

# Zero Energy Ready Home Webinar

May 4, 2018

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy



## The Easy Lift to Zero from Indoor airPLUS

**Sam Rashkin**  
Chief Architect, DOE BTO

**Jamie Lyons, P.E.**  
ZERH Tech. Dir., Newport Partners LLC



Zero Energy Ready Home Training

# Prologue: You Are Here

## Five Key Consumer Experiences

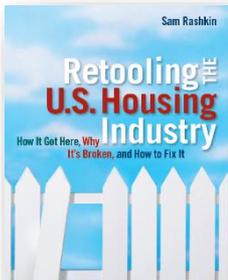
Sales

Community

Quality

Design

Performance





# What is Zero?

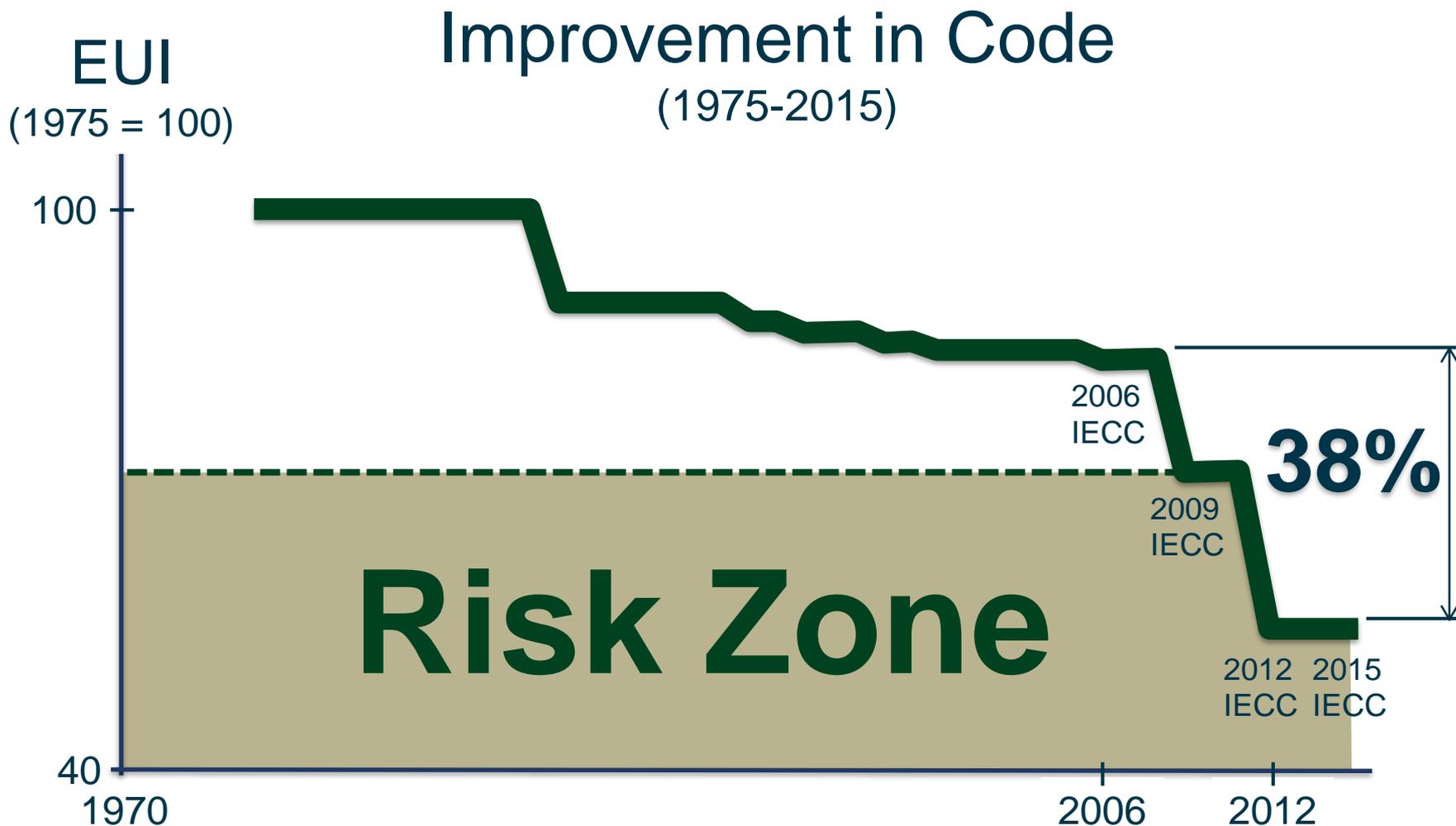
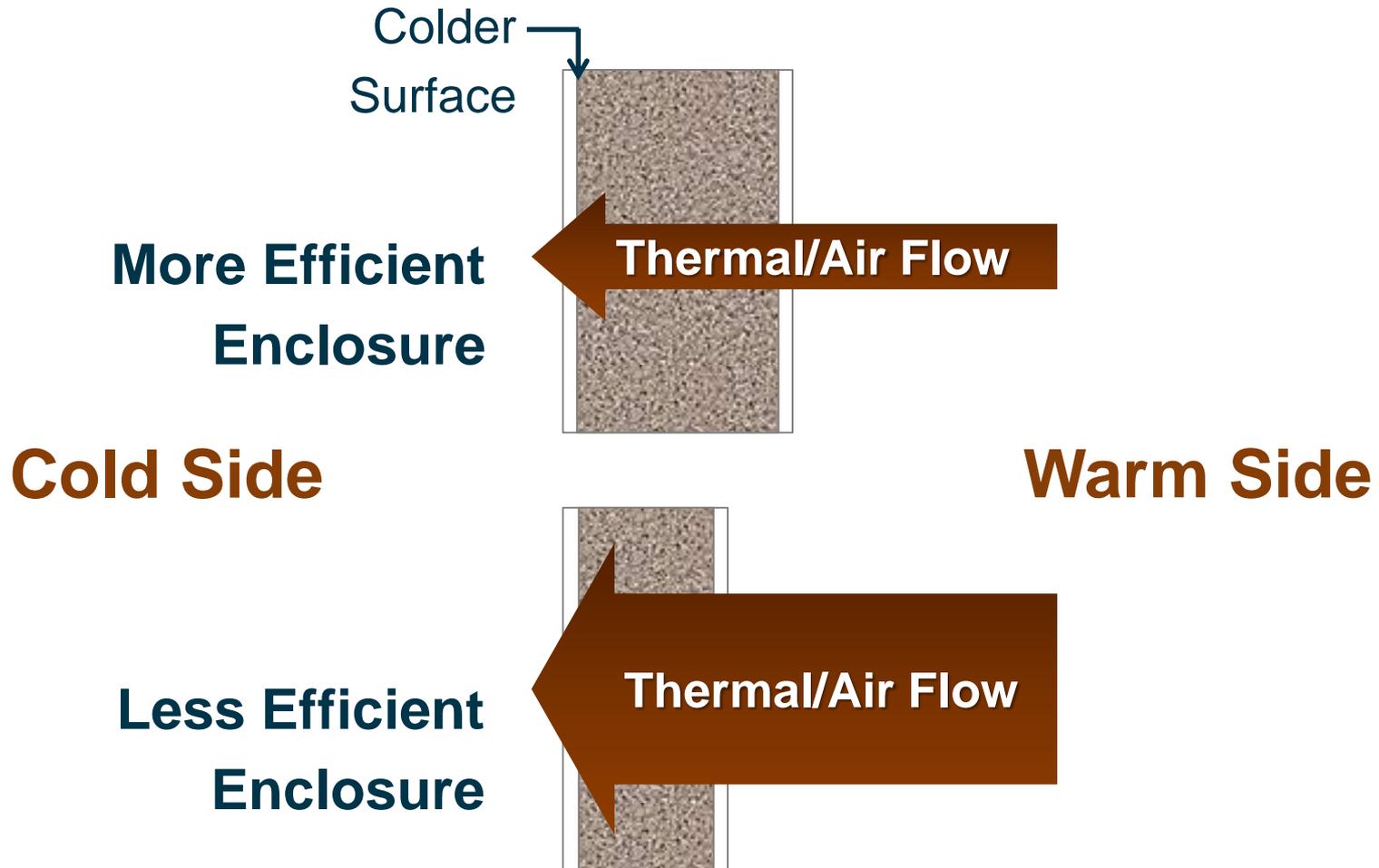
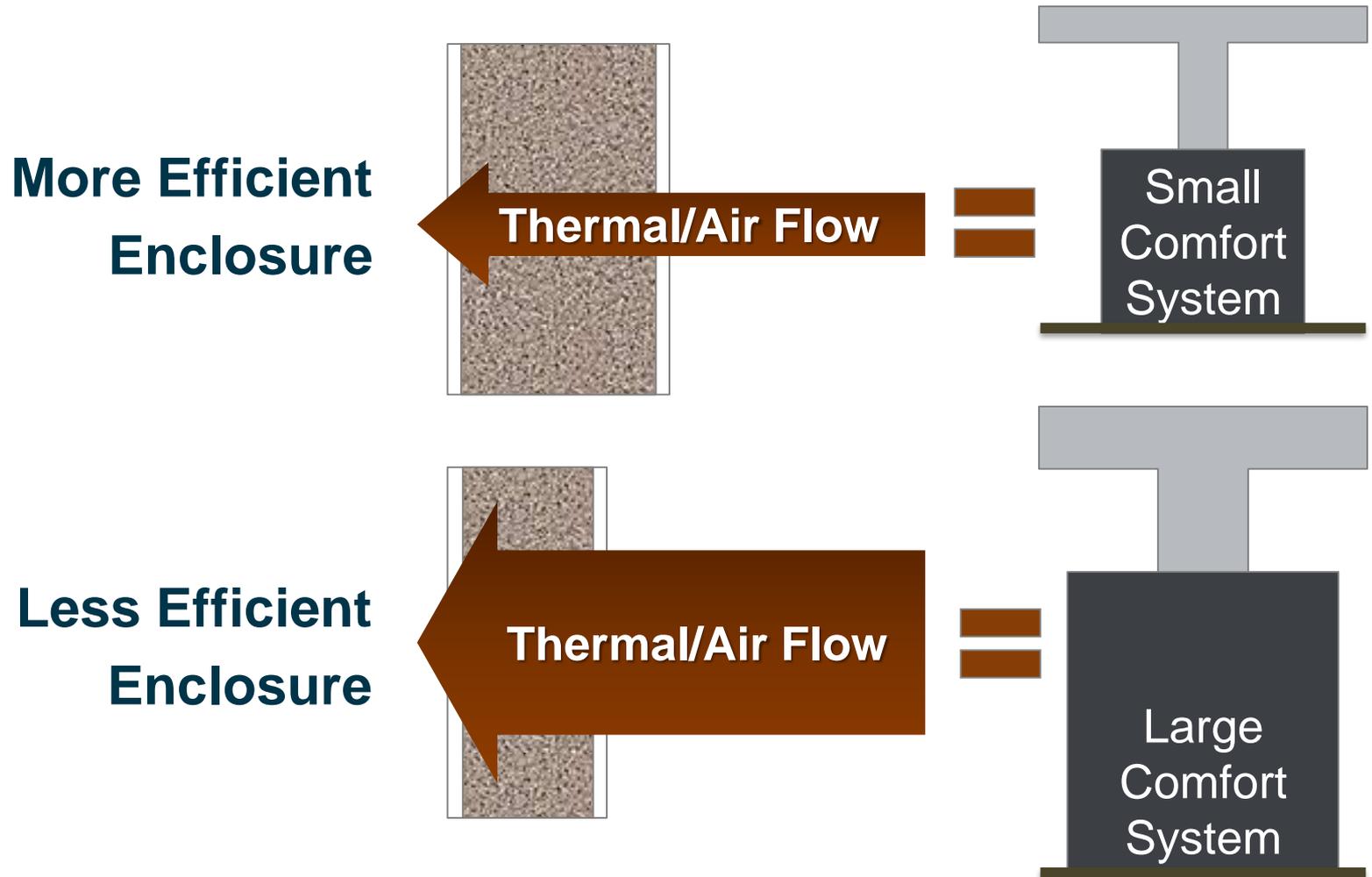


