

# DOE Zero Energy Ready Home

U.S. DEPARTMENT OF  
**ENERGY** | Energy Efficiency &  
Renewable Energy



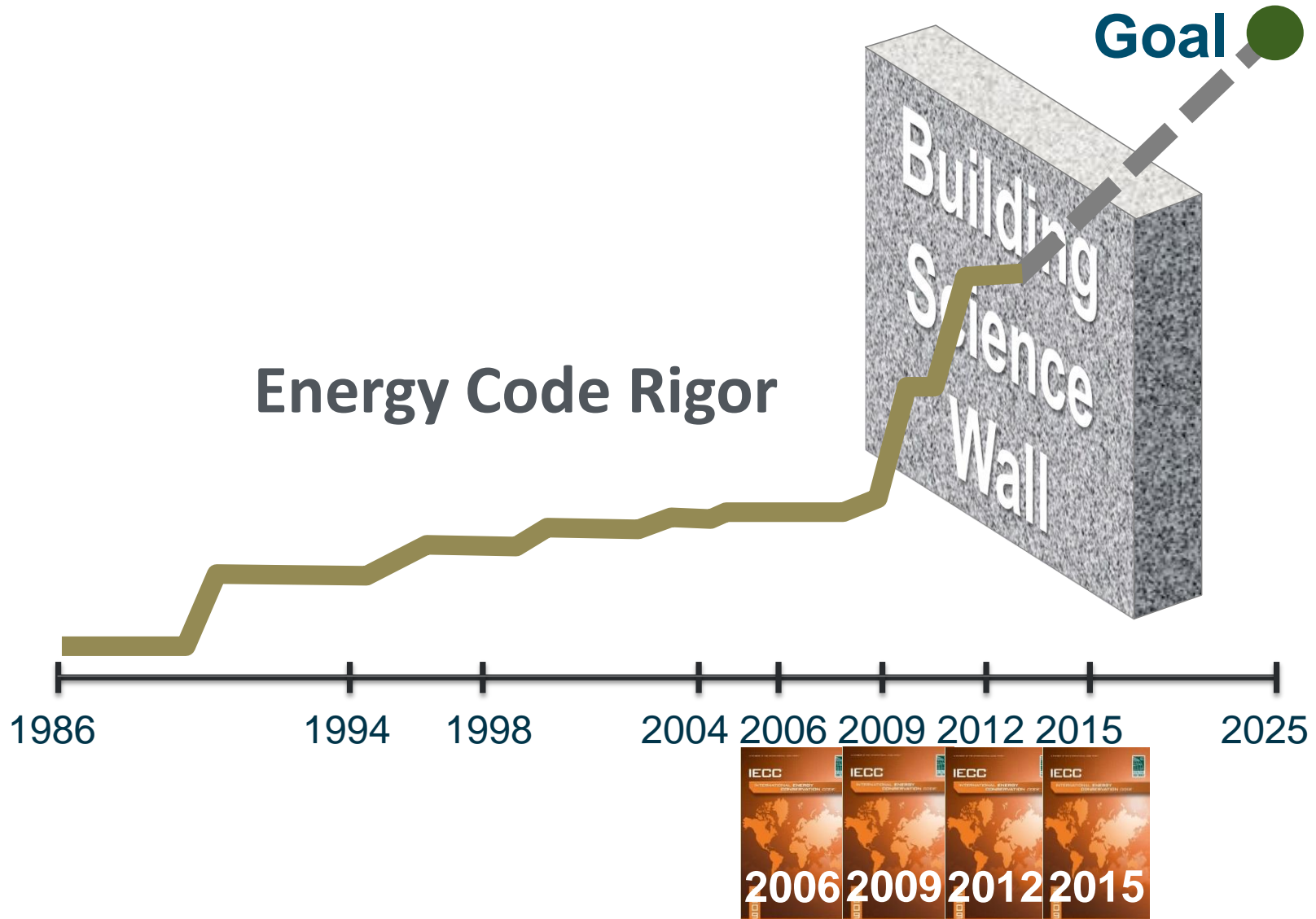
**ENERGY STAR Partner Meeting**

**Jamie Lyons, P.E.**

**10-14-2015**

1. Why Build Zero Energy Ready?
2. Selling DOE Zero Energy Ready Homes
3. Technical Specs
4. Partnerships

# New Risk Reality



## Insulation System

More  
Quality Install  
Complete

## Windows

## Air Sealing

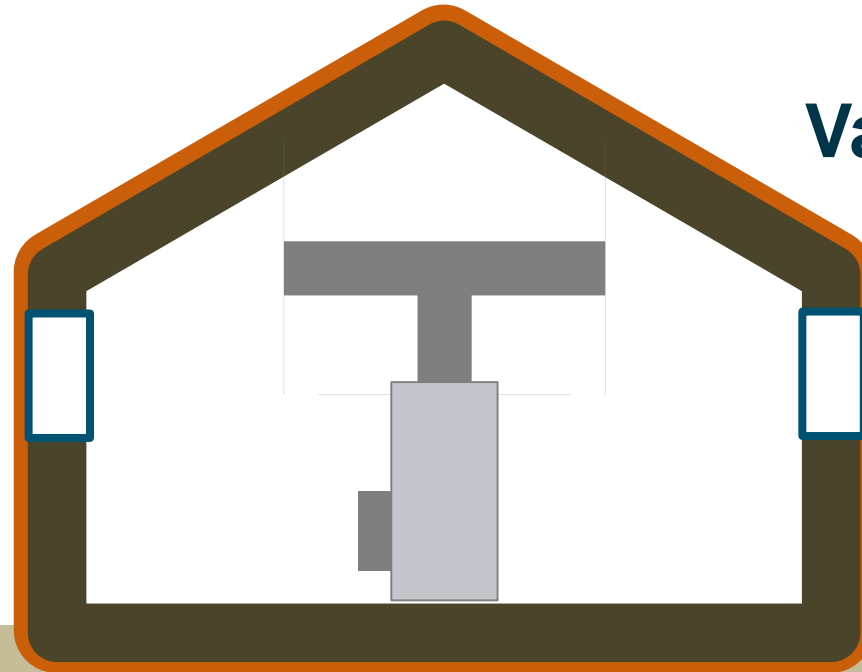


