Home Performance with ENERGY STAR®
Evaluation Report

Building Information			
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State:	WI	Zip:	54751
Phone:			
Email:	ron@heritagebuildersmenomonie.com		

Billing Information			
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City:	Menomonie		
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Date of Eval.: 4/23/2008
Consultant Name: Aaron Riendeau – St Croix Energy Solutions
Company Phone: 715-220-4818

Home Owner Concerns:

#1 Informational
#2

** **

This Home Performance assessment report is part of the Service Provided by: The Wisconsin Focus on Energy, Home Performance Team.

** **

Building Shell Evaluation:

Insulation Evaluation / Air Sealing Evaluation

As part of a walkthrough of the building, the insulation integrity is visually estimated in various areas of your building's "shell". / The blower door helps evaluate the major infiltration locations.

Blower Door Test

This test measures the air infiltration rate of your home.

TEST/CALCULATION	Results
Air Infiltration Measurement	1250 cfm_{50} (cubic feet per minute @ -50 pascals pressure)
Estimated Air Changes per Hour	Approx. 2.5 ACH_{50} (Air Changes per Hour @ -50 pascals pressure)

Carbon Monoxide & Draft Evaluations

These tests look for excess Carbon Monoxide in the flue gases of your heating appliances and in the air of your building and evaluate the risk that the combustion gases in your building's flue(s) will be pulled back into your house by a source of negative pressure called backdrafting.

Appliance or Location	Carbon Monoxide	Draft
Water Heater	2ppm	Pass

Comments:

All homes should have a CO detector installed per manufacturer's instructions.

Moisture and Ventilation Tests:

Moisture Source Identification and Exhaust Fan Output Evaluations

As part of a walkthrough of the building, listed locations are identified as moisture generating areas. The Exhaust Fan Flow Test measures the output of your exhaust fan to remove moisture from your house.

Location	Measured Fan Output	Recommended Fan Output	Vented to Exterior
Master Bath-HRV	12cfm	>50cfm total in bath	Yes-HRV
Master Bath Fan	30cfm	>50cfm total in bath	Yes
Lower Bath-HRV	26cfm	>50cfm total in bath	Yes-HRV
Powder Room-HRV	25cfm	>50cfm total in bath	Yes-HRV
Laundry-HRV	25cfm		Yes-HRV
Upper Bath-HRV	19cfm	>50cfm total in bath	Yes-HRV

Recommendations:

#1	**Notes:** **Performance Test for Safety, Comfort, Durability, and Energy Efficiency of your home.** Performance testing will determine the air change rate of the building, create a worst case draft condition to evaluate the draft condition of chimney vented appliances, measure the exhaust capability of exhaust venting appliances, review moisture conditions at time of testing. Air change rate of the building is when all the air in the building is replaced one time. Reducing the air change rate of the building reduces the heating and cooling load of the building and the amount of moisture that air flow through the building shell will exhaust. When balanced with Combustion Safe appliances and proper ventilation, addressing the air flow, heat flow, and moisture flow performance of the building will enhance the Energy Efficiency, Comfort, Safety, and Durability of the building.

