



Massachusetts ADU Design Challenge | Project Cover Sheet

1. Design Team

Lead Applicant: Kevin Marblestone

Additional Applicants: Paul Gruber, Sandra Jahnes, Will Ruhl, Josh Pisors

Design Firm Name (If Applicable): Ruhl | Jahnes Architects

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2. Design Information

EntryID (randomly assigned by HLC for tracking purposes): 3502

Design Name: ADU for All

ADU Gross Floor Area (square footage): 500

Unit Layout: One-Bedroom

ADU Height (feet): 15.25

Window/Wall Ratio: 16.2

Foundation Type: Frost Proof Slab Foundation

3. Project Narrative

This 500 square-foot, fully wheelchair-accessible ADU is designed to support aging in place while preserving dignity, independence, and connection to family. Conceived as a compact one-bedroom home, the plan provides generous circulation and intuitive movement throughout. Intended for multigenerational households with limited available backyard space, the unit allows aging family members to live safely and comfortably near loved ones while maintaining privacy and autonomy. Additionally, the ADU's simple structural design and exterior envelope assembly are low-cost and highly replicable. The project demonstrates how thoughtful planning can transform a small footprint into a functional, inclusive home. Accessible design is good design for all.

Please note that the information contained in this file was submitted to the Executive Office of Housing and Livable Communities (HLC) by ADU Design Challenge participants and has not been independently verified by HLC or the Commonwealth of Massachusetts. Please direct questions to the designers.

ADU FOR ALL

500 SQUARE FEET
1 BEDROOM
WHEELCHAIR ACCESSIBLE

This 500 square-foot, fully wheelchair-accessible ADU is designed to support aging in place while preserving dignity, independence, and connection to family. Conceived as a compact one-bedroom home, the plan provides generous circulation and intuitive movement throughout. Intended for multigenerational households with limited available backyard space, the unit allows aging family members to live safely and comfortably near loved ones while maintaining privacy and autonomy. Additionally, the ADU's simple structural design and thermal envelope assembly are low-cost and highly replicable. The project demonstrates how thoughtful planning can transform a small footprint into a functional, inclusive home. Accessible design is good design for all.



EXTERIOR VIEW: Looking from the backyard towards the ADU entry. The primary residence and the ADU share a common patio.



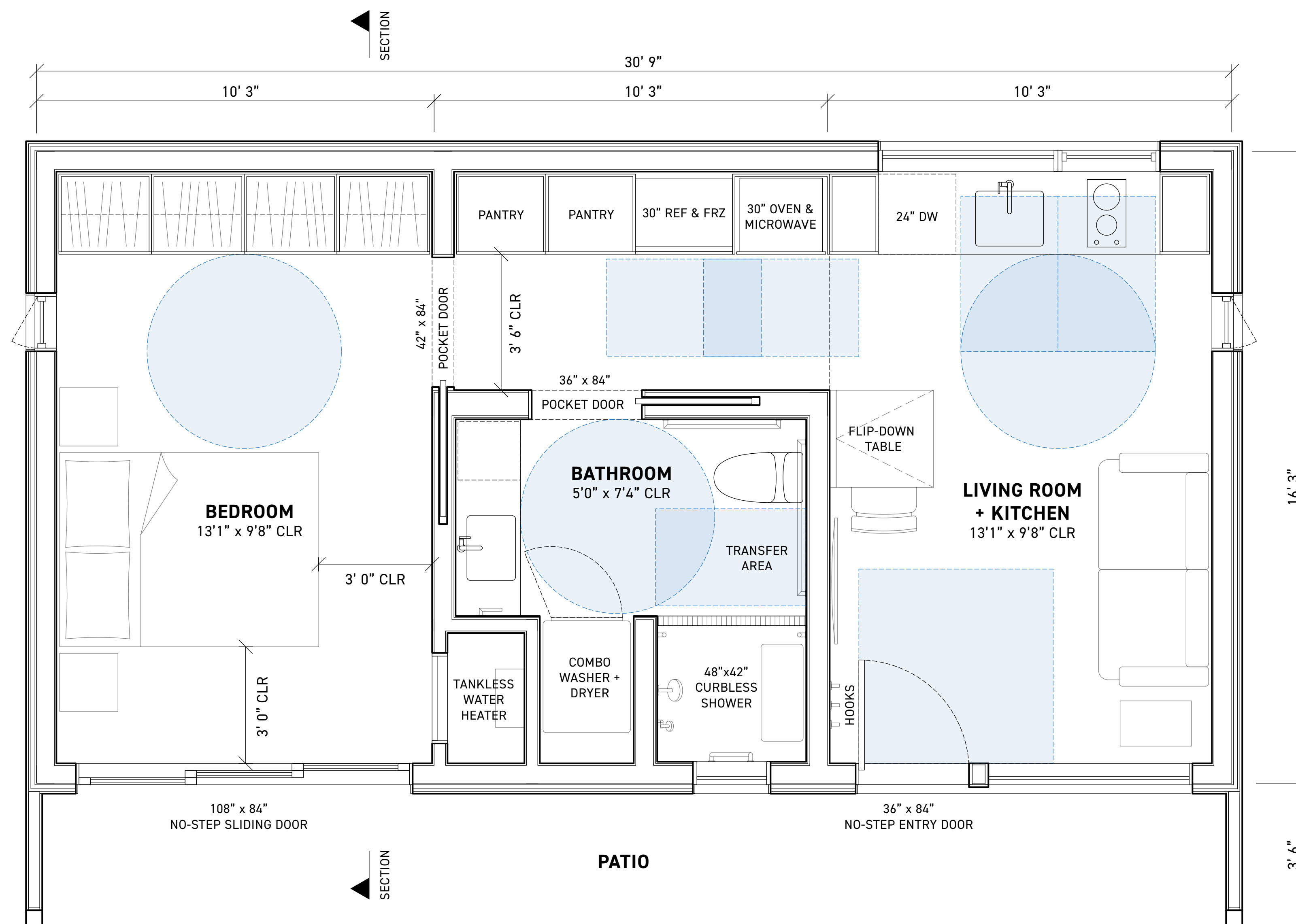
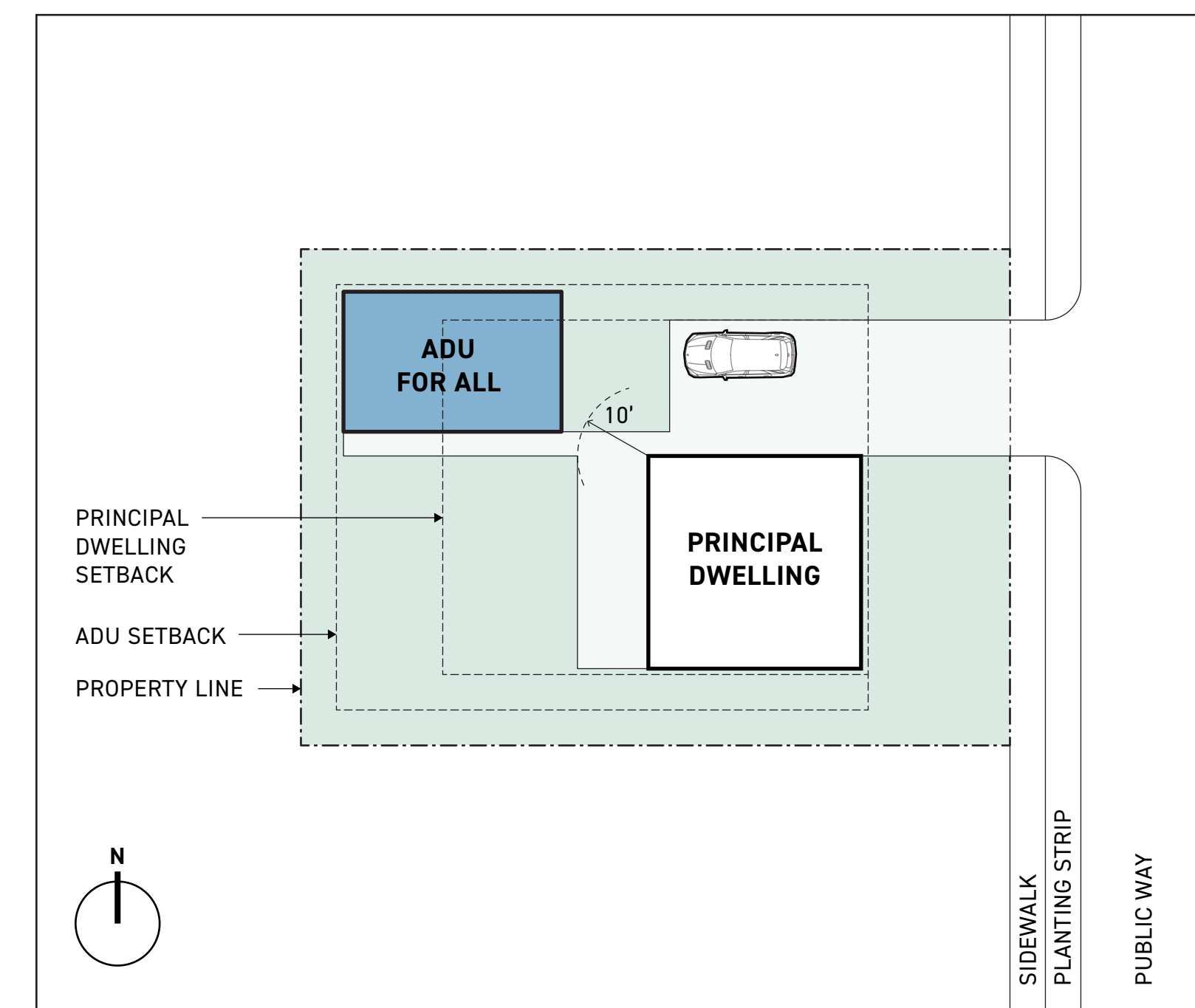
INTERIOR VIEW: Looking from the kitchen towards the bedroom. The continuity of spaces in the design simplifies circulation and makes the ADU feel larger.

