



IMPROVEMENT ANALYSIS REPORT

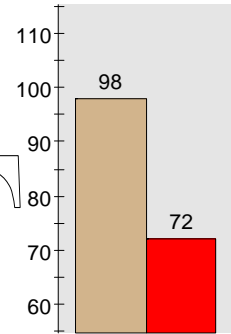
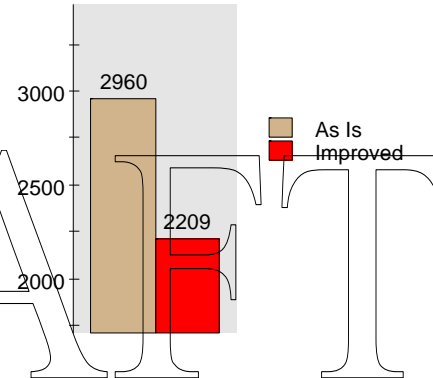
Date:	July 20, 2007	Rating No.:	
Building Name:		Rating Org.:	Emotiv
Owner's Name:	John and Jane Doe	Phone No.:	513.884.7415
Property:	1234 Mickey Mouse Ln.	Rater's Name:	Chris Dwyer
Address:	Cincinnati, OH 45208	Rater's No.:	
Builder's Name:			
Weather Site:	Cincinnati, OH	Rating Type:	Site Visit
File Name:	Sample report.blg	Rating Date:	12.25.06

Energy Costs (\$/yr)

Total Costs (\$/yr)

HERS Index

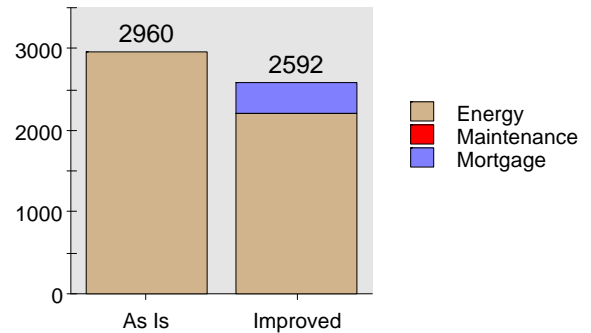
End-Use	As Is	With All Improvements	Savings
Heating	1597	853	745
Cooling	183	177	6
Hot Water	286	286	-0
Lights and Appliances	896	896	0
Photovoltaics	-0	-0	0
Service Charge	0	0	0
TOTAL	2962	2212	751



Information For Lenders and Appraisers

Installed Cost of Improvements (\$)	5267
Cost Weighted Life of Measure (Years)	27
Mortgage Term (Years)	30
Discount/Mortgage Rate (%)	6.000
Present Value Factor	13.2
Expected Annual Energy Savings (\$)	751
Expected Annual Maintenance Costs (\$)	0
Expected Annual Savings (\$)	751
Increased Annual Mortgage Costs (\$)	383
Present Value of Savings (\$)	9879
Expected Annual Cash Flow (\$)	368

Cost Comparison (\$/yr)



Recommended Improvements

Component	Life	Cost	Yr Savings	SP
1. Thermostat: Existing: FALSE/FALSE Proposed: TRUE/TRUE Measure: ElkWinSetbackThermostat	20	60	38	1.60
2. Fnd Wall 2: Main unfinished Existing: Uninsulated Proposed: R-13 Finished Measure: Add R-13	30	566	196	2.88
3. Fnd Wall 1: Main finished Existing: Uninsulated Proposed: R-13 Finished Measure: Add R-13	30	566	187	3.02
4. Infiltration: Existing: 1863-2795/1863-2795 CFM50 Proposed: 33.0/33.0 % Reduction Measure: Achieve .1 ACH	30	500	123	4.05
5. Fnd Wall 3: Garage Existing: Uninsulated Proposed: R-13 Finished Measure: Add R-13	30	259	63	4.11
6. Equip 1: HEAT: Existing: 80AFUE Gas Furn 110k Proposed: 93AFUE Gas Furn 100k Measure: ElkWinFurnaceReplacement	25	2200	102	21.52
7. Window 2: Front Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	390	15	26.09
8. Window 3: Back Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	620	24	26.37
9. Window 5: Front oh Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	34	1	29.89
10. Window 4: Right Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	72	1	49.05

