

# Action Report

**Property**

Michael Paulson  
612 E. 28th St  
Sioux Falls, SD 57103

**Organization**

Leuthold Plbg, Htg, & Elec Inc  
712-478-4646  
Mark Leuthold

**HERS**

Confirmed  
2/5/16  
Rating No:292482  
612E28THST  
Rater ID:2601191

Weather:Sioux Falls, SD  
292482 612E28THST.blg

**Builder**

Michael Paulson

The following table identifies and ranks energy use and cost by building component. A maximum of six components are shown. Current mechanical equipment is assumed for this analysis. To determine the impact of varying the equipment efficiency, change the equipment specified in the building file and perform the energy calculations again.

## ANNUAL ENERGY PROFILE

Energy End-Use	Component	Consumption(MMBtu/yr)	Cost(\$/yr)
HEATING	Above Grade Walls	29.9	256
	Infiltration	22.8	196
	Ceilings/Roofs	20.2	173
	Windows/Skylights	11.7	101
	Slab Floors	9.9	85
	Floors	7.5	64
	Other	-10.1	-87
	Total	92.0	788
COOLING	Internal Gains	4.5	107
	Windows/Skylights	2.4	56
	Ceilings/Roofs	0.3	6
	Ducts	0.1	2
	Other	-3.1	-72
	Total	4.2	99
WATER HEATING	Water Heater	21.6	181
LIGHTS & APPLIANCES	Lights & Appliances	38.6	804

**REM/Rate - Residential Energy Analysis and Rating Software v14.6.1**

This information does not constitute any warranty of energy cost or savings.