Advanced  
Enclosure

More Rigorous  
Codes/HERS



# Risk 1: Ensured Comfort



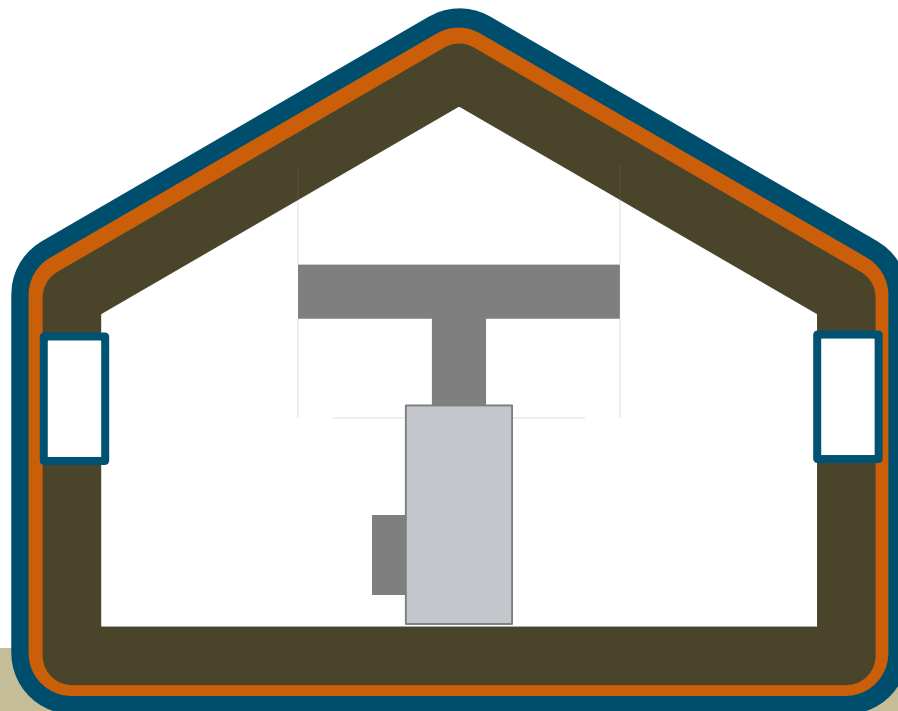
**Right Sizing/  
Variable Speed  
Proper  
Installation  
Complete  
Tested**

**Advanced  
Enclosure**

**Ultra-Low  
HVAC Loads**

**Optimized  
Low-Load  
Comfort System**

# Risk 2: Moisture Management Strategy



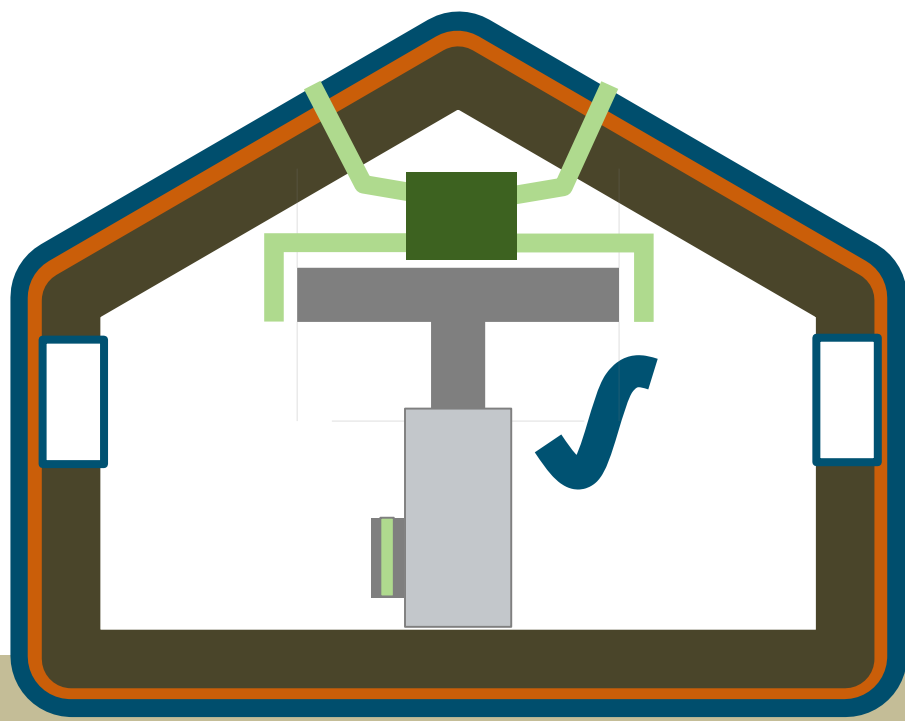
**Roofs**  
**Walls/  
Openings**  
**Site/  
Foundation**  
**Materials**