SITE PLAN

SCALE = 1" : 20'

When selecting the location for the ADU, proximity between the parking area, ADU entry and principal dwelling rear entry is important to consider. Reducing travel distance between these 3 locations, as shown in the site plan, is important for those with mobility challenges.

BELOW: ADU for All shown on a 7,000 sq ft parcel of land.



FLOOR PLAN

SCALE = 1/2" : 12"

BEDROOM FEATURES

The bedroom offers full maneuvering clearances with a 5' radius for bed transfers and dressing space. The closet wall can include or omit doors and accommodate pull-down rods, allowing the storage system to adapt easily to changing needs over time.

BATHROOM FEATURES

The bathroom prioritizes safety, especially during wheelchair transfers—a common source of injuries. A dedicated transfer zone serves both the toilet and curbless shower from one position. Space for reinforced walls allow for grab bars installation. A wide roll-under vanity and combo washer/dryer unit support accessibility and independence.

KITCHEN FEATURES

The kitchen provides full accessibility with a sink and cooktop open to below, a 60" turning radius at the working counter, and 32"x48" pull-up clearances at each appliance. A flip-down prep surface, wall-mounted oven and microwave, plus pull-down and pull-out storage enhance usability and adaptability.

ADU FOR ALL

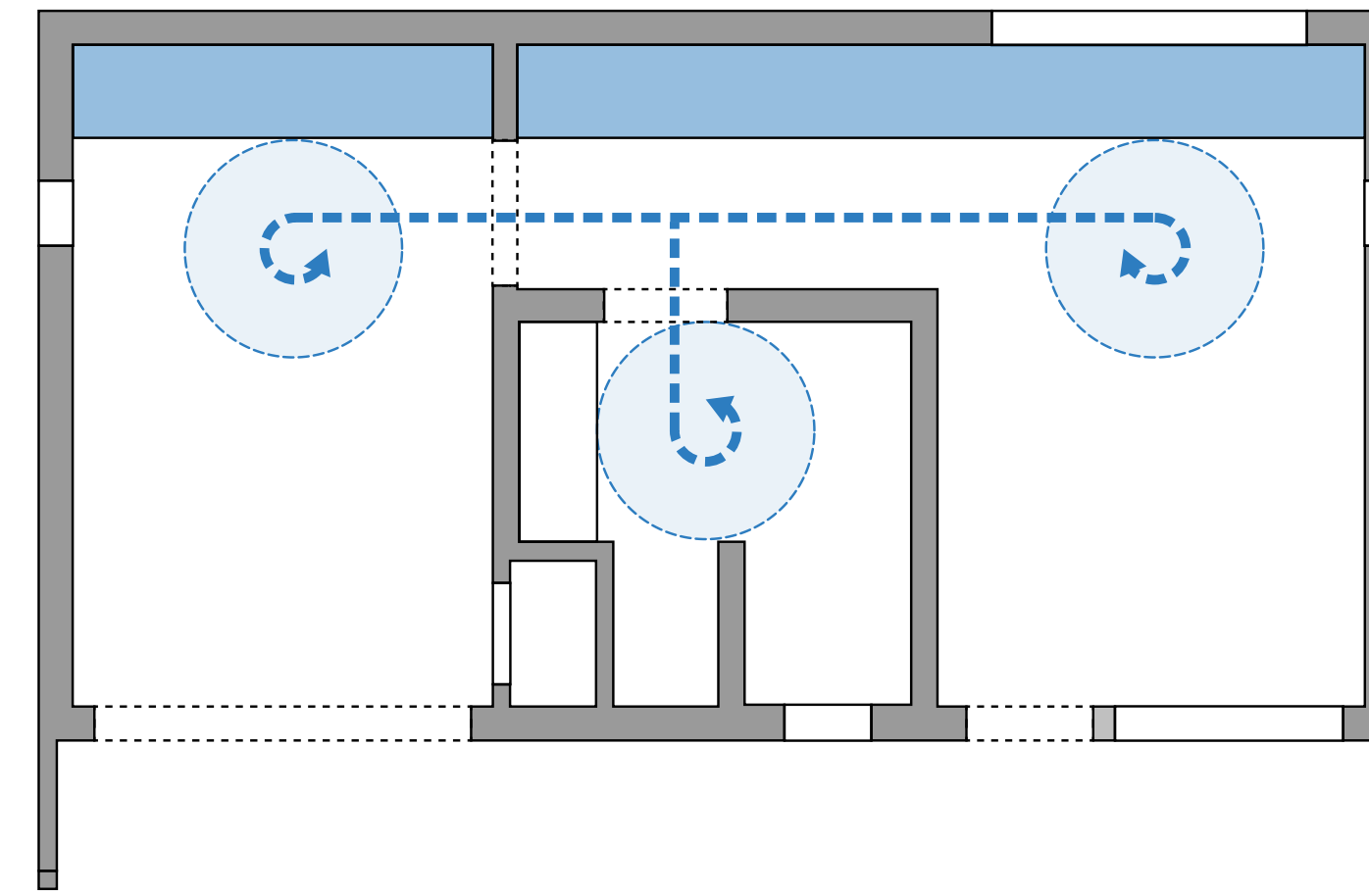
MOBILITY + FUNCTION

Designing a fully-accessible home requires prioritizing safety without compromise. The **ADU for All** floorplan maintains clear and intuitive paths for movement while minimizing dead ends. Both exterior doors have no-step thresholds, protected from rain and snow by a large roof overhang. Both interior doors pocket away to reduce travel obstructions.

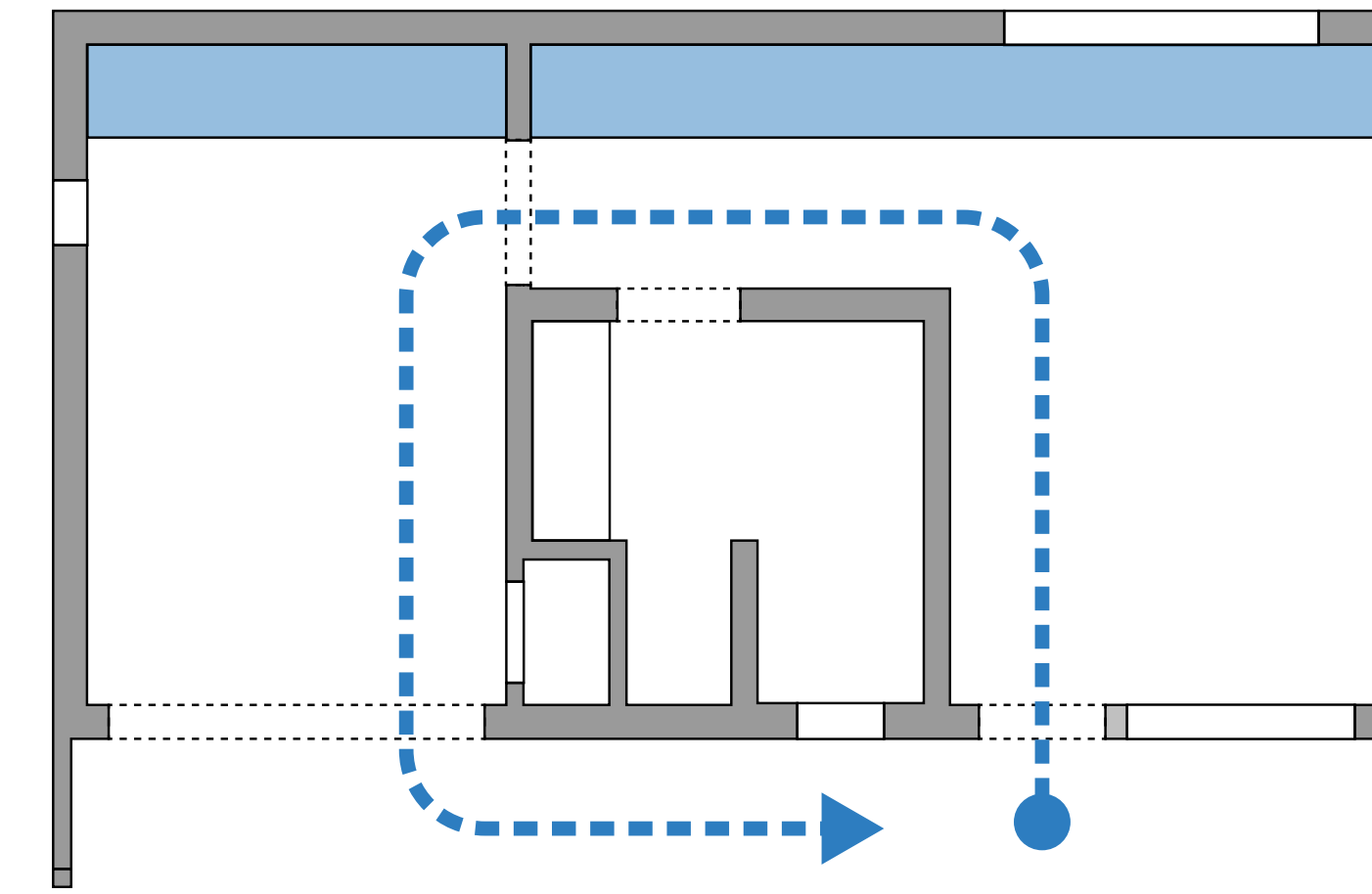
RIGHT: The floor plan is designed to minimize circulation dead ends. The user can "loop" around the entire floor plan, and each of the 3 main living spaces provides comfortable turning space for mobility and functionality.

