Have We Got A Label for You:

Intro to Federal Programs

RESNET Building Performance Conference
San Diego, CA

February 16th, 2015
Have We Got A Label For You

The most trusted brand for energy savings, with improved durability, comfort, and quality.

Water savings, inside and out.

Improved indoor air quality for healthier homes.

Homes that are so efficient, durable, and healthy, that they’re truly prepared for the future.
Four Labels, One Common Platform

- Whole-house solutions based on building science
- Government-backed and managed
- Leverages RESNET infrastructure & Home Energy Raters
For more than 20 years, EPA’s ENERGY STAR program has identified the most energy efficient products, buildings, plants, and new homes – all based on the latest government-backed standards and a rigorous third-party certification process.
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in:
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in: 70 Product Categories
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in:

Buildings and Plants Across 24 Industries
Today, this little blue label does all the hard work of certifying outstanding energy efficiency in: NEW HOMES Across the Nation
Reducing the complexity of energy efficiency to a simple choice.
ENERGY STAR is also the most comprehensive resource available for proven energy efficiency guidance.

At energystar.gov:
ENERGY STAR is also the most comprehensive resource available for proven energy efficiency guidance.

At energystar.gov:
• Consumers can find a broad range of tools to help them save more
ENERGY STAR is also the most comprehensive resource available for proven energy efficiency guidance. At energystar.gov:

• Consumers can find a broad range of tools to help them save more
• Homeowners can assess and find help improving their homes’ efficiency
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At energystar.gov:

• Consumers can find a broad range of tools to help them save more
• Homeowners can assess and find help improving their homes’ efficiency
• Businesses can find tools and resources to help unlock greater energy performance
More than 6,400,000 website visitors each year
Every single day, consumers choose ENERGY STAR products more than 800,000 times.
16,000 businesses and public sector organizations partner with ENERGY STAR
More than 23,000 buildings and plants have earned the label
More than 1,500,000 new homes have been certified
Awareness now exceeds 85% and preference is growing.
To date, the **ENERGY STAR** program has:
To date, the ENERGY STAR program has:

- Prevented 2 billion metric tons of greenhouse gas emissions
To date, the ENERGY STAR program has:

- Prevented 2 billion metric tons of greenhouse gas emissions
- Saved $300 billion on utility bills
ENERGY STAR Certified Homes

“This label sealed the deal on our new home.”

NAME: Jesse and Melissa Gallo

THEIR DREAM HOME: Efficient, comfortable, and ENERGY STAR® certified

THEIR SAVINGS: More than $550 off their energy bills and more than 11,000 lbs. of greenhouse gases each year.

EPA’s blue ENERGY STAR label on the Gallos’ new home means a lot. It means their home was designed and built to standards of quality and durability well beyond most others on the market today. It also means that they will save energy and reduce the greenhouse gases that cause climate change for years to come. Visit energystar.gov.
Two Key Components to
ENERGY STAR Certified Homes

Efficiency Target
HERS Index target at least 15% more stringent than code

Mandatory Features
To ensure efficiency does not come at the expense of comfort, quality, or durability.
ENERGY STAR Certified Homes
Efficiency Target

Version 3: ~ 65 - 75 HERS Index Target
Version 3.1: ~ 55 - 65 HERS Index Target
ENERGY STAR Certified Homes
Mandatory Features

1. High-performance insulation, windows, & doors
2. Tightly-sealed home
3. Reduced thermal bridging for improved comfort
ENERGY STAR Certified Homes

Mandatory Features

- Right-sized heating & cooling, quality-installed
- Whole-house fresh air system
- Effective kitchen and bath fans
- Upgraded air filter
- Combustion safety features
ENERGY STAR Certified Homes

Mandatory Features

Water-managed roof

Water-managed walls

Water-managed foundation and site

Water-managed building materials
What’s New With
WaterSense®
Labeled Homes

Jonah Schein
RESNET Conference
February 16, 2015
EPA’s 2015 Budget

- Water & Wastewater Protection, $3,489
- Cleanup, $1,909
- Climate Change & Air Quality, $1,031
- Enforcement, $793
- Chemical Safety & Pollution Prevention, $673

