

- CLIMATE
- DAYLIGHTING + SOLAR HEAT GAIN
- RAIN WATER COLLECTION
- INDOOR/OUTDOOR LIVING
- MATERIAL SELECTION
- BUILDABILITY
- LOGISTICS
- URBAN AGRICULTURE
- MINIMIZED SERVICING
- RESOURCE EFFICIENCY

# THE HARVEST HOME

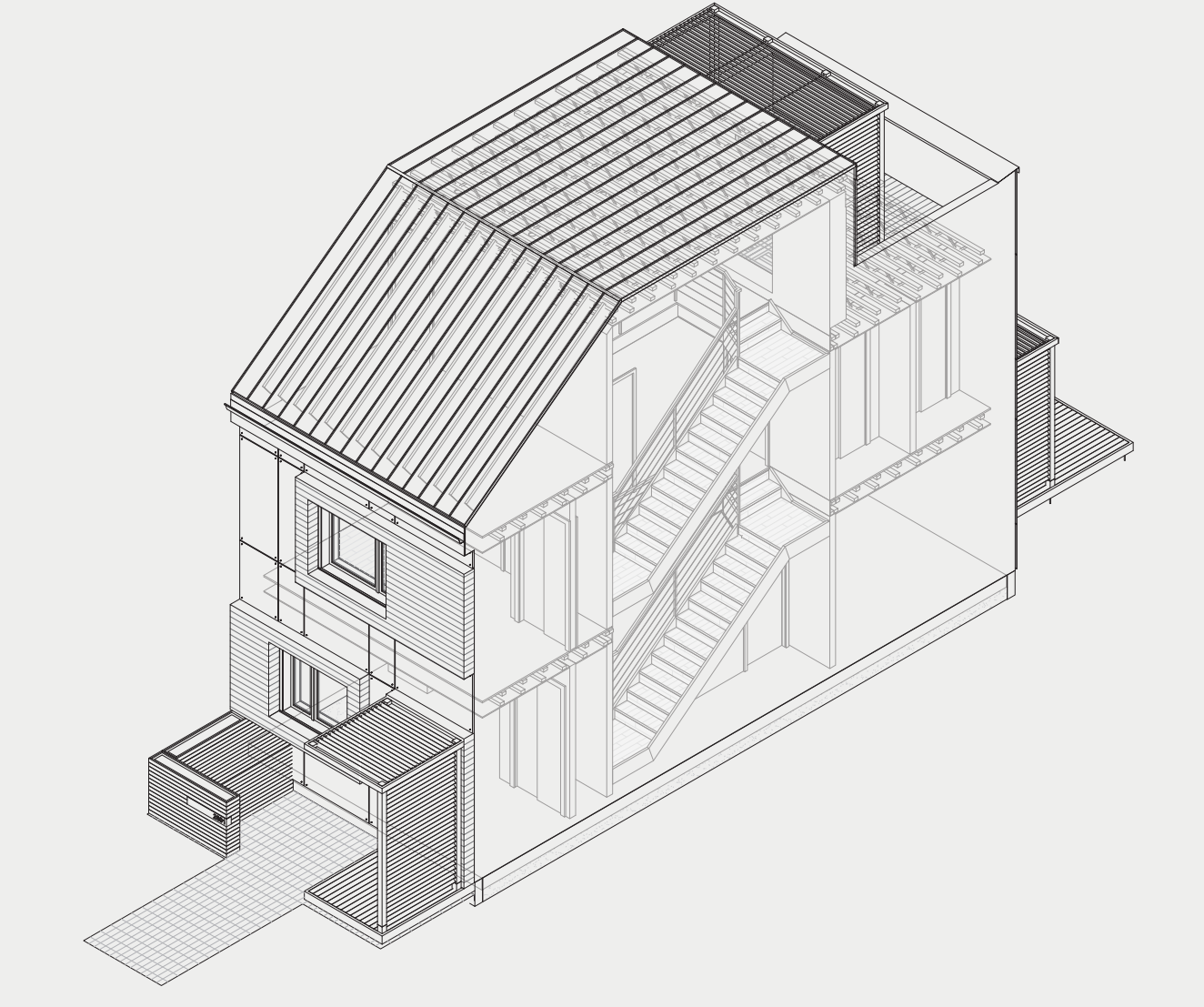
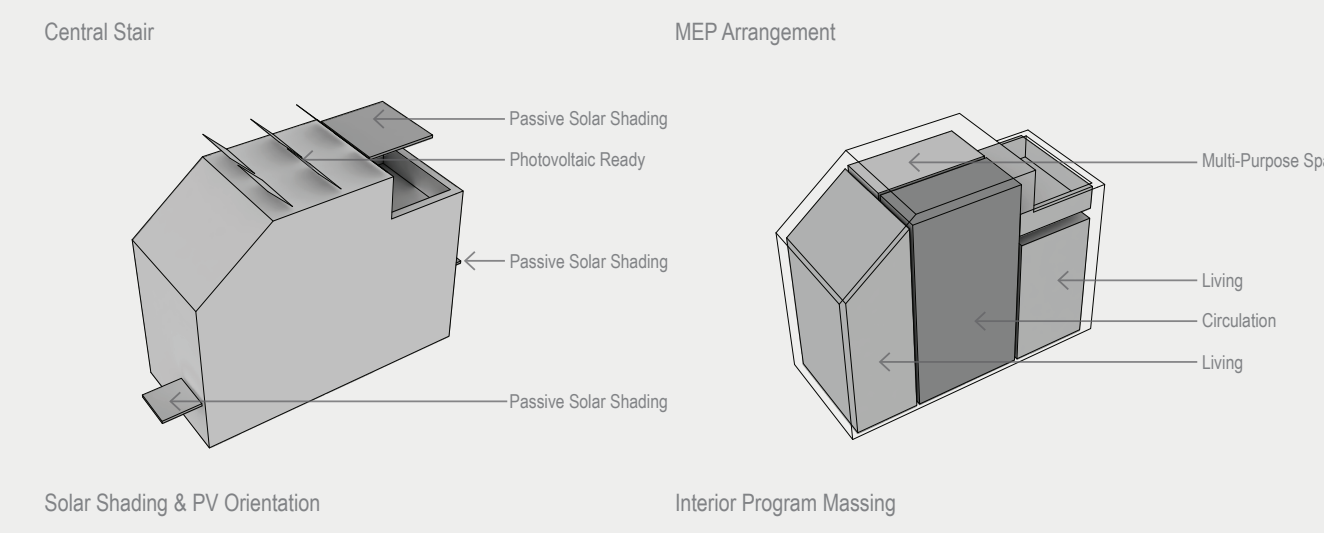
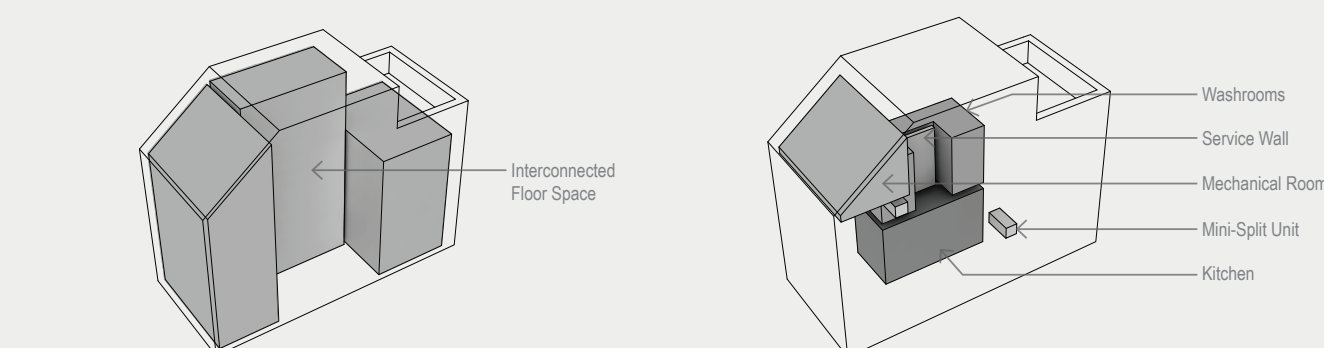
U.S. DEPARTMENT OF ENERGY | CHALLENGE HOME STUDENT DESIGN COMPETITION

To harvest in the traditional sense of the term refers to the gathering of agricultural crops - a collection of resources made possible by the cycles of nature. The Harvest Home expands this definition beyond the agricultural context through the exploitation of natural solar and precipitation cycles in pursuit of superior building performance made possible through passive, contextually informed, simplistic design. The home aims to become a model for affordable sustainable residential construction toward a new standard that is accessible to the average North American homeowner.