Advanced  
Enclosure

More Wetting  
Risk

Comprehensive  
Water  
Protection

# Risk 3: Ensured IAQ Strategy



**Source  
Control  
Fresh Air  
System  
High-  
Capture  
Filtration**

**Advanced  
Enclosure**

**More IAQ  
Risk**

**Comprehensive  
IAQ System**

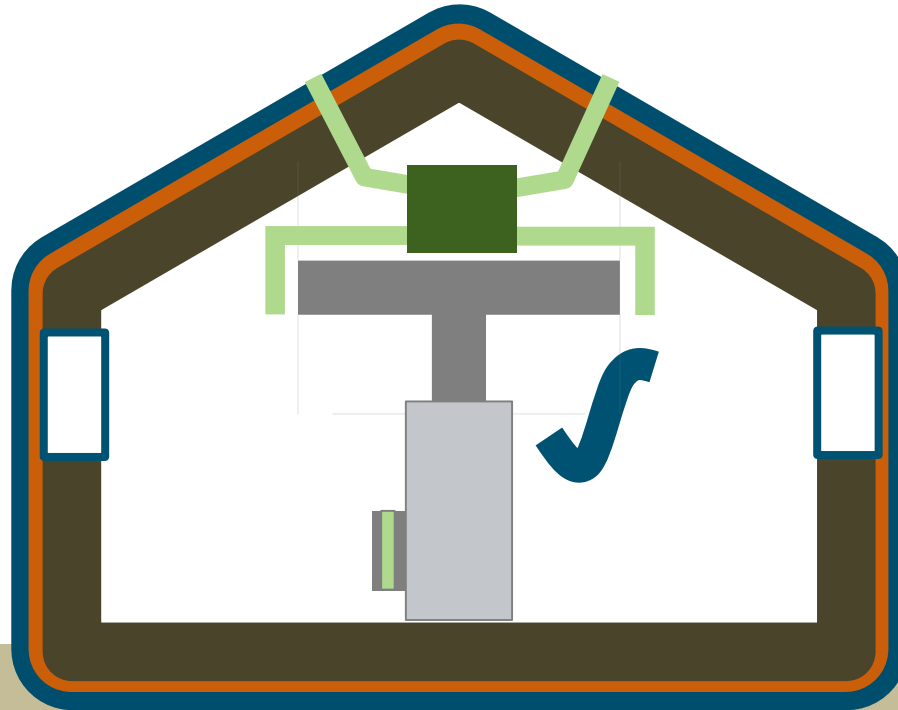
## Insulation System

More+

Quality Install  
Complete

Windows+

Air Sealing+



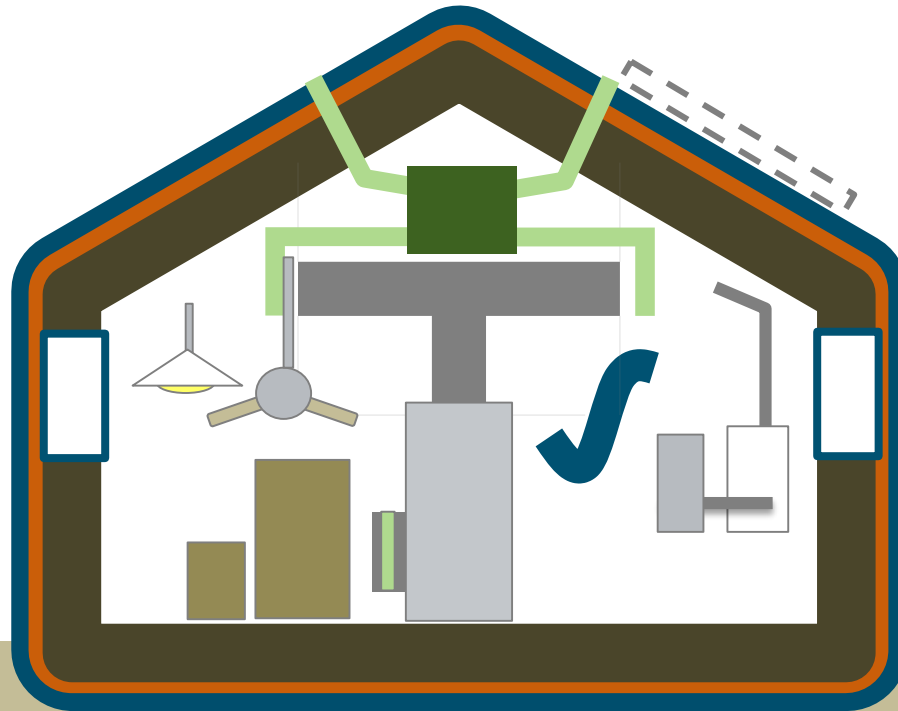
Advanced  
Enclosure

Optimized  
Enclosure

House of the  
Future



# Differentiation Opportunity 2: Zero Energy Ready



Optimized  
Enclosure

Ultra-Low  
HVAC  
Loads

Energy  
Efficient  
Components

Solar  
Ready

# What is a Zero Energy Ready Home



## Risk Man:

Low-Loads  
Less Drying  
Less Fresh Air



## Differentiation:

Future Ready  
Health Ready  
Advanced Tech  
Zero Ready

Optimized  
Enclosure  
System

Optimized  
Comfort  
System

Water  
Protection  
System

Complete  
IAQ  
System

Efficient  
Comps  
System

Solar  
Ready  
System

# How is a Zero Energy Ready Home Defined

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



## Risk Man:

Low-Loads  
Less Drying  
Less Fresh Air



## Differentiation:

Future Ready  
Health Ready  
Advanced Tech  
Zero Ready

**high-performance home, so energy efficient,**  
all or most annual energy consumption  
can be offset by renewable energy.



# Why '0' Sells Better

## Clarity depends on **contrast**.

We often understand something better  
when we see it in comparison  
with something else  
than when we see it in isolation.

## Homes to the Power of **ZERO**



### What is the DOE Zero Energy Ready Home™ Label?

It is a Symbol of Excellence for energy savings, comfort, health, quality, and durability met by a select group of leading builders meeting U.S. Department of Energy Guidelines.

