

FRONT YARD ADU

SQUAMISH ADU DESIGN COMPETITION
MAY 2024

AFFORDABLE
SUSTAINABLE
ACCESSIBLE



FRONT YARD ADU

SQUAMISH ADU DESIGN COMPETITION

MAY 2024

In the quest for **affordable** and **sustainable** accessory dwelling units (ADUs), the question arises:

Can everything be shipped to the site **in one day** and installed **in a week**?

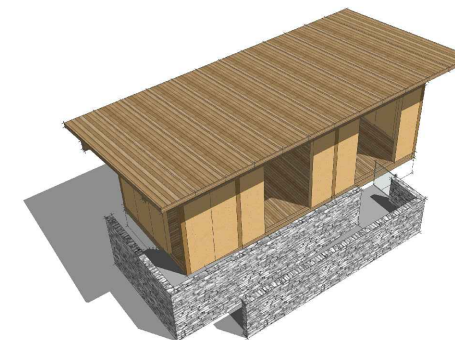
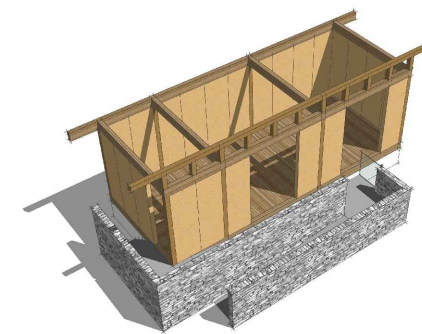
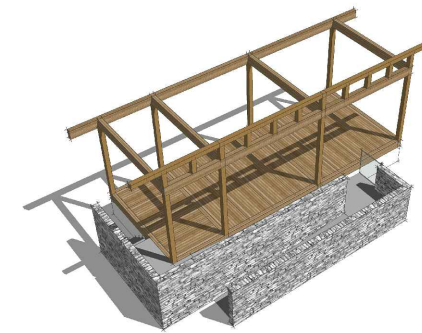
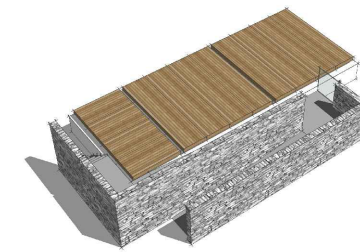
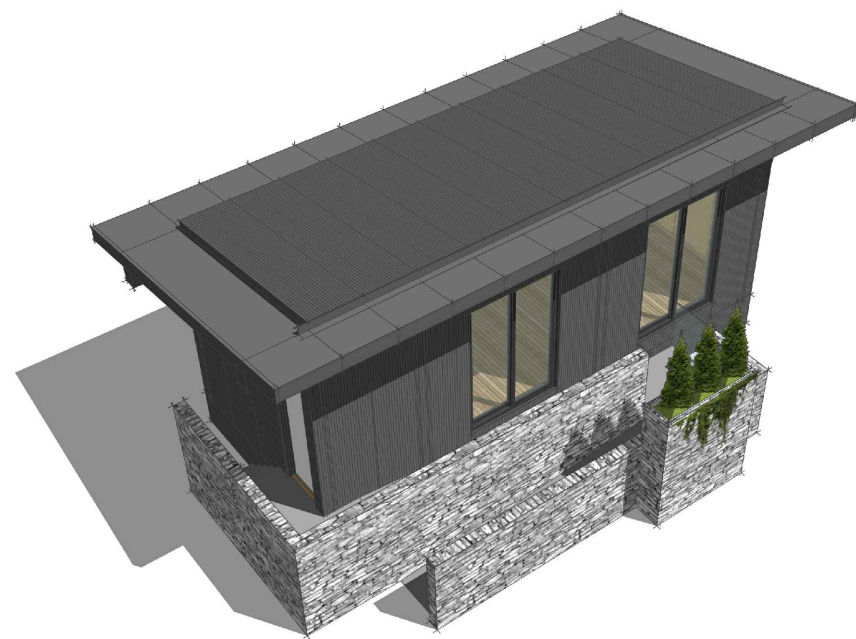
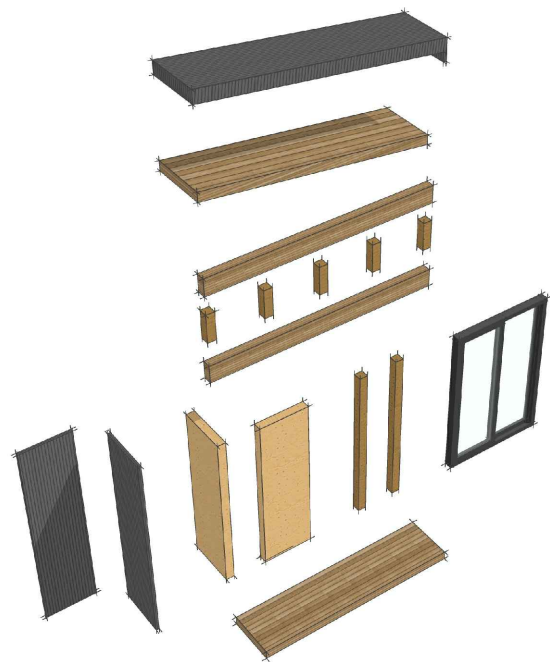
The solution is a "**Prefabricated Wood System**"