In Million USD
The Need for Water Efficiency

- Our national thirst for water is increasing
- Demand coupled with climate change will increase stresses on water supplies
- Non-drought water shortages are expected in 40 states
- Water utilities may need to invest more than $700 billion to update aging infrastructure in the next 20 years
Not Just About Water

• Every gallon of water has an energy “footprint”

• Moving, treating, and heating water uses energy

• Energy used by the drinking water & wastewater industry in the US
  – More 30 billion kWh/year

• California
  – 19% of electricity and more than 30% of non-power generation natural gas use is for water sector activities
  – Most of this use occurs at the point of end-use
What Will This Mean?

- Rising costs for water and sewer
  - Higher utility bills
  - Larger connection fees

- Increased use of outdoor water restriction
  - Designated watering days
  - No new planting
  - Water budget based billing
  - No outdoor water use

- More stringent code
  - More efficient plumbing products
  - Strict permitting & development policies
Water Neutral Development Policies
Water Neutral Development Policies

www.allianceforwaterefficiency.org
WaterSense Labeled New Homes Program

• First national new home labeling program for water efficiency
• Complements EPA’s other programs
  – Represents performance, efficiency, and value in a home
• WaterSense labeled new homes:
  – Reduce water use in new homes by at least 20%
  – Educate homeowners about continuing water-efficient behaviors
  – Encourage community infrastructure savings
  – Are third-party certified

First community of all WaterSense labeled new homes in Issaquah, WA
Why Build WaterSense Labeled Homes?

- Part of the “whole-house” building science approach
  - Offers a simply (pass/fail) certification
  - Provides a key market differentiation
  - Allows builders to stay a step ahead of codes and utility rates

- Ability to co-brand with WaterSense
  - Access to WaterSense partner resources
  - Meet the growing demand for green products
  - Eligibility for awards

- Convenience, efficiency, & confidence
  - Hot water will be delivered to users faster and use less energy
  - Regionally appropriate landscaping
  - WaterSense labeled products provide efficiency and performance
  - Improved quality and reduced call backs
Selling a WaterSense Labeled Home

• **Inside:** compared to a typical home, a family of four could save big in a WaterSense labeled new home
  – 50,000 gallons of water - equal to 2,000 loads of laundry
  – More than $600 per year on water, sewer, and energy bills

• **Outside:** water-efficient landscapes are adaptable to local watering restrictions
  – Easily maintained
  – Offer long term curb appeal
What Tools Does EPA Provide?

A Healthy Yard Isn’t Hard!

WaterSense® labeled homes have low-maintenance, beautiful landscapes that save water.
What Tools Does EPA Provide?

Skeptical of “low-flow”?  
Choose WaterSense®!

Don’t sacrifice performance for water efficiency.

WaterSense labeled products are certified to PERFORM as well or BETTER than standard models ...all while SAVING at least 20% more water!

www.epa.gov/watersense
What Tools Does EPA Provide?

- **Save Water & Energy**
- **Don’t Waste Time!**
- **Get Hot Water Fast!**

**WaterSense® labeled homes** have efficient plumbing systems that get you hot water right when you need it!

[www.epa.gov/newhomes](http://www.epa.gov/newhomes)
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What Makes a WaterSense Labeled Home?

- Third Party Certification
- WaterSense Labeled Products
- Smart Landscaping & Irrigation
- Leak Prevention & Service Pressure
- Hot Water Distribution

Outdoor Measures

Indoor Measures
WaterSense Labeled Products

Flush Urinals
Lavatory Faucets
Irrigation Controllers

Showerheads
Tank-Type Toilets
Pre-rinse Spray Valves

Nearly 15,000 Labeled Models as of February 2015
Hot Water Distribution Systems
Performance Requirement

- Shall store no more than 0.5 gallons in any piping/manifold between the hot water source and any hot water fixture
- Shall be tested by producing a 10°F rise in temperature before 0.6 gallons of water is discharged
  - 20% buffer allows for heat lost and water stored within fixtures
- Recirculation system must be demand initiated (push button or motion sensor)
  - Recirculation based solely on temperate and/or timing do meet this requirement
  - Schedule adaptive and hybrid water heaters are allowed
Congratulations on choosing to design a locally appropriate water-efficient landscape! The WaterSense water budget tool will help you determine if your landscape meets EPA’s criteria for efficient outdoor water use in your area.

