

BUYING & SELLING ENERGY EFFICIENCY



CHAD SMITH



AGENDA

- Introductions
- The Consumer
- New homes savings
- Existing homes savings
- Common Denominators
- Myth Busters
- Questions



Who am I?

- BPI Certified RBE-WHALCI
- BPI Certified Building Analyst
- RESNET Certified HERS Rater
- RBE-WHALCI and Building Analyst Proctor
- Board Member in MBPA
- 13 years in the insulation industry
- 6 years in the building science industry



Who is RSR?

- 8,500+ Homes Tested in 2014
- Partnered with Xcel, CenterPoint, MERC
- Minnesota, Colorado, Illinois, Oklahoma
- 50 employees



The Consumer

- Large Investment
 - $\frac{1}{4}$ to $\frac{1}{2}$ is spent here
- Clueless
- Payback
- Down falls

Who we are up against

Competing with wow
factors



Who we are up against

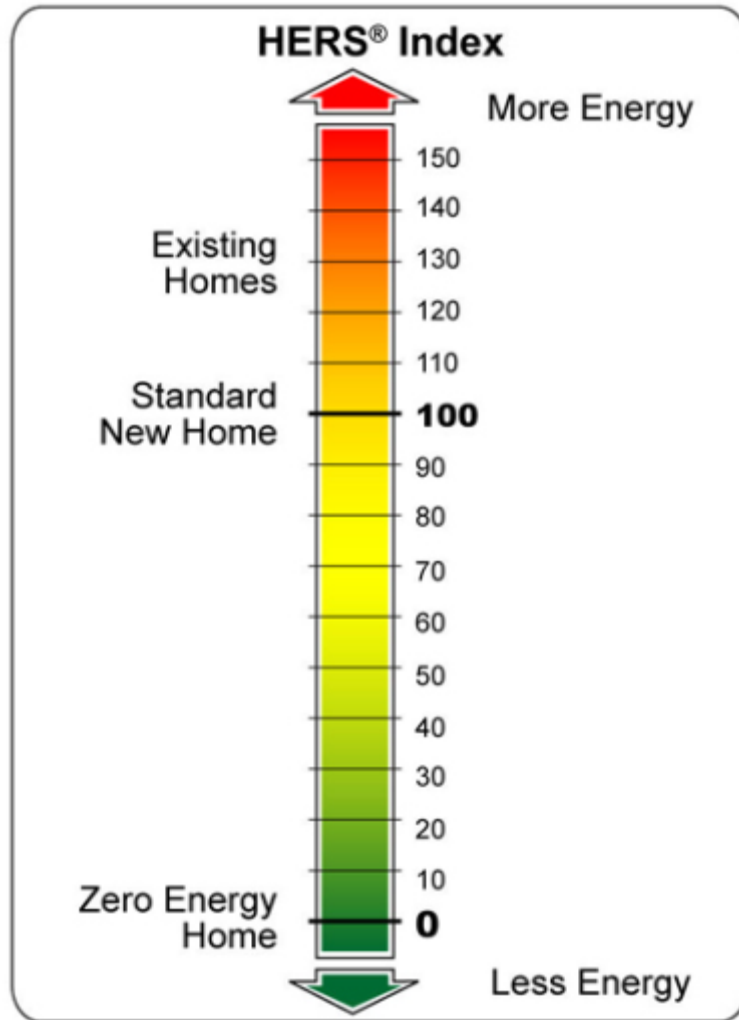
- Do wow factors pay for themselves?
- Do wow factors require minimal maintenance?
- Are wow factors cost effective at all?

New Homes

WHERE TO START?



