

## PROJECT DETAILS

<b>PROJECT NAME</b>	Klump Residence
<b>LOCATION</b>	Paradise, CA
<b>THERMAL ZONE</b>	2
<b>PROJECT TYPE</b>	Manufactured Home
<b>LAYOUT</b>	3 bedrooms, 2 baths

## PROJECT TEAM

<b>OWNER</b>	William Klump
<b>RETAILER</b>	Sterling Home Showcase
<b>FACTORY</b>	Champion Home Builders, Inc.
<b>FACTORY LOCATION</b>	Woodland, CA

## PROJECT SUMMARY

Located in Paradise, California, this manufactured home was installed following the Camp Fire in November 2018.

The Advanced Energy Rebuild Program helped homeowner Bill Klump offset the cost of an energy efficient home made available through the ENERGY STAR certification. This home enrolled in the program under the All Electric Home path and achieved an ENERGY STAR qualification by installing a variety of features that exceed the standard efficiency of a HUD code compliant manufactured home. This 1,404 sq. ft. double-wide, manufactured home is designed to be all-electric with no natural gas or propane supply to the home. The 200 Amp panel allows for all mechanical equipment and appliances to run solely on electricity.

The home reserved a total of \$3,000 in incentives and will yield 1851.00 kWh and 0.49 kW in annual energy savings. The owner elected to add R-38 ceiling insulation, R-19 wall insulation, and R-22 insulation in the crawlspace. These upgrades provided the homeowner with a comfortable and effective way to reduce energy costs and enhance the performance of the home's mechanical systems.



*Figure 1. Street view of the original home in 2015*



*Figure 2. The new home completed in 2020*

**“The staff with the AER program have been very helpful in navigating the application process. There were some unique circumstances that arose, and the staff kept me updated during the difficult and confusing period of rebuilding in Paradise.”- Bill Klump, Homeowner**

# 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 ensure comfort.



**Healthier Air**  
Better air quality through reduction in toxic substances and safe temperature levels.

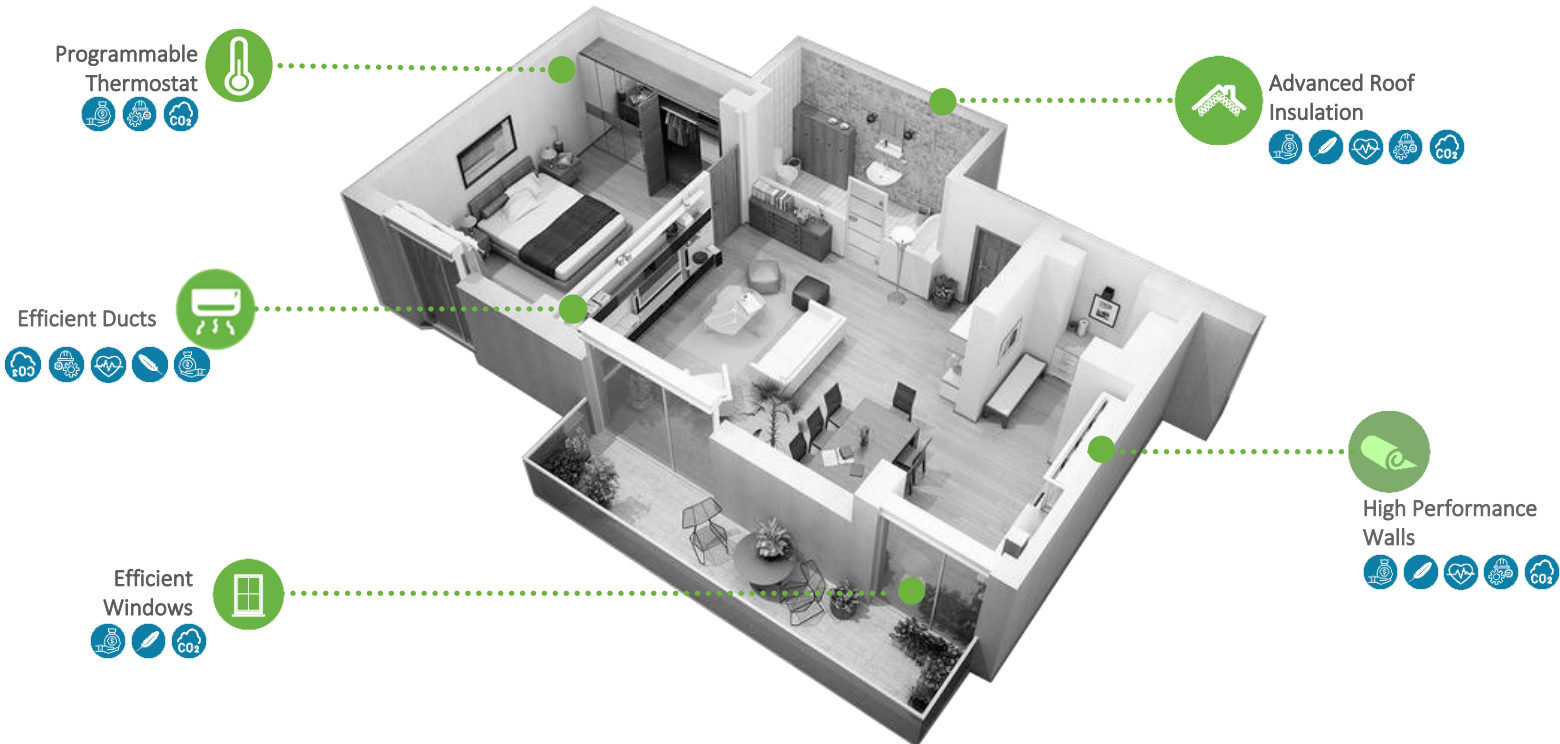


**No Nuisances:**  
Less maintenance, repairs, noise, and odors.



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

## ENERGY MEASURES IMPLEMENTED



*This diagram does not reflect an actual apartment at this property and only depicts the energy efficiency measures implemented.*



# PROJECT SPECIFICATIONS

## Building Envelope

Envelope Measure	HUD Standard Design	Proposed Design
Roof Insulation	R-22	R-38
Wall Insulation	R-11	R-19
Crawlspace Insulation	R-22	R-22
Window Specs (U-factor/ SHGC)	U-0.48 / S-0.32	U-0.35 / S-0.34



The home is designed with high-performance insulation in the walls and roof. This provides greater comfort by reducing the heating and cooling needs and the cost of energy for operation year around.

## Mechanical Systems

Mechanical	HUD Standard Design	Proposed Design
HVAC Type	Split AC System	Split AC System
Cooling Efficiency	SEER 14 / EER 11.7	SEER 14 / EER 11.7
Heating Efficiency	HSPF 8.2	HSPF 8.2
Ducts	R-4	R-8
DHW	Electric Storage 0.95EF	Electric Storage 0.95EF



The air distribution in the house is facilitated by an R-8 duct insulation system, which reduces heat gain/loss when transporting conditioned air from the air handler unit to conditioned spaces and increases the efficiency of cooling/heating from the HVAC equipment.

## Additional Feature

Additional Features	HUD Standard Design	Proposed Design
Thermostat	Non-Programable	Programable Thermostat



The addition of a programable thermostat allows for an array of customizable features. Scheduling automatic heating and cooling, remote WIFI connection, and eco-friendly modes can decrease energy consumption and reduce operational energy cost.