

ADVANCED ENERGY REBUILD

CASE STUDY Seargeant–Holmes Residence

PROJECT DETAILS

PROJECT NAME	Seargeant-Holmes Residence
LOCATION	Santa Rosa
CLIMATE ZONE	02
CONSTRUCTION COMMENCEMENT	2018

PROJECT TEAM

OWNER	Jarrod and Judi Holmes
HERS RATER	Delta T Energy
ENERGY CONSULTANT	Solargy, Inc



Figure 1. Home undergoing construction

PROJECT SUMMARY

The homeowners enrolled in the Advanced Energy Home Flexible Performance Path for their dual fuel home. Their home reserved a total of \$7,500 in incentives and demonstrated 83.60 kWh, 0.15 kW, and 150.70 therms savings. The owners selected high efficiency split AC and central furnace systems for space conditioning, and recirculation demand control occupancy/motion for domestic hot water (DHW) distribution. They also opted for various HERS verified measures to boost their code compliance, such as quality insulation installation (QII), a whole house fan, and verified SEER/EER and duct sealing.

The Advanced Energy Rebuild (AER) Program reduced the incremental costs of implementing these aggressive energy efficiency measures. The home achieved a modeled compliance of 29.8 percent better than a standard code compliant home and improved the energy design rating (EDR) by 7.

"We were very interested in making our new home as energy efficient as possible. The AER program allowed us to go more than 30% above code by offsetting the costs of additional energy efficiency items such as better insulation. This program will help us have a much more energy efficient home than we had before."

- Jarrod and Judi Holmes, Homeowners

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Located in Santa Rosa, California, the property sits on 0.96 acres in the Fountaingrove community. The home was affected by the October 2017 Northern California wildfire and will be move-in ready by the summer of 2019.



www.cahp-pge.com/advanced-energy-rebuild
RNC@TRCcompanies.com



ADVANCED ENERGY REBUILD

CASE STUDY Seargeant-Holmes Residence

Energy efficiency translates to better living for you.



Lower Energy Bills
Pay less and save more.



Increased Comfort
Reduced drafts with an improved building shell



Healthier Air
Better air quality and safe temperature levels.

