

# EFFICIENCY CAN BE BEAUTIFUL!

## Passive House Retreat, New England

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[Architecture | Mechanical Design | Energy Consulting]

### OVERVIEW

This LEED certified vacation residence located in a beautiful ocean community on the New England coast features high performance and creative use of space in a small package. ZeroEnergy Design created the simple, gable-roofed structure and proposed the Passive House standard. **The resulting home consumes just 14% of the energy compared to a similar new home built to only code requirements.**

### DESIGN CHALLENGE

The client sought a modern two-bedroom, two-bath private retreat that was right-sized for their family - nothing more, nothing less - and a goal of minimizing energy use. The site offered excellent southern exposure, however paired that with the challenge of a lovely north-facing agrarian view.

### AESTHETICS

ZED planned the home's gable form as a defining aesthetic feature. Its iconic shape is repeated inside and out. Simple finishes, bright colors, minimal trim, and concrete floors achieve a clean, fresh look for the interior. Daylighting, paired with agrarian surroundings, enhances the home while drawing in the outdoor environment.

### LAYOUT

The layout carefully aligns with the family's planned use. Bedrooms are located at either end of the home. A central space with cathedralized ceilings includes living and cooking areas with northern views and ample southern daylight. A dining nook, on the south side of the space, accommodates a large table for both family and friends without encroaching on the open space. A loft, overlooking the living space, allows for extra sleeping areas and a dedicated play space for children. The family also expressed their love of bathing, which was addressed by including a dedicated sun-filled tub room in the southeast corner of the home. Despite the modest footprint, the home addresses all the family's needs through smart design and creative space planning.

### MATERIALS

The home features advanced framing, locally produced sheathing, the concrete slab foundation as the finished floor, quartz countertops, reclaimed cabinetry, fiber-cement & cedar siding, and zero-VOC paints.

### PERFORMANCE

High R-values in the home, including R-44 walls, R-50 slab foundation, R-60 roof, and meticulous air sealing result in a vast reduction in space conditioning requirements. A single air source heat pump provides heating and cooling distributed via exposed ductwork. After collecting a year of measured data, the result is an electric house that consumes 86% less energy compared to the same house built only to code requirements. Installing a small 4.1 kW solar system would offset the total annual energy consumption, making the home net zero energy.

### CERTIFICATIONS

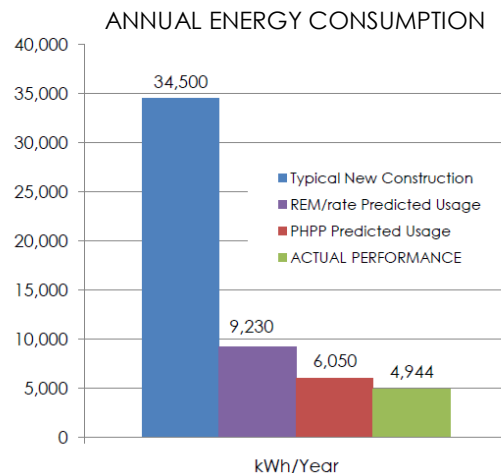
LEED GOLD certified. Energy Star certified.  
Designed to the Passive House Standard.

### TEAM

Architecture & Passive House Consulting:  
ZeroEnergy Design | ZeroEnergy.com

General Contracting:  
Aedi Construction | AediConstruction.com

Photos:  
Greg Premru | GregPremru.com



























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