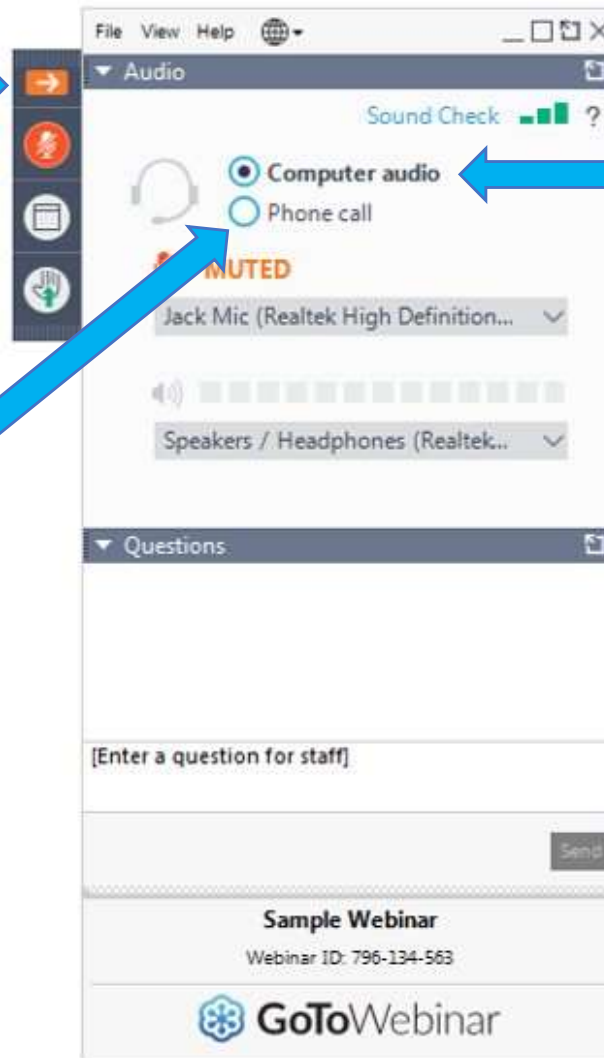


Proposed ENERGY STAR Pacific Program Requirements: Single-Family New Homes Pacific Version 3.2 and Multifamily New Construction National Version 1.2

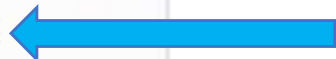
Presented on December 06, 2023

Use this button to expand or minimize your toolbar at any time.



If you will listen in using the speakers on your computer:

- Select the "Computer Audio" button
- Unmute your desktop
- Click on Audio Setup if you're having difficulty.



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- Dial in and enter your access code
- Enter your audio pin and press #



Everyone will be muted, but you can type in questions at any time and we'll answer them at the end of the presentation.



Agenda

- Single-Family New Homes (SFNH):
 - Current ENERGY STAR program requirements in the Pacific
 - Hawaii code updates
 - Proposed next version of ENERGY STAR program requirements in the Pacific
- Multifamily New Construction (MFNC):
 - Current ENERGY STAR program requirements in the Pacific
 - Hawaii code updates
 - Proposed next version of ENERGY STAR program requirements in the Pacific
- Stakeholder Feedback Period
- Q&A