DRAFT

Criteria

Ranking Criteria: Simple Payback

Maximum \$ Limit: No Limit

Cutoff: 100

Measures: Interactive

The home's energy efficiency is rated using the HERS Index as defined in the RESNET "Mortgage Industry National Home Energy Rating Systems Accreditation Standards," 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 higher Index indicates 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 assumes average climate and thermostat settings, quantities of hot water, and internal loads for a typical household. Energy costs are based on local energy prices at the time of rating. If energy efficiency improvements are made to the home, or energy prices change significantly, the rating and annual energy costs may change. Although every effort has been made to provide accurate information, this rating does not constitute a warranty, expressed or implied, about the energy efficiency or operating costs of the house. Estimated savings are calculated assuming that the improvements are implemented in the order listed, and in accordance with all local codes and standards. The cost estimates for improvements are established by the local HERS provider.

DRAFT

WX WORK ORDER

Building Name:		Date:	July 20, 2007
Occupant:	John and Jane Doe	Cond Area (sq ft):	3062
Property:	1234 Mickey Mouse Ln.	Cond Volume (cu ft):	24240
Address:	Cincinnati, OH 45208	Number of Stories:	2
Phone:		Surface Area (sq ft):	6644

General Information

The following measures have been identified as a prescription that will improve the efficiency, comfort, and/or value of the home at an affordable cost.

MEASURE	MEASURE DESCRIPTION	AFFECTED AREA	QUANTITY
ElkWinSetbackThermostat	Thermostat	Thermostat:	Each
Add R-13		Fnd Wall 2: Main unfinished	566 sq ft
Add R-13		Fnd Wall 1: Main finished	566 sq ft
Achieve .1 ACH		Infiltration:	3062 sq ft
Add R-13		Fnd Wall 3: Garage	259 sq ft
ElkWinFurnaceReplacement	Equipment Furnace Replacement	Equip 1: HEAT:	1 Each
ElkWinWindow	Window Replace Window	Window 2: Front	39 sq ft
ElkWinWindow	Window Replace Window	Window 3: Back	62 sq ft
ElkWinWindow	Window Replace Window	Window 5: Front oh	3 sq ft
ElkWinWindow	Window Replace Window	Window 4: Right	7 sq ft

Improvement Analysis Home Energy Rating Certificate

Recommendations for Energy Improvement Upgrade

The measures below, if implemented, will upgrade the energy rating to the value shown below.

#	Measure Description	Annual Energy Savings
1	Thermostat: Measure:ElkWinSetbackThermostat	\$38
2	Fnd Walls- Measure:Add R-13	\$447
3	Infiltration: Measure:Achieve .1 ACH	\$123
4	Equip 1: HEAT: Measure:ElkWinFurnaceReplacement	\$102
5	Windows- Measure:ElkWinWindow	\$41
DRATE		
Total		\$751

Health, Safety, Comfort, and House Durability Recommendations

These measures do not impact the energy rating, but are highly recommended for your home.

A:	Recommended Energy Recovery Ventilation ~ \$800 for Asthmatic Children Indoor Air Quality
B:	
C:	
D:	
E:	

Upgraded Energy Rating: 5 Stars

HERS Index: **72**

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

REM/Rate - Residential Energy Analysis and Rating Software v12.4

This information does not constitute any warranty of energy cost or savings.
© 1985-2007 Architectural Energy Corporation, Boulder, Colorado.

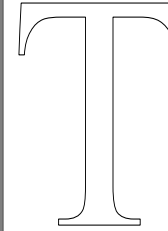
Rating Number:

Certified Energy Rater: Chris Dwyer

Rating Date: 12.25.06

Rating Ordered For: **John and Jane Doe**
1234 Mickey Mouse Ln.
Cincinnati, OH 45208

After upgrade, this home meets or exceeds the minimum criteria for all of the following:



Annual Energy Cost Comparison (\$/yr)

