



## ***Massachusetts ADU Design Challenge | Project Cover Sheet***

### **1. Design Team**

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Lead Applicant: Garrett LaFrance  
Additional Applicants: Liz LaFrance  
Design Firm Name (If Applicable):  
Contact Info: blocksandspots@gmail.com

### **2. Design Information**

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EntryID (randomly assigned by HLC for tracking purposes): 3296  
Design Name: Nest Haven ADU 500  
ADU Gross Floor Area (square footage): 490  
Unit Layout: One-Bedroom  
ADU Height (feet): 19  
Window/Wall Ratio: 7.12%  
Foundation Type: Helical Pier System

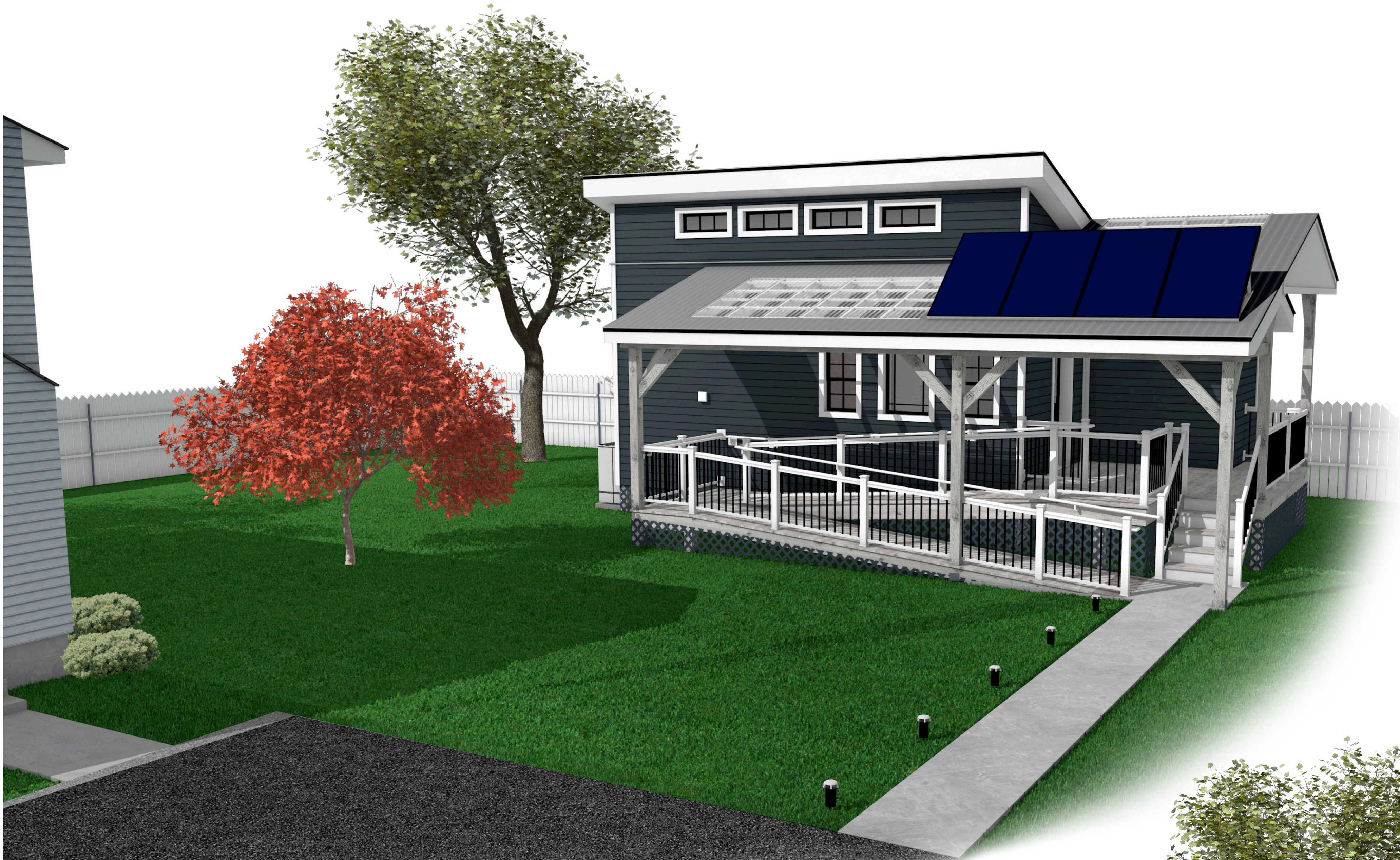
### **3. Project Narrative**

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The Nest Haven ADU design balances privacy, comfort, and efficiency while expanding housing options on a single property. Carefully placed openings bring in abundant natural light and support cross-ventilation without compromising privacy. An accessible entry creates a seamless single-level living experience, accommodating persons with accessibility needs or those who would like to age-in-place. Vaulted ceilings throughout create a sense of openness and provide overhead storage opportunities. A covered porch provides protection from the element and feels like an extension of the living space. With an efficient layout and clear separation from the principal residence, The Nest Haven ADU design delivers a flexible, approachable solution for multi-generational living, accessible housing, or rental income.

