

ENERGY STAR. The simple choice for energy efficiency.



ENERGY STAR Certified Homes

The Year Ahead

RESNET Building Performance Conference

February 26th, 2018



ENERGY STAR. The simple choice for energy efficiency.



STYLE

15 Minutes of Fame Is Too Much. Try 6 Seconds.

[Leer en español](#)

By KATHERINE ROSMAN FEB. 12, 2018





2017 in Review

Consistency

Stability

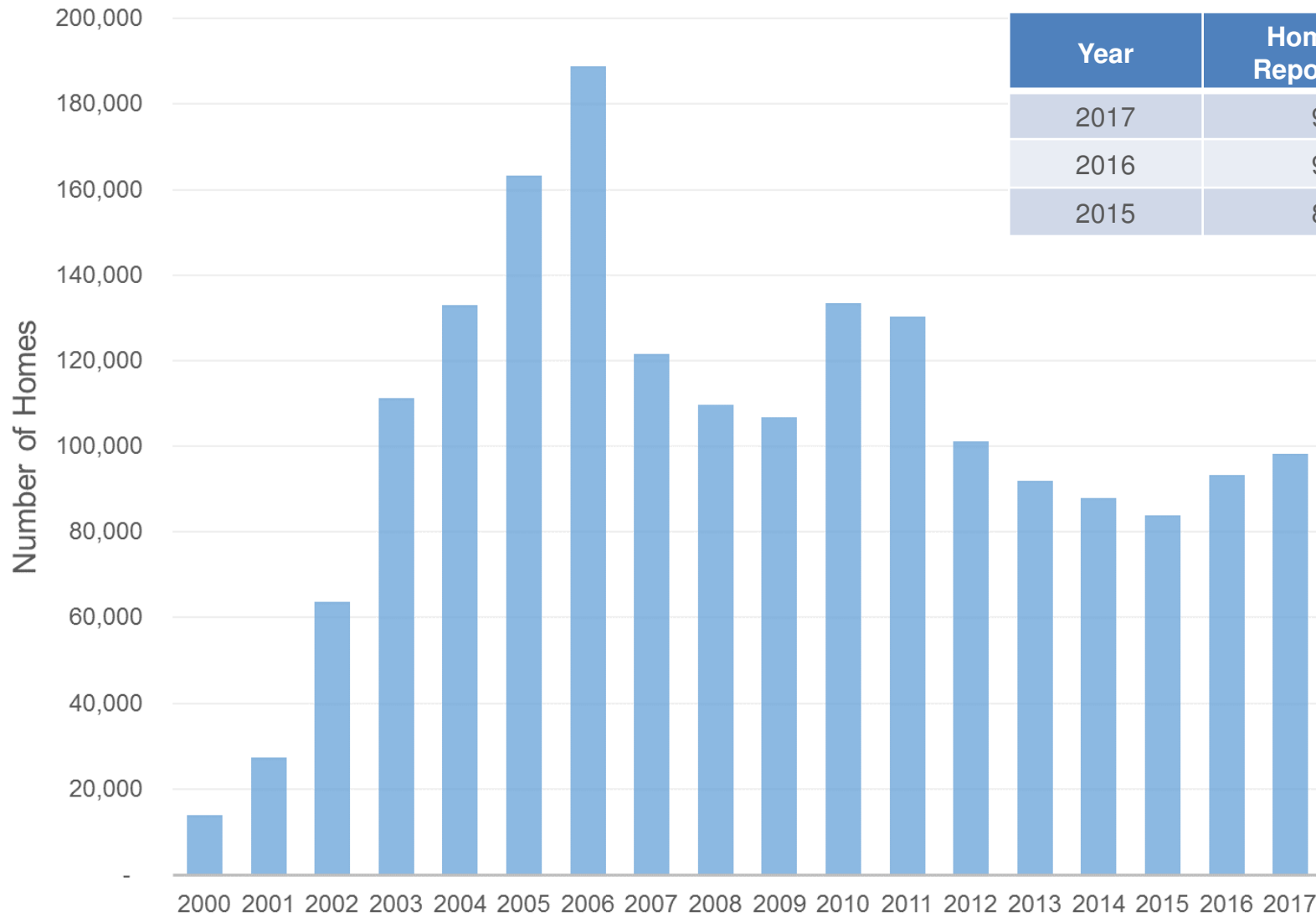
Refinement

The Numbers



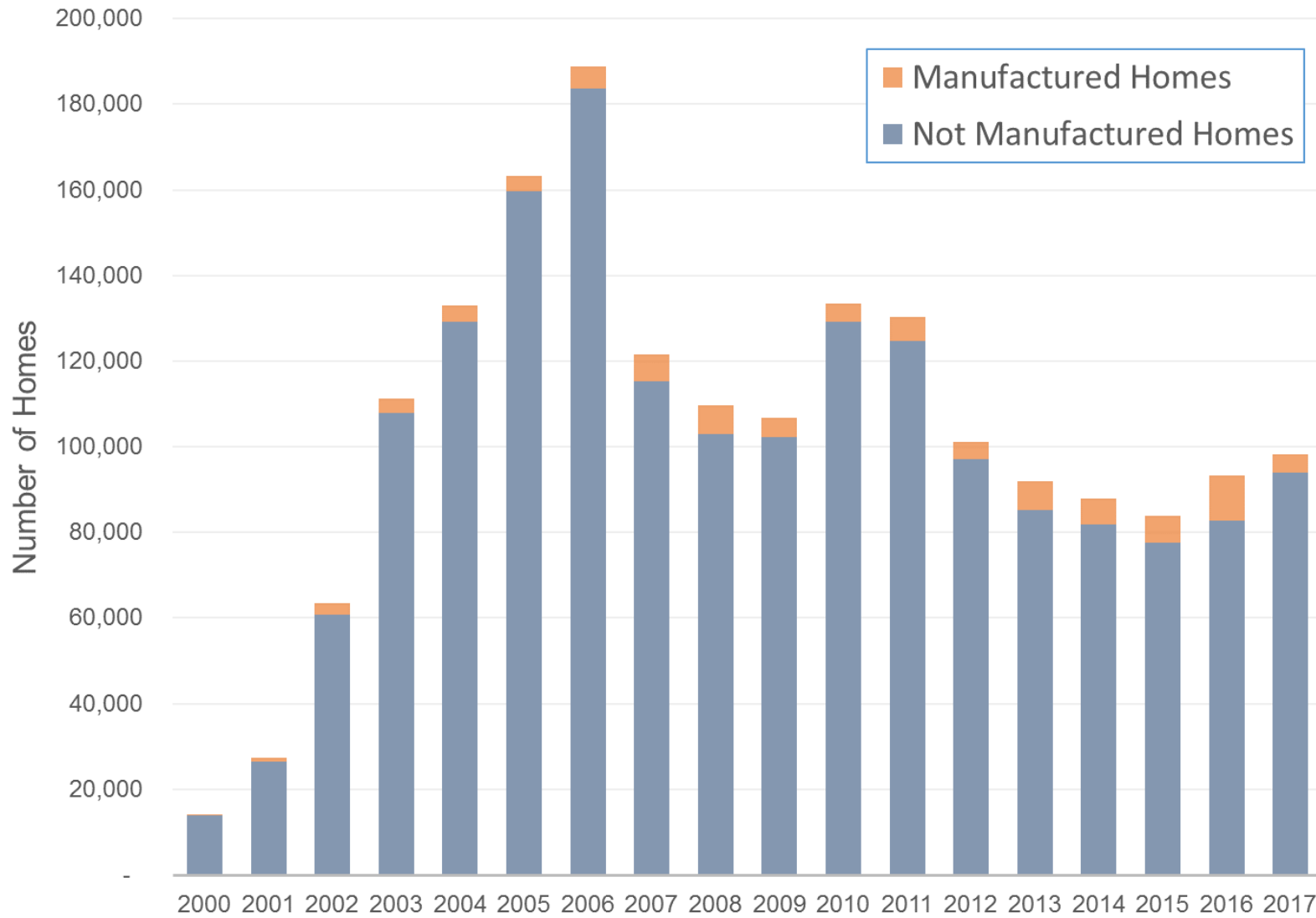


Annual ENERGY STAR Certified Homes Built





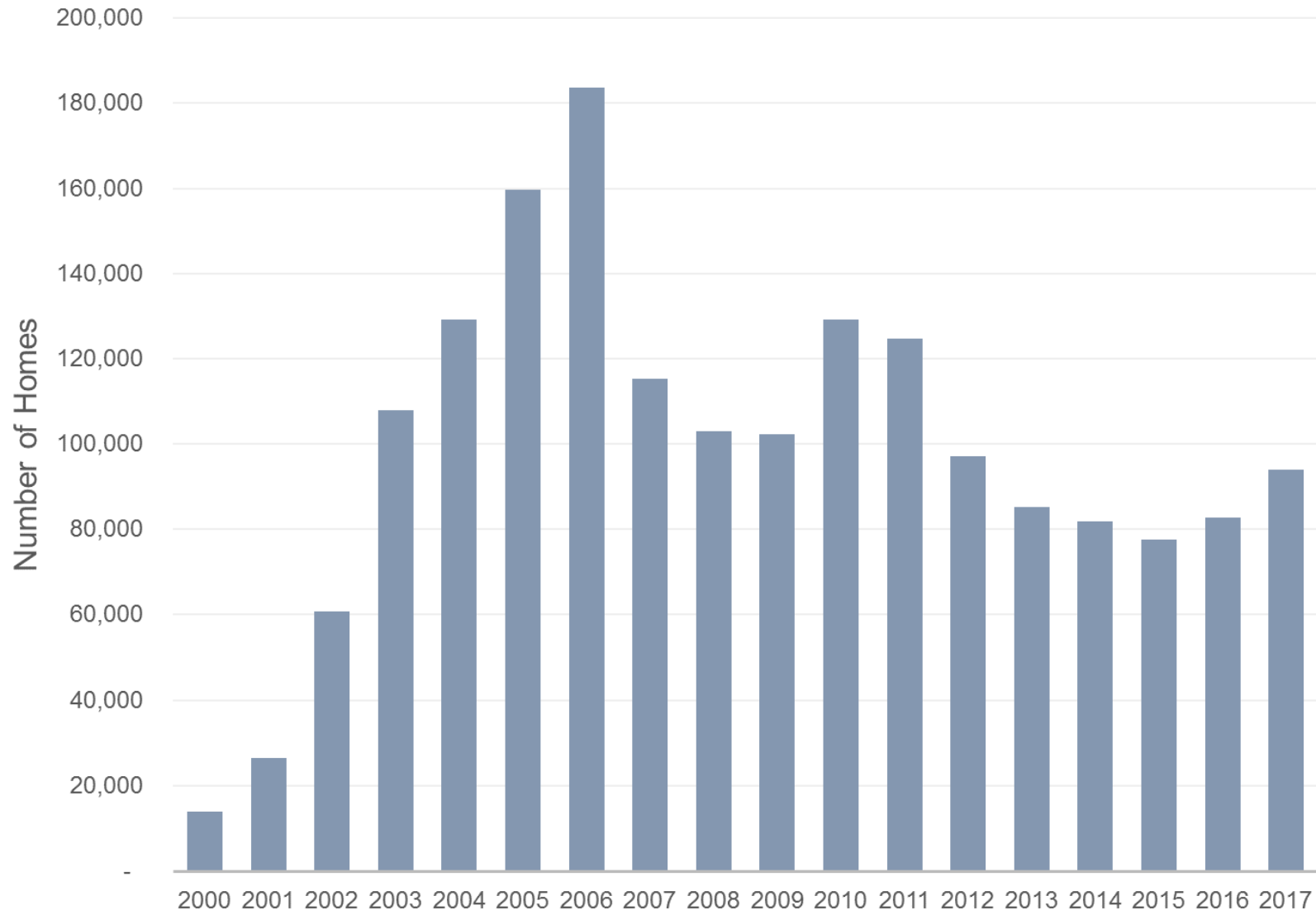
Annual ENERGY STAR Certified Homes Built



ENERGY STAR. The simple choice for energy efficiency.