Use	Before	After	Savings
Heating	\$1597	\$853	\$745
Cooling	\$183	\$177	\$6
Hot Water	\$286	\$286	\$-0
Lights/Appliances	\$896	\$896	\$0
Photovoltaics	\$-0	\$-0	\$0
Service Charge	\$0	\$0	\$0
Total	\$2962	\$2212	\$751

TITLE

Company

Address

City, State, Zip

Phone #

Fax #



FHA EEM CERTIFICATE

Date:	July 20, 2007	Rating No.:	
Building Name:		Rating Org.:	Emotiv
Owner's Name:	John and Jane Doe	Phone No.:	513.884.7415
Property:	1234 Mickey Mouse Ln.	Rater's Name:	Chris Dwyer
Address:	Cincinnati, OH 45208	Rater's No.:	
Builder's Name:			
Weather Site:	Cincinnati, OH	Rating Type:	Site Visit
File Name:	Sample report.blg	Rating Date:	12.25.06

Existing Conditions

Ceiling w/Attic:	R-38 Blown, Attic U=0.026	Infiltration:	Htg: 2329 Clg: 2329 CFM50
Vaulted Ceiling:	R-38 Batts in vaults U=0.026	Infilt. Measure:	Blower door test
Above Grade Walls:	R-13 U=0.085	Interior Mass:	None
Foundation Walls:	Uninsulated	Ducts:	Uninsulated
Doors:	Steel-urth w/brk U=0.187	Active Solar:	None
Windows:	Double - Vinyl U=0.460	Photovoltaics:	None
Frame Floors:	R-30 U=0.034	Sunspace:	No
Slab Floors:	Uninsulated U=0.285		
Mechanical Equip:	Heating: Fuel-fired air distribution, 110.0 kBtuh, 80.0 AFUE.		
Mechanical Equip:	Cooling: Air conditioner, 36.0 kBtuh, 10.0 SEER.		
Mechanical Equip:	Water Heating: Conventional, Gas, 0.56 EF.		

Recommended Improvements Component

	Life	Cost	Yr Savings	SP
<i>Thermostat:</i>	20	60	38	1.60
Existing: FALSE/FALSE				
Proposed: TRUE/TRUE				
Measure: ElkWinSetbackThermostat				
<i>Fnd Wall 2: Main unfinished</i>	30	566	196	2.88
Existing: Uninsulated				
Proposed: R-13 Finished				
Measure: Add R-13				
<i>Fnd Wall 1: Main finished</i>	30	566	187	3.02
Existing: Uninsulated				
Proposed: R-13 Finished				
Measure: Add R-13				
<i>Infiltration:</i>	30	500	123	4.05
Existing: 1863-2795/1863-2795 CFM50				

REM/Rate - Residential Energy Analysis and Rating Software v12.4

This information does not constitute any warranty of energy cost or savings.
 © 1985-2007 Architectural Energy Corporation, Boulder, Colorado.

FHA EEM CERTIFICATE

Recommended Improvements Component	Life	Cost	Yr Savings	SP
Proposed: 33.0/33.0 % Reduction Measure: Achieve .1 ACH				
<i>Fnd Wall 3: Garage</i> Existing: Uninsulated Proposed: R-13 Finished Measure: Add R-13	30	259	63	4.11
<i>Equip 1: HEAT:</i> Existing: 80AFUE Gas Furn 110k Proposed: 93AFUE Gas Furn 100k Measure: ElkWinFurnaceReplacement	25	2200	102	21.52
<i>Window 2: Front</i> Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	390	15	26.09
<i>Window 3: Back</i> Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	620	24	26.37
<i>Window 5: Front oh</i> Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	34	1	29.89
<i>Window 4: Right</i> Existing: Double - Vinyl Proposed: U 31 SHGC 29 Measure: ElkWinWindow	25	72	1	49.05

Energy Costs (\$/yr)	As Is	With All Improvements	Savings
Heating	1597	853	745
Cooling	183	177	6
Hot Water	286	286	-0
Lights and Appliances	896	896	0
Service Charge	0	0	0
Total	2962	2212	751
HERS Index	98 ****	72 *****	

Information For Lenders and Appraisers	
Installed Cost of Improvements	5267
Cost Weighted Life of Measure (Years)	27
Mortgage Term (Years)	30
Discount/Mortgage Rate (%)	6.000
Present Value Factor	13.2
Expected Annual Energy Savings	751
Expected Annual Maintenance Costs	0
Expected Annual Savings	751
Increased Annual Mortgage Costs	383
Present Value of Savings	9879
Expected Annual Cash Flow	368

FHA EEM CERTIFICATE

Sample report.blg

Page 3

'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 information in this report may be used in connection with an application for an energy efficient mortgage to be insured by the Federal Housing Administration of the United States Department of Housing and Urban Development.'