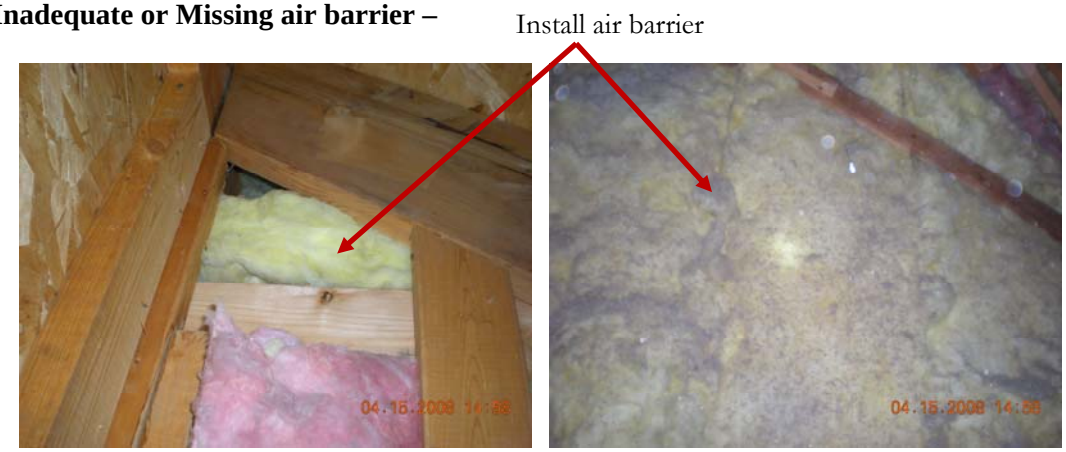
#2

Air Sealing

During the blower door test and infrared camera scan, air leakage/infiltration was evident in the following areas:

A.

Inadequate or Missing air barrier –



Kneewalls – Walls that are have conditioned space on one side and unconditioned attic space on the other side are called kneewalls. It has been very common to insulate these walls with fiberglass batt insulation and leaving the backside of the wall uncovered. For fiberglass insulation to work properly in walls, it needs to have an air barrier on all sides of the insulation. Typical air barriers are drywall, plywood, foam sheathing, spray foam, sealed poly, etc. Consider adding a well sealed air barrier on the framed exterior walls in the basement.

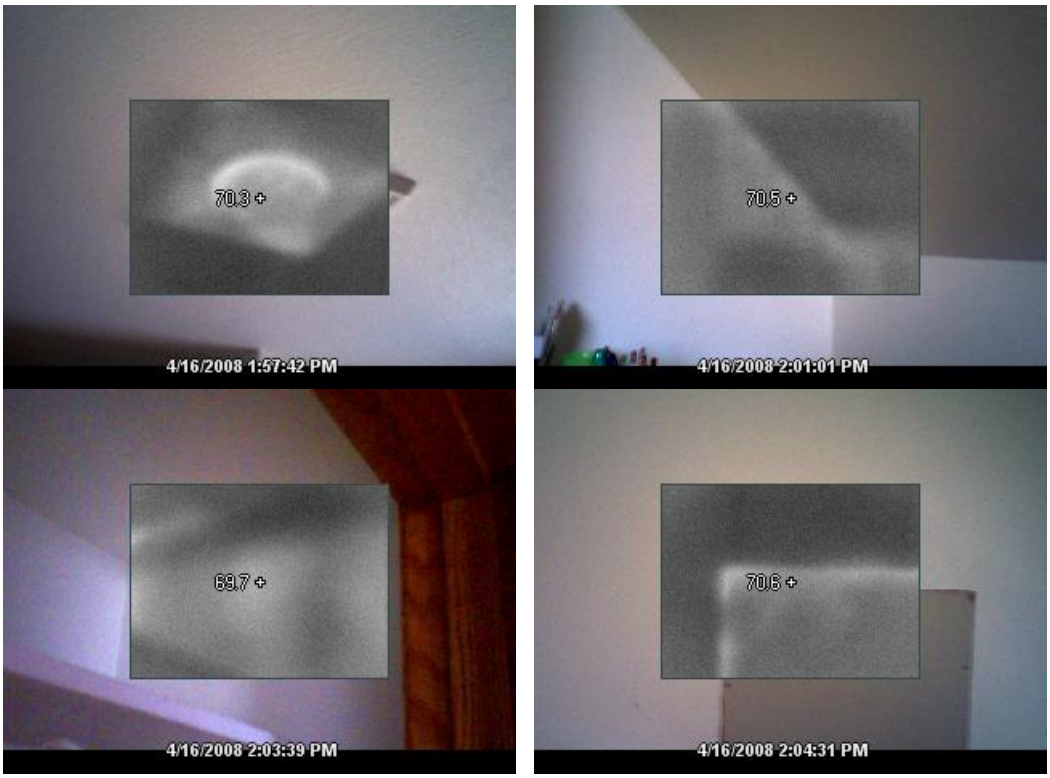
Unfinished Walls – For fiberglass insulation to work properly in walls, it needs to have an air barrier on all sides of the insulation. Typical air barriers are drywall, plywood, foam sheathing, spray foam, sealed poly, etc. Consider adding a well sealed air barrier on the framed exterior walls in the basement.