BELOW: A wall of cabinetry runs through the entire length of the ADU, creating a double loaded corridor with functional storage on one side, and living spaces on the other.

TURNING SPACE



CIRCULATION LOOP



CONSIDER INSTALLING SWING DOWN PULL-DOWN HANGING RODS.

DUCTLESS MINI-SPLIT UNITS PROVIDE EFFICIENT COOLING AND HEATING.

COUNTER DEPTH REFRIGERATORS REDUCE REACH NEEDED TO ACCESS DEEP ITEMS. THE FRIDGE CAN BE PANELLED AS SHOWN, OR EXPOSED.

INSTALL OPEN DISPLAY SHELVING IN UPPER AREAS NOT REACHABLE BY WHEELCHAIR USERS.

PROVIDE UPPER CABINET STORAGE ABOVE ROLL-UNDER SINK. CONSIDER INSTALLING PULL DOWN RACKS WITHIN THESE CABINETS FOR EASIER ACCESS.

CLOSED STORAGE NEAR WALL CORNERS CAN BE DIFFICULT FOR WHEELCHAIR USERS TO ACCESS. CONSIDER PULL-OUT STORAGE FOR THESE AREAS.



WALL OF OPEN CLOSET STORAGE WITH 5FT FRONT CLEARANCE PROVIDES AN EASY DRESSING AREA ALL USERS.

EXTRA WIDE POCKET DOOR OPENING BETWEEN BEDROOM AND LIVING SPACES

FOR LOW STORAGE, DRAWERS CAN BE MORE ACCESSIBLE THAN DOORS FOR MOBILITY DEVICE USERS AND THOSE THAT HAVE TROUBLE BENDING DOWN.

WALL MOUNTED, SIDE OPEN, OVEN + DRAWER MICROWAVE CAN BE EASIER TO USE FOR MOBILITY DEVICE USERS THAN CONVENTIONAL RANGES OR HIGH MICROWAVES.

DOUBLE DRAWER DISHWASHER

CLEAR OPEN SPACE BENEATH SINK AND COOKTOP FOR WHEELCHAIR ACCESS.

ADU FOR ALL

BUILDING SECTION

SCALE = 3/4" : 12"

A ACCESSIBLE EXTERIOR DOORS

WATER MANAGEMENT IS CRITICAL FOR ACCESSIBLE DOORS WITH FLUSH SILLS. THIS ADU DESIGN PROVIDES **FOUR LINES OF DEFENSE** AGAINST WATER INTRUSION:

1. BOTH EXTERIOR DOORS ARE PROTECTED BY A LARGE 42" OVERHANG.
2. GUTTER AND DOWNSPOUTS AT EAVE OF ROOF OVERHANG.
3. FRONT PATIO IS FINISHED WITH PERVIOUS PAVERS SLOPED AWAY FROM DOORS.
4. LINEAR TRENCH DRAIN AT EACH DOOR THRESHOLD.

B ROOF ASSEMBLY

VENTED ASSEMBLY: INCLUDE EAVE VENTS, RAFTER BAFFLES AND ROOF RIDGE VENTS.

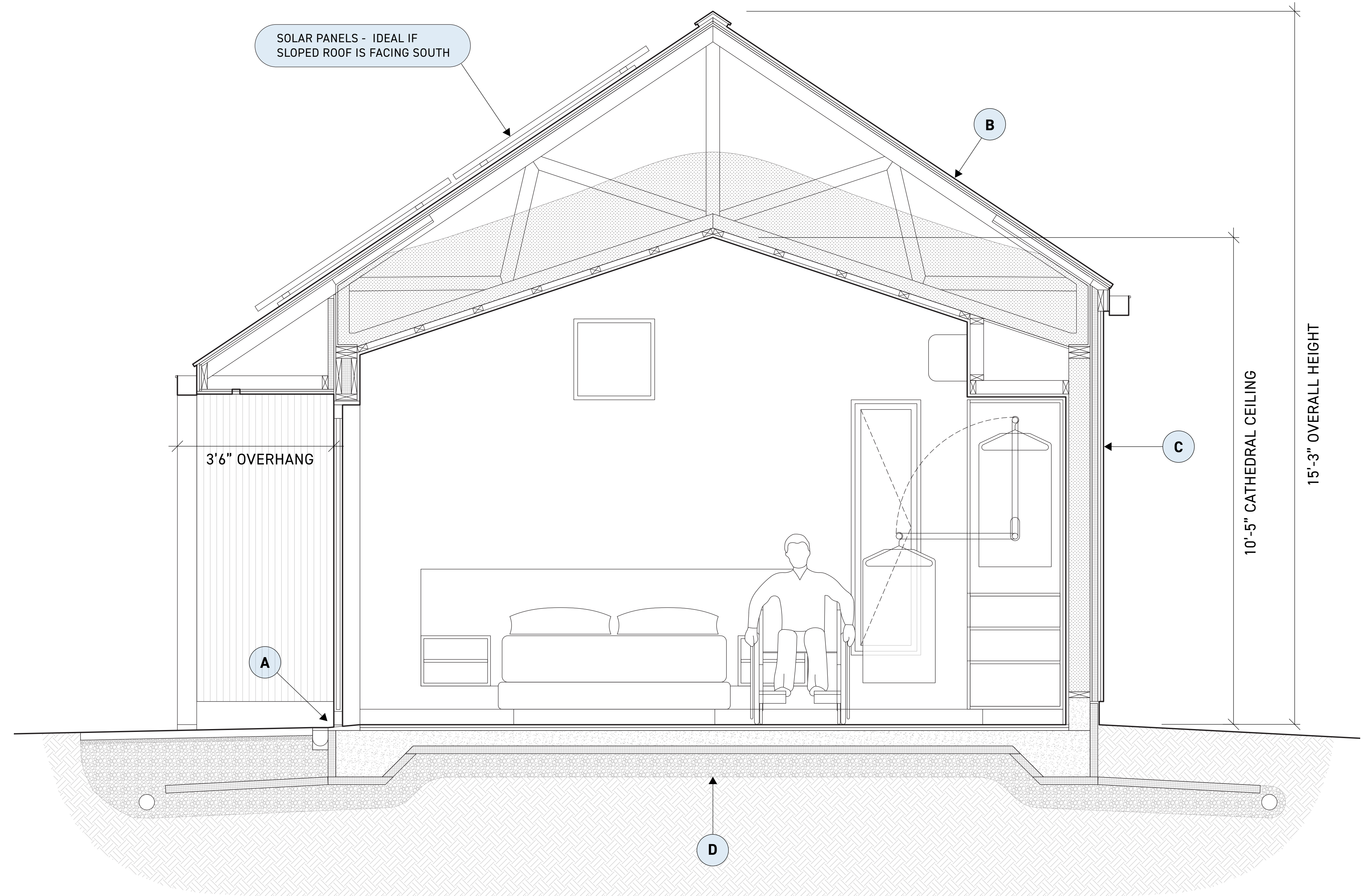
ROOFING (ASPHALT SHINGLES OR STANDING SEAM METAL)
 SELF-ADHERED ROOF UNDERLAYMENT
 PLYWOOD SHEATHING
 RAISED HEEL SCISSOR TRUSS (6:12 EXTERIOR PITCH, 16" HEEL, 42" RAFTER TAILS ON ONE SIDE)
 DENSE-PACKED CELLULOSE (R-49 MIN.)
 SMART VAPOR RETARDER
 2X3 CEILING STRAPPING
 5/8" PAINTED GYPSUM BOARD