Ambitious design goals for energy and resource efficiency were set in the initial stages of the design process. These goals included meeting all of the PHHUS+ passive house standard certification criteria and exceeding the minimum number of points required to achieve LEED Platinum under the LEED for Homes program. The final design attains a HERS score of 40 without on-site renewable generation, while satisfying the PHHUS+ passive house standard certification criteria and achieving LEED Platinum with 91 points under the LEED for Homes program. All of these goals were achieved while meeting the overarching requirements for affordability under the DOE Challenge Home and Denver Super-efficient Housing Challenge.

The Harvest Home boasts an open concept ground floor plan allowing direct and ambient natural light to penetrate its modest footprint, while allowing maximum occupant flexibility. Services to kitchen and bathroom spaces are centralized to reduce inefficiencies and expenses associated with extensive duct and pipe runs. Opposite the centralized service wall, a generous gallery style stair extends from the ground to the upper levels providing ample storage space below. A central corridor at the upper level extends from the primary bedroom at the home's rear to serve a full family bath and secondary bedroom at the North facade. An additional stair rises from the upper corridor to a multi-purpose loft space and adjacent roof terrace.

	Average Colorado Residence	The Harvest Home
HERS Rating	100	40
Annual Energy Consumption	102,000 kBtu/yr	23,600 kBtu/yr
Annual Heating + Cooling Cost	\$1,551 /yr	\$632 /yr
Gross Area	2,082 sf	1,175 sf
Construction Cost / Square Foot	\$120 - \$300 /sf	\$146 /sf



Building Axonometric



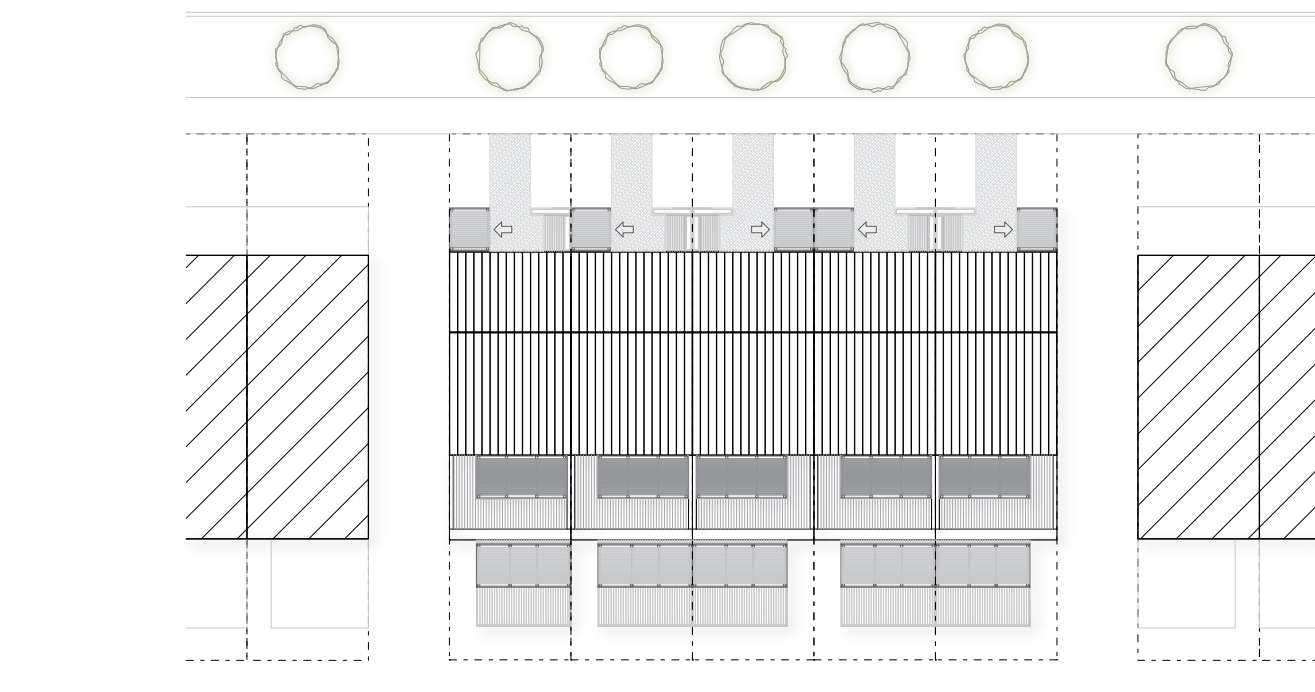
Elevation - North Scale: 1/8" = 1'-0"  
Elevation - South Scale: 1/8" = 1'-0"



