

Kingfisher Cabin

The Kingfisher Cabin is a meticulously designed, ground-oriented, single-story accessory dwelling unit (ADU) that epitomizes a blend of functionality, aesthetic appeal, and energy efficiency. This two-bedroom flat offers a no-compromise solution for backyard living, featuring a thoughtful layout that enhances both comfort and sustainability. As you approach the cabin, you are greeted by a covered porch that seamlessly transitions into the stunning living-dining-kitchen space. The design strategically positions windows to ensure ample natural light floods the interior while maintaining privacy, creating a bright and inviting atmosphere. One of the standout features is the vaulted ceiling in the main living area, which adds to the sense of spaciousness and delight every time you enter the cabin.

Achieving Step 5 of the BC Energy Step Code, the Kingfisher Cabin sets a high standard for energy efficiency, making it possible for this ADU to be a net-zero building with the appropriate heating and ventilation systems. This remarkable energy performance is largely due to the clerestory roof design, which must face south to allow for optimal solar gain. The vaulted spaces over the dining and kitchen areas to reach the designs efficiency potential. Notably, the design achieves these impressive energy standards without resorting to unconventional construction methods. This approach not only keeps construction costs in check but also minimizes ongoing operational expenses, offering a cost-effective solution for long-term energy savings. An insulated crawl space and efficient glazing are integral to the design, contributing significantly to the overall energy efficiency of the cabin.

The Kingfisher Cabin's design is characterized by its perfectly square footprint, allowing for flexibility in site orientation. The ground floor plan can be rotated or mirrored to best suit the specific conditions of any site, ensuring that the ADU can be optimally positioned for maximum benefit. This adaptability makes it a versatile choice for a wide range of locations and settings.

A key aspect of the Kingfisher Cabin is its commitment to universal design principles, ensuring that the ADU is both usable and adaptable for all users, including individuals with disabilities or special needs. The single-level layout eliminates barriers posed by interior stairs. Thoughtful spatial planning enhances usability, providing a welcoming and accommodating environment. This inclusivity is fundamental to the design, ensuring that the Kingfisher Cabin meets diverse needs and remains a comfortable and functional space for all residents.

In summary, the Kingfisher Cabin stands out as a well-rounded ADU design that combines aesthetic charm with robust energy efficiency and universal accessibility. The covered porch and thoughtfully designed interior spaces create a warm and inviting home environment. Its achievement of Step 5 of the BC Energy Step Code highlights its potential as a net-zero building, with energy efficiency integrated seamlessly into the design. The flexibility of the square footprint ensures that it can be adapted to various site conditions, while the commitment to universal design principles makes it a truly inclusive living space. The Kingfisher Cabin is a prime example of how thoughtful design can meet the needs of today's diverse homeowners, providing a sustainable, comfortable, and accessible living solution.



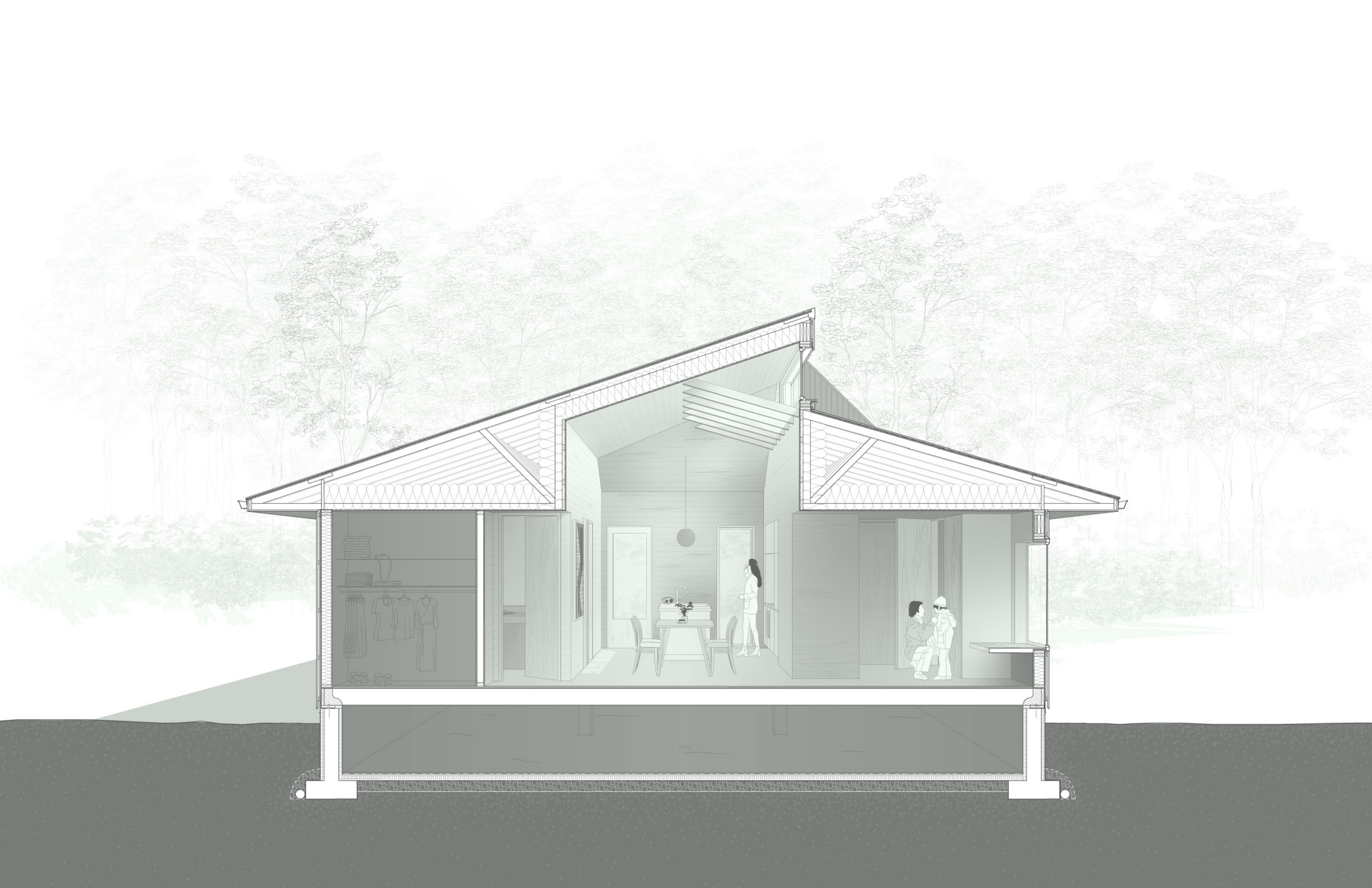


Summary Table

| | |
|--------------|---|
| Dimensions | 10.20 m (L) x 10.20m (W) x 5.22 m (H) |
| Key Features | <ul style="list-style-type: none"> • Step Code 5 ready (roof clerestorey window must face south) • Square plan allows square roof to be rotated to face south and maximize solar heat gain in the winter, regardless of siting. • Strategically placed glazing designed to maximize privacy from neighbours and improve energy efficiency. • Operable clerestory window - natural/stack ventilation. • Permeable pavers driveway - reduce stormwater run-off. • Private covered entry porch & outdoor accessed storage. • 2-bedroom unit for families. |