In order to use the water budget tool, you will need to know some basic information about your landscape:

- The location and zip code
- The total area of applicable landscape
- Types of plants and the total coverage
- Methods of irrigation (if any)

Your landscape will receive a pass/fail based on local climate, plant selection, irrigation methods, and size of the landscape. Follow the instructions on screen to find out if your landscape meets the WaterSense criteria.

For what purpose is the tool being used?
What are you landscaping?

Please Select

How many sites?

- Development of Multiple Landscapes
- Single Site

Is there an irrigation system?

- Yes
- No

Enter Zip Code

Enter Landscaped Area for a Single Home or Site

Enter Multi-Home/Development Landscaped Area Range

NEXT STEP >
Irrigation Design and Installation

Irrigation is not required, if irrigation is included in a home, it must meet both design and installation requirements:

• Product requirements:
  – Include WaterSense labeled irrigation controllers
  – Utilize non-spray irrigation on all plant types other than turf

• Design and installation requirements:
  – Be designed or installed and audited by certified professional to achieve a distribution uniformity of 65%
  – July 2014 changes should greatly increase the number of certified professionals
Inspection & Certification

• Requires a simple one time inspection
  – Typically occurs after the home is completed but before it is occupied

• Uses a parallel certification to ENERGY STAR Homes
  – Can be offered as a stand alone certification or in conjunction with other programs

• WaterSense requires a separate providership administered by RESNET
  – There is a required training for the quality assurance designees of interested providers
  – Interested Raters can inquire with their existing rating provider or with existing WaterSense providers
• WaterSense Information
  – Web site: www.epa.gov/watersense

• For questions:
  – E-mail: watersense-homes@epa.gov
  – Toll-free Helpline: (866) WTR-SENS
    • 1(866) 987-7367

OR

• Jonah Schein
  Schein.jonah@epa.gov
RESNET 2015

Have We Got a Label for You!

Indoor airPLUS
Why a government label for indoor air quality in new homes?

• Address known risks from indoor air pollution: radon, carbon monoxide, particles, mold, pests, VOCs, pesticides, etc.

• Risks include:
  • Asthma, allergy and other respiratory effects
  • Cancer
  • Eye, nose, throat irritation

• Indoor air quality is an essential component of high performance homes

• Help lead and inform the development and evolution of standards, codes, and rating systems to include protection of indoor air quality
What goes into an Indoor airPLUS home?

- **Low VOC Products**
- **HVAC**
  - No HVAC in attached garage
  - Humidity control (warm-humid climates)
- **Water Management System**
  - Conditioned crawls
  - Sump pump
  - Hard flooring in wet areas
- **Thermal Enclosure System**
- **Pest Barriers**
- **Radon System**
  - Zone 1
- **Commissioning**
- **Combustion**
  - CO alarms
  - Garage pollutants
  - Fuel-burning appliances

**All 3rd Party Verified**

**Comprehensive Indoor Air Quality Protection**
# Indoor Air Quality (IAQ)

## Simplified Verification Checklist

1. **Moisture Control**
2. **Radon**
3. **Pests**
4. **HVAC Systems**
5. **Combustion Pollutants**
6. **Materials**
7. **Home Commissioning**
What’s the value proposition for Indoor airPLUS?

For the home buyer:

• Built on the solid foundation of the ENERGY STAR Certified Homes brand
  • Quality, comfort, durability

• Healthier homes message appeals to health-conscious home buyers
  • Added protection from known health risks, peace of mind
What’s the value proposition for Indoor airPLUS?