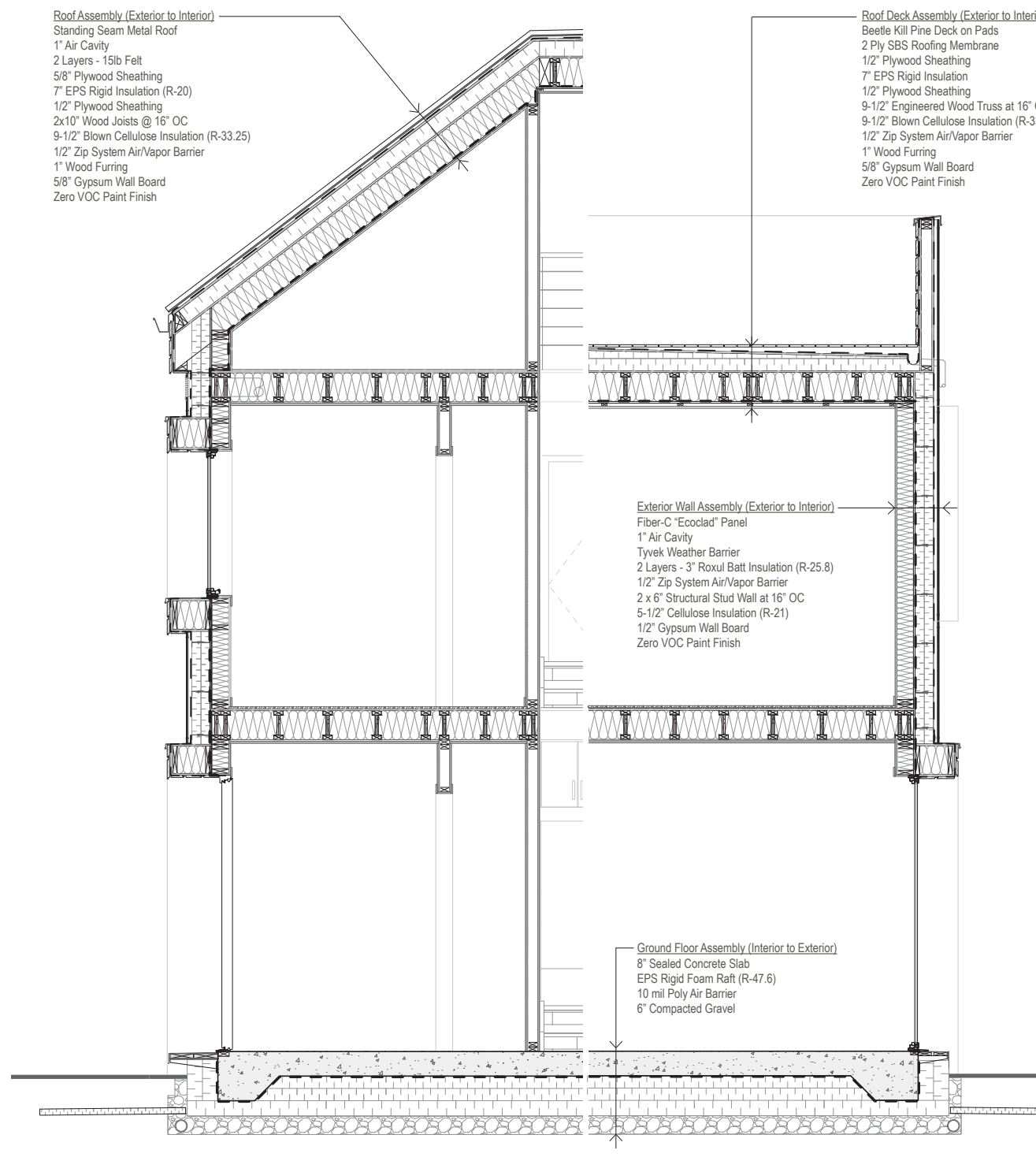
Kitchen View to Rear