Signature of Rater(s)

Printed Name of Rater(s)

Date

The home's energy efficiency is rated using the HERS Index as defined in the RESNET "Mortgage Industry National Home Energy Rating Systems Accreditation Standards," 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 higher Index indicates 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 assumes average climate and thermostat settings, quantities of hot water, and internal loads for a typical household. Energy costs are based on local energy prices at the time of rating. If energy efficiency improvements are made to the home, or energy prices change significantly, the rating and annual energy costs may change. Although every effort has been made to provide accurate information, this rating does not constitute a warranty, expressed or implied, about the energy efficiency or operating costs of the house. Estimated savings are calculated assuming that the improvements are implemented in the order listed, and in accordance with all local codes and standards. The cost estimates for improvements are established by the local HERS provider.

Attachment B-1

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 amount, show the borrower qualifying ratios on the mortgage by completing the worksheet below.

1. Enter the amount from line 10g 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 EEM Premium Worksheet for each eligible improvement to determine if the cost of the energy efficient improvements may be added to the mortgage amount.

1. Total EEM Premium: \$ 9879 (calculated by REM/Rate™)
2. Installed Cost: \$ 5267 (from HERS Report)
3. Compare **EE Premium** \$ 9879 to **Installed Cost** \$ 5267
 - A) If EE Premium is less than Installed Cost, the energy efficient items MAY NOT be financed into the mortgage.
 - B) If EE Premium exceeds Installed Cost, determine the amount that MAY be added to the mortgage amount below:

Does Installed Cost exceed \$4,000?

- 1) If NO, show Installed Cost here \$ _____ and add to base mortgage amount.

Attachment B-1 - cont'd

- 2) If YES (installed cost exceeds \$4,000), does Installed Cost exceed 5 percent of the appraised value of the property?
- a) If NO, show the lesser of \$8,000 or the Installed Cost here \$ _____ and add to base mortgage amount.
- b) If YES (installed cost exceeds 5 percent of appraised value), show the lesser of \$8,000 or 5 percent of the appraised value here \$ 0 _____ and add to the base 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. Line 6a, 6b, and 6c of the analysis worksheet will reflect the addition of the EE premium in the new mortgage amount.
3. 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.
4. A copy of this Attachment B-1 must be attached to the 2900 Worksheet.
5. The upfront MIP must be calculated on the mortgage amount including the energy efficient improvements.
6. 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.

Energy Report

For Fannie Mae Desktop Underwriter®

Use this Energy Report to show the Energy Savings (for underwriting purposes in accordance with the requirements of the Energy Efficient Mortgage product) to determine the Energy Savings related to the property. 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.

Borrower Name(s): John and Jane Doe

Property Address: 1234 Mickey Mouse Ln. Cincinnati, OH 45208

Energy Savings

Monthly Energy Savings

Enter Monthly Energy Savings Value into Section V "Monthly Income and Combined Housing Expense Information" in Desktop Underwriter®.

Energy Value

New Homes or Energy Efficient Existing Homes

Energy Savings Value

Enter Energy Savings Value into "Additional Data" in the Desktop Underwriter® screen by adding this value to appraised value.

OR

Energy Improvements to Existing Homes

Energy Savings Value

Enter into Section VII "Details of Transaction". Add to Line B "Alterations, improvements, repairs"

AND

Enter Energy Savings Value into "Additional Data" in the Desktop Underwriter® screen by adding this value to appraised value.

Rater's/Provider's Signature	_____
Date	_____

WARNINGS

- You have entered 90 cfm of mechanical ventilation operating 2 hours per day. At this flow rate, the mechanical ventilation system would need to operate 16 hours per day to meet ASHRAE 62.2. See the Air Leakage Report for details.



