



IMPROVEMENT ANALYSIS REPORT

Date: June 05, 2012

Rating No.:

Building Name:

Rating Org.:

Owner's Name:

Phone No.:

Property:

Rater's Name:

Address: Portland, OR

Rater's No.:

Builder's Name:

Weather Site: Portland, OR

Rating Type: Confirmed

File Name:

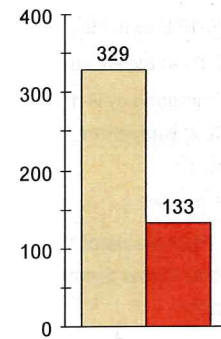
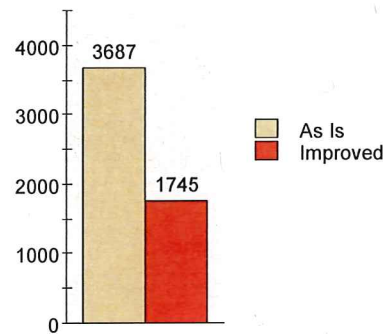
Rating Date: 5-23-12

Energy Costs (\$/yr)

Total Costs (\$/yr)

HERS Index

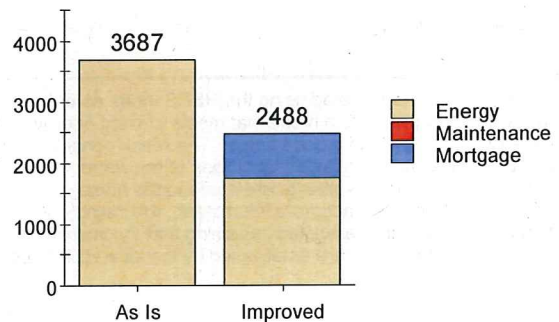
End-Use	As Is	With All Improvements	Savings
Heating	2627	681	1946
Cooling	0	0	0
Hot Water	381	386	-5
Lights and Appliances	535	535	0
Photovoltaics	-0	-0	0
Service Charge	144	144	0
TOTAL	3688	1747	1941



Information For Lenders and Appraisers

Installed Cost of Improvements (\$)	6027
Cost Weighted Life of Measure (Years)	30
Mortgage Term (Years)	10
Discount/Mortgage Rate (%)	4.000
Present Value Factor	17.3
Expected Annual Energy Savings (\$)	1941
Expected Annual Maintenance Costs (\$)	0
Expected Annual Savings (\$)	1941
Increased Annual Mortgage Costs (\$)	743
Present Value of Savings (\$)	33572
Expected Annual Cash Flow (\$)	1198

Cost Comparison (\$/yr)



Recommended Improvements

Component	Life	Cost	Yr Savings	SIR	PV	SP	Index
1. AG Wall 1: Uninsulated Walls	30	528	457	15.0	7377	1.16	283
Existing: R-0**							
Proposed: R-11 Blown Ins.**							
Measure: R-13 Blown Wall Ins.**							
2. Fnd Wall 2: Unvented Basement	30	285	150	9.1	2312	1.90	261
Existing: Uninsulated							
Proposed: R-11 Draped, Full							
Measure: Add R-11 Draped							
3. Equip 2: HEAT:	30	3910	1239	5.5	17514	3.16	136
Existing: El. Basboard**							
Proposed: Ductless Heat Pump**							
Measure: Ductless Heat Pump**							
4. Ceiling 2: Blown FG	30	124	9	1.3	40	13.08	135
Existing: R-19 Blown, Attic							
Proposed: R-30 Blown, Attic							
Measure: Increase by R-11							
5. Frame Flr 2: Basement	30	793	45	1.0	-10	17.52	137
Existing: R-0**							
Proposed: R-30**							
Measure: Floor Insulation**							
6. Frame Flr 1: Crawl Space	30	387	40	1.8	312	9.57	133
Existing: R-0**							
Proposed: R-30**							
Measure: Floor Insulation**							

Criteria

Ranking Criteria: SIR	Maximum \$ Limit: No Limit
Cutoff: 0	Measures: Interactive

Rejected Measures: None

The home's energy efficiency is rated using the HERS Index as defined in the RESNET "Mortgage Industry National Home Energy Rating Systems Accredited 2006. An Index of 100 represents a home that meets current energy codes. A lower Index indicates the home uses less energy than a code home, a high the home uses more energy than a code home. The rating considers all energy use in the home. The rating should be used only for comparison, since it average climate and thermostat settings, quantities of hot water, and internal loads for a typical household. Energy costs are based on local energy prices rating. If energy efficiency improvements are made to the home, or energy prices change significantly, the rating and annual energy costs may change. All effort has been made to provide accurate information, this rating does not constitute a warranty, expressed or implied, about the energy efficiency or operation house. Estimated savings are calculated assuming that the improvements are implemented in the order listed, and in accordance with all local codes and cost estimates for improvements are established by the local HERS provider.