Image Basis: Building Energy Codes Program: National Benefits Assessment, 1992-2040,  
[https://www.energycodes.gov/sites/default/files/documents/BenefitsReport\\_Final\\_March20142.pdf](https://www.energycodes.gov/sites/default/files/documents/BenefitsReport_Final_March20142.pdf)

# Risk 1: More Wetting Potential

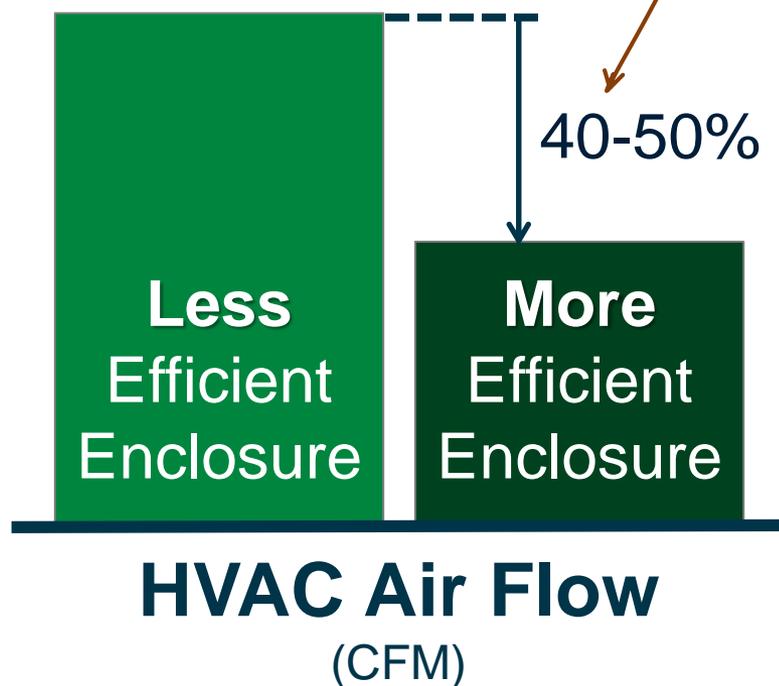


# Risk 2: More Comfort Challenges



## Challenge:

Ensure Mixing with  
Less Air Flow

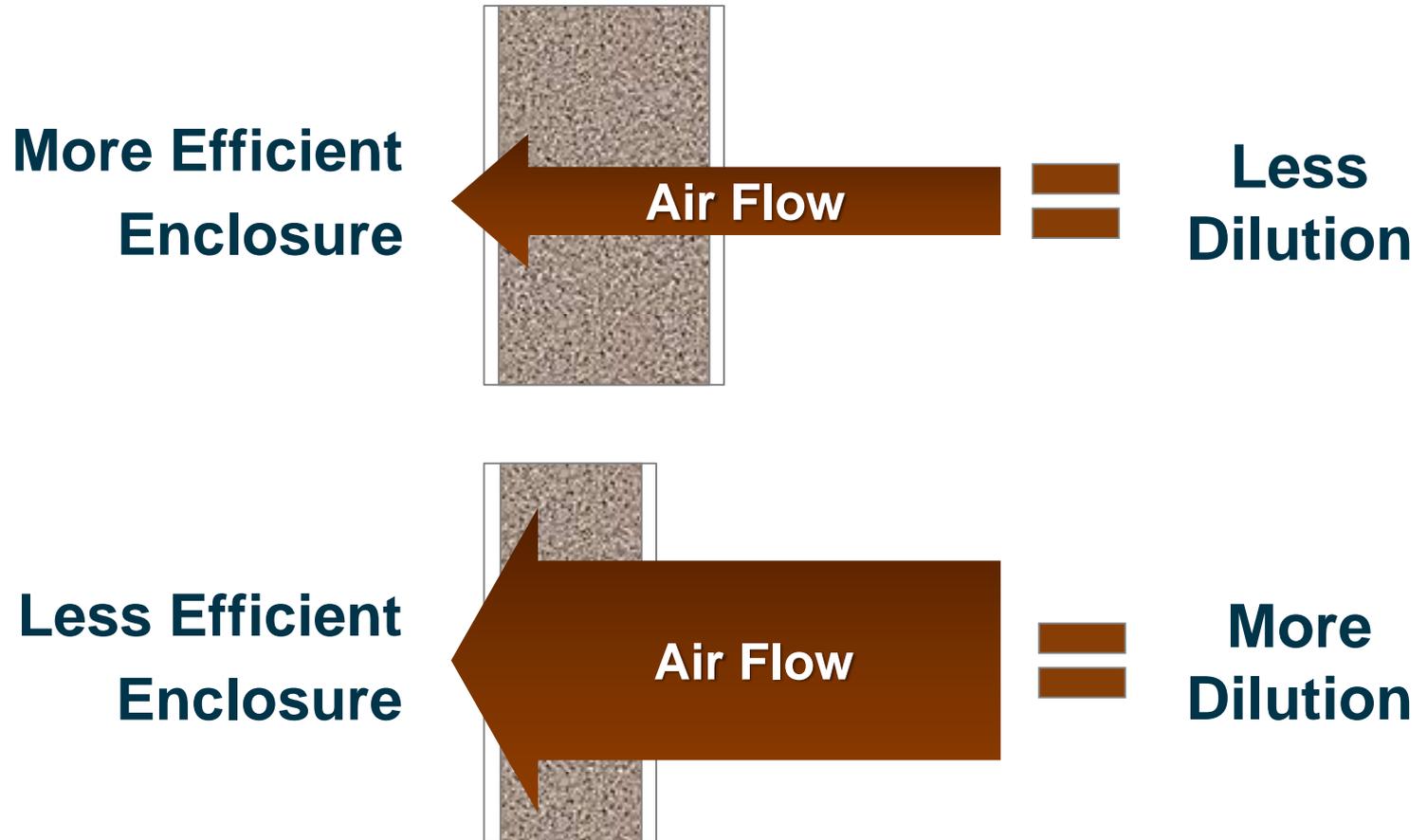


## Challenge:

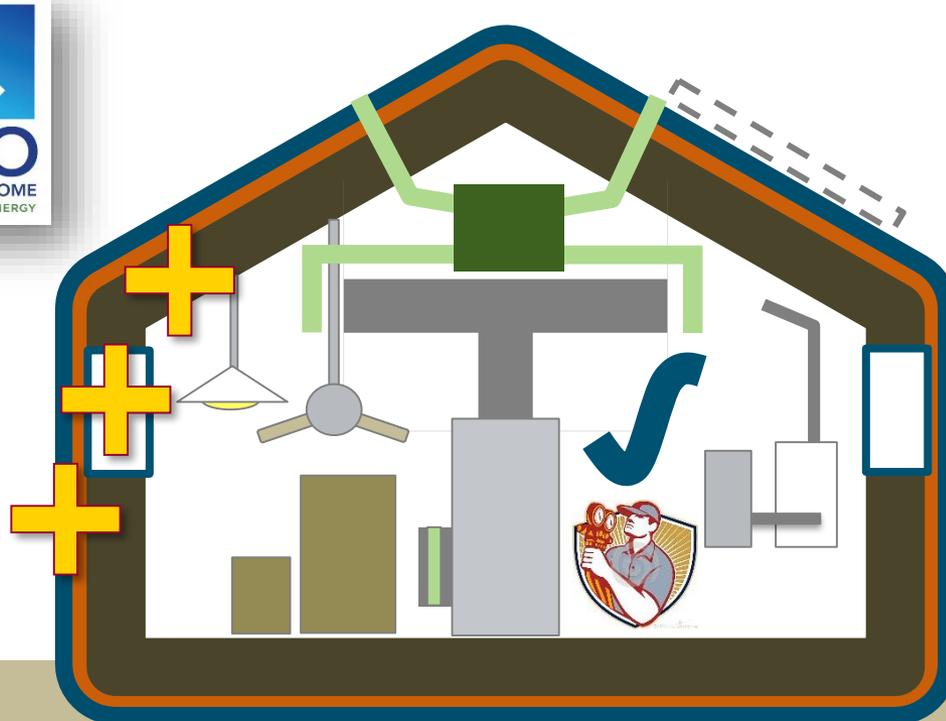
Ensure Humidity Control  
when No Sensible Load



# Risk 3: More Indoor Contaminants

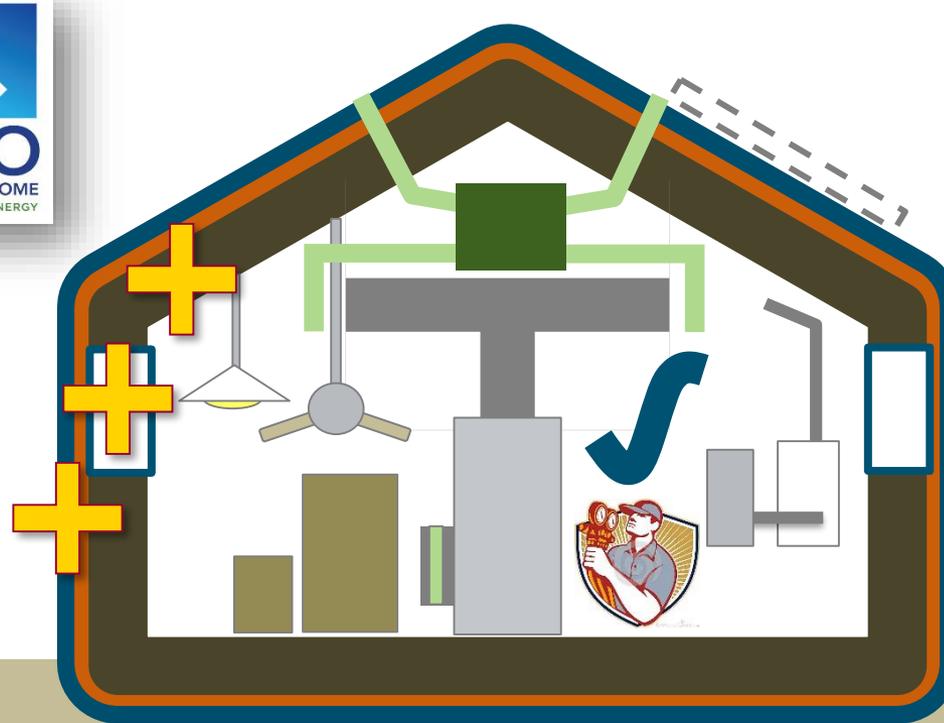
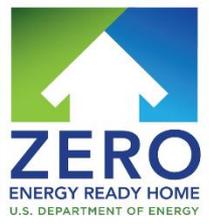


# Zero = Risk Management



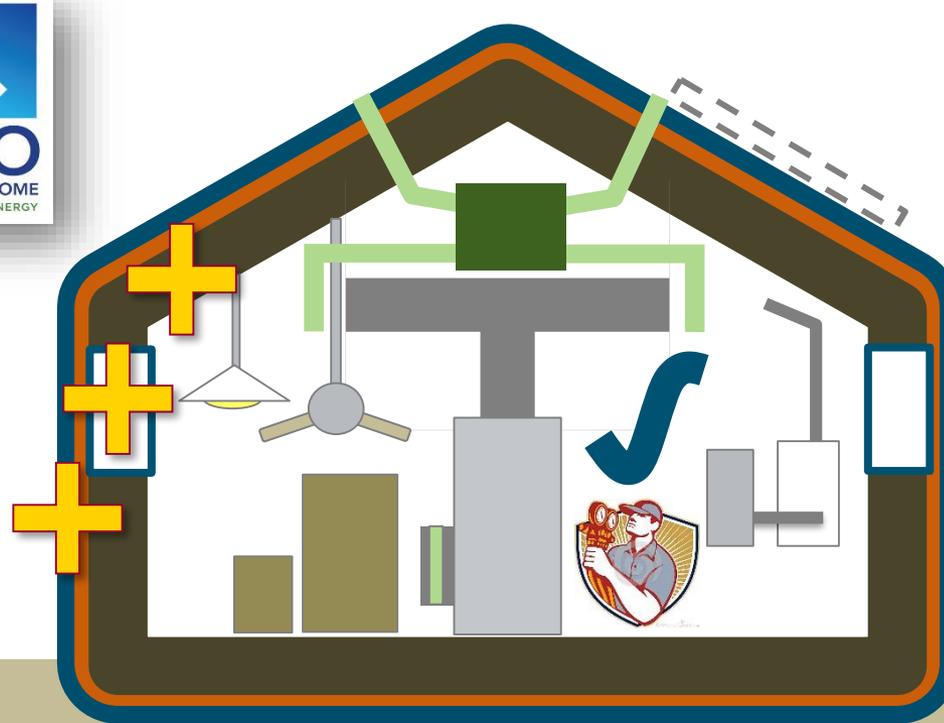