Single-Family New Homes

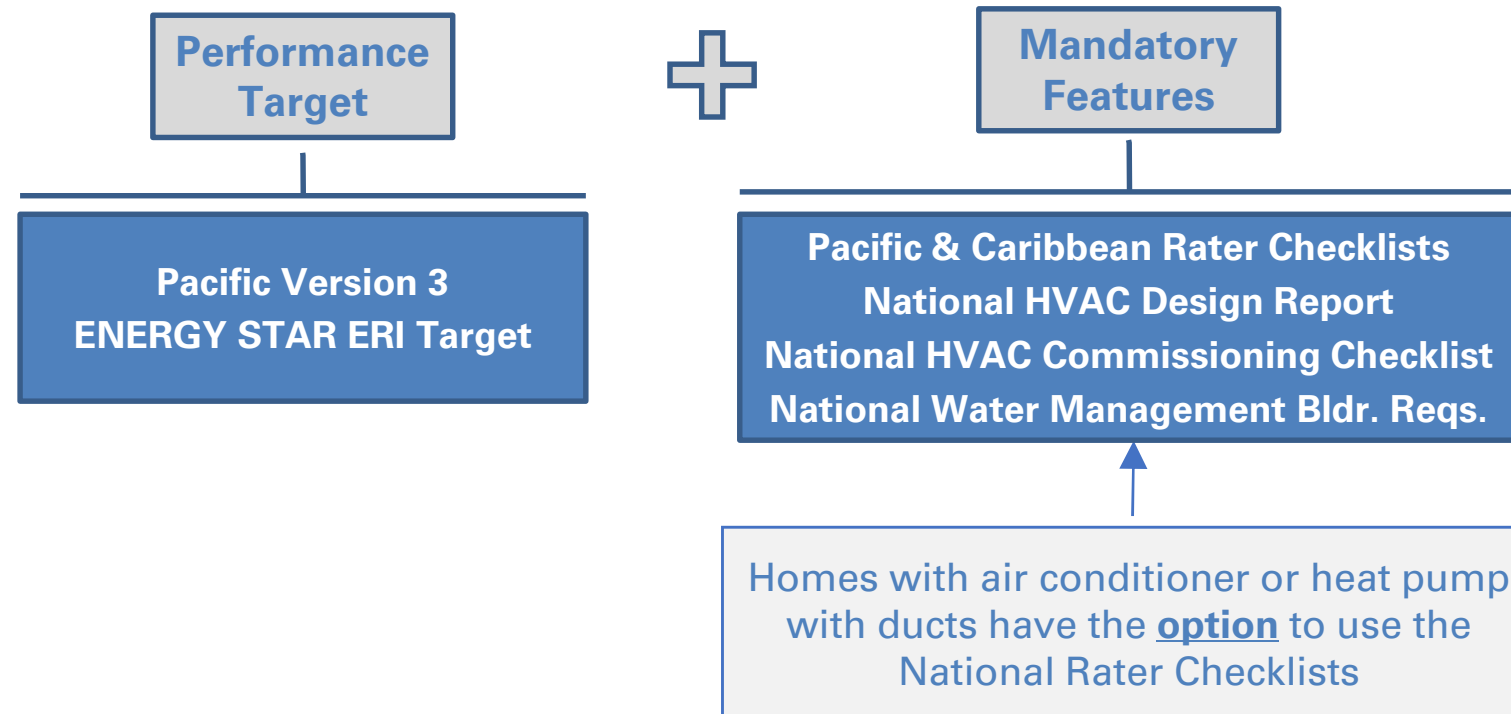
A photograph of a building under construction, showing the wooden frame and roof structure. The building is surrounded by construction materials and a blue tarp. A red tractor is visible in the background. The sky is blue with white clouds. A green semi-transparent overlay covers the middle of the image, containing white text.

Current SFNH ENERGY STAR Program Requirements in the Pacific

Current SFNH program requirements

- Currently, homes are required to be certified using Version 3 of the Pacific Program Requirements in Hawaii, Guam, and the Northern Mariana Islands.

Single-Family New Homes, Pacific Version 3



Current SFNH Program Requirements (cont.)

- Pacific & Caribbean Rater Checklists require the use of:
 - Solar water heating, and,
 - Passive cooling strategies
- In contrast, the National Rater Checklists require:
 - High-performance insulation,
 - Fully aligned air barriers, and,
 - Reduced thermal bridging.
- Both the national and regional Rater checklists also cover HVAC installation, duct installation, mechanical ventilation, filtration, and combustion safety.

A photograph of a building under construction, showing the wooden frame and roof structure. The building is surrounded by a green overlay that contains the text "Hawaii Code Updates". The background shows a blue sky with white clouds and a green landscape with trees and a red tractor in the distance.