Annual ENERGY STAR Certified Homes Built



Checking in on Program Requirements: Technical Website





Overhaul of ENERGY STAR Technical Website

ABOUT ENERGY STAR PARTNER RESOURCES

Q

The simple choice for energy efficiency.

ENERGY EFFICIENT
products

ENERGY SAVINGS
at home

ENERGY EFFICIENT
new homes

ENERGY STRATEGIES FOR
buildings & plants

Home > Partner Resources > For New Home Construction Professionals > ENERGY STAR Certified Homes Program Requirements > Version 3 Program Requirements

ENERGY STAR Certified Homes Version 3 Program Requirements

Partner Resources

Product Brand Owners

Retailers

New Home Industry

Next Generation

Resources

Affordable Housing

RE Ready Home

Utilities/EEPS

Residential & Commercial Products Programs

Service & Product Providers

Buildings & Plants

Small Businesses

Congregations

For Contractors

For Federal Agencies

Join ENERGY STAR

Should I use the Version 3 Program Requirements?

To earn the ENERGY STAR, a home must be certified under Version 3 of the program requirements, unless it is located in California, Connecticut, Delaware, District of Columbia, Florida, Guam, Hawaii, Illinois, Iowa, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Jersey, New York Northern Mariana Islands, Oregon, Puerto Rico, Rhode Island, Texas, U.S. Virgin Islands, Vermont, or Washington. A home in these locations must be certified using [Regional Specifications](#).

How to Certify a Home

Select the core energy efficiency measures

Working with a Home Energy Rater, builders configure the preferred set of energy measures for their home and verify that the resulting HERS Index meets or exceeds the ENERGY STAR HERS Index Target. The National Program Requirements contain more information about how the target is defined and the typical measures used to meet this target. See the [National Program Requirements](#) (182KB).

Complete Mandatory Measures

Certification of a home also requires the completion of the following:

- [Rater Design Review Checklist and Rater Field Checklist](#) (632KB)
- [HVAC Design Report](#) (338KB)


MARKETING TOOLS AND RESOURCES

Consumer Video

Play the full or 90 second version of the consumer video on your website and in model homes. Co-brand the video by adding your logo. [Learn more.](#)



Overhaul of ENERGY STAR Technical Website



Welcome to Amazon.com Books!

*One million titles,
consistently low prices.*

(If you explore just one thing, make it our personal notification service. We think it's very cool!)

SPOTLIGHT! -- AUGUST 16TH

These are the books we love, offered at Amazon.com low prices. The spotlight moves **EVERY** day so please come often.

ONE MILLION TITLES

Search Amazon.com's [million title catalog](#) by author, subject, title, keyword, and more... Or take a look at the [books we recommend](#) in over 20 categories... Check out our [customer reviews](#) and the [award winners](#) from the Hugo and Nebula to the Pulitzer and Nobel... and [bestsellers](#) are 30% off the publishers list...

EYES & EDITORS, A PERSONAL NOTIFICATION SERVICE

Like to know when that book you want comes out in paperback or when your favorite author releases a new title? Eyes, our tireless, automated search agent, will send you mail. Meanwhile, our human editors are busy previewing galleys and reading advance reviews. They can let you know when especially wonderful works are published in particular genres or subject areas. Come in, [meet Eyes](#), and have it all explained.

YOUR ACCOUNT

Check the status of your orders or change the email address and password you have on file with us. Please note that you **do not** need an account to use the store. The first time you place an order, you will be given the opportunity to create an account.

ENERGY STAR. The simple choice for energy efficiency.



Overhaul of ENERGY STAR Technical Website

The screenshot displays the Amazon website interface. At the top, the Amazon logo and 'Try Prime' are on the left, and a search bar is in the center. On the right, there's a 'Gifts for Valentine's Day' banner with a heart icon. Below the search bar, navigation links include 'Deliver to washington 20001', 'Departments', 'Your Amazon.com', 'Today's Deals', 'Gift Cards', 'Registry', 'Sell', 'EN', 'Hello. Sign in', 'Account & Lists', 'Orders', 'Try Prime', and a shopping cart icon.

The main content area features a 'Deals on Echo Devices' section with a 'Limited-time offer' label. It lists four Echo devices with their original and discounted prices:

Device	Original Price	Discounted Price
echo dot	\$49.99	\$39.99
echo	\$99.99	\$84.99
echo spot	\$129.99	\$114.99
echo show	\$229.99	\$179.99

Below this, there's an 'Explore Valentine's Day' section with four circular icons representing gift categories: 'VALENTINE'S DAY GIFT SHOP' (balloons), 'GIFTS FOR COUPLES' (a couple), 'CHOCOLATES & CANDY' (a gift box), and 'FLOWERS' (a bouquet of red roses).

On the right side, there's a product advertisement for 'EAS AdvantEDGE Carb Control Protein S...'. The ad includes the text 'GRAB CONTROL. GET LEAN.', '17g Protein. 100 Calories. 0g Sugar.', a 4.5-star rating from 954 reviews, a price of '\$13.86 prime', and an 'Add to Cart' button. A small 'Ad feedback' link is at the bottom right of the ad.



SITE BUILT

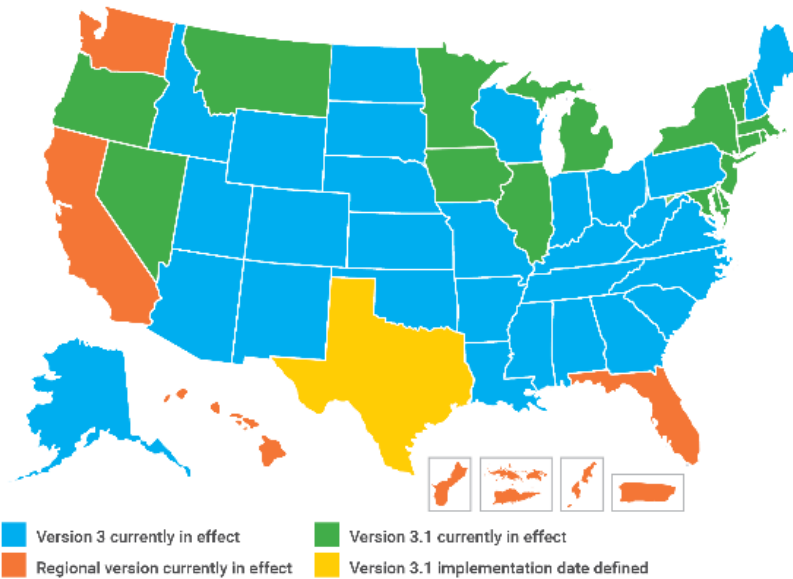
MODULAR

MANUFACTURED

UNDERGOING GUT REHAB

PROGRAM VERSIONS AT A GLANCE

Select State or Territory ▼



PROGRAM REQUIREMENTS

National Program Requirements

[National Program Requirements Version 3](#) (PDF, 182 KB)

[National Program Requirements Version 3.1](#) (PDF, 195 KB)

Regional Program Requirements

[Tropics Program Requirements Version 3](#) (PDF, 151 KB)

[California Program Requirements Version 3.1](#) (PDF, 129 KB)

[Florida Program Requirements Version 3.1](#) (PDF, 144 KB)

[California Program Requirements Version 3.2](#) (PDF, 144 KB)

[Washington Program Requirements Version 3.2](#) (PDF, 193 KB)

Mandatory Measures

[National Rater Design Review & Rater Field Checklist](#) (PDF, 634 KB)

[Tropics Rater Design Review & Rater Field Checklist](#) (PDF, 474 KB)

[National HVAC Design Report](#) (PDF, 339 KB)

[National HVAC Commissioning Checklist](#) (PDF, 184 KB)

[National Water Management System Builder Requirements](#) (PDF, 121 KB)

IMPLEMENTATION TIMELINE

Program Requirements	State/Territory	Applicable to Homes Permitted On or After the Following Date
National Version 3	AL, AK, AZ, AR, CO, GA, IN, ID, KS, KY, LA, ME, MS, MO, NE, NH, NM, NC, ND, OH, OK, PA, SC, SD, TN, UT, VA, WV, WI, WY	07/01/2012
Tropics Version 3	HI	07/01/2012

ADDITIONAL RESOURCES

[ENERGY STAR Policy Record](#)

[ENERGY STAR Training & Education](#)

[Building America Solutions Center](#)

[National Version 3 Cost & Savings Document](#) (PDF, 2.2 MB)





SITE BUILT MODULAR MANUFACTURED UNDERGOING GUT REHAB

PROGRAM VERSIONS AT A GLANCE

- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming
- Guam

currently in effect

implementation date defined

PROGRAM REQUIREMENTS

- National Program Requirements**
- [National Program Requirements Version 3 \(PDF, 182 KB\)](#)
 - [National Program Requirements Version 3.1 \(PDF, 195 KB\)](#)
- Regional Program Requirements**
- [Tropics Program Requirements Version 3 \(PDF, 151 KB\)](#)
 - [California Program Requirements Version 3.1 \(PDF, 129 KB\)](#)
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National Version 3	AL, AK, AZ, AR, CO, GA, IN, ID, KS, KY, LA, ME, MS, MO, NE, NH, NM, NC, ND, OH, OK, PA, SC, SD, TN, UT, VA, WV, WI, WY	07/01/2012
Tropics Version 3	HI	07/01/2012



SITE BUILT

MODULAR

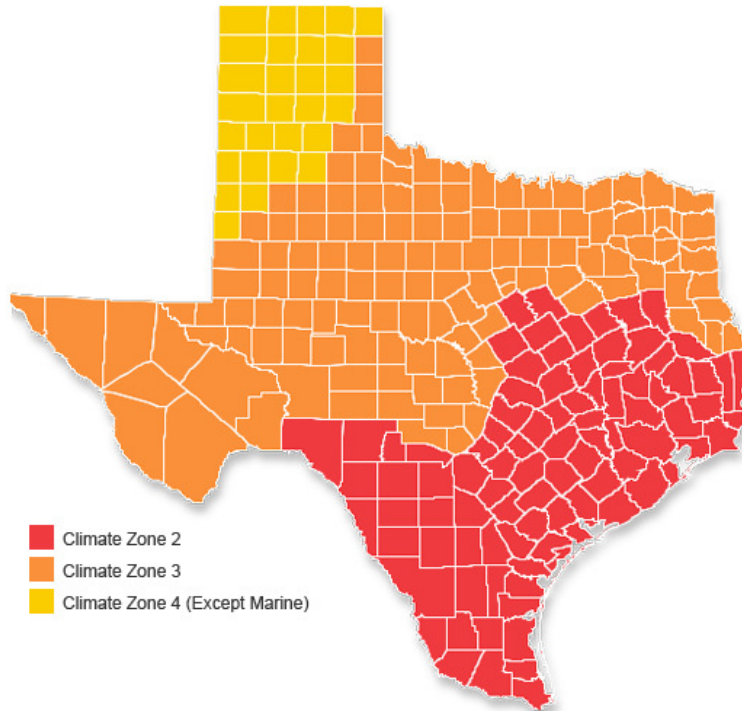
MANUFACTURED

UNDERGOING GUT REHAB

TEXAS AT A GLANCE

[< Back to National view](#)

