

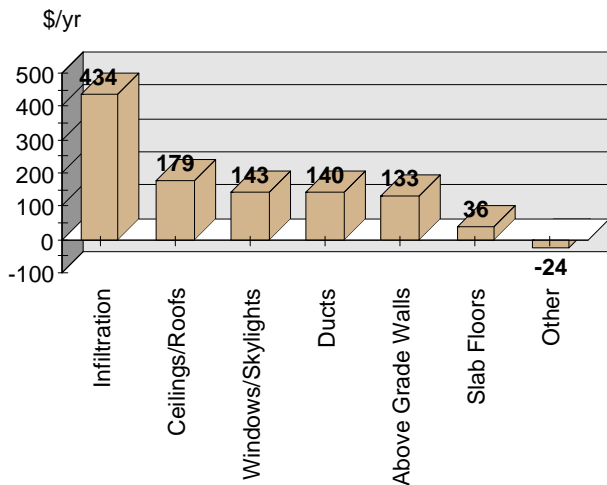


NORTHWOODS ENERGY

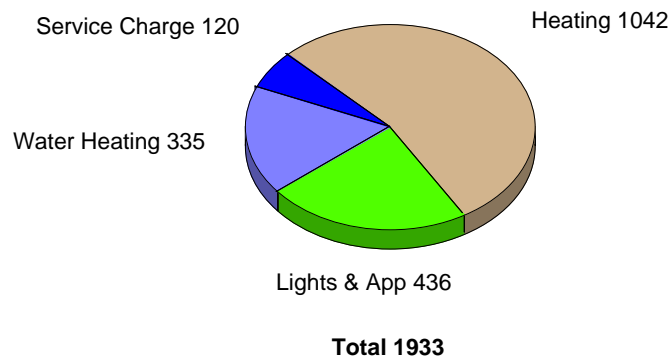
ACTION REPORT

Date:	January 09, 2009	Rating No.:	
Building Name:	Home Energy Rating	Rating Org.:	NorthWoods Energy
Owner's Name:	Northern Michigan	Phone No.:	(800) 661-2611
Property:	Saginaw	Rater's Name:	Flint Energy Rating
Address:	Upper peninsula, MI	Rater's No.:	
Builder's Name:	Flint Energy Rater	Rating Type:	Site Visit
Weather Site:	Traverse City, MI	Rating Date:	7-29-08
File Name:	Lansing Grand Rapids Energy Rater.blg		

Heating Cost (\$/yr)



Annual Energy Cost (\$/yr)



REM/Rate - Residential Energy Analysis and Rating Software v12.5

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Detroit, Ann Arbor, Clinton, Sterling Heights, Flint, Grand Rapids, Lansing



AIR LEAKAGE REPORT

Date: January 09, 2009 Rating No.:

Building Name: Home Energy Rating Rating Org.: NorthWoods Energy
Owner's Name: Northern Michigan Phone No.: (800) 661-2611
Property: Saginaw Rater's Name: Flint Energy Rating
Address: Upper peninsula, MI Rater's No.:

Builder's Name: Flint Energy Rater Rating Type: Site Visit
Weather Site: Traverse City, MI Rating Date: 7-29-08
File Name: Lansing Grand Rapids Energy Rater.blg

Whole House Infiltration	Blower door test	
	Heating	Cooling
Natural ACH:	0.89	0.68
ACH @ 50 Pascals:	13.39	13.39
CFM @ 25 Pascals:	2963	2963
CFM @ 50 Pascals:	4650	4650
Eff. Leakage Area:	255.3	255.3
Specific Leakage Area:	0.00083	0.00083
ELA/100 sf shell:	5.17	5.17

Total Duct Leakage to Outside	
CFM @ 25 Pascals:	150
CFM25 / CFMfan:	0.1254
CFM25 / CFA:	0.0698
CFM per Std 152:	N/A
CFM per Std 152 / CFA:	N/A
CFM @ 50 Pascals:	235
Eff. Leakage Area:	12.92
Thermal Efficiency:	N/A

Ventilation	
Mechanical:	None
Sensible Recovery Eff. (%):	0.0
Total Recovery Eff. (%):	0.0
Rate (cfm):	0
Hours/Day:	24.0
Fan Watts:	0.0
Cooling Ventilation:	Natural Ventilation

ASHRAE 62.2 - 2003 Ventilation Requirements

For this home to comply with ASHRAE Standard 62.2 - 2003 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential cfm of mechanical ventilation must be provided continuously, 24 hours per day. Alternatively, an intermittently operating mechanic be used if the ventilation rate is adjusted accordingly. For example, a 103 cfm mechanical ventilation system would need to operate long as the system operates to provide required average ventilation once each hour.