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|----------------|--|---------------|------------------------------|----------|-----------|-----------|---|----------------|---------|----------|---------|-------|---------|-------|---------|-------|---------|-------|--|-----------|----------|------------|--|
| Construction | <p>Estimated Project Cost: Pricing per the 2024 Canadian Cost Guide.</p> <hr/> <table border="0" style="width: 100%;"> <tr> <td style="padding-right: 20px;">Price per SQM</td> <td>\$2044.4 to \$3443.2 per SQM</td> </tr> <tr> <td>ADU Area</td> <td>94.58 SQM</td> </tr> <tr> <td>ADU Total</td> <td>\$193.4k to \$325.6k per SQM incl. labour & materials.</td> </tr> </table> <p>DCC (development cost charge) per lot for a single detached dwelling in Squamish:</p> <table border="0" style="width: 100%;"> <tr> <td style="padding-right: 20px;">Transportation</td> <td>\$9,516</td> </tr> <tr> <td>Drainage</td> <td>\$2,648</td> </tr> <tr> <td>Water</td> <td>\$1,884</td> </tr> <tr> <td>Sewer</td> <td>\$4,095</td> </tr> <tr> <td>Parks</td> <td>\$3,473</td> </tr> <tr> <td colspan="2"><hr/></td> </tr> <tr> <td>DCC Total</td> <td>\$21,616</td> </tr> <tr> <td>Permitting</td> <td>\$2,030 (for a single family dwelling)</td> </tr> </table> <hr/> | Price per SQM | \$2044.4 to \$3443.2 per SQM | ADU Area | 94.58 SQM | ADU Total | \$193.4k to \$325.6k per SQM incl. labour & materials. | Transportation | \$9,516 | Drainage | \$2,648 | Water | \$1,884 | Sewer | \$4,095 | Parks | \$3,473 | <hr/> | | DCC Total | \$21,616 | Permitting | \$2,030 (for a single family dwelling) |
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Estimated Project Cost Total: \$217k to \$349k





Legend:

- 0. ENTRY PORCH
- 1. ENTRY
- 2. KITCHEN
- 3. DINING
- 4. LIVING
- 5. BATHROOM
- 6. BEDROOM
- 7. LAUNDRY
- 8. STORAGE
- 9. PATIO

AREA SUMMARY:
 TOTAL DWELLING: 89.92 SQM
 excl. MECHANICAL: 4.65 SQM



Energy Performance

Kingfisher Cabin is ahead-of-its-time when it comes to our climate and energy future. This design achieves Step 5 of the BC Energy Step Code which means that with the right heating and ventilation systems, this ADU could be a net-zero energy building. It accomplishes this efficiency without the use of unconventional construction systems, making it quite affordable to build. The energy performance relies on the clerestory roof window facing south, with vaulted interior spaces over the dining and kitchen areas, so changes should be made very cautiously to this highly calibrated design. Because it's perfectly square, the ground floor plan can be rotated and/or mirrored to achieve the orientation that works best for the site.

ASSEMBLIES

Walls: r-24 batt insul. In 2x6 @ 24" o.C.

Roof: r-50 batt insul. In 2x12 @ 24" o.C.

Exposed floor: n/a

Foundation walls: 8" concrete w/ r-22 icf block

Slab on grade: 3" eps (r-12) full slab

Air leakage: 1 ach

Windows & sliding doors:

U1.2 SHGC 0.3

Viyl frame, double glazed argon-filled low-e IGU's

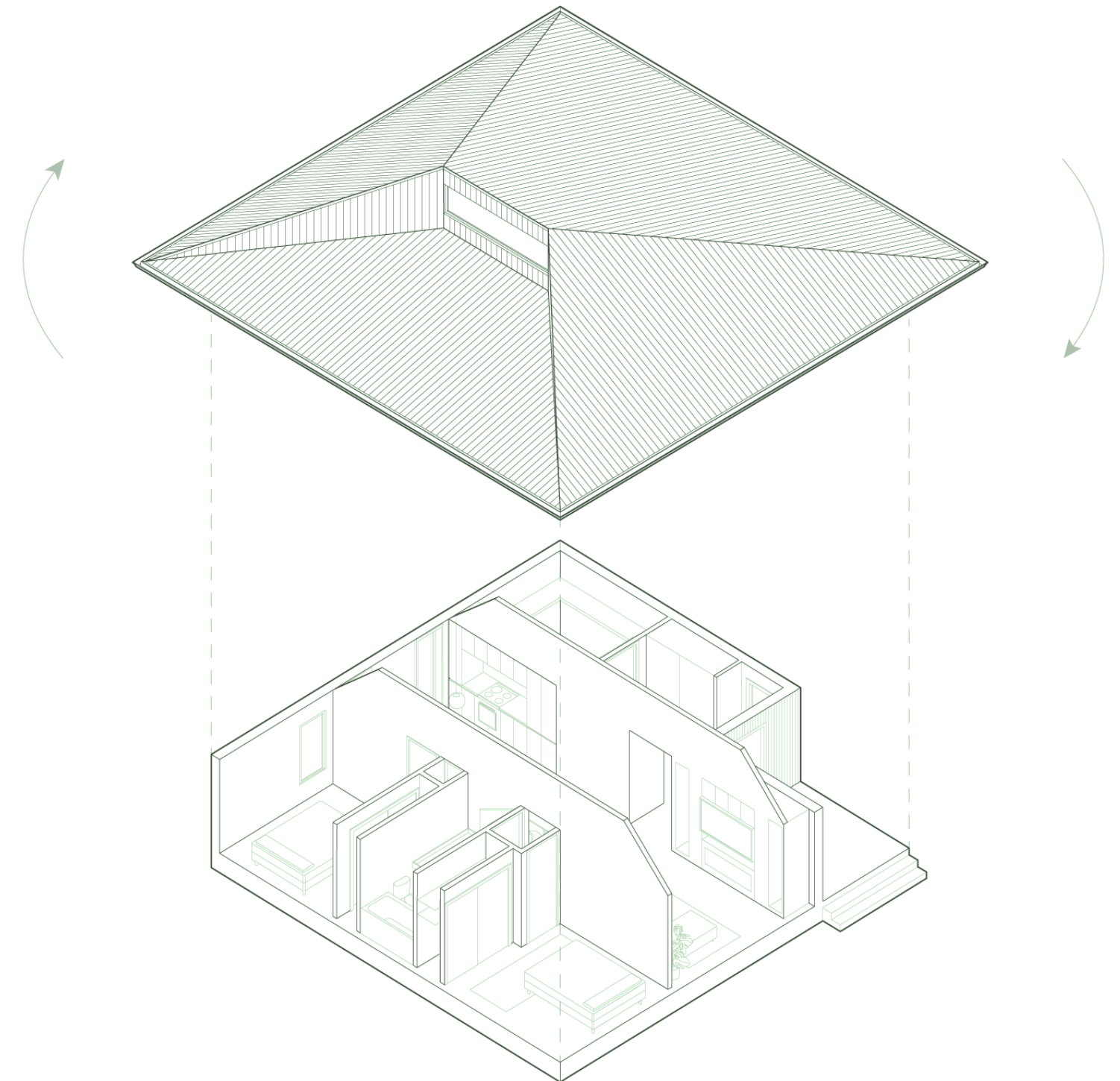
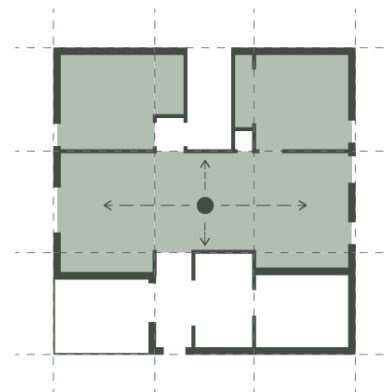
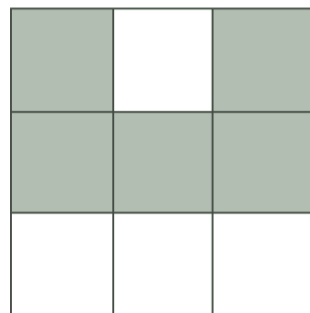
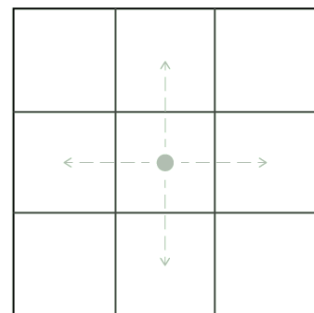
Hvac