HERS Index



- HERS Index comparable to mpg in automobiles
- Like GOLF, Lower the Better!
- BEST USE? Compared to Existing Homes

HOW TO GET A HERS INDEX

- MODEL THE HOUSE



HOW TO GET A HERS INDEX

- Framing Inspection



HOW TO GET A HERS INDEX

- Insulation Inspection

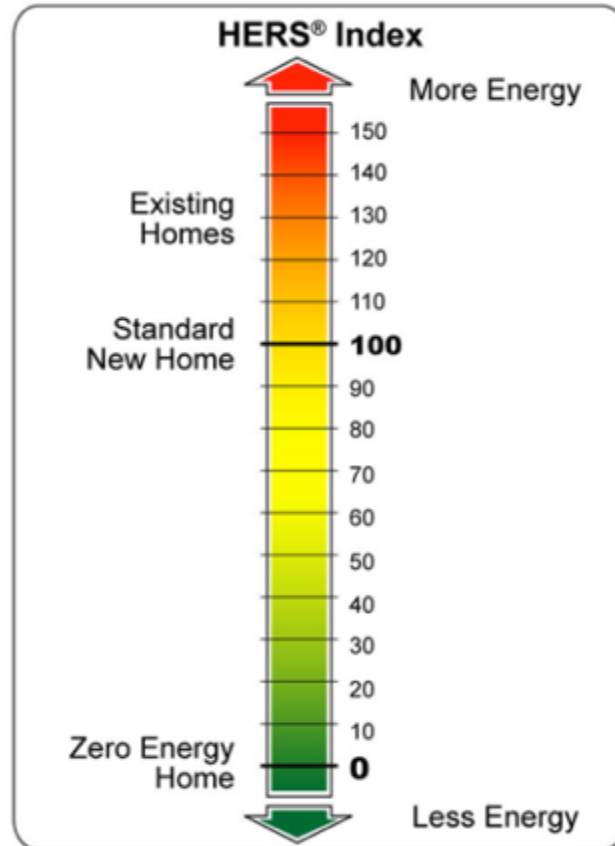


HOW TO GET A HERS INDEX

- Final Testing

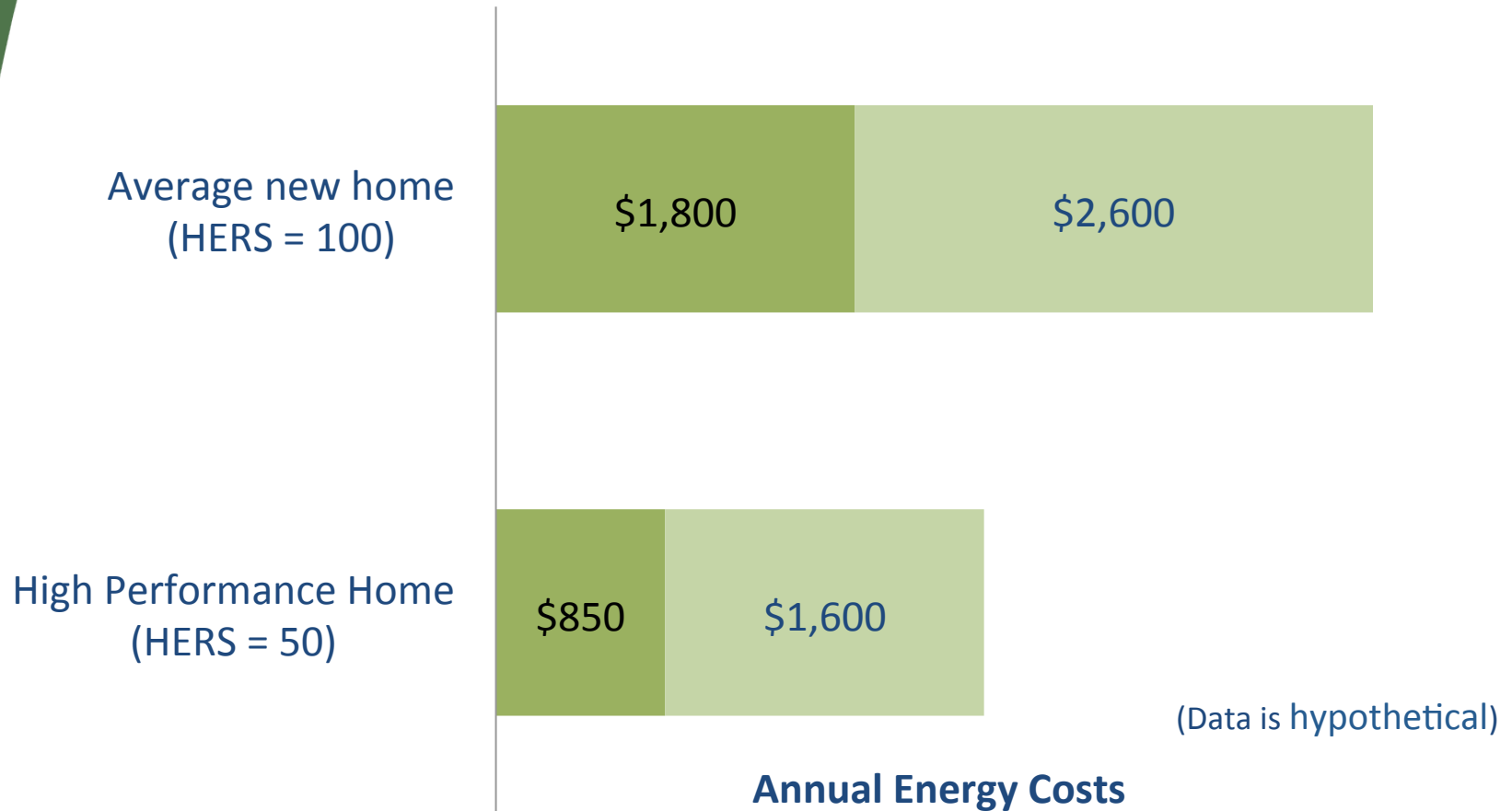


NOW...HOW DO WE SELL IT?



Lifestyle versus Technology

■ Married couple (no kids) ■ Younger family (3 kids)



WHAT MAKES SENSE?

- CFLs