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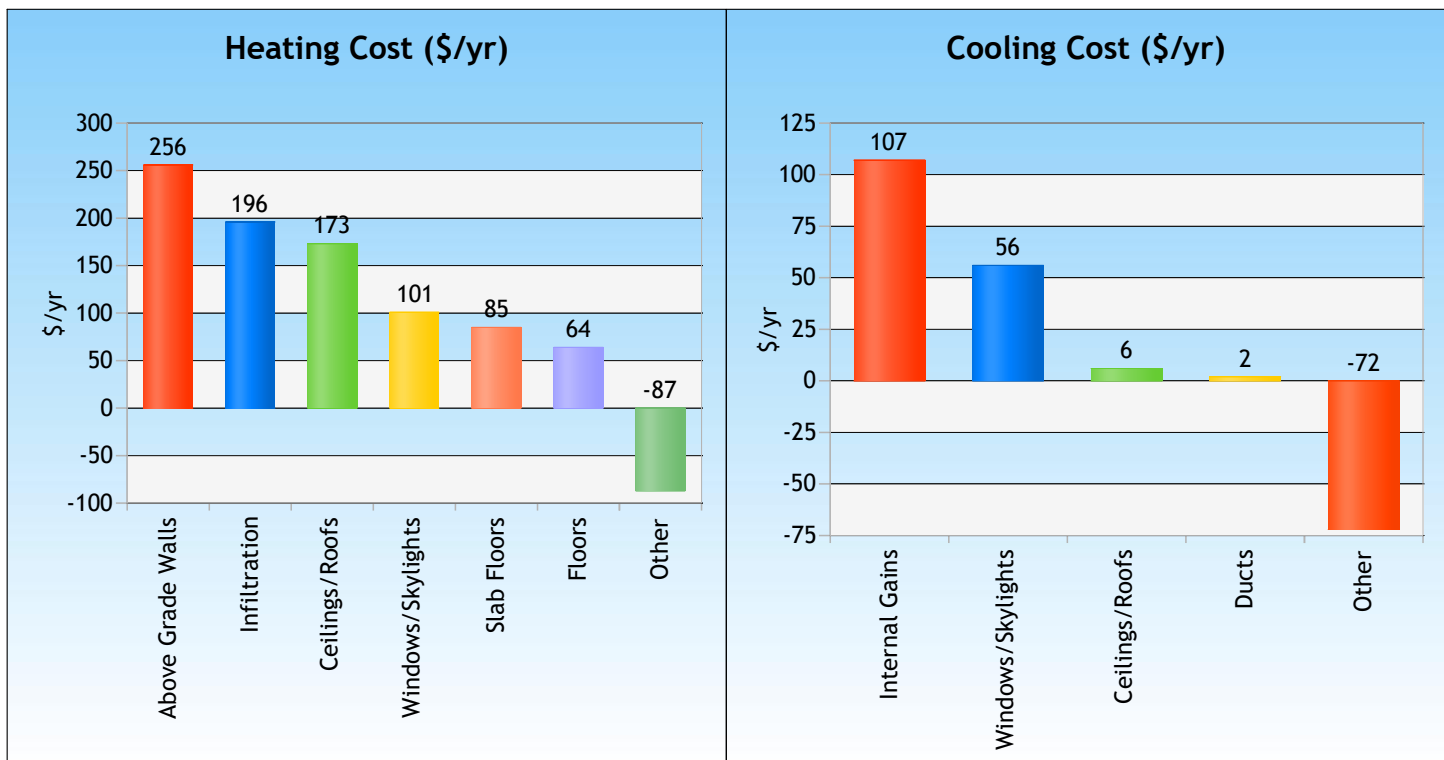
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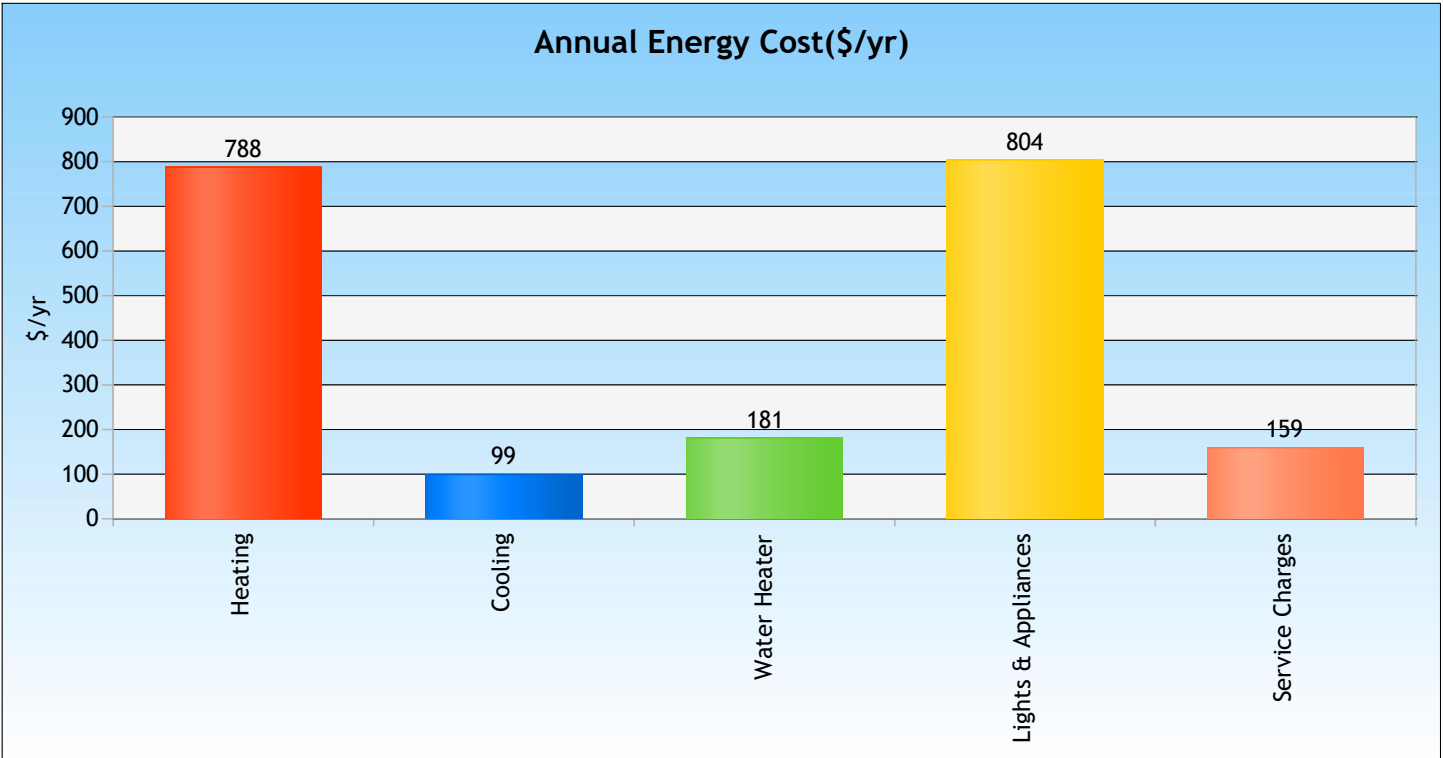
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# Air Leakage

