

# Discover what's next!

Share in our journey creating future friendly homes.

Attend workshops and open house events. Get periodic newsletters. Read our blog.

We are committed to designing, building, and providing guidance in the creation of homes that are "future friendly".

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## FUTURE FRIENDLY HOME FEATURES

These are homes of high performance and practical function. They are durable, extremely efficient, exceptionally comfortable (in a way few of us have ever experienced), healthier, simpler and significantly cheaper to operate and maintain. They are responsive to the environmental impacts a home can present, while offering security and stability in the face of an uncertain future. And in good design hands, they are, as they must be, homes of lasting beauty.

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## THEY ALIGN WITH OUR PURPOSE

Our work is to make your home a better place to live. We strive with you to make your home a place in which you and your family will thrive, find comfort, be convivial, connect with others and, if we can get it just right, be nourished, renewed, and fulfilled. But that's not all.

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## WE HAVE A NEW LEGACY TO CONSIDER

Our homes are part of a larger fabric. It is not only our estate that we may be leaving our kids. Our homes are placing an uncomfortable burden on the earth coming generations will inherit. We need to recognize this impact on the global commons. We're invited to contemplate a necessary balance between our self interest and our shared interest.

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## CHOOSING OUR FAIR SHARE

Trends in energy, the environment, and our economy make it clear: the next twenty years will be decidedly different than the last twenty years. We're all adjusting. We're also recognizing that each of our choices make a difference. Rather than wait on the sidelines, these challenges invite us to own up; to become alert and active; to recognize that ownership includes stewardship; to think clearly, then act, one choice at a time.

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## CHANGE IS OUR PRACTICE

We're up for this. We believe in the power and promise of design. Designers thrive where there are problems to be solved. We believe that there are exciting new opportunities to define what makes a home future friendly. We want you to understand and share our sense of excitement about what is possible. We want to share our capacity to make this possible with you. We look forward to making this work.

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## 10 FUTURE FRIENDLY QUALITIES TO SEEK IN WHAT'S NEXT FOR YOUR HOME

### **BEAUTIFUL** *We care for things we treasure*

We strive to create homes of lasting beauty, vessels for living fully and well. These are homes to be loved, and thus cared for and maintained. Their charms are asking to last.

### **EFFICIENT** *Miserly use of treasured energy*

These homes treat energy as the precious resource it is. They are constructed to gain energy passively and place a miserly hold on every drop produced mechanically. Maximize gain. Minimize Losses.

### **DURABLE** *Thus lasting and maintainable*

Buildings that treat energy preciously must be durably built. The elements of the structure are essential to the building's performance. They are built to last and easy to maintain.

### **COMFORTABLE** *Surprisingly even and stable*

Homes that treasure energy are exceptionally comfortable. No drafts or temperature swings. No cold surfaces or windows that fog. Constant fresh airflow. Lower air temperatures without discomfort. Space that feels good.

### **FLEXIBLE** *Long life and loose fit*

Buildings that last remain flexible. They expect and anticipate changing owners and changing uses. Rooms can shift and share functions. Alcoves and hall niches accept changing purposes.

### **HEALTHY** *Clean air and lively spaces*

Constant fresh air at controlled rates provide consistent air quality. Indoor contaminants are constantly flushed. Lively spaces invite convivial living for personal well being.

### **SIMPLE** *Easy to use and cheaper to operate*

Our goal is to reduce the size and complexity of mechanical systems and their controls. Fewer parts means simpler maintenance and a system that is easier to understand.

### **RESPONSIBLE** *Accountable for a fair share*

Future Friendly Homes, by decreasing their demand for energy while shifting from sources that contribute to climate change and resource depletion, contribute their fair share to solving this global challenge.

### **STABLE** *Secure and predictable*

Dramatically reducing energy demand provides a desirable buffer against the unpredictable, but inevitable, increases in energy and fuel costs. Low loads align well with renewable sources that can be added on site. Now or later.

### **COHERENT** *With environment and community*

We strive to create buildings that are integrated with the life of the community and the sustainability of the environment. For a long, long time and for the good of both.

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Join us in our journey to discover what could make your home great



# Home Energy Analysis & HERS Rating

Address 17 Metacomet Rd, Farmington, CT 06032  
 Owner Michael Randich Builder Wolfworks

Rater T Ziobron  
 Rater # 6614443  
 Date 12/24/2013  
 Rating # 1425961

Conditioned Area	2932	Rating Type	Confirmed	HERS Index	-10	Weather site	Hartford
# Bedrooms	3	ENERGY STAR 2.5	N/A	HERS Index w/o PV	37	Heating Degree Days	6179
Housing Type		ENERGY STAR 3.0	Pass	HERS Target Index with SAF	81	Design Load (Btu/sf)	3.6
Single family detached		Builder Tax Credit	N/A	Reference Home Index	81	LL Homes Bonus	Pass