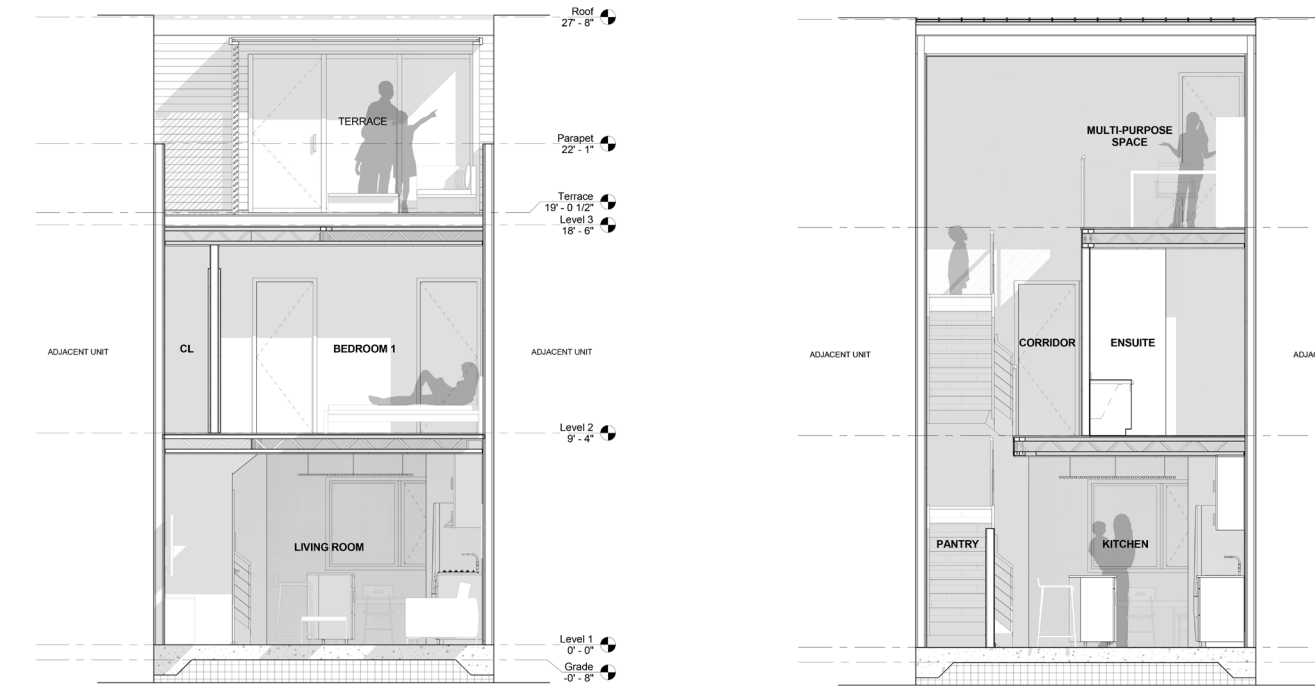
Frontage at Lawrence Street



Site Plan Scale: 1/8" = 3'-0"