Optimized Enclosure	Efficient Components	Water Protection	Ensured Comfort	Indoor Air Quality	Solar Ready
Energy Efficiency		Performance			0 Ready

# Zero = Easy Lift for ESfH



Optimized Enclosure	Efficient Components	Water Protection	Ensured Comfort	Indoor Air Quality	Solar Ready
Energy Efficiency		Performance			0 Ready

# Zero = Even Easier Lift for IAP



Optimized  
Enclosure

Efficient  
Components

Water  
Protection

Ensured  
Comfort

Indoor Air  
Quality

Solar  
Ready

Energy Efficiency

Performance

0 Ready

# Zero = The Future

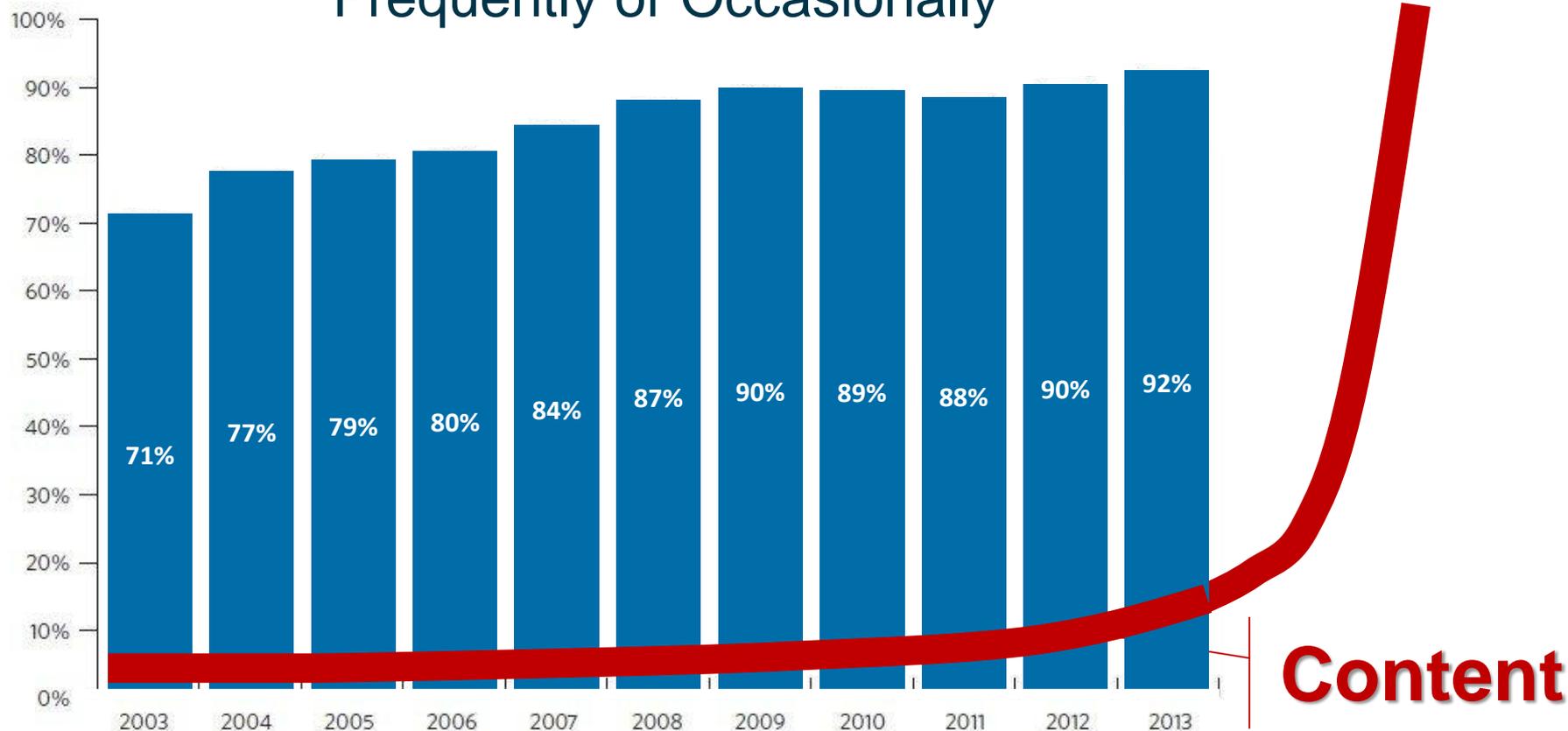


Source: Tesla Corporation



# Why Zero Now?

## Frequently or Occasionally



**Source:** National Association of Realtors®



future

What is BBC Future?