C WALL ASSEMBLY

SIDING (PAINTED SHIPLAP COMPOSITE)
 3/4" RAINSCREEN CHANNEL (1X3 VERTICAL BATTENS)
 1.5" POLYISO RIGID INSULATION (approx. R-9.5)
 ALT: 1.5" MINERAL WOOL BOARDS (approx. R-6)
 SELF-ADHERED WEATHER BARRIER
 1/2" PLYWOOD SHEATHING
 2X6 WALL CAVITY W/DENSE-PACKED CELLULOSE (R-20)
 SMART VAPOR RETARDER
 1/2" PAINTED GYPSUM BOARD

D FLOOR + FOUNDATION ASSEMBLY

3/4" FLOORING
 3/4" PLYWOOD SUBFLOORING
 SHALLOW FROST PROTECTED FOUNDATION
 8" TALL MIN. CONCRETE CURB ALONG PERIMETER (EXCEPT AT DOORS)
 FULLY TAPED VAPOR BARRIER
 2" XPS RIGID INSULATION (R-10 MIN.) EXTENDED BEYOND FOUNDATION
 6" COMPACTED CRUSHED STONE
 4" PERFORATED DRAIN TILE ALONG PERIMETER
 FILTER FABRIC

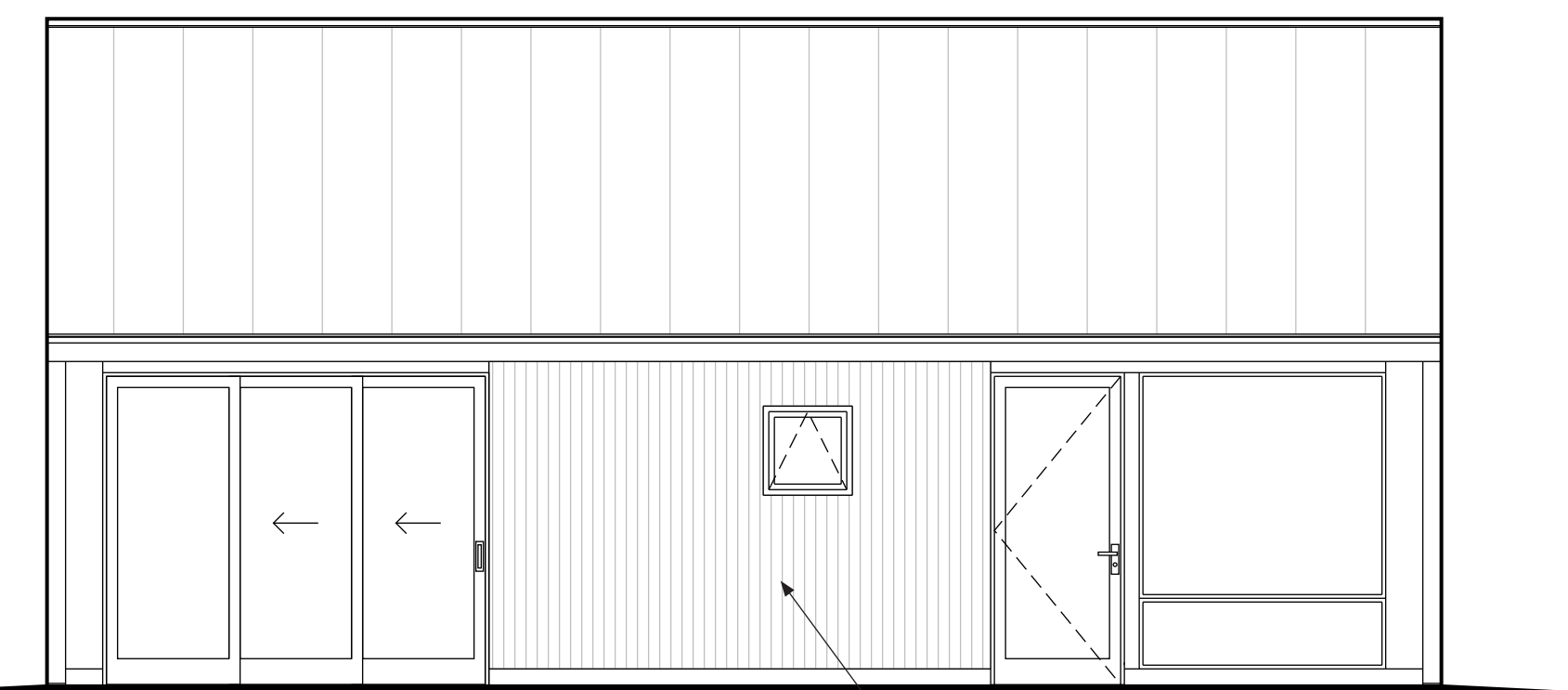


EXTERIOR ELEVATIONS

SCALE = 1/4" : 12"

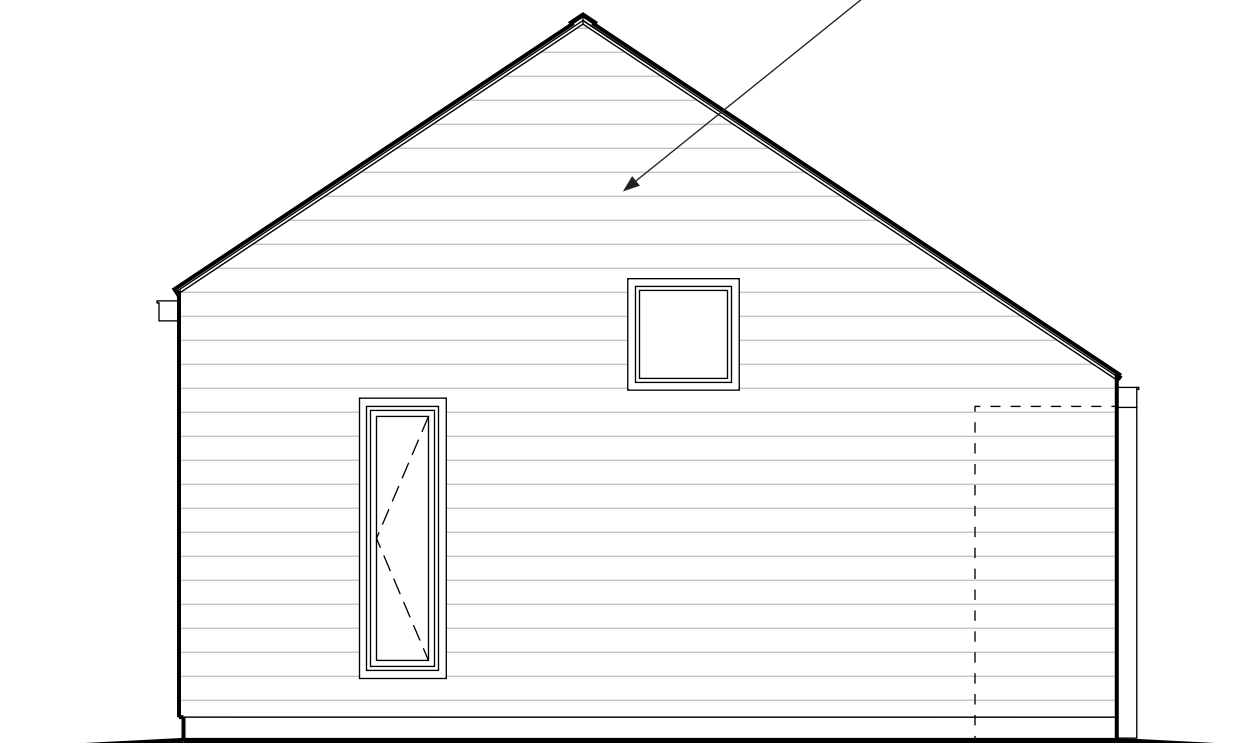
Large glass doors and windows are placed on the entry facade to maximize views towards the shared backyard and patio. The elevations facing adjacent properties have smaller, intentionally placed windows for cross ventilation and daylight.