For the builder:

• Systems approach helps ensure energy efficiency and IAQ are fully integrated
• Less risk, fewer callbacks
• Lead the industry
• Differentiate your company from the competition
• Modest cost differential to step up from ENERGY STAR
Conveying the Indoor airPLUS Value Proposition

• Not easy, cheap or useful to measure many indoor air contaminants
• Even harder to measure health and $ benefits
• Until we can, there are still plenty of benefits to convey to prospective buyers...
Moisture Control & Water Management

Benefits

- Reduces potential for mold growth – even in places you can’t see.
- Fewer maintenance issues from peeling paint and moldy grout
- Structural durability
- Water damage reduction
Radon System

Benefit

Protection from naturally occurring radon gas, the second leading cause of lung cancer in the U.S.
# Pest Barriers

## Benefits

- Reduced pest-related allergens, asthma triggers and diseases
- Prevention of potential damage from pests
- Less vacuuming and dusting
HVAC Systems

Benefits

- Reduced exposure to mold and mildew
- Helps remove allergens, toxins, irritants and asthma triggers from the home
- Increased comfort
- House stays cleaner

Indoor Air Quality (IAQ)
Combustion Pollutants

Benefits

- Reduced exposure to carbon monoxide, other combustion gases, and particles
- Round-the-clock peace of mind
Low Emission Materials

Benefits

- Less “chemical” smell
- Lowered exposure to VOCs
- Reduced potential for occupant health complaints
Resources and Tools
Marketing and Technical Support for Partners

- Builder and consumer resources
- Partner locator
- Website widgets
- Construction requirements
- Technical guidance

www.epa.gov/indoorairplus
Co-brandable Brochure

• Add company name, logo, and other info (testimonials, etc.)
Indoor Air Quality (IAQ)

Homeowner Education
- Indoor airPLUS homebuyers receive:
  - An Indoor airPLUS label and certificate
  - A list of features included in their home
  - Instructions for regular equipment maintenance

Radon Control
- Planning for the possibility of radon helps reduce risks posed by the second leading cause of lung cancer in the United States.

Mold and Moisture Control
- Paying close attention to moisture details:
  - Increases structural durability
  - Reduces the potential for mold-related health issues
  - Prevents recurring maintenance issues

Efficient HVAC Systems
- A well-designed heating, ventilation, and air conditioning system provides:
  - Improved comfort
  - Humidity control
  - Enhanced filtration
  - Clean, well-sealed ductwork

Combustion Pollutant Control
- Careful attention to venting and combustion sources:
  - Reduces pollutants in living spaces
  - Minimizes CO exposure
  - Provides peace-of-mind for everyone in the home

Building Materials
- Choosing low-emission building materials:
  - Lowers exposure to volatile organic compounds (VOCs)
  - Reduces the potential for health problems
  - Minimizes "chemical smell" in the home

Pest Barriers
- Blocking pest entry:
  - Keeps the home cleaner
  - Limits allergens, germs, and asthma triggers
  - Prevents potential pest damage

Benefits of an Indoor airPLUS Qualified Home
Be Recognized as an Indoor airPLUS Leader

Apply for the 2015 Indoor airPLUS Leader Award

Applications Due: March 25, 2015

2014 Winners:

Builders:
• Foxwood Builders, Inc.
• Palo Duro Homes, Inc.
• C&B Construction

Raters:
• Integral Building & Design, Inc.
• Steven Winter Associates, Inc.
• ASERusa
• E3 Energy

http://www.epa.gov/indoorairplus/leader_awards.html
Coming Soon!

Updated Mobile App

Builder Sales Training
Indoor airPLUS companion module
Becoming an Indoor airPLUS Partner couldn’t be easier

• For current ENERGY STAR Partners:
  • Log into your My ENERGY STAR Account (MESA)
    www.energystar.gov/mesa
Beome an Indoor airPLUS Partner

- After entering your account, click “Join Indoor airPLUS”.
  - For builders, be sure you’ve completed the required ENERGY STAR training.

