ENERGY STAR Certified Homes, Version 3 (Rev. 02) Program Requirements for Guam, Hawaii, and Puerto Rico

These Program Requirements shall only be used in Guam, Hawaii, and Puerto Rico

Certifying Homes

The following homes are eligible to earn the ENERGY STAR:

- Detached dwelling units [1] (e.g. single family homes); OR
- Dwelling units [1] in any multifamily building with 4 units or fewer; OR
- Dwelling units [1] in multifamily buildings with 3 stories or fewer above-grade[2,3]; OR
- Dwelling units [1] in multifamily buildings with 4 or 5 stories above-grade[2,3] that have their own heating, cooling, and hot water systems[4], separate from other units, and where dwelling units occupy 80% or more of the occupiable[3] square footage of the building[5]. When evaluating mixed–use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met.

Dwelling units [1] in multifamily buildings that are not eligible to earn the ENERGY STAR through the New Homes Program may be eligible through the Multifamily High Rise Program.

Homes may earn the ENERGY STAR using the following ENERGY STAR Prescriptive Path or Performance Path in Hawaii and Puerto Rico. Note that compliance with these guidelines is not intended to imply compliance with all local code requirements that may be applicable to the home to be built. [6]

ENERGY STAR Prescriptive Path for Hawaii and Puerto Rico

The Prescriptive Path provides a single set of measures that can be used to construct an ENERGY STAR certified home. Modeling is not required; however, no tradeoffs are allowed. Follow these steps to use the Prescriptive Path:

1. First, assess the eligibility to follow the Prescriptive Path by comparing the conditioned floor area (CFA) of the home to be built to the CFA of the Benchmark Home as specified in Exhibit 3. [7] For the purposes of this step, calculate the number of bedrooms and the CFA of the home to be built using RESNET standards with the following exception: floor area in basements with at least half of the gross surface area of the basement's exterior walls below grade shall not be counted.[8] If the CFA of the home to be built exceeds the CFA of the Benchmark Home, then the Performance Path shall be used.
2. If the home to be built is eligible to follow the Prescriptive Path, build the home using the ENERGY STAR Reference Design, Exhibit 1, and Mandatory Requirements for All Certified Homes, Exhibit 2.
3. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features.[9]

ENERGY STAR Performance Path for Guam, Hawaii, and Puerto Rico

The Performance Path provides flexibility to select a custom combination of measures for each home that is equivalent in performance to the minimum requirements of the ENERGY STAR Reference Design home, Exhibit 1. Equivalent performance is assessed through energy modeling. Follow the steps below to use the Performance Path:

1. Use a RESNET-accredited Home Energy Rating software program to determine the ENERGY STAR HERS Index Target, which is the highest numerical HERS Index value that each rated home may achieve to earn the ENERGY STAR. This target shall be specifically determined for each rated home by following the steps outlined in the document titled, "ENERGY STAR Certified Homes, Version 3 (Rev. 02), HERS Index Target Procedure for Hawaii and Puerto Rico", available on EPA's Web site. This procedure defines how to configure the ENERGY STAR Reference Design Home for Hawaii and Puerto Rico and calculate its associated HERS Index value and then how to apply the appropriate Size Adjustment Factor to determine the ENERGY STAR HERS Index Target.

   Note that this process shall be completed manually by a Rater until a version of the RESNET-accredited software program used by the Rater becomes available that automatically configures the ENERGY STAR Reference Design, calculates its associated HERS Index value, and then applies the appropriate Size Adjustment Factor to determine the ENERGY STAR HERS Index Target. Upon release of such a version, Raters using that software program shall have 60 days to begin all new ratings with this updated version.
2. Using the same RESNET-accredited Home Energy Rating software program, configure the preferred set of energy measures for the rated home and verify that the resulting HERS Index meets or exceeds the ENERGY STAR HERS Index Target, as determined in Step 1. Note that, regardless of the measures selected, Mandatory Requirements for All Certified Homes, Exhibit 2, are also required.