TOTAL WINDOW/WALL RATIO = 16.2%



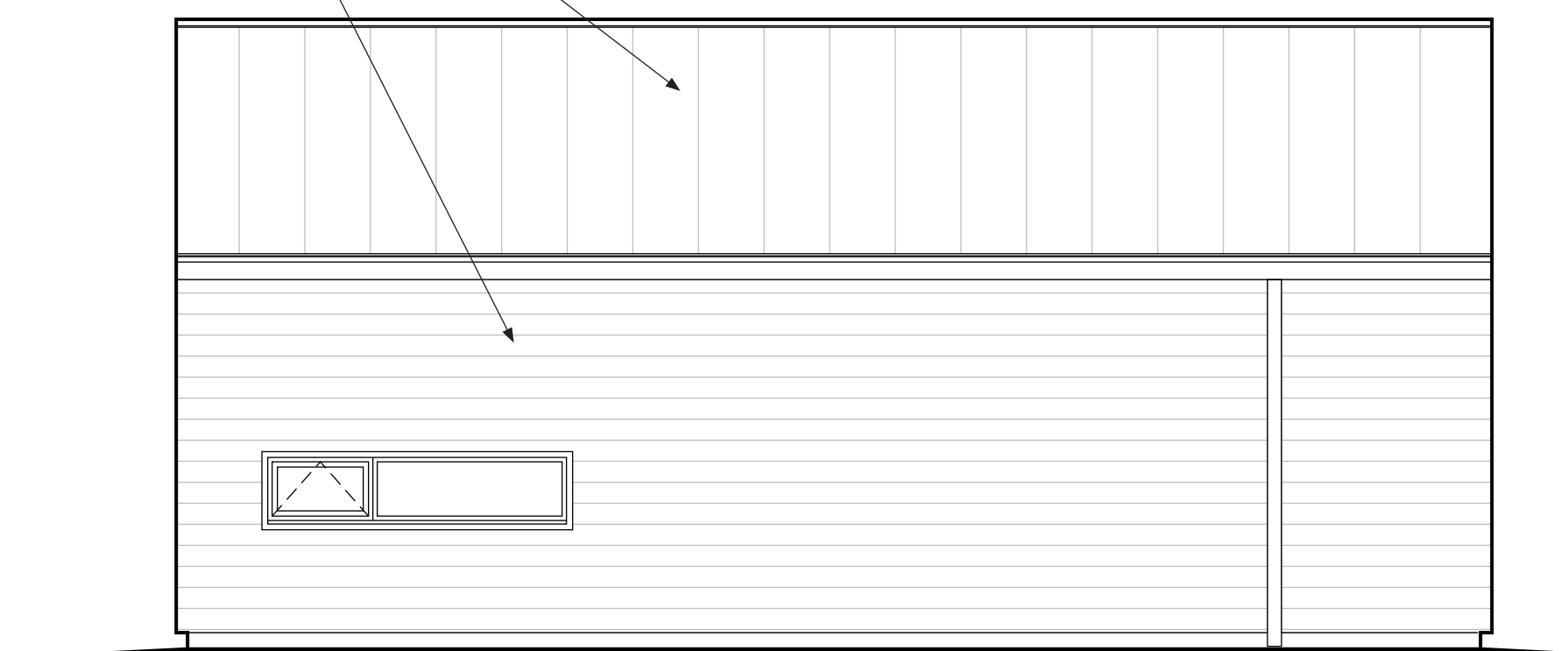
ELEVATION A : W/W RATIO = 50.2%

VERTICAL STAINED WOOD SHIPLAP
 OR PAINTED COMPOSITE SHIPLAP

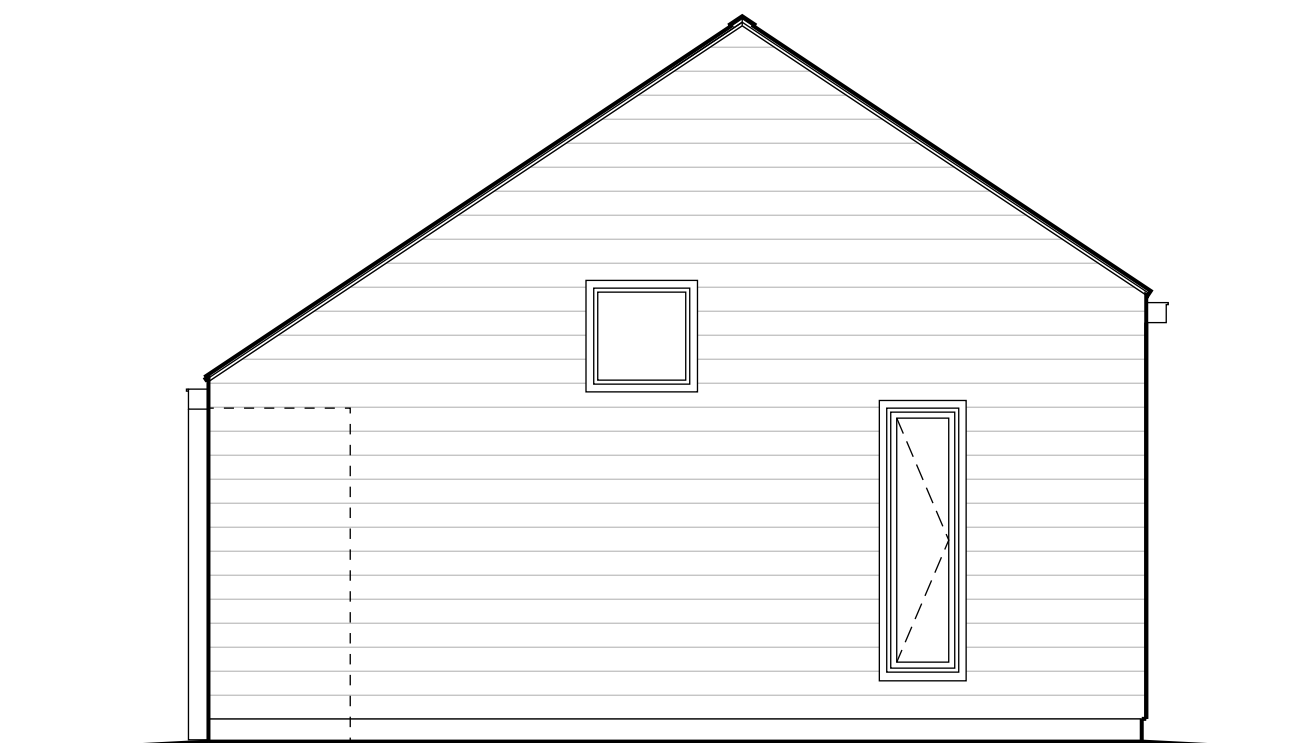


ELEVATION B : W/W RATIO = 5.3%

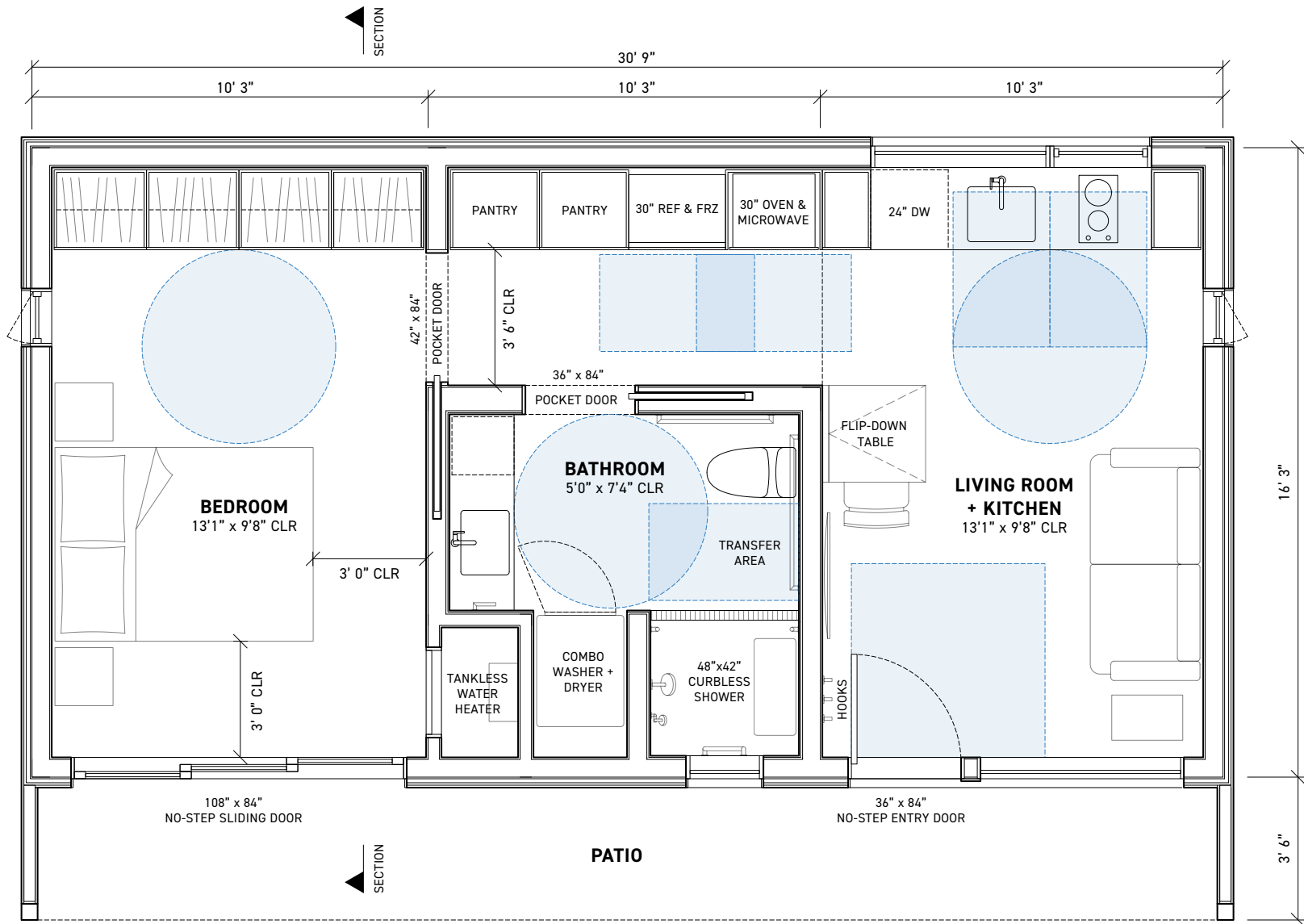
STANDING SEAM METAL ROOF
 OR ASPHALT SHINGLES
 HORIZONTAL PAINTED
 COMPOSITE SHIPLAP