Latest

Future Now

Video

OUR PICKS

Best of Future

SPECIAL SERIES

Grand Challenges

Tomorrow's Skies

PRESENTED BY:

**Plymouth University psychologists 2014 study showed that householders who received thermal images of their homes were**

**4.9 times more likely**

**to install draught proofing than those just presented with an energy audit**

Sustainability | Electricity | Britain

The man who makes you see the invisible

britain

special series

One solution for reducing carbon footprints – and household bills – is increased energy efficiency. With infrared imaging, inventor Brian Harper is helping people to see exactly how.

By Nic Fleming

14 June 2017

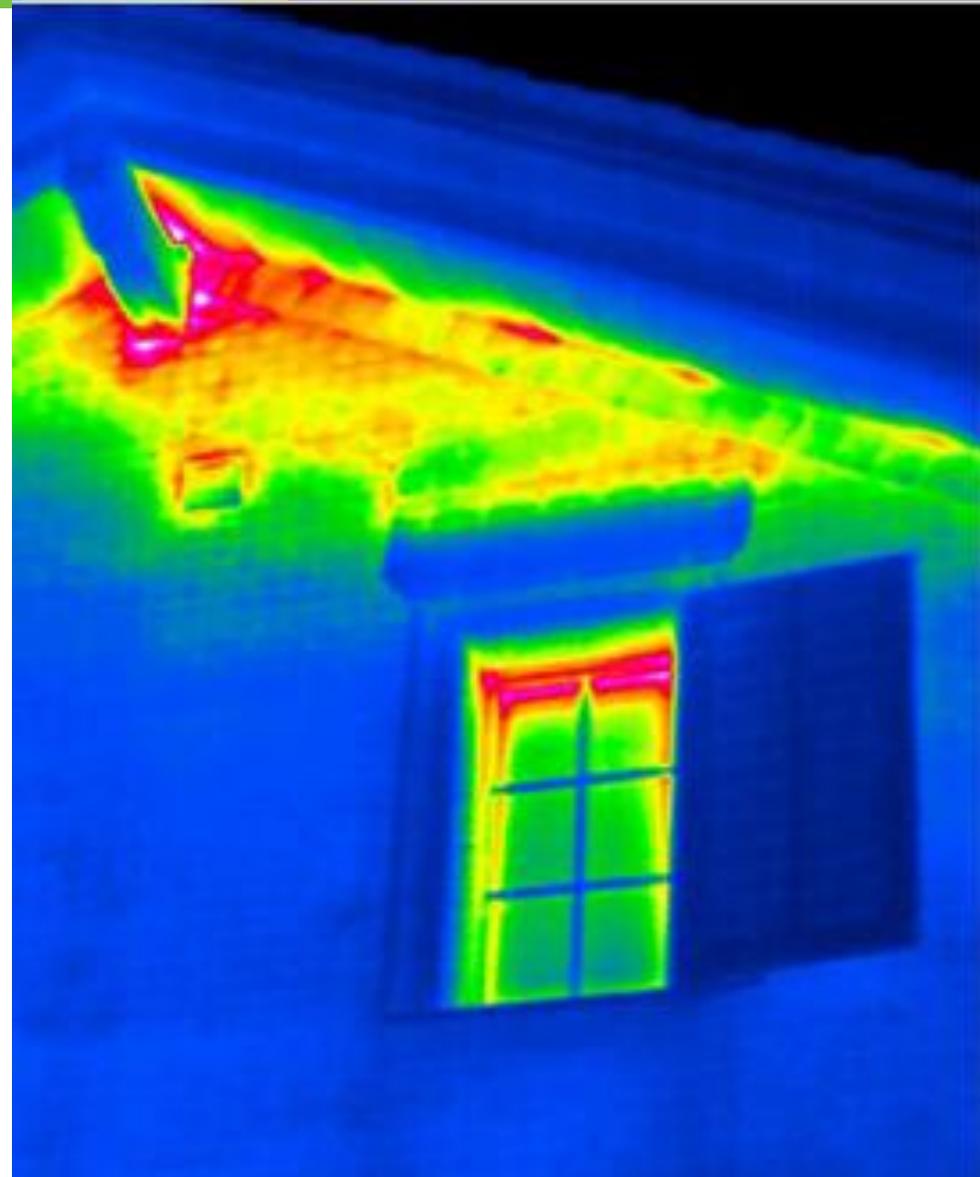
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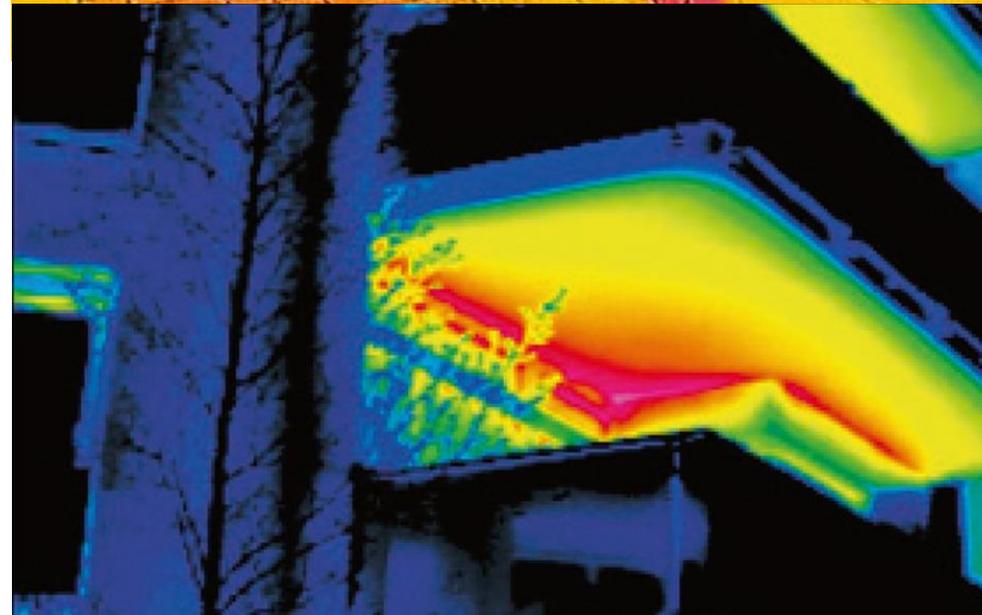
...will know a lot more about

