



75 South Main Street, Unit 7 PMB 185, Concord, NH 03301 - tel: 603-369-4833
E-mail: kevin@horizon-res.com website: www.horizon-res.com

EPA Energy Star® Homes Certification Report

For the property located at:

83 Appleton St.
Concord, NH 03301

*** In order for this home to be recognized as an "ENERGY STAR® Qualified" home, the enclosed ENERGY STAR® sticker must be affixed on or near the main service panel of this home. ***



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EPA Energy Star® Homes Certification Report

Date: July 12, 2012
To: TTG Properties, LLC
Plans ID: HRES-U2-1998

83 Appleton St.
Concord, NH 03301

Dear TTG Properties, LLC:

Congratulations . . . I have completed the energy performance review of this new home and have determined that it meets the standards required to be labeled as an EPA Energy Star® Home.

This home was evaluated using the REM/Rate computer program developed by *Architectural Energy Corporation* of Boulder, Colorado. This program is the state of the art software in its field and has become the standard medium for determining a home's energy performance using the nationally recognized *Home Energy Ratings System (HERS)* program. This software is also used as the basis for determining if a home meets the required standards to be labeled as an *EPA Energy Star® Home*.

As you review this report, please remember that the results are not a precise prediction of overall energy consumption or utility bills, but rather a guide to compare energy costs between a number of house configurations, similar to the "miles per gallon" guide for automobiles. The program includes "average" values for numerous factors that can affect home energy usage such as weather patterns, number and living habits of the occupants, hot water usage, lights and appliance usage, thermostat settings, and certain details of construction. In a particular house, any of these factors can vary significantly from the assumptions made.

This report is based on the first floor and full basement as finished, insulated space.

Important Comments & Suggestions:

- A Blower Door test was performed on this home to calculate the number of times it naturally expels and replaces its internal air volume. Over the past 10 years the Blower Door has become the national and international standard method of evaluating and calculating the infiltration characteristics of a dwelling.

The Blower Door test I performed on this home calculated an estimated natural air change per hour rate at .03 ACHn.

- It is Critically Important that you develop a strategy to properly ventilate this home for both Indoor-Air-Quality and long term Building Durability (moisture) reasons. Current ASHRE 62.2 national ventilation standards recommend that you operate the whole house ventilation at a minimum continuous rate of 71 cubic feet per minute (cfm) 24 hours per day. (See attached Air Leakage Report)

- The HVAC equipment specifications used in the REM/Rate model are based on the designed performance factors of that equipment. Any deviations in actual performance from those design specifications in your home are Warranty issues that are the sole responsibility of your Heating/Cooling design, and installation contractors.
- It is strongly suggested that as the homeowners you install one or two layers of simple window coverings to the full height of the window units and the patio doors. A strategy of covering as much of the window glazing as possible on cold winter nights and hot summer days will significantly increase both winter and summer comfort and reduce energy usage.
- Develop a strategy to install compact fluorescent light bulbs, starting with the light fixtures that are used the most hours per day.
- Install low flow aerators and shower heads.
- Develop a strategy to purchase Energy Star Rated appliances and electronic devices.

Enclosed please find your official *Energy Star® Labeled Home* certificate that can be framed or filed with your other important documents. Also enclosed is an *Energy Star® Labeled Home* sticker that must be attached in a permanent location of the home such as the electrical entrance box.

Thank you for using *Horizon-RES* as your *EPA - Energy Star® Homes* Ratings Partner. Please feel free to contact me at any time if you should have questions.

Best Regards,



Kevin Hanlon, HERS Rater
Horizon Residential Energy Services NH LLC
RESNET RIN: 5878959
RESNET Provider AIN: 1999-040

ATTACHMENTS:

- Home Energy Ratings System (HERS)
- REM/Rate - Energy Star Homes Verification Summary
- REM/Rate - Fuel Summary Report
- REM/Rate - Air Leakage Report
- RESNET Home Energy Rating - Standard Disclosure
- EPA Energy Star Homes Certificate
- EPA Energy Star Homes Label (to be attached to electrical box)



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Home Energy Ratings System (HERS) Report

In 1992, Congress instructed the US Department of Energy (DOE) to work with the US Department of Housing and Urban Development (HUD), and the lending industry to develop a nationally recognized uniform system to measure and rate the energy performance of new and existing dwellings. In 1995 DOE published these guidelines and they have been gradually taking hold around the country. Starting in 2006, the revised method rates a home on a scale of 0 to 100 with 0 being a highly efficient home and 100 being a house that is built to the energy code minimum. The system is based on comparing the house being rated, referred to as the design house, to a computer model of the exact same house if it were built to minimum current energy use standards, referred to as the reference house. A score of 100 would be a house which meets current energy consumption standards. For ease of understanding, the scale can also be converted to a "star" system as follows:

* * *

An index of 100 is a house built approx to the IECC 2004 National Energy Code.