   Furthermore, on-site power generation may only be used to meet the ENERGY STAR HERS Index Target for homes that are larger than the Benchmark Home and only for the incremental change in ENERGY STAR HERS Index Target caused by the Size Adjustment Factor, as outlined in the ENERGY STAR HERS Index Target Procedure for Hawaii and Puerto Rico, Version 3 (Rev. 02).
3. Construct the home using the measures selected in Step 2, and the Mandatory Requirements for All Certified Homes, Exhibit 2.
4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. [9]

Partnership, Training, and Credentialing Requirements

Builders, Raters, and HVAC contractors must meet the following requirements prior to certifying homes under these guidelines:

- Builders are required to be ENERGY STAR partners and complete the online Version 3 Builder Orientation. Partnership Agreements and Version 3 Builder Orientation can be found at www.energystar.gov/homesPA.

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- HVAC contractors must be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process and links to H-QUITOs can be found at www.energystar.gov/newhomesHVAC.
- Raters and Field Inspectors are required to complete Version 3 Training which can be found at www.energystar.gov/newhomestraining.

Exhibit 1: ENERGY STAR Reference Design

Home Address:_____City:_____ State:_____

Inspection Guidelines		Rater Verified	Must Correct	N/A
Benchmark Home Size	Home Size (ft^2) ≤ Benchmark Home Size (ft^2) # BR: ___ Home Size (ft^2): _____ Benchmark Home Size (ft^2): _____	☐	-	-
Cooling Equipment	Cooling equipment, where provided, meets one of the options below (check one): ☐ ≥ 14.5 SEER / 12 EER ENERGY STAR certified central AC ☐ Heat pump (See Heating Equipment) ☐ ENERGY STAR certified Room Air Conditioner Capacity (Btu/hr): _____ Efficiency (EER): _____ ☐ Packaged Terminal AC (PTAC) (See Footnote 11 for efficiency requirements): Capacity (Btu/hr): _____ Efficiency (EER): _____	☐	☐	☐
Heating Equipment	Heating equipment, where provided, meets one of the options below (check one): ☐ ≥ 80 AFUE gas furnace ☐ ≥ 80 AFUE oil furnace ☐ ≥ 80 AFUE boiler ☐ ≥ 8.2 HSPF / 14.5 SEER / 12 EER ENERGY STAR certified central air-source heat pump with electric backup or ENERGY STAR certified dual-fuel backup ☐ Ground-source heat pump, any product type, ENERGY STAR certified [12]	☐	☐	☐
Envelope [13]	If ductwork in attic, radiant barrier or ENERGY STAR certified roof product installed[14]	☐	☐	☐
	Infiltration rate ≤ 6 ACH50	☐	☐	☐
	Insulation achieves Grade I installation per RESNET standards [15]	☐	☐	☐
	Ceiling insulation ≥ 30 R-Value [15]	☐	☐	☐
	Wall insulation: ≥ R-13 for Hawaii; None required for Puerto Rico and Guam [15]	☐	☐	☐
Water Heater	In HI, installed system meets Hawaii Solar Water Heater Standard [16,17] In PR & GU, installed system is SRCC certified & achieves a solar fraction ≥ 0.90 [17]	☐	☐	☐
Ductwork	Thermostats, where provided, are programmable	☐	☐	☐
	Supply ducts in unconditioned attic ≥ R-8; All others in unconditioned space ≥ R-6	☐	☐	☐
	Total duct leakage ≤ 8 CFM25 per 100 sq. ft. of CFA [18,19]	☐	☐	☐
	Duct leakage to outdoors ≤ 4 CFM25 per 100 sq. ft. of CFA [18,19, 20]	☐	☐	☐
Lighting & Appliances	Where refrigerators, dishwashers, ceiling fans, or exhaust fans [21] are installed, products shall be ENERGY STAR certified.	☐	☐	☐
	ENERGY STAR certified light bulbs or fixtures shall be installed in 80% of RESNET-defined Qualifying Light Fixture Locations. [22]	☐	☐	☐

HI: Effective for homes permitted [10] starting 11/10/2012 Revised 6/01/2013
PR: Effective for homes permitted [10] starting 4/1/2013
GU: Effective for homes permitted [10] starting 4/1/2014