<table>
<thead>
<tr>
<th>My ENERGY STAR Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome, FIRST TESTER!</td>
</tr>
<tr>
<td>You are invited to navigate directly to other ENERGY STAR tools and sites, change your password for your password-protected ENERGY STAR tools, or update contact information for you, your organization, and your colleagues.</td>
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<thead>
<tr>
<th>To-Do List:</th>
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<tbody>
<tr>
<td><strong>New Homes Builder Training</strong></td>
</tr>
<tr>
<td>You were required to complete training by 06/09/2013. Please complete the training to reactivate your partnership.</td>
</tr>
<tr>
<td><a href="#">Start Training</a></td>
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<tr>
<td>(Internet Explorer or Firefox are the preferred browsers for this training. Please turn off your browser pop-up blocker.)</td>
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<tr>
<th>My ENERGY STAR Tools:</th>
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<tr>
<td>- Linking Opportunities</td>
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<tr>
<td>- Certified Homes Co-brandable Consumer Brochure</td>
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<tr>
<td>- Certified Homes Co-brandable Banners</td>
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<tr>
<td>- Join Indoor airPLUS</td>
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</table>

[Join Indoor airPLUS]
Learn more about Indoor airPLUS

- Go deeper on Indoor airPLUS and WaterSense tomorrow, same time, same room:
  - Water Efficiency and IAQ: The Next Frontiers in Whole Home Performance

- Stop by Booth # 301

- Visit the web site: http://www.epa.gov/indoorairplus/index.html
DOE Zero Energy Ready Home

Why ‘0’ in 3
### Why ‘O’ in 3

<table>
<thead>
<tr>
<th>Risk Management</th>
<th>Differentiation Opportunity</th>
<th>Innovation Imperative</th>
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74 | INNOVATION & INTEGRATION: Transforming the Energy Efficiency Market

Buildings.Energy.gov
<table>
<thead>
<tr>
<th>Risk</th>
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<tr>
<td>More Rigorous Specs:</td>
<td>• Latest Energy Codes</td>
<td>• Low HERS Scores</td>
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</table>
  – More Insulation  
  – Quality Installation  
  – Complete System | • Advanced Windows  
• More Air Tightness |
### Risk 1: Ensured Comfort

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<th>Risk</th>
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<td>Ultra Low HVAC Loads:</td>
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<td>• Lower Air Flow/Mixing</td>
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## Risk 1: Ensured Comfort Strategy

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#### Ultra Low HVAC Loads:
- Lower Air Flow/Mixing
- Longer Swing Seasons
- Less Humidity Control

#### Optimized Low-Load Comfort System
- Right-Sized
- Properly Installed
- Complete (Htg., Clg. + RH)
- Tested
## Risk 2: Moisture Management

### Risk

- More Wetting Risk
  - Colder Surfaces
  - Less Drying Potential

### Differentiation

- Advanced Enclosure:
  - Adv. Insulation System
    - More Insulation
    - Quality Installation
    - Complete System
  - Advanced Windows
  - More Air Tightness

### Innovation
## Risk 2: Moisture Management Strategy

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<tbody>
<tr>
<td>More Wetting Risk</td>
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<td>Comprehensive Water</td>
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<tr>
<td>• Colder Surfaces</td>
<td></td>
<td>Protection</td>
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<tr>
<td>• Less Drying Potential</td>
<td></td>
<td>• Roofs</td>
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<td>• Walls/Openings</td>
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<td>• Site/Foundation</td>
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<td>• Materials</td>
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Risk 3:  
**Ensured IAQ**

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**IAQ Risk:**
- Less Dilution
- Less Filtration

**Advanced Enclosure:**
- Adv. Insulation System
  - More Insulation
  - Quality Installation
  - Complete System
- Advanced Windows
- More Air Tightness
Risk 3: Ensured IAQ Strategy

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Comprehensive IAQ System:
• Contaminant Control
• Fresh Air System
• High-Capture Filtration
## Differentiation Opportunity

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- Next Generation of Buyers
- The Competition
Next Generation Homebuyers

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78 Million Gen-Y’ers
### What We Know About Gen-Y