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## Whole House Infiltration

### Blower Door Test

#### Heating

#### Cooling

Natural ACH	0.11	0.09
ACH @ 50 Pascals	1.22	1.22
CFM @ 25 Pascals	767	767
CFM @ 50 Pascals	1203	1203
Eff. Leakage Area (sq.in)	66.0	66.0
Specific Leakage Area	0.00009	0.00009
ELA/100 sf shell (sq.in)	0.43	0.43

## Duct Leakage

### Leakage to Outside Units

CFM @ 25 Pascals	26
CFM25 / CFMfan	0.0218
CFM25 / CFA	0.0049
CFM per Std 152	N/A
CFM per Std 152 / CFA	N/A
CFM @ 50 Pascals	41
Eff. Leakage Area (sq.in)	2.24
Thermal Efficiency	N/A
<b>Total Duct Leakage Units</b>	<b>CFM25/CFA</b>
Total Duct Leakage	0.0296

## Ventilation

Mechanical	Balanced	ASHRAE
Sensible Recovery Eff. (%)	73.0	62.2-2010
Total Recovery Eff. (%)	48.0	
Rate (cfm)	130	98
Hours/Day	20.0	24.0
Fan Watts	102.0	
Cooling Ventilation	Natural Ventilation	

## ASHRAE 62.2 - Ventilation Requirements

The ASHRAE 62.2 flow rates shown above are the CONTINUOUS mechanical fresh air ventilation which will meet the 'whole-building' requirement under that version of the standard. Both values incorporate any appropriate 'infiltration credit'. Intermittent mechanical ventilation may be used if the flow rate is adjusted accordingly. For example, the runtime can be reduced to 12 hours per day using a doubled flow rate, as long as the system provides ventilation at least once every 3 hours. For more detail, refer to the appropriate standard.