### What is a Zero Energy Ready Home?

It is a high-performance home so energy efficient, all or most annual energy consumption can be offset with renewable energy. In other words, it is the Home of the Future.

### A Symbol of Excellence



This graphic comparison chart demonstrates relative performance of this DOE Zero Energy Ready Home to existing homes (built between 1990 and 2010) and ENERGY STAR Certified Homes. Actual performance may vary.



303-231-4567  
NewTown@net.com  
123 Main Street, Denver, CO 34567

## Homes to the Power of **ZERO**



### What is the DOE Zero Energy Ready Home™ Label?

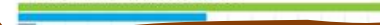
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### What is a Zero Energy Ready Home?

It is a high-performance home so energy efficient, all or most annual energy consumption can be offset with renewable energy. In other words, it is the Home of the Future.

### A Symbol of Excellence

#### HEALTHFUL ENVIRONMENT



#### COMFORT PLUS



#### ADVANCED TECHNOLOGY



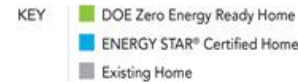
#### ULTRA EFFICIENT



#### QUALITY BUILT



#### DURABILITY

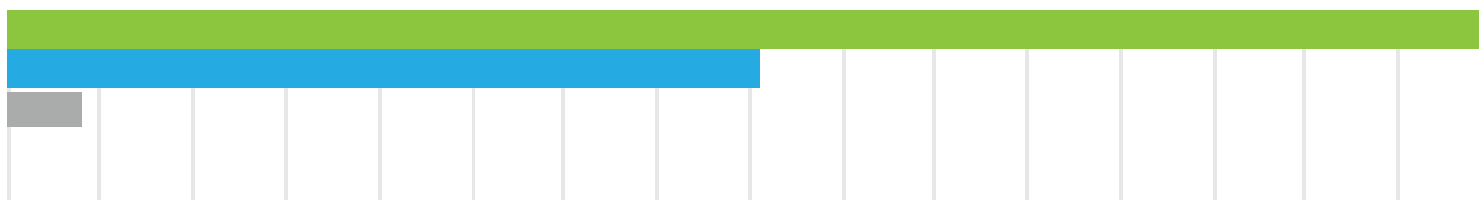





This graphic comparison chart demonstrates relative performance of this DOE Zero Energy Ready Home to existing homes (built between 1990 and 2010) and ENERGY STAR Certified Homes. Actual performance may vary.



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123 Main Street, Denver, CO 34567

## HEALTHFUL ENVIRONMENT



- KEY**
-  DOE Zero Energy Ready Home
  -  ENERGY STAR Home
  -  Existing Home

This label indicates relative performance of this DOE Zero Energy Ready Home to existing homes (built between 1990 and 2010) and ENERGY STAR qualified homes. Actual performance may vary.