***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.***

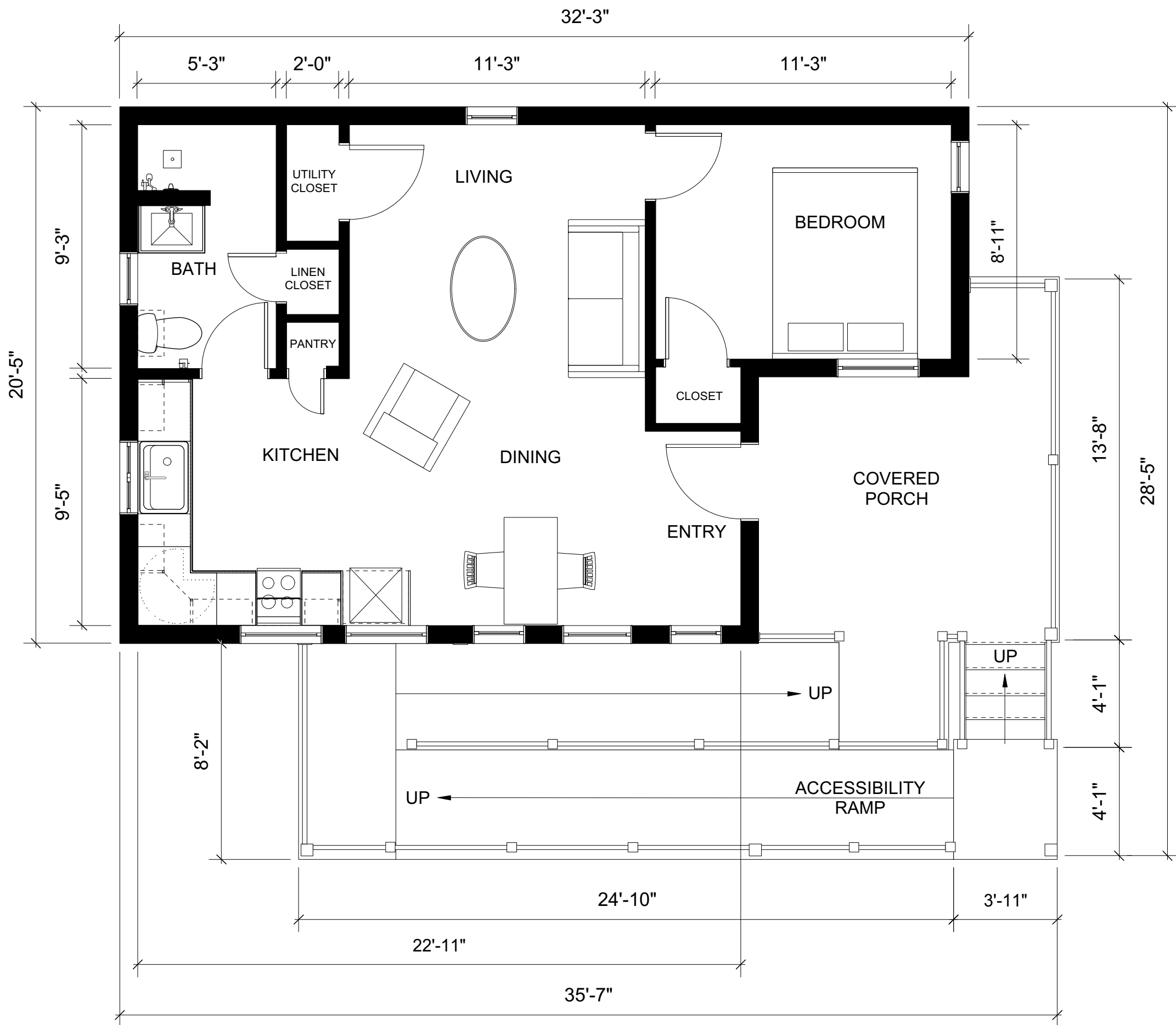




▲ Front-right render of an accessory dwelling unit (ADU) set in a landscaped yard with the back corner of the main house visible at the left, trees and a fence at center, and the ADU on the right. A shared driveway is in the foreground. A walkway, lined with landscape lighting leads the ADU entrance. The ADU features a covered porch with integrated stairs and an accessibility ramp. Solar panels and skylights are set into the porch roof. Four clerestory windows sit just below the main roofline, with three larger windows at the main level beneath the porch cover. Exterior finishes include vinyl siding, a metal roof, wood decking, decorative vinyl railing with metal spindles, and a lattice foundation skirt.

**Floor Plan**

1/4" Scale



▲ Top-down floor plan of the ADU showing an open central layout with the kitchen, living, and dining areas connected and located beside the entry door and covered porch. A full bathroom is positioned off the kitchen, and a bedroom is located at the right rear with access from the living room. Closets are provided in the bedroom, living area, kitchen, and bathroom. The porch entry includes both stairs and an integrated accessibility ramp.



Right-side elevation render of the ADU showing the main roof peak at 19 feet. The covered porch and entry door are centered, with an accessibility ramp to the left, at the front, and a bedroom window to the right. Exterior materials include vinyl siding, wood decking, decorative vinyl railing with metal spindles, and a lattice skirt at the foundation. A tree is shown in the front yard.

1/4" Scale

**Right Side Elevation**

Front elevation render of the ADU showing a covered porch entry on the right side with an accessibility ramp. A stairway with five steps sits to the right of the ramp and also leads to the porch. Two human silhouettes are at the far right for scale. Four clerestory windows sit just below the main roofline, and three large windows are located at the main level beneath porch skylights. Exterior finishes include vinyl siding, a metal roof, wood decking, decorative vinyl railing with metal spindles, and a lattice foundation skirt. Utility vault access and equipment are shown on the left side, with trees in the side yards.



**Front Elevation**

**NEST HAVEN**

500 sq ft | 1-Bedroom or Studio ADU

*The Nest Haven ADU design balances privacy, comfort, and efficiency while expanding housing options on a single property. Carefully placed openings bring in abundant natural light and support cross-ventilation without compromising privacy. An accessible entry creates a seamless single-level living experience, accommodating persons with accessibility needs or those who would like to age-in-place. Vaulted ceilings throughout create a sense of openness and provide overhead storage opportunities. A covered porch provides protection from the element and feels like an extension of the living space. With an efficient layout and clear separation from the principal residence, The Nest Haven ADU design delivers a flexible, approachable solution for multi-generational living, accessible housing, or rental income.*

Conceptual design illustrating accessibility, sustainability, and innovative build strategies. Final specifications subject to detailed design and code review.



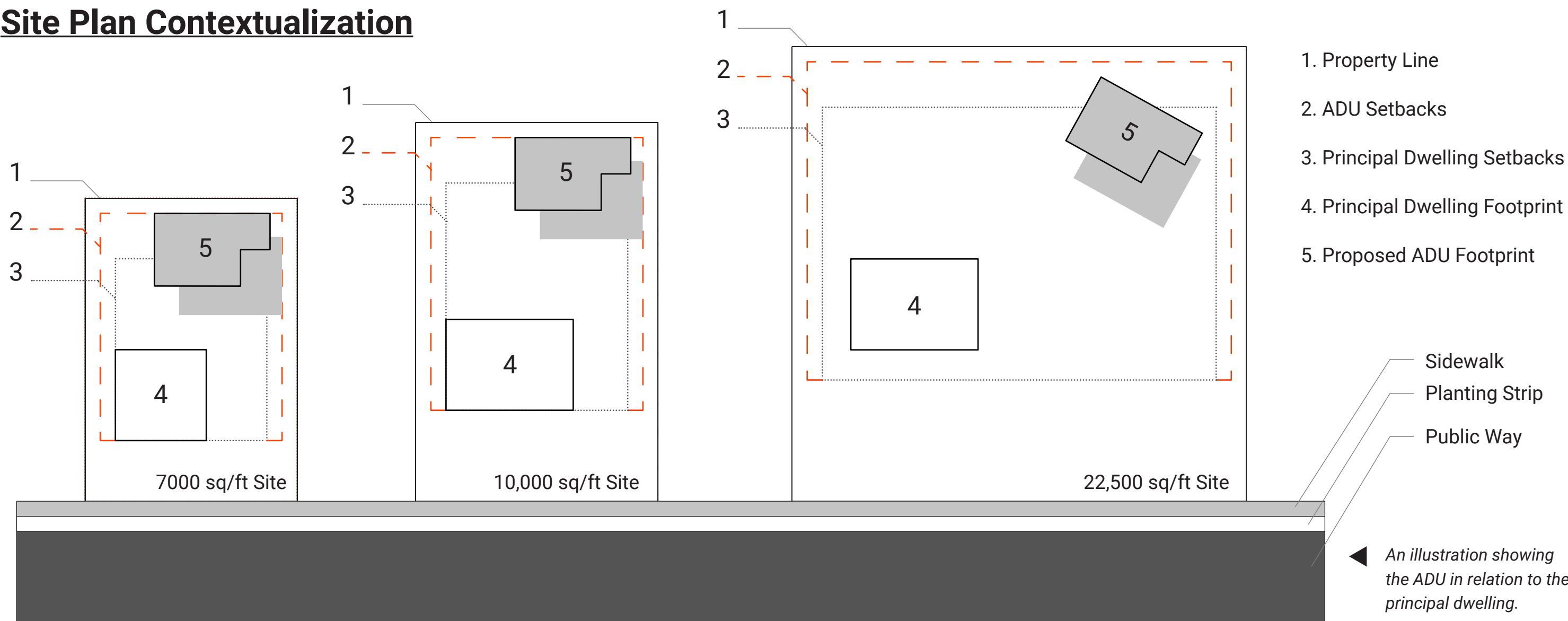


▲ Open-plan interior render showing the living, dining, and entry areas with dark wood floors, light walls, and a vaulted ceiling. Daylight washes across the space. The living area at left includes one window, two large wall paintings, a small sofa, armchair, coffee table, end table, and area rug. An open bedroom door is visible in the living room corner. At right, a small dining table with two chairs sits near the closed entry door, with storage baskets on a shelf above and a coat rack on the wall.