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# Component Design Loads

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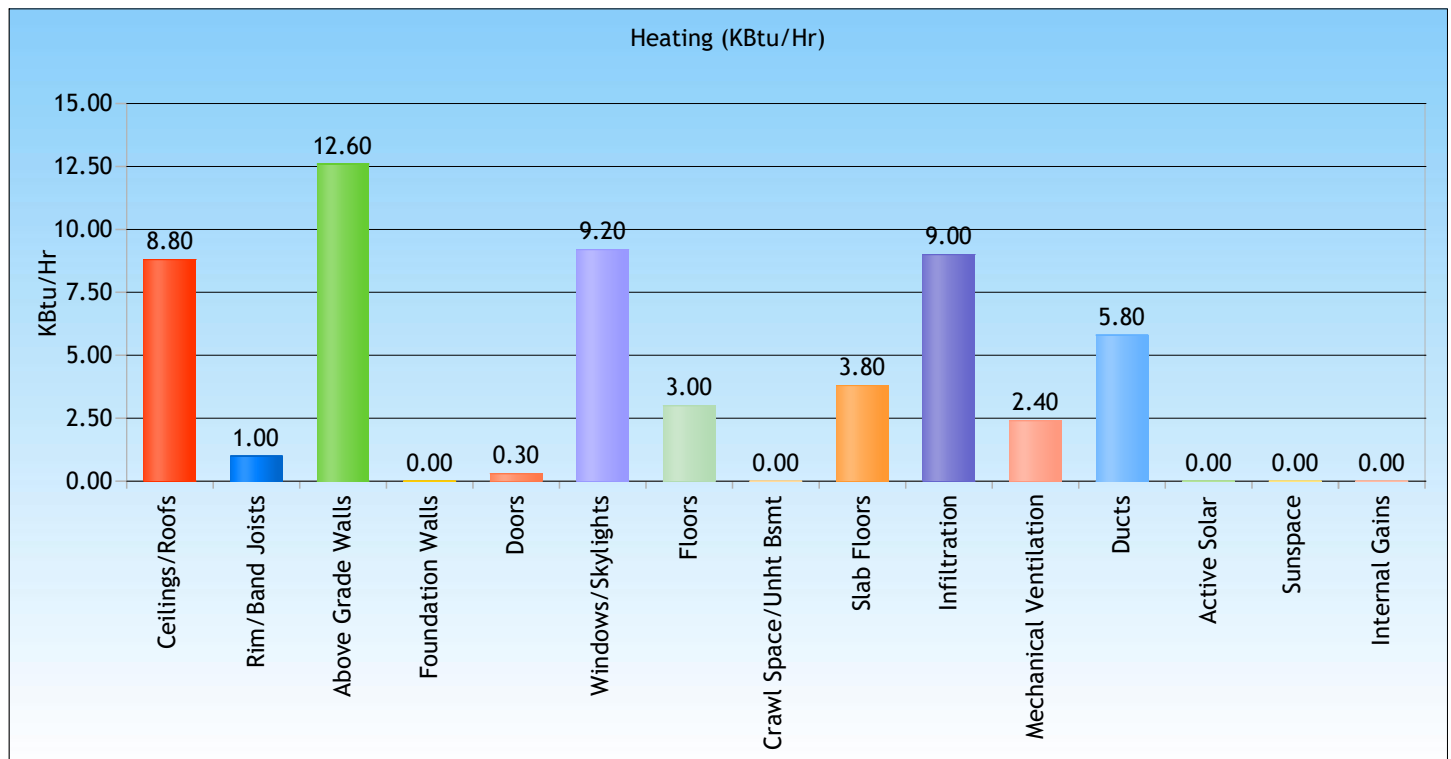
## Builder

Michael Paulson

## Heating

kBtu/hr

Ceilings/Roofs	8.8
Rim/Band Joists	1.0
Above Grade Walls	12.6
Foundation Walls	0.0
Doors	0.3
Windows/Skylights	9.2
Floors	3.0
Crawl Space/Unht Bsmt	0.0
Slab Floors	3.8
Infiltration	9.0
Mechanical Ventilation	2.4
Ducts	5.8
Active Solar	0.0
Sunspace	0.0
Internal Gains	0.0
Total	55.8