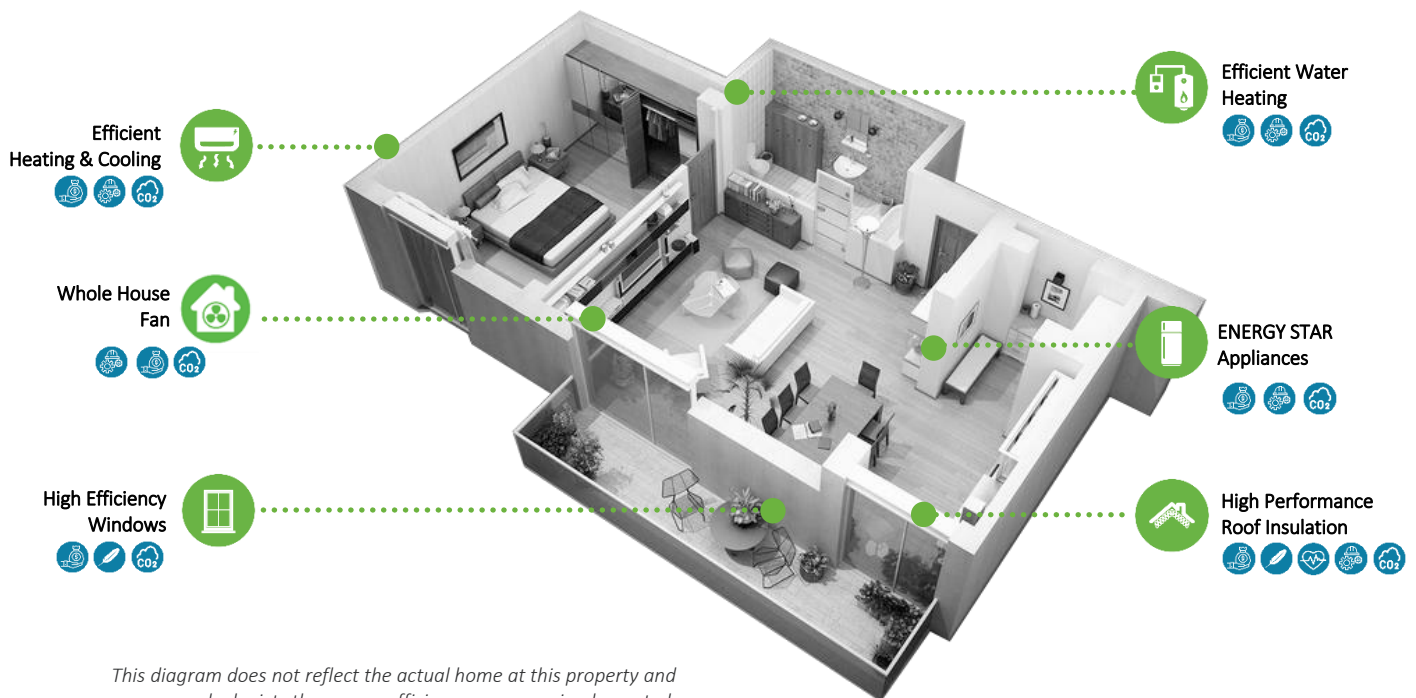


No Nuisances
Less maintenance and noise, fewer repairs and odors.



A Better California
Lower your carbon footprint for a better California.

IMPLEMENTED EFFICIENCY MEASURES



IMPLEMENTED EFFICIENCY MEASURES

Building Envelope



Ceiling: The home will have a High-Performance Attic with R-38 insulation at the ceiling and R-15 insulation below the roof deck.

Walls: The owner selected 2x6 16" OC framing with high density batt R-21 insulation.

Fenestration: The owner installed 0.30 U-Factor for all windows. The lower U-factor reduces conduction through the glass and reduces both heating and cooling needs in the home.

Mechanical Systems



Water Heating: The owner installed three instantaneous gas-fired water heaters, each with a Uniform Energy Factor of 95 percent. They chose to distribute their water through a Recirculation, Demand Control Occupancy/Motion System that was HERS verified.

Space Conditioning: The home is equipped with two high efficiency Split AC/Furnace for Heating Ventilation and Air Conditioning (HVAC) needs, which supply both the heating and cooling needs. Each system is operating at 16 SEER, 12.5 EER, and 96 AFUE. The HVAC system underwent a suite of HERS verifications for duct sealing, fan watt-draw, proper airflow, verified SEER and EER, and refrigerant charge testing, all of which contribute to a higher code compliance margin.

Whole House Fan: When running under ideal conditions, a Whole House Fan will cool the home by bringing in outside air through the windows and exhausting it out through the attic and roof. It will perform between 30 to 60 air changes per hour, depending on the climate and layout of the home. With the Whole House Fan, the homeowners have a more cost effective way to cool the home that is far less energy intensive than running their HVAC system.

DETAILED PROJECT SPECIFICATIONS

Envelope	Standard Design (2016 T24)	Proposed Design
Roof Insulation	R-38	R-38 At Ceiling, R15 Below Roof Deck
Wall Insulation	R-19 Cavity + R-5 (U-0.051) Continuous	R-21 Cavity (U-0.064)
Fenestration	0.32 U-Factor	0.30 U-Factor
Mechanical	Standard Design (2016 T24)	Proposed Design
Heating Ventilation and Air Conditioning	Split AC/Furnace	Split AC/Furnace
Cooling Efficiency	SEER 14 / EER 11.7	SEER 16 / EER 12.5
Heating Efficiency	AFUE 80	AFUE 96
Ducts	R-8, In Ventilated Attic	R-8, In Ventilated Attic R-8, In Crawlspace
Duct Leakage	Not Verified	Sealed and Tested
Domestic Hot Water	Tankless, 0.82 EF (Standard)	Tankless, 0.95 UEF
Whole House Fan	No	Yes
Non-Mandatory HERS Measures	Standard Design (2016 T24)	Proposed Design
Verified SEER	No	Yes
Verified EER	No	Yes
QII	No	Yes
Recirculation, Demand Control	No	Yes
Refrigerant Charge Testing	No	Yes