B.

Windows and Doors – It is always recommended to have energy efficient windows and doors in the building. Energy efficient glass should have a u-value of 0.35 or less and energy efficient doors should have a R-value of 7 or higher.

Unit Leakage – The basement windows showed some air leakage through the unit itself. Consider installing new weather-stripping or replacing the windows and/or doors to minimize the air leakage in these areas.

C.
Attic penetrations –



Attic Access – Attic accesses are a common air leakage area. A well sealed attic access typically consists of a continuous weather-stripping going around the perimeter of the opening that separates the movable hatch and ceiling or wall. To compress the weather-stripping and lock the access in place, a couple of latches are commonly used. A good way to insulate the access is by gluing several layers of foam insulation on the attic side of the access panel. Also, it is good practice to have a scuttle hole built around the opening on the attic side that extends up 15”-20” so the attic can be insulated continuously up to the access opening.

Top wall plate and ceiling penetrations – The connection between the top plate of the walls and the ceiling drywall that separates the attic and conditioned space shows signs of air leakage. This air leakage is typical in homes and can be sealed from that attic by pushing the insulation back in the area of the top plates and caulking and/or foaming over the connection joints.

Utility penetrations – All plumbing, electrical, and mechanical penetrations and chases should be air sealed where they penetrate from the condition space to the unconditioned space. Consider sealing these penetrations with caulk and/or foam. Caution – any penetrations that contain a large amount of heat (i.e. chimneys) should typically be sealed with fire retardant caulk or spray foam. Consult with the manufacturer of the products and your local building official.

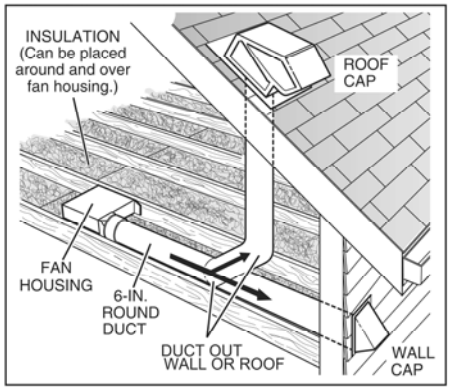
D.
Basement floor penetrations – These penetrations can leak air and more importantly can allow soil gases (i.e. radon, etc.) to enter into the home.

Open basement floor – Consider sealing the open floor area to minimize the air leakage to the ground.

#3

Ventilation and Durability

Exhaust Fans – Most bathrooms only have ventilation from the draw points in the HRV system. This means of ventilation is excellent for overall ventilation but normally doesn't remove enough air from the high moisture areas. To exhaust enough moisture out of the air, the exhaust fan should be removing at least 50cfm of air. Consider adding/replacing/reducting the exhaust fans with low-sone fans that are designed to operate continuously if needed.



When replacing a bath fan, make sure to air seal around the fan where it connects to the ceiling or wall. Also, increasing the duct size to 6" using a 4" to 6" increaser and run 6" insulated flex or round metal ducting as tight and straight as possible will help the performance of the fan. Sudden turns made in the ductwork right where the duct connects to the fan can reduce the fans performance.

Soil Gas & Ground Moisture Fans – It is always recommended to have a radon test preformed on your home. Most county health departments have radon test kits for purchase. St. Croix Energy Solutions is not a radon mitigation contractor and recommends hiring one to remove radon from a home, but here are a few helpful suggestions for removing soil gases and ground moisture from the home.