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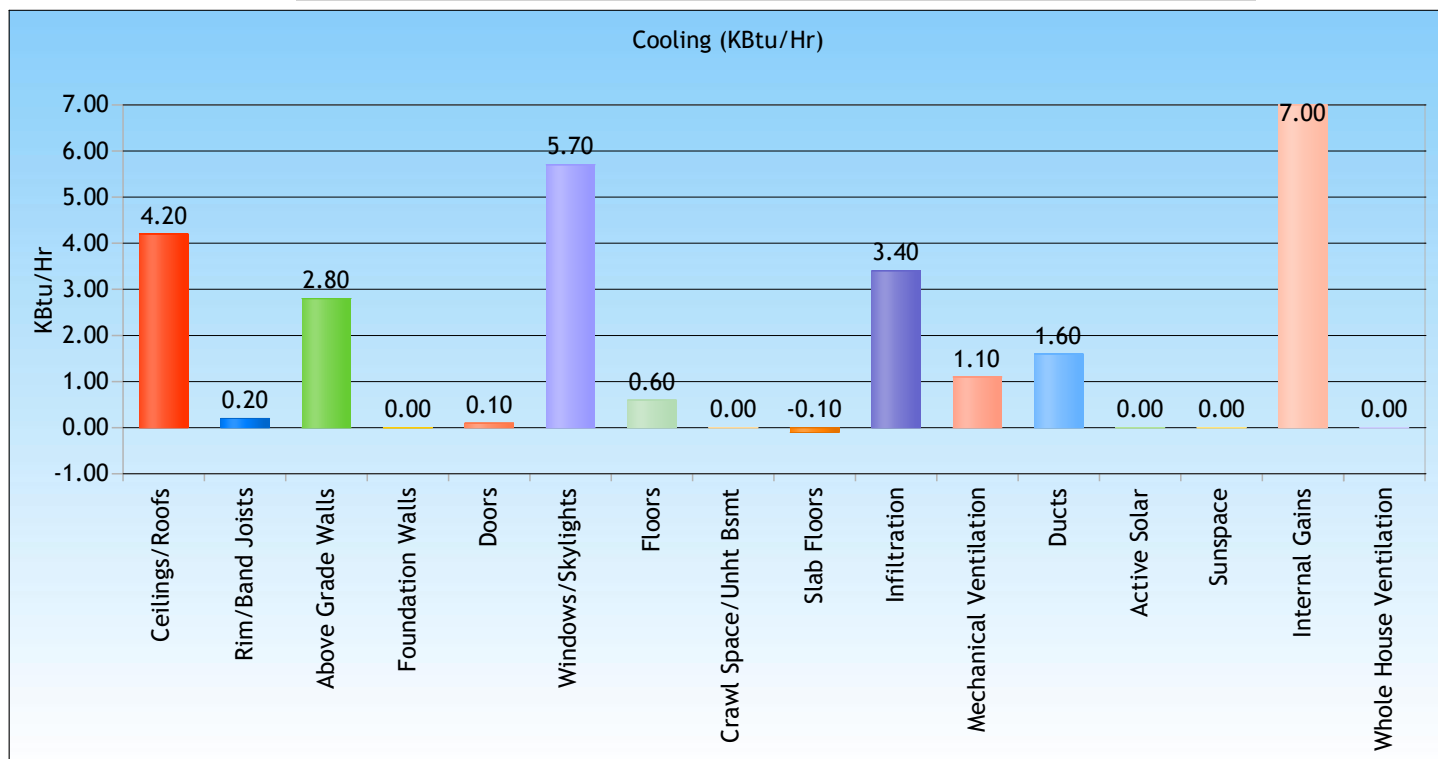
## Builder

Michael Paulson

## Cooling

kBtu/hr

Ceilings/Roofs	4.2
Rim/Band Joists	0.2
Above Grade Walls	2.8
Foundation Walls	0.0
Doors	0.1
Windows/Skylights	5.7
Floors	0.6
Crawl Space/Unht Bsmt	0.0
Slab Floors	-0.1
Infiltration	3.4
Mechanical Ventilation	1.1
Ducts	1.6
Active Solar	0.0
Sunspace	0.0
Internal Gains	7.0
Whole House Ventilation	0.0
Total	26.6



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# 2005 EPACT Energy Efficient Home Tax Credit ( 13-001 )

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## Builder

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2/5/16  
Rating No:292482  
612E28THST  
Rater ID:2601191  
Registry ID:

## Confirmed: - No Registry ID

### Normalized, Modified End-Use Loads (MMBtu/yr)

	2006 IECC 50% Target	As Designed
Heating	82.5	49.4
Cooling	7.8	12.4
Total	90.3	61.9

### Envelope Loads (MMBtu/yr)

	2006 IECC 90% Target	As Designed
Heating	148.4	78.3
Cooling	14.0	16.5
Total	162.5	94.8

### Building Features

Ceiling Flat	R-0.0
Sealed Attic	NA
Vaulted Ceiling	NA
Above Grade Walls	R-16.5
Foundation Walls	NA
Integrated	Natural gas, Htg eff 0.95 CAafue. DHW eff 0.82 CAef.