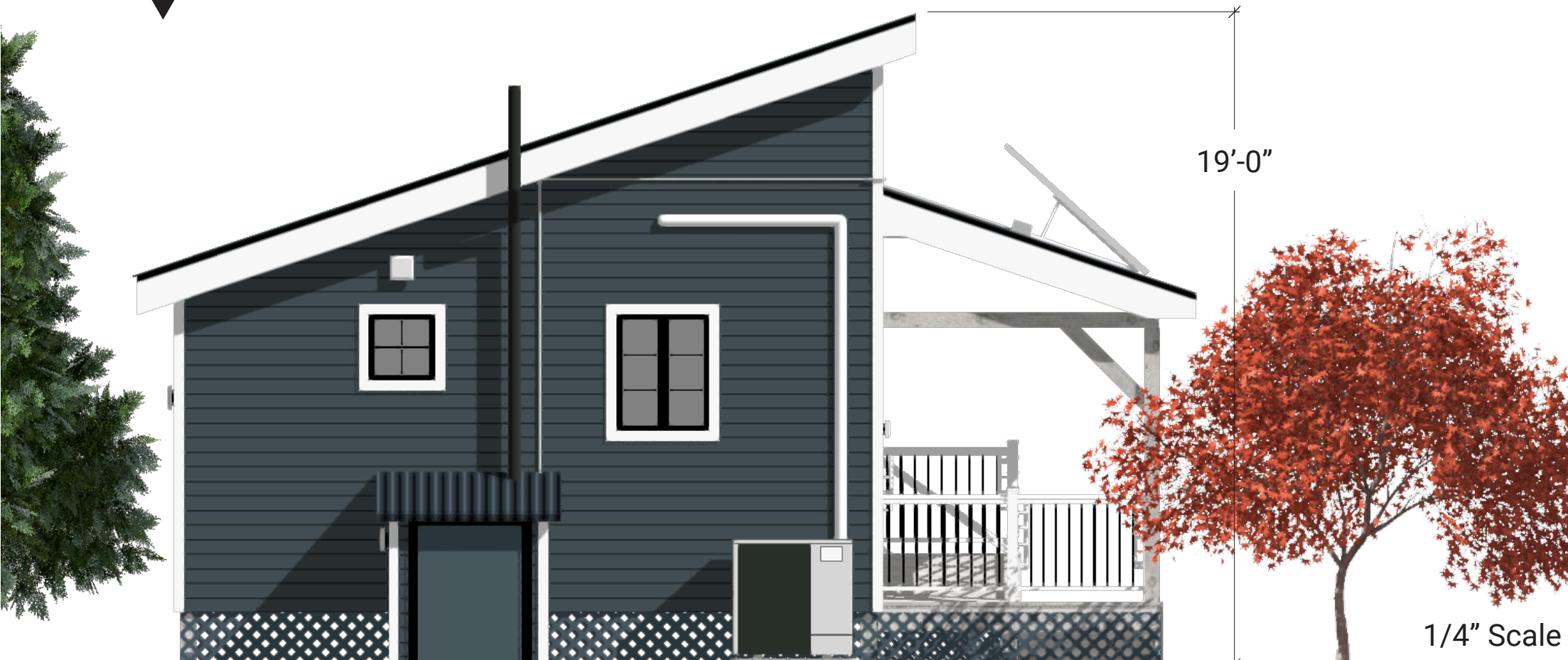


▲ Open-plan interior render showing a centered armchair in the foreground near a wall-mounted television with a console below. The kitchen is visible in the background with cabinets wrapping along the wall and turning the corner to the right. Appliances include a refrigerator, stove, microwave, and sink beneath a window. A continuous dark shelf runs above the upper cabinets, with a coffee machine and knife block on the counter.

## Site Plan Contextualization



Left-side elevation render of the ADU showing the main roof peak at 19 feet. The covered porch entry is visible on the right. At ground level, a utility vault access door is centered, with a mini-split condenser unit to its right. At the main level, a small bathroom window is on the left and a larger kitchen window is on the right. Exterior finishes include vinyl siding, wood decking, decorative vinyl railing with metal spindles, and a lattice foundation skirt. Trees are shown in the front and rear yards.



Left Side Elevation

Back elevation render of the ADU showing the covered porch at left and the utility vault access at right, with a living room window between them. Exterior finishes include vinyl siding, a metal roof, wood decking, decorative vinyl railing with metal spindles, and a lattice foundation skirt.



Back Elevation

## Conceptual Construction

The construction methods for this ADU prioritize an efficient build while minimizing site impact and neighborhood disruption.

### Compact, Flexible Living Model

This 500 sq-ft detached ADU, shown in this design as a 1-bedroom, can be easily converted to a studio by omitting one interior wall. This design is also reversible and can have the entry, porch and bedroom on the left instead of on the right.

### Elevated, Accessible Single-Level Living

Entry includes both stepped and ramped access to a covered porch, which has a seamless transition to the single-level interior living space. Layout supports alterations to kitchen and bath specifications for increased accessibility.

### High-Performance Envelope System

Internal post-and-beam structure with SIP panel enclosure creates a continuous, tightly sealed thermal envelope. Superior Insulation standards paired with high-performance windows and doors meet or exceed Stretch Energy Code guidelines.

### Prefabricated + Rapid Assembly Strategy

Panelized modular components are fabricated off-site in a controlled environment for a precision build, year-round construction, and fast on-site assembly.

### Low-Impact Foundation Solution

Utility vault and helical pile foundation minimizes excavation, reduces site disturbance, and supports faster installation across varied New England site conditions. Utilities are centralized, within one convenient access channel under the ADU, and accessible from the utility vault and crawl space.

### Climate-Responsive Environmental Design

Designed for Massachusetts climate with passive-house-influenced principles, including vaulted ceilings, clerestory glazing, southern solar potential, and cross-ventilation window placement for deep daylight penetration and reduced mechanical load.

### Efficient All-Electric Mechanical Systems

Mini-split heat pump conditioning, heat pump water heating, and energy recovery ventilation (ERV) support high indoor air quality and low operational energy use. The roof design is optimized for solar panel installation to offset consumption and ideal for the incorporation of a rainwater collection and re-use system.

### Spatial Efficiency

Integrated storage ledges and multiple closets throughout, maximize usable space within a compact footprint.

### Neighborhood-Compatible Density

Code-compliant and buildable by right in Massachusetts residential zones, this ADU model supports gentle density, affordability, and anti-sprawl development in a easily-replicated, small-footprint design.

## Axonometry

### ADU

**Roof**  
SIP ceiling panels

*Finish:*  
Metal panels as shown in renders

**Roof Supports**  
Internal post and beam

**Walls**  
SIP wall panel exterior with traditionally constructed interior walls

*Exterior Finish:*  
Vinyl siding

*Interior Finish:*  
Painted drywall as shown in renders

**Wall with blue highlight is optional**

**Framing**  
Internal post and beam with 16" o.c. framed interior walls

*Layout:*  
1-Bedroom as shown in renders

*Bedroom wall can be eliminated if studio is preferred*

**Flooring**  
SIP floor panels

*Finish:*  
Hardwood and tile as shown in renders

**Support Deck**  
24" o.c. ADU platform

**Foundation**  
Helical Piles

*Utility Access:*  
Utility vault, ICF construction as shown in drawings

*Dotted lines depict the connection points between the ADU and the covered porch entry. This separation is for illustration only.*

## Covered Porch with Accessible Entry

**Porch Roof**  
24" o.c. rafters

*Finish:*  
Metal and polycarbonate panels as shown in renders

**Posts**  
Modified post and beam framing

*Finish:*  
Pressure treated lumber as shown in renders

**Flooring**  
Deck boards

*Finish:*  
Pressure treated lumber as shown in renders

**Porch Deck**  
16" o.c. porch platform

**Foundation**  
Helical Piles

*Landing:*  
CIP or Precast Concrete as shown in renders

*▲ An illustrated overview of the ADU build with construction components detailed in text on the left and right sides.*

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU



# An innovative, cost-effective design/build concept for a compact ADU

This ADU design intentionally integrates building strategies that can help manage upfront construction costs while delivering long-term value for property owners. These choices reflect both practical building realities and broader industry performance comparisons.

### Structural Insulated Panels (SIPs) vs. Traditional Framing

Structural insulated panels (SIPs) are a core part of our efficient design, and industry studies have shown that these panels reduce framing labor hours by as much as 55% compared to conventional stick-framing. This is because panels arrive pre-cut and engineered for rapid onsite assembly.