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<tr>
<td>Debt</td>
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<td>(Willing to Pay More for a Better Experience, but Need a Compelling Reason to Buy)</td>
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<td>Sharing Economy</td>
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<td>Delayed Commitment</td>
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<td>Crash Experience</td>
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<td>Innovation Junkies</td>
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<td>Risk</td>
<td>Information</td>
<td>Innovation</td>
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<tr>
<td>Gen-Y Vested in Zero</td>
<td>Risk Information Innovation</td>
<td>Too Big To Fail</td>
</tr>
</tbody>
</table>
The Competition

Risk

Differentiation

Innovation

Median Age of Owner-Occupied Housing

Source: U.S. Census Bureau - 2011 AMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Median Age of-owner Occupied Housing</th>
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<tbody>
<tr>
<td>1985</td>
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<tr>
<td>2011</td>
<td>35</td>
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Years of Age
### Aging Housing Stock with:

- High Utility Bills
- Poor Comfort
- Health Risks
- Moisture Problem Risks
- Excessive Bugs/Pests
- Durability Issues
- Obsolete Technology

**Meet 85% of Your Competition**
Differentiation Opportunity 1: Obsolescence

House of the Future:
- Meets or Exceeds Future Code/Expectations

Optimized Enclosure:
- Optimized Insulation
- Optimized Windows
- Optimized Air Tightness
Differentiation Opportunity 2: Interest in Zero Energy

Risk | Differentiation | Innovation

Solar Ready Home
Efficient Components
Ultra Low HVAC Loads

Optimized Enclosure:
- Opt. Insulation System
- Optimized Windows
- Optimized Air Tightness
Zero Energy Ready Home Spec

<table>
<thead>
<tr>
<th>Risk</th>
<th>Differentiation</th>
<th>Innovation</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Advanced Enclosure</td>
<td>Risk Management:</td>
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<tr>
<td></td>
<td>Optimized Comfort System</td>
<td>Optimized Enclosure</td>
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<td></td>
<td>Complete Water Protection</td>
<td>Efficient Components</td>
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<td></td>
<td>Comprehensive IAQ System</td>
<td>Solar Ready Construction</td>
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</tbody>
</table>
Zero Energy Ready Home Value

Risk

Lives Better
- Engineered Comfort
- Healthier Living
- Exclusivity

Differentiation

Works Better
- Ultra-Low Utility Bills
- Advanced Technology
- Visionary

Innovation

Lasts Better
- Quality Construction
- More Durability
- Smart
More Informed Consumers

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</table>

BY JANN SWANSON

Real Estate Web Searches Climb 253% in Four Years as 90% of Homebuyers Use Internet as Primary Research

Jan 7 2013, 3:50PM

Home-shopping consumers are not only exponentially increasing their reliance on the Internet but are also developing distinct patterns for using it in their housing searches. Google and the National Association of Realtors' extensively administered and analyzed tools.
More Informed Consumers

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Internet Content Available

SOURCE: National Association of Realtors® - Profile of Home Buyers and sellers 2010
More Informed Consumers

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<td></td>
<td>Information Asymmetry: Caveat Emptor</td>
<td>Information Parity: Caveat Venditor</td>
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<td>Innovation</td>
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<tr>
<td>An air conditioner that anticipates your needs</td>
<td>Solar panels that eliminate your energy bills</td>
<td>Walls that can weather a hurricane</td>
</tr>
<tr>
<td>PAGE 59</td>
<td>PAGE 76</td>
<td>PAGE 66</td>
</tr>
<tr>
<td>A door that can sense your approach</td>
<td>A car that can power your house</td>
<td>A garden that filters your air</td>
</tr>
<tr>
<td>PAGE 59</td>
<td>PAGE 79</td>
<td>PAGE 87</td>
</tr>
<tr>
<td>A sprinkler that tracks the weather</td>
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</tbody>
</table>
The Heavy Lifting is Over…

All ENERGY STAR v3 & HERS Homes At or Below HERS 60 Should Consider Moving up to ZERH:

Risk
Differentiation
Innovation
Thank You

For More Information:
www.buildings.energy.gov/zero

Email:
zero@newportpartnersllc.com