Hawaii Code Updates

Hawaii residential code updates

- In 2023, Hawaii adopted a new code that is a modified version of the 2021 IECC.
- For standard air-conditioned homes, only notable efficiency changes relative to model code:
 - Homes are required to use a solar water heater with a solar fraction $\geq 90\%$. However, this is not significantly more stringent than the model code, which requires homes to select an additional efficiency package; among the options is a solar water heater.
 - Jalousie windows are exempted from SHGC requirements.
 - Floor insulation is not required.
- Homes with $\leq 50\%$ cooling are eligible to use the Tropical Climate Path, just like the model code. Only notable changes in efficiency relative to model code are:
 - Solar water heater with a solar fraction $\geq 90\%$ instead of 80%
 - SHGC ≤ 0.25 instead of 0.40, unless overhangs are used
 - Ceiling insulation of R-19 instead of R-15, unless reflective roofs are used
 - Operable fenestration area of 8% instead of 14% of floor area
 - A whole-dwelling fan or ceiling fans must be installed (not just rough-ins)



Proposed Next Version of ENERGY STAR Program Requirements in the Pacific

Policy approach for Pacific v3.2

- In developing the new version of the Pacific Program Requirements, EPA considered distinct policy approaches for two different AC configurations in homes:
 - a) Homes with 51-100% of floor area air-conditioned
(Not eligible to use Tropical Climate path in code)
 - b) Homes with 0-50% of floor area air-conditioned
(Eligible to use Tropical Climate path in code)

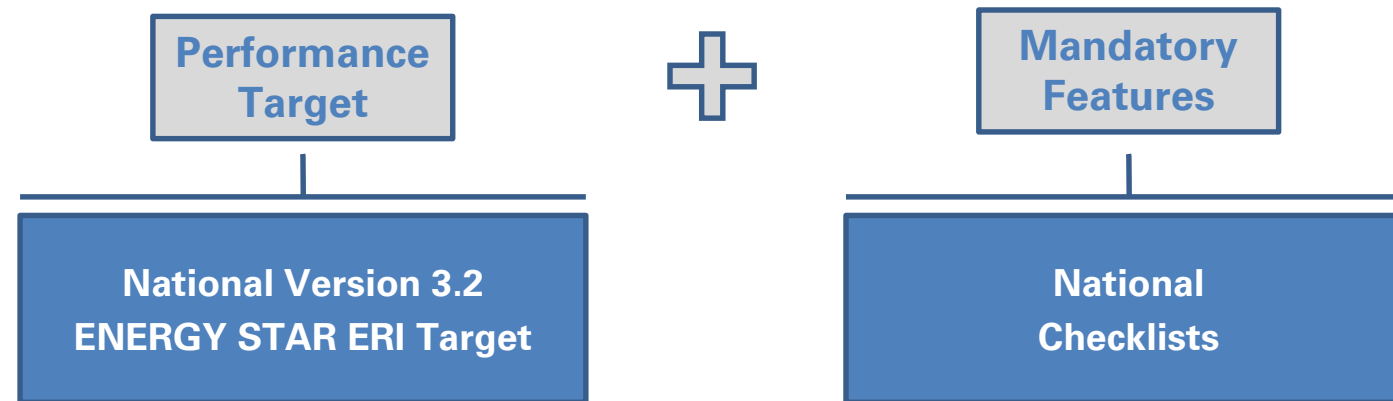
a) Homes with 51-100% of floor area air-conditioned

- Represents the large majority of new construction.
- HI doesn't specifically track the percentage of homes with AC.
- However, HI's Energy Office indicated that all production housing is now built with central AC.
- In addition, RECS estimates that 77% of all homes built in HI since 2000 have AC of some type (central, mini-split, or through-the-wall).

a) Homes with 51-100% of floor area air-conditioned (cont.)

- Proposal for homes with 51-100% of floor area air-conditioned: Use the same requirements applicable to other air-conditioned homes in hot climates.

