



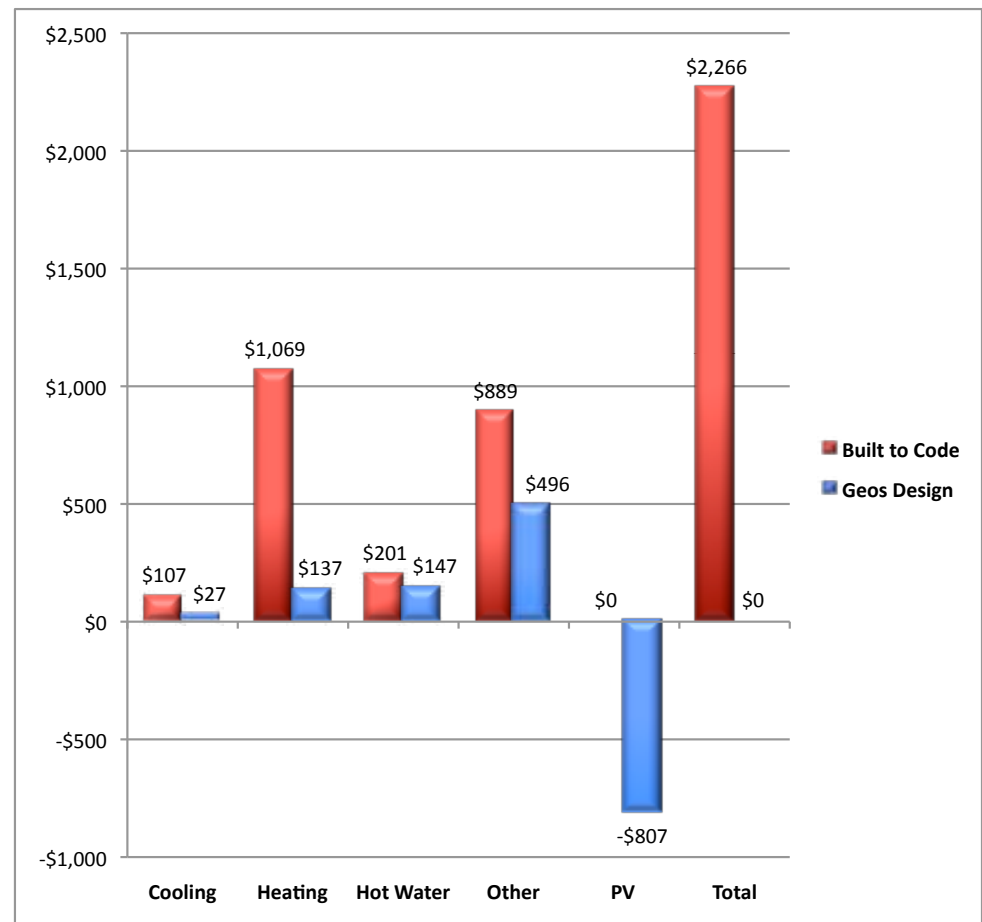
Annual Energy Performance

Alley House



The Geos Alley House saves the owner \$2,266/yr in utility bills at today's rates while improving comfort, health, and durability compared to a built to code home.

End-Use	Built to Code		Geos Design	
	Energy	Cost	Energy	Cost
Cooling	871 kWh	\$87	155 kWh	\$16
Cooling Fan	204 kWh	\$20	37 kWh	\$4
Cooling Vent Fan	0 kWh	\$0	70 kWh	\$7
Heating	992 Therm	\$992	900 kWh	\$90
Heating Fan/Pump	765 kWh	\$77	263 kWh	\$26
Heating Vent Fan	0 kWh	\$0	211 kWh	\$21
Hot Water	201 Therm	\$201	1472 kWh	\$147
Hot Water Pump	0 kWh	\$0	0 kWh	\$0
Ceiling Fans	0 kWh	\$0	0 kWh	\$0
Clothes Washer	105 kWh	\$11	31 kWh	\$3
Dishwasher	145 kWh	\$15	101 kWh	\$10
Dryer	891 kWh	\$89	891 kWh	\$89
Lighting	2575 kWh	\$258	1239 kWh	\$124
Miscellaneous	3932 kWh	\$393	1800 kWh	\$180
Pool Pump	0 kWh	\$0	0 kWh	\$0
Range	447 kWh	\$45	447 kWh	\$45
Refrigerator	775 kWh	\$78	450 kWh	\$45
Total (kWh)	10710 kW	\$1073	8066 kWh	\$807
Total (Therms)	1193 Ther	\$1193	0 Therms	\$0
PV Produced (kWh)	0 kWh	\$0	-8103 kWh	\$-807
Total Cost		\$2266		\$0
Emissions (Calculated as Total - PV Produced)				
SO2	28.69 Lbs.		0 Lbs.	
NOX	43.65 Lbs.		0 Lbs.	
CO2	17.59 Tons		0 Tons	