In this region:

An index of 80 or LESS, along with other requirements, is necessary to achieve the Energy Star label.

HERS Index, Star and Efficiency Scales for Rated Homes

HERS Index Range	Stars	Relative Energy Efficiency (With respect to Reference Home)			
250 - 201	**+	250%	to	201%	Less Efficient
200 - 151	***	200%	to	151%	Less Efficient
150 - 101	***+	150%	to	1%	Less Efficient
100 - 91	****	1%	to	9%	More Efficient
90 - 86	****+	10%	to	14%	More Efficient
85 - 71	*****	15%	to	29%	More Efficient
70 - 0	*****+	30%	to	100%	More Efficient

AIR LEAKAGE REPORT

Date:	July 11, 2012	Rating No.:	HRES-U2-1998
Building Name:	HRES-U2-1998	Rating Org.:	Horizon RES NH LLC
Owner's Name:	Harold Turner	Phone No.:	603-369-4833
Property:	83 Appleton St	Rater's Name:	Kevin Hanlon
Address:	Concord, NH 03301	Rater's No.:	5878959
Builder's Name:	TTG Properties		
Weather Site:	Concord, NH	Rating Type:	Confirmed
File Name:	HRES-U2-1998.blg	Rating Date:	6/29/2012

Whole House Infiltration	Blower door test	
	Heating	Cooling
Natural ACH:	0.03	0.02
ACH @ 50 Pascals:	0.60	0.60
CFM @ 25 Pascals:	289	289
CFM @ 50 Pascals:	454	454
Eff. Leakage Area: [sq.in]	24.9	24.9
Specific Leakage Area:	0.00004	0.00004
ELA/100 sf shell: [sq.in]	0.27	0.27

Duct Leakage	Leakage to Outside Units	Upstairs Main
	CFM @ 25 Pascals:	0
	CFM25 / CFMfan:	0.0000
	CFM25 / CFA:	0.0000
	CFM per Std 152:	N/A
	CFM per Std 152 / CFA:	N/A
	CFM @ 50 Pascals:	0
	Eff. Leakage Area: [sq.in]	0.00
	Thermal Efficiency:	N/A
	Total Duct Leakage Units	CFM25/CFA
	Total Duct Leakage:	0.0000

Ventilation	Mechanical:	Balanced
	Sensible Recovery Eff. (%):	76.0
	Total Recovery Eff. (%):	18.0
	Rate (cfm):	72
	Hours/Day:	24.0
	Fan Watts:	126.0
	Cooling Ventilation:	Natural Ventilation

ASHRAE 62.2 - 2010 Ventilation Requirements

For this home to comply with ASHRAE Standard 62.2 - 2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, a minimum of 71 cfm of mechanical ventilation must be provided continuously, 24 hours per day. Alternatively, an intermittently operating mechanical ventilation system may be used if the ventilation rate is adjusted accordingly. For example, a 142 cfm mechanical ventilation system would need to operate 12 hours per day, as long as the system operates to provide required average ventilation once each hour.

FUEL SUMMARY

Date:	July 11, 2012	Rating No.:	HRES-U2-1998
Building Name:	HRES-U2-1998	Rating Org.:	Horizon RES NH LLC
Owner's Name:	Harold Turner	Phone No.:	603-369-4833
Property:	83 Appleton St	Rater's Name:	Kevin Hanlon
Address:	Concord, NH 03301	Rater's No.:	5878959
Builder's Name:	TTG Properties		
Weather Site:	Concord, NH	Rating Type:	Confirmed
File Name:	HRES-U2-1998.blg	Rating Date:	6/29/2012

HRES-U2-1998**Annual Energy Cost (\$/yr)**

Propane	\$	112
Electric	\$	120

Annual End-Use Cost (\$/yr)