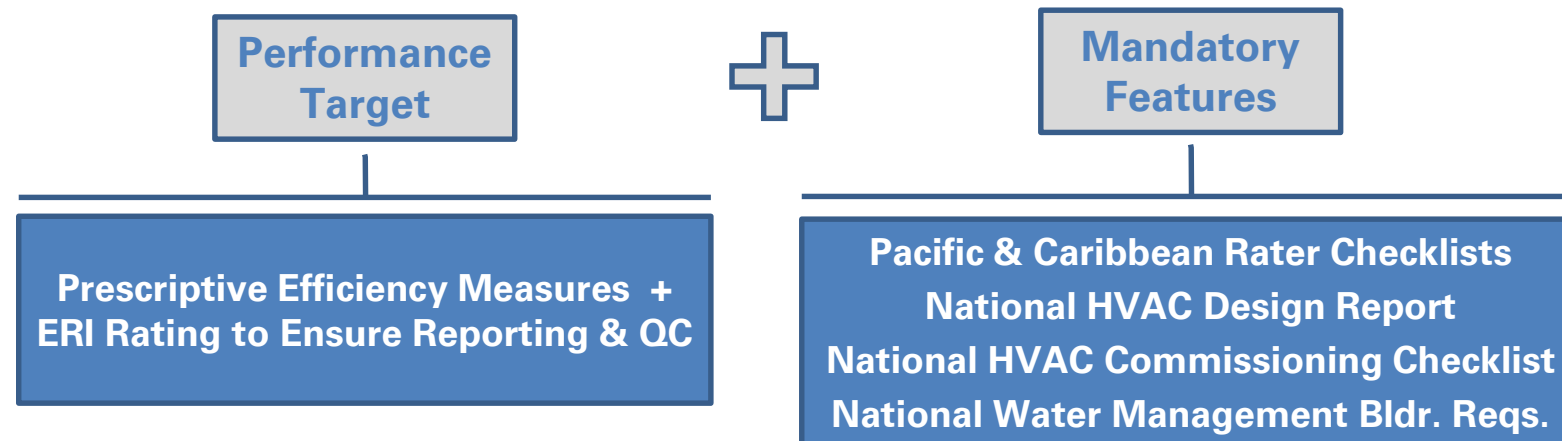
Proposed Single-Family New Homes, Pacific Version 3.2
For Homes with > 50% Air-Conditioned Occupied Space



b) Homes with 0-50% of floor area air-conditioned

- Represents a small minority of new construction.
- **Proposal for homes with 0-50% of floor area air-conditioned:** Use the same programmatic approach applicable to homes in the Caribbean:

Proposed Single-Family New Homes, Pacific Version 3.2
For Homes with $\leq 50\%$ Air-Conditioned Occupied Space



b) Homes with 0-50% of floor area air-conditioned (cont.)

- The prescriptive efficiency requirements include all of the following:
 - \geq R-5 wall insulation
 - Mini-split AC's / HP's \geq 16 SEER / SEER2, each with \leq 10 ft. of ducts, serving all bedrooms
 - A single mini-split head can serve one or more bedrooms using up to 10 ft. of ductwork per head.
 - No space cooling is required outside of bedrooms, but if any space cooling is provided outside bedrooms, it must be provided using mini-split AC's or HP's \geq 16 SEER / SEER2.
 - ENERGY STAR ceiling fans installed in all primary living areas \geq 75 sq. ft.
 - LED light bulbs installed in all ANSI / RESNET / ICC 301 Qualifying Light Fixture Locations
 - DHW equipment includes a solar water heater with a Solar Fraction \geq 90%
 - Note that this is a code requirement but will still be verified by the Rater.

b) Homes with 0-50% of floor area air-conditioned (cont.)

- EPA could not identify practical measures that generated savings $\geq 10\%$ in homes that did not have an efficient air conditioner serving bedrooms installed, because such homes have:
 - No heating energy
 - No cooling energy
 - Water heating efficiency is already essentially maxed out
 - Lighting efficiency is already essentially maxed out at 100% CFL
 - Improvements to appliances don't generate 10% savings
- Therefore, EPA is not proposing a pathway to ENERGY STAR certification for homes that are not at least partially air-conditioned.

SFNH Proposal Summary

- Proposal for homes with 51-100% of floor area air-conditioned:
 - Use National v3.2 ERI Target and national checklists
 - In short, apply the same requirements as any other conditioned home in a location with the 2021 IECC.
- Proposal for homes with 0-50% of floor area air-conditioned:
 - Use prescriptive efficiency measures, regional Rater checklists, and an ERI rating for reporting and QC purposes.
 - In short, preserve the option to use passive cooling strategies, combined with conditioned bedrooms. Very similar to approach being used in the Caribbean.
 - EPA is not proposing a pathway to certification for homes that are not at least partially air-conditioned due to lack of practical measures that save 10%.

Implementation timeline

- Homes in Hawaii, Guam, and the Northern Mariana Islands, would be required to be certified using Pacific Version 3.2 for homes permitted on or after 1/1/2026.