A modular construction approach designed to revolutionize ADU development.

The Prefabricated Wood System

This system is built on a 12'x12' (3.6Mx3.6M) module, including:

- 6x6 columns
- 5.5"x Plywood panels filled with insulation (serving dual functions as exterior walls and structural stiffeners)
- CLT floor and ceiling
- Pre-cut corrugated metal sheets in various colors for exterior finishes



FRONT YARD ADU

SQUAMISH ADU DESIGN COMPETITION
MAY 2024

Summary

- Unit Type: **Studio ADU**
- Total Area: **394 S.F. (36.6 S.M.)**
- Maximum Height: 16'-7" (5.0M)
- Configuration: Consists of two and a half 12'x12' modules

Concept Rationale

The design aims to evoke a mountain/country aesthetic using simple forms and natural materials. The mandatory I-shape configuration is dictated by the site's layout and the proximity of the ADU to the main house. To ensure maximum privacy for the main house, the unit faces the front lane. Access to the ADU is provided via covered exterior stairs and a ramp, ensuring adaptability and accessibility.

Materials

Exterior:

- Pre-painted, pre-cut corrugated metal sheets cover the walls and roof, providing resilience against wildfire and flood hazards.
- Flat metal sheets are used for framing elements and roof extensions.
- Local stone veneers cover planters and stair/ramp retain walls.

Interior:

- Exposed prefab plywood walls and CLT ceilings eliminate the need for drywall, reducing costs and labor.