Heating/ cooling: Heat pump 9hspf 16 seer

Modeling assumes a cold Climate heat pump

Hot water: electric tank 0.9er

Ventilation: hrv 21l/s



Materials

Three exterior material palettes for each of the designs are showcased below. They cover a range of tastes, from traditional to contemporary, and are meant to show how combinations of materials and colours that work well together. There is, however, lots of flexibility for one to finish their ADU in local materials and colours of their own choosing.

(a) Modern Style



EXTERIOR MATERIAL PALETTE:

- | | |
|----------------------|---|
| i. SIDING | VERTICAL CORRUGATED METAL - OFF-WHITE ACCENT COLOUR @ ENTRY PORCH |
| ii. ROOF | CORRUGATED METAL TO MATCH SIDING |
| iii. OVERHANGS | NO; PRIVACY TRELLIS @ ENTRY PORCH |
| iv. FASCIA & GUTTERS | TO MATCH SIDING |
| v. TRIMS | METAL FLASHING TO MATCH SIDING |
| vi. DOOR / WINDOWS | TAN |

(b) Mid-Century Style



EXTERIOR MATERIAL PALETTE:

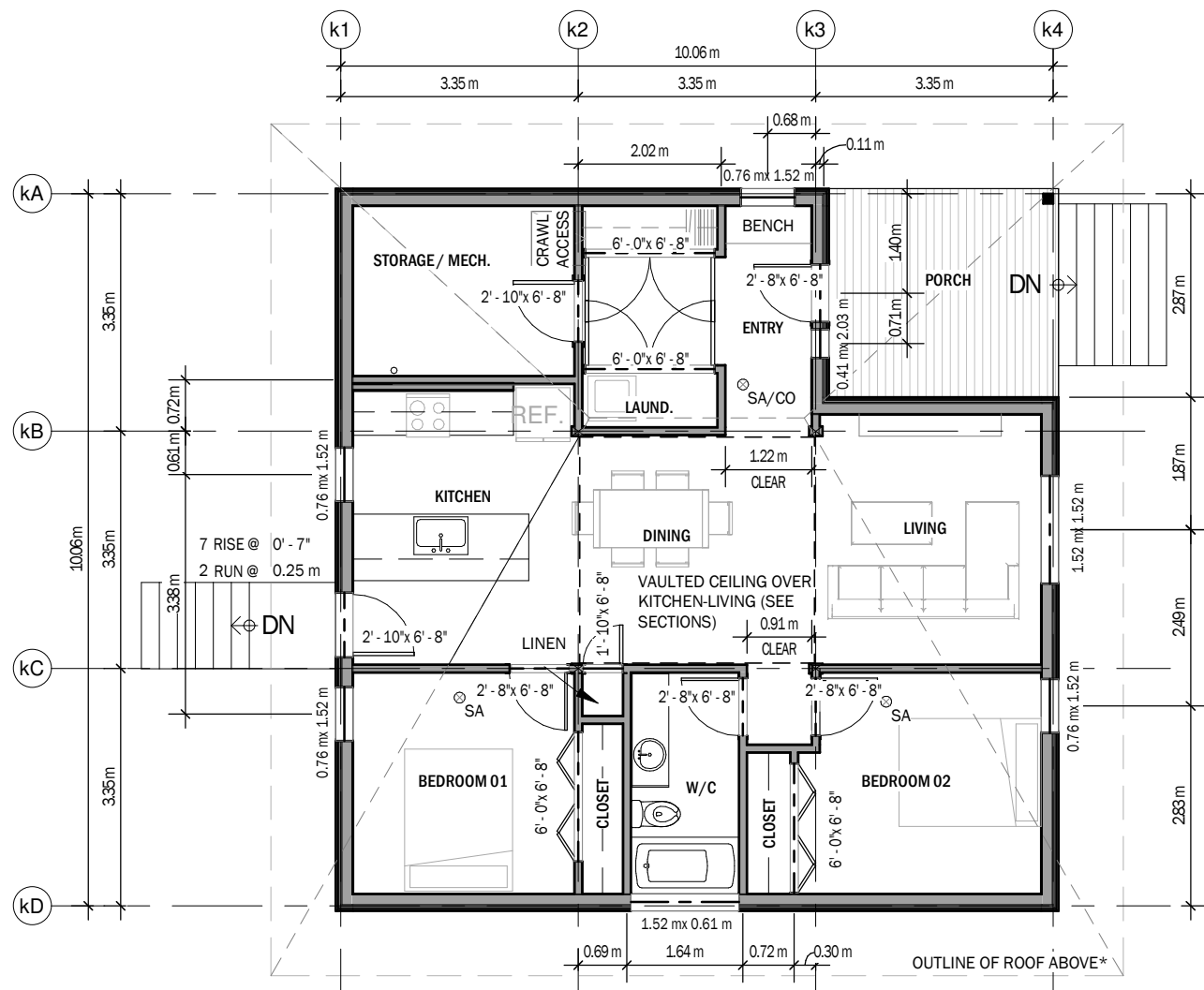
- | | |
|----------------------|--|
| i. SIDING | VERTICAL BOARD & BATTEN WOOD DARK STAIN w/ LIGHTER STAIN @ ENTRY PORCH |
| ii. ROOF | STANDING SEAM METAL - WHITE |
| iii. OVERHANGS | YES. WOOD SOFFITS |
| iv. FASCIA & GUTTERS | WOOD FASCIA; WHITE GUTTER |
| v. TRIMS | WOOD |
| vi. DOOR / WINDOWS | WOOD |