ELEVATION C : W/W RATIO = 3.8%



ELEVATION D : W/W RATIO = 5.3%



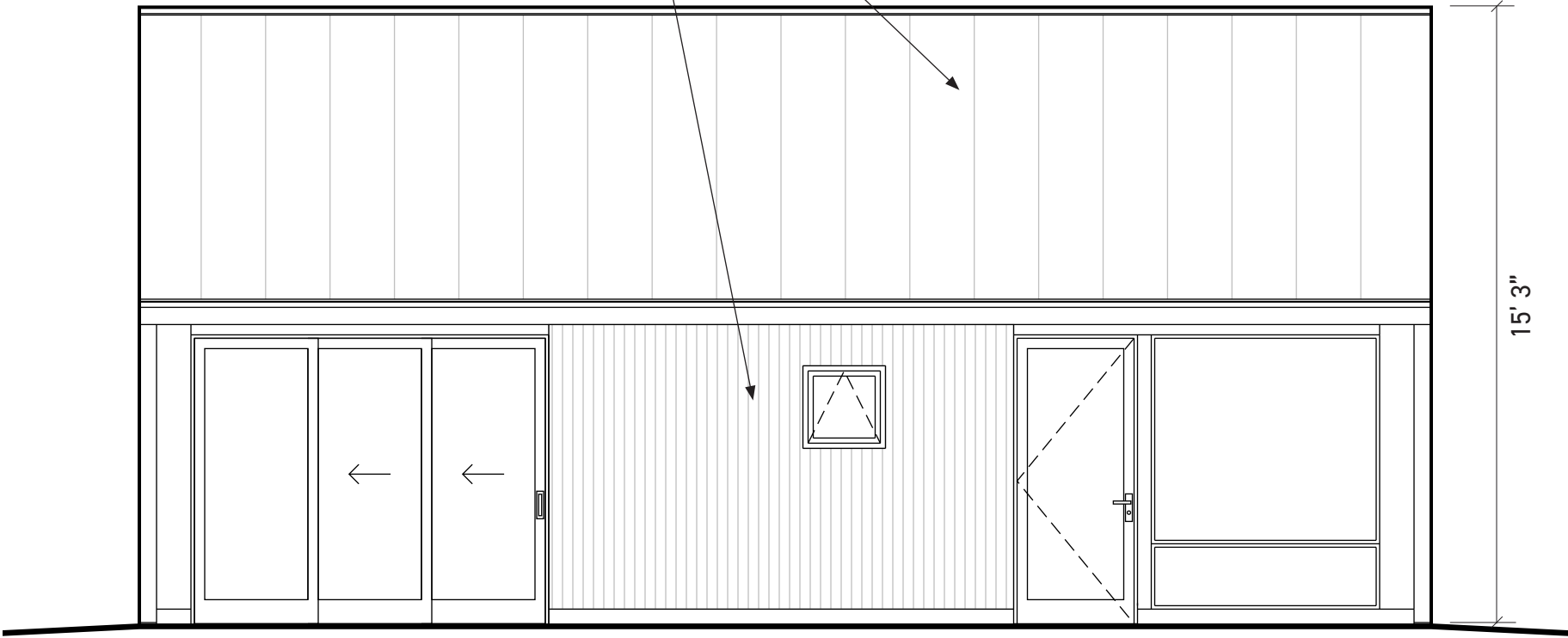
FLOOR PLAN
 SCALE = 1/4" : 12"
 GFA = 500 SF

Description: Floor plan showing the Living Room with open Kitchen, wheelchair accessible Bathroom with Laundry, and the Bedroom with closet storage.

ADU
FOR ALL

STANDING SEAM METAL ROOF
OR ASPHALT SHINGLES

VERTICAL STAINED WOOD SHIPLAP
OR PAINTED COMPOSITE SHIPLAP

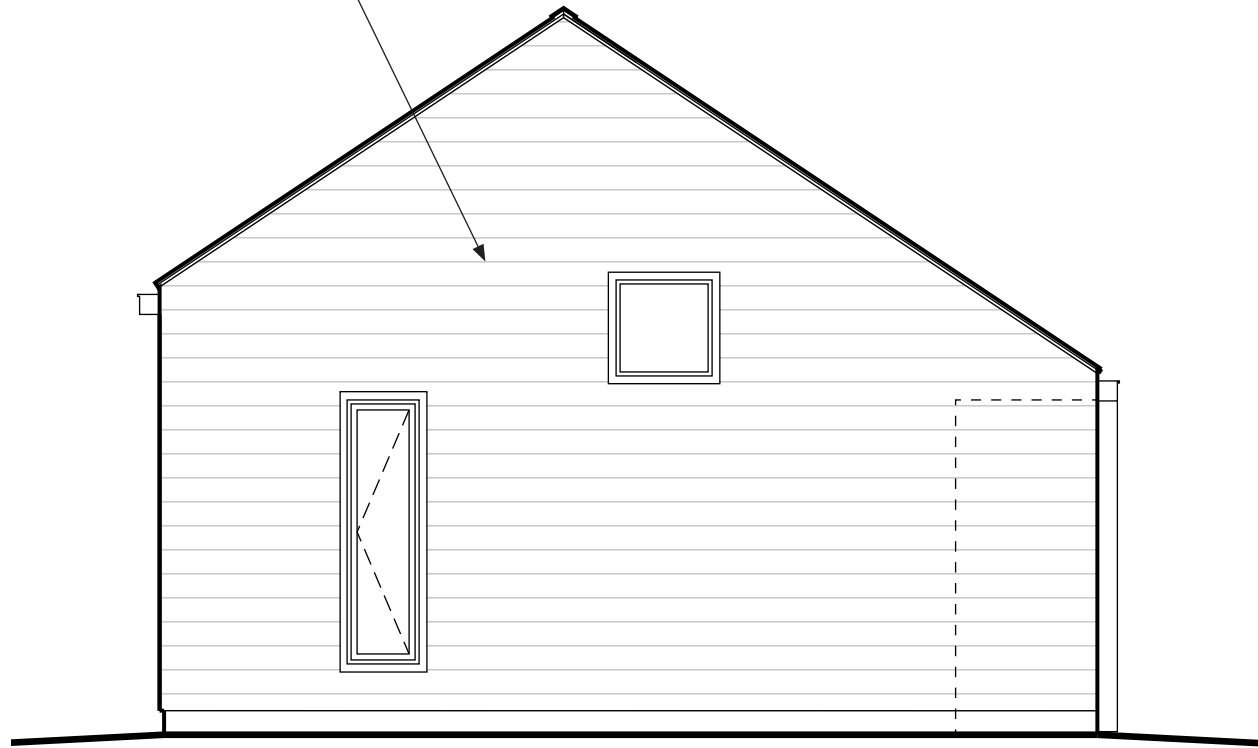


ELEVATION A
SCALE = 1/4" : 12"
W/W RATIO = 50.2%

Description: Exterior elevation drawing showing the main facade of the ADU. Glass doors open up to a patio and yard shared with the primary dwelling.