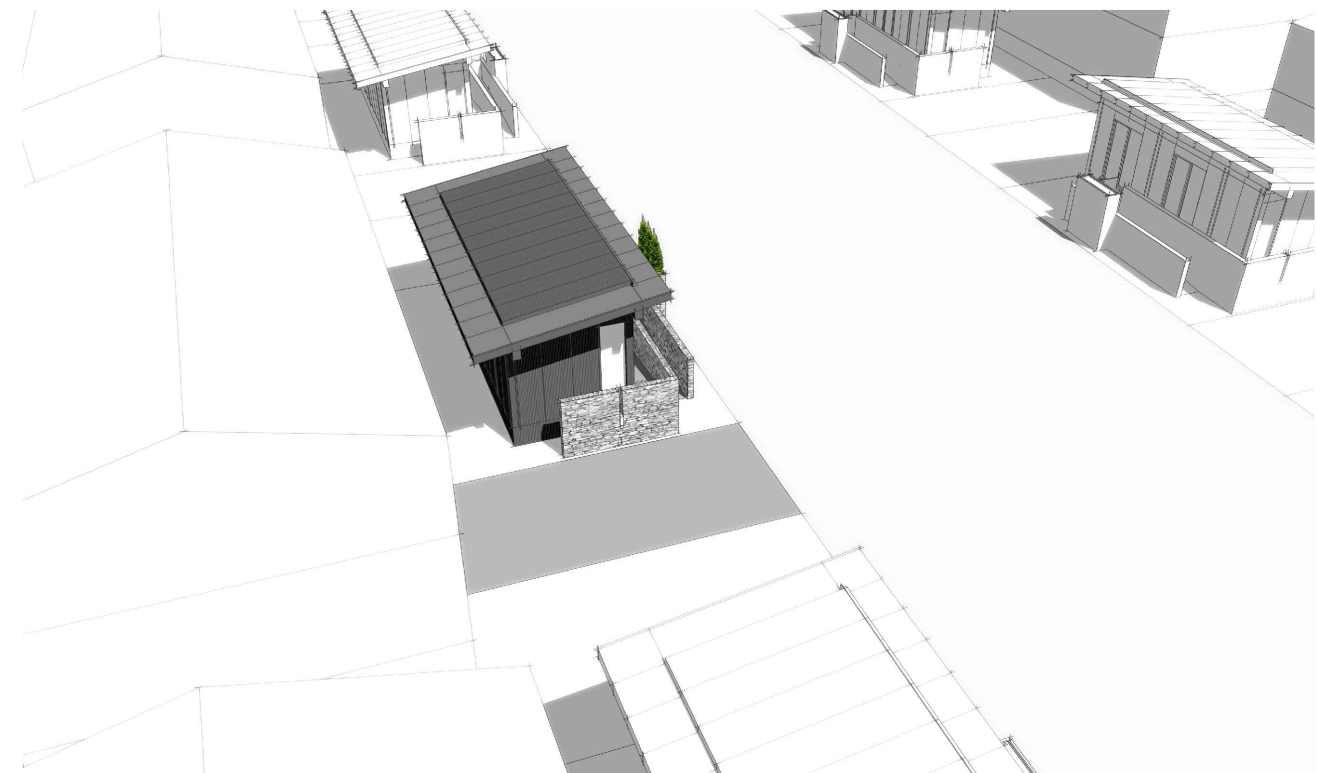
Energy Performance

- Walls: Precast plywood panels filled with 4" spray foam (**R-24**).
- Roof: 6" polyiso insulation on CLT roof (**R-36**).
- Windows: Wood-frame with aluminum support, high-performance double glazed windows (**17% opening percentage**).

The project meets above BC building code step 1, achieving a higher-performance standard.



VIEW FROM THE FRONT YARD



BIRD'S EYE VIEW FROM THE NEIGHBOR'S PROPERTY

FRONT YARD ADU

SQUAMISH ADU DESIGN COMPETITION
MAY 2024

Sustainability

- Local Fabrication: Precast fabrication in Squamish supports local employment.
- Natural Materials: The exterior materials are recyclable and free from PVC/plastics.
- Energy Efficiency: The low glazing percentage and high R-values facilitate passive house potential. The unit includes high-performance, low-carbon (electric) heating/cooling systems, domestic hot water equipment, and efficient appliances.

Estimated High-Level Construction Cost

- The prefabrication system significantly reduces construction time, forecasting completion within 1 month compared to the traditional 4-6 months.

Estimated costs are:

- Hard Costs: Approximately \$250 per S.F.
- Soft Costs: Approximately \$50 per S.F.
- Total ADU Construction Cost: Approximately **\$120,000**.

Accessibility

- Designed to meet BCBC adaptability criteria, the unit is accessible via a ramp. The bathroom meets required clearances, and all the doors are equipped with automatic operators.

Conclusion

The prefabricated wood system offers a streamlined, sustainable approach to ADU construction. By leveraging local materials and prefabrication methods, this design reduces costs, supports local economies, and provides a high-performance, adaptable living space. The Front yard ADU exemplifies how modern construction techniques can meet the demand for affordable, sustainable housing solutions.