	Sump pit and interior drain tile – If your home has a sump pit and interior drain tile, a vent system can easily be tied into the sump pit. Punch a PVC pipe into a separate hole than the sump pump line into the sump pit and seal off all other holes and cracks in the sump pit cover. Then install an inline fan onto the new PVC pipe coming out of the sump pit and then vent the fan to the exterior. For this to work – the sump pit, floor penetrations and the drain tile must all be sealed so no air can be pulled from the home or exterior air. Any drain tile that is tied into the interior drain tile and drains out to daylight needs to have a check valve installed so air cannot come back through the line.
	Consultant Notes – This home seems to be very energy efficient and has only minor issues. It is apparent that energy efficiency and air sealing was incorporated into the design and construction of this home.

Rewards:

For installing any suggested performance changes with rewards available.

From: Focus On Energy

Measure Rewards	Rewards Available	Focus on Energy Participating Utilities		
		Electric Only	Gas Only	Electric & Gas
Attic Insulation (R38 or Greater)	$100	No	Yes	Yes
Sidewall Cavity Insulation	$200	No	Yes	Yes
Attic and Sidewall Bonus	$25	No	Yes	Yes
½" – ¾" Foam Continuous Sidewall Insulation (700 sq. ft. min)	$100	No	Yes	Yes
1" Foam Continuous Sidewall Insulation (700 sq. ft. min)	$150	No	Yes	Yes
Interior Foundation Insulation (R5 or Greater)	$200	No	Yes	Yes
Exterior Foundation Insulation (R5 or Greater)	$150	No	Yes	Yes
Floor Insulation (25 sq. ft. min)	$75	No	Yes	Yes
Sill Box Insulation (Rim Joist Insulation)	$50	No	Yes	Yes
Air Sealing: Reduced by 400 cfm or 25% of pretest	$75	No	Yes	Yes
Exhaust Fan: .51 to 1.5 sone	$25ea	Yes	Yes	Yes
Exhaust Fan: .5 sone or less	$50ea	Yes	Yes	Yes
Chimney Liner	$75	No	Yes	Yes
*Power Vented Water Heater – Failed Draft Test	$250	Yes	Yes	Yes
*Electric to Gas Power Vented Water Heater	$250	Yes	No	Yes

*Water heaters must have EF of .64 or better

Rewards are subject to change without notice. Please note these rewards will be changing shortly – mostly for the better.

Use the Eligibility Tool at http://www.focusonenergy.com/Resources/Eligibility-Tool.aspx to find participating utilities.
A post test must be completed and copies of receipts must be given to consultant to receive rewards.
If the receipt is less than the amount of reward available then customer will receive the cost of the receipt.
Homes with electric heat in Focus on Energy territories are eligible for all program rewards.

Please be aware that Energy Saving Improvements can sometimes increase the humidity in the home, if moisture appears on windows, consideration for added controlled ventilation may be needed. Controlling humidity to be under 40% during the heating season, will help control moisture on windows and in the building shell.

Completed Work:

Please call after your work is completed, and/or change made to schedule a post test to ensure changes have not affected proper combustion safety, and any Rewards that **may** be available, are identified and applied for on your behalf, to **Focus on Energy Home Performance with Energy Star.**

For Rewards to be issued a performance change mentioned above must be installed and have St. Croix Energy Solutions (SCES) perform a follow-up post test. If you have a utility that is participating in the Focus on Energy program, then SCES will perform the **post test at no additional cost** to you if it is tested by **November of 2008.**

If looking for a contractor to install Performance Improvements, choosing an Ally Partner of the Home Performance with Energy Star Program means they have worked with air sealing and other installations before.

Ally Contractors in the area:

Heritage Builders
N6160 370th St
Menomonie, WI 54751
715-235-7910
ron@heritagebuildersmenomonie.com

For work performed by the homeowner, Rewards will be cost of materials up to the Reward amount specified.

Congratulations on taking the first step towards achieving noticeable Energy and Comfort improvements for your home, while increasing your Home's Safety and Value.

Please call with any Questions!

Thank you,

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