

ENERGY SOLUTIONS FOR THE KIENZLE FAMILY

WHITTIER, CA



Project Costs: \$20,190
Rebates: \$8,000
Total Costs: \$12,190



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Property Information

Your Home

Built:	1956
Size:	2450sf plus 650sf office
# of floors:	1
# of occupants	5
Exterior type/Condition:	Wood Good
Roof type/Condition:	Comp shingle/Good
Wall construction:	Drywall
Ceiling construction:	Drywall
Windows:	Aluminum,single pane
Patio Doors:	Alum. Single pane

Homeowner Concerns:

- Indoor Air Quality
- Comfort
- Would like to reduce energy usage with newer equipment.

Envelope Performance

Building Shell Leakage- Blower Door Test

A blower door is a diagnostic device used to measure the air tightness of buildings and to help locate areas of leakage. The air tightness of buildings is useful when trying to conserve energy, decrease air infiltration, and control building pressures. Leakage area estimates are a useful way to visualize the cumulative size of all the holes in the home. Controlling leakage reduces the cost of heating or cooling unintended or unconditioned spaces.



Blower Door Test Results for Your Home:

Measured: 9500 CFM50

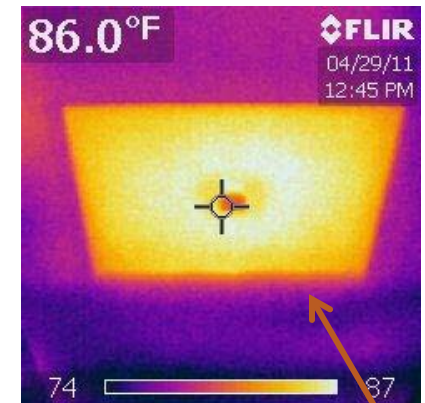
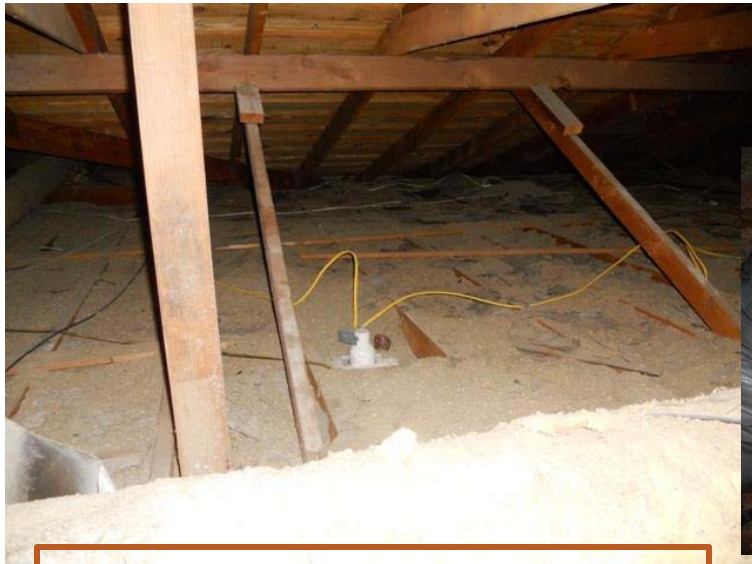
cubic feet/minute of air exchanged

Target: 2567 CFM50

*Based on sq. footage of home, # of occupants and geographical zone

Insulation Performance

Attic Insulation- BPI and Department of Energy standards recommend a R-value of R-38 for attic floors and R-19 for attic knee walls. Pictures show your homes' current insulation levels and areas of concern:



Attic insulation is currently blown cellulose performing at a R-13 because of age and voids. There is no air sealing around penetrations.

Target Insulation level : R-38

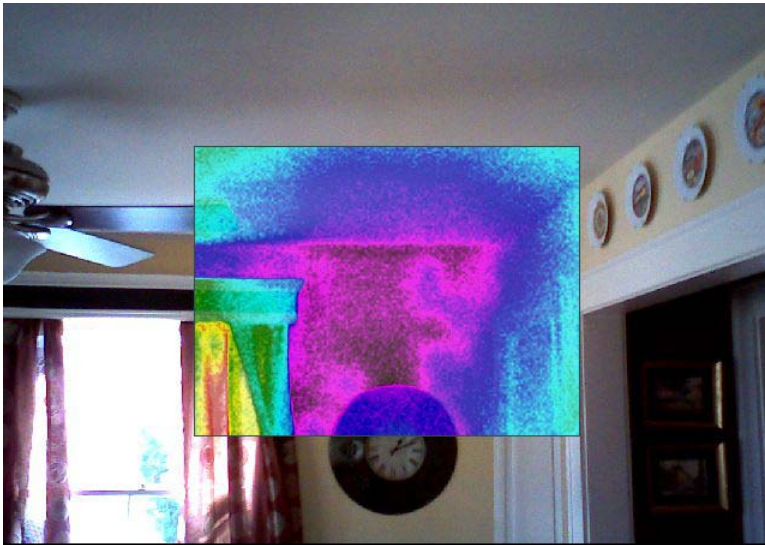
Current fixtures are not air tight or insulation certified allowing for attic air to be pulled into living space.