30 Year Energy Performance

Alley House



- Better returns than the bank! Looking solely at energy savings, a Geos home can have annual returns starting as high as 5.7%.
- Geos Homes are cash flow positive in year one.
- Over the course of a 30 year mortgage, you'll make \$24,106 in today's money even while including replacement of the solar electric inverter every 15 years.
- This does NOT include the potential increased appraised value of the home.
- Your initial extra investment is paid off in year 16.

Improvement Cost	\$ 45,000
Debt Ratio	80%
Loan Amount	\$ 36,000
Basis	\$ 9,000
Discount Rate (including inflation)	2.5%
Fuel Escalation Rate	3.0%
Mortgage Rate	5.25%
Tax Rate	24%
Initial Annual Fuel Savings	\$ 2,266
Lifetime (Years)	30

Present Value of Savings	\$ 73,371
Present Value incl. Tax Savings	\$ 81,907
Cumulative Profit	\$ 24,106
Savings-Investment Ratio (SIR)	8.15
Simple Payback at 100% down (years)	19.86
Modified Payback 20% down (years)	16
Modified IRR (Equivalent Annual Yield)	5.7%

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Year	1	2	3	4	5	6	7	8	9	10	15	30	Totals
Utility Savings	2,334	2,404	2,476	2,550	2,627	2,706	2,787	2,871	2,957	3,045	3,530	5,500	111,040
Present Value of Utility Savings	2,277	2,288	2,299	2,311	2,322	2,333	2,345	2,356	2,367	2,379	2,438	2,622	73,371
Cumulative Present Value of Utility Savings	2,277	4,565	6,865	9,175	11,497	13,830	16,175	18,530	20,898	23,277	35,347	73,371	73,371
Annual Additional Mortgage Payment	2,386	2,386	2,386	2,386	2,386	2,386	2,386	2,386	2,386	2,386	2,386	2,386	71,566
Interest Payment on Mortgage	1,878	1,851	1,822	1,792	1,760	1,726	1,690	1,653	1,614	1,572	1,329	66	35,566
Tax Savings at 24% Tax Rate	451	444	437	430	422	414	406	397	387	377	319	16	8,536
Maintenance Costs											(5,000)	(5,000)	(10,000)
Net Savings	399	463	528	595	664	734	807	882	958	1,037	(3,536)	(1,869)	38,010
Present Value of Net Savings	389	440	490	539	587	633	679	724	767	810	(2,442)	(891)	24,106
Cumulative Profit (Present Value)	389	830	1,320	1,859	2,445	3,079	3,758	4,481	5,249	6,059	7,268	24,106	24,106



30 Year Energy Performance Alley House



Here's how it works:

- The homeowner pays an additional \$45,000 for the incremental improvements.
- They add this amount to their traditional 30 year mortgage (\$9,000 down).
- The additional annual mortgage payment is \$2,386 at a rate of 5.25%.
- \$1,878 of this is interest in year one, so it's tax deductible, saving \$451 with a tax rate of 24%. (Each year this number goes down, but energy rates go up)
- This means total 1st year costs are \$1,935.
- The eliminated utility bills equal \$2,266, so you have a net **income** on your initial investment of **\$331** in year one! (\$389 with 3% energy escalation)
- When we consider the rising cost of energy, we could make a modest assumption that energy prices will rise an average of 3% each year. (In the past few years, the increases have been closer to 12% in Colorado).
- When we include a discount rate of 5% and subtract out 2.5% for inflation, we're looking at an income of **\$24,106** in today's money after 30 years. That's the equivalent of a 5.7% annual return in a bank account.
- At a 6% increase in energy costs, the income is \$70,021 and the annual return is 9.5%!