Annual Energy Cost Projections						
	Load (MMBthu/year)	Consumption (MMBthu/year)	Annual Cost (\$)	Annual Savings (\$)	Reference Home Cost (\$)	Annual Savings (%)
Heating	11.3	6.7	273	1,348	1,621	83.2%
Cooling	19.6	3.9	159	166	325	51.1%
Hot Water	13.5	5.0	205	351	556	63.1%
Other	20.9	20.9	854	402	1,256	32.0%
Service charges			192		192	0.0%
Photovoltaics		(45.5)	(1,858)			
<b>Total</b>	<b>65.3</b>	<b>(9.0)</b>	<b>(175)</b>	<b>4,125</b>	<b>3,758</b>	<b>109.8%</b>

*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	4.0%	Annual Energy Cost Inflation	5.0%
Marginal Tax Rate	30.0%	Capitalized Annual Savings	\$ 166,405

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

Utility Rates	Electric	0.16 \$/kwh	N Gas	1.17 \$/100cf	Propane	3.00 \$/gal	Oil	3.75 \$/gal
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Annual Load by Building Component (MMBthu/year)			
Heating		Cooling	
Component	Load	Component	Load
AG walls	4.6	Windows	14.1
Windows	3.4	Internal gains	12.0
Roof	2.8		
Foundation walls	2.6		
Slab floor	2.2		
Ventilation	1.6		
All other	3.5	Nat ventilation	(5.9)
Internal Gains	(9.4)	All other	(0.6)
<b>Total</b>	<b>11.3</b>	<b>Total</b>	<b>19.6</b>

Equipment Sizing Summary	
<b>Heating</b>	MBtuh/hr
Peak Load	10.6
Spec Cap	21.5
Load/Cap	49.3%
<b>Cooling</b>	MBtuh/hr
Peak Load	12.0
Spec Cap	18.0
Load/Cap	66.7%

Infiltration Losses		Duct Losses		Ventilation	
	Heating	Cooling	Duct Leakage to Outside	Required* (CFM)	
ACH Nat	0.02	0.02	CFM@25 Pascals	-	Specified (CFM)
ACH50	0.49	0.49	CFM25/100sf	-	Specified (hrs)
CFM@50 Pascals	195	195	ELA		Sensible Recovery
CFM50/SF	0.07	0.07			Total Recovery
ELA/100sf shell	0.17	0.17			

\*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	conditioned
Ceiling - Flat	R83 blown		-	Window/Wall Ratio	0.18
Ceiling - Vaulted			-	<b>Mechanicals</b>	
AG Walls	Double; cellulose + RFB	0.020	50.0	Heating	MSHP 11.3 HSPF
Foundation Walls	R34 RFB + cellulose		-	Cooling	MSHP 19.7 SEER
Frame Floors	RFB + cell	0.018	55.6	DHW	HPWH 2.51 EF
Slab Floors	R24 under		-	PV	10 kw
Windows	Double/LowE/Argon	0.160	6.3		

## EVERY HOME SHOULD HAVE A REPORT LIKE THIS ABOUT ITS ENERGY PERFORMANCE

**Key Performance Measures:** The four boxes along the top of the form show selected statistics on the home and its energy performance. The second shows if this is a Projected or a Confirmed (i.e. As Built and tested) Rating and whether it meets the requirements to qualify as an ENERGY STAR home. The third shows the home's HERS index, the HERS index without PV (if installed) and the HERS Target Index that is the maximum index allowable to qualify for the ENERGY STAR. The fourth column shows the weather site and Heating Degree Days used in the index calculation. It also shows the Design Heating Load/sf and whether the home qualified for the Low Load Home Bonus

**Annual Energy Cost Projections:** This section shows the projected annual load and costs for heating, cooling, water heating and other energy uses in the home. The projected annual energy costs for the home are compared to the projected costs for the HERS Reference Home to show projected annual energy cost savings. The reference home is the rated home reconfigured according to the 2004 Energy Code and federal minimum equipment efficiency standards. The "Other" category includes lighting, appliances, ventilation and plug loads. Although Energy Star lighting and appliances reduce energy consumption in these categories the savings are offset to some extent because the reference home does not have a mechanical ventilation system installed. If a photovoltaic system is installed the annual cost benefit of the installation is also shown. The net present value of the annual energy cost savings are also shown in this section. This calculation uses the assumptions shown for energy cost inflation and the homeowner's mortgage interest and marginal tax rates.

**Annual Load by Building Component:** This section shows the building components that contribute most to the annual heating and cooling loads shown in the previous section. Internal gains is the heat produced by people, appliances, lights and mechanical equipment inside the conditioned area that reduces winter heating loads and increases summer cooling loads.

**Equipment Sizing Summary:** This section shows the projected peak heating and cooling loads of the home compared to the capacity of the installed heating and cooling equipment. While adequate capacity is essential, excess capacity can reduce comfort and efficiency as the equipment runs at high output for short periods rather than at a more moderate output for longer periods of time.

**Infiltration Losses:** This section shows the air tightness of the home measured in Air Changes per Hour (ACH). Low infiltration rates reduce the energy lost by infiltration shown in the Building Component Load section.

**Ventilation:** Adequate ventilation is essential to maintain satisfactory indoor air quality. This section shows the ventilation rate and the installed ventilation capacity and required operating time. If a HRV or ERV is installed the proportion of the energy recovered from the exhausted air is shown.

**Building Specifications:** This section provides a summary of the insulation in the thermal envelope and the capacity and efficiency of the installed mechanical equipment.