(c) Traditional Style

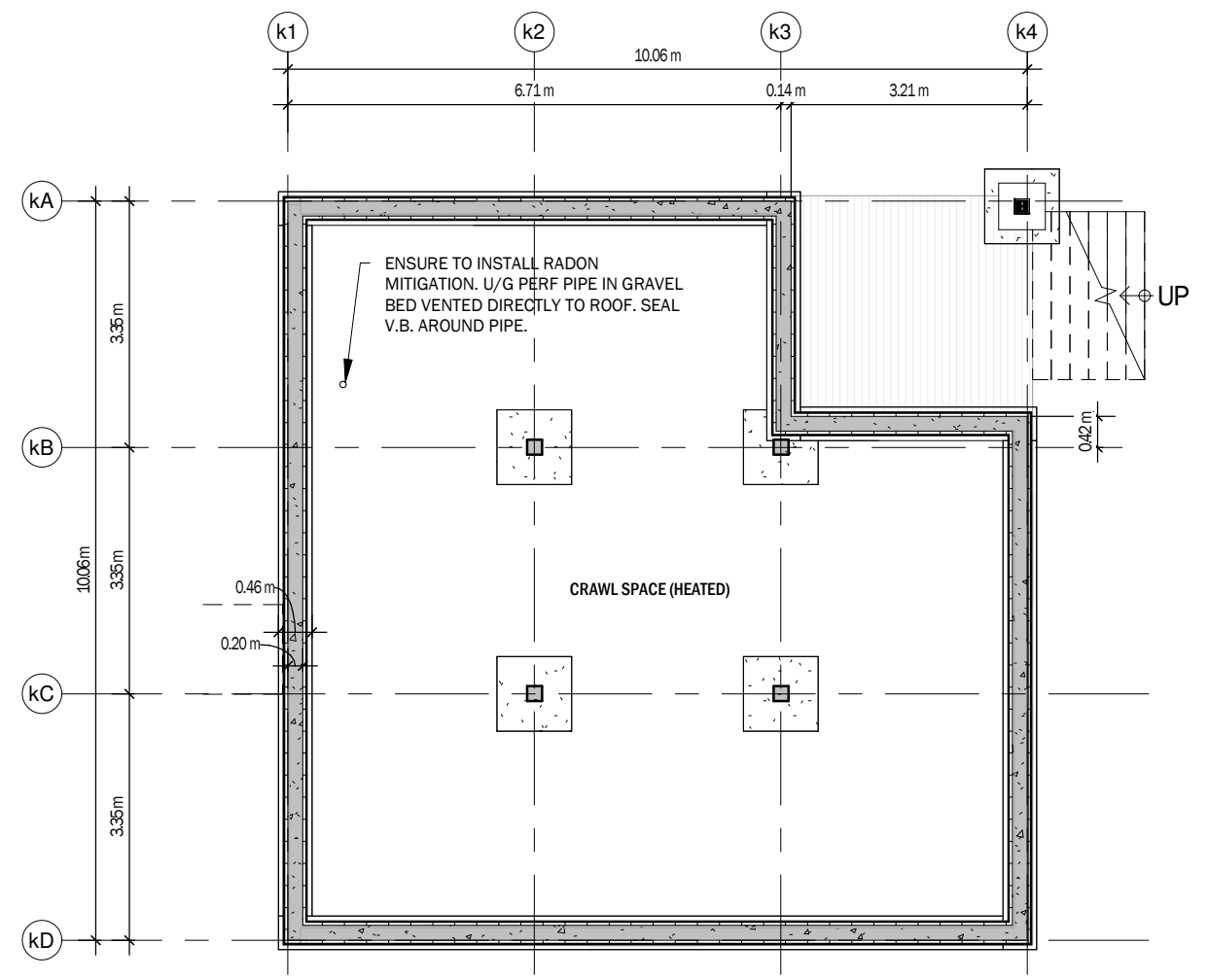


EXTERIOR MATERIAL PALETTE:

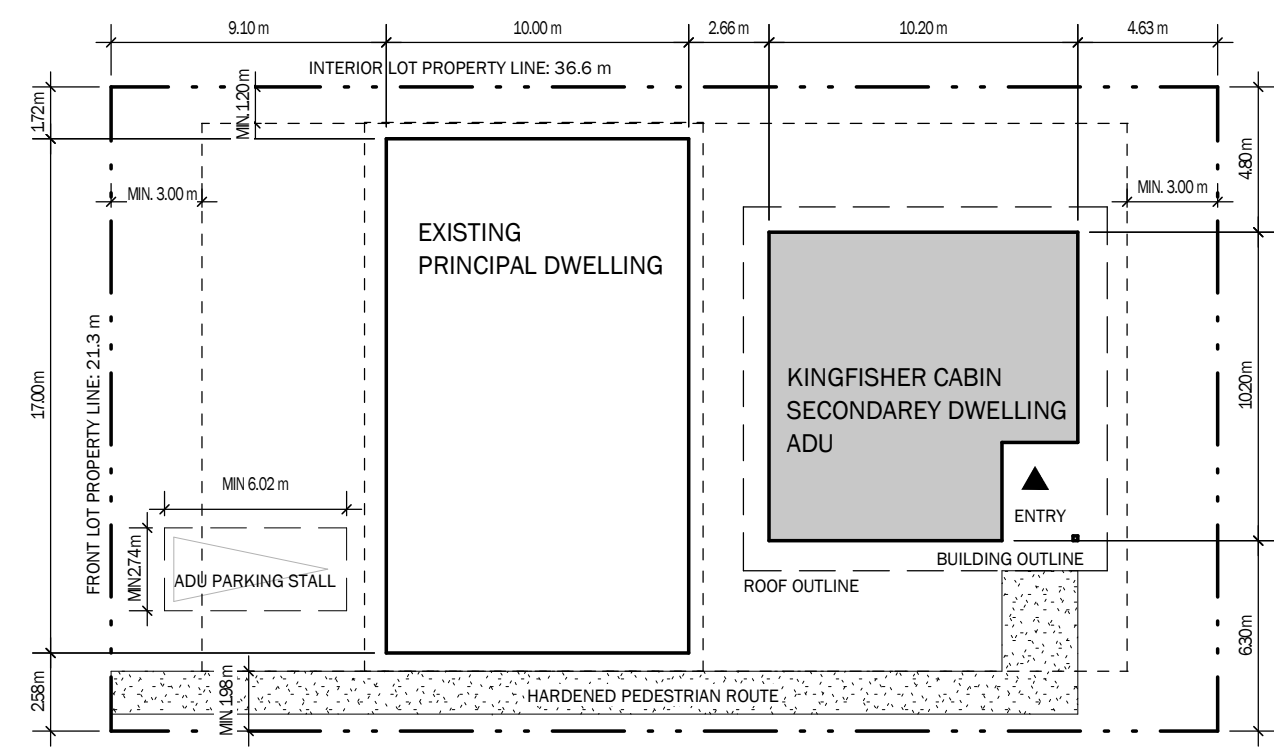
- | | |
|----------------------|---------------------|
| i. SIDING | CLAPBOARD |
| ii. ROOF | ASPHALT SHINGLES |
| iii. OVERHANGS | YES w/ RAFTER TAILS |
| iv. FASCIA & GUTTERS | WHITE |
| v. TRIMS | WHITE |
| vi. DOOR / WINDOWS | WHITE |