- Go gas
- High efficiency mechanicals
- Exterior Foam Sheathing
- Upgraded Insulation Properties



QUESTIONS?

Existing Homes

Where to start?



The Basics



THE ENERGY AUDIT



What's in an Energy Audit?

- Blower door Test
- Thermal Imaging scan
- Combustion Safety Test on Gas Appliances
- Evaluation of insulation through out the house
- Low cost measures
- Exhaust flow measurements
- Overall examination of the house's energy use

The Elephant in the Room

THE ATTIC!



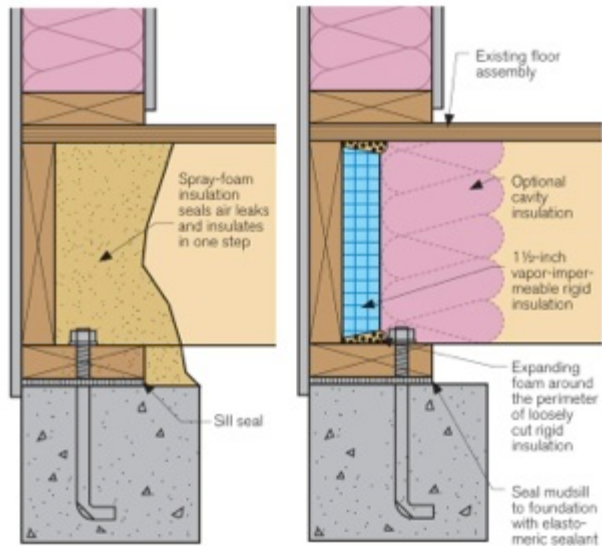
What Goes Up...