Select a County



- Climate Zone 2
- Climate Zone 3
- Climate Zone 4 (Except Marine)

PROGRAM REQUIREMENTS

[National Program Requirements Version 3.1 \(PDF, 195 KB\)](#)

[National Rater Design Review & Rater Field Checklist \(PDF, 634 KB\)](#)

[National HVAC Design Report \(PDF, 339 KB\)](#)

[National HVAC Commissioning Checklist \(PDF, 184 KB\)](#)

[National Water Management System Builder Requirements \(PDF, 121 KB\)](#)

ADDITIONAL RESOURCES

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[ENERGY STAR Training & Education](#)

[Building America Solutions Center](#)

[National Version 3.1 Cost & Savings Document \(PDF, 2.0 MB\)](#)

[National Version 3.1 ENERGY STAR Reference Design \(PDF, 166 KB\)](#)

IMPLEMENTATION TIMELINE

Homes in Texas must be certified using the [National Program Requirements Version 3 \(PDF, 182 KB\)](#) if permitted on or after 01/01/2012 but before 07/01/2018.

Homes in Texas must be certified using the [National Program Requirements Version 3.1 \(PDF, 195 KB\)](#) if permitted on or after 07/01/2018.



SITE BUILT

MODULAR

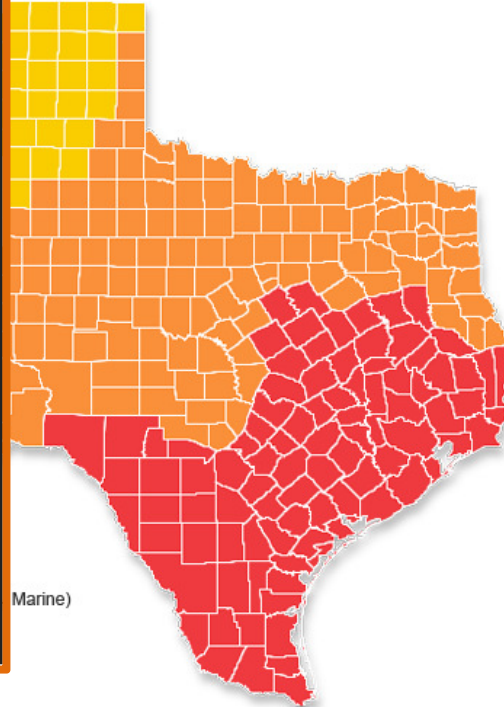
MANUFACTURED

UNDERGOING GUT REHAB

TEXAS AT A GLANCE

[< Back to National view](#)

- Select a County
- Anderson
- Andrews
- Angelina
- Aransas
- Archer
- Armstrong
- Atascosa
- Austin
- Bailey
- Bandera
- Bastrop
- Baylor
- Bee
- Bell
- Bexar
- Blanco
- Borden
- Bosque
- Bowie
- Brazoria
- Brazos
- Brewster
- Briscoe
- Brooks
- Brown
- Burleson
- Burnet
- Caldwell
- Calhoun



PROGRAM REQUIREMENTS

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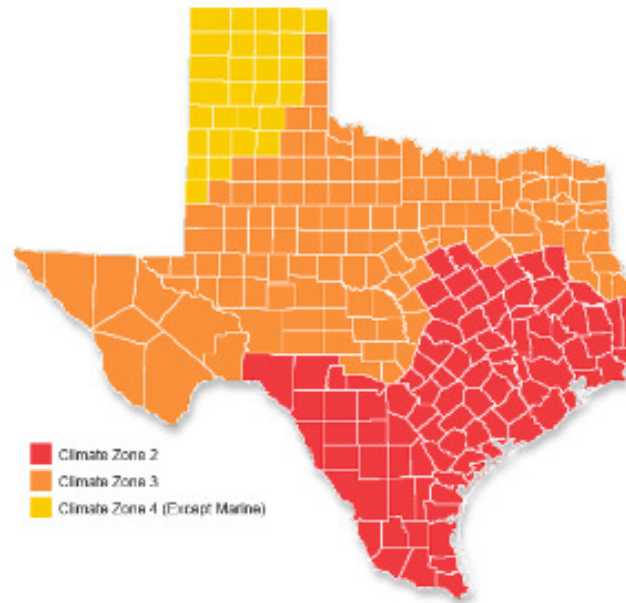


SITE BUILT MODULAR MANUFACTURED UNDERGOING GUT REHAB

ARMSTRONG, TX AT A GLANCE

[< Back to National view](#)

Select a County ▼



PROGRAM REQUIREMENTS

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[National HVAC Design Report \(PDF, 339 KB\)](#)

[National HVAC Commissioning Checklist \(PDF, 184 KB\)](#)

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COUNTY-LEVEL DESIGN TEMPERATURE LIMITS

Below are the heating and cooling design temperature limits for the selected state and country. These limits generally must not be exceeded in the HVAC design for a home that will be certified in this location. See the [Design Temperature Limit Reference Guide](#) for exceptions and details.

1% Cooling Limit 95°F 99% Heating Limit 34°F

EFFICIENCY FEATURES AT A GLANCE



EFFICIENCY FEATURES AT A GLANCE

2009 IECC Climate Zone 4
 Below is the set of efficiency features modeled to determine the ENERGY STAR HERS Index Target for homes in Climate Zone 4. While the features are not mandatory, if they are not used then other measures will be needed to achieve the target. See [National Program Requirements Version 3.1](#) (PDF, 195 KB) for complete details.

Envelope, Windows, & Doors	
Radiant Barrier?	n/a
Insulation Install. Quality	Grade I
Ceiling Insulation	R-49
Wall Insulation	R-20 cavity or R-13 cavity + 5 cont.
Mass Wall Insulation	R-8 ext or R-13 int
Floor Insulation	R-19
Basement Wall Insulation	R-10 cont. or R-13 cavity
Crawlspace Wall Insulation	R-10 cont. or R-13 cavity
Slab Insulation	R-10; 2 ft
Infiltration Rate	3 ACH50
Windows	U-factor: 0.30 / SHGC: 0.40
Door: Opaque	U-factor: 0.17 / SHGC: Any
Door: ≤ 1/2 Lite	U-factor: 0.25 / SHGC: 0.25
Door: > 1/2 Lite	U-factor: 0.30 / SHGC: 0.40

Water Heating Equipment	
Efficiency varies by tank size. Common sizes shown below.	
Gas Water Heater	40 gal: 0.61 EF; 60 gal: 0.57 EF
Electric Water Heater	40 gal: 0.93 EF; 60 gal: 0.91 EF
Oil Water Heaters	40 gal: 0.53 EF; 60 gal: 0.49 EF
Solar Water Heater	n/a

Thermostats & Ductwork	
Thermostat Type	Programmable
Location of Ducts and Air Handlers	All within conditioned space
Duct Insulation for Ducts In Unconditioned Space	n/a
Duct Leakage to Outside	n/a

Lighting & Appliances	
Refrigerators	ENERGY STAR
Dishwashers	ENERGY STAR
Ceiling Fans	ENERGY STAR
Lighting	ENERGY STAR light bulbs in 90% of Qualifying Light Fixture Locations

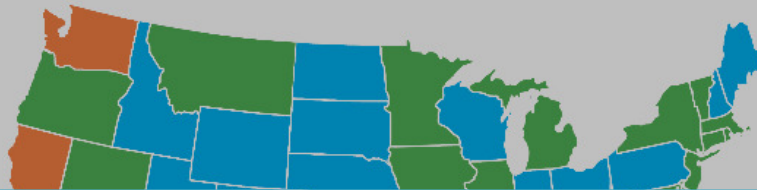
Heating and Cooling Equipment	
Gas Furnace	95 AFUE, ENERGY STAR
Oil Furnace	85 AFUE, ENERGY STAR
Gas Boiler	90 AFUE, ENERGY STAR
Oil Boiler	86 AFUE, ENERGY STAR
Heat Pump	8.5 HSPF / 15 SEER / 12 EER
Air Conditioner	13 SEER



SITE BUILT MODULAR MANUFACTURED UNDERGOING GUT REHAB

PROGRAM VERSIONS AT A GLANCE

Select State or Territory



■ Version 3 currently in effect ■ Version 3.1 currently in effect
■ Regional version currently in effect ■ Version 3.1 implementation date defined

PROGRAM REQUIREMENTS

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www.energystar.gov/newhomesrequirements

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Tropics Version 3	HI	07/01/2012

ADDITIONAL RESOURCES

- ENERGY STAR Policy Record
- ENERGY STAR Training & Education
- Building America Solutions Center
- National Version 3 Cost & Savings Document (PDF, 2.2 MB)

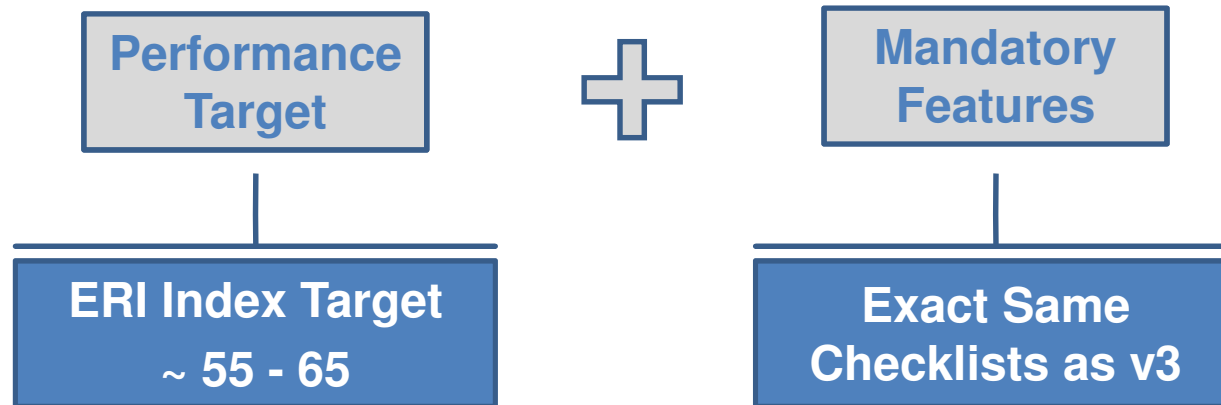
Checking in on Program Requirements: Version 3.1





National Version 3.1: Overview

- Maintains meaningful savings in states that adopt the 2012, 2015, 2018 IECC or equivalent.



