
Home Performance with Energy Star Report



HOMEOWNER:
John & Jane Smith

ADDRESS:
1234 Typical Home
Phoenix, AZ 85012

Phone: 602-264-2500

UTILITY COMPANY:
APS

INSPECTION DATE:
8/2/2011

Dear **John & Jane:**

Per our Home Performance with Energy Star inspection, the following existing conditions were noted. Arizona Energy Management is pleased to submit for your review and approval the following proposal. We will provide all of the necessary labor and materials to perform the work as outlined below.

This proposal is valid for (60) sixty days from the above date and does not include costs for permits, premium time, or any other work/modifications that are not specifically outlined above.

Thank you for the opportunity to provide our services. Please feel free to contact our office @ (602) 595-6667 should you have any questions regarding your report.

Sincerely,

A handwritten signature in blue ink that appears to read "Ben Chao".

Ben Chao



CERTIFIED
PROFESSIONAL

Arizona Energy Management & Remodel
PO Box 83478 Phoenix, Arizona 85071-3478
O: (602) 595-6667 F: (602) 795-8090
office@azenergymanagement.com Lic #AZROC166470

GENERAL OBSERVATIONS

- **Ranch/Single Story** style home built in **1955** with **block & brick** construction, **Shingle** roof, the front faces **South**. The surrounding neighborhood consists of similarly constructed homes.
- **3 Bedroom & 3 bath**, with **attached two car garage**. **1813 ft²** with average ceiling height of **9'** ft.
- Specific homeowner concerns: **High utility bills, uncomfortable kitchen area.**

HVAC System

Duct System

<u>Pressure Pan Readings</u>	(per system)	<u>Overall Duct Leakage</u>	<u>Ducts are:</u>
Supplies 0.2 to 1.1		430 CFM50	Leaky in Need of Sealing
Return(s) 1.9 to 2.6			



Why is this important? *As much as 1/3 of your home's expensive conditioned air may be leaking into or being pulled from to the attic or other unwanted areas through cracks or poorly fitting duct connections. In addition, to increasing utility bills, indoor air may be contaminated with pollen, exhaust fumes, or other hazards.*

Recommended Repairs:

1. **Seal boot to drywall for all supplies.**
2. **Seal (4) floor returns open to attic space and supply & return plenums.**
3. **Wrap exposed rigid duct work with R-4 insulation.**
4. **Homeowner to utilize 30 day high flow filters**

Completing all recommended repairs inc. Tax: **\$1,290.00**

Utility Rebate **\$250**

Equipment

Unit Static Pressure (iWC)

System #1 =	Total .591	<i>with filter OUT and grill OPEN</i>
	Total .926	<i>with filter IN and grill CLOSED</i>

What does this mean?

High RETURN pressure causes significant strain on the system, reducing system life. Typical causes are low flow/dirty filters or grills, undersized return box or flex line, and ducts restricted or crushed.

System (Age & Maintenance)

Maintenance - Overall, the HVAC systems are in **GOOD** condition. System maintenance effects how the unit operates and how long a system typically lasts.

Age - System #1 = **2010**

Size – Overall cooling system size is **5 tons, oversized for the cooling needs.**

Overall, the systems are operating at **99%** Efficiency.



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Insulation

For insulation to be effective, it must be in 100% contact with the air barrier, no gaps, voids, or compressions. A 1/2" gap with the air barrier reduces the R-value by 75%.

Knee walls

The vertical walls in the attic are called knee walls and often installed poorly.

General Conditions:

Poor

Recommended Repairs:

1. **Replace knee wall insulation. (168 sq.ft.)**



Attic Floor Areas

Total Attic square footage: **1813 ft²**

Insulation type: **Blown Cellulose**

Average Depth: **4 inches**

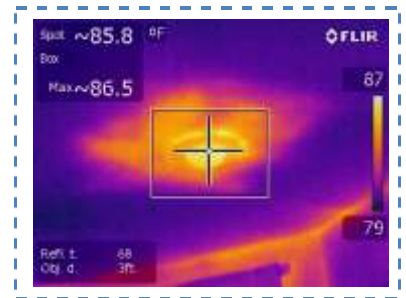
Overall Installation quality: **Average, small gaps, voids, etc.** → Effective R-value: **14.8**

Attic Hatch: **located outside the conditioned space, no repairs needed.**

Recommended Repairs:

1. **Blow entire attic to R-38. Add (R-25), appx. 1500 sq. ft.**
2. **Blow to cover all exposed duct work.**

Completing recommended repairs inc. Tax: **\$1,572.80** Utility Rebate **\$250**



Infiltration

The CFM50 infiltration test was **2628** indicating a **leaky** air barrier. Minimum ventilation for your home is **1739** CFM50.

Why is this important? *Your home needs to breathe to be healthy. Too much leakage brings contaminants into the home, while too little leakage does not allow healthy air exchange with the outside.*

Recommended Repairs:

1. **Install weather stripping and door sweep to seal off utility room from main body.**

Completing recommended repairs inc. Tax: **\$354.97** Utility Rebate **\$250**



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Safety

Combustion Safety

Appliance: **Furnace** Testing: **Passed all Testing**

Appliance: **Water Heater** Testing: **Passed all Testing**

Appliance: **Dryer** Testing: **Passed all Testing**

Garage Notes: **-0.9 CAZ Test, Passed.**

Why is it important? *A large negative pressure inside the home will pull carbon monoxide and other toxins from combustion appliances and the garage.*

Sunscreens/Windows

Existing Windows = **Single Pane, metal frame and do not need additional protection.**

Why is this important? *With 300+ days of sunshine a year, homes in Phoenix are pelted with large amounts of radiant energy from the sun. Windows are a large source of air conditioning load along with causing considerable comfort issues.*

Additional Items

Pool/Hot Tub - Your pool is one of the easiest places to cut electric usage and save hundreds of dollars!

Timer – Set your timer for no more than 8 hours during the hottest time of year, less for cooler weather.

Current timer settings = 8 hrs

Pump Size – Most pool pumps are larger than necessary for the pool/spa size. Flow rate for the pipes, filter & pump need to be evaluated to see if a smaller pump will give you BIG savings.

Pool volume = 30,000 gallons

Pump Type – A *single* speed, 1 hp pump costs = \$651/year to operate, while a *variable* speed pump costs ONLY \$105/year to operate! **SAVINGS = \$446/yr** **Based on a 20,000 gallon pool.**

Existing Pump = 1 hp

Recommendations:

1. Replace existing pool pump with a variable speed pool pump. \$1597.21 Utility Rebates \$200

Lighting

In Phoenix, 14-16% of your electrical bill is general lighting. By changing out 10 regular 60w *incandescent* bulbs (4 hrs/day) to *CFL* bulbs, you will save \$65.70 per year or 75%.



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SUMMARY OF RECOMMENDATIONS

HVAC SYSTEM

1. Seal boot to drywall for all supplies.
2. Seal (4) floor returns open to attic space and supply & return plenums.
3. Wrap exposed rigid duct work with R-4 insulation.

INSULATION

1. Replace knee wall insulation. (168 sq.ft.)
2. Blow entire attic to R-38. Add (R-25), appx. 1500 sq. ft.
3. Blow to cover all exposed duct work.

EXTERIOR

1. Replace existing pool pump with a variable speed pool pump. (not included in totals)

Total for Recommended Repairs

\$3,217.77

Total Qualifying Rebates

\$750.00

Total Estimated Savings

~\$497/year



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