ADU
FOR ALL

HORIZONTAL PAINTED
COMPOSITE SHIPLAP



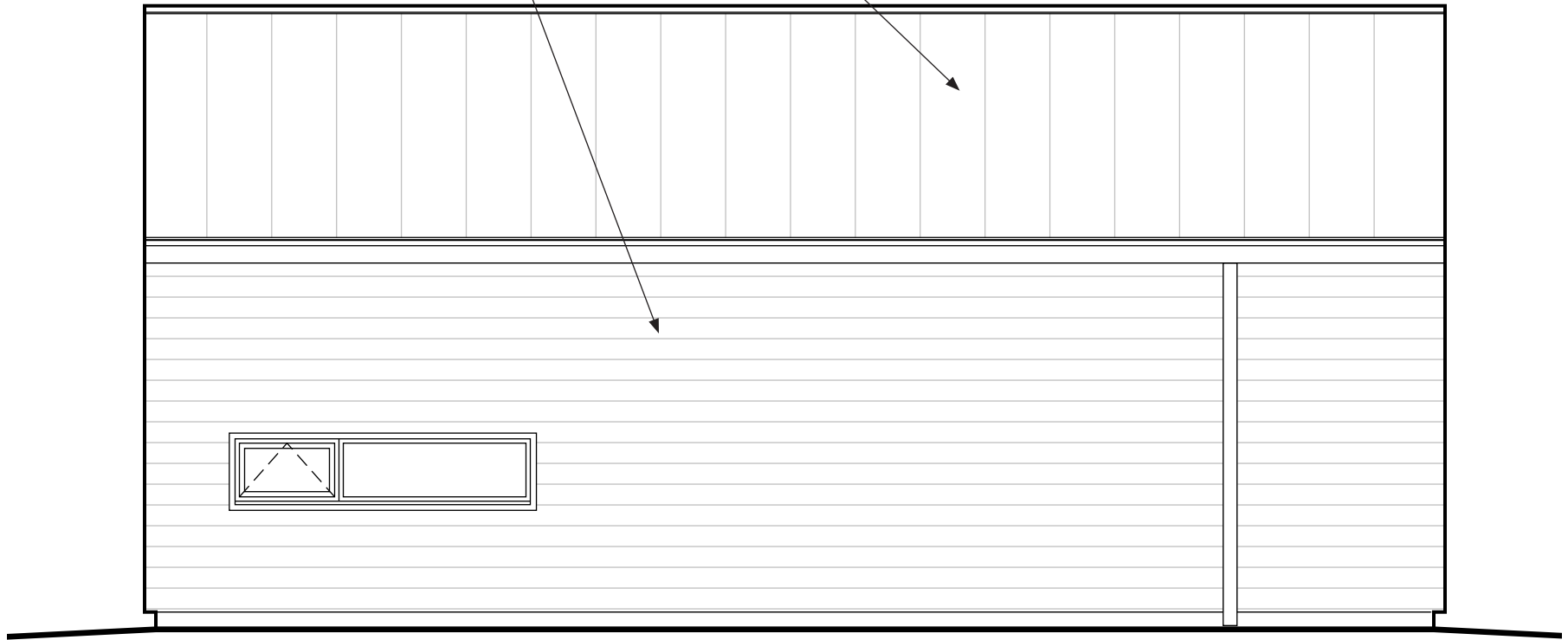
ELEVATION B
SCALE = 1/4" : 12"
W/W RATIO = 5.3%

Description: Exterior elevation drawing showing one of the 2 short ends of the ADU. A casement window provides natural ventilation, and a high window provides daylight.

ADU
FOR ALL

STANDING SEAM METAL ROOF
OR ASPHALT SHINGLES

HORIZONTAL PAINTED
COMPOSITE SHIPLAP

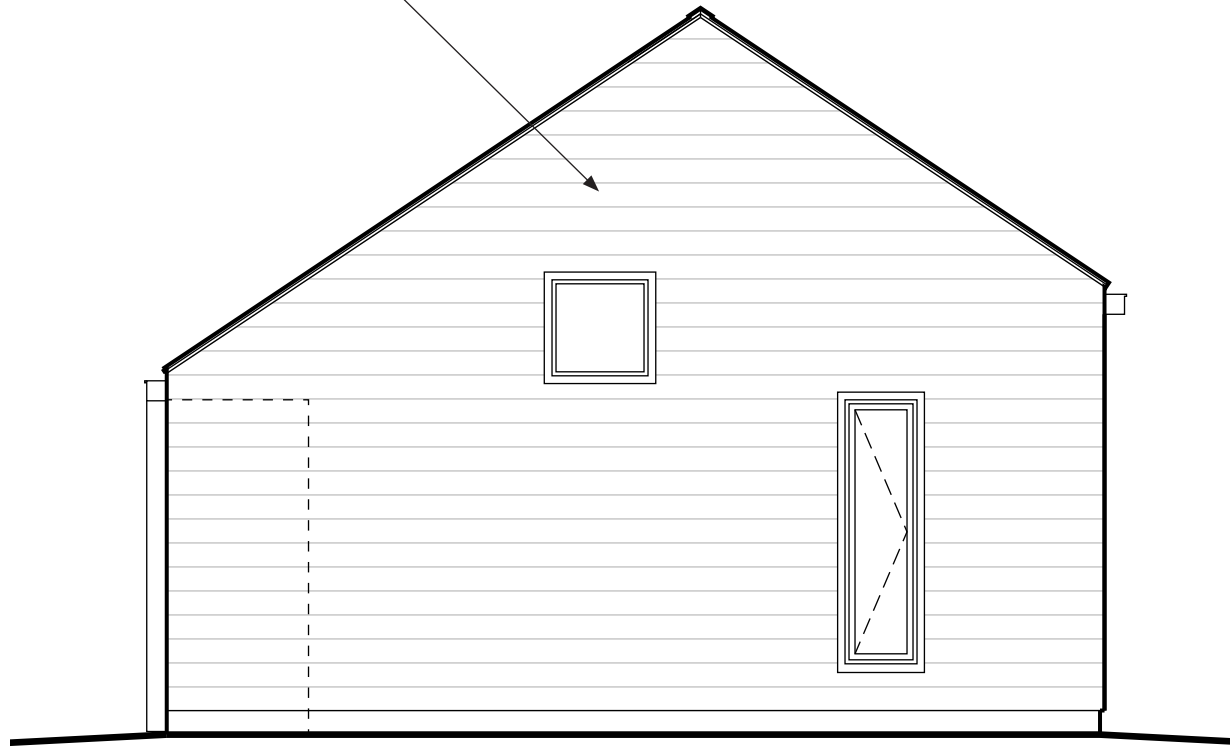


ELEVATION C
SCALE = 1/4" : 12"
W/W RATIO = 3.8%

Description: Exterior elevation drawing
showing the rear facade of the ADU.

ADU
FOR ALL

HORIZONTAL PAINTED
COMPOSITE SHIPLAP



ELEVATION D
SCALE = 1/4" : 12"
W/W RATIO = 5.3%

Description: Exterior elevation drawing showing one of the 2 short ends of the ADU. A casement window provides natural ventilation, and a high window provides daylight.

ADU
FOR ALL

DRAWING KEY

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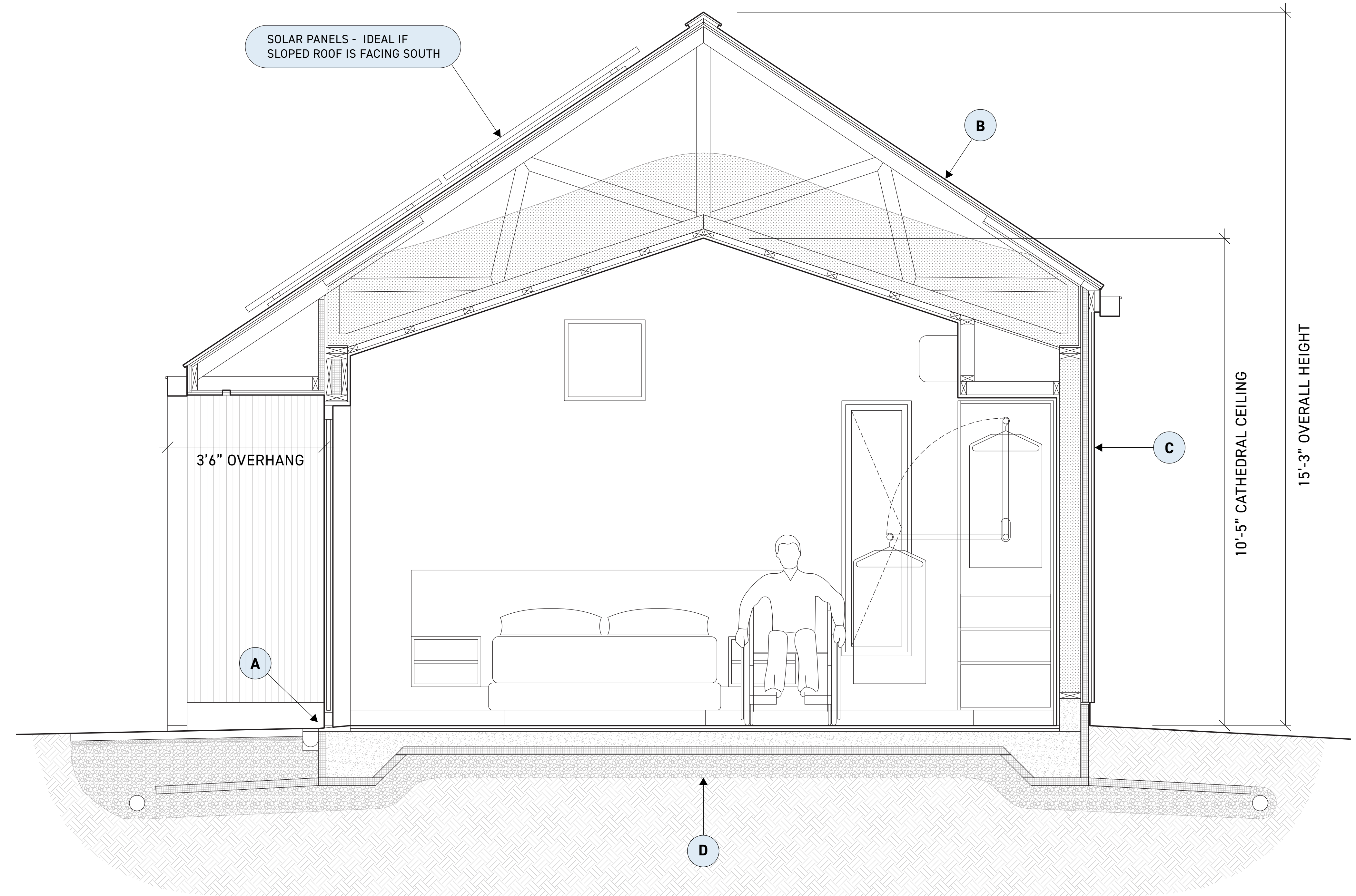
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FILTER FABRIC



