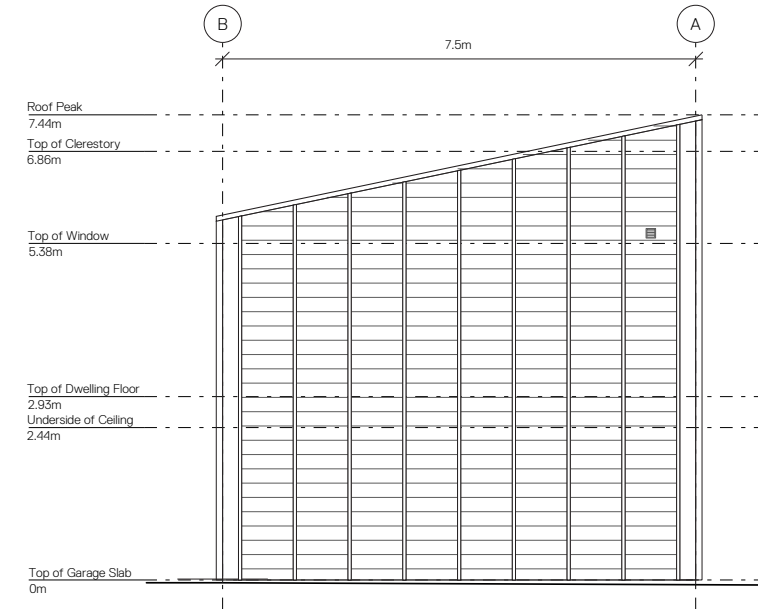
Max Building Height	7.5 m
Limiting Distance	3.99 m
Exposing Building Face	50.64 m ²
Total Opening Area	4.15 m ²
Proposed (%) Opening	8.19



Side Yard Elevation 1

Side Yard Elevation 2

Max Building Height	7.5 m
Limiting Distance	1.2 m
Exposing Building Face	50.64 m ²
Total Opening Area	0
Proposed (%) Opening	0



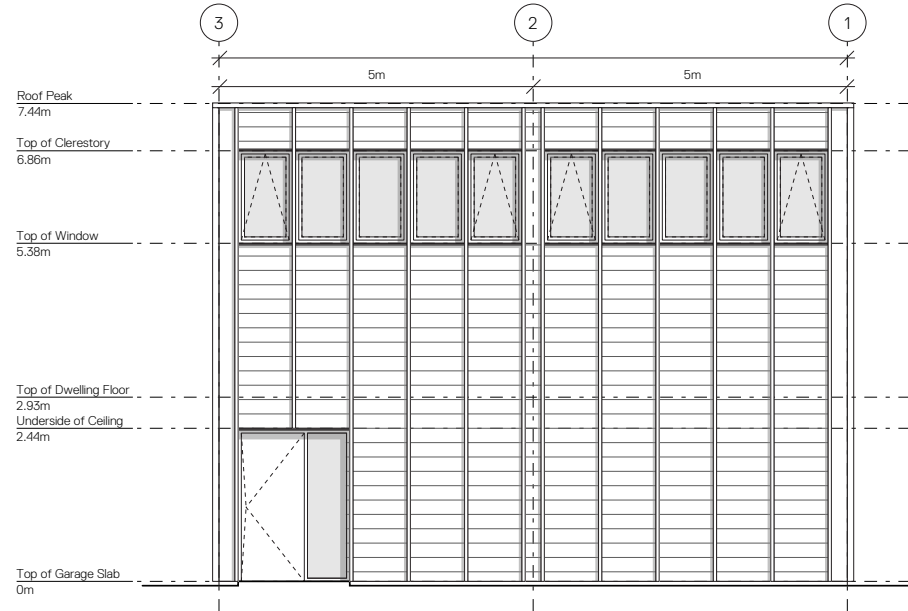
Side Yard Elevation 2

Laneway Elevation

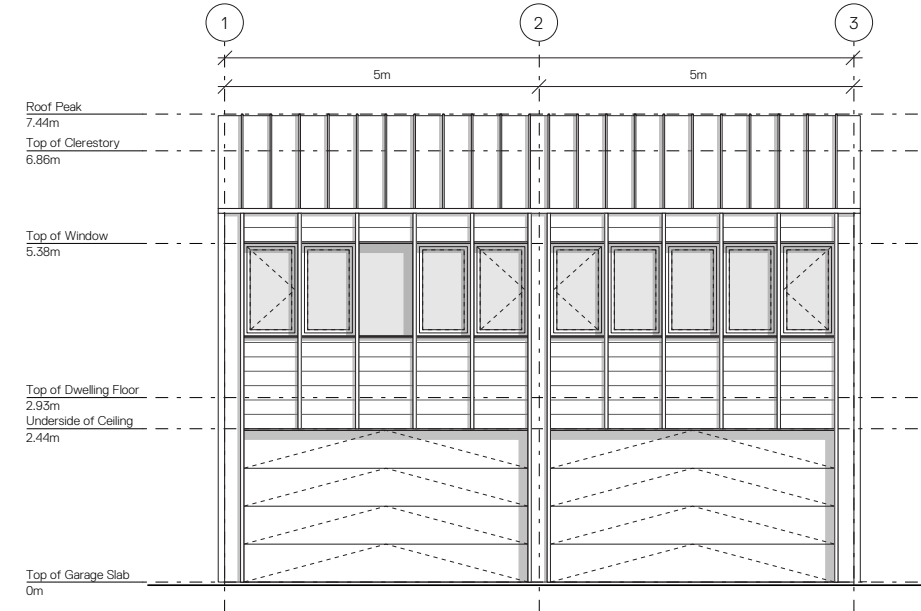
Max Building Height	6 m
Limiting Distance	3.6 m
Exposing Building Face	60.72 m ²
Total Opening Area	11.45 m ²
Proposed (%) Opening	18.86

Rear Yard Elevation

Max Building Height	7.5m
Limiting Distance	4.8 m
Exposing Building Face	77.52 m ²
Total Opening Area	6.83 m ²
Proposed (%) Opening	8.82



Rear Yard Elevation



Rear Lane Elevation



Site Area Calculations
 Accessory Dwelling Unit Design Competition Brief

Area Calculations

Front Yard Setback Requirements	3.0 m
Side Yard Setback Requirements	1.2 m
Rear Yard Setback Requirements	0.6 m
Site Area	557 m ²
Site Coverage Primary Residence	112 m ²
Site Coverage Primary Residence (%)	20.11%
Site Coverage Proposed ADU	75 m ²
Total Proposed Site Coverage (%)	29.98%