Although, SIP materials alone can cost more upfront than traditional stick-framing, the premium is frequently offset by reduced on-site labor time, faster enclosure installation, and lower waste handling costs.

These labor efficiencies can significantly influence the overall cost on a 500 sq ft build by shortening the project timeline and reducing the number of on-site crew hours, an important consideration when labor is a major portion of total build cost.

### Off-Site Fabrication & Modular Construction

By leveraging modular and panelized construction, many aspects of the build occur in a controlled factory setting. Industry analyses show that modular processes can reduce exposure to weather delays, cut on-site material waste, and stabilize pricing compared to traditional stick-built construction, all of which help contain project budgets. Modular methods also reduce the risk of unexpected cost overruns that are more common on sticks-built schedules due to inconsistent materials and/or site conditions.

### Foundation Strategy: Utility Vault & Helical Piles

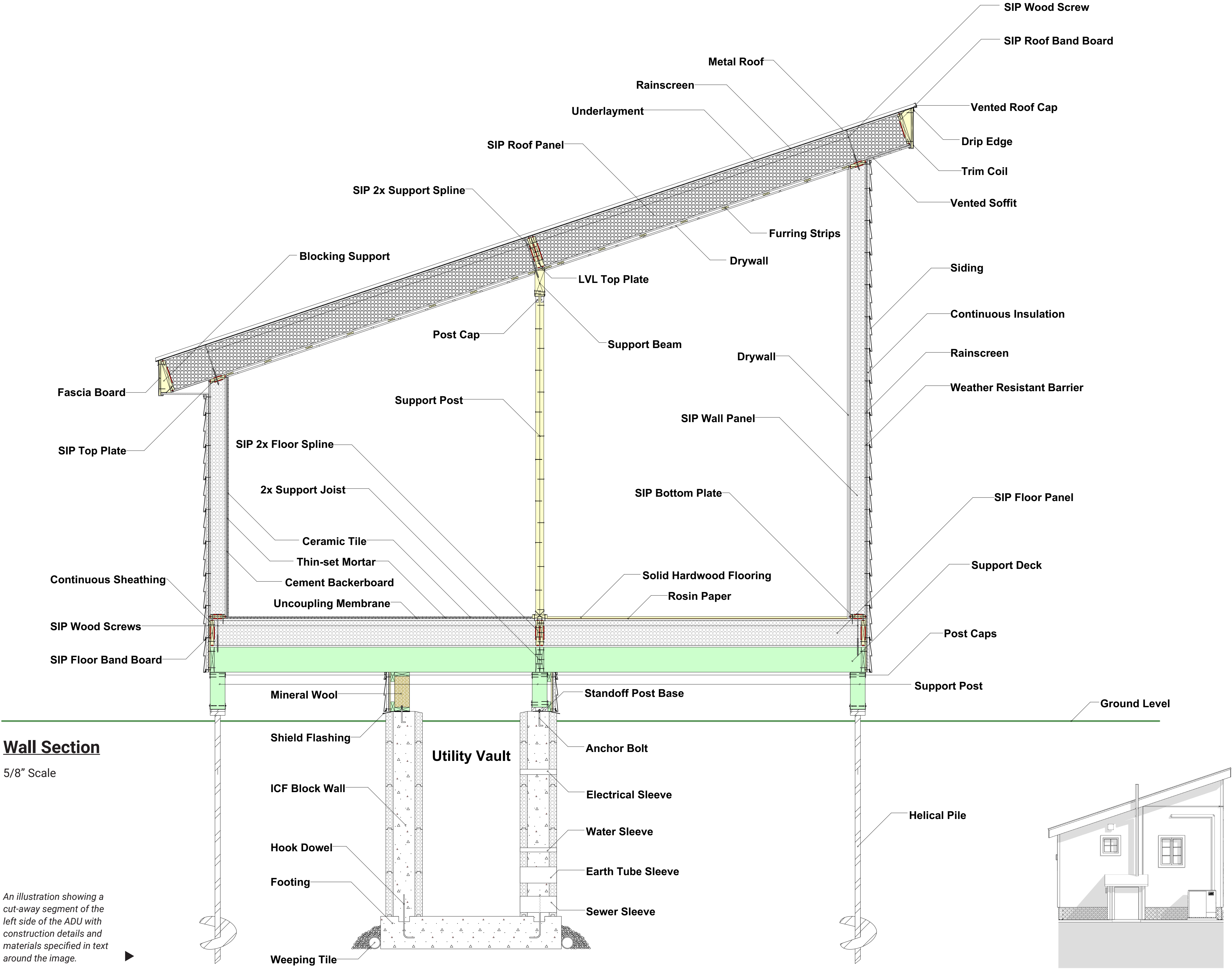
The use of a utility vault and helical pier system rather than a traditional cast in place (CIP) foundation offers potential cost and scheduling advantages on compact residential projects. In many applications, helical piles can be installed in hours with minimal excavation, avoiding excessive ground disturbance and long concrete curing times. Some case examples mention helical pile installations being 20% more productive than digging a traditional concrete foundation when factoring in minimal site disturbance and reduced installation labor.

### Value Beyond Upfront Cost

Beyond initial construction efficiencies, the combination of a high-performance building envelope, all-electric mechanical systems (heat pump water heater and energy recovery ventilator) and the optimized floorplan contribute to lower operating costs in the long run. While specific energy savings vary by climate and occupancy, tighter construction and passive principles generally reduce utility loads, which lower energy bills and increase the return on investment.

Sources / References

- "Modular vs Traditional Construction in 2026: Cost, Speed & ROI Compared" S²A MODULAR (2026) <https://www.s2amodular.com/2026/01/30/modular-vs-traditional-construction-in-2026-cost-speed-roi-compared/> accessed 9 Feb 2026.
- "Modular Home Cost Breakdown (2026 Guide) – What You'll Really Pay" QTO Estimating (2026) <https://www.qtoestimating.com/modular-home-construction-costs/> accessed 9 Feb 2026.
- "Modular Home Cost Savings Statistics." Mesocore (11 Nov 2025) <https://www.mesocore.com/blog/modular-home-cost-savings/> accessed 8 Feb. 2026.
- "SIPs vs Stick Frame Cost Data." SIPA, (n.d.) <https://www.sips.org/resources/sips-vs-stick-frame-cost-data/> accessed 8 Feb 2026.
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- "Comparing a CIP VS. ICF Foundation" Kocsis, Paul (20 May 2021) <https://icfmag.com/2022/06/comparing-a-cip-vs-icf-foundation/> accessed 9 Feb 2026.
- "How Much Do Helical Piers Cost versus Concrete Footers?" Moylan, James (2023) <https://www.designbuildersmd.com/blog/helical-pier-cost/> accessed 9 Feb 2026
- "Helical Piles vs Traditional Concrete Foundations: Which Is Best for Your Project?"
- Kirk, Steve (3 Jan 2025) <https://www.premierdecknh.com/helical-piles-vs-traditional-concrete-foundations-which-is-best-for-you/> accessed 9 Feb 2026.