Multifamily New Construction

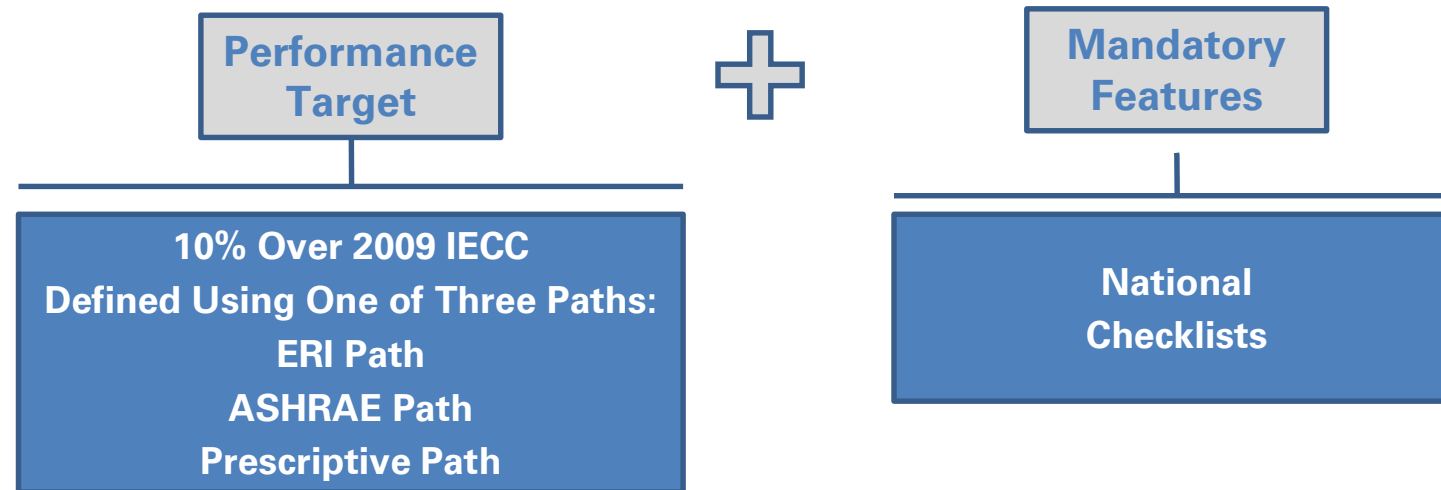
A photograph of a building under construction, showing the wooden frame and roof structure. The building is surrounded by a dirt lot with some construction materials and a red tractor in the background. A green semi-transparent overlay covers the middle of the image, containing white text.

Current MFNC ENERGY STAR Program Requirements in the Pacific

Current MFNC program requirements

- Currently, buildings are required to be certified using **Version 1** of the National Program Requirements in Hawaii, Guam, and the Northern Mariana Islands.

Multifamily New Construction, National Version 1



A photograph of a building under construction, showing the wooden frame and roof structure. The building is surrounded by a green overlay that contains the text "Hawaii Code Updates". The background shows a blue sky with white clouds and a green landscape with trees and a red tractor in the distance.

Hawaii Code Updates

Hawaii commercial code updates

- In 2023, Hawaii adopted a new code that is a modified version of the 2021 IECC.
- Only notable efficiency changes relative to model code for multifamily:
 - Slightly improved solar reflectance requirements for low-sloped roofs.
 - Jalousie windows are exempted from SHGC requirements.
 - Slightly improved lighting requirements.