Heating	\$	1184
Cooling	\$	71
Water Heating	\$	0
Lights & Appliances	\$	1758
Photovoltaics	\$	-2781
Service Charges	\$	108
Total	\$	340

Annual End-Use Consumption

Heating (kWh)	6592
Cooling (kWh)	396
Lights & Appliances (Gallons)	34
Lights & Appliances (kWh)	9144
Photovoltaics (kWh)	-15449

Annual Energy Demands (kW)

Heating	8.5
Cooling	0.9
Water Heating (Winter Peak)	0.0
Water Heating (Summer Peak)	0.0
Lights & Appliances (Winter Peak)	0.7
Lights & Appliances (Summer Peak)	1.8
Total Winter Peak	9.2
Total Summer Peak	2.7

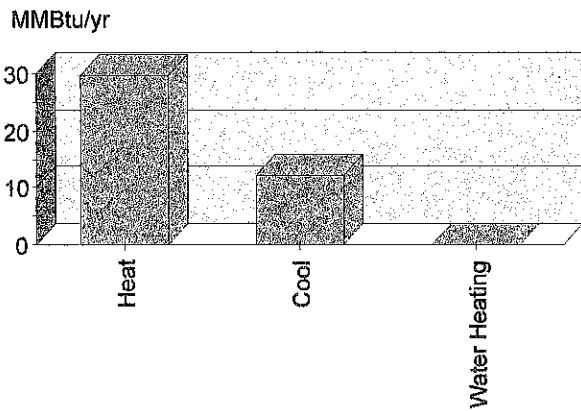
Utility Rates:

Electricity:	El,Kwh,.18,Unit/1
Propane:	PR,Gal.\$3.32

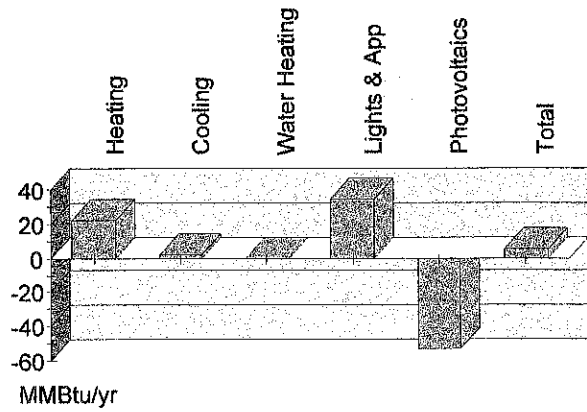
PERFORMANCE SUMMARY

Date:	July 11, 2012	Rating No.:	HRES-U2-1998
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Owner's Name:	Harold Turner	Phone No.:	603-369-4833
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File Name:	HRES-U2-1998.blg		