Home Energy Retro-Fit



by:



June 05, 2012



Home Energy Retro-Fit

The Home Energy Retro-Fit report lists changes, or retrofits, that you can make to your home to save energy and money. Energy retrofit recommendations will make your home more comfortable, more valuable, and more affordable.

_____ recommends these retrofits, based on data gathered in a detailed inspection of your home. For more detail on the retrofits or the cost estimates, contact _____ which provided you this service.

Energy Retro-Fit Table

The Energy Retro-Fit table shows a package of energy retrofits for you to consider. Both the individual and total annual savings are based on the whole package. You can see how good of a financial choice these measures are by looking at the last column.

Feature to improve	Change from	Change to	Estimated cost	Annual savings	SP*
AG Wall:	R-0**	R-11 Blown Ins.**	\$528	\$457	1.16
End Wall:	Uninsulated	R-11 Draped, Full	\$285	\$150	1.90
Equipment:	El. Baseboard**	Ductless Heat Pump**	\$3910	\$1239	3.16
Ceiling:	R-19 Blown, Attic	R-30 Blown, Attic	\$124	\$9	13.08
Frame Floor:	R-0**	R-30**	\$793	\$45	17.52
Frame Floor:	R-0**	R-30**	\$387	\$40	9.57
Total			\$6027	\$1941	
Monthly Finance Cost**, Monthly Savings			\$62	\$162	

* SP is Simple Payback: the number of years until the retrofit has paid for itself.

** The monthly finance cost is the monthly payment, including interest, that will pay for all the tabulated improvements when financed with

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Energy Costs by End-Use

The Energy Costs table compares the "before" and "after" annual energy costs to show energy cost savings. It groups "end-uses," which are broad categories of how energy is used (or generated) in a home. Note that Photovoltaic panel energy, so as a result this "end-use" shows negative costs, if present.

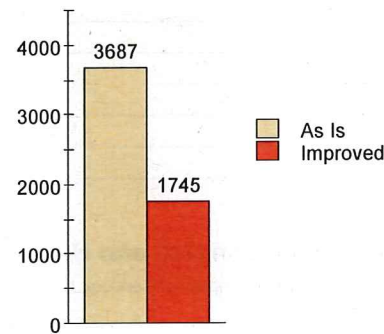
The Total Costs bar chart gives a visual sense of how the annual operating costs of your house could change by incorporating listed energy retrofits.

The HERS Index bar chart provides a snapshot of your home's energy efficiency before and after retrofits. The HERS energy efficiency rating of your home, similar to the way a miles per gallon rating shows the efficiency for a car.

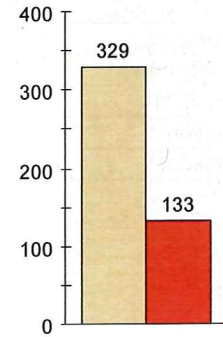
Energy Costs (\$/year)

End-Use	As Is	With All Improvements	Savings
Heating	2627	681	1946
Cooling	0	0	0
Hot Water	381	386	-5
Lights and Appliances	535	535	0
Photovoltaics	-0	-0	0
Service Charge	144	144	0
TOTAL	3688	1747	1941

Total Costs (\$/year)