# Insulation Defects



...will know a lot more about

# Cold Floors



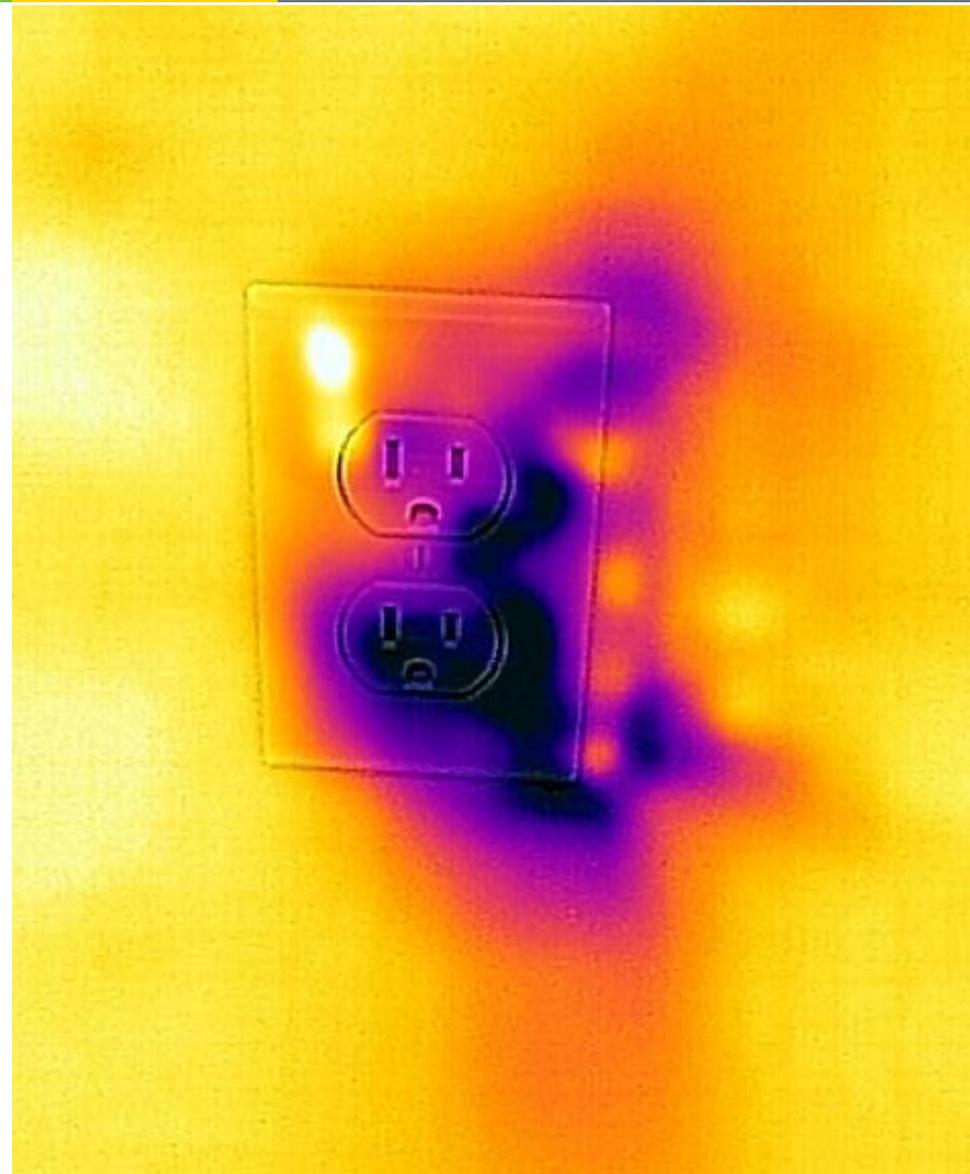
...will know a lot more about

# Thermal Bridging



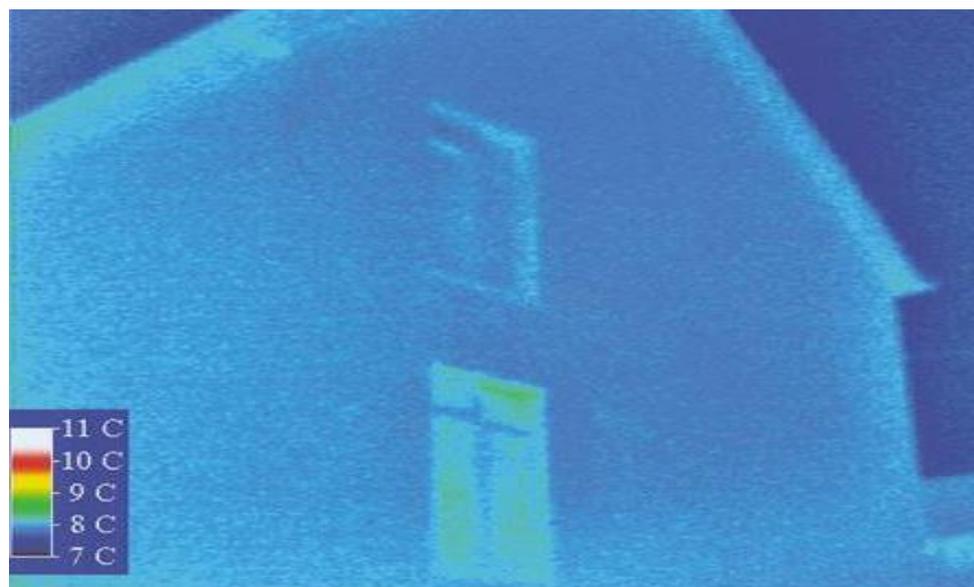
...will know a lot more about

# Drafty Rooms



...will know a lot more about

# Quality Windows



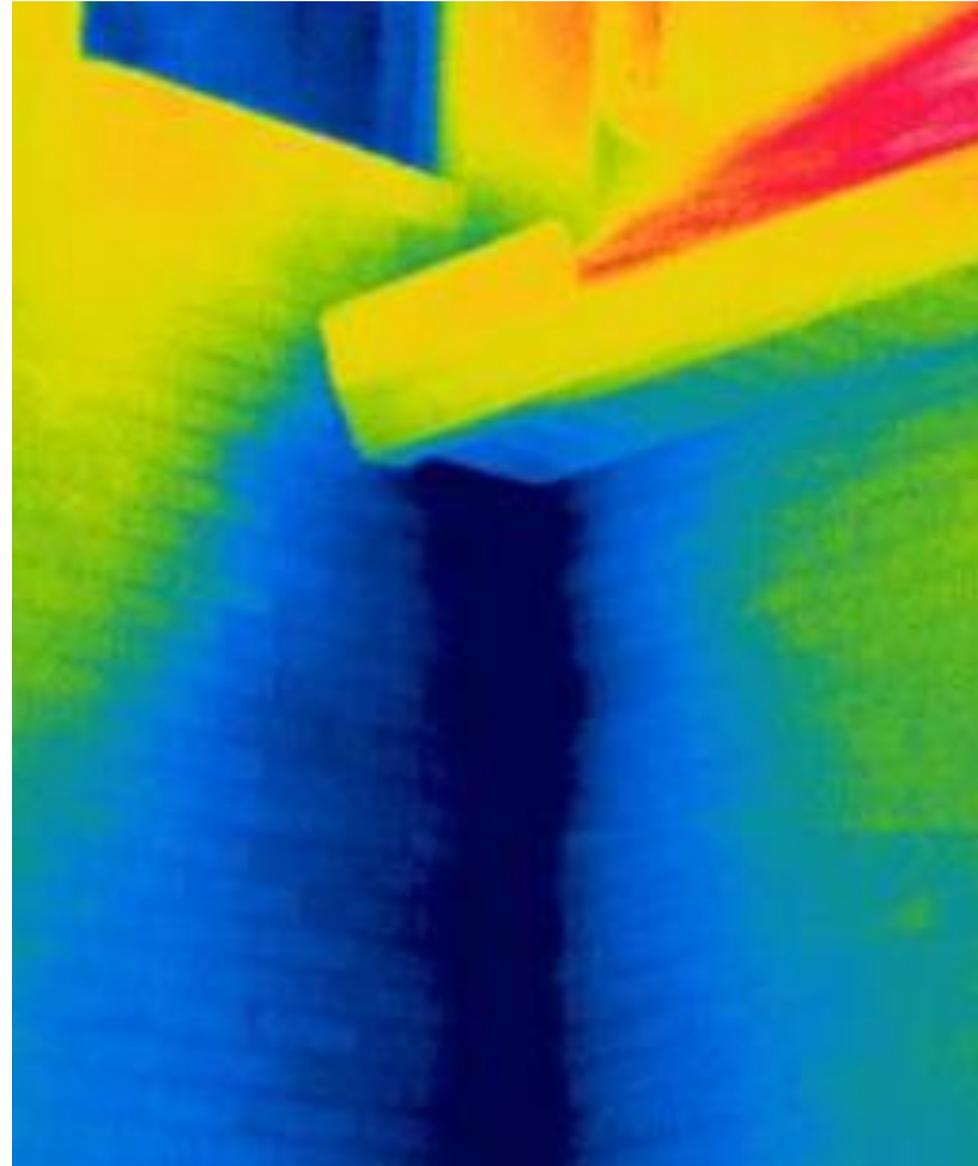
...will know a lot more about

# Moisture Risks



...will know a lot more about

# Moisture Risks

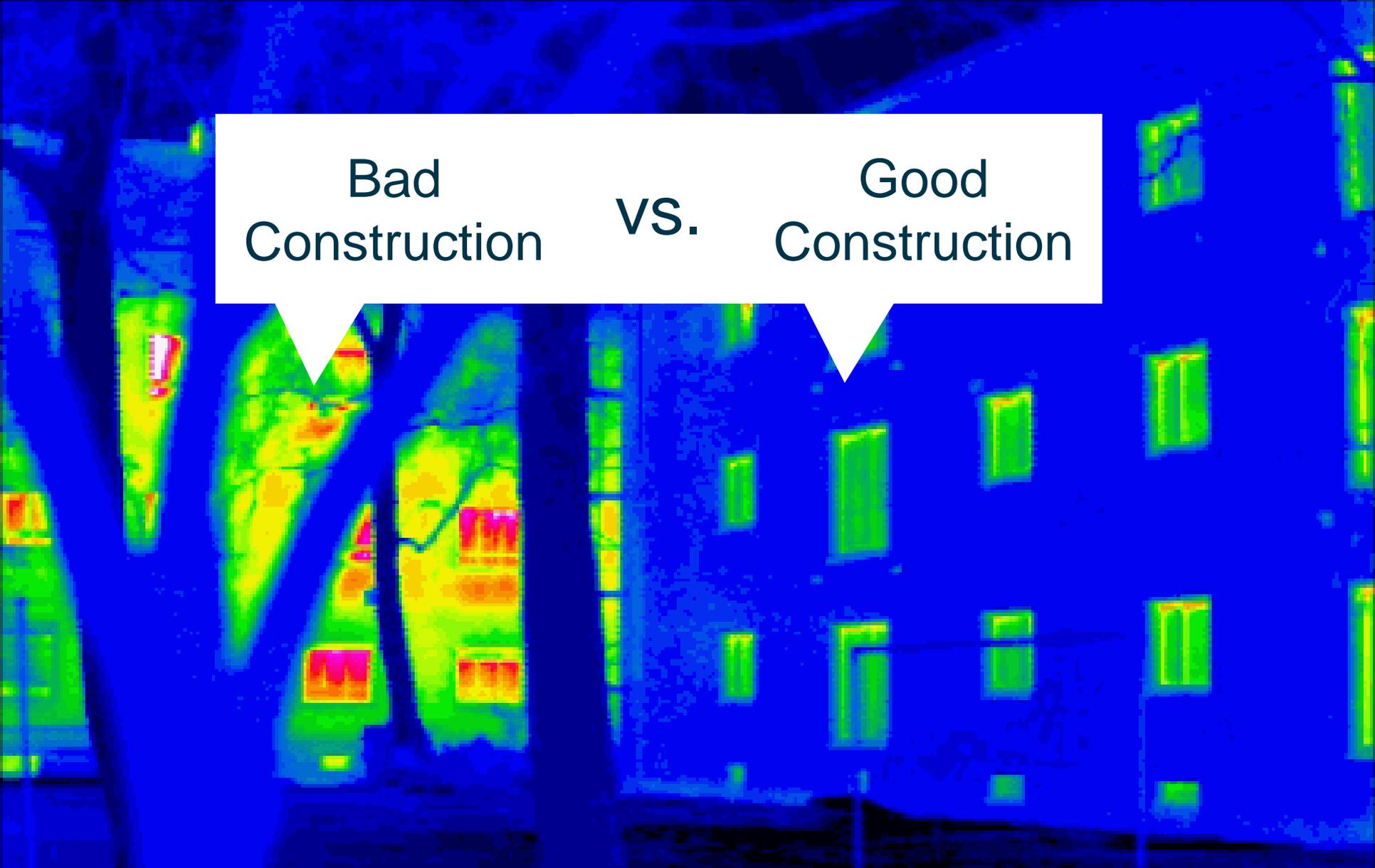


# Informed Buyers will Know...

Bad  
Construction

VS.

Good  
Construction



...will know a lot more about

# True Comfort



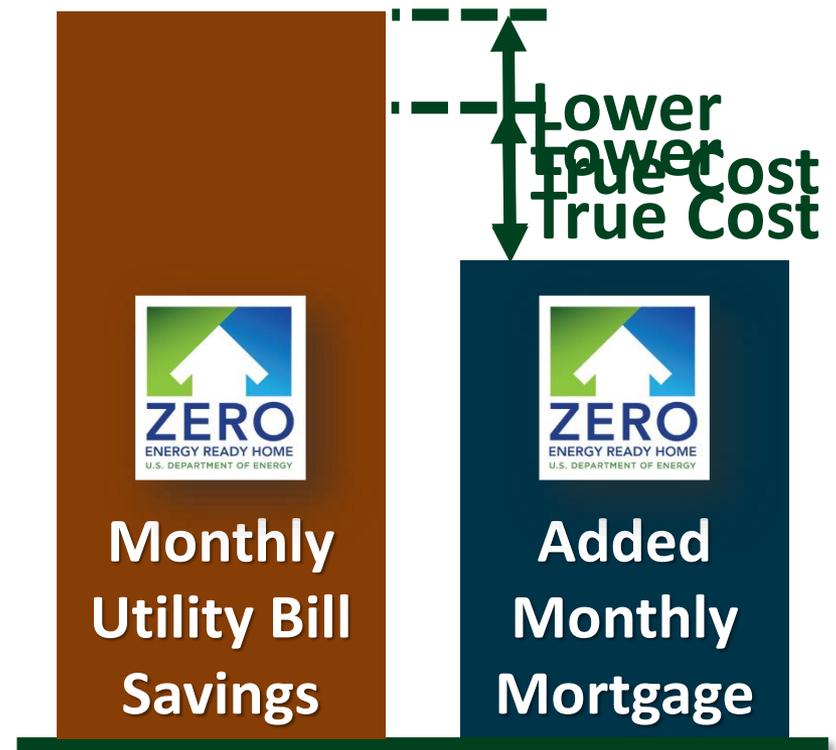
...will know a lot more about

# Health Risks



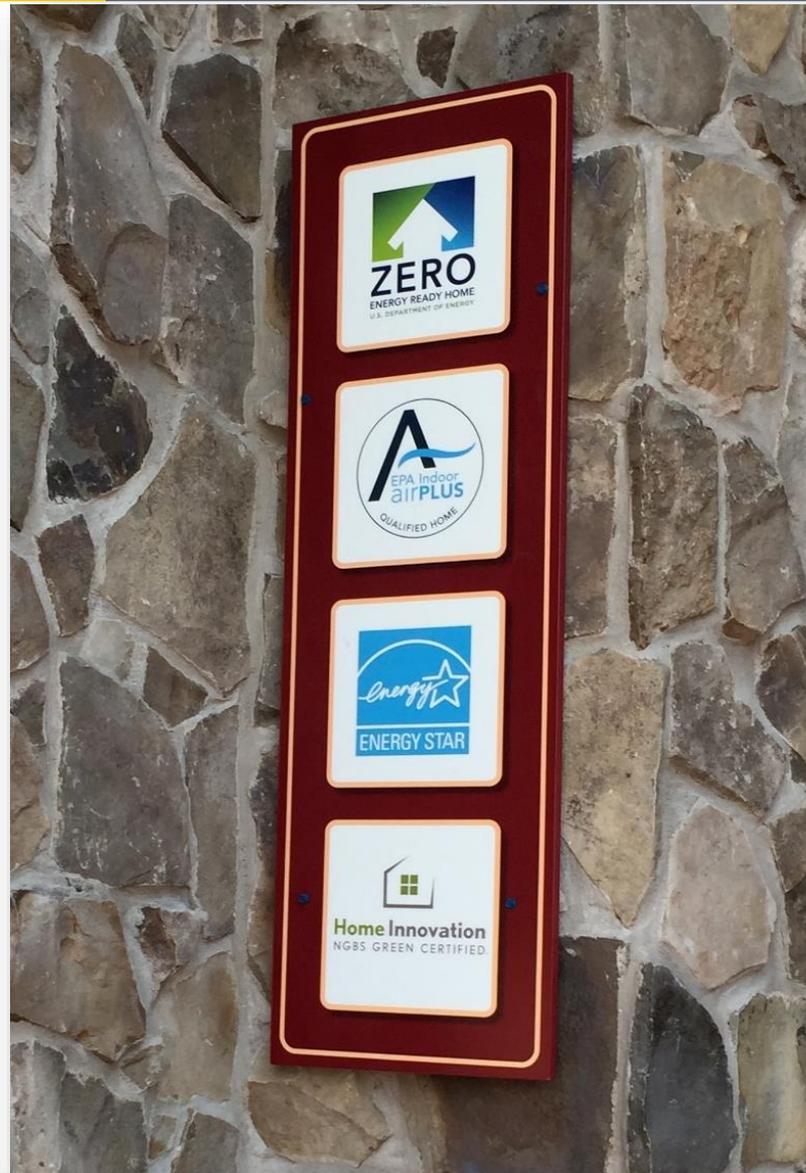
...will know a lot more about

# True Cost



...will know a lot more about

# Trusted Performance



...will know more about a  
**Better  
Home  
Experience**

Builders

FREE SHIPPING PAGES

Your Houzz



**Net Zero Homes LLC**  
Orange County's Leading Insulated Concrete Forms Installer  
With over 18 years of construction experience, quality construction at an affordable price is our priority. If...  
[See my projects](#)

(352) 571-1720

Contact



**Legacy Custom Built Homes**  
★★★★★ 1 Review  
We are passionate builders, of relationships, dreams and dream homes. Founded in 2006, Legacy Construction's...  
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**Forever Homes**  
★★★★★ 11 Reviews  
Volusia County's Premier Custom Home Builder  
To insure that our clients are getting their "Forever" home, we work closely with them from the design stage all...  
[See my projects](#)

(386) 563-3457 Orlando area

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★★★★★ 2 Reviews

Contact



**Christopher Burton Homes, Inc.**  
★★★★★ 15 Reviews  
Brevard County Homebuilder - 4X Best of Houzz Award Winner!  