These Program Requirements shall only be used in Guam, Hawaii, and Puerto Rico

Exhibit 2: Mandatory Requirements for All Certified Homes

Area of Improvement	Mandatory Requirements
1. Thermal Comfort System	• Completed Thermal Comfort System Rater Checklist for Hawaii & Puerto Rico
2. Heating, Ventilation, & Air Conditioning (HVAC) System	• Completed HVAC System Quality Installation Contractor Checklist [23] • Completed HVAC System Quality Installation Rater Checklist [23]
3. Water Management System	• Completed Water Management System Builder Checklist
4. Water Heater	• SRCC certified solar water heater (if solar water heater installed)

Exhibit 3: Benchmark Home [7]

Bedrooms in Home to be Built	0	1	2	3	4	5	6	7	8
Conditioned Floor Area $_{\text{Benchmark Home}}$	1,000	1,000	1,600	2,200	2,800	3,400	4,000	4,600	5,200

Effective Date

Use Exhibit 4, Exhibit 5, and Exhibit 6, below, to determine the version of the guidelines that may be used to earn the ENERGY STAR.

Exhibit 4: ENERGY STAR New Homes Implementation Schedule for Hawaii

Version [24]	Applicable to Homes with the Following Permit Date [10]	Version Description
Hawaii BOP	Before 04/01/2012	Existing ENERGY STAR Builder Option Package with Solar Hot Water for Hawaii.
Version 2.5 [25]	04/01/2012 to 07/01/2012	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Hawaii & Puerto Rico Version 3 Inspection Checklists completed but not enforced.
Version 3 [25]	On or after 07/01/2012	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Hawaii & Puerto Rico Version 3 Inspection Checklists completed and enforced.

Exhibit 5: ENERGY STAR New Homes Implementation Schedule for Puerto Rico

Version [26]	Applicable to Homes with the Following Permit Date [10]	Version Description
Version 2.5 [25]	Before 04/01/2013	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Hawaii & Puerto Rico Version 3 Inspection Checklists completed but not enforced.
Version 3 [25]	On or after 04/01/2013	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Hawaii & Puerto Rico Version 3 Inspection Checklists completed and enforced.

Exhibit 6: ENERGY STAR New Homes Implementation Schedule for Guam

Version [26]	Applicable to Homes with the Following Permit Date [10]	Version Description
Version 2.5 [25]	Before 04/01/2014	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Hawaii & Puerto Rico Version 3 Inspection Checklists completed but not enforced.
Version 3 [25]	On or after 04/01/2014	Version 3 Guam, Hawaii, & Puerto Rico ENERGY STAR Reference Design. All sections of the Hawaii & Puerto Rico Version 3 Inspection Checklists completed and enforced.

HI: Effective for homes permitted [10] starting 11/10/2012 Revised 6/01/2013
PR: Effective for homes permitted [10] starting 4/1/2013
GU: Effective for homes permitted [10] starting 4/1/2014

These Program Requirements shall only be used in Guam, Hawaii, and Puerto Rico

Notes:

1. A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

2. Any above-grade story with 20% or more occupiable space, including commercial space, shall be counted towards the total number of stories for the purpose of determining eligibility to participate in the program. The definition of an 'above-grade story' is one for which more than half of the gross surface area of the exterior walls is above-grade. All below-grade stories, regardless of type, shall not be included when evaluating eligibility.

3. Per ASHRAE 62.2-2010, occupiable space 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.

4. Central systems for domestic hot water are allowed if solar energy provides at least 50% of the domestic hot water needs for the residential units.

5. Units in multifamily buildings with 4 or 5 stories above-grade, including mixed–use buildings, that have their own heating, cooling, and hot water systems, separate from other units, *but where dwelling units occupy less than 80%* of the residential (i.e., excluding commercial / retail space for mixed-use buildings) occupiable square footage of the building may earn the ENERGY STAR through either the New Homes Program or the Multifamily High Rise Program if permitted prior to July 1, 2012. Units in buildings of this type that are permitted after this date shall only be eligible to earn the ENERGY STAR through the Multifamily High Rise (MFHR) Program.