# Contrast: New vs. Obsolescence



“Our daughter couldn’t breathe without discomfort for years. Within two months of moving into our new Cobblestone Home

**we threw  
away the  
inhaler.  
That was  
priceless!”**

Charley and Mary Jones,  
KB homeowner





**Bob & Suzanne Campbell**

Residents, Watertown

**“You feel like you’re wrapped in a 100 wool blankets.  
It’s so warm, you would never know  
it was below zero degrees the last two weeks here.”**



# Why '0'

# Differentiates Better

Nearly 1 in 3 consumers indicated they  
**do not trust**  
home building and real estate companies.

Source: The business of Trust – The Most Trusted Builders in America,  
Lifestory Research, January 2013

# Lots of Trusted Label Choices...



You Are Here



You Are Here



You Are Here





Independent Voice of Authority vs. “Trust me.”

# Differentiate with ZERH 'Brand'

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy





# Differentiate with Multiple 'Brands'



# Differentiate with Value Message



**A Symbol of Excellence**  
Every Zero Energy Ready Home offers a cost-effective, high performance package of energy savings, comfort, health, and durability unparalleled in today's marketplace.



### Lives Better

**HEALTHFUL ENVIRONMENT**

Every DOE Zero Energy Ready Home has a comprehensive package of measures to minimize dangerous pollutants, provide continuous fresh air, and effectively filter the air you breathe.

**COMFORT PLUS**

Superior insulation, windows, air sealing and space conditioning systems included in every DOE Zero Energy Ready Home surround you with even temperatures, low-humidity, and quiet in every room on every floor.

**KEY**

- DOE Zero Energy Ready Home
- ENERGY STAR Certified Home
- Existing Home



### Works Better

**ADVANCED TECHNOLOGY**

Every DOE Zero Energy Ready Home begins with solid building science specified by ENERGY STAR for Homes, and then adds advanced technologies and practices from DOE's world-class research program, Building America.

**ULTRA EFFICIENT**

Compared to a typical home, an ultra efficient Zero Energy Ready Home is inexpensive to own. In fact, every DOE Zero Energy Ready Home is so energy efficient, a small solar electric system can easily offset most, or all, of your annual energy consumption. We call this Zero Net-Energy Ready.



### Lasts Better

**QUALITY BUILT**

Advanced construction practices and technologies are specified for every DOE Zero Energy Ready Home. Then they are enforced by independent verifiers with detailed checklists and prescribed diagnostics.

**DURABILITY**


The advanced levels of energy savings, comfort, health, durability, quality and future performance in every DOE Zero Energy Ready Home provide value that will stand the test of time, and will meet and exceed forthcoming code requirements.

**LEARN MORE AT: [buildings.energy.gov/zero](http://buildings.energy.gov/zero)**

## The Future of Housing—Today

Only a select group of the top builders in the country meet the extraordinary levels of excellence and quality specified by U.S. Department of Energy guidelines.





**LEARN MORE AT:**  
[buildings.energy.gov/zero](http://buildings.energy.gov/zero)

**NEW TOWN BUILDERS**

Call us at:  
303-231-4567

[NewTown@net.com](mailto:NewTown@net.com)

**A Symbol of Excellence**

**HEALTHFUL ENVIRONMENT**

**COMFORT PLUS**

**ADVANCED TECHNOLOGY**

**ULTRA EFFICIENT**

**QUALITY BUILT**

**DURABILITY**

**KEY**

- DOE Zero Energy Ready Home
- ENERGY STAR Certified Home
- Existing Home

This label indicates relative performance of this DOE Zero Energy Ready Home to existing homes (built between 1990 and 2010) and ENERGY STAR Certified Homes. Actual performance may vary.



Front Cover

Inside Spread

Flap

Back Cover

# Differentiate with Awards



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[Why Cobblestone Channel](#) | [Innovation Channel](#) | [Cobblestone Care Channel](#)

## Michigan's Most Respected Builder

### CONTACT US



**Sales:** (989) 692-0210

**Office:** (989) 692-0140

**Fax:** (989) 692-0142

**Design Studio Address:**

5474 Garfield Rd

Suite 2

Saginaw, MI 48603

MAP

**Mailing Address:**

P.O. Box 604

Freeland, MI 48623

EMAIL



## Drop-In Messaging

As a registered DOE Zero Energy Ready Home partner, enjoy access to the following pre-approved messages for insertion into your promotional materials. Simply insert your company name and use the message as it appears below.