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SOURCE ENERGY & EMISSIONS REPORT

Date:	January 09, 2009	Rating No.:	
Building Name:	Home Energy Rating	Rating Org.:	NorthWoods Energy
Owner's Name:	Northern Michigan	Phone No.:	(800) 661-2611
Property:	Saginaw	Rater's Name:	Flint Energy Rating
Address:	Upper peninsula, MI	Rater's No.:	
Builder's Name:	Flint Energy Rater	Rating Type:	Site Visit
Weather Site:	Traverse City, MI	Rating Date:	7-29-08
File Name:	Lansing Grand Rapids Energy Rater.blg		

Source Energy Consumption (MMBtu/year)

All Electric

	<i>Reference Home</i>	<i>As Designed</i>	<i>Difference</i>	<i>% Difference</i>
Heating:	129.8	218.1	88.3	68.1%
Cooling:	14.6	6.0	-8.6	-58.7%
Water heating:	51.7	51.5	-0.2	-0.5%
Lights & Appliances:	87.6	68.4	-19.3	-22.0%
Photovoltaics:	0.0	0.0		
Total:	283.8	344.0	60.3	21.2%

Total Emissions (lbs/year)

All Electric

<i>Type of Emissions</i>	<i>Reference Home</i>	<i>As Designed</i>	<i>Difference</i>	<i>% Difference</i>
Carbon Dioxide (CO2)	39122.9	46560.1	7437.2	19.0%
Sulfur Dioxide (SO2)	126.4	106.9	-19.5	-15.4%
Nitrogen Oxides (NOx)	86.7	82.2	-4.5	-5.1%

Emissions By End-Use (lbs/year) (All Electric Reference Home versus As Designed)

	CO2		SO2		NOx	
	<i>Ref</i>	<i>Des</i>	<i>Ref</i>	<i>Des</i>	<i>Ref</i>	<i>Des</i>
Heating	15936.8	27640.1	5.2	8.6	16.1	24.8
Cooling	2222.4	917.2	11.9	4.9	6.9	2.8
Water Heating	7856.8	7820.9	42.0	41.8	24.2	24.1
Lights & Appliances	13106.9	10181.9	67.3	51.6	39.5	30.5
Photovoltaics	0.0	0.0	0.0	0.0	0.0	0.0

The energy and emission values are calculated by comparing the Rated Home to an all-electric version of the Reference Home as defined in the "Mortgage Industry National Home Energy Rating Systems Standards" as promulgated by the Residential Energy Services Network (RESNET). Site-to-source energy multipliers and air emission data were taken from the USEPA E-GRID97 database.

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Ann Arbor Energy Rater, Detroit Energy Rater, Sterling Heights Energy Star Home, Clinton Energy Rater, Detroit Energy Star Home.



ENERGY STAR HOME REPORT

Date:	January 09, 2009	Rating No.:	
Building Name:	Home Energy Rating	Rating Org.:	NorthWoods Energy
Owner's Name:	Northern Michigan	Phone No.:	(800) 661-2611
Property:	Saginaw	Rater's Name:	Flint Energy Rating
Address:	Upper peninsula, MI	Rater's No.:	
Builder's Name:	Flint Energy Rater	Rating Type:	Site Visit
Weather Site:	Traverse City, MI	Rating Date:	7-29-08
File Name:	Lansing Grand Rapids Energy Rater.blg		

Normalized, Modified End-Use Loads (MMBtu/year)

	<i>ENERGY STAR</i>	<i>As Designed</i>
Heating:	54.6	109.5
Cooling:	9.6	5.2
Water heating:	10.5	13.4
Lighting & Appliances:	21.9	25.2

Total:	96.6	153.3
HERS Index:	80	125

DRAFT

ENERGY STAR Mandatory Requirements

<input checked="" type="checkbox"/> Thermal Bypass Inspection Checklist *	<input checked="" type="checkbox"/> ENERGY STAR Products *
<input type="checkbox"/> Ductwork Requirements	<input checked="" type="checkbox"/> ENERGY STAR Scoring Exceptions

* Thermal Bypass Checklist and ENERGY STAR Products are not checked in REM/Rate at this time.