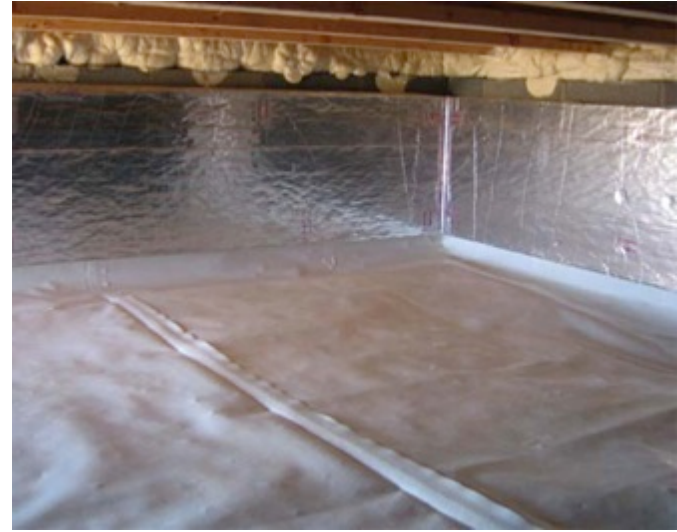
What else?



What else?



What else?



DIY



DIY



Common 60W Incandescent Bulb

uses 60W per bulb for 800 lumens

1 bulb lasts 1,200 hrs

20 years = 21 bulbs



Common 14W CFL Bulb

uses 14W per bulb for 800 lumens

1 bulb lasts 10,000 hrs

20 years = 3 CFL bulbs



Common 12.5W Ambient LED Bulb

uses 12.5W per bulb for 800 lumens

1 bulb lasts 25,000 hrs

20 years = 1 LED bulb



Questions

What Makes Sense?

- Energy Testing = scientific proof
- CFLs
- Upgraded Insulation
EVERYWHERE
- High Efficiency Mechanicals

MYTH BUSTING



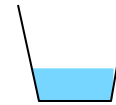
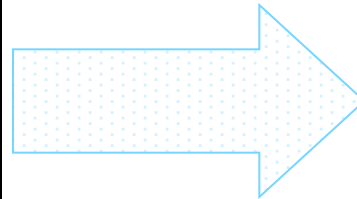
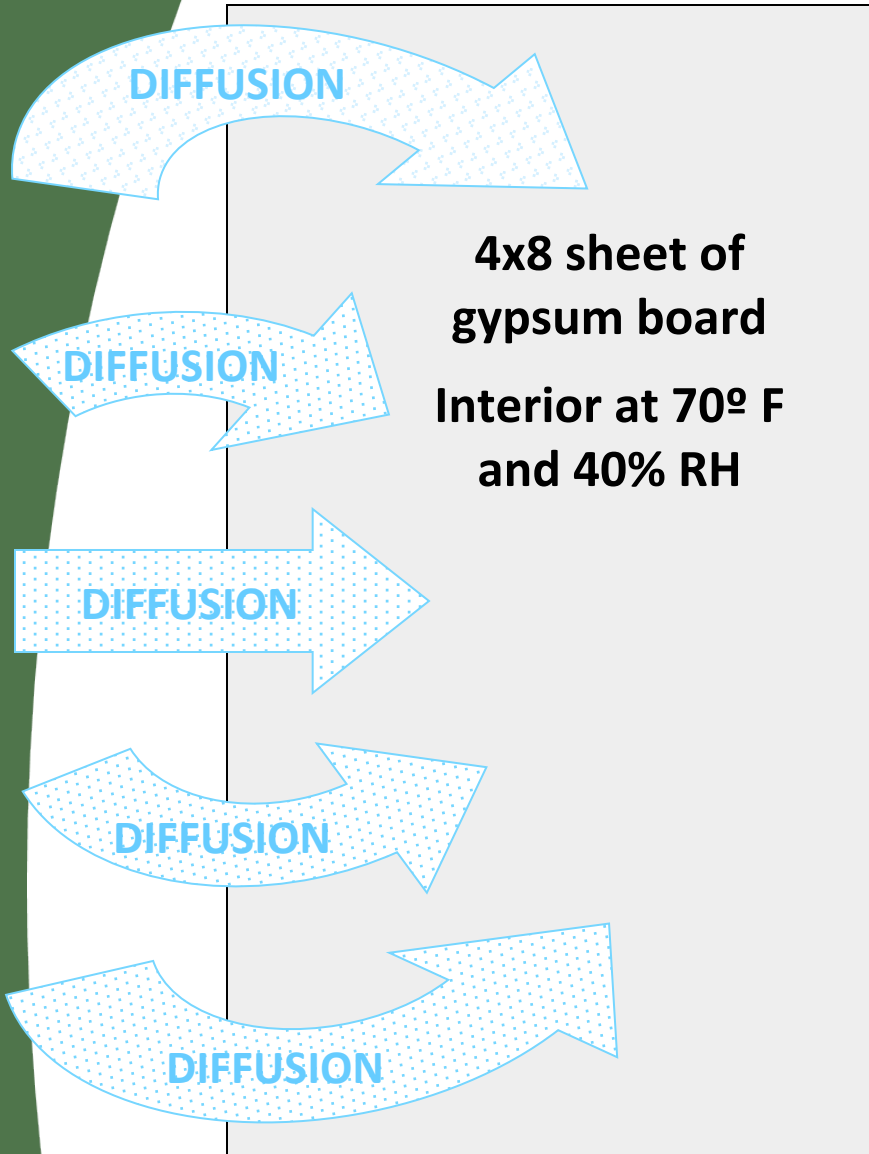
Progress in Building Theory