Our motto, "Building homes for life & relationships for a lifetime," is more than a slogan to us. We work with...  
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(321) 369-9374 9 projects in the Orlando area

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**Mark Gamble Homes & Renovations**  
★★★★★ 1 Review  
30 years of new home construction and renovations [Read More](#)

Contact

...will increasingly know

**Zero is a  
Superior  
Experience**





# How Communicate Zero?

## Too Confusing for Consumers!



## It's the Experience, Stupid...

- **Simple**
- **Showcase**
- **Clarity**

# Simple: Experience Message

[Home](#) » [Residential Buildings](#) » [Zero Energy Ready Home](#) » [DOE Tour of Zero](#)

Are you ready for a home that lives, works, and lasts better? The home of the future - a [better home](#) - is available today. Take a virtual tour of homes that are so energy efficient a renewable energy system can offset all or most of their annual energy consumption. These award-winning homes are independently certified to meet DOE Zero Energy Ready Home [guidelines](#) and constructed by a select group of [top builders](#). Zero Energy Ready Home is part of the U.S. Department of Energy's Better Buildings initiative. Better Buildings aims to make commercial, industrial, public, and residential buildings 20 percent more energy efficient over the next decade.



Click on a climate zone to see homes in that region.

Search:

Showing 1 to 25 of 123 entries



[The Home of the Future Today Video](#) [Next Video](#)

**Simple Core Message**

Show    
entries



**A superior  
home  
experience**  
is as easy as  
looking for a certified  
**Zero Energy  
Ready Home.**



**\$10,000's  
of savings**  
on utility bills over  
a 30-year mortgage.



## Full Thermal Protection

from the hottest and  
coldest weather.