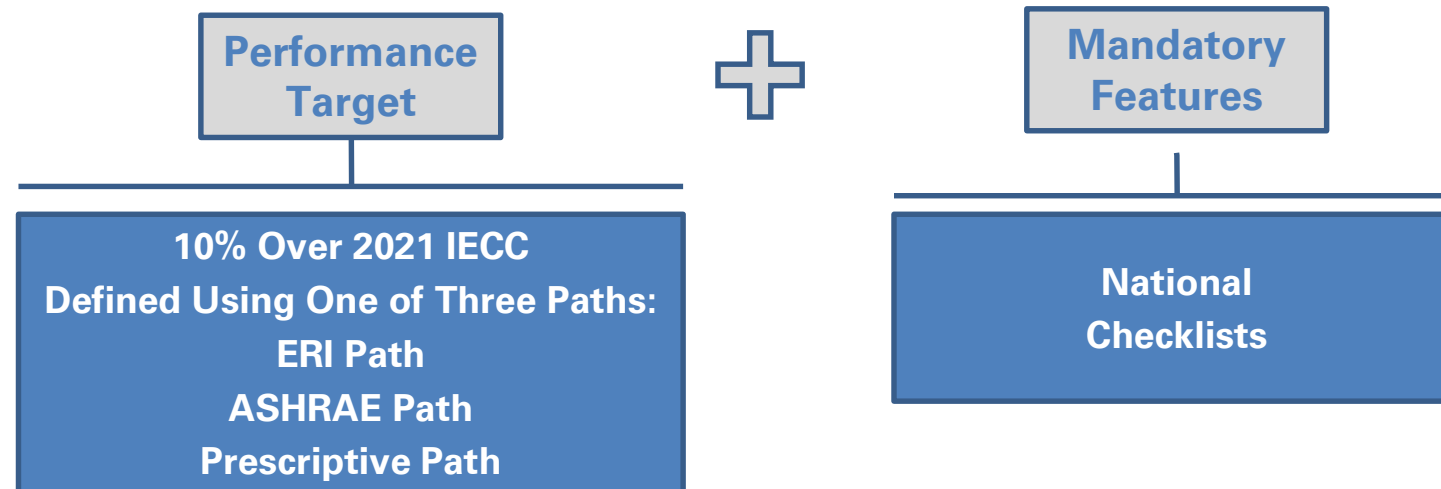


Proposed Next Version of ENERGY STAR Program Requirements in the Pacific

Proposed MFNC program requirements

- Building would be required to be certified using Version 1.2 of the National Program Requirements in Hawaii, Guam, and the Northern Mariana Islands.

Multifamily New Construction, National Version 1.2



Implementation timeline


- Buildings in Hawaii, Guam, and the Northern Mariana Islands, would be required to be certified using National Version 1.2 for buildings permitted on or after 1/1/2027.

A photograph of a building under construction, showing the wooden frame and roof structure. The building is surrounded by a dirt area with construction materials and a red tractor. The sky is blue with white clouds. A green semi-transparent overlay covers the middle of the image, containing the text "Stakeholder Feedback Period" in white.

Stakeholder Feedback Period

Stakeholder Feedback Period

- Ten-day period: Wed. Dec. 06th – Fri. Dec. 15th
- Visit www.energystar.gov/partner_resources/residential_new_stakeholder_feedback to view the stakeholder feedback form and this webinar.
- Submit written comments using the [Stakeholder Feedback Form](#) to energystarhomes@energystar.gov.
- Barring substantial partner feedback, the final program requirements should be released later this month.

 **DRAFT ENERGY STAR Single-Family New Homes Pacific Program Requirements, Version 3.2 (Rev. 13)**

These Program Requirements shall only be used in Guam, Hawaii, & the Northern Mariana Islands

Eligibility Requirements

Site-built or modular ¹ detached Dwellings ² (e.g., single-family homes and duplexes) and Townhouses ³ are eligible to participate in the ENERGY STAR Single-Family New Homes (SFNH) program. To determine the applicable SFNH program requirements, including the minimum Version and Revision, to which a home is eligible to be certified, visit www.energystar.gov/SFNHversions.

While primarily intended for new construction, existing homes (e.g., undergoing a gut rehabilitation) are also eligible to participate in the ENERGY STAR SFNH program, with guidance available at: www.energystar.gov/GutRehabGuidance.

For information about other ENERGY STAR residential new construction programs, visit www.energystar.gov/newhomesrequirements.