- Old Thinking: “You don’t want to build it too tight”
- Moisture
- Carbon Monoxide
- Radon



Diffusion

Test Period
was One
Cold Climate
Heating Season



1/3 quart
of water

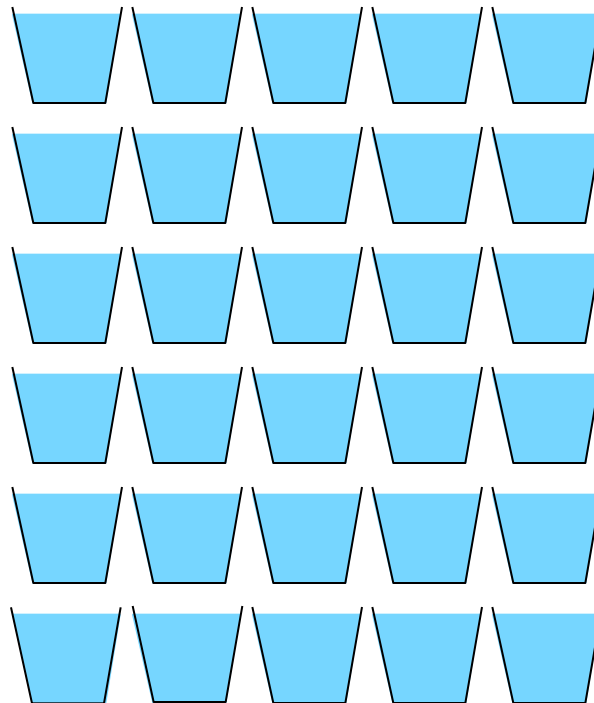
Air Transported Moisture

4x8 sheet of
gypsum board
with 1 in² hole
Interior at 70° F
And 40% RH

Air Leakage

Test Period
was One
Cold Climate
Heating Season

30 quarts
of water



FIX TO MOISTURE MYTH

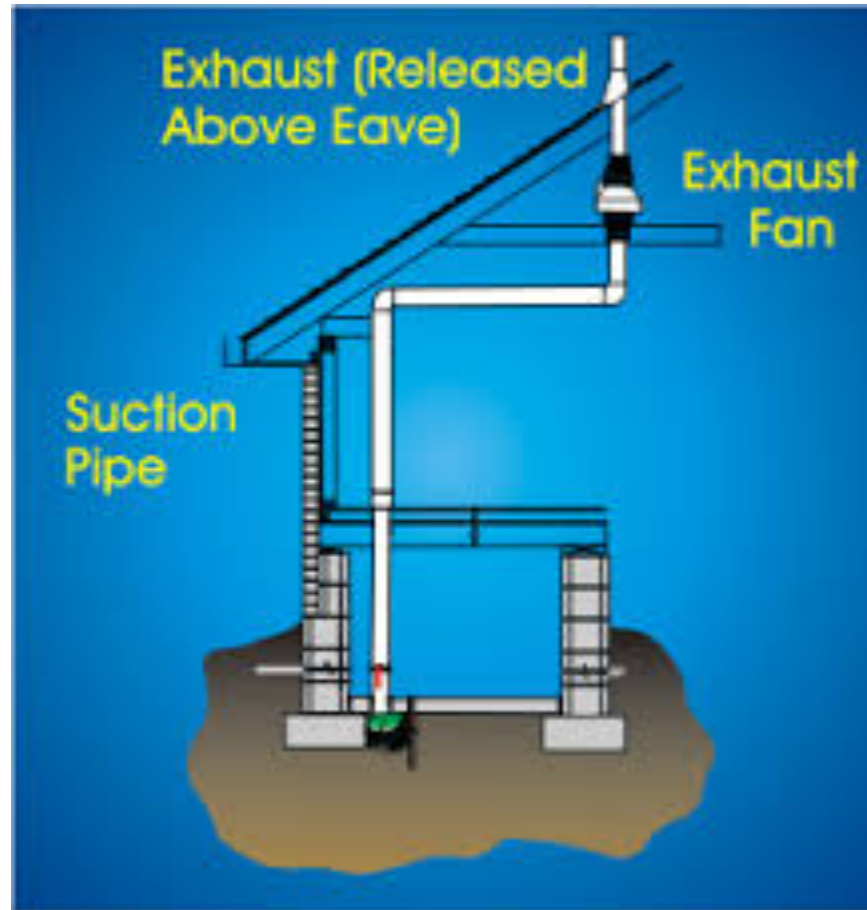
VENTILATION!

- Bath Fans
- Air exchangers
- Range Hoods