ACTION REPORT

Date:	July 19, 2007	Rating No.:	
Building Name:		Rating Org.:	Emotiv
Owner's Name:	John and Jane Doe	Phone No.:	513.884.7415
Property:	1234 Mickey Mouse Ln.	Rater's Name:	Chris Dwyer
Address:	Cincinnati, OH 45208	Rater's No.:	
Builder's Name:			
Weather Site:	Cincinnati, OH	Rating Type:	Site Visit
File Name:	Sample report.blg	Rating Date:	12.25.06

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	Foundation Walls	40.0	\$ 574
	Above Grade Walls	26.9	\$ 386
	Infiltration	21.6	\$ 310
	Windows/Skylights	6.2	\$ 89
	Ceilings/Roofs	5.9	\$ 85
	Slab Floors	3.6	\$ 52
	Other	-17.2	\$ -247
	Total	87.0	\$ 1250
COOLING	Internal Gains	6.3	\$ 185
	Windows/Skylights	3.5	\$ 102
	Ceilings/Roofs	0.3	\$ 10
	Above Grade Walls	0.3	\$ 9
	Other	-4.4	\$ -129
	Total	6.1	\$ 177
WATER HEATING	Water Heater	19.9	\$ 286
LIGHTS & APPLIANCES	Lights & Appliances	35.1	\$ 896

REM/Rate - Residential Energy Analysis and Rating Software v12.4

This information does not constitute any warranty of energy cost or savings.
© 1985-2007 Architectural Energy Corporation, Boulder, Colorado.



ACTION REPORT

Date: July 19, 2007

Rating No.:

Building Name:

Rating Org.: Emotiv

Owner's Name: John and Jane Doe

Phone No.: 513.884.7415

Property: 1234 Mickey Mouse Ln.

Rater's Name: Chris Dwyer

Address: Cincinnati, OH 45208

Rater's No.:

Builder's Name:

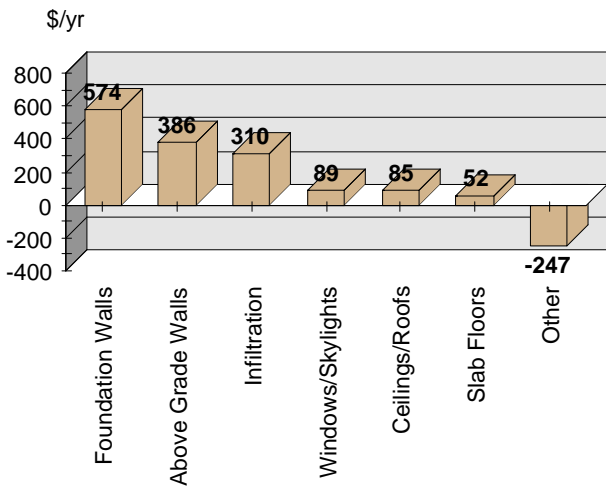
Weather Site: Cincinnati, OH

Rating Type: Site Visit

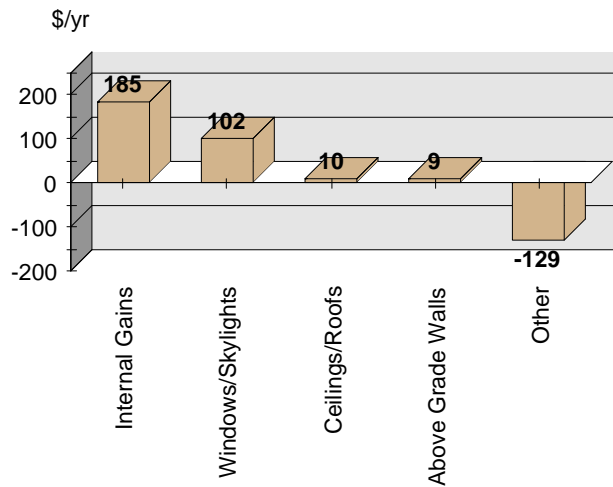
File Name: Sample report.blg

Rating Date: 12.25.06

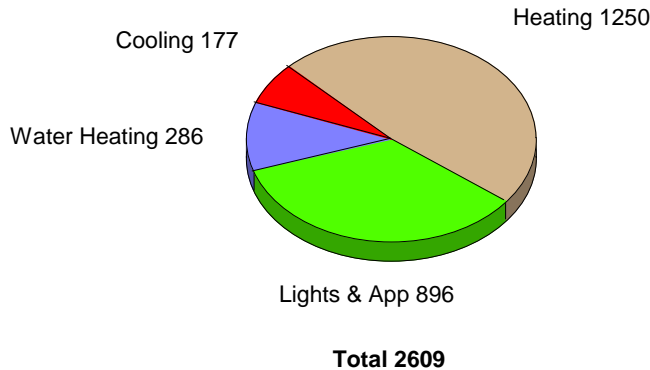
Heating Cost (\$/yr)



Cooling Cost (\$/yr)



Annual Energy Cost (\$/yr)





AIR LEAKAGE REPORT

Date:	July 19, 2007	Rating No.:	
Building Name:		Rating Org.:	Emotiv
Owner's Name:	John and Jane Doe	Phone No.:	513.884.7415
Property:	1234 Mickey Mouse Ln.	Rater's Name:	Chris Dwyer
Address:	Cincinnati, OH 45208	Rater's No.:	
Builder's Name:			
Weather Site:	Cincinnati, OH	Rating Type:	Site Visit
File Name:	Sample report.blg	Rating Date:	12.25.06

Whole House Infiltration

	Blower door test	
	Heating	Cooling
Natural ACH:	0.34	0.24
ACH @ 50 Pascals:	5.76	5.76
CFM @ 25 Pascals:	1484	1484
CFM @ 50 Pascals:	2329	2329
Eff. Leakage Area:	127.9	127.9
Specific Leakage Area:	0.00029	0.00029
ELA/100 sf shell:	1.92	1.92

Total Duct Leakage to Outside

CFM @ 25 Pascals:	77
CFM25 / CFMfan:	0.0324
CFM25 / CFA:	0.0252
CFM per Std 152:	N/A
CFM per Std 152 / CFA:	N/A
CFM @ 50 Pascals:	121
Eff. Leakage Area:	6.64
Thermal Efficiency:	N/A

Ventilation

Mechanical:	Exhaust Only
Sensible Recovery Eff. (%):	0.0
Total Recovery Eff. (%):	0.0
Rate (cfm):	90
Hours/Day:	2.0
Fan Watts:	75.0
Cooling Ventilation:	Natural Ventilation

REM/Rate - Residential Energy Analysis and Rating Software v12.4

This information does not constitute any warranty of energy cost or savings.
© 1985-2007 Architectural Energy Corporation, Boulder, Colorado.

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 Buildings, a minimum of 61 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 121 cfm mechanical ventilation system would need to operate 12 hours per day, as long as the system operates to provide required average ventilaton once each hour.



EMISSIONS REPORT

Date:	July 19, 2007	Rating No.:	
Building Name:		Rating Org.:	Emotiv
Owner's Name:	John and Jane Doe	Phone No.:	513.884.7415
Property:	1234 Mickey Mouse Ln.	Rater's Name:	Chris Dwyer
Address:	Cincinnati, OH 45208	Rater's No.:	
Builder's Name:		Rating Type:	Site Visit
Weather Site:	Cincinnati, OH	Rating Date:	12.25.06
File Name:	Sample report.blg		

Total Emissions (lbs/year)

Sample report

Type of Emissions

Carbon Dioxide (CO ₂)	34362.2
Sulfur Dioxide (SO ₂)	216.1
Nitrogen Oxides (NO _x)	111.3

Emissions By End-Use (lbs/year)

Sample report

Carbon Dioxide (CO₂)

Heating	10437.3
Cooling	3846.2
Water Heating	2382.4
Lights & Appliances	17696.3
Photovoltaics	0.0

Sulfur Dioxide (SO₂)

Heating	0.1
Cooling	40.6
Water Heating	0.0
Lights & Appliances	175.4
Photovoltaics	0.0

Nitrogen Oxide (NO_x)

Heating	13.0
Cooling	17.6
Water Heating	3.0
Lights & Appliances	77.6
Photovoltaics	0.0
