Energy Efficiency
Case Study

Brought to you by Eversource and National Grid

Highland Street
Weston, Massachusetts

Background

Located in historic Weston, this single-family home blends an 1897 look with modern amenities and innovative energy efficiency measures. The Sponsors of Mass Save® provided $10,000 in Residential New Construction incentives to help cover the cost of upgrades.

Outcomes

Constructing a home that will meet building codes for decades to come, while maintaining its historic aesthetic and charm, requires detailed planning and cutting-edge practices and technology. The 7,640-square-foot home has a super-insulated envelope that provides a comfortable, healthy, and energy-efficient living space. Traditional double-hung windows with low-emissivity coatings and low U-value argon filling are both highly efficient and historically accurate. The southeast-facing roof of the main home and garage are equipped with a 14.7-kW solar array, offsetting much of the home's energy use.

The state-of-the-art HVAC system consists of three Mitsubishi air-source heat pumps with handlers and ductless units spread throughout the house. Several ductless mini-split heat pumps are recessed into the ceiling to take up less living space. Three Zehnder energy recovery ventilation systems clean the air.

To minimize the energy needed to provide hot water throughout the house, the building team installed a Rheem Prestige hybrid heat pump water heater and connected it to a Rheem Marathon electric water heater to add capacity. To circulate the water, they installed three Grundfos Comfort PM AutoAdapt pumps, which learn water usage patterns in a home and anticipate high demand as needed.

The insulation, walls, cabinets, paints, stains, and other elements of the house are made of materials with minimal formaldehyde and volatile organic compounds. The property was landscaped with grasses, shrubs, and trees native to New England, reducing the amount of water and labor needed for upkeep and promoting a healthy, natural environment.
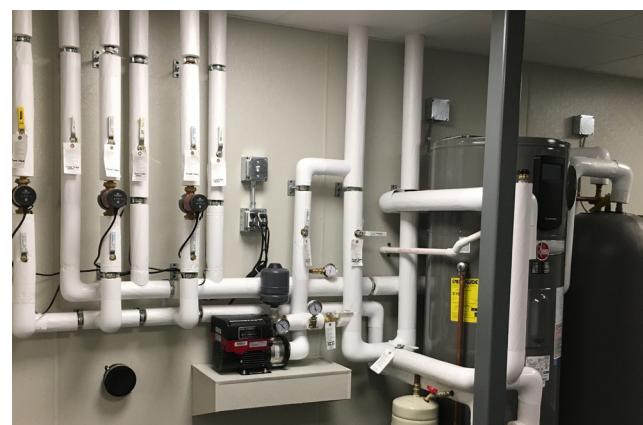
About Mass Save:

Together, we make good happen for Massachusetts. Your local electric and natural gas utilities and energy efficiency service provider are taking strides in energy efficiency: Berkshire Gas, Cape Light Compact, Eversource, Liberty Utilities, National Grid, and Unitil. As one, we form Mass Save®, with the common goal of helping residents and businesses across Massachusetts save money and energy, leading our state to a clean and energy-efficient future.

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Development team

- **Owner:** Steve Snider, Green Phoenix
- **Architect:** Treff LaFleche, LDa Architecture & Interiors
- **Contractor:** Walter Beebe-Center, Essex Restoration
- **Rater:** Mark Price, Price Sustainability Associates
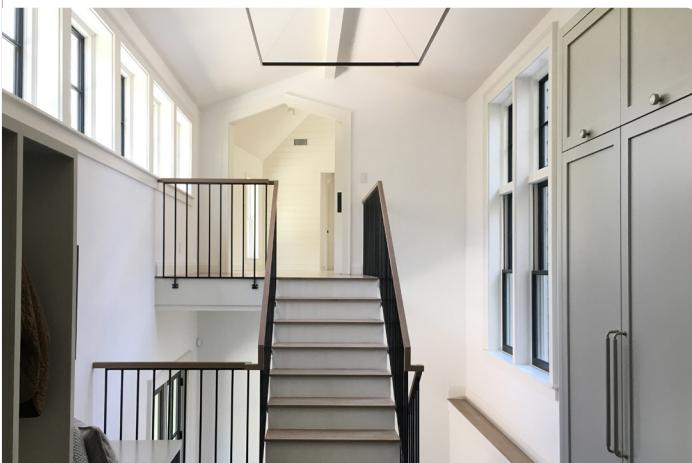
Green features

- Certifications
  - U.S. Green Building Council LEED Platinum®
  - U.S. Environmental Protection Agency (EPA) ENERGY STAR®
  - EPA Indoor airPLUS
  - U.S. Department of Energy Zero Energy Ready Home
- Building envelope
  - 0.45 ACH50
  - Roof: R67
  - Walls: R34
  - Windows: U-0.25, SHGC-0.25
  - Floor over garage: R50
  - Slab: R20
- HVAC
  - Three Mitsubishi air-source heat pumps
  - Three Zehnder energy recovery ventilation systems
- Lighting
  - 97% LED lamps throughout
- Hot water
  - Rheem Prestige hybrid heat pump water heater
  - Grundfos Comfort PM AutoAdapt pump
  - EPA WaterSense certified fixtures
- PV
  - 14.7-kW solar array

Have a question? We are here to help: 1-866-527-SAVE (7283)

- renovateaddma@icf.com
- https://www.masssave.com/en/residential/programs-and-services/renovations-and-additions

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