Version 3.1: TX

- Proactive outreach to partners starting in the Spring.

CZ 2



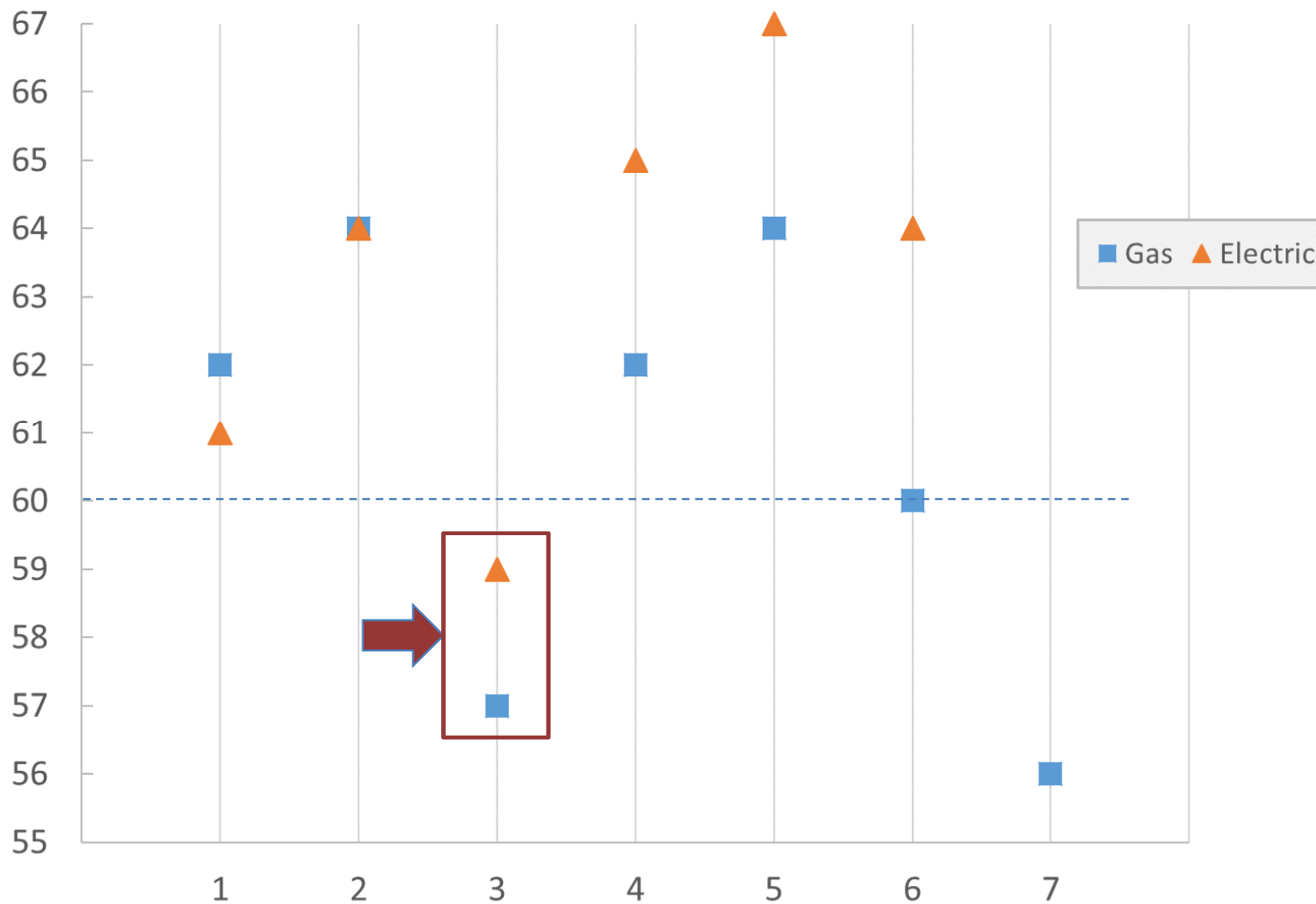
CZ 3





Version 3.1: TX

Sample ENERGY STAR HERS Index Target





Version 3.1: TX

Adjustments to ENERGY STAR Reference Design

Measure	Applies To	Old Value	New Value	Approx. ERI Impact
Furnace Efficiency	National v3.1: CZ 3 Only	90 AFUE	80 AFUE	~2-3



Version 3.1: TX

Adjustments to ENERGY STAR Reference Design

Measure	Applies To	Old Value	New Value	Approx. ERI Impact
Furnace Efficiency	National v3.1: CZ 3 Only	90 AFUE	80 AFUE	~2-3
Size Adjustment Factor	National v3.1: All CZ's FL v3.1: All CZ's	0.083	0	~0-2



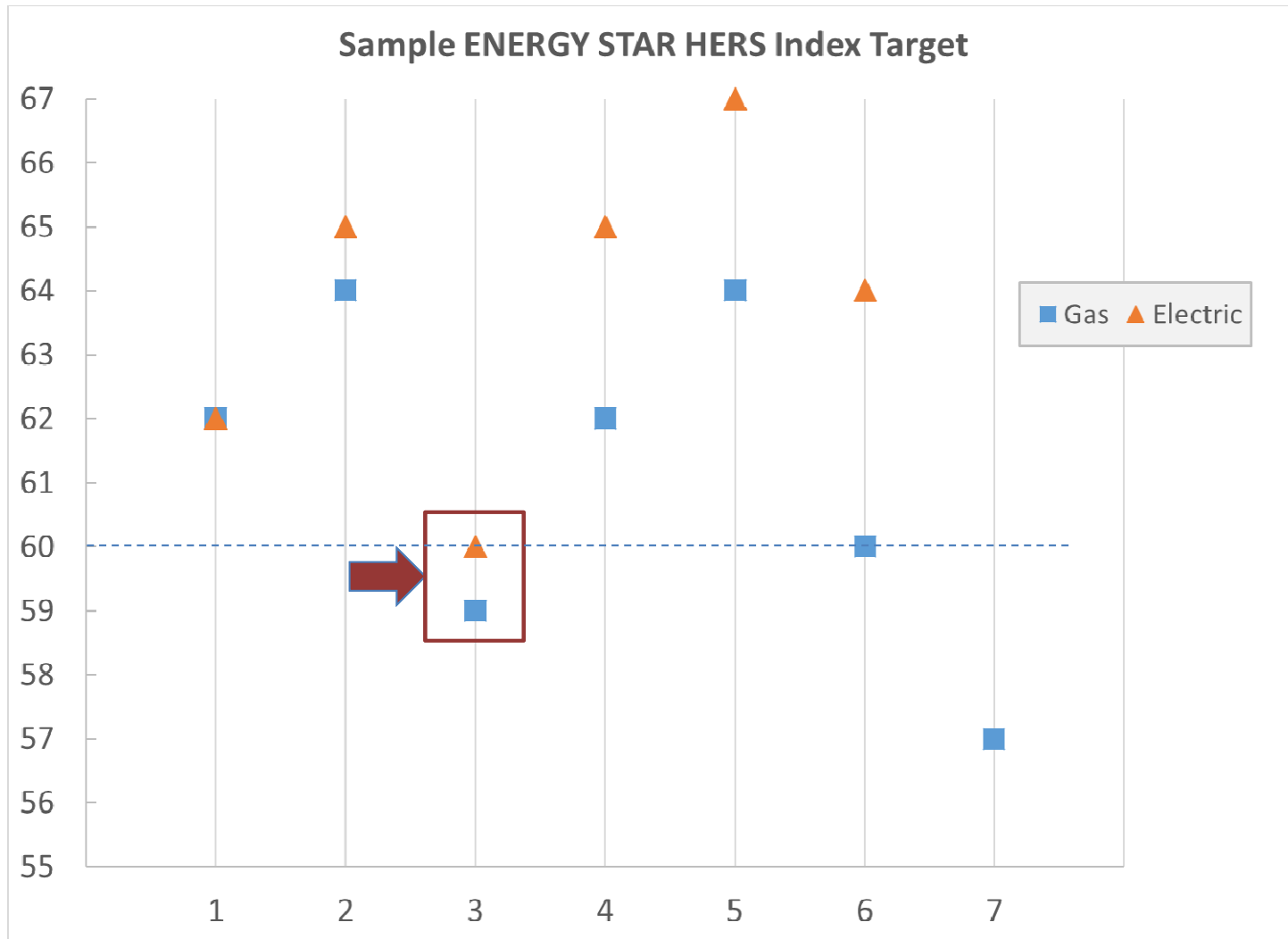
Version 3.1: TX

Adjustments to ENERGY STAR Reference Design

Measure	Applies To	Old Value	New Value	Approx. ERI Impact
Furnace Efficiency	National v3.1: CZ 3 Only	90 AFUE	80 AFUE	~2-3
Size Adjustment Factor	National v3.1: All CZ's FL v3.1: All CZ's	0.083	0	~0-2
Water Heater Efficiency, when Rated Home has instant gas water heater	National v3: All CZ's National v3.1: All CZ's FL v3.1: All CZ's	40 gal, 0.61 EF	50 gal, 0.59 EF	~1



Version 3.1: TX





Version 3.1: TX

- Extended v3.1 implementation timeline for TX from 10/01/17 to 07/01/18.
- HERS software programs with updated ENERGY STAR Reference Designs were announced on January 9th.
- For partners in TX, now is the time to start preparing!



Version 3.1: Key Takeaways

- For FL, DC, and the 16 national v3.1 states, ENERGY STAR has just gotten a bit easier, particularly in CZ 3.
- We're reasonable, collaborative, people.
- Don't hesitate to reach out to us.

Checking in on Program Requirements: Version 3.2

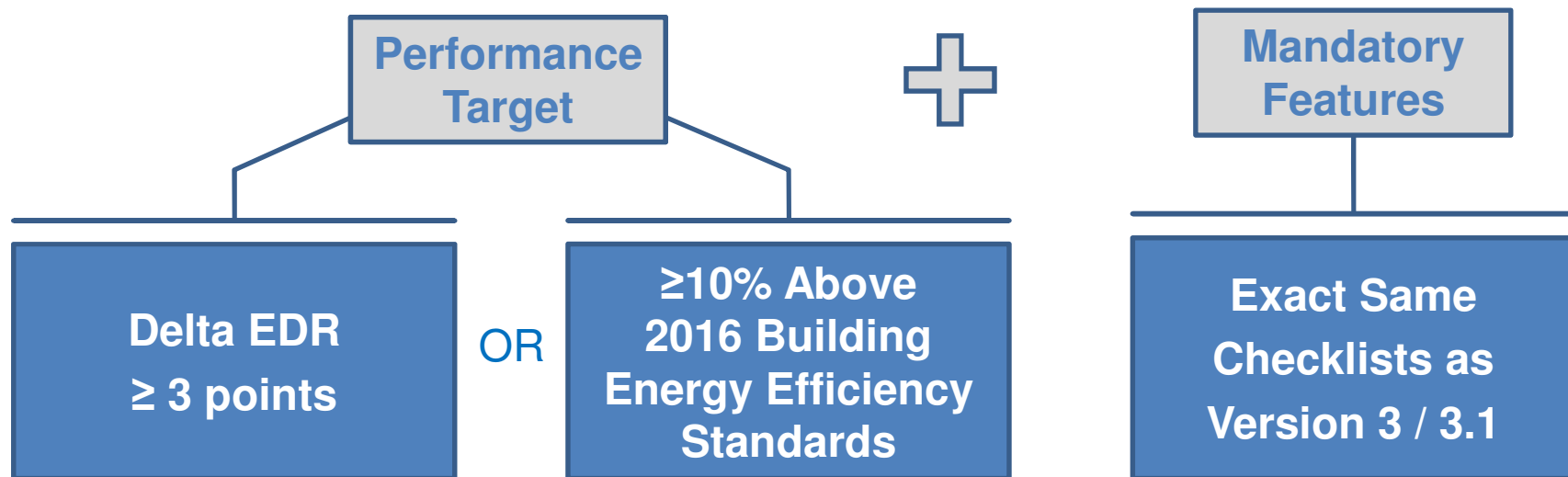




Version 3.2: CA



- The latest CA code is the most stringent in the country.
- In response, we've developed a brand-new Version 3.2, specific to CA.
- Implementation date is for homes permitting starting July 1, 2018.