Wall Section

5/8" Scale

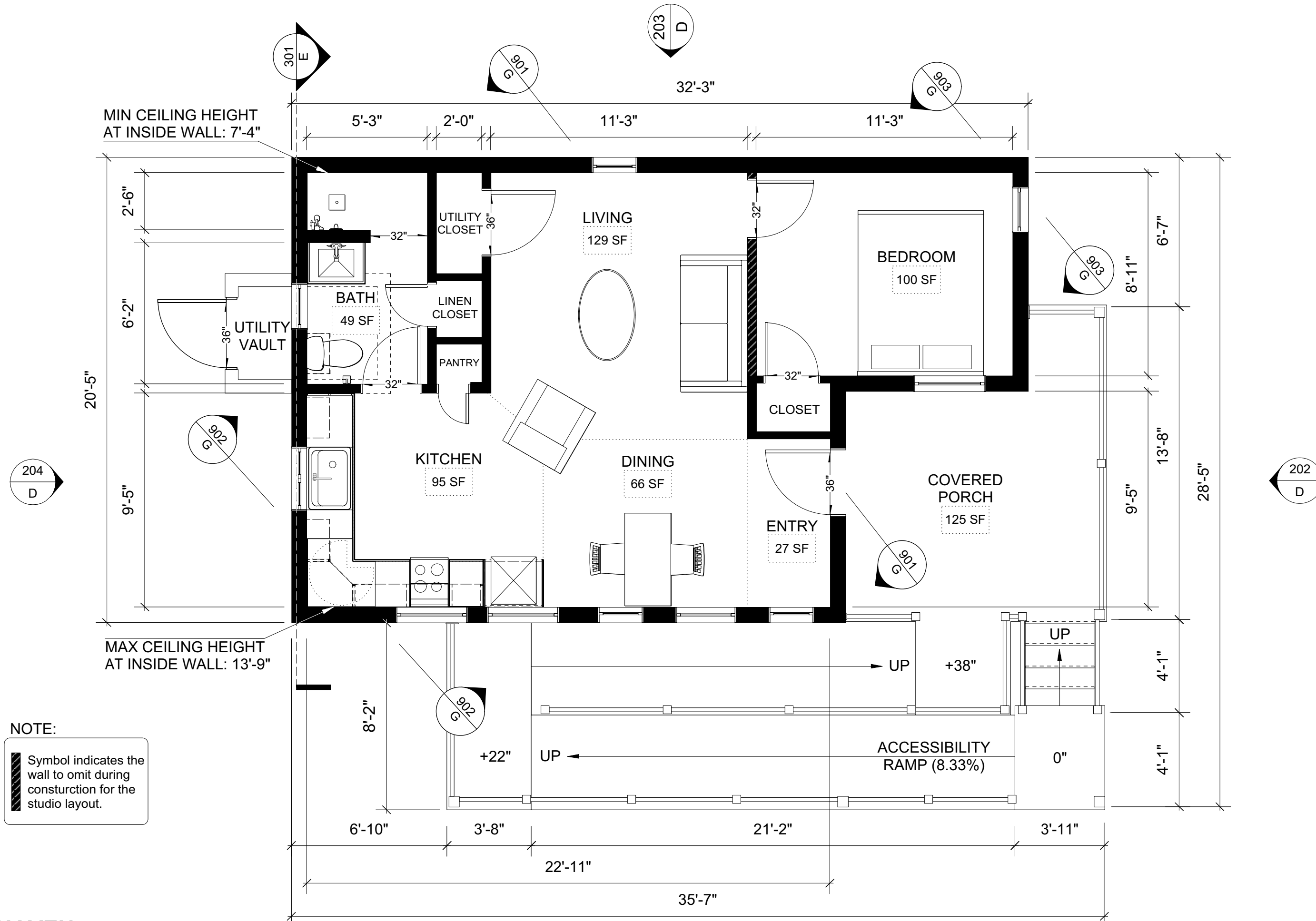
An illustration showing a cut-away segment of the left side of the ADU with construction details and materials specified in text around the image.

## NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU

Conceptual design illustrating accessibility, sustainability, and innovative build strategies. Final specifications subject to detailed design and code review.





NOTE:

Symbol indicates the wall to omit during construction for the studio layout.

**NEST HAVEN**  
500 sq ft | 1-Bedroom or Studio ADU  
AttachmentC\_NestHavenADU500

|     |                     |
|-----|---------------------|
| 102 | FLOOR PLAN          |
| C   | SCALE: 1/4" = 1'-0" |

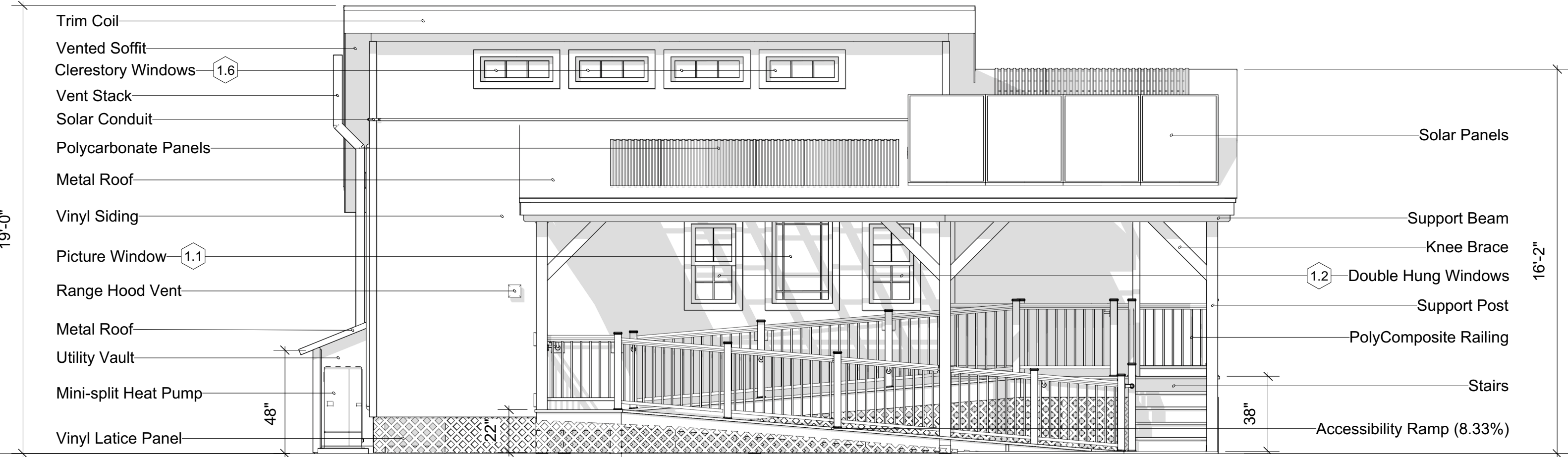
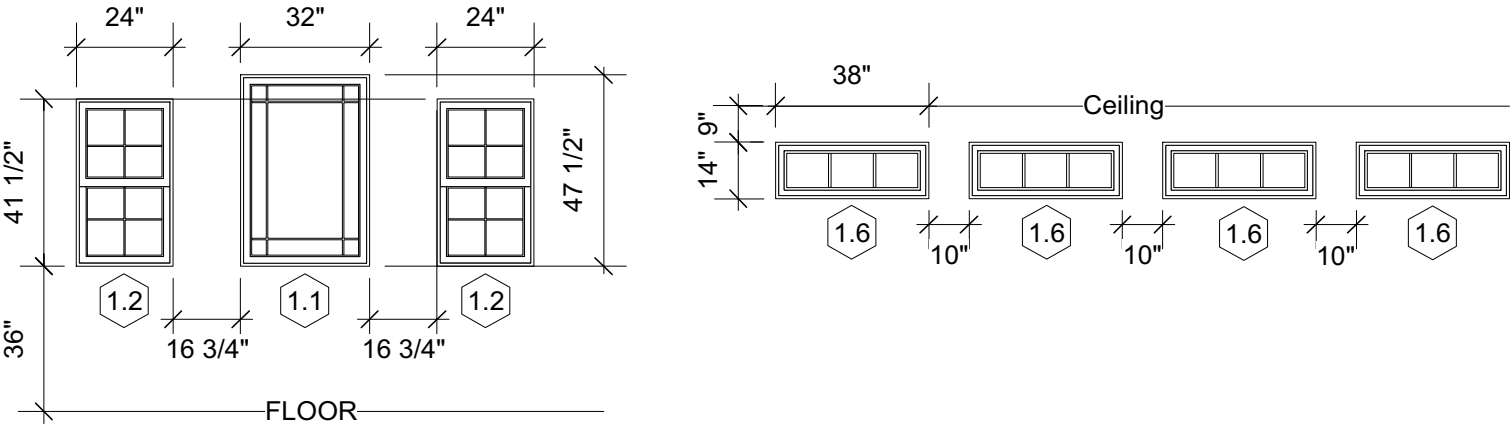