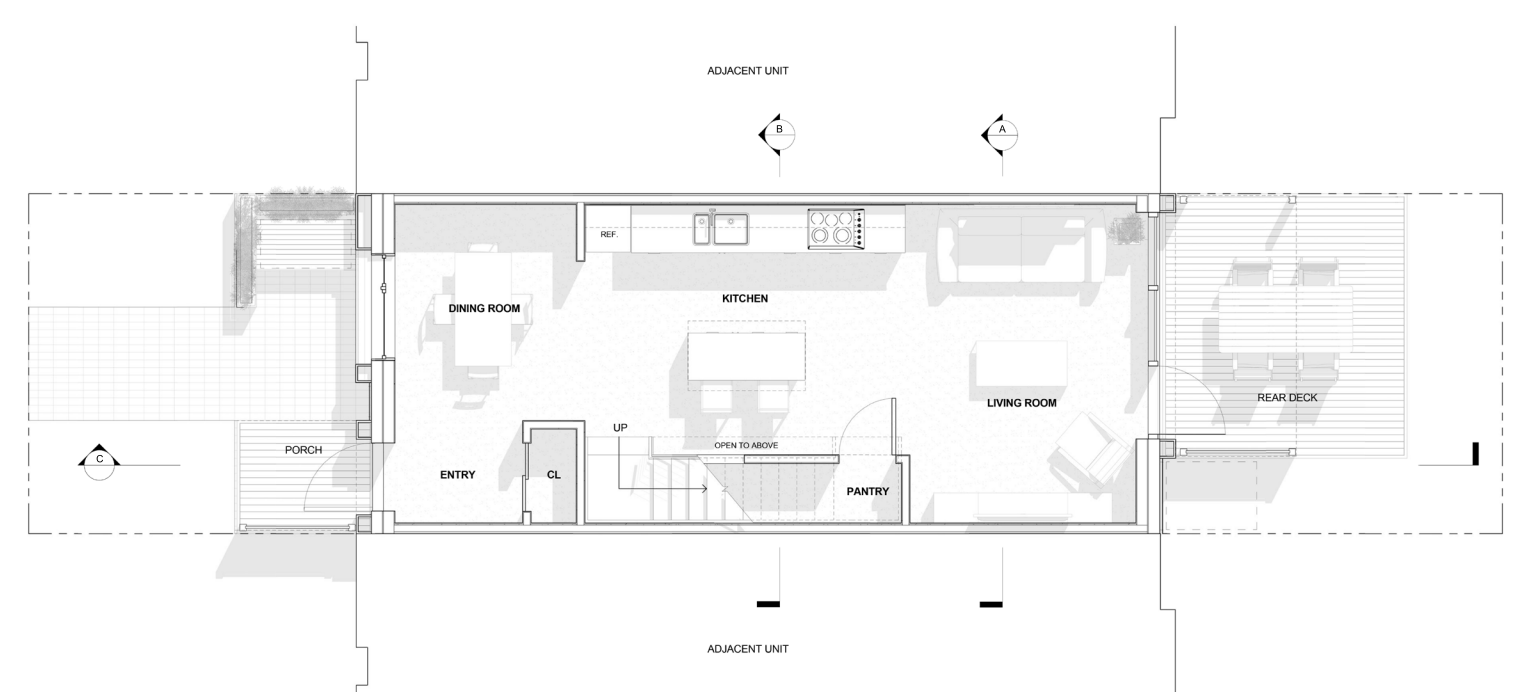
Envelope Detail Section Scale: 1/4" = 1'-0"