## Total Comfort

at a whole new level  
with advanced  
heating and cooling.



## Healthy Living

with contaminants  
kept out the air you  
breathe every day.



## Peace-of-Mind

from moisture problems  
with comprehensive  
water protection.



## **Certified Performance**

with a home  
independently tested  
and inspected to the  
most rigorous  
federal guidelines.



## Enhanced Future Value

with construction that  
meets and exceeds  
forthcoming codes.

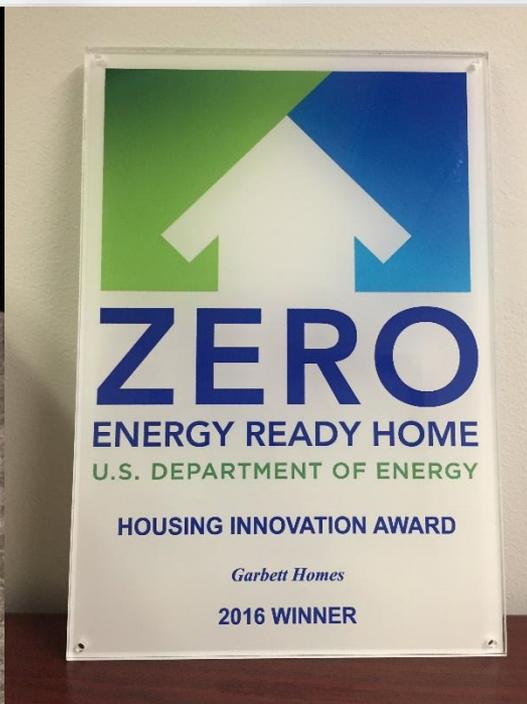
# Simple: Experience Message



<https://energy.gov/eere/buildings/zero-energy-ready-home-homebuyers>

Visit the Zero Energy Ready Home website for more information how you can get a **Better Home Experience.**

## Housing Innovation Awards Feeds Tour of Zero



# Showcase: Better Experience

[Home](#) » [Residential Buildings](#) » [Zero Energy Ready Home](#) » [DOE Tour of Zero](#)

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Click on a climate zone to view homes in that region.

Search:

SEARCH

RESET

Showing 1 to 25 of 123 entries

Show

25



entries



[The Home of the Future Today Video \(Text Version\)](#)

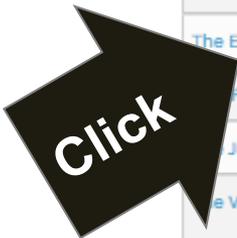
# Showcase: Better Experience

Search:

Showing 1 to 13 of 13 entries (filtered from 123 total entries)

Show    
entries

TOUR THESE HOMES ▲	BUILDER ▲	LOCATION ⚡	HIA WINNER ⚡	CLIMATE ZONE ⚡
<a href="#">Air Park Drive</a>	<a href="#">Addison Homes</a>	Greer, SC	2016 HM	MIXED-HUMID
<a href="#">Cobbler Lane</a>	<a href="#">Addison Homes</a>	Greer, SC	2015	MIXED-HUMID
<a href="#">Invision Zero Home</a>	<a href="#">Addison Homes</a>	Greer, SC	2016	MIXED-HUMID
<a href="#">The Emery</a>	<a href="#">Addison Homes</a>	Greer, SC	2016	MIXED-HUMID
<a href="#">Friendly Home</a>	<a href="#">Ferguson Design &amp; Construction Inc.</a>	Sagaponack, NY	2013	MIXED-HUMID
<a href="#">Julia Plan</a>	<a href="#">Habitat for Humanity of Catawba Valley</a>	Hickory, NC	2016	MIXED-HUMID
<a href="#">The Villas at Rocketts Landing</a>	<a href="#">Health E Community Enterprises of Virginia</a>	Williamsburg, VA	2016	MIXED-HUMID
<a href="#">Euclid Avenue</a>	<a href="#">Heirloom Design Build</a>	Atlanta, GA	2015	MIXED-HUMID
<a href="#">High-Performance Bungalow</a>	<a href="#">Imery &amp; Co.</a>	Athens, GA	2016	MIXED-HUMID
<a href="#">EXIT-0 House</a>	<a href="#">John Hubert Associates</a>	Wyncote, PA	2014	MIXED-HUMID
<a href="#">Charlottesville Infill</a>	<a href="#">Promethean Homes</a>	Steeles Tavern, VA	2014	MIXED-HUMID
<a href="#">First DOE Zero Energy Ready Manufactured Home</a>	<a href="#">Southern Energy Homes</a>	Russellville, AL	2014	MIXED-HUMID
<a href="#">Proud Green Home</a>	<a href="#">The Imery Group</a>	Athens, GA	2014	MIXED-HUMID



## DOE Tour of Zero: The Emery by Addison Homes

[Home](#) » DOE Tour of Zero: The Emery by Addison Homes



**"THE DOE ZERO ENERGY READY HOME PROGRAM HAS SET A STANDARD THAT IS TRULY 'BEST IN CLASS' AND IS PULLING OUR INDUSTRY TOWARD A QUALITY REVOLUTION."**

**Consumer  
Experience**

## DOE Tour of Zero: The Emery by Addison Homes

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# Showcase: Better Experience

**"THE DOE ZERO ENERGY READY HOME PROGRAM HAS SET A STANDARD THAT IS TRULY 'BEST IN CLASS' AND IS PULLING OUR INDUSTRY TOWARD A QUALITY REVOLUTION."**

## DOE Zero Energy Ready Home: Partner Profile

Addison Homes, LLC



Partner ID: 549  
 Organization Type: Builder  
 Main Contact: Todd Usher  
 Address: 16 PARKWAY COMMONS WAY  
 GREER, SC 29650  
 (864) 848-2667  
 Primary Phone Number: (864) 848-2667  
 Certified DOE Zero Energy Ready Homes (2012 - Present): 5  
 Certified Builders Challenge Homes (2008 - 2012): 2  
 Website: www.addison-homes.com  
 HIA Winner: 2015, 2016, 2016, 2016



- High-efficiency
- High-efficiency advanced lighting technology
- energy and water savings

[Read more.](#)



**Emergence**

Insulation system and comfort



Addison Homes Energy

**Key Stats**

**Contact Info**

**Innovations (Power Words)**

**4,551 ft<sup>2</sup>**  
 3 bedrm, 2 bath  
 1 floor  
 3A mixed-humid custom for buyer

**HERS 21** This home's score w/PV  
 0 = a net zero energy home  
 100 = typical new code home  
 130 = average existing home

**Avg. Monthly Energy Bill: \$71**  
 Calculated vs. 2009 IECC home

**Annual Savings: \$2,412**  
 Calculated vs. 2009 IECC home

**30-yr Mortgage Savings: \$125,500+**  
 Calculated with fuel escalation rate per 2014 EIA Annual Energy Outlook

## National Campaign:

Inspire consumers  
to visit the home of the future...  
available today...  
DOE Zero Energy Ready Homes.

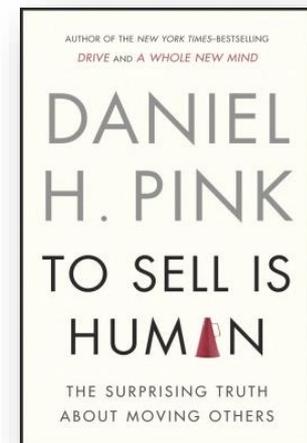
## Innovation Partners:

- Manufacturers
- Associations
- Utilities
- Lenders



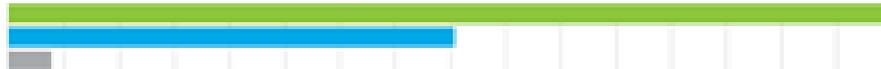
## Clarity depends on contrast.

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

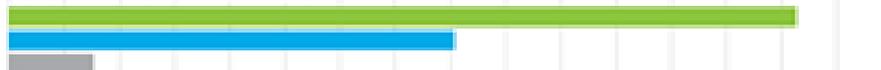


# Clarity: Experience Contrast

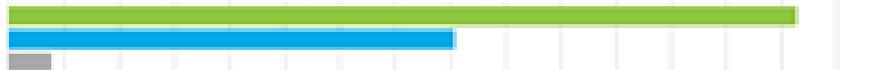
## HEALTHFUL ENVIRONMENT



## COMFORT PLUS



## ADVANCED TECHNOLOGY



## ULTRA EFFICIENT



## QUALITY BUILT



## DURABILITY

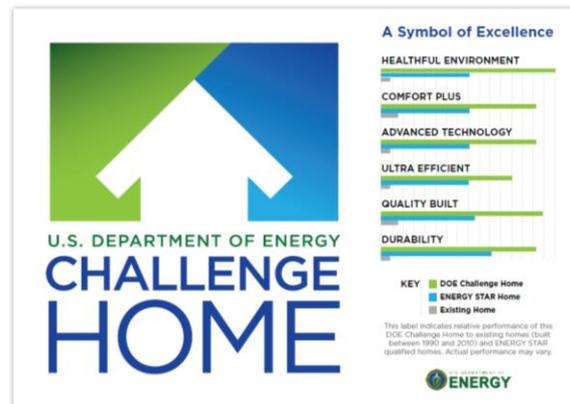


### Key:

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

## DOE Challenge Home Label Methodology

October 2012



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



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

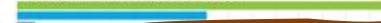
It is a Symbol of Excellence for energy savings, comfort, health, quality, and durability met by a select group of leading builders meeting U.S. Department of Energy Guidelines.