- 1.1

—Vinyl Picture Window, Glazing: ThermaLock RS with Grids Between Glass, GBG Style: Prairie, Casing: Flat with Intergral L-Fin, Finish: Exterior Painted TBD, U-Factor: 0.22, R-Value: 4.55, SHGc: 0.22, VT: 0.41
- 1.2

—Vinyl Double Hung Window, Glazing: ThermaLock 3X with Grids Between Glass, GBG Style: Colonial, Casing: Flat with Intergral L-Fin, Screen: Half, Finish: Exterior Painted TBD, U-Factor: 0.21, R-Value: 4.76, SHGc: 0.25, VT: 0.53
- 1.6

—Vinyl Clerestory Window, Glazing: SunShield PLUS with Grids Between Glass, GBG Style: Colonial, Casing: Flat with Intergral L-Fin, Finish: Exterior Painted TBD, U-Factor: 0.22, R-Value: 4.55, SHGc: 0.20, VT: 0.46



**NEST HAVEN**  
500 sq ft | 1-Bedroom or Studio ADU  
AttachmentD\_NestHavenADU500

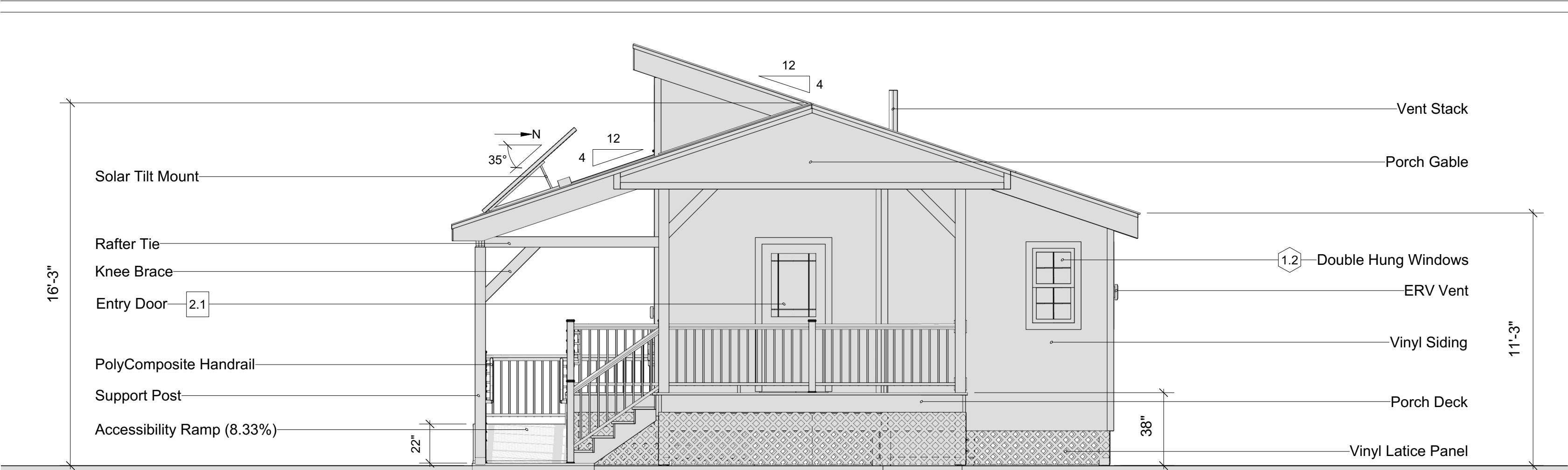
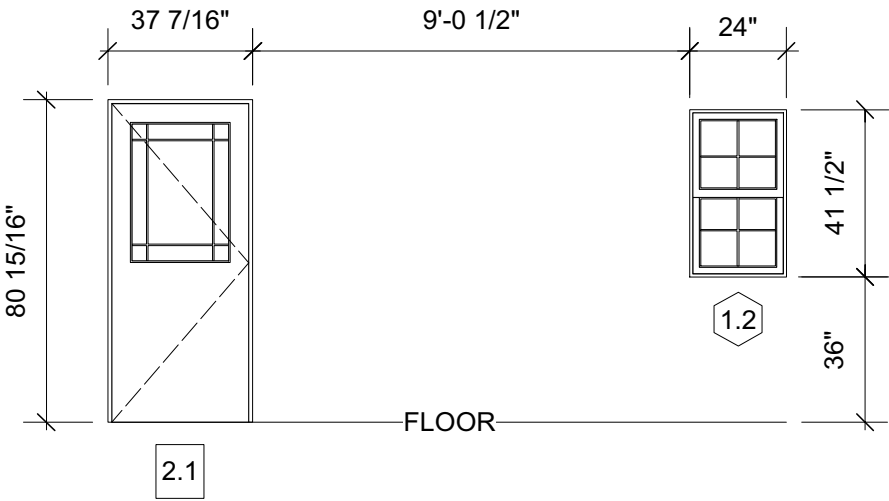
|     |                     |
|-----|---------------------|
| 201 | FRONT ELEVATION     |
| D   | SCALE: 1/4" = 1'-0" |



- 2.1

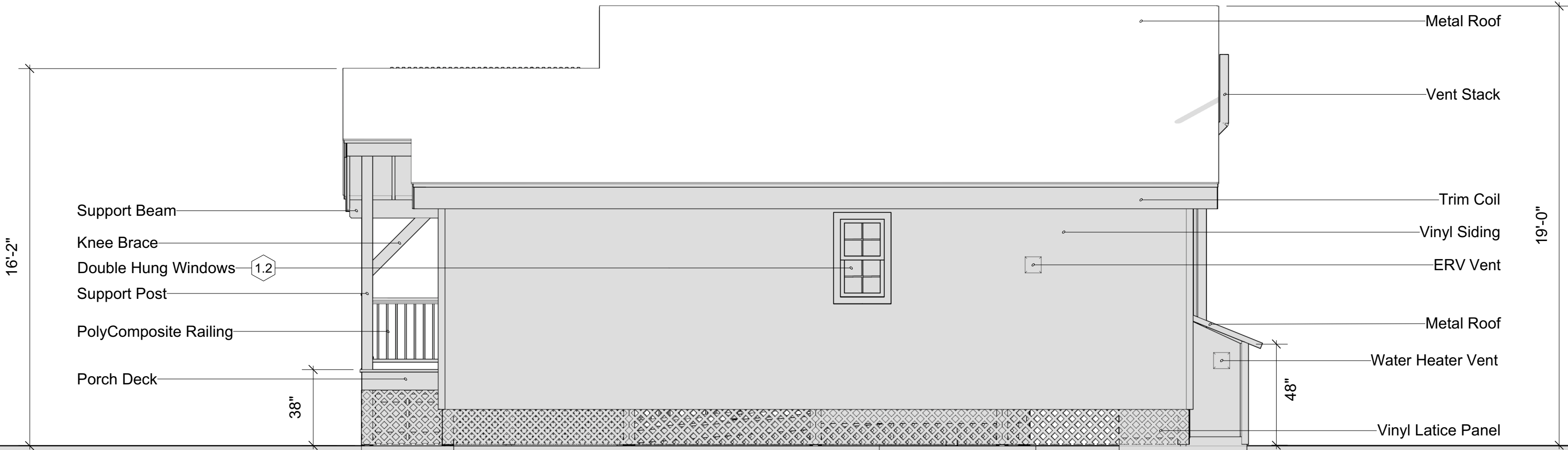
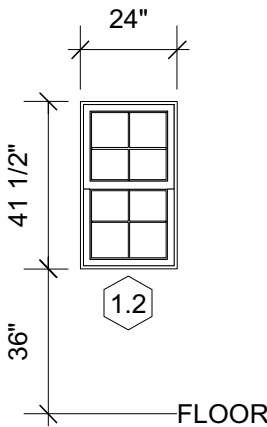
Composite Half-Lite Entry Door, Core: 1-1/2" HDU, Glazing: Triple/Low-E/Arg/.251 with Grids Between Glass, GBG Style: Prairie, Sill: 4 9/16" ADA, Casing: Flat with Intergrated J-Channel, Finish: Exterior Panted TBD, U-Factor: 0.21, R-Value: 5
- 1.2