6. Where requirements of the local codes, manufacturers' installation instructions, engineering documents, or regional ENERGY STAR programs overlap with the requirements of these guidelines, EPA offers the following guidance:
   a. In cases where the overlapping requirements exceed the ENERGY STAR guidelines, these overlapping requirements shall be met;
   b. In cases where overlapping requirements conflict with a requirement of these ENERGY STAR guidelines (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these guidelines shall not be met. Furthermore, certification shall still be allowed if the rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement of these ENERGY STAR guidelines (e.g., switching from exterior to interior slab edge insulation).

7. The average-size home with a specific number of bedrooms is termed the "Benchmark Home". The conditioned floor area of a Benchmark Home (CFA Benchmark Home) is determined by selecting the appropriate value from Exhibit 3. For homes with more than 8 bedrooms, the CFA Benchmark Home shall be determined by multiplying 600 sq. ft. times the total number of bedrooms and adding 400 sq. ft.

   Example: CFA Benchmark Home for a 10 bedroom home = (600 sq. ft. x 10) + 400 sq. ft. = 6,400 sq. ft.

   A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.

   An egress window, as defined in IRC section R310, shall refer to any operable window that provides for a means of escape and access for rescue in the event of an emergency. The egress window definition has been summarized for convenience. The egress window shall:

   - have a sill height of not more than 44 inches above the floor; AND
   - have a minimum net clear opening of 5.7 sq. ft.; AND
   - have a minimum net clear opening height of 24 in.; AND
   - have a minimum net clear opening width of 20 in.; AND
   - be operational from the inside of the room without the use of keys, tools or special knowledge

8. To determine whether at least half of the basement wall area is below grade, use the gross surface area of the walls that are in contact with either the ground or ambient outdoor air, measured from the basement floor to the bottom of the basement ceiling framing (e.g., the bottom of the joists for the floor above). Note that the exception regarding the floor area in basements is only for the purpose of determining a home's Benchmark Home Size, Size Adjustment Factor, and eligibility to use the Prescriptive Path. The full conditioned floor area, per RESNET's standards, should be used when rating the home (e.g., determining compliance with duct leakage requirements).

9. The term "Rater" refers to the person completing the third-party inspections required for certification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, BOP Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining. Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home using the RESNET-approved sampling protocol.

10. The Rater may define the 'permit date' as either the date that the permit was issued or the date of the contract on the home. In cases where permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented.

11. For PTAC systems that have wall sleeve dimensions with an external wall opening ≥16 inches high or ≥ 42 inches wide, and a cross-sectional area ≥ 670 square inches, the following minimum efficiencies shall be used:

    - Capacity ≤ 7,000 Btu/h: 12.8 EER
    - 7,000 < Capacity ≤ 15,000 Btu/h: 15.1 - (0.33 x Capacity) EER
    - Capacity > 15,000 Btu/h: 10.2 EER

    For PTAC systems that have wall sleeve dimensions with an external wall opening <16 inches high or < 42 inches wide, and a cross-sectional area < 670 square inches, the following minimum efficiencies shall be used:

    - Capacity ≤ 7,000 Btu/h: 10.3 EER
    - 7,000 < Capacity ≤ 15,000 Btu/h: 11.9 - (0.23 x Capacity) EER
    - Capacity > 15,000 Btu/h: 8.4 EER

12. The following efficiency levels shall be used based on ground-source heat pump product type:

    - Closed Loop Water-to-Air: ≥ 3.5 COP / 16.1 EER
    - Open Loop Water-to-Air: ≥ 3.8 COP / 18.2 EER
    - Direct Geo-Exchange (DGX): ≥ 3.6 COP / 16 EER
    - Closed Loop Water-to-Water: ≥ 3.0 COP / 15.1 EER
    - Open Loop Water-to-Water: ≥ 3.4 COP / 19.1 EER

13. Envelope leakage shall be determined by a rater using a RESNET-approved testing protocol.

14. Required only if more than 10 linear feet of ductwork are located in an unconditioned attic. Any radiant barrier with a minimum initial reflectance of 0.90 and maximum initial emittance of 0.10 meets the intent for a radiant barrier.

