DOE Zero Energy Ready Home Update
Building A Zero Infrastructure

SAM RASHKIN
Chief Architect
Building Technologies Office
Big Prize:

- $100’s Billions Utility Bill Savings
- Millions Tons of Carbon
- 100,000’s of Jobs
- Improved National Security
Building a Zero Infrastructure

Building a Business Case
Building a Business Case

Zero Manages Risks
New Reality

More Rigorous Codes/HERS

Advanced Enclosure

> Insulation
> Windows
> Air Sealing
Risk #1: Moisture

New Reality: Advanced Enclosure

Outcome: Colder Surfaces, Less Drying

Risk: More Wetting Potential
Risk #1 Management: Comprehensive Water Protection

- Roofs
- Walls/Openings
- Site/Foundation
- Materials
Risk #2: Ensured Comfort

New Reality: Advanced Enclosure

Outcome: Ultra-Low Loads

< Air Flow > Swing Seasons

Risks: < Mixing < RH Control
Risk #2 Management: Optimized Comfort System

- Right Sizing/Variable Speed
- Ducts in Conditioned Sp.
- Proper Installation
Risk #3: Ensured IAQ

New Reality: Advanced Enclosure

Outcome: Less Air Exchange

Risk: More Contaminants
Risk #3 Management: Complete IAQ System

- Source Control
- Fresh Air System
- High-Capture Filtration
Building a Business Case

Zero Differentiates
Differentiation Opportunity 1: Future Ready

- Advanced Enclosure
- Optimized Enclosure
- <Obsolescence
- <Energy Costs

Buildings.Energy.gov
Differentiation Opportunity #2: Assured Water Protection

- Optimized Enclosure
- Comprehensive Water Protection
- Peace-of-Mind
Differentiation Opportunity #3: Ultimate Comfort

- Optimized Enclosure
- Optimized Low-Load Comfort System
  - ✓ MRT
  - ✓ Air Flow
  - ✓ Humidity
Differentiation Opportunity #4: Comprehensive Indoor Air Quality

- Optimized Enclosure
- Comprehensive IAQ System
- Health Ready
Differentiation Opportunity #5: Advanced Technology

Optimized Enclosure → Ultra-Low HVAC Loads → Energy Efficient Components → Quality+ Perform+ Controls+

- Quality+
- Perform+
- Energy Efficient Components
- Ultra-Low HVAC Loads
- Optimized Enclosure
Differentiation Opportunity #6: Zero Ready

- Optimized Enclosure
- Ultra-Low HVAC Loads
- Energy Efficient Components
- Solar Ready
Building a Zero Infrastructure

Consistent Name, Spec, and Definition
Zero Energy Ready Home

No to “Net”

Yes to “Ready”
Risk + Differentiation = ZERH Spec

- Optimized Enclosure System
- Water Protection System
- Optimized Comfort System
- Complete IAQ System
- Efficient Comps System
- Solar Ready System
High-performance home, so energy efficient, all or most annual energy consumption can be offset by renewable energy.
Building a Zero Infrastructure

Translating Zero Experience
Translating Zero with a ‘Brand’

Independent Voice of Authority vs. “Trust me.”
Translating Zero with a ‘Brand’
Translating Zero with a ‘Brand’
Zero Energy Ready Home: The Experts’ Choice
Making the Largest Purchase of a Lifetime Just Got Easier
Homes to the Power of ZERO

A Symbol of Excellence

HEALTHFUL ENVIRONMENT

COMFORT PLUS

ADVANCED TECHNOLOGY

ULTRA EFFICIENT

QUALITY BUILT

DURABILITY

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.

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

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.

303-231-4587
NewTown@niei.com
123 Main Street, Denver, CO 34007
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.
Translating Zero Message

A Symbol of Excellence


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-washing, 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 inexcusable 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 Nut-Energy Ready.

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 prescriptive 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.

Lasts Better

UNIQUELY DESIGNED

Every DOE Zero Energy Ready Home includes unique design features that provide energy savings, comfort, health, durability, quality and future performance in every DOE Zero Energy Ready Home.

CALL us at:
303-231-4567
NewTown@net.com

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

Front Cover
Inside Spread
Flap
Back Cover
## ‘Race to Zero’ Guidelines Translator

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## Translating with Power Words

### Fresh Air
- Supply Fresh Air System
- Odor and Moisture Control Fans
- High-Capture Filtration Technology

### Quiet
- Quiet Window Technology
- Quiet Wall Technology

### Moisture Control
- Dry-by-Design Construction
- Moisture Control System - Whole House
- Moisture Controlled Comfort System
- Moisture Controlled Windows
- Moisture Controlled Lower Level

### Pest Control
- Bug Control Barrier
- Pest Screened Home

### Outdoor Contaminant Control
- Contaminant Sealed Construction
- Contaminant Sealed Comfort Delivery
- Dust and Pollen Barrier
- Radon Controlled Home

### Chemical Control
- Formaldehyde Controlled Home
- VOC Controlled Home

### Fume Control
- Carbon Monoxide Controlled Equipment
- Carbon Monoxide Controlled Fireplace
- Fume Controlled Garage
Michigan’s Most Respected Builder
Translating Zero with Tour of Zero
Cold/Very Cold
Zero Energy Ready Homes:

- AquaZerphyr, LLC – Jones Residence – Ithaca, NY
- BPC Green Builders – Zero Village – Wilton, CT
- Brookside Development, LLC – Storybrook Village – Woodbridge, CT
- Caldwell & Johnson, Inc. – Main Street – North Kingstown, RI
- Cobblestone Homes, LLC – Greenway – Saginaw, MI
- Greenhill Contracting, Inc. – Oakview – Esopus, NY
- New Town Builders – ArtiZEN Plan – Stapleton, CO
- New Town Builders – ZEN Plan – Stapleton, CO
- Streetscape, LLC – School Street – Libertyville, IL
- Weiss Building & Development, LLC – Oak Plan – Westbrook, MA
- Transformation, Inc. – Smith House – Boston, MA
Translating Zero with Tour of Zero
Translating Zero with Tour of Zero

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

"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!"

ZERO ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY
KEY FEATURES
- High-performance insulation system
- Led quiet and comfort
- Energy Star rated, 3-star energy efficiency ratings
- Strategic placement of HVAC, appliances, and lights
- Zero energy home, no use of natural gas or electricity

Click
Consumer Experience

Key Stats

New Town Builders
The ArtiZEN Plan
Denver, CO

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 Buschon, vice president of New Town Builders, which plans to build 170 single-family homes in the Denver metro area next year.

The builder constructed its first DOE 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 39 homes in its Solana community when it learned about the DOE program. Most of the homes in the first phase of Solana are certified and 54 homes in the next phase of Solana will be certified. All of the homes come with at least a 2.15 kW power-watched 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 Towes Z.E.N. (Zero Energy Now) community, which has 30 homes at or near completion and 22 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 Perma's Row, a development of 76 attached homes. Both communities will be 100% DOE Zero Energy Ready.

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

DOE ZERO ENERGY READY HOME

New Town Builders
The ArtiZEN Plan
Denver, CO

New Town Builders
The ArtiZEN Plan
Denver, CO

Read more...
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[Diagram showing floor plans and energy efficiency metrics]

Click
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Build state programs and codes on Zero Energy Ready Home national platform.
Thank You

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

Email Contact:
zero@newportpartnersllc.com