Vinyl Double Hung Window, Glazing: ThermaLock 3X with Grids Between Glass, GBG Style: Colonial, Casing: Flat with Intergral L-Fin, Screen: Half, Finish: Exterior Painted TBD, U-Factor: 0.21, R-Value: 4.76, SHGc: 0.25, VT: 0.53





1.2 Vinyl Double Hung Window, Glazing: ThermaLock 3X with Grids Between Glass, GBG Style: Colonial, Casing: Flat with Intergral L-Fin, Screen: Half, Finish: Exterior Painted TBD, U-Factor: 0.21, R-Value: 4.76, SHGc: 0.25, VT: 0.53



**NEST HAVEN**  
500 sq ft | 1-Bedroom or Studio ADU  
AttachmentD\_NestHavenADU500

|     |                     |
|-----|---------------------|
| 203 | BACK ELEVATION      |
| D   | SCALE: 1/4" = 1'-0" |

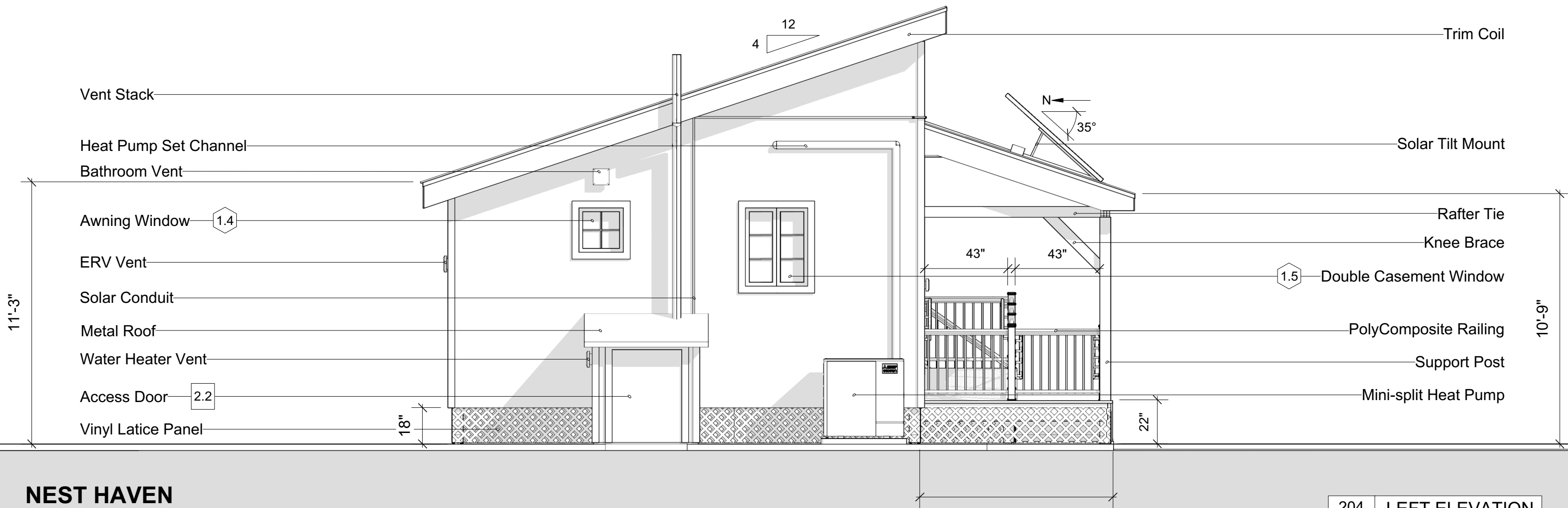
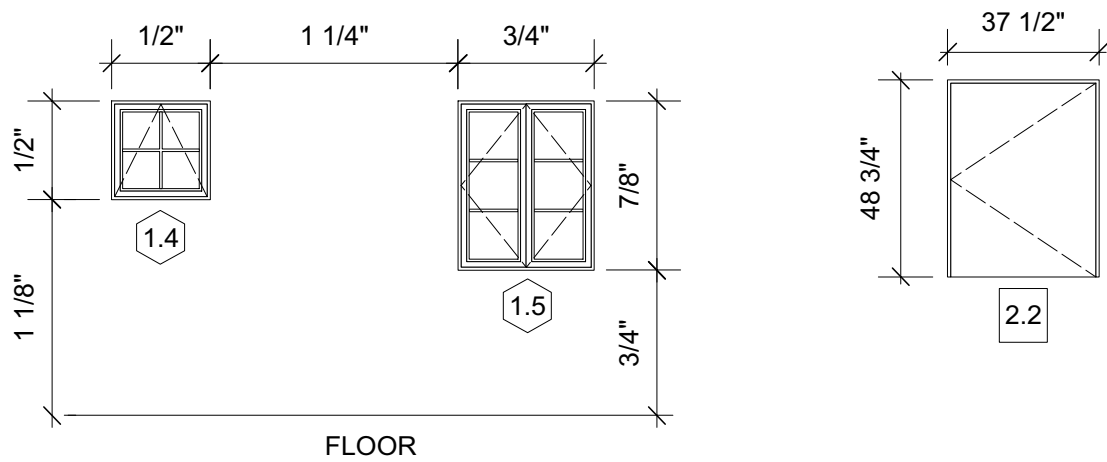


- 1.4

—Vinyl Awning Window, Glazing: ThermaLock 3X with Grids Between Glass, GBG Style: Colonial, Casing: Flat with Intergral L-Fin, Screen: Full, Finish: Exterior Painted TBD, U-Factor: 0.22, R-Value: 4.55, SHGc: 0.20, VT: 0.35
- 1.5

—Vinyl Double Casement Window, Glazing: ThermaLock 3X with Grids Between Glass, GBG Style: Colonial, Casing: Flat with Intergral L-Fin, Screen: Full, Finish: Exterior Painted TBD, U-Factor: 0.22, R-Value: 4.55, SHGc: 0.20, VT: 0.35
- 2.2

—Aluminum Access Door, Core: 1-1/2" EPS, Casing: Flat with Intergrated J-Channel, Finish: Exterior Panted TBD, U-Factor: 0.13, R-Value: 7.5



