Version Tracking Document for
ENERGY STAR Certified Homes for the Tropics, Version 3 (Rev. 08)
04/01/2016

In the time since Revision 03 of the Version 3 ENERGY STAR Certified Homes Program Requirements for the Tropics were released, EPA has modified, clarified, and refined various aspects of the program documents, primarily in response to partner questions and comments. This document is a summary of these edits, organized by the program document containing the change. EPA has also posted the revised program documents, labeled Version 3 (Rev. 08), on its Web site.

All revisions are categorized as a Change, Clarification, or Refinement. These are defined as follows:

Change – The addition, deletion, or modification of a program requirement. A change will typically result from a partner question or feedback indicating that EPA's original intent is not being met or due to changes in relevant standards (e.g., ENERGY STAR labeled product requirements, NAECA standards, ICC codes). A change is the most significant type of edit for partners because it is likely to change the way that partners comply with the program.

Clarification – The clarification of a program requirement, typically resulting from a partner question indicating confusion or ambiguity. Clarifications are not intended to significantly change the scope of the program guidelines, but rather to clarify the original intent of the requirement. A clarification is secondary in importance to a change; it should not significantly alter the way that most partners comply with the program.

Refinement – A minor revision, such as an improved choice of words, a grammatical correction, or a correction to a typographical error. A refinement is the least important type of edit; it should have no impact on the way that partners comply with the program.

All tropics program documents

1. ***Refinement*** **– Incrementing Revision number from 02 to 08**

   To reduce confusion over the difference in revision numbers between these regional program requirements and the national program requirements, the next Revision has been incremented from 02 to 08 to align with the national program requirements. As a result, Revision numbers 03 through 07 will not be used.

Program Requirements for the Tropics

2. ***Change*** **– Addition of the Northern Mariana Islands and the U.S. Virgin Islands**

   Because the climate of the Northern Mariana Islands and U.S. Virgin Islands is similar to that of Guam these locations are now permitted to use the Guam, Hawaii, and Puerto Rico Program Requirements rather than the National Program Requirements. As a result, all references to Puerto Rico and Guam have been updated to include these two new locations.

3. ***Refinement*** **– All program documents: 'guidelines' changed to 'requirements'**

   All references to program 'guidelines' have been revised to program 'requirements' to align with the current terminology of the ENERGY STAR program.

4. ***Refinement*** **– Certifying Homes Section: Renamed to Eligibility Requirements**

   To better fit the content of the section, the Certifying Homes Section has been renamed to Eligibility Requirements Section.

5. ***Change*** **– Prescriptive Path Section, Performance Path Section, Exhibit 1, and Footnotes 8, 11, 12, 21, and 22: Removal of Prescriptive Path**

   No homes reported to EPA since 2012 have used the Prescriptive Path for certification. Having two paths instead of one adds to the complexity of the program - unnecessarily so, if one of those two paths is never used. To simplify the program, the Prescriptive Path has been removed.

   Specifically, homes with a permit date on or after 60 days after the release of Rev. 03 will only be permitted to use the Performance Path, which has been renamed the ENERGY STAR Certification.

To reflect this change and simplify the National Program Requirements document, the Prescriptive Path Section and Footnotes 8, 11, 12, 21, and 22 have been removed. Additionally a new Footnote has been added to the National Program Requirements as follows:

"Prior to Rev. 08, homes were permitted to be certified using either a Prescriptive Path or a Performance Path. Homes with a permit date on or after 60 days after the release of Rev. 08 shall only use the Performance Path, which has been renamed the ENERGY STAR Certification Process for the Tropics."

Finally, because the Prescriptive Path has been removed, Exhibit 1 is no longer a set of prescriptive measures to be installed in a home to be certified but rather a set of efficiency features used to determine the ENERGY STAR HERS Index Target. For this reason, Exhibit 1 has been renamed 'ENERGY STAR Reference Design Home' and a paragraph has been added to the beginning explaining this new intent as follows:

"The ENERGY STAR Reference Design Home is the set of efficiency features modeled to determine the ENERGY STAR HERS Index Target for each home pursuing certification. Therefore, while the features below are not mandatory, if they are not used then other measures will be needed to achieve the ENERGY STAR HERS Index Target. In addition, note that the Mandatory Requirements for All Certified Homes, Exhibit 2, contain additional requirements such as total duct leakage limits, minimum allowed insulation levels, and minimum allowed fenestration performance. Therefore, EPA recommends that partners review the documents in Exhibit 2 prior to selecting measures."

Additionally, several items throughout Exhibit 1 have been reworded to convey this intent and any efficiency features that are not used to determine the ENERGY STAR HERS Index Target (e.g., ground-source heat pumps, skylights, total duct leakage) have been removed from Exhibit 1.