This home DOES NOT MEET the energy efficiency requirements for designation as an EPA ENERGY STAR Qualified Home.

Pollution Prevented		Energy Cost Savings (\$/year)	
<i>Type of Emissions</i>	<i>Reduction (lb/year)</i>		
Carbon Dioxide (CO2)	0.0	Heating:	\$0
Sulfur Dioxide (SO2)	0.0	Cooling:	\$0
Nitrogen Oxides (NOx)	0.0	Water Heating:	\$0
		Lights & Appliances:	\$0
		Total:	\$0

The energy savings and pollution prevented are calculated by comparing the Rated Home to the Reference Home as defined in the "Mortgage Industry National Home Energy Rating Systems Standards" as promulgated by the Residential Energy Services Network (RESNET). In accordance with these guidelines, building inputs affecting setpoints, infiltration rates, window shading and the existence of mechanical systems may have been changed prior to calculating loads.

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An ENERGY STAR[®] Qualified Home

This building DOES NOT meet the EPA's requirements for an Energy Star Home.

DRAFT

HERS Index: 125

7-29-08

A handwritten signature in black ink, appearing to read "David Lee".

David Lee
Chief
ENERGY STAR Residential Branch

A handwritten signature in black ink, appearing to read "Sam Rashkin".

Sam Rashkin
National Director
ENERGY STAR for Homes

www.energystar.gov

Home Energy Rating Certificate

Saginaw

Upper peninsula, MI



**3 Stars Plus
Site Visit**

Uniform Energy Rating System

1 Star	1 Star Plus	2 Stars	2 Stars Plus	3 Stars	3 Stars Plus	4 Stars	4 Stars Plus	5 Stars	5 Stars Plus
500-401	400-301	300-251	250-201	200-151	150-101	100-91	90-86	85-71	70-0

Energy Efficient

HERS Index: **125**

General Information

Conditioned Area: 2148 sq. ft.
 Conditioned Volume: 20842 cubic ft.
 Bedrooms: 3

House Type: Single-family detached
 Foundation: More than one type

Mechanical Systems Features

Heating: Fuel-fired air distribution, Natural gas, 92.0 AFUE.
 Heating: Fuel-fired unit heater, Wood, 50.0 % EFF.
 Heating: Fuel-fired unit heater, Wood, 50.0 % EFF.
 Duct Leakage to Outside: 150.00 CFM.
 Ventilation System: None
 Programmable Thermostat: Heating: No Cooling: No

Building Shell Features

Ceiling Flat: R-30 Exposed Floor: R-19
 Vaulted Ceiling: R-19 Window Type: Double - Wood
 Above Grade Walls: R-19, R-13, R-16 **Infiltration:**
 Foundation Walls: R-12.1, R-1.1 Rate: Htg: 4650 Clg: 4650 CFM50
 Slab: R-0.0 Edge, R-5.0 Under Method: Blower door test

Lights and Appliance Features

Percent Fluorescent Pin-Based: 10.00 Clothes Dryer Fuel: Electric
 Percent Fluorescent CFL: 85.00 Range/Oven Fuel: Natural gas
 Refrigerator (kWh/yr): 450.00 Ceiling Fan (cfm/Watt): 70.40
 Dishwasher Energy Factor: 0.66

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

REM/Rate - Residential Energy Analysis and Rating Software v12.5

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Rating Number:

Certified Energy Rater: Flint Energy Rating

Rating Date: 7-29-08

Rating Ordered For: Northern Michigan

Estimated Annual Energy Cost

Use	Site Visit		
	MMBtu	Cost	Percent
Heating	197.3	\$1038	54%
Cooling	0	\$0	0%
Hot Water	14.3	\$335	17%
Lights/Appliances	22.0	\$436	23%
Photovoltaics	-0.0	\$-0	-0%
Service Charges		\$120	6%
Total		\$1929	100%

This home meets or exceeds the minimum criteria for all of the following:

Providing to:
 Saginaw Energy Rater Rating
 Flint Energy Rater Rating
 Midland Energy Rater Rating
 Grand Rapids Energy Rater Rating
 Lansing Energy Rater Rating
 Northern Michigan Energy Rater
 Upper Peninsula
 Detroit Energy Rater
 Sterling Heights Energy Rating
 Clinton Energy Star
 Ann Arbor Energy Rater
 Ann Arbor Energy Star
 Detroit Energy Star
 Sterling Heights Energy Rater