VIEW FROM THE NEIGHBOR'S PROPERTY



VIEW FROM THE FRONT YARD

FRONT YARD ADU
SQUAMISH ADU DESIGN COMPETITION
MAY 2024

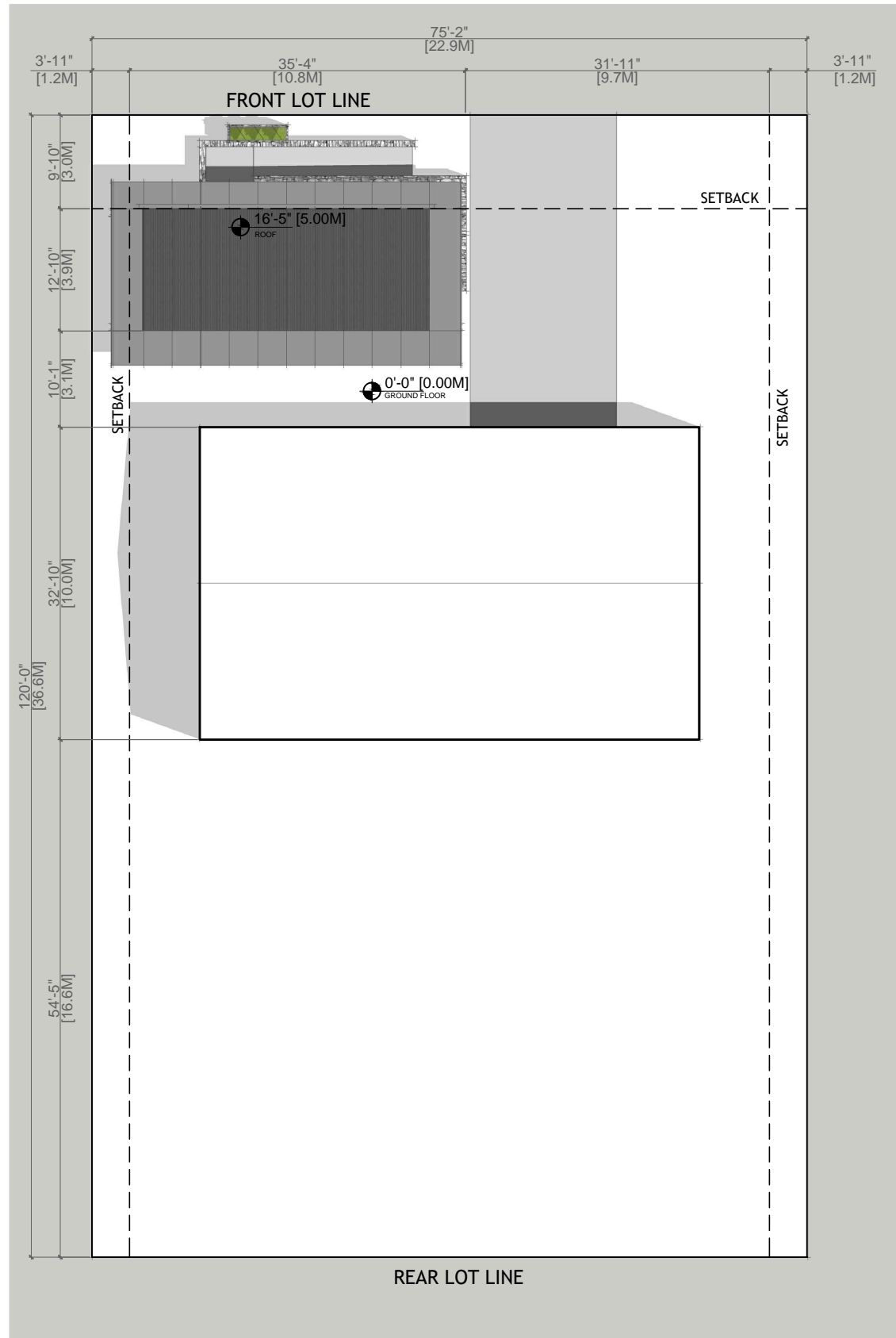


VIEW FROM THE FRONT COURTYARD