- According to the U.S. Department of Energy, <Partner Name> is in a select group of top builders in the nation who have certified one or more homes that meet or exceed Zero Energy Ready Home guidelines for excellence in performance and energy efficiency.
- As a committed DOE partner who provides certified Zero Energy Ready Homes, <Partner name> is in the top one percent of builders in the country meeting the extraordinary levels of excellence in energy and performance specified in the national program requirements.
- As a Zero Energy Ready Home Partner, <Partner Name> offers high performance homes that are so energy efficient, all or most of their annual energy consumption can be offset with renewable energy.
- <Partner name> builds homes certified to rigorous DOE Zero Energy Ready Home National Guidelines that are at least 40%-50% more energy efficient than a typical new home.
- **Healthful environment:**  
According to the U.S. Department of Energy (DOE), every certified Zero Energy Ready Home has a comprehensive package of measures to help minimize dangerous pollutants, provide continuous fresh air, and effectively filter the air you breathe.
- **Comfort Plus:**  
According to the U.S. Department of Energy (DOE), every certified Zero Energy Ready Home features high-efficiency insulation, windows, air sealing and space conditioning systems that help surround you with even temperatures, low-humidity, and quiet in every room on every floor.
- **Advanced Technology:**  
According to the U.S. Department of Energy (DOE), every certified Zero Energy Ready Home features advanced technologies and practices recommended by leading housing experts from DOE's world-class research program, Building America.

- **Ultra efficient:**  
According to the U.S. Department of Energy (DOE), every certified Zero Energy Ready Home is so energy efficient a small solar electric system can easily offset most, or all, of its annual energy consumption. This is why it is called as Zero Energy Ready Home.
- **Quality Built:**  
According to the U.S. Department of Energy (DOE), every certified Zero Energy Ready Home features high-efficiency appliances and equipment that are often associated with better quality construction. In addition, overall quality is enhanced with rigorous inspections, diagnostics, and checklists enforced by independent verifiers.
- **Durability:**  
According to the U.S. Department of Energy (DOE), every certified Zero Energy Ready Home features advanced levels of energy savings, comfort, health, durability, quality and future performance that can be expected to stand the test of time and help enhance future value.
- Samuel Rashkin, Chief Architect for DOE Building Technologies Office, said "Zero Energy Ready Homes like those constructed by <Partner Name> are the home of the future because they live, work, and last better with incredibly low or no energy costs. And what's exciting for American homebuyers, they are available today thanks to leading builders across the country."
- "Housing Innovation Award winners such as <Partner Name who has won HIA> are leading a major housing industry transformation to zero energy ready homes. This level of performance is the home of the future because it improves the way Americans live by substantially reducing or eliminating utility bills, ensuring engineered comfort way beyond traditional homes, protecting health with a comprehensive package of indoor air quality measures, and helping maximize the largest investment of a lifetime," said Sam Rashkin, Chief Architect at the U.S. Department of Energy's Building Technologies Office.

# Differentiate with Tour of Zero

## POWER OF ZERO HOME TOUR



# Differentiate with Tour of Zero

**New Town Builders**

The ArtiZEN Plan  
Denver, CO  
303-707-4400  
Newtownbuilders.com

**ZERO**  
ENERGY READY HOME  
U.S. DEPARTMENT OF ENERGY

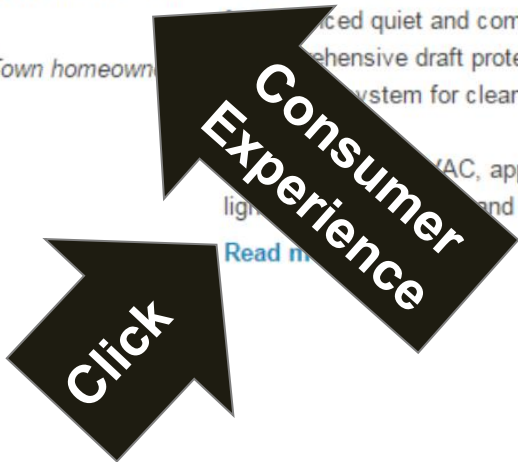
"NOW THAT WE'VE LIVED IN A DOE ZERO ENERGY READY HOME, WE COULDN'T IMAGINE LIVING ANYWHERE ELSE. IT'S SO QUIET AND COMFORTABLE. WE LOVE OUR NEW HOME!"

- New Town homeowner

### KEY FEATURES

- High-performance insulation system
- Advanced quiet and comfort
- Comprehensive draft protection
- Energy-efficient system for cleaner, healthier
- HVAC, appliances, and
- lighting and water

Read more



Energy Efficiency & Renewable Energy

**DOE ZERO ENERGY READY HOME™**

**New Town Builders**

The ArtiZEN Plan  
Denver, CO

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**BUILDER PROFILE**  
New Town Builders, Denver, CO  
Bill Rectanus  
brectanus@newtownbuilders.com  
303-707-4400  
Newtownbuilders.com  
Rater: EnergyLogic, Inc., Peter Oberhammer  
www.nrglogic.com

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**FEATURED HOME/DEVELOPMENT:**

**Project Data:**

- Name: The ArtiZEN Plan
- Location: Denver, CO
- Layout: 3 bedrooms, 2.5 baths, 2 floors
- Conditioned Space: 2,815 ft<sup>2</sup>
- Climate Zone: IECC SBL cold
- Completion: September 2013
- Category: Production

**Modeled Performance Data:**

- HERS Index: without PV 38, with PV -3
- Projected Annual Utility Costs: without PV \$1,414, with PV \$5
- Projected Annual Energy Cost Savings (compared to a home built to the 2009 IECC): without PV \$483, with PV \$1,902
- Builder's Added Cost Over 2009 IECC: without PV \$22,000, with PV 35,000
- Annual Energy Savings: without PV 48.5 MMBtu/yr, 2,588 kWh, 203 therms; with PV 8 MMBtu/yr, 14,476 kWh, 203 therms

New Town Builders has committed to a new way of building. The Denver area production builder hopes to convert all of its product lines to zero energy-ready construction by the end of next year.