Version 3.2: WA

- The latest WA code is a bit more stringent than 2012 / 15 / 18 IECC.
- In response, we've developed a brand-new Version 3.2, specific to WA.
- Implementation date is for homes permitting starting July 1, 2018.





Version 3.2: OR?



- The latest OR code is also a bit more stringent than 2012 / 15 / 18 IECC.
- As a result, we've analyzing whether to maintain the National Version 3.1 requirements, or extend the WA v3.2 requirements to OR.
- Final policy will be determined in Q2 2018.

Checking in on Program Requirements: Revision 09



ENERGY STAR. The simple choice for energy efficiency.



Rev. 08

It's Great!



#1-3: ENERGY STAR Reference Design updates

Adjustments to ENERGY STAR Reference Design

Measure	Applies To	Old Value	New Value	Approx. ERI Impact
Furnace Efficiency	National v3.1: CZ 3 Only	90 AFUE	80 AFUE	~2-3
Size Adjustment Factor	National v3.1: All CZ's FL v3.1: All CZ's	0.083	0	~0-2
Water Heater Efficiency, when Rated Home has instant gas water heater	National v3: All CZ's National v3.1: All CZ's FL v3.1: All CZ's	40 gal, 0.61 EF	50 gal, 0.59 EF	~1



#4. HVAC Design Report update

- The tolerance for the conditioned floor area used in the loads has been increased.

Old Policy

0 - 300 ft² larger
than the rated home

New Policy

100 ft² smaller - 300 ft² larger
than the rated home



#5. HVAC Design Report updates

- The heating sizing limit for furnaces paired with cooling increased.
- No changes to the cooling sizing limits.

Old Policy

Recommended: 100 - 140%

Allowed: 100 - 200%

New Policy

Recommended: 100 - 140%

Allowed: 100 - 400%



#6. Rater Field Checklist update

- An alternative compliance option has been added for filter access in attics.

Old Policy

HVAC filters located in the attic are considered accessible if drop-down stairs provide access to attic and a permanently installed walkway has been provided between the attic access location and the filter...

New Policy

...or the filter location:

- Enables arm-length access from a portable ladder without the need to step into the attic, AND,
- The ceiling height where access is provided is ≤ 12 ft.



Rev. 09

It's Fine.

- No new checklists.
- No new checklist items.
- No fewer checklist items.
- No fewer checklists.
- Just modifications to a handful of existing checklist items.
- Backwards compatible.
- **Available in September!**

Checking in on Program Requirements: CEE New Homes Initiative





Consortium for Energy Efficiency (CEE) New Homes Initiative

- CEE is a long-standing close partner of the entire ENERGY STAR program.
- CEE and EPA work together to promote efficient homes and products through utility incentive programs.
- Over 80% of respondents from the CEE New Homes Program Summary have adopted some version of the ENERGY STAR program.
- CEE recently formalized their efforts with a Residential New Construction Initiative:
 - Implements a tiered specification with performance-based levels using the Energy Rating Index, just like ENERGY STAR.
 - Couples that with a quality assurance requirement. ENERGY STAR is the recommended and default program to satisfy this.

Major Initiatives in 2018



One Multifamily



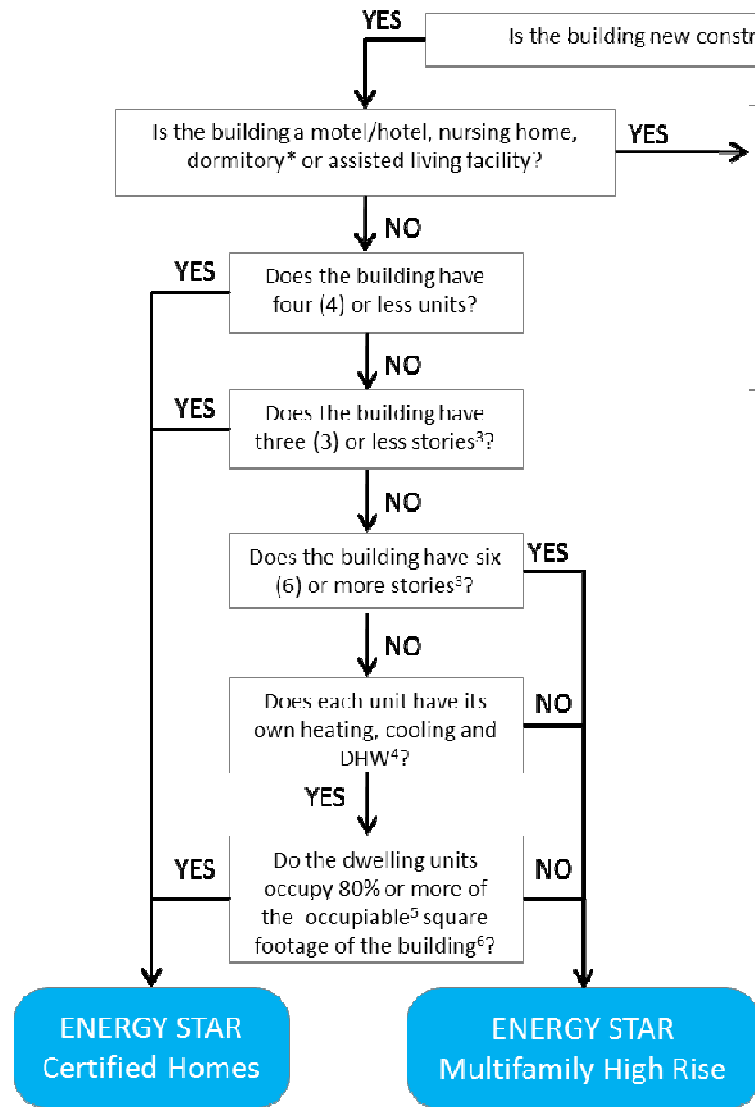


ENERGY STAR for Multifamily New Construction

Has guidelines that apply to new (or gut rehab):

- Single Family Homes (detached and attached)
 - Factory Built Homes (manufactured and modular)
 - Low & Mid Rise Multifamily Buildings
- } Certified Homes
-
- Mid & High Rise Multifamily Buildings
 - Covers buildings previously ineligible for Certified Homes
 - Launched in June 2011
- } MFHR

ENERGY STAR Multifamily Program Decision Tree*



Existing multifamily properties may be eligible to earn the ENERGY STAR through the ENERGY STAR Commercial program. For more information visit www.energystar.gov/buildings.

To learn more about how commercial buildings, including motels/hotels, skilled nursing, nursing homes, supportive care, and dementia facilities can earn the ENERGY STAR, visit www.energystar.gov/buildings.

***As of January 1, 2014, EPA is no longer offering ENERGY STAR certification for medical office buildings or residence halls/dormitories/barracks.**

- NOTES:**
1. New construction can include significant gut rehabilitations when defined as a change of use, reconstruction of a vacant structure, or when construction work requires that the building be out of service for at least 30 consecutive days.
 2. The primary use of the building must be for residential purpose, i.e. the residential and residential associated common area must occupy more than 50% of the building's occupiable⁵ square footage. A garage is not considered 'occupiable'. Common area includes any spaces within the building that serves a function in support of the residential part of the building that is not part of a dwelling unit. This includes spaces used by residents, such as corridors, stairs, lobbies, laundry rooms, exercise rooms, and residential recreation rooms. This also includes offices used by building management, administration or maintenance and all special use areas located in the building to serve and support the residents such as day-care facilities, gyms, dining halls, etc.
 3. Any above grade story with 20% or more occupiable⁵ space, including commercial space, shall be counted towards the total number of stories for the purpose of determining eligibility. An above-grade story is one for which more than half of the gross surface area of the exterior walls is above-grade.
 4. Four (4) and five (5) story buildings with in-unit heating and cooling and a central domestic hot water system where solar energy provides at least 50% of the domestic hot water needs for the residential units, will qualify through the ENERGY STAR Certified Homes program as long as all other eligibility requirements of that program are met.
 5. Per ASHRAE 62.2-2010, occupiable spaces is any enclosed space inside the pressure boundary and intended for human activities or continual human occupancy, including, but not limited to, areas used for living, sleeping, dining, and cooking, toilets, closets, halls, storage and utility areas, and laundry areas.
 6. For mixed-use buildings, exclude the retail/commercial area when determining the square footage of the "building".