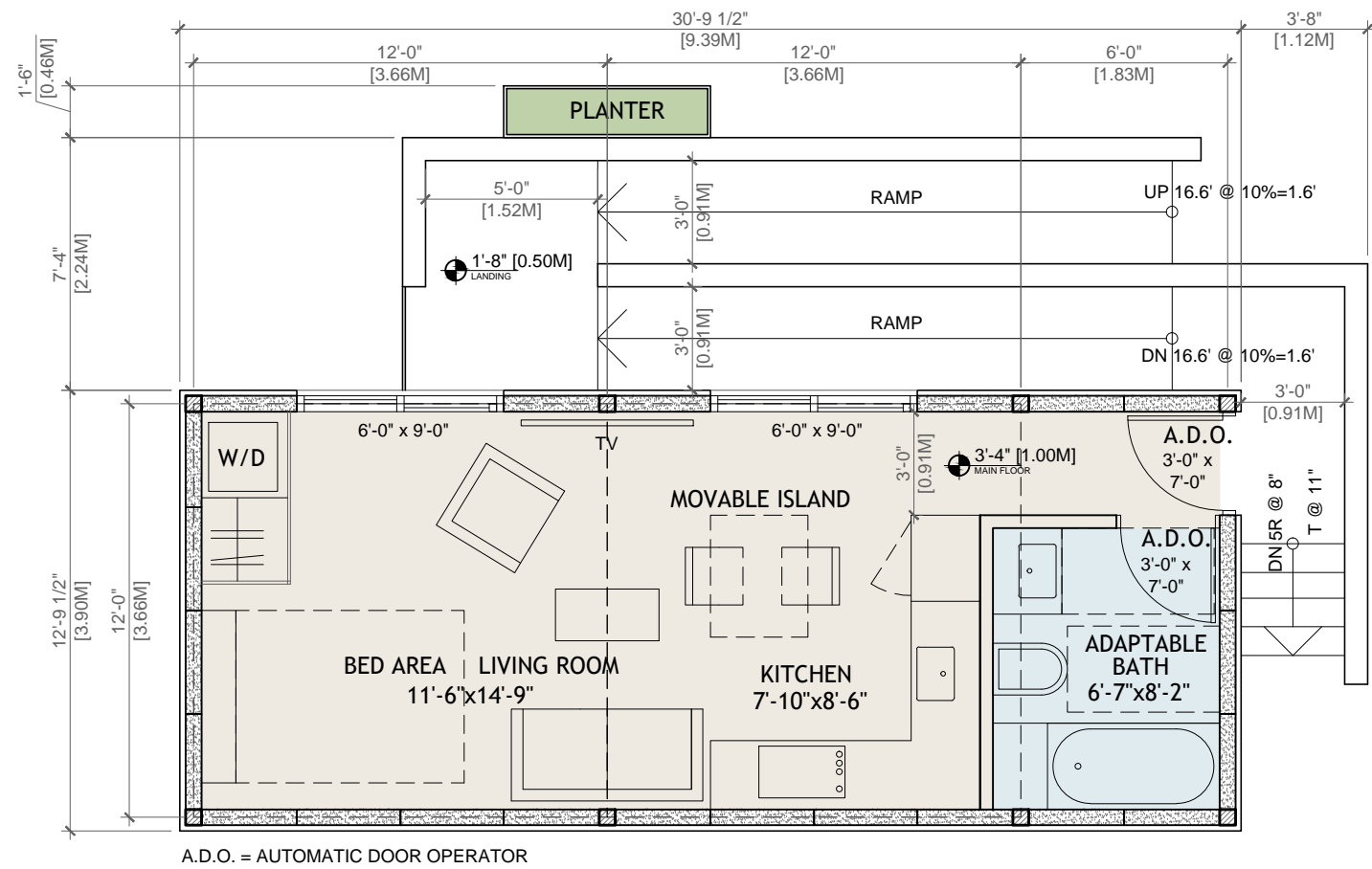
FRONT YARD ADU

SQUAMISH ADU DESIGN COMPETITION
MAY 2024

1.



SITE PLAN
1/16"=1'-0"



MAIN FLOOR
3/16"=1'-0"

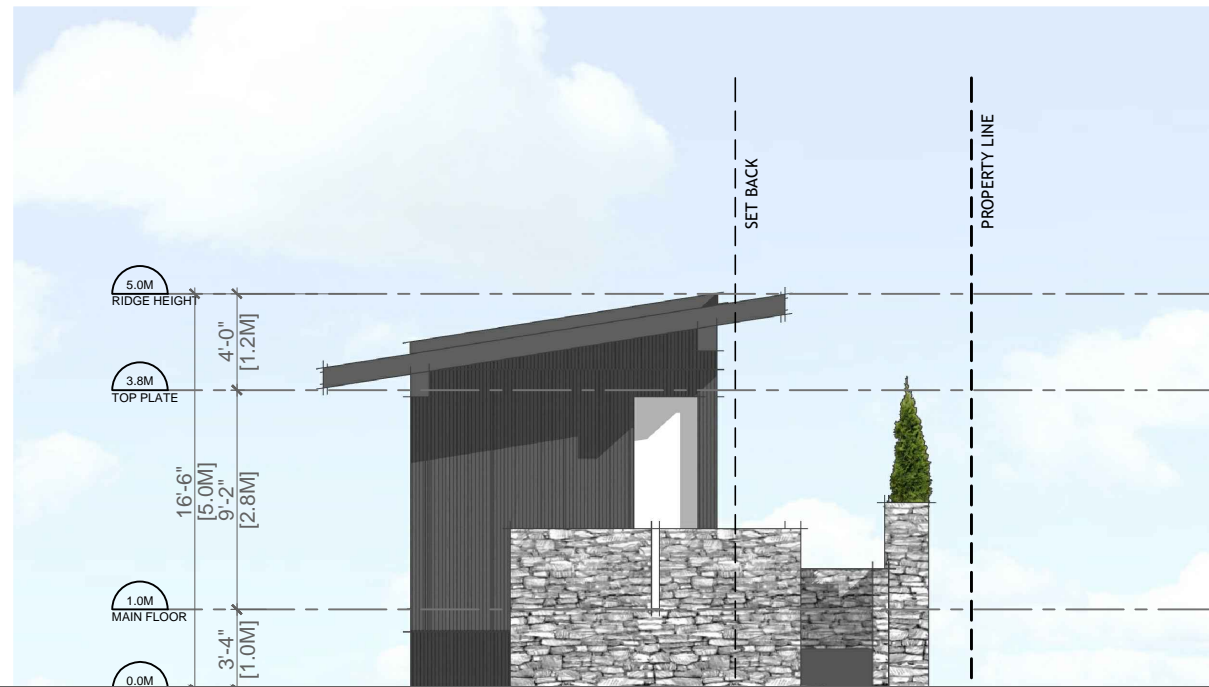
STUDIO
AREA: 394 S.F. (36.6 S.M.)