"Our goal is to be 100% U.S. Department of Energy (DOE) Zero Energy Ready certified on all of our single-family homes," said Bill Rectanus, vice president of New Town Builders, which plans to build 150 single-family homes in the Denver metro area next year.

The builder constructed its first home to DOE's Zero Energy Ready Home program criteria in 2013 and has been gradually moving toward certification across the board since then. New Town was in the process of building 29 homes in its Solaris community when it learned about the DOE program. Most of the 29 homes in the first phase of Solaris are certified and all 34 homes in the next phase of Solaris will be certified. All of the homes come with at least a 2.75-kW photovoltaic system on the roof. In phase 2 the goal is to install 5-kW systems and homebuyers will have the option to add more PV to achieve a true net zero energy home, a home that produces as much power as it uses in a year.

In New Town's Z.E.N. (Zero Energy Now) community, which has 30 homes at or near completion and 33 more homes scheduled for a second phase, all of the homes are true zero energy. New Town is in the planning stages on two additional projects—Hyland Village, a development of 75 single-family detached homes, and Perrin's Row, a development of 26 attached homes. Both communities will be 100% DOE Zero Energy Ready.

The U.S. Department of Energy invites homebuyers to experience the extraordinary levels of excellence and quality specified in DOE's Zero Energy Ready Home program (formerly known as Challenge Home). Every DOE Zero Energy Ready Home is built to the standards of the DOE Zero Energy Ready Homes Version 3.0 for an energy-efficient home built on a solid foundation of advanced technologies are designed in to give you superior construction, superior indoor air quality, healthy indoor air; high-performance HVAC, lighting, and appliances; and solar-ready construction. You'll enjoy the benefits of no or no utility bills in a quality home that will last for generations to come.

# Differentiate with Tour of Zero

**ENERGY.GOV**  
Office of Energy Efficiency & Renewable Energy

SERVICES EFFICIENCY RENEWABLES TRANSPORTATION ABOUT US OFFICES

POWER OF ZERO HOME TOUR -- NEW TOWN BUILDERS FLOORPLANS

Upper Level

Optional Bedroom 4 in lieu of Loft

Living Level

Optional Finished Basement

U.S. DEPARTMENT OF **ENERGY**

Careers & Internships | EERE Home | Contact EERE

Office of Energy Efficiency & Renewable Energy  
Forestral Building  
1000 Independence Avenue, SW  
Washington, DC 20585

**ABOUT THIS SITE**  
Web Policies  
Privacy  
No Fear Act  
Whistleblower Protection  
Information Quality  
Open Gov  
Accessibility

**ENERGY DEPARTMENT**  
Budget & Performance  
Directives, Delegations & Requirements  
FOIA  
Inspector General  
Privacy Program  
Small Business

**FEDERAL GOVERNMENT**  
The White House  
USA.gov



More ...



**2,115 ft<sup>2</sup>**  
3 bedroom, 2 bath  
2 floors  
cold climate

**HERS -3** This home's score  
(100 = typical new code home  
130 = average existing home)

**~\$0** avg. monthly energy bill  
**\$1,902** saved per year  
**\$98,772** saved over 30-yr mortgage



# Differentiate with Tour of Zero

**Building Technologies Office**

Home » Residential Buildings » DOE Zero Energy Ready Home

**DOE Zero Energy Ready Home: Partner Profile**  
New Town Builders

**NEW TOWN BUILDERS**

Partner ID: 619  
 Organization Type: Builder  
 Main Contact: Bill Rectanus  
 Address: 1553 PLATTE STREET, DENVER, CO 80202, (303) 707-4400  
 Primary Phone Number: 391  
 Certified DOE Zero Energy Ready Homes (2012 - Present): 41  
 Certified Builders Challenge Homes (2008 - 2012): 0  
 Website: [www.newtownbuilders.com](http://www.newtownbuilders.com)

**All Places of Business**

CO

DOE Zero Energy Ready Home Version 4.5.1

Contact Us | Web Site Policies | U.S. Department of Energy | USA.gov  
 Content Last Updated: 1-07-2014



More ...

**I want one!**



**2,115 ft<sup>2</sup>**

3 bedroom, 2 bath  
2 floors  
cold climate

**HERS -3** This home's score

(100 = typical new code home  
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## National Campaign:

### Call to Action:

Inspire American consumers to visit the future of housing available today with Zero Energy Ready Homes.

### Campaign Partners:

- Manufacturers
- Associations
- Efficiency Programs
- Financial Institutions



is partnering with the U.S. Department of Energy to bring homes of the future to families today.