*As of January 2017

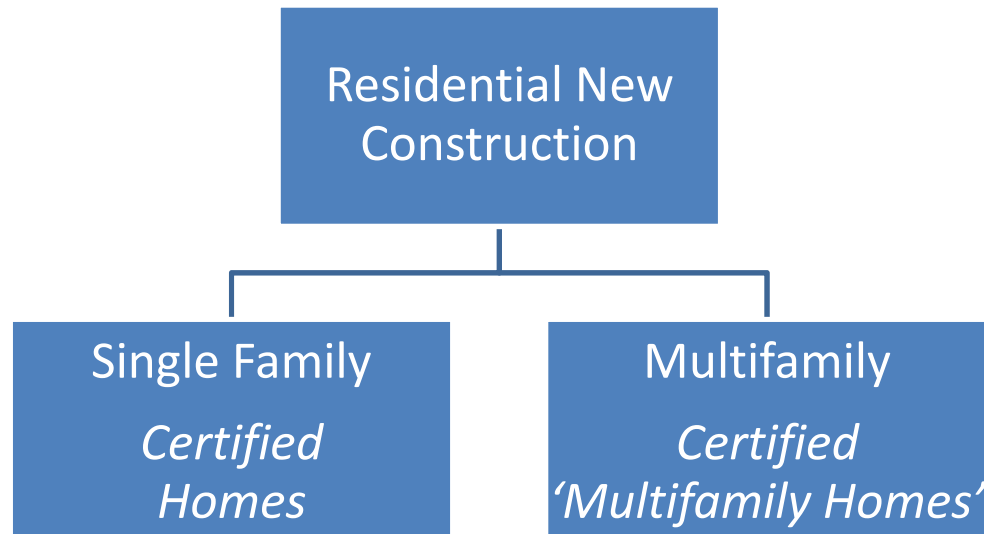


Goals for the New Concept

- Appropriate eligibility
- Technical requirements are governed by building features
 - Optimized for multifamily
 - Appropriate for variety of building types
- Common areas addressed
- Flexibility for participants and program administrators
- Well-defined verifier requirements
 - Including multifamily training
- Market-based oversight



New Premise



- Delineation between SF and MF
- Consistent specification for multifamily (any height)

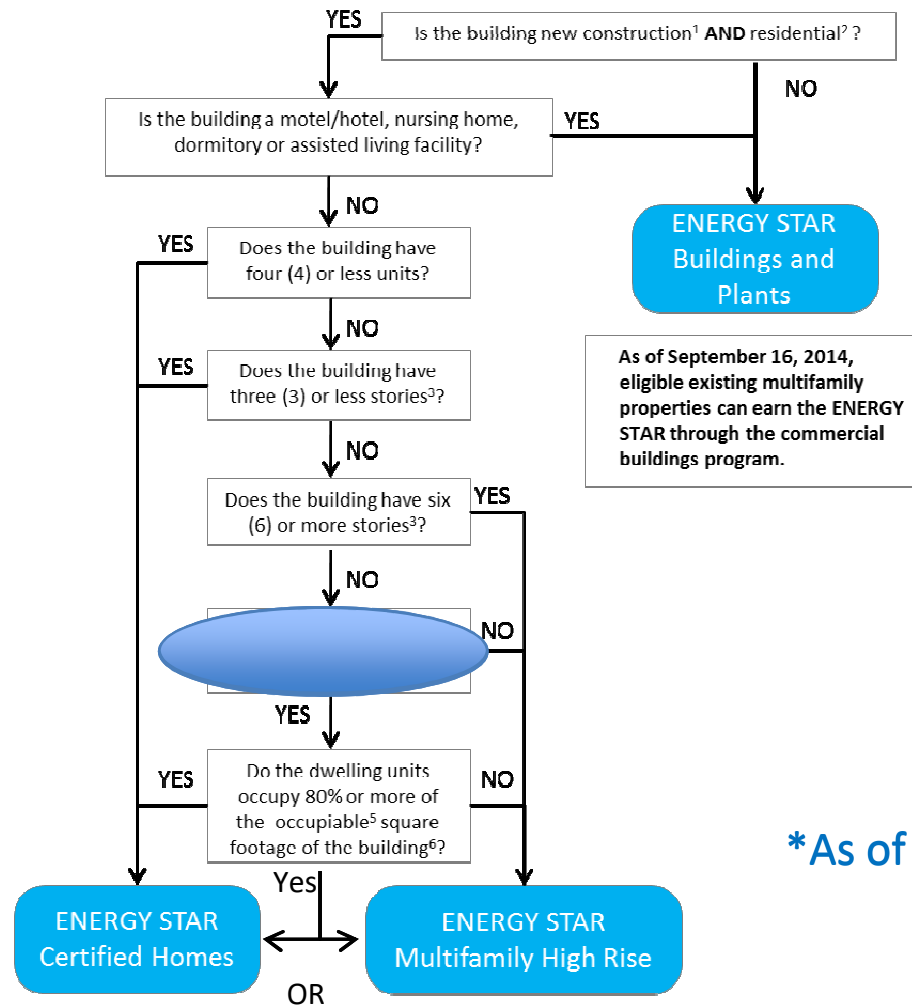
ENERGY STAR. The simple choice for energy efficiency.



Year in Review



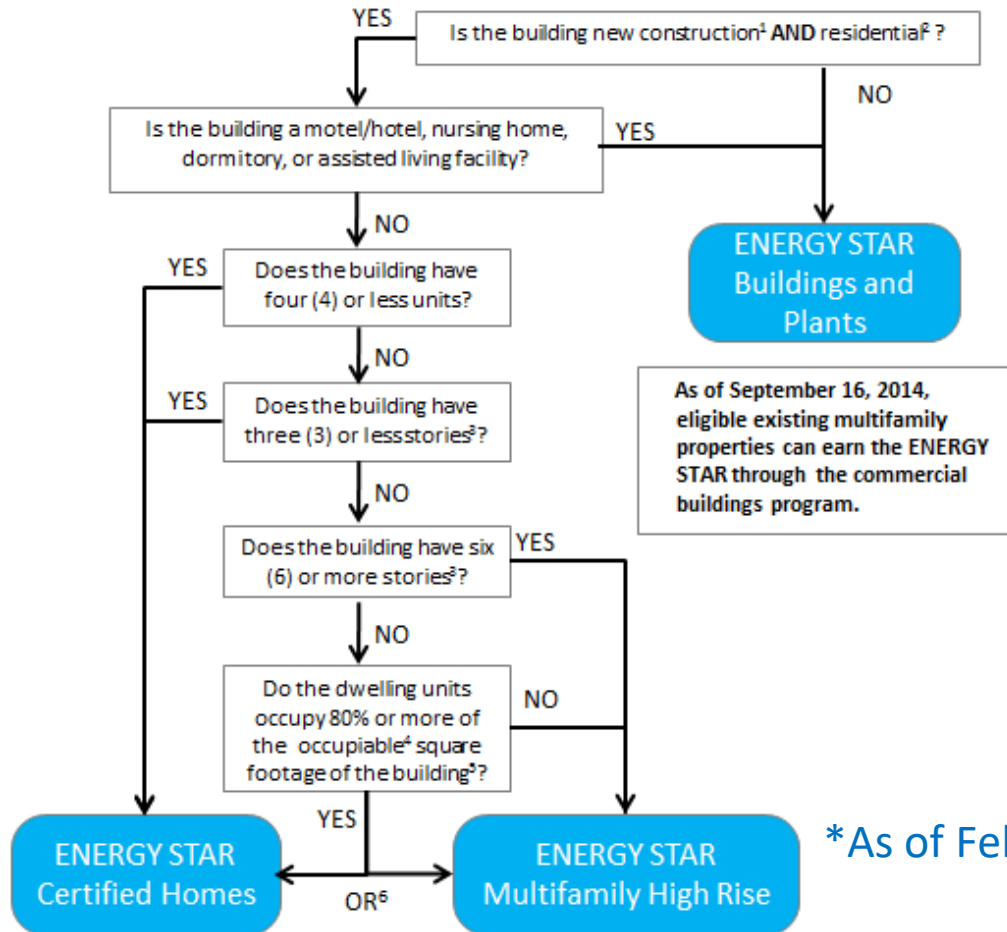
ENERGY STAR Multifamily Program Decision Tree*



*As of February 2017



ENERGY STAR Multifamily Program Decision Tree*



*As of February 2017



RESNET Multifamily Sub-Committee

- MFWG developed the 'Guidelines for Multifamily Energy Ratings', which RESNET published in August 2014
- June 2016, RESNET MF SC convened and began to draft ANSI 305, a standard dedicated to Multifamily (presented it at 2017 RESNET conference)
- August 2017, ANSI 305 was canceled; all work merged into ANSI 301 & 380

How Standards are Evolving to Better Address 'Multifamily' Ratings

Presenters: Brian Christensen & Gayathri Vijayakumar

Room: Grand Salon VI

Tuesday, 10:30am-12:00pm



RESNET Standards and Multifamily

- Highlights
 - ANSI/RESNET/ICC 301-2014 9, Standard for the Calculation and Labeling of the Energy Performance of Dwelling Units and Sleeping Units ~~Low-Rise Residential Buildings~~ using an Energy Rating Index
 - Scope will expand to units in buildings of any height
 - Current requirements revised/expanded for MF
 - All addenda (e.g., Index Adjustment Factor)
 - Shared HVAC, HW, laundry, PV, ventilation
 - Compartmentalization test
 - Total duct leakage



RESNET Standards and Multifamily

- Highlights
 - ANSI/RESNET/ICC 380-2016 9, Standard for Testing Airtightness of Building, Dwelling Unit and Sleeping Unit Enclosures, Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems
 - Added compartmentalization test procedure
 - Added CFM50 penalty for entry doors without doorsweep
 - Provides references for guarded tests/whole-bldg tests



RESNET Multifamily Sub-Committee

- Timeline
 - BSR/RESNET/ICC 301-2019:
 - 1st public comment period early March to mid-April
 - Targeting completion by January 2019
 - Earliest Effective date for RESNET: July 1, 2019
 - Possibly referenced in the 2021 IECC
 - BSR/RESNET/ICC 380-2019:
 - 1st public comment period ended in January 2018
 - 2nd public comment period coming soon
 - Targeting completion by November 2018



Multifamily Status Update

Completed

- Eligibility Update – Released February 2017
- Webinar on specification framework – November 2017
- Feedback collected and reviewed December 2017

In Progress

- RESNET presentation



Learn more tomorrow

New ENERGY STAR for Multifamily New Construction

Presenters: Rebecca Hudson, EPA & Gayathri
Vijayakumar, Steven Winter

Tuesday 8:30-10am

Grand Salon 2



Specification Highlights and Updates

- Eligibility
- Envelope
 - Thermal Bridging
 - Air Sealing and Compartmentalization
- HVAC
 - Design Report
 - ‘Commissioning’
 - Pressure Balancing
 - Ventilation
 - Garage Heating
- DHW
- Lighting



Multifamily Status Updates

Completed

- Eligibility Update – Released February 2017
- Webinar on specification framework – November 2017
- Feedback collected and reviewed December 2017

In Progress

- RESNET presentation
- Lunch Tuesday – Multifamily Table



Specification Timeline

Coming Soon

- Webinar March 22 on technical specification
- Feedback period through mid-April

Late Spring/Summer

- Review stakeholder feedback and respond to comments with additional outreach as needed
- Set-up systems and requirements for partnership, MRO's, software, training, reporting, labeling etc.
- Finalize program documentation