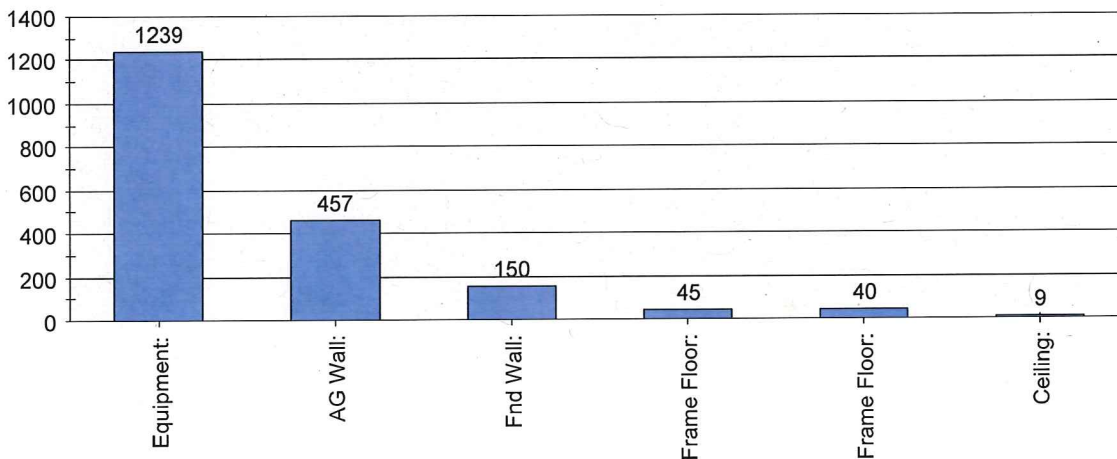


HERS Index



The bar chart below displays the annual energy cost savings (\$ per year) associated with the energy retrofits you choose. Retrofits interact with one another, and the total savings offered by each can change if the package of combined retrofits changes. For example, if you increase the insulation of your home, the energy savings you can gain from installing a more efficient furnace than if you only install the furnace. However, the total savings will be greater if you choose both retrofits.

Annual Savings for Retrofits (\$/year)



WX WORK ORDER

Building Name:		Date:	June 05, 2012
Occupant:		Cond Area (sq ft):	1120
Property:		Cond Volume (cu ft):	8960
Address:		Number of Stories:	1
Phone:		Surface Area (sq ft):	3567

General Information
This section of the report can be customized by opening up the wx.def file with an editing program and adding whatever text is appropriate to the same directory as the program executable. The default is: C:\Program Files\Architectural Energy Corporation\REM Rate 12\.

MEASURE	MEASURE DESCRIPTION	AFFECTED AREA	QUANTITY
R-13 Blown Wall Ins.**		AG Wall 1: Uninsulated Walls	1016 sq ft
Add R-11 Draped		Fnd Wall 2: Unvented Basem	1056 sq ft
Ductless Heat Pump**		Equip 2: HEAT:	1 Each
Increase by R-11		Ceiling 2: Blown FG	824 sq ft
Floor Insulation**	R-30	Frame Flr 2: Basement	721 sq ft
Floor Insulation**	R-30	Frame Flr 1: Crawl Space	352 sq ft

Health, Safety, Comfort, and House Durability Recommendations
These measures do not impact the energy rating, but are highly recommended for your home.

A:	
B:	
C:	
D:	
E:	



FHA EEM CERTIFICATE

Date: June 05, 2012 Rating No.:
 Building Name: [Redacted] Rating Org.: [Redacted]
 Owner's Name: [Redacted] Phone No.: [Redacted]
 Property: [Redacted] Rater's Name: [Redacted]
 Address: [Redacted] Rater's No.: [Redacted]
 Builder's Name: [Redacted]
 Weather Site: Portland, OR Rating Type: Confirmed
 File Name: [Redacted] Rating Date: 5-23-12

Existing Conditions

Ceiling w/Attic:	R-19 Blown, Attic U=0.056	Infiltration:	Htg: 27.70 Clg: 27.70 ACH50
Vaulted Ceiling:	None	Infilt. Measure:	Blower door test
Above Grade Walls:	R-0** U=0.267	Interior Mass:	None
Foundation Walls:	None	Ducts:	NA
Doors:	Steel-urethane foam U=0.380	Active Solar:	None
Windows:	Single - Wd w/Storm U=0.675	Photovoltaics:	0.00
Frame Floors:	R-0** U=0.257	Sunspace:	No
Slab Floors:	None		
Mechanical Equip:	Water Heating: Conventional, Elec, 0.80 EF.		
Mechanical Equip:	Heating: Electric baseboard or radiant, 44.0 kBtuh,		

Recommended Improvements Component

	Life	Cost	Yr Savings	SIR	PV	SP	Index
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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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FHA EEM CERTIFICATE

Recommended Improvements Component	Life	Cost	Yr Savings	SIR	PV	SP	Index
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Service Charge	144	144	0
Total	3688	1747	1941
HERS Index	329 *+	133 ***+	

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Present Value Factor	17.3
Expected Annual Energy Savings	1941
Expected Annual Maintenance Costs	0
Expected Annual Savings	1941
Increased Annual Mortgage Costs	743
Present Value of Savings	33572
Expected Annual Cash Flow	1198

'I certify, that to the best of my knowledge and belief, the information contained in this report is true and accurate and I understand that the be used in connection with an application for an energy efficient mortgage to be insured by the Federal Housing Administration of the Uni Housing and Urban Development.'

Signature of Rater(s)

Printed Name of Rater(s)

Date

Energy Report

For Fannie Mae Energy Improvement Feature

Use this Energy Report to show the Energy Savings and Energy Cost for underwriting purposes in accordance with the requirements of the Energy Improvement Feature. This report is to be completed by the energy rater and submitted to the lender. This report must be retained by the lender in the loan file.

Fannie Mae Loan #:

Borrower Name(s):

Property Address:

[Redacted] _____
[Redacted] _____
[Redacted] _____

Recommended Energy Improvements and Expected Costs to Complete Them

Identify the recommended energy improvements (show the cost below).