15. Insulation shall be verified by a Rater to achieve Grade I installation as defined in the RESNET Standards, except for wall framing systems with rigid insulation. For such homes, Grade II installation is acceptable for the cavity insulation only if the rigid insulation meets or exceeds R-3.

16. The Hawaii Solar Water Heater Standard is defined in HRS 196-6.5 at http://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0196/HRS_0196-0006_0005.htm. This document requires a solar water heater system to be installed in new single-family dwellings in HI unless a variance application is approved for one of four reasons. For homes without a variance, a compliant solar water heater system shall be installed. For homes with a variance application approved using the first, second, or fourth justification, an ENERGY STAR certified Gas Condensing, Whole Home Gas Tankless, or Electric Heat Pump Water Heater shall be installed to meet the intent of the water heater requirement in Exhibit 1. For homes with a variance application approved using the second justification, which relates to the use of a renewable energy technology system, an ENERGY STAR certified water heater is not required to be installed in HI to meet the intent of this water heater requirement in Exhibit 1.

17. Equipment shall be Solar Rating & Certification Corporation (SRCC) OG-300 certified and, for homes in Puerto Rico, achieve a Solar Fraction (SF) ≥0.90 as reported for systems located in San Juan, Puerto Rico, using the "Annual Performance of OG-300 Certified Systems" on the SRCC website (http://www.solar-rating.org/ratings/og300.html).

18. Duct leakage shall be determined and documented by a Rater using a RESNET-approved testing protocol. Leakage limits shall be assessed on a per system, rather than per-home, basis. Testing of duct leakage to the outside can be waived if all ducts & air handling equipment are located within the home's air and thermal barriers AND envelope leakage has been tested to be less than or equal to half of the Prescriptive Path infiltration limit for the Climate Zone where the home is to be built.

19. For all homes that have less than 1,200 sq ft. of conditioned floor area (CFA), total measured duct leakage shall be ≤ 8 CFM25 per 100 sq. ft. of CFA and measured duct leakage to outdoors shall be ≤ 5 CFM25 per 100 sq. ft. of CFA.

20. If total duct leakage is ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area, or ≤ 5 CFM25 per 100 sq. ft. of conditioned floor area for homes that have less than 1,200 sq. ft. of conditioned floor area, then leakage to outdoors need not be tested.

21. All exhaust fans shall be ENERGY STAR certified, except in half bathrooms. A half bathroom is any bathroom that does not contain a bathtub, shower, spa, or similar source of moisture.

22. The ENERGY STAR Advanced Lighting Package (ALP), which requires a minimum of 60% ENERGY STAR certified hard-wired fixtures and 100% ENERGY STAR certified ceiling fans, where installed, may also be used to comply with the lighting requirements.

23. Homes that do not include mechanical cooling are exempted from the following requirements:

    - Compliance with all items of the HVAC System QI Contractor Checklist.
    - Compliance with Sections 1 through 7 and Section 11 of the HVAC System QI Rater Checklist (Only Sections 8 through 10 are mandatory for certification).

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24. All low-income projects located in HI that are financed through low-income housing agencies may earn the ENERGY STAR under the current Hawaii guidelines until January 1, 2014 as long as the application for funding for those homes was received by the low-income housing agency before April 1, 2012 and the housing project includes at least one unit reserved for low-income tenants. If the application for funding is received between April 1, 2012 and June 31, 2012, then the homes must earn the ENERGY STAR under the Hawaii Version 2.5 guidelines. If the application for funding is received on or after July 1, 2012 then the homes must earn the ENERGY STAR under the Hawaii Version 3 guidelines.
25. Homes can be certified under the Version 2.5 guidelines in advance of the dates above at the discretion of builders and their raters. However, homes may not be certified as Version 3 until the implementation date of Version 3.
26. Homes in Guam and Puerto Rico are eligible to earn the ENERGY STAR under the National Program Requirements. However, all homes certified under the National Program Requirements must follow the national implementation timeline.