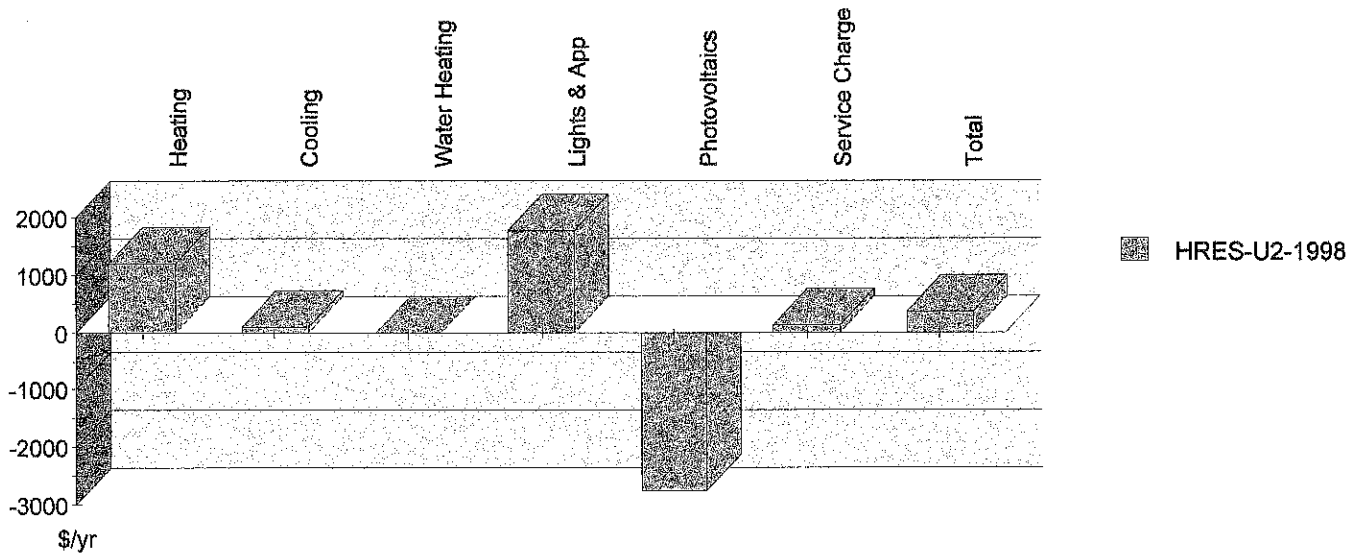
Annual Load



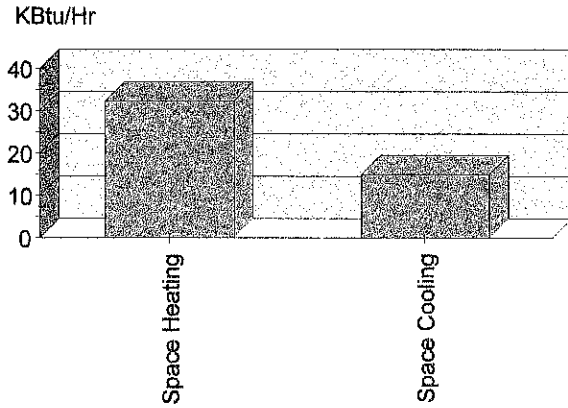
Annual Consumption



Annual Energy Cost



Design Loads



Utility Rates:

Electricity: EI, Kwh, .18, Unitil
Propane: PR, Gal. \$3.32



ENERGY STAR VERSION 2.5 HOME VERIFICATION SUMMARY

Date:	July 11, 2012	Rating No.:	HRES-U2-1998
Property:	83 Appleton St Concord, NH 03301	Rating Org.:	Horizon RES NH LLC
Builder's Name:	TTG Properties	Rater's Name:	Kevin Hanlon
Building Name:	HRES-U2-1998	Rater's ID:	5878959
		Rating Date:	6/29/2012

Building Information

Conditioned Area (sq ft):	4100
Conditioned Volume (cubic ft):	45740
Insulated Shell Area (sq ft):	9223
Number of Bedrooms:	3
Housing Type:	Single-family detached
Foundation Type:	Conditioned basement

Ratings

HERS Index:	2
HERS Index w/o PV:	35
HERS Index Target (SAF Adjusted):	60
HERS Index of Reference Design Home:	70
Size Adjustment Factor:	0.86

Building Shell

Ceiling w/Attic:	A,R17,R43,CE,1,16,12 U=0.018	Window/Wall Ratio:	0.16
Vaulted Ceiling:	None	Window Type:	.25 / .23
Above Grade Walls:	DS, R37, 1,36,10 U=0.027	Window U-Value:	0.250
Found. Walls (Cond):	ICF,I,R28,13.5,1 R=29.1	Window SHGC:	0.230
Found. Walls (Uncond):	None	Infiltration:	Htg: 454 Clg: 454 CFM50
Frame Floors:	None	Duct Leakage to Outside:	0.00 CFM @ 25 Pascals
Slab Floors:	R28,1,R22,99,1,NR U=0.019	Total Duct Leakage:	0.00 CFM @ 25 Pascals

Mechanical Systems

Heating:	Ground-source heat pump, 24.0 kBtuh, 3.7 COP, with Desuperheater.
Heating:	Ground-source heat pump, 24.0 kBtuh, 3.7 COP, with Desuperheater.
Cooling:	Ground-source heat pump, 24.0 kBtuh, 25.0 EER, with Desuperheater.
Water Heating:	Ground source heat pump, Elec, 2.25 EF.
Programmable Thermostat:	Heat=Yes; Cool=Yes
Ventilation System:	Balanced: HRV, 72 cfm, 126.0 watts.

Lights and Appliances

Percent Interior Lighting:	100.00	Clothes Dryer Fuel:	Electric
Percent Garage Lighting:	100.00	Clothes Dryer EF:	3.01
Refrigerator (kWh/yr):	800.00	Clothes Washer LER:	704.00
Dishwasher Energy Factor:	0.80	Clothes Washer Capacity:	2.87
Ceiling Fan (cfm/Watt):	0.00	Range/Oven Fuel:	Propane

Note: Where feature level varies in home, the dominant value is shown.

