



Home Energy Analysis

Address 45 Deercliff Road, Avon (with renewables)
 Owner David Gordon Builder Poirier Homes

Rater P Harding
 Date 4/24/2010
 Rating #
 File:

Conditioned Area (sf)	8,619
# Bedrooms	5
HERS Index	22
Rating Type	Projected
Energy Star	Pass

Energy Efficient Home Tax Credit Status: Pass			
MMBtu/year	Target Load	Design Load	Difference
Heating	97.1	41.3	(55.8)
Cooling	32.4	23.7	(8.7)
Total	129.5	65.0	(64.5)

Annual Energy Cost Projections						
	Load (MMBthu/year)	Consumption (MMBthu/year)	Annual Cost (\$)	Annual Savings (\$)	Reference Home Cost (\$)	Annual Savings (%)
Heating	102.3	28.8	1,516	5,636	7,152	78.8%
Cooling	38.3	8.3	437	746	1,183	63.1%
Hot Water	11.4	1.0	34	806	840	96.0%
Other	73.1	73.1	3,857	506	4,363	11.6%
Photovoltaics		(45.7)	(2,411)			
Total	225.1	65.5	3,433	10,105	13,538	74.6%

Actual energy costs and savings may differ considerably from above projections depending on number, lifestyle and habits of occupants. Percentage reductions provide a reasonable estimate of savings for a given household.

Mortgage Interest Rate	5.5%	Annual Energy Cost Inflation	5.0%
Marginal Tax Rate	30.0%	Capitalized Annual Savings	\$ 344,011

Capitalized Annual Savings is NPV of Annual Savings including inflation for 30 years discounted at after-tax mortgage rate

Utility Rates	Electric	0.18 \$/kwh	N Gas	1.35 \$/100cf	Propane	2.50 \$/gal	Oil	2.25 \$/gal
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Annual Load by Building Component (MMBthu/year)			
Heating		Cooling	
Component	Load	Component	Load
AG walls	31.6	Internal gains	33.2
Windows	31.5	Windows	24.6
Infiltration	23.3	Ceilings	2.5
Ceilings	19.4	Ducts	1.8
Ducts	7.3	Slab floors	(1.9)
Unhtd basement	6.0	Infiltration	(2.1)
All other	18.4	Nat ventilation	(16.0)
Internal Gains	(35.2)	All other	(3.8)
Total	102.3	Total	38.3

Equipment Sizing Summary	
Heating	MBtuh/hr
Peak Load	75.6
Spec Cap	96.0
Load/Cap	78.8%
Cooling	MBtuh/hr
Peak Load	48.2
Spec Cap	129.6
Load/Cap	37.2%

Infiltration Losses		Duct Losses		Ventilation	
	Heating	Cooling	Duct Leakage to Outside	Required* (CFM)	
ACH Nat	0.11	0.08	CFM@25 Pascals	100	Specified (CFM)
ACH50	1.86	1.86	CFM25/100sf	1.16	Specified (hrs)
CFM@50 Pascals	2500	2500	ELA	8.61	Sensible Recovery
CFM50/SF	0.29	0.29			Total Recovery
ELA/100sf shell	0.74	0.74			60%

*ASHRAE 62.2 -2003 defines minimum 24 hr continuous ventilation rate

Building Specifications						
Thermal Envelope (dominant type if more than one)						
	Type	U	R	Basement Type	Cond/uncond	
Ceiling - Flat	R44 LDF		-	Window/Wall Ratio	0.18	
Ceiling - Vaulted	R50 HDF	0.028	35.7	Mechanicals		
AG Walls	R31 1"XPS+R26	0.039	25.6	Heating	2 GSHP 3.9COP/48kBtuh	
Foundation Walls	R29 cond, R13 uncond		-	Cooling	2 GSHP 17.5EER/65 Btuh	
Frame Floors	R44 LDF over garage		-	DHW	.95EF tankless propane + 128sf active solar	
Slab Floors	R10 XPS		-	PV	10,125w array	
Windows	Double/LowE/Argon	0.270	3.7			

Notes