

Building a Low-Energy Home

A Builder's Perspective of the
Energy Rater's Role



W. Orlo Stitt, President
Stitt Energy Systems, Inc.

The Vernon and Orlo Show

- Last presentation with Vernon . . .in KC
 - . . . Planes flying into skyscrapers
 - . . . Mystery shoppers
- Definitely an interesting and educational contrast between two builders that both promote and build energy efficient homes!

Early Building Experience

- When I was 8 . . .
- 1st experience with a home builder and my Father

“You don’t need to put that stuff in the walls or two panes of glass in every window”

Walking the Talk

- Village du Soleil, Quebec
 - Televised, '73 oil embargo
- Founded “Stitt Energy Systems, Inc.”
 - Not Stitt Homes or whatever
 - Built passive solar demo home, 1978
- Holistic approach—our mission statement is the same now as then!
- We live in a near-zero home



Why Do We Rate Our Homes?

- Differentiation
 - We are beyond *“that stuff in the walls and 2 panes of glass”*
 - Most builders think and tell customers they build EE homes
 - Ratings prove energy quality
 - Result of rating: *verifiable differentiation*



Ken & Sharla Riead,
Hathmore Technologies

We Started With 5 Stars

- 1st rating: 1987
FIVE STARS
(★★★★★)
 - Ron Hughes
 - Energy Rated Homes of AR



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RESNET 2007: Building a Low Energy Home



Next Came 5 Star Plus

- First 5 Star Plus home
 - 1988
- 11 of last 11 homes received:

“5 Star Plus” Ratings
(★★★★★ +)
with Scores: 38 - 65



Our Most Efficient Home



**HERS
Rating:
38**



20340 S Highway H
Stockton, MO 65786

**5 Stars Plus
Verified Condition**

Uniform Energy Rating System				Energy Efficient			
1 Star	1 Star Plus	2 Stars	2 Stars Plus	3 Stars	3 Stars Plus	4 Stars	4 Stars Plus
500-401	400-301	300-251	250-201	200-151	150-101	100-81	80-46

HERS Index: **38**

General Information

Conditioned Area:	3745 sq. ft.	House Type:	Single-family detached
Conditioned Volume:	41416 cubic ft.	Foundation:	Conditioned basement
Bedrooms:	3		

Mechanical Systems Features

Air-source heat pump:	Electric, Htg. 8.4 HSPF, Ctg. 17.5 SEER.
Water Heating:	Integrated, Electric, 0.91 EF, R-17 wrap.
Duct Leakage to Outside:	Total: 0.00 CFM @ 25 Pascals.
Ventilation System:	Balanced: ERV, 119 cfm, 156.0 watts.
Programmable Thermostat:	Heating: Yes Cooling: Yes

Building Shell Features

Ceiling Flat:	NA	Exposed Floor:	R-22
Vaulted Ceiling:	R-20w/RR	Window Type:	Obs/LoE/Arg - Vinyl
Above Grade Walls:	R-19	Infiltration:	
Foundation Walls:	R-24.0	Rate:	Htg. 811 Ctg. 811 CFM50
Slab:	R-24.0 Edge, R-0.0 Under	Method:	Blower door test

Lights and Appliance Features

Percent Fluorescent Pin-Based:	25.0
Percent Fluorescent CFL:	70.0
Refrigerator (kWh/yr):	619
Dishwasher Energy Factor:	0.46

The Home Energy Rating System (HERS) is a standard for measuring the energy efficiency of a home. This information is © 1995-2008.

Rating Number: 262061 20340 S Hwy H
Certified Energy Rater: Sherie Reed
Rating Date: 09/19/2006
Rating Ordered For: Mitch Ross & Cheryl Marcum

Estimated Annual Energy Cost

Use	MBtu	Cost	Percent
Heating	16.0	\$306	27%
Cooling	5.7	\$114	10%
Hot Water	3.2	\$63	6%
Lights/Appliances	38.0	\$753	67%
Photovoltaics	-14.4	\$-284	-25%
Service Charges		\$180	16%
Total		\$1133	100%

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

- EPA Energy Star Home
- 2000 International Energy Conservation Code
- 2004 International Energy Conservation Code
- 2006 International Energy Conservation Code



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RESNET 2007: Building a Low Energy Home

Why Do We Rate Our Homes?

- Assurance
 - Showed and shows that we are moving forward in the right direction
 - Allows adjustments for maximum efficiency
 - Enables tweaking of specs for economics



Why Do We Rate Our Homes?

Customer relations

- Education
 - We like the customers there
- Customers like “inspections”
 - Assurance of quality
- Energy efficiency does cost more initially
 - Rating helps customers justify cost
 - Energy efficiency = lower utility bills




Why Do We Rate Our Homes?

- Process control
 - We tell the crews they will be tested
 - After drywall . . . like mid-term exam
 - After home is finished . . . like final exam
 - Certificate is . . . like a report card
 - . . . so, “you better pay attention to what we are telling you, show up on time and do a really good job!”

Why Do We Rate Our Homes?

- 3rd Party validation
 - Provides documentation for higher pre-construction appraisal
 - Confirms quality for
 - Appraisers
 - Bankers
 - Underwriters
 - Inspectors
 - Energy Star
 - IRS tax credit requirement

	AN ENERGY STAR [®] QUALIFIED HOME
Address: 20340 S Highway H Stockton, MO	
Built by: Stitt Energy Systems, Inc.	
Verified by: Hathmore Technologies, LLC	
Date: 09/19/2006	
Optional information: HERS Index: 38	
<small>ENERGY STAR qualified homes are independently verified to meet strict energy efficiency guidelines set by the U.S. Environmental Protection Agency. Each home that earns the ENERGY STAR can keep 4,500 lbs of greenhouse gases out of our air each year. www.energystar.gov</small>	

Why Do We Rate Our Homes?

Public Relations

- Awards, EnergyValue and Green Building
- Energy Star—100 %

Advertising

- Articles in newspapers and magazines



Our Greatest Challenge

- Educate financial community
 - Appraisers
 - Bankers
 - Underwriters
- They must give objective value for energy efficiency in housing

Summary

6 reasons homes should be rated:

1. Differentiation
2. Assurance
3. Customer relations
4. Process control
5. 3rd Party validation
6. Public relations/Advertising



Personal Motivations:

I have been very aware of the delicate balance of life on earth—between plants and animals—including MAN—from upbringing and education

- To Learn and keep on learning, and share what I know.
- To make a constructive positive difference in some way—with purpose and focus.
- To enjoy a real challenge—to “just do it”. I like to see progress and things happening! In brief, “to walk the talk”.
- To truly satisfy customers and employees.
- To make a good living for me and my Family but not necessarily to get materially rich.

"Taking It To The Next Level"

Thank you for listening!
Questions? Comments?

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**"That's All for Now
Folks"**

Co-Presenter: Orlo Stitt

- Iowa State Univ.
 - worked really hard in Chem. E. for 3 ½ years
 - graduated in botany & ecology
- Univ. of Iowa, MBA
- President, Stitt Energy Systems, Inc.—since 1978
 - 100% Energy Star
 - 17 EVH National Awards
 - EVH Builder of the Year 1999
 - Energy-planned subdivisions