[energy.gov/zero-energy-home-tour](http://energy.gov/zero-energy-home-tour)

Take the zero energy ready home tour.





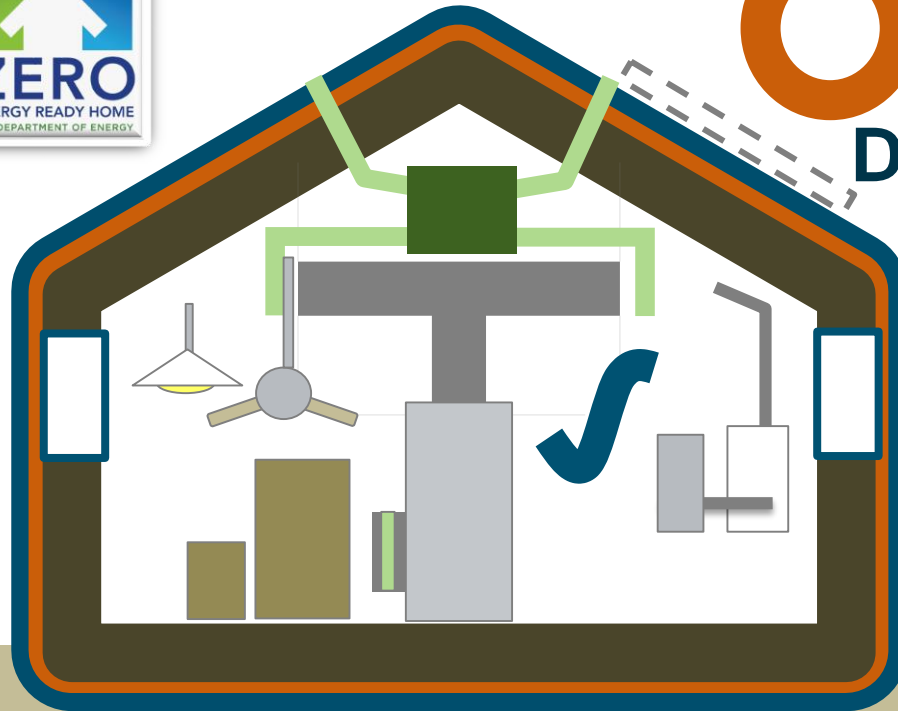
# Technical Specifications

# What is a Zero Energy Ready Home



## Risk Man:

Low-Loads  
Less Drying  
Less Fresh Air



## Differentiation:

Future Ready  
Health Ready  
Advanced Tech  
Zero Ready

Optimized  
Enclosure  
System

Optimized  
Comfort  
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Water  
Protection  
System

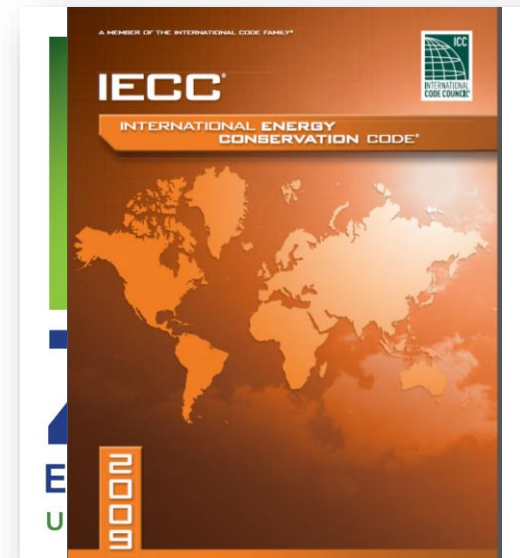
Complete  
IAQ  
System

Efficient  
Comps  
System

Solar  
Ready  
System

## • **ENERGY STAR Certified Homes v3**

- Advanced Windows
- Air-Tight Construction
- 2012/15 IECC Insulation
- Energy Efficient Components
- **Efficient Hot Water Distribution**
- **Optimized Duct System**
- **Indoor Air Quality** (passive radon mitigation)
- Renewable Ready Construction (PV-Ready ONLY)
- Efficiency Threshold (HERS Index)



- Core Plumbing Layout (wet wall)
- Manifold System
- Demand Pumping/Recirc. System



# Partnerships

**Builders**

Raters

Architects

Lenders/Insurers

Utilities

Build.  
Manage risk.  
Differentiate.

Builders

**Raters**

Architects

Lenders/Insurers

Utilities

Supply chain.  
Consult, model, verify, &  
submit.



Builders

Raters

**Architects**

Lenders/Insurers

Utilities

Design.  
Leverage.

Builders

Raters

Architects

**Lenders/Insurers**

Utilities

Support rationale  
valuation process.

Builders

Raters

Architects

Lenders/Insurers

**Utilities**

Leverage as upper-tier.  
Be Innovation Partners.

# Thank You



## For More Information:

[www.buildings.energy.gov/zero](http://www.buildings.energy.gov/zero)

## Email:

[zero@newportpartnersllc.com](mailto:zero@newportpartnersllc.com)