Feature to improve	Change from	Change to
AG Wall:	R-0**	R-11 Blown Ins.**
End Wall:	Uninsulated	R-11 Draped, Full
Equipment:	El. Basboard**	Ductless Heat Pump**
Ceiling:	R-19 Blown, Attic	R-30 Blown, Attic
Frame Floor:	R-0**	R-30**
Frame Floor:	R-0**	R-30**

Energy Cost

Energy Improvements Cost

6027

For a purchase money mortgage, the cost of the energy improvements may be added to the purchase price of the property. For a refinance, the cost of the energy improvements may be added to the loan amount.

Energy Report Cost

If the cost of the energy report is paid for by the borrower, the cost may be financed as part of the mortgage by including it in the cost of the energy improvements.

Cost Effectiveness Test

The Energy improvements must be cost-effective, which means that they must have a positive net present value. A positive net present value means the cost of the improvements, including maintenance, is less than the energy savings over the useful life of the improvements. The cost-effectiveness of the of the improvements may be assessed in the aggregate and is not required to be assessed separately for each energy improvement.

Net Present Value (must be positive)

27545

Energy Savings

Monthly Energy Savings

162

Attachment B - cont'd

6. EEM Premium (Savings x Present Value Factor)
= Present Worth of Estimated Savings

Net Year Savings x Present Value Factor = \$ 33572 EEM Premium

7. Installed Cost: \$ 6027 (calculated by REM/Rate™)

Compare EEM Premium to Installed Cost

8. If EEM Premium (line 6) is less than installed cost (line 7), the energy efficient items MAY NOT be financed into the mortgage.

If EEM Premium (line 6) exceeds installed cost (line 7), answer the following questions to determine the amount that may be added to the mortgage amount:

Is the EEM Premium (line 6) for energy improvements the lesser of 5% of:

the value of the property: \$ _____

115% of the median area price of a single family dwelling: \$ _____

150% of the conforming Freddie Mac limit (\$625,500): \$ _____

If the amount of the EEM Premium (line 6) is lower than the lesser of the three values listed above, then the total EEM Premium can be added to the mortgage amount. If the EEM Premium (line 6) is greater than the lesser of the three values, then the lesser value can be added to the mortgage amount.

NOTES:

1. The amount calculated above is the maximum amount that may be added to the mortgage previously calculated on line 14g of the HUD-92900-WS, Mortgage Credit Analysis Worksheet.
2. Be certain to identify in the Remarks section of the 2900 Worksheet why the final mortgage exceeds the line 14g and also show the revised loan to value ratio and borrower qualifying ratios for the higher mortgage amount.
3. A copy of this Attachment B must be attached to the 2900 Worksheet.
4. The upfront MIP must be calculated on the mortgage amount including the energy efficient improvements.
5. REM/Rate™ is a product of Architectural Energy Corporation, Boulder Colorado. The information obtained from REM/Rate™ does not constitute any warranty of energy costs or savings.

Attachment B

ENERGY EFFICIENT MORTGAGE WORKSHEET

STEP 1: QUALIFYING THE BORROWER

The borrower must be qualified for the mortgage amount before adding the cost of energy efficient improvements to the mortgage. To show that the borrower qualified for the mortgage amount, show the borrower qualifying ratios on the mortgage by completing the worksheet below.

1. Enter the amount from line 14g of HUD 92900-WS: \$ _____
2. Estimated upfront MIP for amount on line 1, above: \$ _____
3. Sum of line 1 and line 2, above: \$ _____
4. Monthly payments based on mortgage amount from line 3, above.
 - A) Estimated PITI and monthly MIP: \$ _____
 - B) Estimated PITI, monthly MIP, and recurring expenses(total fixed): \$ _____
5. Qualifying ratios using mortgage amount before adding cost of energy efficient improvements.
 - A) Mortgage payment to income ratio: _____ %
 - B) Total fixed payment to income ratio: _____ %

STEP 2: ADDING THE COST OF ENERGY EFFICIENT ITEMS TO THE MORTGAGE AMOUNT

If the borrower is an acceptable credit risk for the mortgage amount requested before adding the cost of the energy efficient items, complete the worksheet below to determine if the cost of the energy efficient improvements may be added to the mortgage amount.

1. Mortgage Interest Rate (%): 4.0 %
2. Expected Useful Life (Years): _____
3. Present Value Factor (from chart): 17.3
4. Expected Monthly Savings: \$ 162 (calculated by REM/Rate™)
5. Expected Yearly Savings: \$ 1941 (calculated by REM/Rate™)
 - a. Minus expected yearly maintenance: \$ _____
 - b. = Net yearly savings: \$ _____

FHA EEM CERTIFICATE

Page 3

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