### 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

#### HEALTHFUL ENVIRONMENT



#### COMFORT PLUS



#### ADVANCED TECHNOLOGY



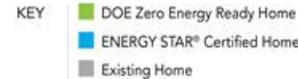
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#### DURABILITY

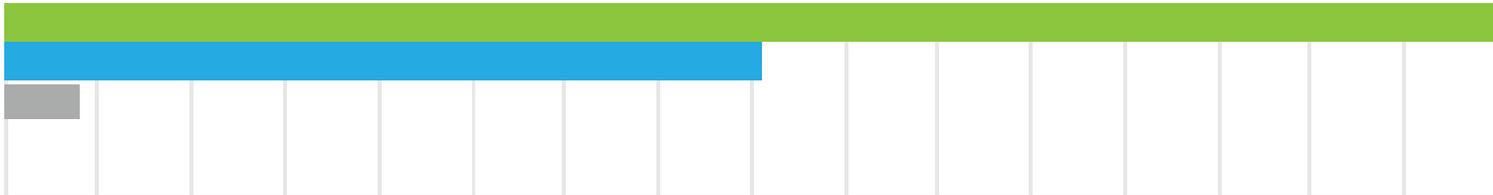


This graphic comparison chart demonstrates relative performance of this DOE Zero Energy Ready Home to existing homes (built between 1990 and 2010) and ENERGY STAR Certified Homes. Actual performance may vary.



303-231-4567  
NewTown@net.com  
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.



U.S. DEPARTMENT OF **ENERGY**

# Clarity: Translating Value



## 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.



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



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Front Cover

Inside Spread

Flap

Back Cover



## VIVID LIVING HEALTHFUL ENVIRONMENT



- 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

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# Clarity: Translating Value



**A Symbol of Excellence**  
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**HEALTHFUL ENVIRONMENT**

**COMFORT PLUS**

**ADVANCED TECHNOLOGY**

**ULTRA EFFICIENT**

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**A Symbol of Excellence**

**HEALTHFUL ENVIRONMENT**

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**DURABILITY**

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thrive  
HOME BUILDERS

Call us at:  
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Front Cover

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**My power bill is \$5.  
What's yours?**

- Heather Robbins, Garbett Homeowner

**garbettHOMES.com**  
Now you're living.



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

“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!”**

Charly and Mary Jones,  
Cobblestone Homeowner



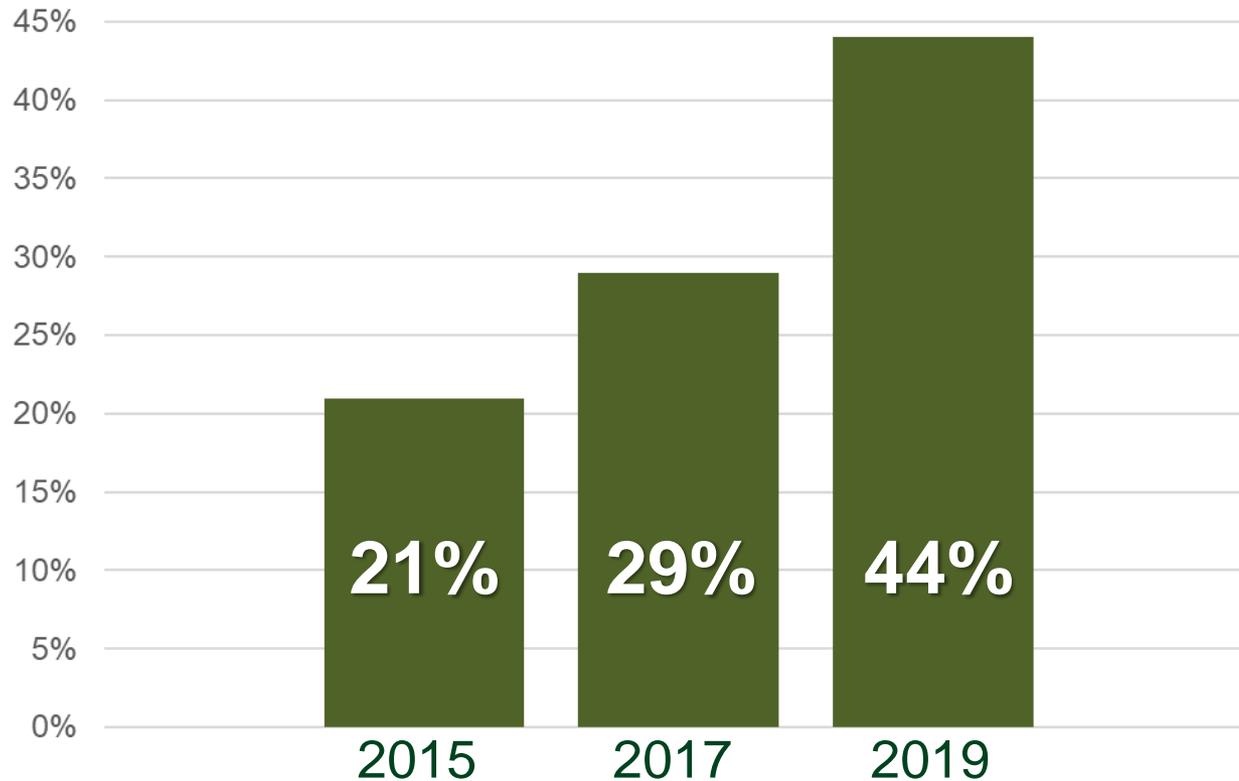


# Join the Zero Movement

## Zero Residential Units

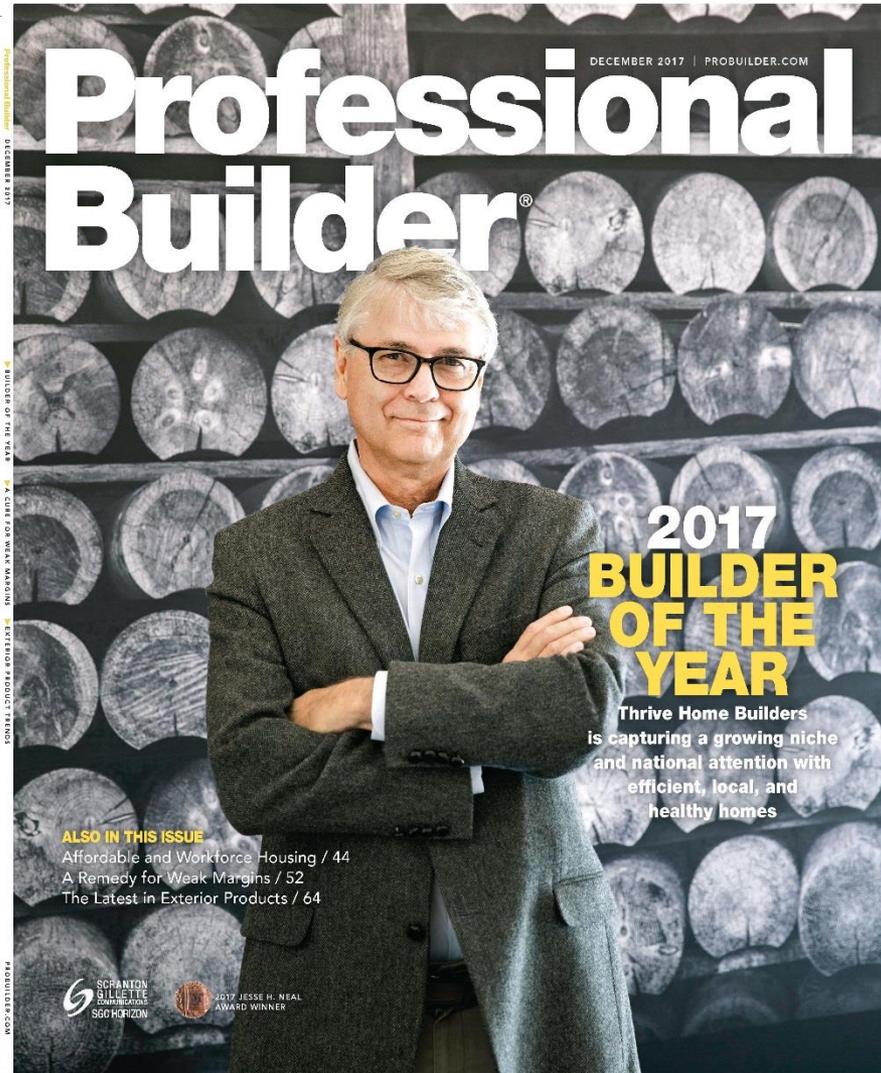


**Source:** "To Zero and Beyond, Zero Energy Residential Buildings Study, 2016 Inventory of residential projects on the path to zero in the U.S. and Canada, Net Zero Energy Coalition, June 2017, call with Shipa Sankaran, February 16, 2018



Built or Plan to Build a Net Zero,  
Near Net Zero, or Net Zero Ready Home

Source: Dodge Data & Analytics, October 2017





Meritage claims it can charge the same, on a per square foot basis, for its net-zero-ready homes than other builders charge for standard construction. The focus on efficiency has helped the company “future-proof” their business, in light of regulatory changes in California and elsewhere.

- **Visit ZERH Website:**
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# Thank You



## For More Information:

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

## Email Contact:

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