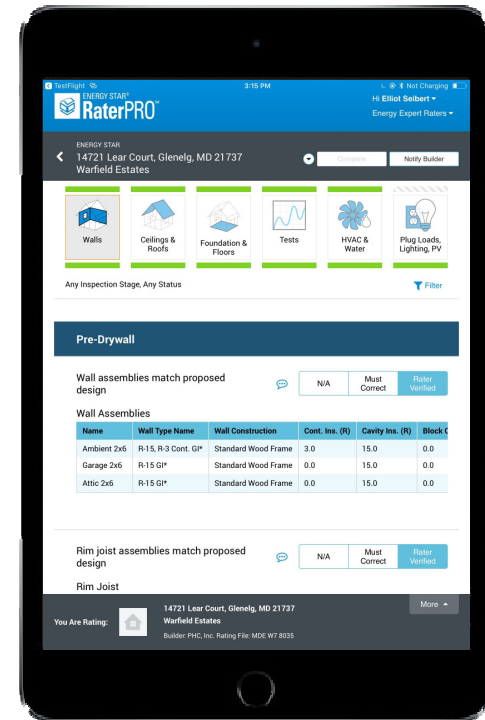
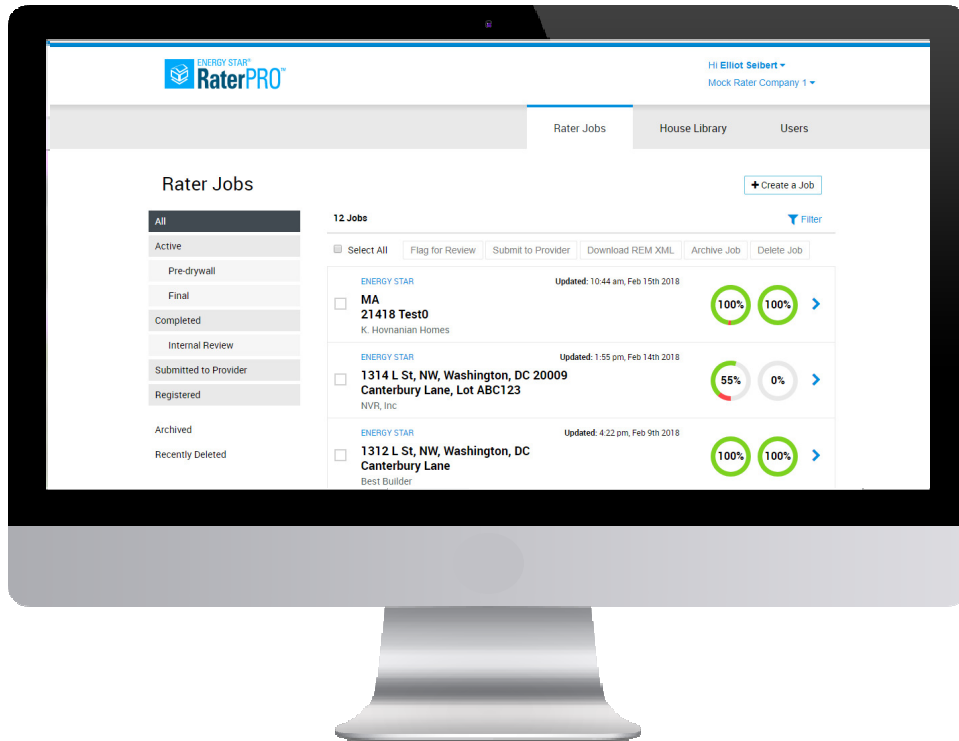
Goal:

- Specification available January 2019
 - Note: some options may not be available when first released
- At least one year transition time (depends on release of RESNET standard)

ENERGY STAR RaterPRO



ENERGY STAR. The simple choice for energy efficiency.





Goal of RaterPRO

- Provide a tool that facilitates the collection of high-quality field data during the pre-drywall and final inspections.
- This helps increase the value, and reduce the cost, of a high-quality third-party rating.
- Promote increased adoption of high-quality ratings across the industry.



What key features will be included in the app?

1. Ability to verify both ENERGY STAR and HERS homes.
2. Cloud-based, but with the ability to work offline.
3. Able to import proposed ratings from HERS software.
4. Able to export confirmed ratings back to HERS software.
5. Capable of capturing robust data.
6. Voluntary and freely available.



Announcing:



Public Beta

Beginning March, 2018

Get all the details today (Monday) 3:30 - 5:30 PM in Grand Salon II



By RESNET 2019 expect:

- **Dropping the 'Beta' label**
 - Successful history of day-to-day use by early adopters
 - Be ready for widespread adoption
- **A 3rd-Party API**
 - Will allow 3rd party systems to integrate with RaterPRO
 - Had a great discussion at pre-conference session Sunday
 - Interested developers should contact Elliot (Seibert.Elliot@epa.gov)
- **Much more news about RaterPRO's future**

ERI / HERS Credit for HVAC Quality Design & Installation





Installation defects in HVAC systems are commonplace

- Improper airflow.
- Incorrect refrigerant charge.

Study Author	State	Existing or New Home?	Sample Size	Average Airflow	Airflow <350 cfm	Airflow w/in 10% of 400/ton	Energy Savings Potential	Notes
Blasnik et al. 1995a	NV							
Blasnik et al. 1995b	CA							
Blasnik et al. 1996	AZ							
Hammarlund et al. 1992	CA							
Hammarlund et al. 1992	CA							
Neme et al. 1997	MD							
Palani et al. 1992	n.a.							
Parker et al. 1997	FL							
Proctor & Pemick 1992	CA							
Proctor 1991	CA							
Proctor et al. 1995a	CA							
Rodriguez et al. 1995	n.a.							
Rodriguez et al. 1995	n.a.							
VEIC/PEG 1997	NJ							
Average								

Study Author	State	Existing or New Homes?	Sample Size	Charge correct to mfg spec	% over charge	% under charge	Energy Savings Potential	Notes
Blasnik et al. 1995a	NV	New	30	35%	5%	59%	17%	Est @ 67% combined charge/air flow correction benefits
Blasnik et al. 1995b	CA	New	10				8%	Est @ 67% combined charge/air flow correction benefits
Blasnik et al. 1996	AZ	New	22	18%	4%	78%	21%	Est @ 67% combined charge/air flow correction benefits
Farzad & O'Neal 1993	n.a.	n.a.	n.a.				5%	Lab test of TXV; 8% loss @20% overchg; 2% loss @20% underchg
Farzad & O'Neal 1993	n.a.	n.a.	n.a.				17%	Lab test of Orifice; 13% loss @20% overchg; 21% loss @ 20% underchg
Hammarlund et al. 1992	CA	New	12				12%	Single family results
Hammarlund et al. 1992	CA	New	66	31%	61%	8%	12%	Multi-family results
Katz 1997	NC/SC	New	22	14%	64%	23%		Charge measured in 22 systems in 13 homes
Proctor & Pemick 1992	CA	Existing	175	44%	33%	23%		Results from PG&E Model Energy Communities Program
Proctor 1991	CA	Existing	15	44%				Fresno homes
Proctor et al. 1995a	CA	Existing	30	11%	33%	56%		
Proctor et al. 1997a	NJ	New	52				13%	Est @ 67% combined charge/air flow correction benefits
Rodriguez et al. 1995	n.a.	n.a.	n.a.				5%	Lab test of TXV EER; 5% loss at both 20% overchg & 20% underchg
Rodriguez et al. 1995	n.a.	n.a.	n.a.				15%	Lab test of Orifice EER; 7% loss @20% overchg, 22% loss @ 20% underchg
Average				28%	33%	41%	12%	



Guiding Principles

- Take a 'carrot' rather than a 'stick' approach.
- Reward incremental improvement by HVAC professionals and Raters.
- Rely upon procedures that:
 - Can be performed by both HVAC professionals and Raters.
 - Favor consistency over breadth.
 - Provide value in and of themselves.



Grading Concept

- Follow the insulation quality-installation model:
 - Grade III: The default. No QI is done. No penalty and no credit.
 - Grade II: Rater reviews key design parameters for accuracy and takes accurate measurements of key installation parameters. The resulting values indicate that the system is not great, but not terrible.
 - Grade I: Rater duplicates the tasks in Grade II, but the resulting values indicate that the system is pretty top-notch.



Status Update

- Two major parts:
 - Standard 310: Standard for Grading the Installation of HVAC Systems
 - Brand new standard.
 - Covers all the things that the Rater will do.
 - Standard 301: Standard for the Calculation and Labeling..
 - Updated so that Standard 310 impacts the HERS index.



Standard 310 Update

- All of the Rater procedures will go into a new standard, Standard 310 - Standard for Grading the Installation of HVAC Systems.

#	Section	Status
1	Purpose	2 nd draft complete
2	Scope	2 nd draft complete
3	Procedure for Evaluating the Design of the Forced-Air System	1 st draft complete
4	Procedure for Evaluating the Total Duct Leakage	1 st draft complete
5	Procedure for Evaluating the Blower Fan Volumetric Airflow	2 nd draft complete
6	Procedure for Evaluating the Blower Fan Watt Draw	2 nd draft complete
7	Procedure for Evaluating the Refrigerant Charge	1 st draft complete
9	Definitions / References / Appendices	Ongoing



Standard 301 Update

- Potential HERS impact summary:
 - For homes where the HVAC design and installation is not assessed, score should be about the same as today.
 - For homes where the HVAC design and installation is assessed, impact will be:
 - Dependent on climate
 - Dependent on how efficient the rest of the house is
 - Dependent on how well the system is designed and installed.
 - While this is still subject to refinement, we predict the following rough impacts for an ENERGY STAR home:
 - Up to ~3 points in hot climates
 - Up to ~2 points in mixed climates
 - Up to ~1 point in cold climates



Next Steps

- Q2 18: Finish drafting standard.
- Q2 18 – Q1 19: Public comment process.
Develop training and certification.
HERS software modifications.
- Q3/Q4 19: Begin using standard?



Summary

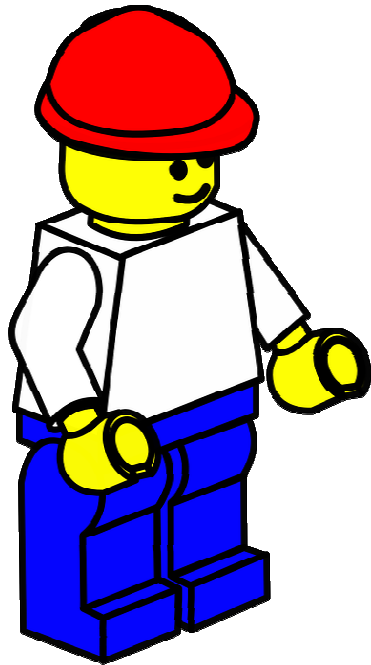
- A major step towards unifying ENERGY STAR and HERS ratings.
- For Raters: provide additional value during site visits.
- For ENERGY STAR builders: earn HERS points for things they're basically already investing in.
- For utilities: quantify savings from proper HVAC design and installation.
- Overall, will help slowly transform HVAC design and installation.
- Learn more about this exciting topic tomorrow, 10:30, in Grand Salon VII.