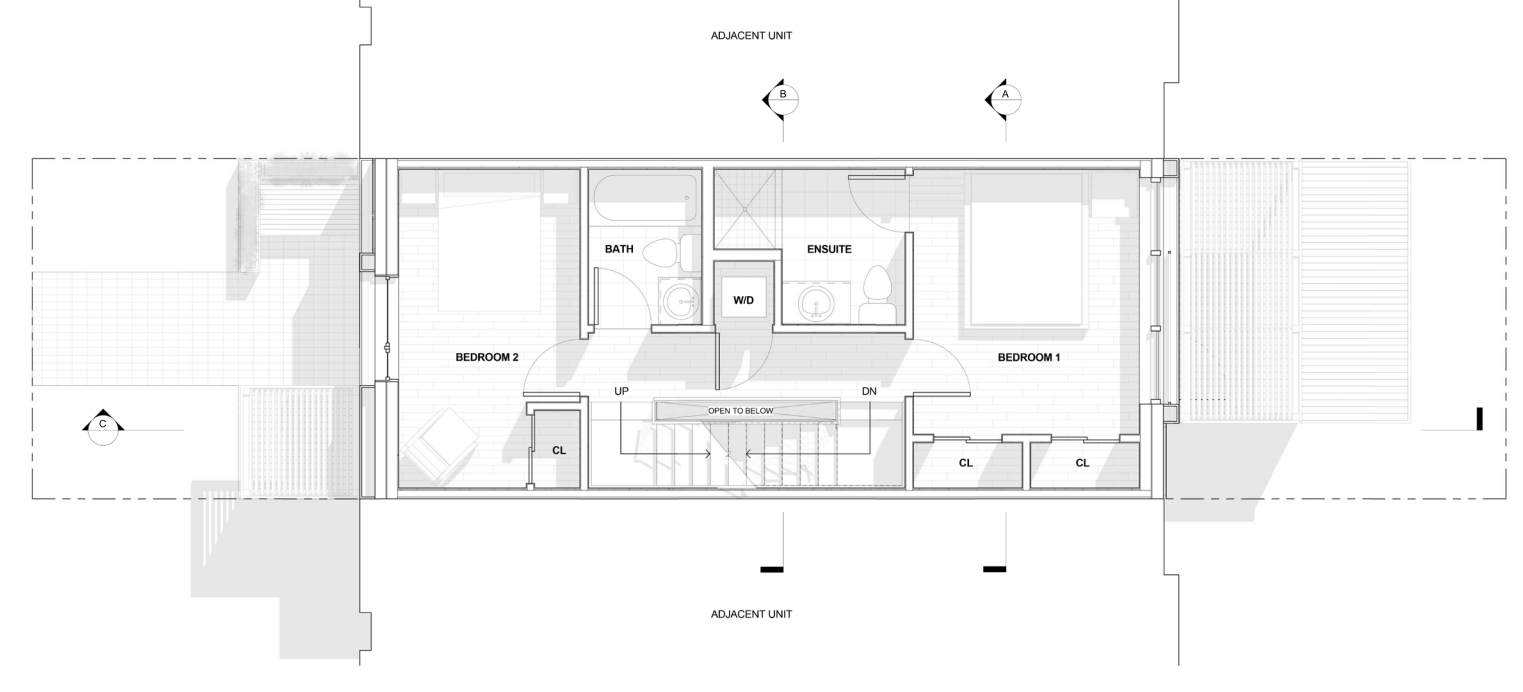
Section - A Scale: 1/8" = 1'-0"  
Section - B Scale: 1/8" = 1'-0"