**NEST HAVEN**  
500 sq ft | 1-Bedroom or Studio ADU  
AttachmentD\_NestHavenADU500

|     |                     |
|-----|---------------------|
| 204 | LEFT ELEVATION      |
| D   | SCALE: 1/4" = 1'-0" |









AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU





AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU





AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU





AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU



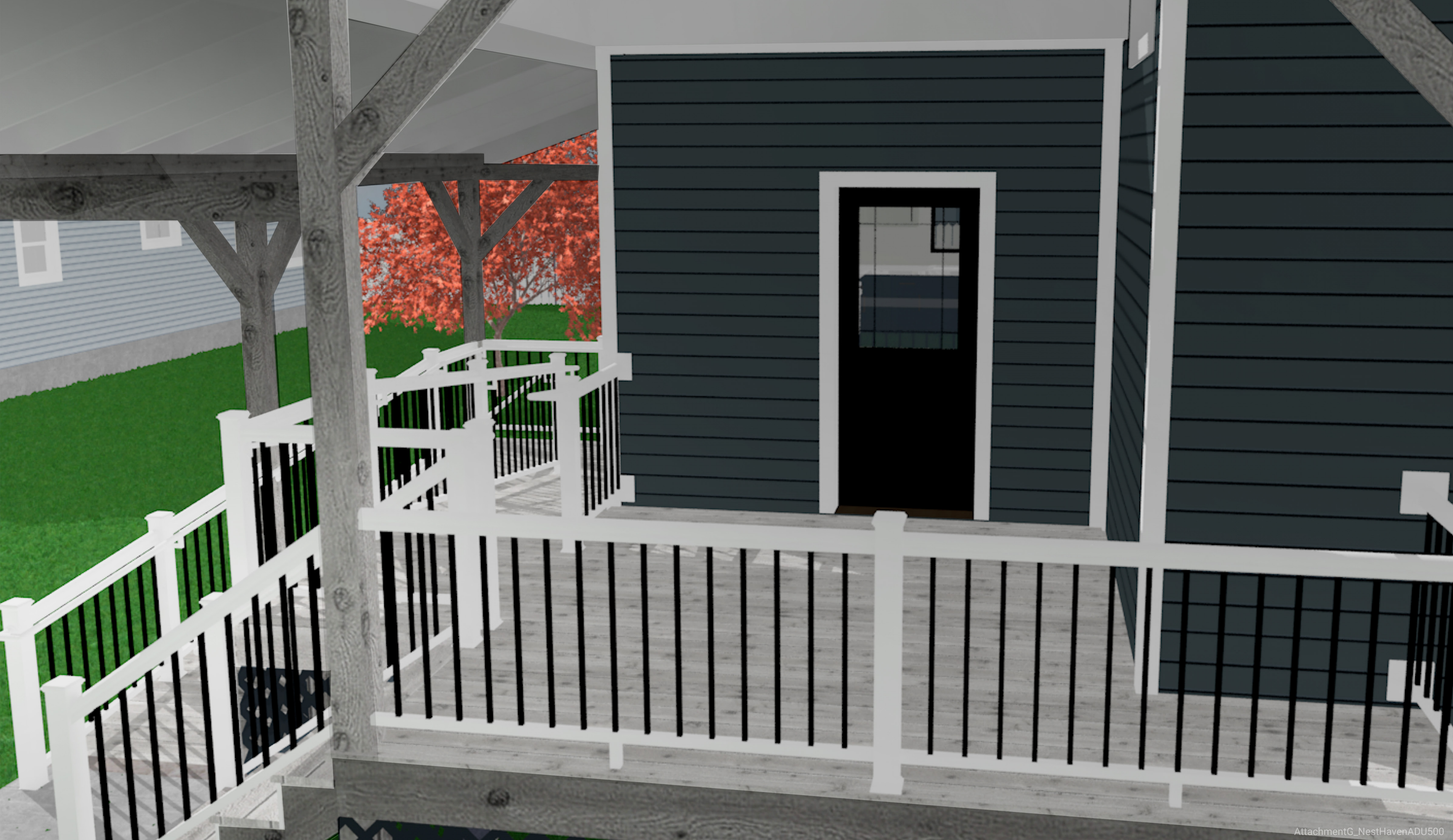


AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU



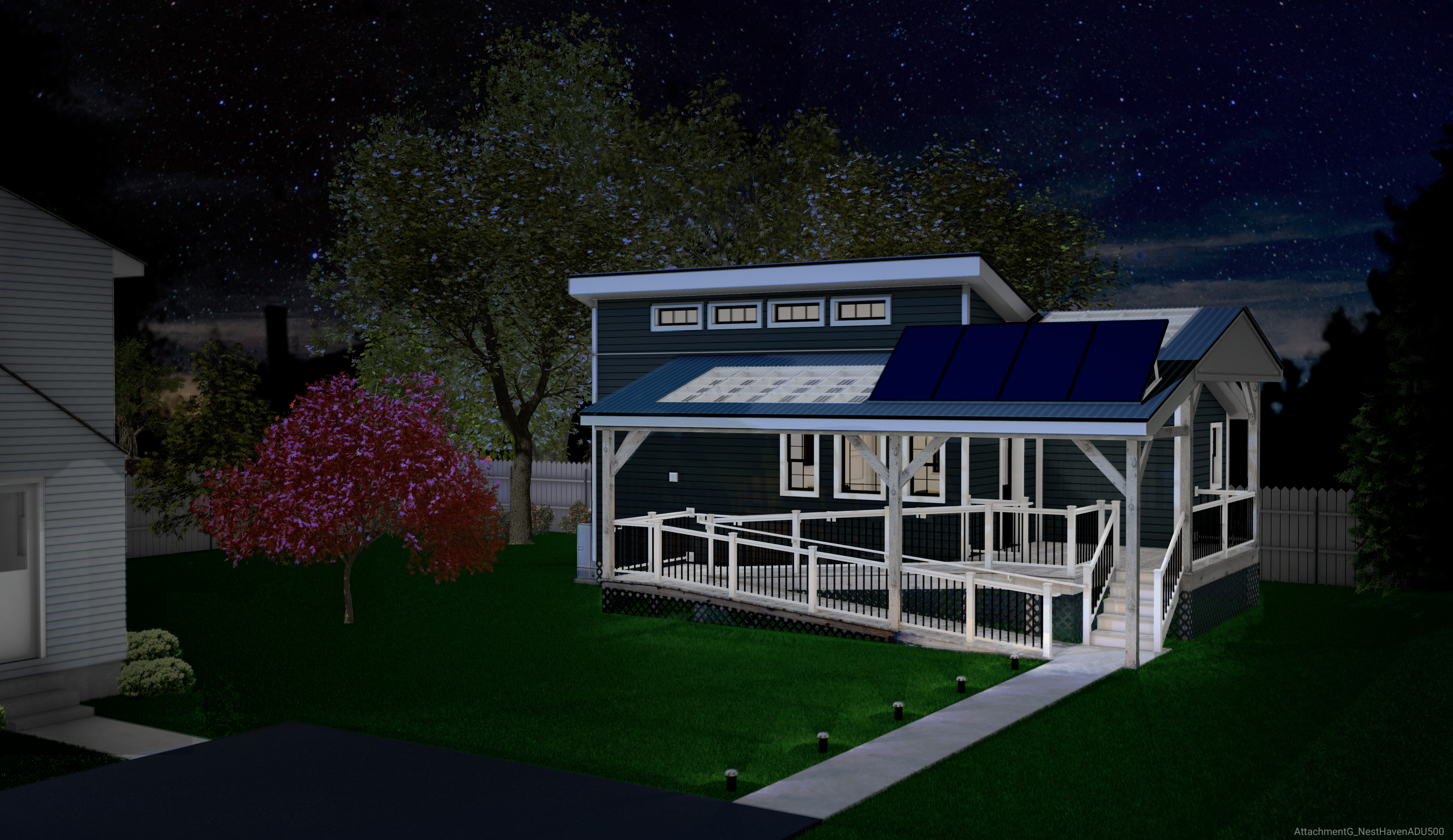


AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU





AttachmentG\_NestHavenADU500

# NEST HAVEN

500 sq ft | 1-Bedroom or Studio ADU



# CONSTRUCTION DIAGRAM

The construction methods for this detached Accessory Dwelling Unit ADU prioritize an efficient build while minimizing site impact and overall disruption.

## Detached Accessory Dwelling Unit

**Roof**  
SIP ceiling panels

**Roof Supports**  
Internal post and beam

**Walls**  
SIP panel exterior walls with traditionally finished drywall interior

Wall with blue highlight is optional

**Framing**  
Internal post and beam with 16" o.c. framed interior walls

**Flooring**  
SIP floor panels

**Support Deck**  
24" o.c. ADU platform

**Foundation**  
Helical Piles

**Utility Vault**

## Covered Porch with Accessible Entry

**Porch Roof**  
24" o.c. rafters

**Posts**  
Modified post and beam framing

**Flooring**  
Deck boards

**Porch Deck**  
16" o.c. porch platform

**Foundation**  
Helical Piles with concrete landing

Dotted lines depict the connection points between the ADU and the covered porch entry. This separation is for illustration only.