

Montage Builders - Northern Forest

SUNY College of Environmental Science and Forestry, Syracuse University,
Onondaga Community College

THE MONTAGE

A 1,925 Square Foot Single Family Home:

- 2 Stories, 3 Bedrooms, 2.5 Baths
- Est. Construction Cost: \$243,082
- HERS Index Score: -5
- Estimated Monthly Energy Cost: \$2

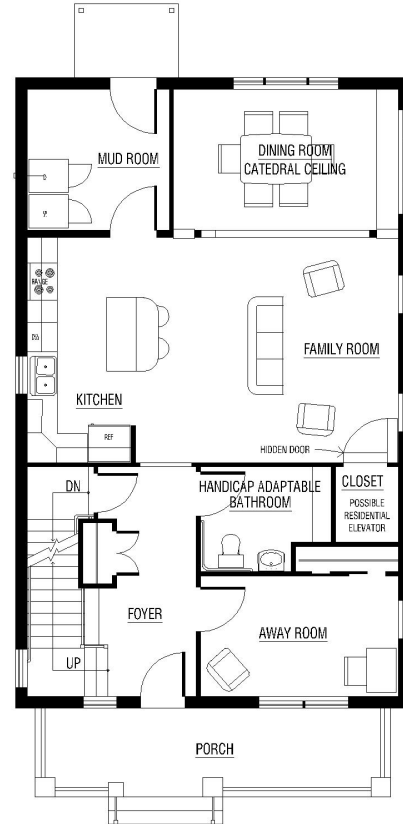
Location: Syracuse, NY - IECC Climate Zone 5

Design Strategy: Inspired by American Craftsman style architecture to fit the pattern language of the neighborhood. Optimized solar exposure for PV, Solar Thermal, and passive lighting/heat gain.

Enclosure: Applied Building Science Corporation's 5-10-20-40-60 insulation principle, Passive House infiltration rates, and Building America's durability strategies.

Space Conditioning: Integrative air-source to water heat pump tied to Solar Thermal array to provide heat (radiant distribution), and DHW.

IAQ: Eliminated/minimized pollutants at source when possible and provided a high-efficiency decentralized whole house HRV system with merv 10 filters.



CONSTRUCTION COST STRATEGY:

Invested first in 100-plus year components to ensure longevity and reduce the load while optimizing rapidly evolving “plug and play” mechanical systems and renewables.

TECHNICAL SPECIFICATIONS:

Wall R-Value: **R-45**

Ceiling R-Value: **R-60**

Foundation R-Value: **R-25**

Window R-Value/SHGC: **R-3.3 SHGC: .3**

Air-Source to Water Heat Pump COP: **3.7**

Water Heater EF: **2.5**

8 kW PV System

96 SF Evacuated Tube Solar Thermal Array



KEY STATISTICS:

Visitable – universal features make 1st floor accessible to all.

Constructable – within the skill set of local contractors, shovel ready.

Local – climatically relevant design.

Beautiful – fits local vernacular, and incorporates biophilic design.

Timeless – designed to last.

Efficient – optimal use of resources.

Healthy – for people and the environment.

Resilient – IBHS Fortified certification ready.

Affordable – based on Syracuse MFI

Adaptability – promotes aging in place with space for future residential elevator.