6. ***Refinement*** **– Partnership, Training, and Credentialing Requirements Section relocated**

   For improved clarity, the Partnership, Training, and Credentialing Requirements Section has been relocated below the Certifying Homes Section.

7. ***Refinement*** **– Performance Path: Combine first paragraph with Step 1**

   To streamline the text in the Performance Path section, the first paragraph of this section has been combined with Step 1 as follows:

   "The certification process provides the 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, as assessed through energy modeling. 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."

8. ***Refinement*** **– Step 1 of Performance Path: Procedural details moved to Footnote**

   The second sentence of this paragraph, which provides details on how to determine the ENERGY STAR HERS Index Target, has been relocated to a new Footnote and refined, as follows: "The software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home by following the ENERGY STAR HERS Index Target Procedure for the Tropics, Version 3 (Rev. 08), available on EPA's website."

9. ***Refinement*** **– Performance Path and Footnote 9: Integration of cover page from Inspection Checklists**

   As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists has been deleted and much of the content moved to the Program Requirements. Because the Inspection Checklists are often printed for each home certified, eliminating the cover page will reduce the paperwork required for each home that is certified.

   Specifically, the following paragraphs have been moved from the cover page of the Inspection Checklists to Step 4 of the Performance Path:

   "The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.

   The Rater must review all items on the Rater checklists. Raters are expected to use their experience and discretion to verify that the overall intent of each inspection checklist item has been met (i.e., identifying major defects that undermine the intent of the checklist item versus identifying minor defects that the Rater may deem acceptable).

   In the event that a Rater finds an item that is inconsistent with the intent of the checklists, 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.

In the event that a Rater is not able to determine whether an item is consistent with the intent (e.g., an alternative method of meeting a checklist requirement has been proposed), then the Rater shall consult their Provider. If the Provider also cannot make this determination, then the Rater or Provider shall report the issue to EPA prior to project completion at: energystarhomes@energystar.gov and will typically receive an initial response within 5 business days. If EPA believes the current program requirements are sufficiently clear to determine whether the intent has been met, then this guidance will be provided to the partner and enforced beginning with the house in question. In contrast, if EPA believes the program requirements require revisions to make the intent clear, then this guidance will be provided to the partner but only enforced for homes permitted after a specified transition period after the release of the revised program requirements, typically 60 days in length.

This process will allow EPA to make formal policy decisions as partner questions arise and to disseminate these policy decisions through the periodic release of revised program documents to ensure consistent application of the program requirements."

Additionally, the following language about sampling protocols has been moved from the cover page of the Inspection Checklists to Footnote 9:

"Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home and to verify any Checklist Item designated "Rater Verified" using the RESNET-approved sampling protocol. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. For example, no items on the HVAC Commissioning Checklist are permitted to be verified using a sampling protocol."

10. ***Refinement*** **– Exhibit 1: References to certain ENERGY STAR products removed**

    Exhibit 1 defines the efficiency of, among other products, heat pumps, air conditioners, windows, and doors that are configured in the ENERGY STAR Reference Design Home. These efficiencies are not changing, however, a new more stringent specification has been finalized for ENERGY STAR certified products of this type. Therefore, the phrase 'ENERGY STAR Certified' has been removed from references to these product types to avoid confusion.

11. ***Change*** **– Exhibit 1: Thermostat & Ductwork Section: Duct leakage limits for systems serving small spaces**

    To address the challenges that partners are experiencing for systems serving small spaces, an absolute amount of allowed duct leakage has been added to the program requirements. The current limit on total duct leakage at 'rough-in' has been revised to be the greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM. While this change only impacts the limit on total duct leakage, the current limit on leakage to outdoors has been aligned with the new limit on total duct leakage at 'rough-in' to simplify the overall policy regarding duct leakage. As a result, the duct leakage to the outdoors that shall be modeled in Exhibit 1 has been revised as follows:

    "Duct leakage to outdoors modeled at the greater of ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area or ≤ 40 CFM25."

12. ***Refinement*** **– Exhibit 2: Updated Terminology For Mandatory Requirements**

    As part of a larger effort to improve the workflow required to certify a home, the inspection checklists required to certify a home have been, in part, rearranged and renamed to improve the workflow of the certification process. Exhibit 2 has been updated to reflect the revised program documents and who is responsible for completing each of them, as follows:

Party Responsible	Mandatory Requirements
Rater	• Completion of Rater Design Review Checklist • Completion of Rater Field Checklist
HVAC System Designer	• Completion of HVAC Design Report
HVAC Installing Contractor	• Completion of HVAC Commissioning Checklist
Builder	• Completion of Water Management System Builder Requirements

13. ***Refinement*** **– Footnotes 13, 15, 18, and 19: Removed**

Because the information in these Footnotes is already contained in the Inspection Checklists, or is already part of a standard HERS rating, they have been deleted to streamline this document.