Exposed Floor	R-60.0
Slab	R-32.0
Duct	Uninsulated
Window	U-Value: 0.260, SHGC: 0.410
Cooling	Air conditioner, Electric, 14.5 SEER.

**This home MEETS the requirements for the residential energy efficiency tax credits under Section 1332, Credit for Construction of New Energy Efficient Homes, of the Energy Policy Act of 2005 extended to December 31, 2014.**

As demonstrated above, this dwelling unit has a projected level of annual heating and cooling energy consumption that is at least 50% below the annual level of heating cooling energy consumption of a 2006 IECC reference dwelling in the same climate zone, and the building envelope components improvements alone account for at least 10% of those savings. The projected heating and cooling energy savings above have been calculated in the manner prescribed in Appendix A of the RESNET Publication No. 13-001. Field inspections of the dwelling unit performed by the undersigned eligible certifier during and after the completion of construction have confirmed that all features of the home affecting such heating and cooling energy consumption comply with the design specifications provided to the undersigned certifier.

**This report provides information useful in determining whether the home qualifies for Energy Efficiency Tax Credits. It is not valid for tax purposes, as homes must be inspected and approved by a certified HERS rater in order to qualify.**

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# Home Energy Rating Certificate

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**HERS**

Rating Type: Confirmed  
Rating Date: 2/5/16  
Registry ID:

Certified Energy Rater: Mark Leuthold  
Rating Number: 292482 612E28THST

**Confirmed: - No Registry ID**

**HERS Index: 36**

**General Information**

Conditioned Area	5330 sq. ft.	House Type	Single-family detached
Conditioned Volume	59032 cubic ft.	Foundation	Slab
Bedrooms	5		

**Mechanical Systems Features**

Integrated Htg/DHW:	Natural gas, Htg eff 0.95 CAafue. DHW eff 0.82 CAef.
Heating:	Fuel-fired air distribution, Natural gas, 96.0 AFUE.
Cooling:	Air conditioner, Electric, 14.5 SEER.
Duct Leakage to Outside	26.00 CFM25.
Ventilation System	Balanced: ERV, 130 cfm, 102.0 watts.
Programmable Thermostat	Heat=No; Cool=No

**Building Shell Features**

Ceiling Flat	R-0.0	Slab	R-16.0 Edge, R-16.0 Under
Sealed Attic	NA	Exposed Floor	R-60.0
Vaulted Ceiling	NA	Window Type	U-Value: 0.260, SHGC: 0.410
Above Grade Walls	R-16.5	Infiltration Rate	Htg: 1203 Clg: 1203 CFM50
Foundation Walls	NA	Method	Blower door test

**Lights and Appliance Features**

Percent Interior Lighting	100.00	Range/Oven Fuel	Electric
Percent Garage Lighting	100.00	Clothes Dryer Fuel	Electric
Refrigerator (kWh/yr)	778	Clothes Dryer EF	3.01
Dishwasher (kWh/yr)	270	Ceiling Fan (cfm/Watt)	500.00

**Estimated Annual Energy Use****Use**

Heating  
Cooling  
Hot Water  
Lights/Appliances  
Photovoltaics  
Service Charges  
**Total**

**C**

This home meets or exceeds the

**TITLE**

Company  
Address  
City, State, Zip  
Phone #  
Fax #

**REM/Rate - Residential Energy Analysis and Rating Software v14.6.1**

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The Home Energy Rating Standard Disclosure for this home is available from the rating provider.