WALL SECTION

SCALE = 3/4" : 12"

Description: Building section through the Bedroom showing the wall, roof and foundation assemblies, as well as the no-step patio door.



Description: Exterior view looking from the backyard towards the ADU entry. The primary dwelling and the ADU share a common patio.



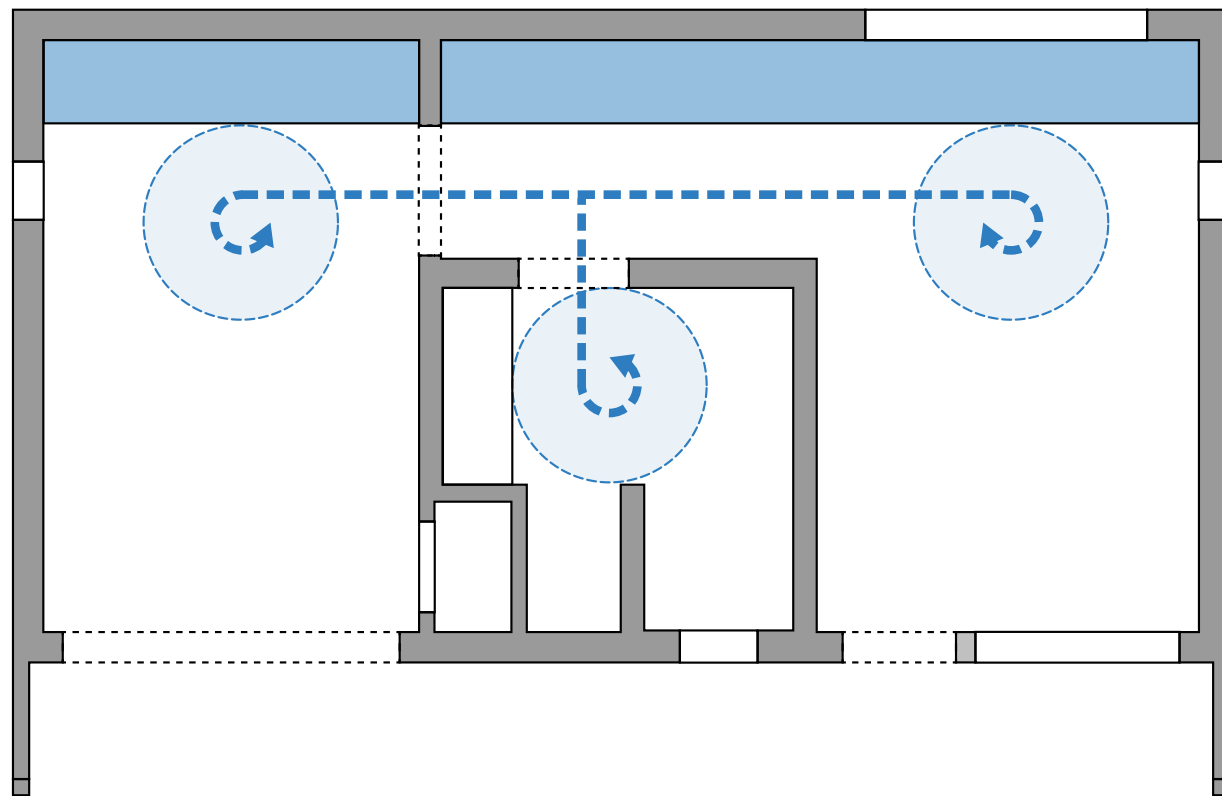
Description: Interior view looking from the kitchen towards the bedroom. The continuity of spaces in the design simplifies circulation and makes the ADU feel larger.



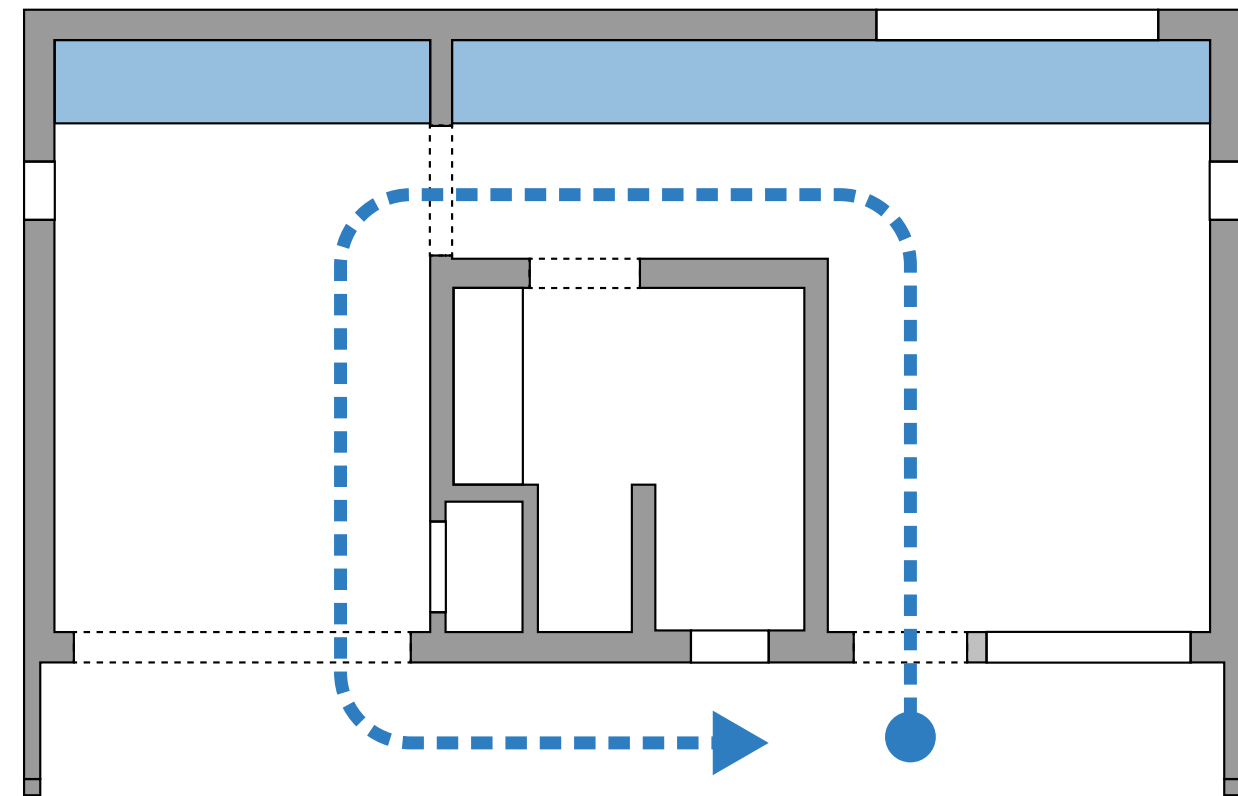
Description: Wide interior view showing the continuous wall of accessible cabinetry that runs through the ADU.

ADU
FOR ALL

TURNING SPACE



CIRCULATION LOOP



CIRCULATION DIAGRAMS

Description: Floor plan diagrams showing the simple travel path through the ADU. Each of the 3 main living spaces provides comfortable turning space for mobility and functionality.