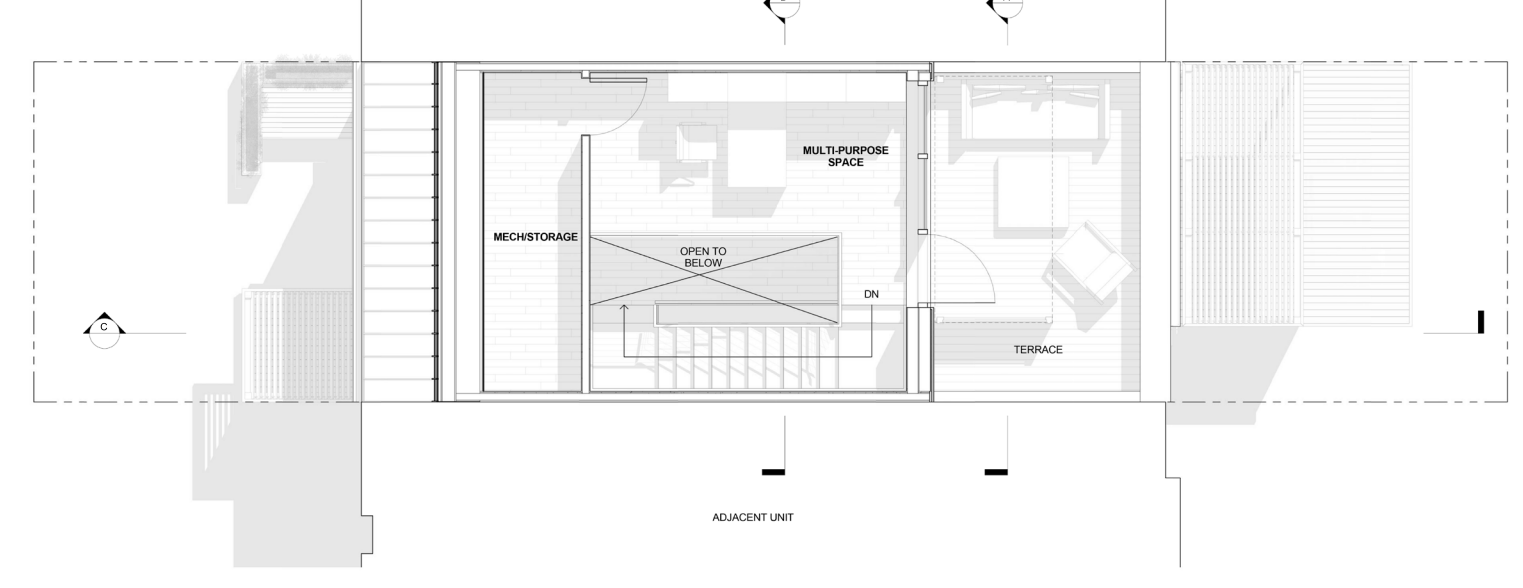
Second Level Gallery Stair



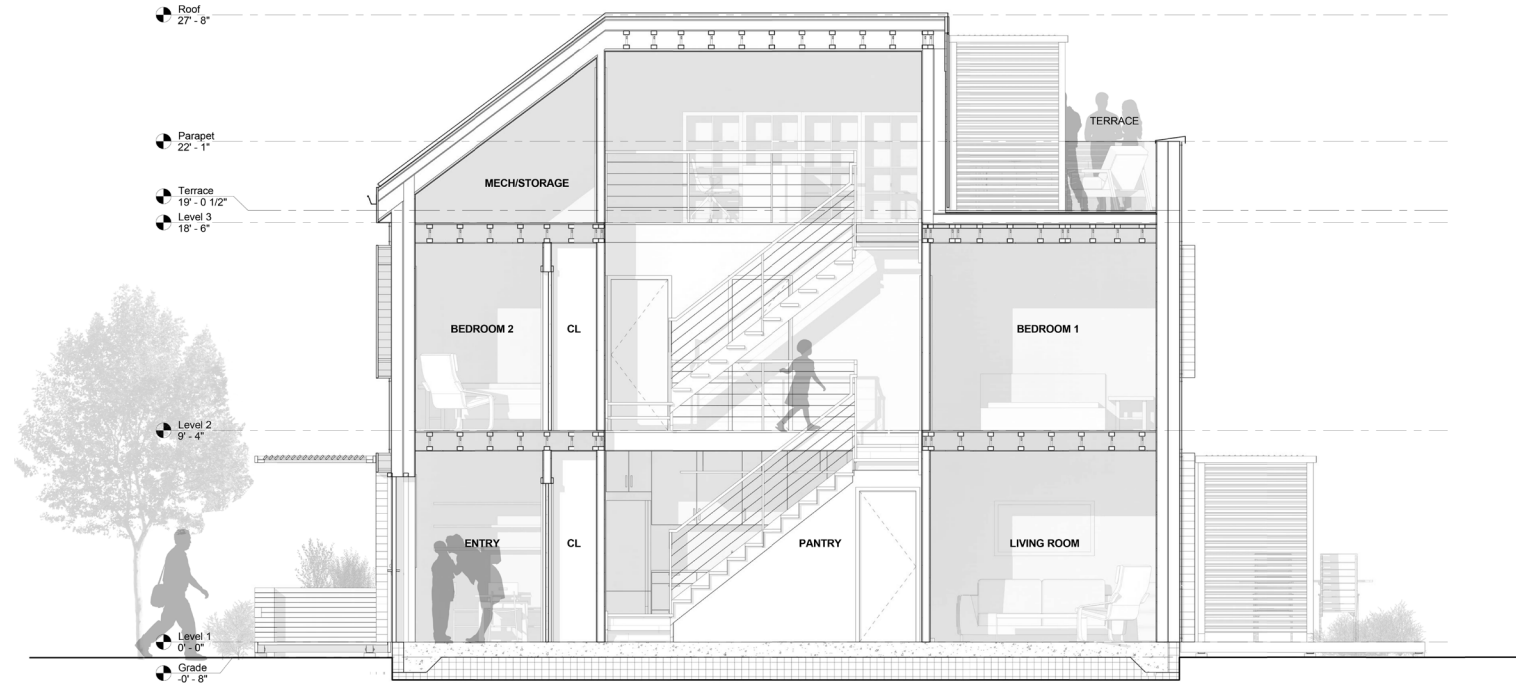
Plan - Level One Scale: 1/8" = 1'-0"



Plan - Level Two Scale: 1/8" = 1'-0"



Plan - Level Three Scale: 1/8" = 1'-0"



Section - C Scale: 1/8" = 1'-0"



Third Level South Terrace