## RESNET HERS Index Certificate

**Confirmed: - No Registry ID**

### Annual Estimates\*:

Elec(kWh): 12906 Gas(CCF): 1136

CO2 emissions(Tons): 12

Energy Savings (\$)\*\*: 3546

\*Based on standard operating conditions

\*\*Based on U.S. DOE designation of a HERS Index of 130 as the 'Typical Existing Home'

### TITLE

Company

Address

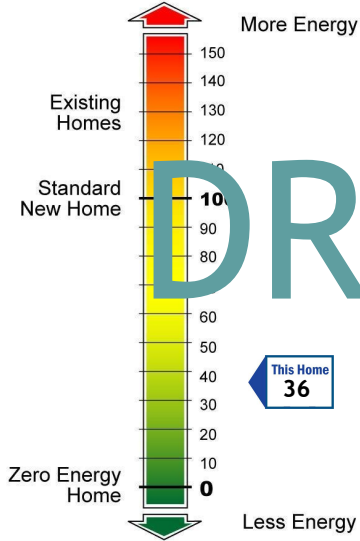
City, State, Zip

Phone #

This home has been inspected and performance tested in accordance with Chapter 3 of the RESNET standards.

**RESNET**<sup>®</sup>  
www.resnet.us

### HERS<sup>®</sup> Index

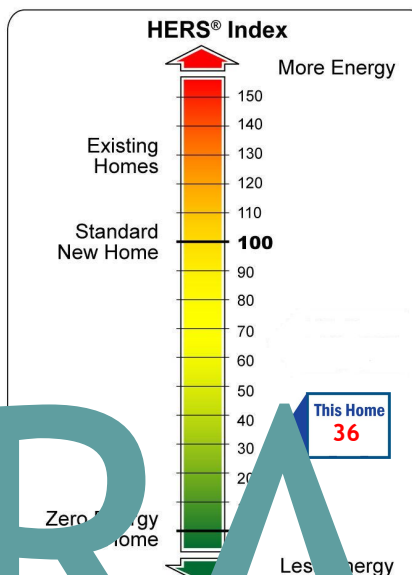


# HERS PERFORMANCE

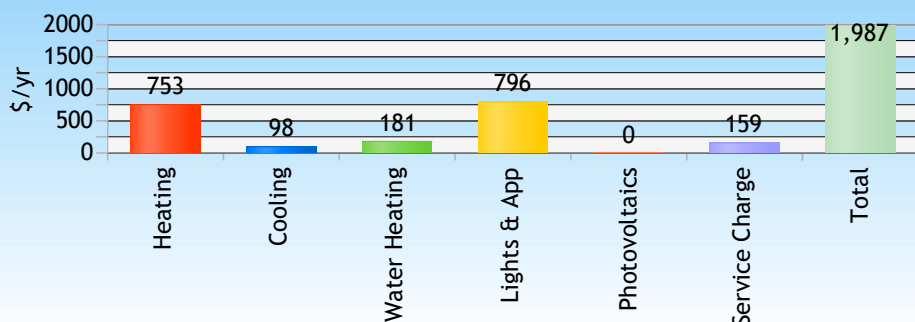
# ENERGY RATING CERTIFICATE

Confirmed: - No Regis

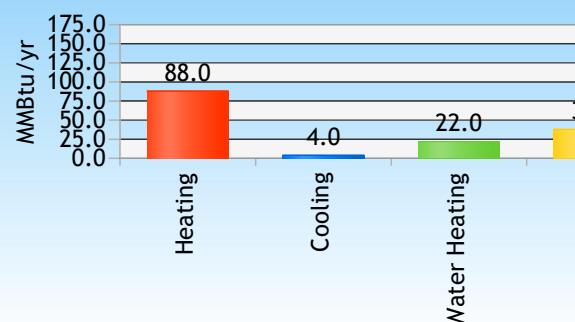
# DRAFT



Estimated Annual Energy Cost



Estimated Annual Energy



Address 612 E. 28th St  
Sioux Falls, SD 57103  
House Type Single-family detached  
Cond. Area 5330 sq. ft.  
Rating No. 292482 612E28THST  
Issue Date February 20, 2016  
Certification Verified

Annual Estimates\*  
Electric(kWh): 12906  
Natural gas(CCF): 1136  
CO2 emissions(Tons): 12  
Annual Savings\*\*: \$3546

\* Based on standard operating conditions  
\*\* Based on a HERS 130 Index Home

TITLE  
Company  
Address  
Certified Rater Mark  
Rater ID 26011  
Registry ID  
Rating Date 2/5/1

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