This home MEETS OR EXCEEDS the EPA's requirements for an ENERGY STAR Home.
HERS Index w/o PV <= HERS Index of Reference Design Home AND HERS Index <= HERS Index Target to comply.

REM/Rate - Residential Energy Analysis and Rating Software v12.98

This information does not constitute any warranty of energy cost or savings.
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RESNET HOME ENERGY RATING Standard Disclosure

For home located at: 83 Appleton St

City: Concord

State: NH

1. The Rater or the Rater's employer is receiving a fee for providing the rating on this home.
2. In addition to the rating, the Rater or Rater's employer has also provided the following consulting services for this home:
- A. Mechanical system design
 - B. Moisture control or indoor air quality consulting
 - C. Performance testing and/or commissioning other than required for the rating itself
 - D. Training for sales or construction personnel
 - E. Other (specify below)

3. The Rater or Rater's employer is:
- A. The seller of this home or their agent
 - B. The mortgagor for some portion of the financed payments on this home
 - C. An employee, contractor or consultant of the electric and/or natural gas utility serving this home

4. The Rater or Rater's employer is a supplier or installer of products, which may include:

	Installed in this home by:		OR	Is in the business of:	
HVAC systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Thermal insulation systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Air sealing of envelope or duct systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Windows or window shading systems	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Energy efficient appliances	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Construction (builder, developer, construction contractor, etc.)	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer
Other (specify below):	<input type="checkbox"/> Rater	<input type="checkbox"/> Employer		<input type="checkbox"/> Rater	<input type="checkbox"/> Employer

I attest that the above information is true and correct to the best of my knowledge. As a Rater or Rating Provider I abide by the rating quality control provisions of the Mortgage Industry National Home Energy Rating Standard as set forth by the Residential Energy Services Network (RESNET). The national rating quality control provisions of the rating standard are contained in Chapter One 4.C.8 of the standard and are posted at <http://www.natresnet.org/accred/standards.pdf>. This home may have been verified under the provisions of Chapter Six, Section 603, "Technical Requirements for Sampling" of the Standard.

Kevin Hanlon

5878959

Rater's Printed Name

Certification #


Rater's Signature

July 11, 2012

Date

2005 EPACT ENERGY EFFICIENT HOME TAX CREDIT

Date:	July 11, 2012	Rating No.:	HRES-U2-1998
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Weather Site:	Concord, NH	Rating Type:	Confirmed
File Name:	HRES-U2-1998.blg	Rating Date:	6/29/2012

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

	2004 IECC	
	50% Target	As Designed
Heating:	50.3	25.3
Cooling:	12.4	3.3
Total:	62.7	28.7

Envelope Loads (MMBtu/year)

	2004 IECC	
	90% Target	As Designed
Heating:	90.6	26.1
Cooling:	22.3	10.0
Total:	112.9	36.1

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.

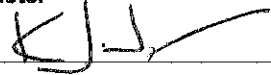
As demonstrated above, this dwelling unit has a projected level of annual heating and cooling energy consumption that is at least 50% below the annual level of heating cooling energy consumption of a reference dwelling in the same climate zone, and the building envelope components improvements alone account for at least 10% of those savings. The projected heating and cooling energy savings above have been calculated in the manner prescribed in Section 2.02 of Notice 2006-27 of the Internal Revenue Service. 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.

Building Features

Ceiling Flat: R-60	Slab: R-28.0 Edge, R-22.0 Under
Vaulted Ceiling: NA	Duct: R-6.0
Above Grade Walls: U-0.027	Window: U-Value = 0.250, SHGC = 0.230
Foundation Walls: R-29.1	Heating: Ground-source heat pump, Electric, 3.7 COP, w/DSH.
Exposed Floor: NA	Cooling: Ground-source heat pump, Electric, 25.0 EER, w/DSH.

Under penalties of perjury, I declare that I have examined this certification, including accompanying documents, and to the best of my knowledge and belief, the facts presented in support of this certification are true, correct, and complete.

Name: Kevin Hanlon
 Company: Horizon RES NH LLC
 Address: 75 S. Main St. Unit 7, PMB 185, Concord, NH 03301

Signature: 
 Date: July 11, 2012