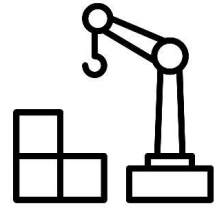


ROOST

everyone deserves a place to roost



PRE-FABRICATED | MODULAR | SUSTAINABLE | AFFORDABLE

The Whatcom County community is facing complex challenges relating to housing access and affordability. ADUs play a critical role in addressing these challenges, but only if they can be designed and constructed in a manner that is economically viable. While there is no one-size-fits-all approach to accessory dwellings, this modular designed and prefabricated ADU is designed with modification and customization in mind. It allows for site-specific design, quick construction, and an affordable overall build without compromising on the level of comfort one hopes to provide when housing aging relatives, adult children, or a live-in caregiver. Roost is a prototype prefabricated 615 square foot ADU, sized to allow comfort and flexibility in living arrangements while making careful use of construction resources.

Roost is designed for one to two permanent inhabitants and the occasional overnight guest. A full kitchen with ample storage supports cooking and healthy lifestyles, while an open-plan living, dining, and entry area allows for a variety of furniture layouts and arrangements. Through careful planning, detailing, and site design, this is a single-level ADU without steps, ladders, or barriers. All doors are 36 inches wide, and each room is sized to allow clear maneuvering around fixtures and furniture for inhabitants with a variety of mobility needs.

The modular design of this ADU makes for simple modifications to suit the owner's specific needs while limiting fees and the timeline for design and engineering changes. The modules are designed to be adaptable to a variety of site conditions and solar orientations. In addition, several areas can be interchanged based on the resident's preferences, including an area in the bedroom that can be a built-in desk, shelving, or an increase in closet space. The living room includes options for either an entertainment console with a TV or a Murphy bed. The single-level design reduces imposition on neighboring properties and reduces instances of shading neighboring yards, gardens, and homes. The windows are focused towards the front of the ADU to allow privacy to and from neighbors.

Through a streamlined design and construction process, this ADU sees a reduction in the total cost of the unit and the overall timeline from ideation to completion, increasing affordability and accessibility to a broader section of the community. Roost includes three modules that are prefabricated in a local warehouse where the construction team can control factors of the construction process that often hamper productivity, such

as the weather, the availability of power, and the availability of adequate site lighting. When the modules are ready for transport, they are trucked to the site where they are then craned onto a prepared concrete footing. Final touches to the building envelope are completed upon setting the modules, and the interior finishes follow shortly thereafter.

Prefabrication methods lessen the environmental impact of the construction process by significantly reducing construction waste. The warehouse setting allows better control over material inventories, and leftover materials are easier to reuse for future projects as they have been protected from moisture and weather conditions. The reduction in vehicles and heavy equipment required on-site reduces pollution and site disruption.

On this specific site, the ADU is oriented to maximize southern exposure for daylighting in each of the spaces. A roof overhang on the South protects the building from high-angle summer sun, while allowing lower-angle sunlight and solar heat gain in the winter months. The small size of the ADU and the inclusion of operable windows promote passive ventilation.

Construction assemblies are designed to be high-performance while using affordable and conventional materials that can be installed and modified by most local carpenters. Conventionally framed 2x6 walls are combined with high-performing mineral wool insulation and a layer of continuous exterior insulation, creating an R-32 wall assembly. Most plumbing is centered around one wall to ease installation, reduce material usage, and limit thermal bridging in exterior walls.

High-performing yet affordable HVAC systems are selected, including a Heat Pump Mini-Split for heating and a Heat Pump Water Heater. Balanced ventilation is achieved through an Energy Recovery Ventilation (ERV) that allows control of the air quality while minimizing energy lost through exhaust air. By including a ventilation system, this ADU is resilient against common seasonal pollutants like pollen and wildfire smoke. The selection of all-electric HVAC systems and appliances makes this ADU ready to run on entirely renewable energy, whether generated on-site or off.

This ADU offers an environmentally and financially low-impact option to solve complex housing challenges in our community without compromising on aesthetics. Everyone deserves a comfortable place to Roost.