Insulate attic access that is allowing heat and cold to bypass insulation

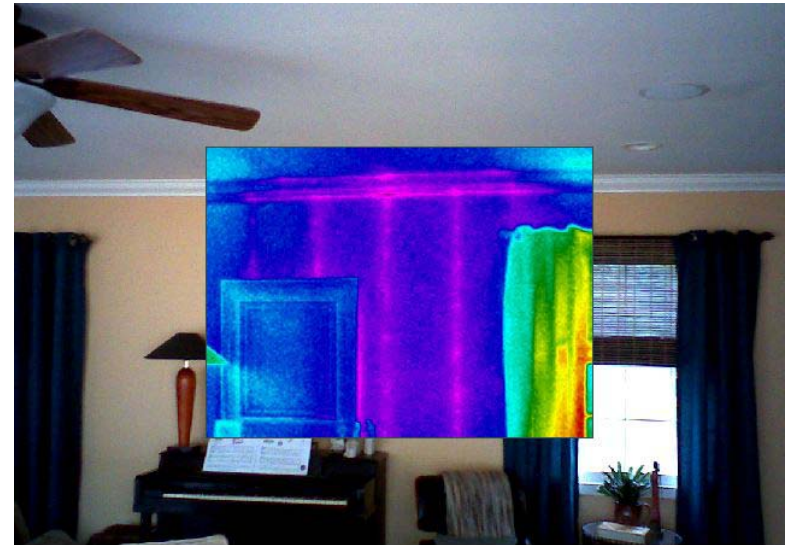
Insulation Performance

Wall Insulation- There is no added insulation in the exterior walls of your home. It was built prior to County and City building codes requiring the addition of insulation.

Target insulation level is R-13 or greater.



Thermal image scan showing the absence of insulation.



Thermal image scan showing the presence of insulation between framing.

Insulation Performance

Crawlspace Insulation- A crawlspace or subfloor that is not sealed or insulated allows unconditioned air to be drawn into the home. The lack of insulation causes heating and cooling equipment to work harder to maintain a constant temperature because of the inconsistent temperature of the flooring.



Crawlspace without air sealing allowing for unconditioned air and dirt to be drawn into the home.



Another view of the subfloor without insulation or a vapor barrier.

Duct/Distribution Performance

Properly installed air ducts are one of several factors necessary for an efficient heating and cooling system. Un-insulated, poorly insulated, or poorly sealed ducts can lose 10-30% of the energy used to heat and cool your home. The heating and cooling equipment has to run more often to compensate for lost air which raises your energy bills.



Current duct insulation: R-2

Duct Leakage: 760 CFM

Measured leakage using BPI standard duct blaster test

Target duct insulation is: R-8

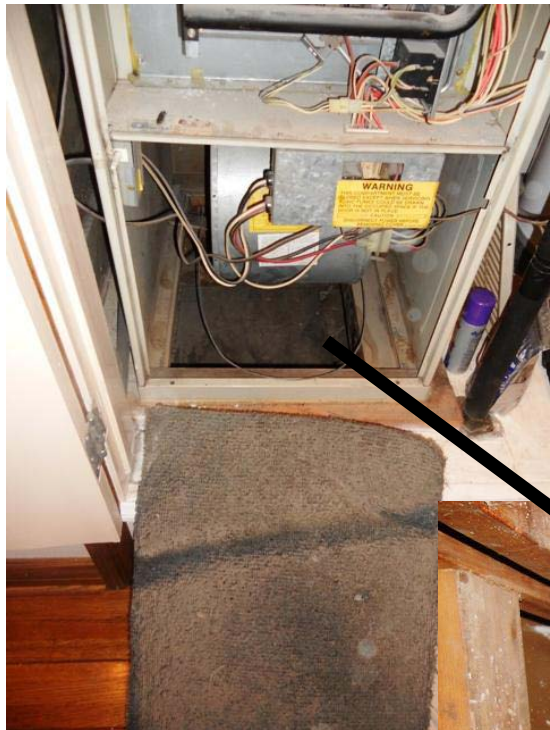
Allowable duct leakage is: 160CFM



Ducts are poorly insulated and exposed to heat of attic. Some ducts are damaged.

Ducts are not sealed properly allowing unconditioned air to be drawn into home.

Indoor Air Quality and Safety



Washable filter is dirty which is restricting air flow from furnace. Furnace is sitting on return air box with exposed framing. This configuration allows for unconditioned air to be drawn into furnace and for excessive duct leakage.



Existing water heater failed exhaust gas spillage test.

Additional areas for improvement



Kienzle Home Energy Assessment