14. ***Change*** **– Exhibit 7: Addition of Northern Mariana Islands and U.S. Virgin Islands**

    Because the Guam, Hawaii, and Puerto Rico Program Requirements are now applicable to the Northern Mariana Islands and the U.S. Virgin Islands, Exhibit 4 has been modified to clarify the implementation schedule for these locations as follows:

    Exhibit 4: ENERGY STAR Certified Homes Implementation Timeline for the Tropics

State or Territory	Version	Applicable to Homes with the Following Permit Date	Version Description
NMI & USVI	Version 3	On or after 07/01/2016	ENERGY STAR Program Requirements for the Tropics, Version 3, fully enforced.

15. ***Change*** – **Use of National Checklists in Tropics**

    To provide partners with more flexibility while not impacting overall programmatic goals, the use of the inspection checklists from the National Program Requirements in lieu of those for the Tropics is now permitted in cases where the dwelling unit includes a split air conditioner, unitary air conditioner, air-source heat pump, or water-source (i.e., geothermal) heat pump up to 65 kBtuh with a forced-air distribution system (i.e., ducts).

    To reflect this change, a new Footnote has been added as follows:

    "A home with a split air conditioner, unitary air conditioner, air-source heat pump, or water-source (i.e., geothermal) heat pump up to 65 kBtuh with a forced-air distribution system (i.e., ducts) is permitted to complete the Rater Design Review Checklist and Rater Field Checklist for the National Program Requirements in lieu of these Checklists for the Tropics."

Inspection Checklists

16. ***Refinement*** **– Cover Page - Relocation of Content**

    As part of a larger effort to reduce the amount of paperwork required to certify a home, the cover page of the Inspection Checklists has been deleted and much of the content has been moved to the Program Requirements for the Tropics. Because the Inspection Checklists are often printed for each home certified, eliminating the cover page will reduce the paperwork required for each home that is certified.

    Specifically, the following paragraphs have been moved from the cover page of the Inspection Checklists to Step 4 of the Performance Path section of the Program Requirements for the Tropics:

    "The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC System Design Report.

    The Rater must review all items on the Rater checklists. Raters are expected to use their experience and discretion to verify that the overall intent of each inspection checklist item has been met (i.e., identifying major defects that undermine the intent of the checklist item versus identifying minor defects that the Rater may deem acceptable).

    In the event that a Rater finds an item that is inconsistent with the intent of the checklists, 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.

    In the event that a Rater is not able to determine whether an item is consistent with the intent (e.g., an alternative method of meeting a checklist requirement has been proposed), then the Rater shall consult their Provider. If the Provider also cannot make this determination, then the Rater or Provider shall report the issue to EPA prior to project completion at: energystarhomes@energystar.gov and will typically receive an initial response within 5 business days. If EPA believes the current program requirements are sufficiently clear to determine whether the intent has been met, then this guidance will be provided to the partner and enforced beginning with the house in

question. In contrast, if EPA believes the program requirements require revisions to make the intent clear, then this guidance will be provided to the partner but only enforced for homes permitted after a specified transition period after the release of the revised guidelines, typically 60 days in length.

This process will allow EPA to make formal policy decisions as partner questions arise and to disseminate these policy decisions through the periodic release of revised program documents to ensure consistent application of the program guidelines."

Additionally, the following language about sampling protocols has been moved from the cover page of the Inspection Checklists to Footnote 9 of the Program Requirements:

"Raters who operate under a Sampling Provider are permitted to verify any item designated "Rater Verified" using the RESNET-approved sampling. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. For example, no items on the HVAC System Commissioning Contractor Checklist are permitted to be verified using a sampling protocol."

Thermal Comfort System Rater Checklist for the Tropics

17. ***Change*** **- Transition to Rater Design Review Checklist and Rater Field Checklist**

    As part of a larger effort to reduce the amount of paperwork required to certify a home and to better align the workflow for certification with that of a HERS rating, the requirements from this Checklist have been migrated to two new program documents - the Rater Design Review Checklist and the Rater Field Checklist.

    The Rater Design Review Checklist contains the Items from the Thermal Comfort System Rater Checklist that can be completed at the design stage, prior to the start of construction, and the Rater Field Checklist contains the Items that must be completed in the field.

    For more information on the transition from the HVAC System Quality Installation Contractor Checklist, HVAC System Quality Installation Rater Checklist, and the Water Management System Builder Checklist to the Rater Design Review Checklist, Rater Field Checklist, HVAC Design Report, HVAC Commissioning Checklist, and Water Management System Builder Requirements see the National Revision 08 Tracking Document.