Builder Recruitment






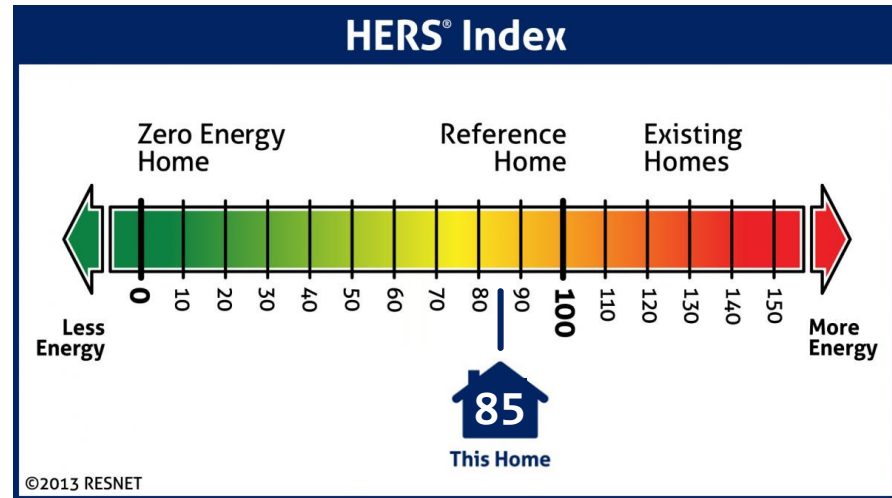
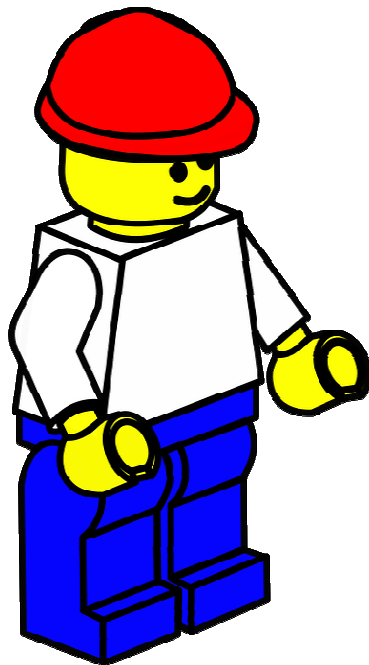
Builder Recruitment



2012



Builder Recruitment

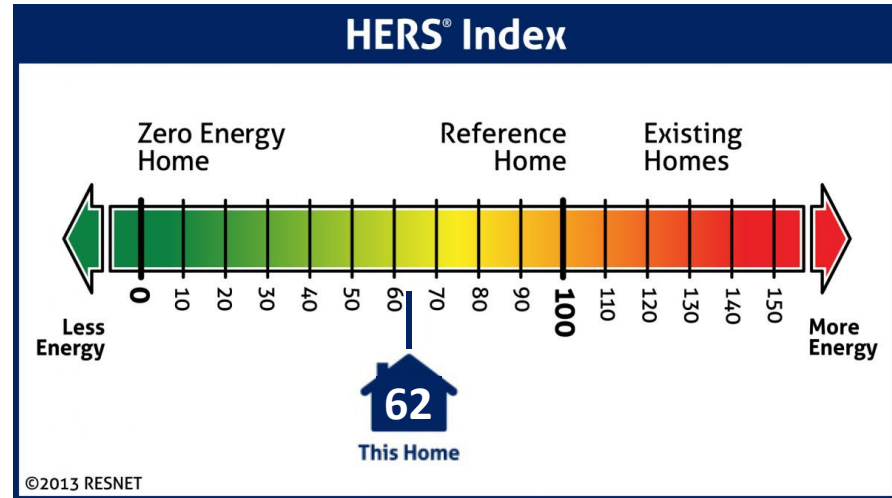
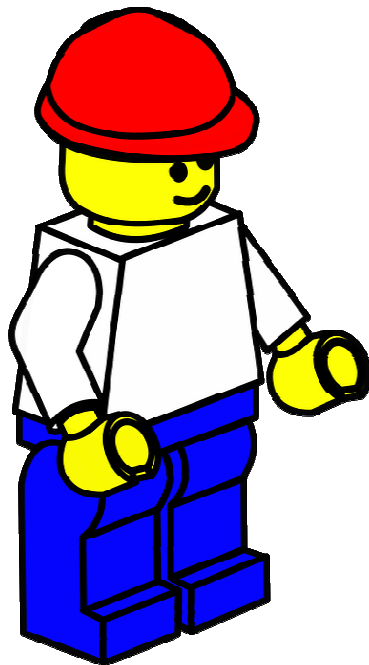


ENERGY STAR Qualified Homes
Thermal Bypass Inspection Checklist

2012



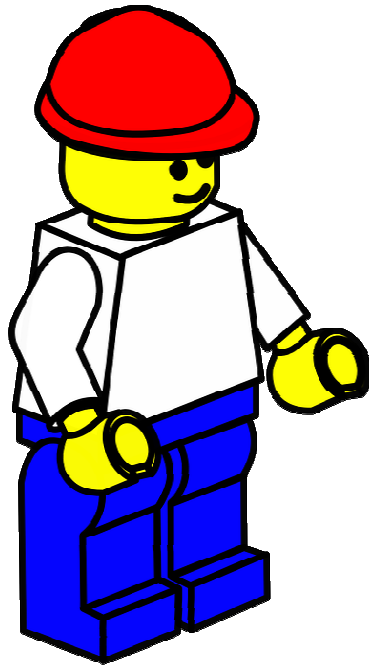
Builder Recruitment



2017



Builder Recruitment



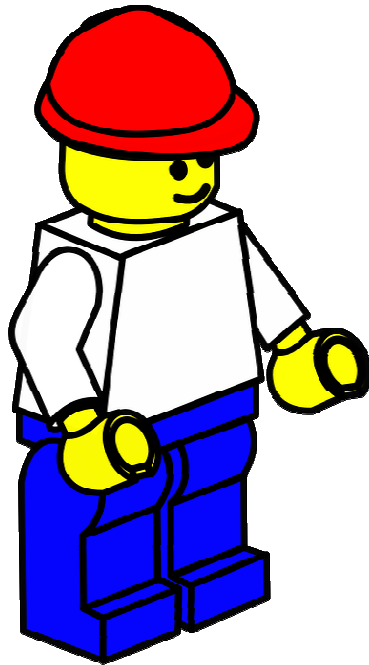
What's Left to Reach ENERGY STAR?

- HVAC Design Report
- HVAC Commissioning Checklist
- Bedroom pressure balancing

2017



Builder Recruitment



2017



Builder Recruitment

- Our goal is to continue to grow our numbers in 2018.
- Top builder candidates...



Builder Recruitment

1. Builders who already meet the program requirements, but don't know it.



Builder Recruitment

2. Builders in utility territories with incentives.

State	Utility	State	Utility	State	Utility
AZ	Arizona Public Service	MD	Baltimore Gas and Electric	OH	Columbia Gas of Ohio
AZ	Salt River Project	MD	Delmarva Power & Light Company	OK	Public Service Company of Oklahoma
AZ	Southwest Gas Corporation	MD	Potomac Edison (First Energy)	PA	FirstEnergy
AZ	Tucson Electric Power Company	MD	Potomac Electric Power Company	PA	PPL Electric Utilities
AZ	Unisource Energy Services	MD	Southern Maryland Electric Cooperative	PA	PECO Energy Company
AR	Conway Corporation	MA	Joint Management Committee	RI	National Grid (RI)
CA	Pacific Gas and Electric	MI	Consumers Energy	SC	Santee Cooper
CA	Southern California Gas Company	MI	Holland Board of Public Works	TN	City of Knoxville
CO	Colorado Springs Utilities	MN	CenterPoint Energy	TX	AEP Texas, INC
CO	Xcel Energy Inc	MN	Xcel Energy	TX	CPS Energy
CT	Connecticut Utilities	MO	Columbia Water & Light	TX	CenterPoint Energy (TX)
FL	Duke Energy Florida	MO	Independence Power & Light	TX	Entergy Texas, Inc
FL	Florida Power & Light Company	MO	The Empire District Electric Company	TX	Magic Valley Electric Cooperative
FL	Tampa Electric Company	NE	Omaha Public Power District	TX	Texas Gas Service
GA	Colquitt EMC	NH	New Hampshire Utilities	TX	Texas-New Mexico Power Company
GA	Georgia Power	NJ	New Jersey Board of Public Utilities	UT, ID	Rocky Mountain Power
GA	Jackson EMC	NM	El Paso Electric Company	UT	Questar Gas
GA	Sawnee EMC	NC, SC	Duke Energy	VT	Efficiency Vermont
IL	Nicor Gas	NC	PSNC Energy	VA	Rappahannock Electric Cooperative
IA	MidAmerican Energy	NC	Western NC Green Building Council	WA	Clark Public Utilities
KY	Shelby Energy Cooperative	OH	AEP Ohio	WY	Cheyenne Light Fuel & Power



Builder Recruitment

3. Builders who can meet ENERGY STAR with no increase in cost.

Before



ENERGY STAR Target	64
Current HERS Index	62
Excess HERS Points	2

After



ENERGY STAR Target	64
Current HERS Index	64
Excess HERS Points	0



Builder Recruitment

2. Builders who can meet ENERGY STAR with no increase in cost.



**Order free copies of this
16-page, full-color, consumer
brochure today!**

**Please reach out to us at
energystarhomes@energystar.gov to
place your order and confirm your
shipping address.**



Builder Recruitment

- Expand your services – including future HERS points for HVAC.
- Work with the best builders.
- Stay ahead of the competition.

Partner Feedback



Wrap Up





EPA & DOE Conference Sessions

All Sessions Located in Grand Salon II Unless Otherwise Noted

Session	Monday
1	
2	ENERGY STAR: The Year Ahead
3	What is this Movement to Zero Energy and Why Should Raters Join?
4	Announcing the RaterPRO Public Beta



EPA & DOE Conference Sessions

All Sessions Located in Grand Salon II Unless Otherwise Noted

Session	Monday	Tuesday
1		New ENERGY STAR for Multifamily New Construction Program: How does it compare to Certified Homes and Multifamily High Rise?
2	ENERGY STAR: The Year Ahead	Resources for Raters to Upserve High-Performance Builders
		Valuing HVAC Installation in the HERS Index (Grand Salon VI)
3	What is this Movement to Zero Energy and Why Should Raters Join?	Indoor AirPLUS: Measured Humidity Loads & Surface Water Activity in 12 Occupied Florida Homes
4	Announcing the RaterPRO Public Beta	The Key Challenges Rating High-Performance Homes



EPA & DOE Conference Sessions

All Sessions Located in Grand Salon II Unless Otherwise Noted

Session	Monday	Tuesday	Wednesday
1		New ENERGY STAR for Multifamily New Construction Program: How does it compare to Certified Homes and Multifamily High Rise?	What's New with WaterSense? Moving Toward Version 2.0
2	ENERGY STAR: The Year Ahead	Resources for Raters to Upserve High-Performance Builders	3rd Annual Zero Energy Ready Home HERS Rater Roundtable – Part I (Begonia)
		Valuing HVAC Installation in the HERS Index (Grand Salon VII)	
3	What is this Movement to Zero Energy and Why Should Raters Join?	Indoor AirPLUS: Measured Humidity Loads & Surface Water Activity in 12 Occupied Florida Homes	3rd Annual Zero Energy Ready Home HERS Rater Roundtable – Part II (Begonia)
4	Announcing the RaterPRO Public Beta	The Key Challenges Rating High-Performance Homes	It's an Easy Lift to Zero for Over a 100,000 Homes!



Parting Thought

- ENERGY STAR team is making major investments in you and the rest of the RESNET community:
 - Developing Standard 310 - HVAC grading. More HERS points.
 - Developing 'One Multifamily' specification. More rating types.
 - Developing RaterPRO. Less tedium.
 - Volunteering on Multiple RESNET Multifamily Sub-Committees, SDC200 - Multifamily Rater Training Task Force, SDC300 – Technical Standards, SDC 300 – Equipment subcommittee
- We are working hard to help you succeed.

Thank you for your hard work!



ENERGY STAR Certified Homes

Web & Email:

Main: www.energystar.gov/newhomespartners
Technical: www.energystar.gov/newhomesguidelines
Training: www.energystar.gov/newhomestraining
HVAC: www.energystar.gov/newhomesHVAC
Email: energystarhomes@energystar.gov

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