2 GROUND FLOOR PLAN
1 : 100



1 FOUNDATION PLAN
1 : 100



3 SITE PLAN
1 : 250

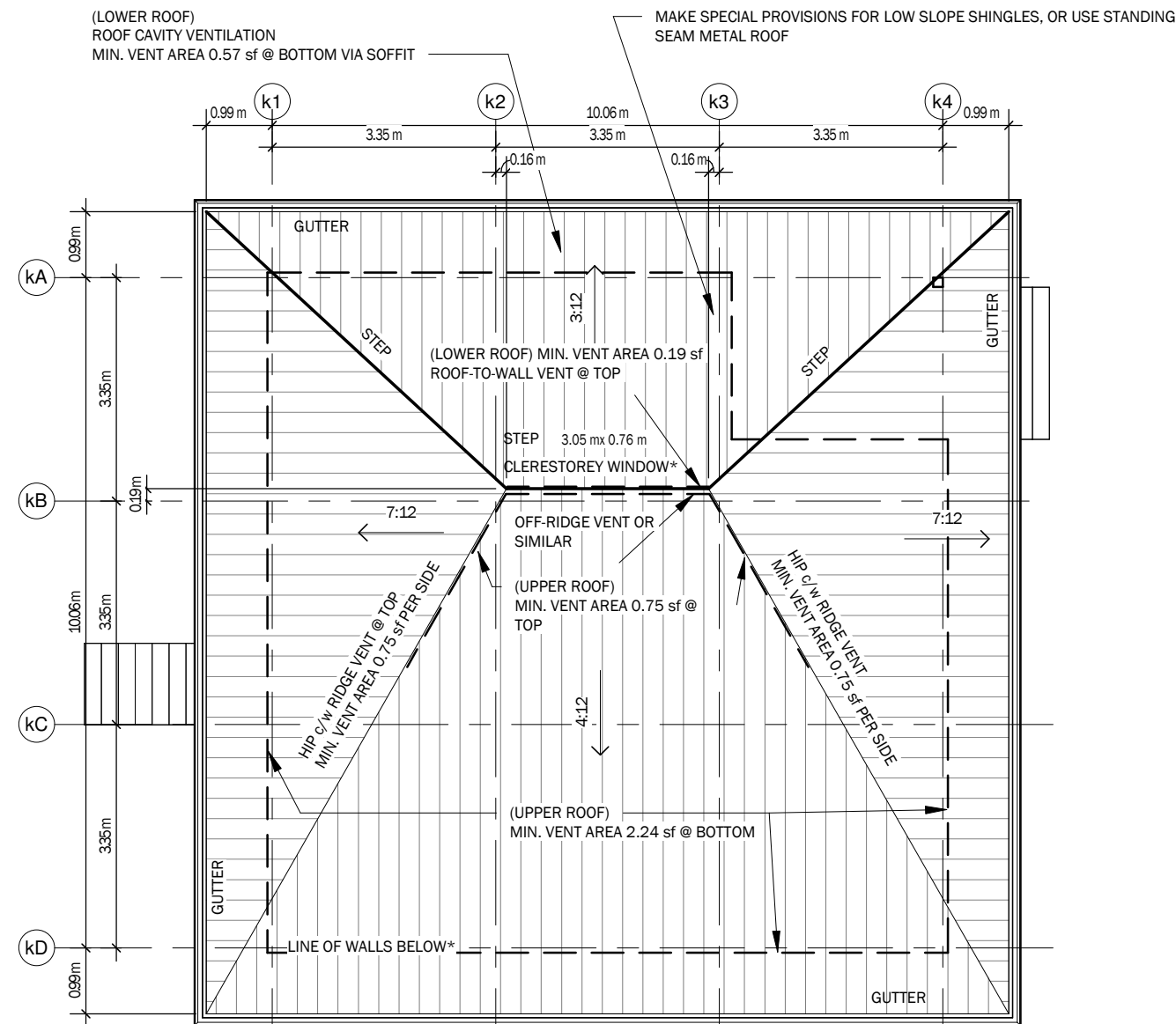
DESCRIPTION

"KINGFISHER CABIN" IS A BACKYARD COTTAGE DESIGN SUBMISSION FOR THE SQUAMISH, BC, ADU DESIGN COMPETITION. THIS NEW ADU IS TO BE BUILT ON AN EXISTING SINGLE FAMILY LOT, ACCESSORY TO A PRIMARY DWELLING. THIS DESIGN ACHIEVES AN ENERGY STEP CODE 5 BY ORIENTATING THE ROOF INDEPENDENT OF THE PLAN ORIENTATION.

DUE TO ITS SQUARE PLAN, THE ROOF CAN BE ROTATED AT 90 DEGREE INTERVALS TO ENSURE THE CLERESTORY WINDOWS IN THE ROOF FACE SOUTH – THIS IS A NECESSITY TO MEET THE ENERGY STEP CODE 5 REQUIREMENTS.

ENSURE TO FRAME THE SPACE OVER THE KITCHEN-DINING-LIVING AREA IN ROOF RAFTERS TO CREATE A VAULTED CEILING SPACE.

NOTE: THESE 3 SHEETS ARE MEANT TO BE READ IN CONJUNCTION WITH THE PROVIDED DESIGN NARRATIVE PACKAGE.