- Calm down on that humidifier

CARBON MONOXIDE



RADON MITIGATION



MYTH #2



MYTH #2



MYTH #3

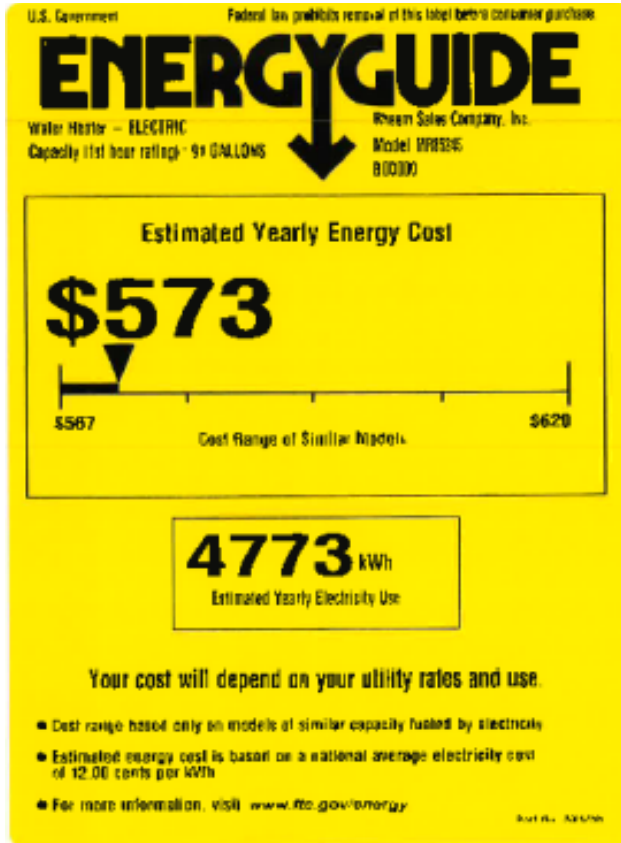
Efficiency Factor=0.94



Efficiency Factor=0.70



MYTH #3



In a Nutshell

New Homes

Sell energy efficiency with the HERS Rating

Buy energy efficiency for durability, comfort and \$\$\$

Existing Homes

Sell energy efficiency with an energy audit

Buy energy efficiency for durability, comfort and \$\$\$

QUESTIONS

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