18. ***Refinement*** **– Item 1.3.1: Projection factor sign correction**

    To correct the projection factor sign written inadvertently as "≤", this Item has been revised to read:

    "South-facing windows shall have an overhang with a projection factor ≥ 1.0 and all other windows shall have an overhang with a projection factor ≥ 0.6, OR;"

19. ***Change*** **– Footnote 4: Simplification of wing wall requirements**

    Because some homes cannot be configured with wing walls on the windward side, the requirement to locate wing walls on the windward side of the home in Item 1.2.3 has been made a recommendation rather than a requirement. Footnote 4 has been revised to clarify this:

    "Where wing walls are included in the building design for ventilation purposes, they shall be placed between windows to create a high-pressure and a low-pressure zone on each window. Wing walls shall extend from the bottom to the top of the window and extend outward from the building a distance at least equal to one-half the width of the window. Additionally, it is recommended but not required that the wing wall be located on the windward side of the building."

HERS Index Target Procedure for National Program Requirements

20. ***Refinement*** **– Step 1a: No longer referencing Prescriptive Path**

    Because the option to use the Prescriptive Path has been removed, Step 1a's reference to the "minimum requirements of the Prescriptive Path" has been updated to "Exhibit 1 of the Program Requirements for the Tropics".

21. ***Clarification*** **– Exhibit 2: Configuration of thermal boundary in basements**

    To clarify how to configure the location of the foundation insulation in the ENERGY STAR Reference Design home for a home with a basement, a Footnote has been added to the Insulation sub-section of the Foundation Section and the Floors Over Unconditioned Spaces Section of Exhibit 2 as follows:

"If software allows the user to specify the thermal boundary location independent of the conditioned space boundary in the basement of the rated home, then the thermal boundary of the ENERGY STAR Reference Design shall be aligned with this boundary. For example, if the thermal boundary is located at the walls, then the wall insulation shall be configured as if it was a conditioned basement. If the thermal boundary is located at the floor above the basement, then the floor insulation shall be configured as if it was a floor over an unconditioned space."

22. ***Clarification*** **– Exhibit 2: Heating & cooling equipment configuration when Rated Home has neither**

    To clarify how to configure the heating equipment efficiency in the ENERGY STAR Reference Design for Rated homes without heating equipment, a new Footnote has been added to the System Type subsection of the Heating Systems Section of Exhibit 2 as follows:

    "For a Rated Home without a heating system, the ENERGY STAR Reference Design Home shall be configured with a 78% AFUE gas furnace system, unless the Rated home has no access to natural gas or fossil fuel delivery. In such cases, the ENERGY STAR Reference Design Home shall be configured with a 7.7 HSPF air-source heat pump."

    To clarify how to configure the cooling equipment efficiency in the ENERGY STAR Reference Design for rated homes without cooling equipment, a new Footnote has been added to the System Type subsection of the Cooling System Sections of Exhibit 2 as follows:

    "For a Rated Home without a cooling system, the ENERGY STAR Reference Design Home shall be configured with a 13 SEER electric air conditioner."

23. ***Change*** **– Exhibit 2: Expanded ENERGY STAR Reference Design Definition - Duct leakage limits for systems serving small spaces**

    To address the challenges that partners are experiencing for systems serving small spaces, the limit on total duct leakage at 'rough-in' has been revised to be the greater of ≤ 4 CFM25 per 100 sq. ft. of CFA or ≤ 40 CFM on the HVAC System Quality Installation Rater Checklist. While this change only impacts the limit on total duct leakage, the limit on leakage to outdoors has been aligned with the new limit on total duct leakage at 'rough-in' to simplify the overall policy regarding duct leakage As a result, the duct leakage to the outside that shall be modeled in the Thermal Distribution Systems section of Exhibit 2 has been revised as follows:

    "Duct leakage to outside: the greater of ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area or ≤ 40 CFM25."

24. ***Change*** **– Thermal Distribution Systems Section: Duct location for multifamily dwelling units**

    To eliminate any ambiguity surrounding the duct location configuration in the reference design for multifamily dwelling units, the 'Supply and Return Duct Locations:' sub-header in the Thermal Distribution Systems Section has been modified to read "Supply and Return Duct Locations shall be configured according to the table below or, if Rated home does not meet any of the conditions below (e.g., multifamily dwelling unit with conditioned unit below), then duct locations shall be configured to be 100% in attic space."

25. ***Change*** **– Exhibit 2: Quantity of ceiling fans**

    To clarify that the quantity of ceiling fans in the ENEGY STAR Reference Design home shall equal the number of bedrooms plus one when ceiling fans are present in the Rated home, and shall otherwise be zero, the Ceiling Fan row of the Lighting, Appliances, & Internal Gains Section of Exhibit 2 has been revised as follows:

    "Ceiling Fan: 122 CFM per Watt; Quantity = Number of bedrooms + 1 when ceiling fans present in the Rated Home; otherwise Quantity = 0"