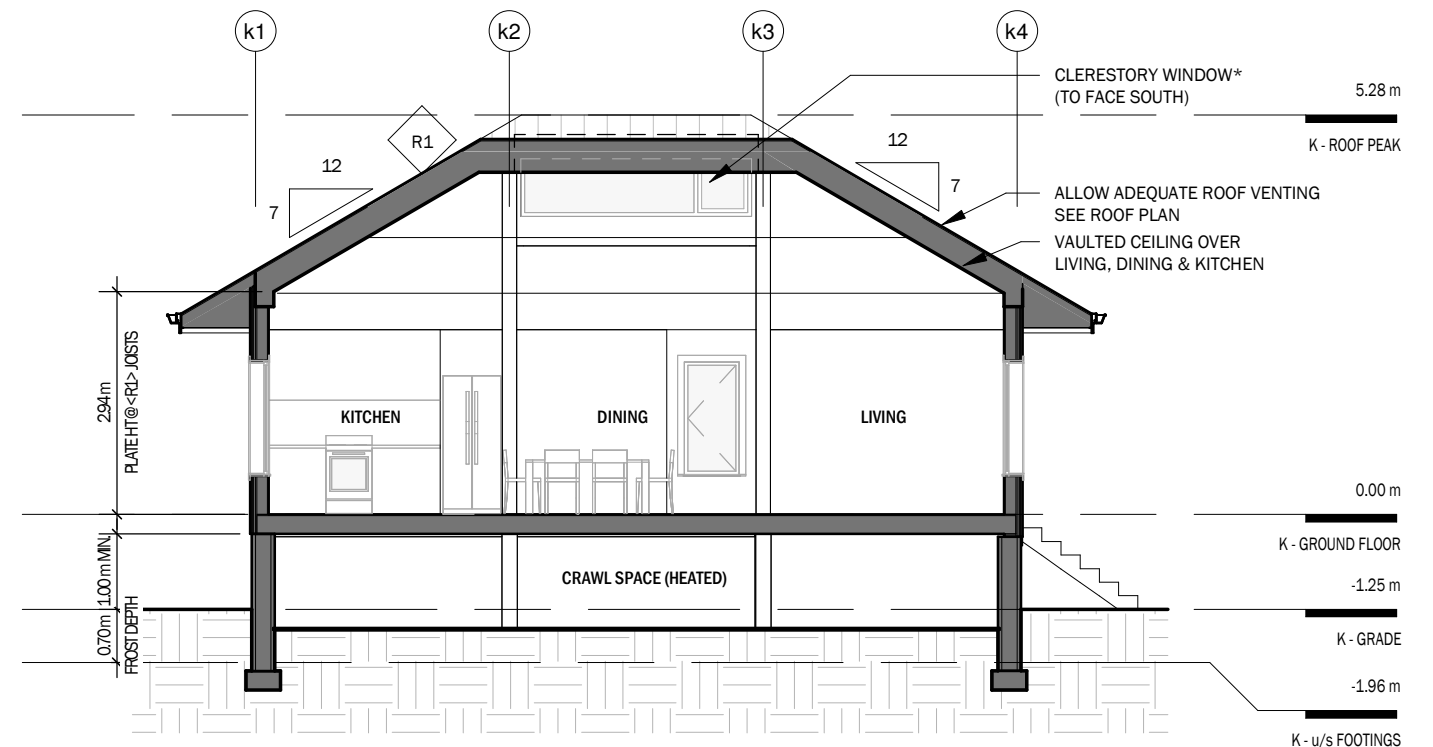
ROOF CAVITY VENTILATION CALCULATIONS:

| PORTION | TOTAL AREA | MIN. OVERALL VENT AREA | MIN @ TOP (25%) |
|-------------|---------------|------------------------|-----------------|
| LOWER ROOF: | 228.0 sf /300 | 0.76 sf | 0.19 sf |
| UPPER ROOF: | 894.6 sf /300 | 2.98 sf | 0.75 sf |

*NOTE:
ORIENTATION OF THE ROOF TO ROTATE TO FACE THE CLERESTORY WINDOWS SOUTH TO MEET ENERGY REQUIREMENTS.