Note that compliance with these requirements is not intended to imply compliance with all local code requirements. ⁴

Partnership, Training, and Credentialing Requirements

The following requirements must be met prior to certifying homes:

- Builders are required to sign an ENERGY STAR Partnership Agreement and complete the online Version 3 Builder Orientation, which can be found at www.energystar.gov/homesPA.
- HVAC installing contractors are required to be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO) for homes certified using Track B in Exhibit 2. An explanation of this process can be found at www.energystar.gov/newhomesHVAC.
- Energy Rating Companies (e.g., rater companies and Providers ⁵) are required to sign an ENERGY STAR Partnership Agreement, which can be found at www.energystar.gov/homesPA.
- Raters ⁶ are required to complete EPA-recognized training which can be found at www.energystar.gov/newhomestraining, and be credentialed by a Home Certification Organization (HCO) ⁷ prior to completing inspections. Learn more at www.energystar.gov/hco.

ENERGY STAR Certification Process

1. The certification process defines separate requirements based upon the percentage of occupied space ⁸ that is air conditioned:
 - a. **For a home with ≤ 50% air-conditioned occupied space:** The certification process provides a single set of measures that must be used, coupled with an ERI rating for quality assurance purposes. Use an EPA-recognized HCO's Approved Software Rating Tool to configure efficiency measures that are equal to or better than the prescriptive measures listed in Exhibit 1, ENERGY STAR Reference Design Home Egg a Home with ≤ 50% Air-Conditioned Occupied Space, for the home to be certified. The resulting ERI is not required to meet a specific target value for the homes to be certified. The ERI value shall be calculated using ANSI / RESNET / ICC 301 including all Addenda and Normative Appendices, with new versions and Addenda implemented according to the HCO that the home is being certified under, with approved exceptions listed at www.energystar.gov/ERIExceptions.
 - b. **For a home with > 50% air-conditioned occupied space:** The certification process provides flexibility to select a custom combination of measures for each home that is equivalent in performance to the minimum requirements of the National Program Requirements, Version 3.2, ENERGY STAR Reference Design Home, as assessed through energy modeling. An EPA-recognized HCO's Approved Software Rating Tool shall automatically determine the ENERGY STAR ERI Target, which is the highest ERI value that each rated home may achieve to earn the ENERGY STAR. ⁹
Using the same software program, configure the preferred set of efficiency measures for the home to be certified and verify that the resulting ERI meets or exceeds the ENERGY STAR ERI Target.
Note that, regardless of the measures selected, the Mandatory Requirements for All Certified Homes in Exhibit 2 of the National Program Requirements, Version 3.2, are also required and impose certain constraints on the efficiency measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage). Furthermore, on-site power generation may not be used to meet the ENERGY STAR ERI Target.
2. Construct the home using the measures selected in Step 1 and the applicable Mandatory Requirements in:
 - a. **For a home with ≤ 50% air-conditioned occupied space:** Exhibit 2 of this document.
 - b. **For a home with > 50% air-conditioned occupied space:** Exhibit 2 of the National Program Requirements, Version 3.2
3. Using a Rater, verify that all requirements have been met in accordance with the applicable Mandatory Requirements for All Certified Homes and with the inspection procedures for minimum rated features in ANSI / RESNET / ICC 301, Appendix B. ¹⁰ If drywall will be installed, this will require a minimum of two inspections: one at pre-drywall and the other at final. All items shall be verified for each certified home and sampling protocols shall not be used. For modular homes, a Rater must verify any requirement in the plant not able to be verified on-site because a feature will be concealed prior to shipment. Finally, submit the home to the HCO for final certification and follow the HCO's certification and oversight procedures (e.g., quality assurance, recordkeeping, and reporting). The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and either an HVAC design report compliant with ANSI / RESNET / ACCA / ICC 310, and the National HVAC Design Supplement to Std. 310 for Dwellings & Units, for homes using Track A, or the National HVAC Design Report for homes using Track B.
The Rater must review all items on the Rater checklists to verify that each inspection checklist item has been met within program-defined tolerances.
In the event that a Rater determines that a program requirement has not been met, the home cannot earn the ENERGY STAR until the item is corrected. If correction of the item is not possible, the home cannot earn the ENERGY STAR. In the event that an item on a Rater checklist cannot be inspected by the Rater, the home also cannot earn the ENERGY STAR. The only exceptions to this rule are in the Thermal Enclosure System Section of the National Rater Field Checklist for a home with > 50% air-conditioned occupied space, where



Q&A

ENERGY STAR Residential New Construction

Web & Email:

Single Family: www.energystar.gov/newhomesrequirements
Multifamily: www.energystar.gov/mfnc
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