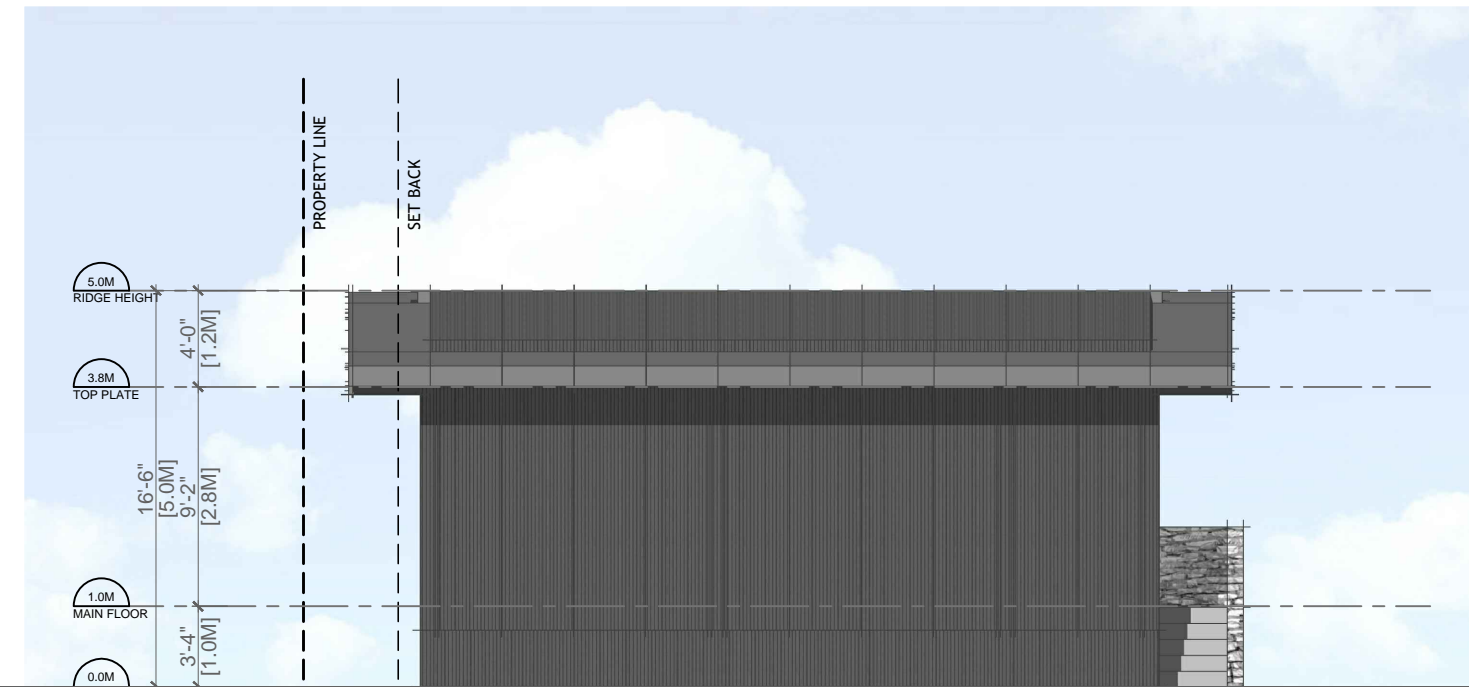
LEFT SIDE YARD ELEVATION
1/8"=1'-0"



FRONT LANE ELEVATION
1/8"=1'-0"



RIGHT SIDE YARD ELEVATION
1/8"=1'-0"



COURTYARD ELEVATION
1/8"=1'-0"



VIEW FROM THE FRONT LANE