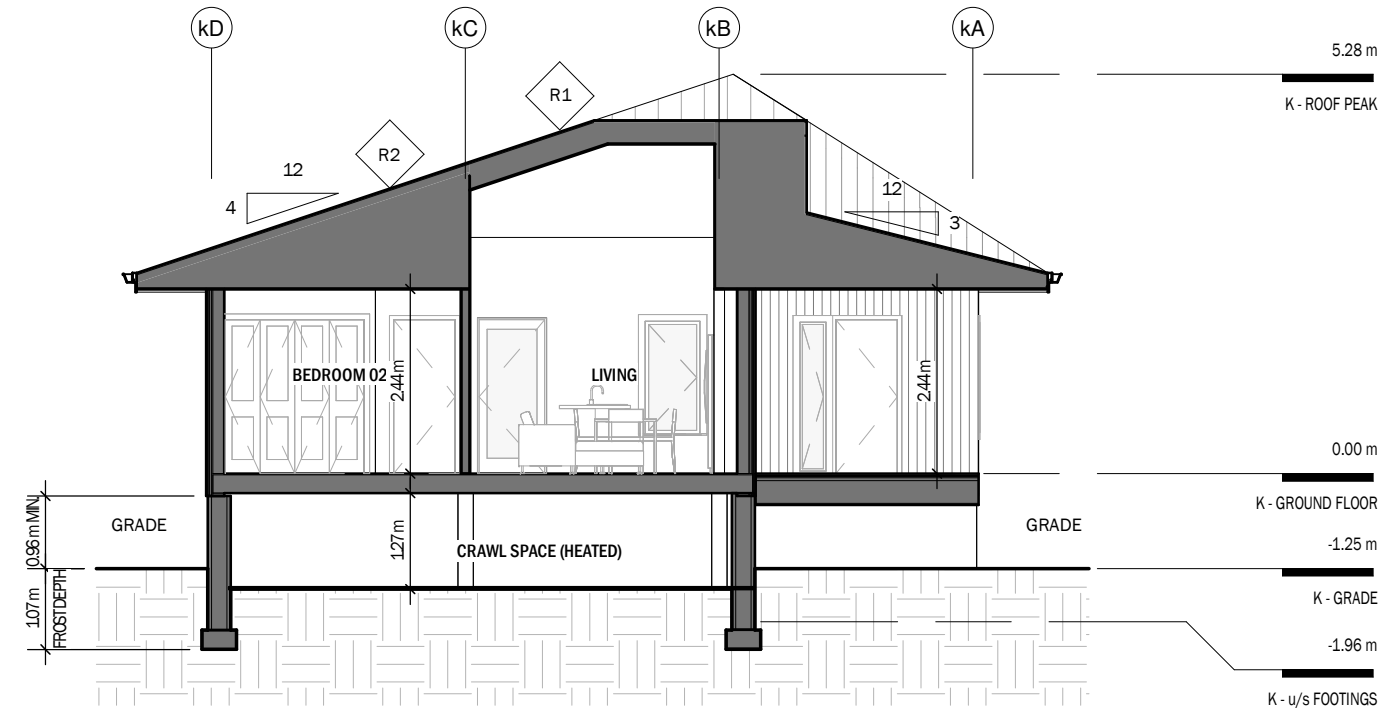
3 ROOF PLAN

1 : 100



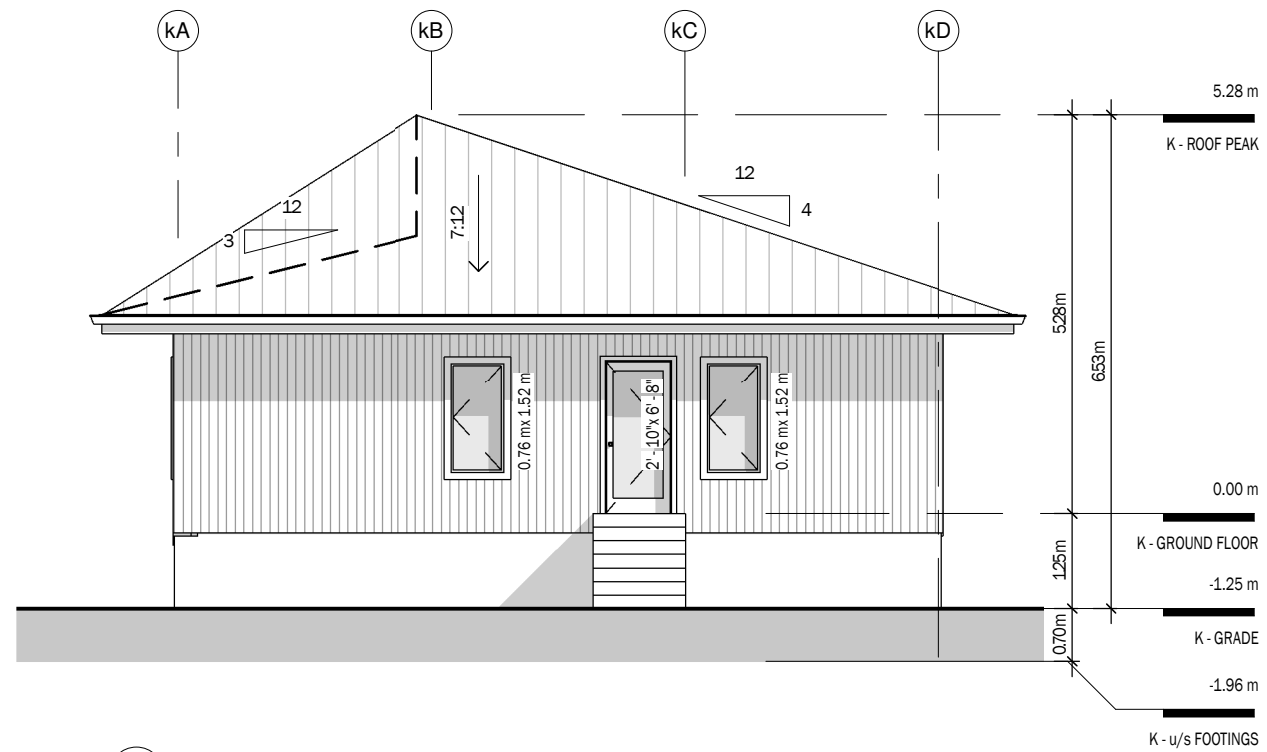
1 SECTION 1

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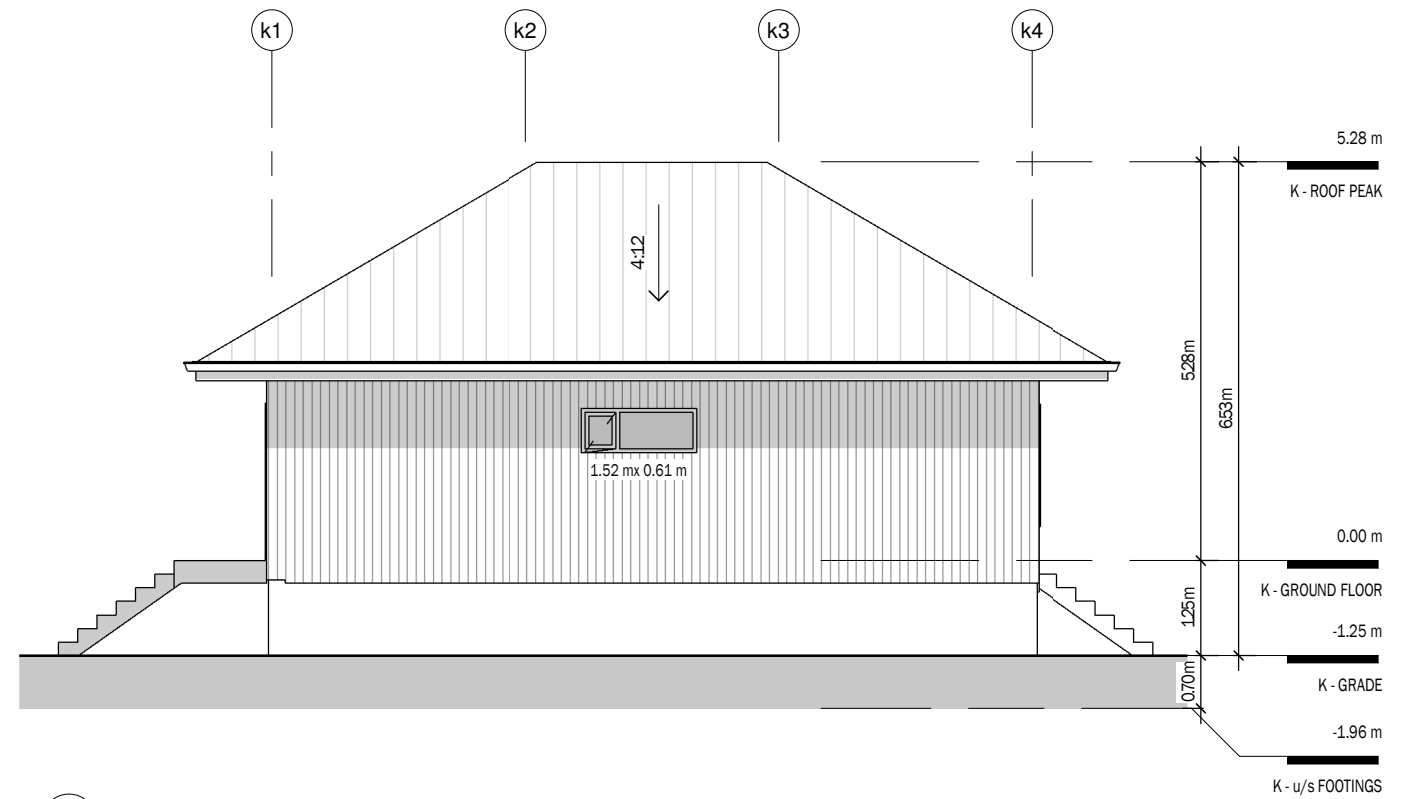


2 SECTION 2

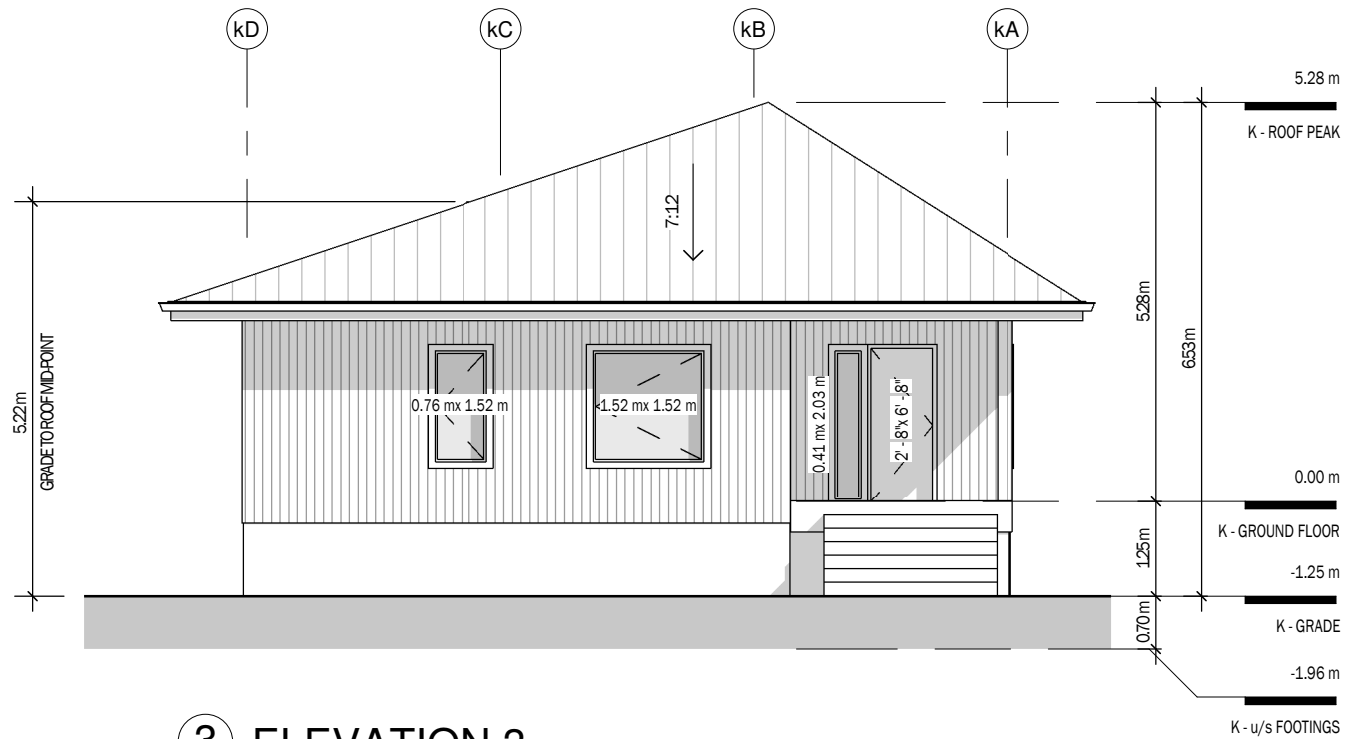
1 : 100



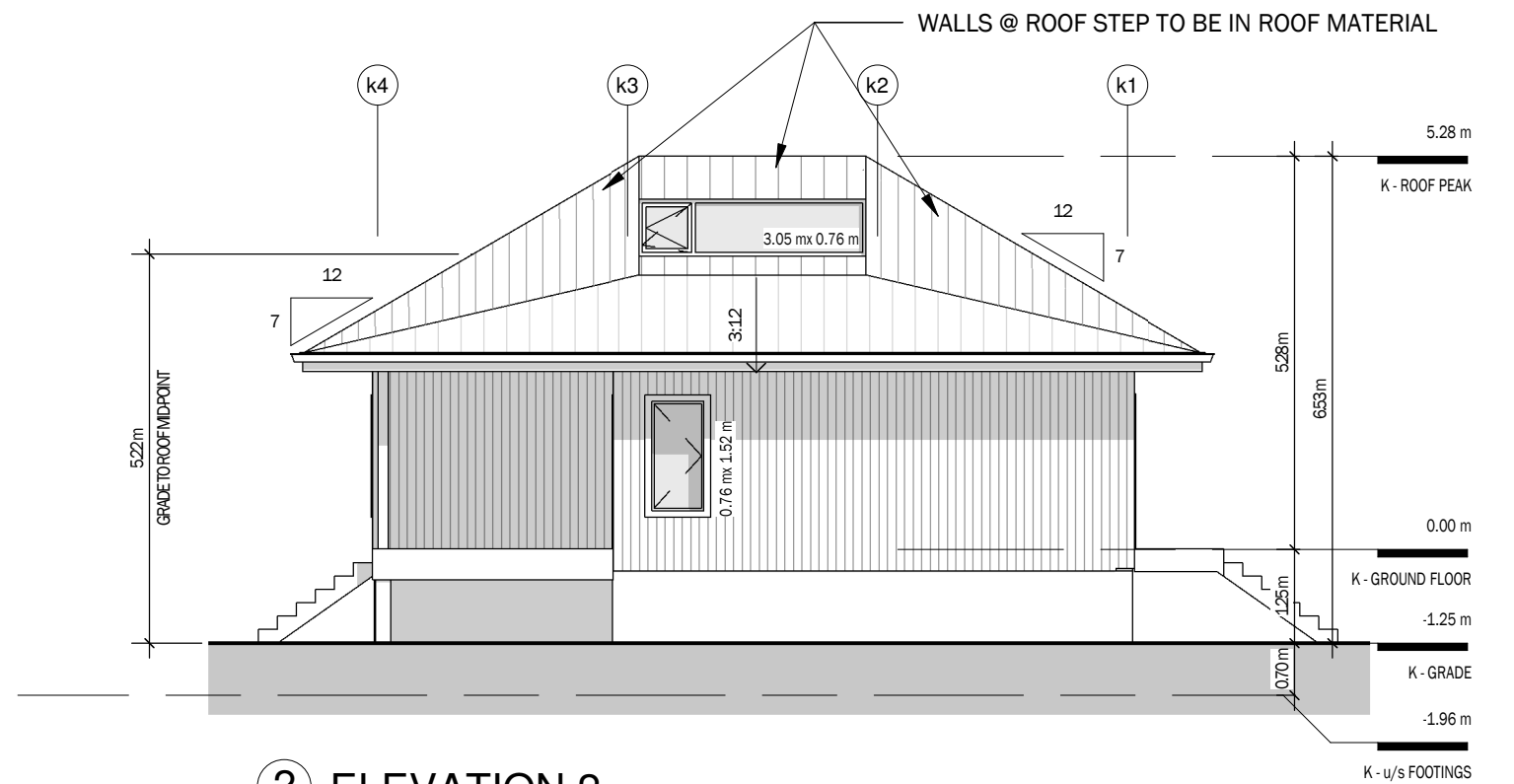
1 ELEVATION 1
1 : 100



4 ELEVATION 4
1 : 100



3 ELEVATION 3
1 : 100



2 ELEVATION 2
1 : 100